GPSMAP 196

Pilot's Guide & Reference

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Preface

Thank you for purchasing the Garmin GPSMAP 196—the result of our continuing efforts to provide quality, user-friendly navigation systems for all your needs. To get the most from your new GPS receiver, be sure to read the Quick Start Guide first to get acquainted with the basic features. Use this Pilot's Guide as a reference manual, to provide additional information on unit features and operation as needed.

Detailed descriptions are provided for each feature on the GPSMAP 196, with operation of these features described in simple step-by-step format. This manual is organized by topic—beginning with the basic operation and the main pages (screens), and continuing with database information, navigation and unit setting to customize the GPSMAP 196 to your preferences. Use the "How To" Index and/or Table of Contents to quickly select the reference topic you wish to explore. If you don't find the item you're searching for there, a full subject index is provided at the back of this Pilot's Guide.

Packing List

Your GPSMAP 196 package includes the GPSMAP 196 unit, detachable antenna, yoke mount, dash mount, PC interface cable, cigarette lighter adapter, this owner's manual and a quick start guide. If any parts are missing, please contact your Garmin dealer immediately.

Product Registration and Support

Help us better support you by completing our on-line registration today! Have the serial number of your GPSMAP 196 handy and connect to our website (*www.garmin.com*). Look for the Product Registration link on the Home page. Also, be sure to record your serial number in the area provided on page iv of this manual.

Why should you register you Garmin GPS unit?

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

If you have any questions, Garmin's Product Support department can be reached Monday through Friday, 8 a.m. to 5 p.m. Central Standard Time, by phone at **1-800-800-1020**, or by email at **sales@garmin.com**.

About this Manual / Packing List / Product Registration

The GPSMAP 196 uses GPS technology in order to find your precise location. GPS stands for Global Positioning System, a group of 24 satellites, circling the Earth twice a day, at an altitude of about 12,000 miles. The satellites transmit very low power radio signals containing position and time information, allowing anyone with a GPS receiver to determine their location on the Earth within 100 meters or better. For more detailed information regarding GPS, we have prepared a booklet called "GPS Guide for Beginners" which is available to you from our web site at www.garmin.com.

Cautions and Warnings

***CAUTION**: Use the GPSMAP 196 at your own risk. To reduce the risk of unsafe operation, carefully review and understand all aspects of this Owner's Manual—and thoroughly practice operation using the simulator mode prior to actual use. When in actual use, carefully compare indications from the GPSMAP 196 to all available navigation sources, including the information from other NAVAIDs, visual sightings, charts, etc. For safety, always resolve any discrepancies before continuing navigation.*

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

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

***CAUTION**: The Global Positioning System (GPS) is operated by the government of the United States, which is solely responsible for its accuracy and maintenance. The system is subject to changes which could affect the accuracy and performance of all GPS equipment. Although the GPSMAP 196 is a precision electronic navigation aid (NAVAID), any NAVAID can be misused or misinterpreted and, therefore, become unsafe.*

***WARNING**: The altitude calculated by the GPSMAP 196 is the geometric height above mean sea level and could vary significantly from altitude displayed by pressure altimeters in aircraft. GPS accuracy may be degraded by the U.S. Department of Defense-imposed Selective Availability (SA) program. With "SA" on, GPS altitude may be in error by several hundred feet. Never use GPS altitude for vertical navigation.*

***WARNING**: For vehicular applications, it is the sole responsibility of the owner/operator of the GPSMAP 196 to secure the GPS unit so that it will not cause damage or personal injury in the event of an accident. For automotive use, do not mount the GPSMAP 196 over airbag panels or in a place where the driver or passengers are likely to have an impact with it in an accident or collision. The mounting hardware provided by Garmin is not warranted against collision damage or the consequences therof.*

***WARNING**: For vehicular operations, it is the sole responsibility of the operator of the vehicle to operate his or her vehicle in a safe manner, maintain full surveillance of all conditions at all times, and never become distracted by the GPSMAP 196 to the exclusion of safe operating practices. It is unsafe to operate the GPSMAP 196 while driving. Failure by the operator of a vehicle equipped with a GPSMAP 196 to pay full attention to operating the vehicle while the vehicle is in motion could result in an accident.*

***CAUTION**: GPS receivers operate by receiving and decoding very low power radio signals broadcast by satellites. It is possible that in some situations other radio equipment or electronic equipment used in close proximity to a GPS receiver may create electromagnetic interference (EMI) which may affect the ability of the GPS receiver to receive and decode the satellite signals. In such event, the interference may be reduced or eliminated by switching off the source of interference or moving the GPS receiver away from it.*

FCC Compliance Statement

The GPSMAP 196 complies with Part 15 of the FCC interference limits for Class B digital devices FOR HOME OR OFFICE USE. These limits are designed to provide more reasonable protection against harmful interference in a residential installation, and are more stringent than "outdoor" requirements.

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

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

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

The GPSMAP 196 does not contain any user-serviceable parts. Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could result in permanent damage to the equipment, and void your warranty and your authority to operated this device under Part 15 regulations.

Warranty and Serial Number

Serial Number

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

Serial Number:

The Garmin GPSMAP 196 has no user-serviceable parts. Should you ever encounter a problem with your unit, please take it to an authorized Garmin dealer for repairs.

The GPSMAP 196 is fastened shut with screws. Any attempt to open the case to change or modify the unit in any way will void your warranty and may result in permanent damage to the equipment.

LIMITED WARRANTY

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

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

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

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

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

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

Software License Agreement

BY USING THE GPSMAP 196, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THE FOLLOWING SOFTWARE LICENSE AGREEMENT. PLEASE READ THIS AGREEMENT CAREFULLY.

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

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

Getting Help

As you learn to use your GPSMAP 196, you will have many questions about how different features work. Information on these features is readily available from many sources. Use the following as a general guideline to help you find the answers you seek:

- *Quick Start Guide* — *A Quick Start Guide is included with the GPSMAP 196 package to provide a brief introduction to the basic featues of the unit. The guide describes the features you will most often use.*
- *Pilot's Guide* — *This manual describes the features of the GPSMAP 196 in greater detail. Use it as a reference for additional information on a given feature.*
  To quickly find some of the main features and accompanying procedure steps that will guide you through these features, use the 'How To' Index appearing on this page.
  If you're trying to locate a particular feature or topic not appearing on this page, refer to the Table of Contents and/or the Index in the back of this manual.
- *www.garmin.com* — *The Garmin website provides information about product updates, email contact information for product support and an Adobe Acrobat version of this manual.*
- *Product Support* — *You can also contact our Product Support staff at the email address amd phone number provided on page i.*

'HOW TO' INDEX

Table of Contents

Features

*To quickly switch between operating modes, press and hold the **PAGE** key. Use the **ARROW KEYPAD** to select the desired mode and press **ENTER**. See page 7 for more information on operating modes.*

Designed for detailed electronic mapping capability, the Garmin GPSMAP 196 is a powerful navigation device suitable for use in aircraft, motor vehicles and marine vessels:

Navigating and Mapping Features

- Built-in Americas, Atlantic or Pacific Jeppesen database includes worldwide airports and VORs, plus regional NDBs, intersections, airspace boundaries, runway data and communication frequencies
- 1000 alphanumeric waypoints with selectable icons and comments
- Built-in Americas, Atlantic or Pacific basemap includes detailed ocean, river and lake coastlines, tide stations, cities, interstates, state highways, and local thoroughfares
- 50 reversible routes with up to 50 waypoints each
- Automatic turn-by-turn road routing
- Enhanced mapping available by using optional MapSource™ City Select, MetroGuide™, Road & Recreation, Topo or Fishing HotSpots™ PC products
- Coordinates: Lat/Lon, UTM/UPS, Loran TD, plus 24 grids, including Maidenhead
- TracBack route feature which allows you to quickly retrace your track log to a starting position
- Built-in simulator mode for training or at-home flight planning

Operating Mode Features

- Aviation Mode with graphic HSI and airspace warnings
- Land Mode with turn-by-turn road route, graphic RMI and turn-by-turn instructions
- Water Mode for marine navigation, with graphic RMI and reverse map shading
- Independent units of measure and map settings for each mode

The **IN** key — adjusts the map scale to show a smaller area with more detail. (Zooms in)

The **OUT** key — adjusts the map scale to show a larger area with less detail. (Zooms out)

The **PAGE** key — cycles the unit through the main display pages in sequence and returns the display from a submenu page. Press and hold to select between Aviation, Land and Water modes.

The **QUIT** key — cycles the unit through the main display pages in a reverse sequence, restores the previous value in a data entry field, or cancels an unintended function.

The **ENTER** key — selects a highlighted menu option. When entering data, allows you to initiate entry, and then to accept the selected value(s). Press and hold to mark the current location as a user-created waypoint.

The **MENU** key — displays a menu of available options for the current page. Pressing the MENU key twice will display the Main Menu.

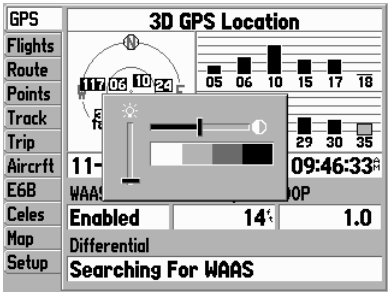
The **NRST/FIND** key — displays the nearest airports, navaids, points of communication and airspace boundaries in Aviation Mode. In other modes (or when pressed multiple times in Aviation Mode), displays the Find Menu to select Points of Interest, Addresses, user-created waypoints, Cities and more for review or as a destination. Points of Interest and Address information are provided from optional MapSource City Select or MetroGuide CDs.

The **D►** (Direct To) key — allows you to retrieve airports, navaids, recently used waypoints or user-created waypoints as a 'Goto' destination. Press and hold to display additional information for the current destination (such as communication frequency and runway data).

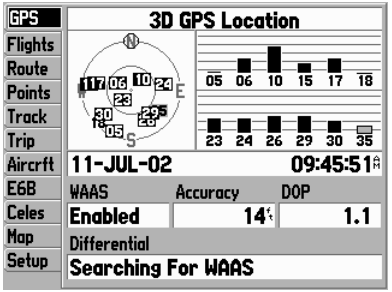
The **POWER** key — is used to turn the unit on and off, to activate the backlight and to adjust screen contrast.

The **ARROW KEYPAD** — controls movement of the on-screen cursor (highlight), pans the Map Page, selects options and allows you to enter data (such as airport identifiers).

Keypad Usage



*With the GPSMAP 196 on, press the red **POWER** key to display a settings window for backlighting and screen contrast.*

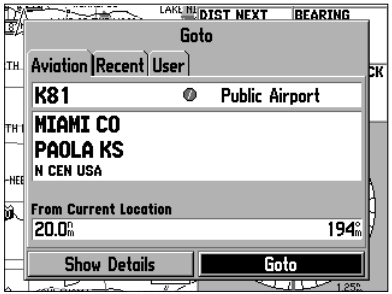


*Press the **MENU** key twice to display the Main Menu.*

Features / Data Entry

Example of on-screen cursor and data entry.

1. *Use the **ARROW KEYPAD** to place the cursor on the waypoint name field.*
2. *Press **ENTER**.*
3. *Press RIGHT on the **ARROW KEYPAD** to move to the second character. Then UP/DOWN on the **ARROW KEYPAD** to select the desired character.*
4. *Press RIGHT on the **ARROW KEYPAD** to move to the third character. Then UP/DOWN to select the desired character.*
5. *Press **ENTER** to complete data entry.*



*Example of cursor and on-screen button. The cursor is highlighting the on-screen 'Goto' button. Press **ENTER** to select.*

The following features and data entry procedures are referred to throughout this manual.

CURSOR— A highlighted area on the screen (white text on black background) which can be moved up/down/left/right with the **ARROW KEYPAD** to select individual fields on the display. Moving the cursor to a given location allows you to begin data entry or scroll through a list.

FIELD— The location on a page (such as "waypoint name field", shown at left) where a group of characters or an option is entered and displayed. The cursor is placed on a field (using the **ARROW KEYPAD**) to begin data entry or selection of options.

To enter data in a data field:

1. Use the **ARROW KEYPAD** to highlight the desired data field.
2. Press **ENTER** to begin data entry.
3. Use the **ARROW KEYPAD** to enter the desired data. UP/DOWN to select the desired character and RIGHT to move to the next character field. LEFT allows you to back up to the previous character field or, when at the leftmost character field, to clear the entire data field.
4. Once the desired data has been entered, press **ENTER** to confirm.

ON-SCREEN BUTTON— Similar to "Field". Place the cursor on a button and press **ENTER** to select the action corresponding to that button. An example of an on-screen button is the "GOTO" button appearing at the bottom of the waypoint information pages.

SCROLL BAR— When viewing a list of items too long to display on a single page, a scroll bar will appear along the right-hand side of the list. The position of the scroll bar indicates which portion of the list is currently being displayed. The height of the scroll bar indicates the number of items in the list.

To scroll through a list of items, use the UP/DOWN portion of the ARROW KEYPAD.

DEFAULT— A system-selected format, built into the operating software or the unit's memory, that will be followed unless the user chooses a different setting. For example, the default setting for speed readings (in Aviation Mode) is 'knots', but can be changed to 'miles per hour' or 'kilometers per hour'. Once a setting is changed, the new setting is retained until another change is made or a 'Restore Defaults' menu option is selected.

To turn the GPSMAP 196 on, press and hold the RED POWER KEY.

A Welcome Page will appear while the unit conducts a self test. Once testing is complete, the Welcome Page is replaced by a Database Page. The Database Page shows the effective dates for the Jeppesen database and a warning that the GPSMAP 196 is for VFR use only.

Press ENTER to acknowledge the Database Page.

The Satellite Status Page will appear as the GPSMAP 196 looks for available satellites. The GPSMAP 196 continuously collects and stores "almanac" data when it receives a satellite(s). Almanac data tells the GPS receiver where to look for each GPS satellite in the constellation. Each time you turn the GPSMAP 196 on, it will use this almanac data—along with last known position, date and time—to determine which satellites should be in view.

A minimum of three satellites is required for a two-dimensional position fix (2D Navigation), whereas at least four satellites are necessary for a three-dimensional position (3D Navigation). A three-dimensional position includes latitude, longitude and altitude. Additional satellites are occasionally needed to triangulate your position and, even if not needed to determine a position, additional satellites will also improve position accuracy.

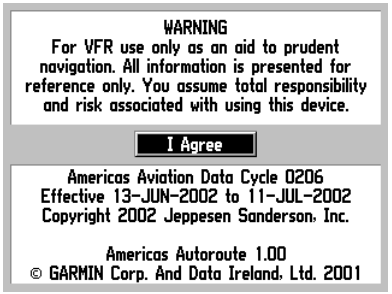
During normal use, expect a position fix in 30-45 seconds. Once a sufficient number of satellites are received, the GPSMAP 196 will automatically transition from the Satellite Status Page to the Map Page. Your position will appear on the map and, once you select a destination, the GPSMAP 196 will be ready to help you navigate.

If you press any keys while the unit is acquiring satellites, the automatic sequencing from Satellite Status Page to Map Page will not occur.

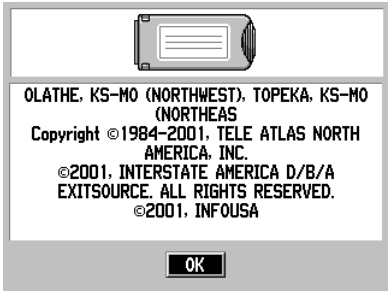
At the end of the day, when you're finished using the GPSMAP 196, the same **RED POWER KEY** that you use to turn the unit on also turns the unit off.

To turn the GPSMAP 196 off, press and hold the RED POWER KEY.

Turning the Unit On/Off

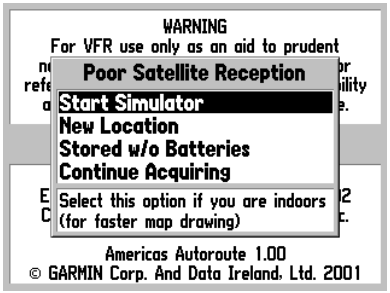


After the initial Welcome Page, the Database Page appears indicating the database coverage area and effective dates.



An additional page will appear in the start up sequence when an optional data card and MapSource data are installed.

Initializing the GPS Receiver



If satellites are NOT received after several minutes of operation, the 'Poor Satellite Reception' window will appear. Select 'New Location' to update your current position (from last known) or 'Continue Acquiring' to keep searching.

Initialization Options

If the GPSMAP 196 is unable to determine its location, an options menu will be displayed. Depending on the situation, select the appropriate option to help the unit acquire satellites.

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

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

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

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

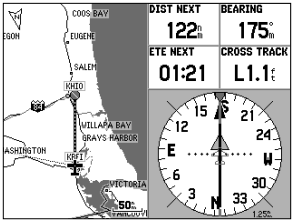
For more information on the GPS information screen see page 59.

The GPSMAP 196 features four main pages which are linked together, in series. You can quickly cycle through these main pages—in either direction—using the **PAGE** and **QUIT** keys. Each of these main pages is described in greater detail on the following pages.

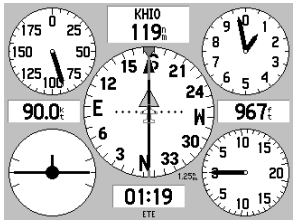
To display the next page in the sequence, press PAGE.

To display the previous page in the sequence, press QUIT.

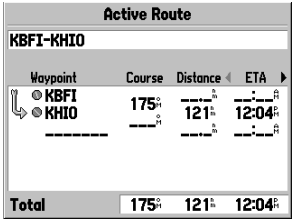
Main Page Sequence



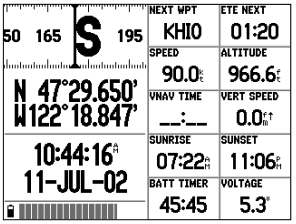
Map Page



Panel Page



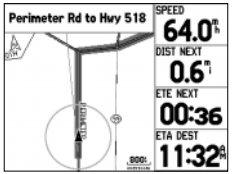
Active Route Page



Position Page

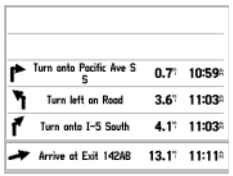
The above sequence illustrates the pages you'll see in Aviation Mode. As you become more familiar with the GPSMAP 196, you'll find that using both **PAGE** and **QUIT** allows you to quickly select the desired page. For example, to quickly jump from the Map Page to the Panel Page, press **PAGE**. To return from the Panel Page to the Map Page, press **QUIT**.

In Land Mode, the sequence of pages is slightly different:

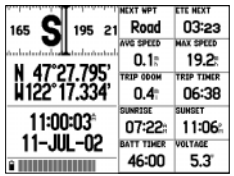


Map Page

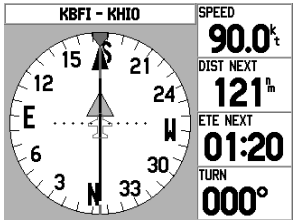
RMI Page



Current Route Page

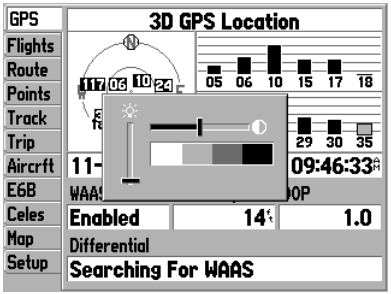


Position Page



You can select the HSI Page to appear in the main page sequence in place of the Panel Page.

Screen Backlighting / Contrast



*Press the red **POWER** key to display a pop-up window for backlighting and contrast adjustments. Use the **ARROW KEYPAD** to make the desired changes: UP/DOWN to change backlight level and LEFT/RIGHT to change screen contrast.*

The GPSMAP 196's backlighting illuminates the display and keypad for optimal visibility. There are twenty levels of screen backlighting, providing maximum flexibility. At night, you can easily turn the backlighting level down to prevent unwanted glare and distraction.

Screen contrast is adjustable as well. You may find it necessary to adjust the contrast setting as the ambient temperature changes.

Backlighting and screen contrast are adjusted using the **RED POWER KEY** and the **ARROW KEYPAD**. A pop-up window shows the current settings and the progress of any adjustments you have made.

To adjust the screen backlighting and contrast:

1. From any page, press the **RED POWER KEY** momentarily. A pop-up window will appear showing the current contrast and backlighting settings.
2. Press the UP/DOWN portion of the **ARROW KEYPAD** to change the backlighting settings. UP will increase backlight intensity; DOWN will decrease backlight intensity.
3. Press the LEFT/RIGHT portion of the **ARROW KEYPAD** to adjust screen contrast. LEFT will make screen contrast lighter; RIGHT will make screen contrast darker.
4. Press **ENTER** to accept any changes and remove the screen settings window. Alternatively, if no keys are pressed, the screen settings window will automatically be removed after five seconds.

On warmer days you may find it necessary to decrease the contrast setting for optimal screen clarity. Conversely, on cold days it may be necessary to increase the contrast setting to make screen information more legible.

Your GPSMAP 196 is designed to be flexible. The unit provides "Aviation Mode", "Land Mode" and "Water Mode" settings, allowing you to tailor many features specifically for airborne, automotive or marine applications.

In Land or Water modes, some alert messages—which would be appropriate in the cockpit—are disabled to prevent nuisance messages not applicable to the current use. Additionally, there are many settings on the GPSMAP 196 you can make on your own. For example, speed can be displayed in knots, miles per hour or kilometers per hour. The GPSMAP 196 provides the flexibility to have separate settings for each mode (and saves them in memory so you do not have to re-enter them the next time you switch between modes).

The list below describes the differences you will observe when switching between modes.

VEHICLE SYMBOL—An airplane symbol indicates your current position on the map in Aviation Mode. In Land or Water modes, a pointer symbol is used.

MAP SETTINGS—All map settings, such as level of detail, North reference (North Up, Track Up, etc.), Auto Zoom min/max limits, and text size will be saved by mode. When you switch between modes, your preference settings for each mode are retained and used for the map display.

GOTO NAVIGATION—In Aviation Mode, when a GOTO is initiated the course line (and course guidance) is fixed at the point where you started the GOTO. By contrast, in Land or Water modes, the GOTO course line is always tied to your current position and moves as you move.

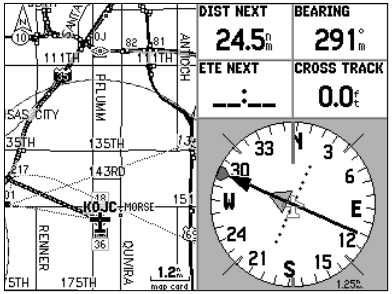
UNITS OF MEASURE—Your preferred settings for speed, altitude, distance and temperature are retained for each mode. This makes it easy to switch between, for example, miles/miles per hour in Land Mode and nautical miles/knots in Aviation and Water modes.

PAGE LAYOUT—The main pages can be custom-tailored to your preferences by changing the page layouts. You may find that you prefer different page layouts for different modes (applications) and the GPSMAP 196 will save your page layouts for each mode so they are ready the next time you select that mode.

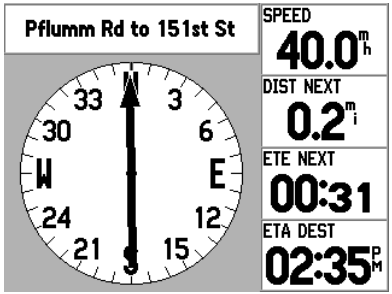
APPROACH/ARRIVAL ALARMS—Each mode allows you to configure the unit for a different application. In each of these modes you will likely be operating at significantly different speeds. For this reason, you may find it useful to have different alarm time or alarm distance settings in each mode.

RECENT LIST—A separate list of recently used destinations is kept for each operating mode.

Aviation, Land and Water Modes



Map Page and graphic HSI in Aviation Mode.



RMI Page in Land Mode.

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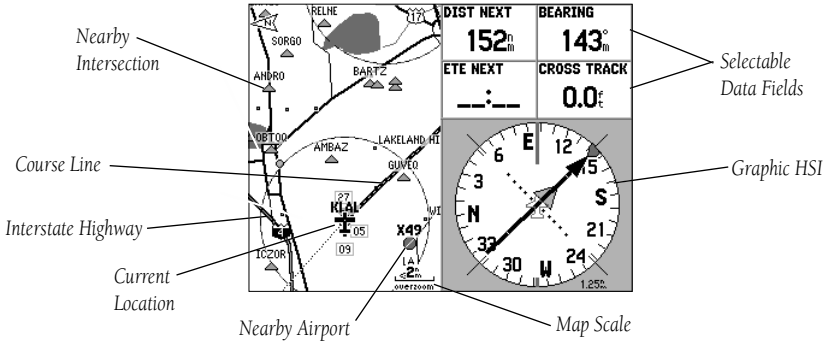


The GPSMAP 196 features a real-time moving map that can do much more than just plot your course. The Map Page displays digital cartography (map information) which includes airspace boundaries, airports, navaids, lakes, rivers, coastlines, cities and highways. An on-screen cursor lets you pan ahead to other map areas, determine distance and bearing to any map position, and retreive database information directly from the map. Dedicated zoom keys are provided for instantaneous scale adjustments.

The map portion of the page displays your present position using an aircraft symbol (in Aviation Mode) or a pointer symbol (in Land or Water modes). Your planned route appears on the map as a bold line, and your track log (which shows where you've been) appears as a series of small points. You may select which features are shown on the Map Page using the Map Page Options, described on page 14.

By default, four user-selectable data fields appear on the right-hand side of the screen—along with a graphic HSI. The HSI works much like a mechanical HSI, indicating the desired course and your deviation left/right of this course. If the needle points straight up and the course deviation needle is centered, you are heading directly to your destination. From the Map Page Options, each data field may be configured to display any one of 40 possible data options. You can also add additional data fields to the page or select a full screen map without data fields, using the Map Page Options (see page 14).

Map Page

What is it?

The Map Page graphically depicts your present position relative to nearby airports, navaids, airspace boundaries, lakes, rivers, towns and more.

How does it work?

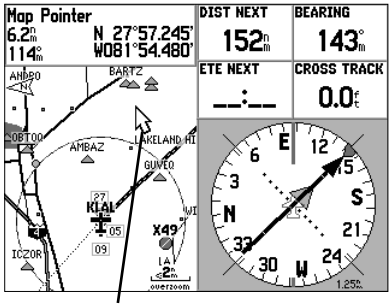
During normal use, your position remains fixed at the center of the screen, and the map information moves (scrolls) on the map as you move.

If you wish to view information outside the current area, you can either:

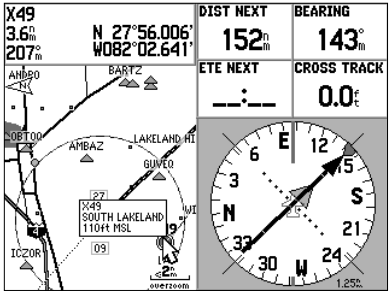
- *change the map scale using the **IN** and **OUT** zoom keys, and/or*
- *pan to the area you want to see using the **ARROW KEYPAD**.*

*(NOTE: When panning, you can return to normal map operation and re-center the map to your position by pressing **QUIT**.)*

Map Page



*Use the **ARROW KEYPAD** to pan the map. When panning a pointer appears on the map.*



*Place the pointer on a map feature to display additional information. For waypoints, airports or navaids, press **ENTER** to display a waypoint information page for the selected point.*

Map Page Operating Modes

Two basic map operating modes, position mode and panning mode, determine what information is shown on the map display. Position mode pans the map to keep the present position symbol centered in the display area, and is the normal mode of operation when viewing the Map Page. Panning mode pans the map to keep the pointer within the display area, and is used to view map information outside your current area (without changing scales), measuring distance to map features from your current position or for retrieving database information from the map. The GPSMAP 196 will always power up in the position mode, with the last known location centered on the map display. With the Map Page displayed, pressing the **ARROW KEYPAD** will activate panning mode.

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

Using Panning Mode and the Pointer

The pointer allows you to pan away from your present position and scroll to other map areas around the world. As you pan past the edge of the current map display, the screen will actively scroll forward to provide continuous map coverage. (Keep in mind that the present position symbol moves with the scrolling map, and may not be visible on the display screen.)

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

To move the pointer:

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

As you move the pointer, the distance and bearing from your present position to the pointer will be displayed in the data window, along with the cursor's position coordinates. In panning mode, zooming in or out will center the pointer on the screen. When the pointer is stationary, a fixed coordinate position will appear in the position field, and the distance and bearing from your present position will change as your vehicle moves.

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

1. Press the **QUIT** key. The unit will return to position mode and the present position symbol will appear centered on the map.

The cursor may also be used to 'snap' to on-screen waypoints and map items. When a waypoint name is highlighted, you can review information about the waypoint, list waypoint options, or execute a GOTO right from the Map Page.

To select an on-screen airport, navaid or map item with the cursor:

1. Use the **ARROW KEYPAD** to move the cursor to the desired waypoint or map item (if there are several waypoints grouped closely together, zoom in closer for a better view).
2. When a waypoint or map item is selected, it will become highlighted on screen, with the name and position displayed at the top of the screen.
3. To view additional details, press **ENTER**. If the item is an airport, file tabs will appear across the top of the page. This allows you to quickly review field elevation, runway layout, communication frequencies and available approaches. (Multiple file tabs will also appear if more than one object appears on the map at the pointer location.) To save a map item as a waypoint, press **MENU** and select 'Create Waypoint'.

To GOTO an on-screen airport, navaid or map item:

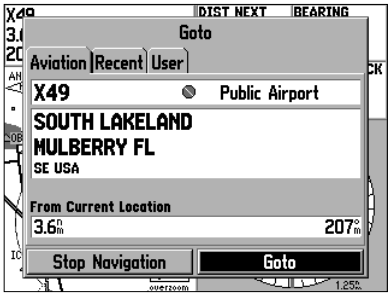
1. Follow steps 1 through 3 above to display additional details for the on-screen item.
2. Use the **ARROW KEYPAD** to highlight the 'GOTO' button at the bottom of the screen. With this button highlighted, press **ENTER**.

The cursor may also be used to create a new waypoint directly from the map. If nothing currently exists at the map pointer position, a new waypoint will be created at the cursor's location.

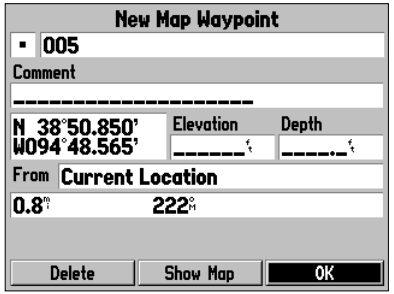
To create a waypoint with the cursor on an open map location:

1. Use the **ARROW KEYPAD** to move the cursor to the desired map position.
2. Press and quickly release the **ENTER/MARK** key to capture the cursor location (Pressing and holding the **ENTER/MARK** key will capture the current location, not the cursor's location).
3. The 'New Map Waypoint' window will appear. With 'OK' highlighted, press **ENTER** to confirm the new waypoint using the default three-digit name and symbol. (You can also change the waypoint name and symbol as described on page 48.)

Map Page

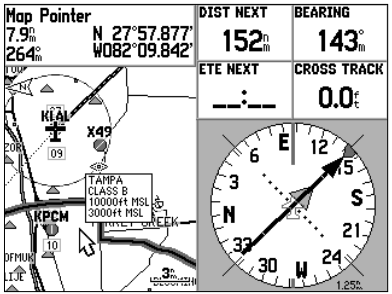


*With the pointer on a map feature, press the **DIRECT TO** key (then **ENTER**) to navigate to that point.*



Creating a New Map Waypoint

Map Page



When the pointer is placed inside an airspace boundary, the boundary is highlighted and a text box appears. The text box indicates airspace type and floor/ceiling limits. Press ***ENTER*** *to display additional airspace information.*

Map scale info appearing at the bottom of the page:

3m

Using Built-In Basemap

2m
map card

Using MapSource Data

2m
overzoom

Overzoom, no additional data

Airspace Information

Cursor mode may also be used to retrieve information on airspaces depicted on the map. Once the panning pointer is placed on an open area within an airspace, the entire airspace (or airspace sector) is highlighted. A text box adjacent to the panning pointer will indicate the airspace type and floor/ceiling limits. Additional information, including communication frequencies, is available from an information page.

To retrieve airspace information from the Map Page:

1. Use the **ARROW KEYPAD** to select an open area within the desired airspace's boundary. The boundary line is highlighted and a window appears showing airspace type and floor/ceiling limits.
2. To display additional information, such as controlling agency, press **ENTER**. Communication frequencies may then be displayed by highlighting the on-screen "Frequencies" button and pressing **ENTER**. Or, with the on-screen "OK" button highlighted, press **ENTER** to return to the Map Page.

Selecting Map Scales

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

To select a map scale:

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

The scale value represents the distance from one end of the scale bar to the other, not across the entire screen.

The GPSMAP 196 has a built-in worldwide map displaying detail to a 20 mile scale. More detailed coverage is available through the use of optional MapSource CD-ROM data. The GPSMAP 196 will display cartography as long as there is map information available for the range you've selected.

Map coverage will conform to the following conditions:

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

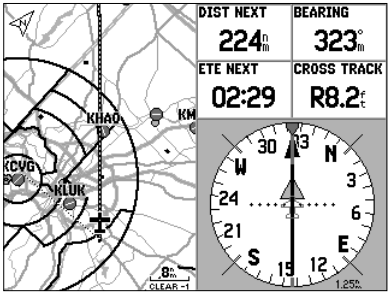
Easy Screen Decluttering

You can select the desired level of map detail using the 'Setup Map' option described on the following page. You may, however, wish to temporarily remove some map detail in congested areas without making any changes to the map settings. There are four declutter settings which will display everything, remove the background detail (lakes/rivers/highways), remove airspace boundaries, and—at the highest declutter level—remove all map detail except those waypoints which are part of your selected route. Map decluttering is selected with the **ENTER** key, and only works in Position Mode (see next page for decluttering in Cursor Mode).

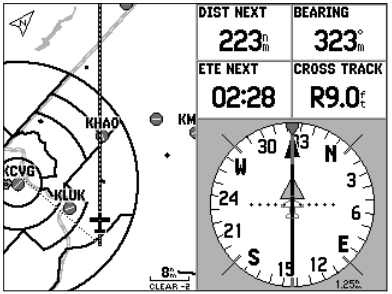
To quickly declutter the Map Page (Aviation Mode only):

1. Press **ENTER**. Background detail—including highways, cities, rivers & smaller lakes—is displayed in gray (de-emphasized) on the map to make the aviation data easier to read. This declutter setting is identified by 'CLEAR-1' appearing below the map scale.
2. Press **ENTER** again. The above background map detail is removed from the map display. 'CLEAR-2' appears below the map scale.
3. Press **ENTER** again. Airspace boundary detail is removed from the map display. 'CLEAR-3' appears below the map scale.
4. Press **ENTER** again. Only the waypoints/navaids which are part of the current GOTO or route appear on the map display. 'CLEAR-4' appears below the map scale.
5. Press **ENTER** again to return ALL detail to the map display.

Map Page

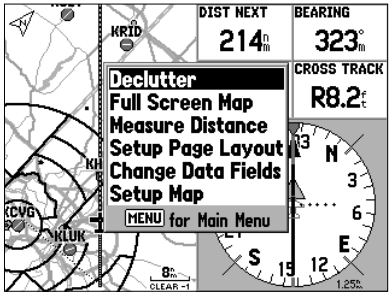


First declutter level with background (basemap) detail in gray.



Second declutter level with background detail off. Note the 'Clear-2' declutter indication below the map scale.

Map Page Options



*With the Map Page displayed, press **MENU** to display context-sensitive options for this page. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*

Many features of the GPSMAP 196 are menu driven. Each of the main pages has an options menu, allowing you to custom tailor the corresponding page to your preferences and/or select special features that specifically relate to that page. The data window, located at the right side of the display, provides a user-selectable layout of various types of useful data. Each data field may be configured to display any one of several data options. The data window layout may also be customized to change the actual size of the data displayed. The GPSMAP 196's Map Page options menu provides access to functions and features relating to the Map Page and options for layout of the page.

To display the Map Page options, press MENU (with the Map Page displayed).

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- Declutter/Declutter Off
- Full Screen Map/Show Data Fields
- Measure Distance
- Setup Page Layout
- Change Data Fields
- Setup Map
- Hide Directions/Show Directions (land mode only)

- **Declutter/Declutter Off—** provides the same screen decluttering capability as described on page 13. The current declutter setting is indicated directly below the map scale. This option is useful when in Cursor Mode, as the **ENTER** key in cursor mode is used to display database information or create a new waypoint.

  To select a declutter setting:

  1. Highlight the 'Declutter' (or 'Declutter Off') option and press **ENTER**. Note the declutter setting, as indicated directly below the map scale.

- **Full Screen Map/Show Data Fields—** toggles between a full screen map without data fields, or a map with data fields on the right-hand side of the page.

  To maximize the map/show data fields:

  1. Highlight the 'Full Screen Map' option and press **ENTER**. The Map Page will now be maximized with no data fields. OR,
  1. Highlight the 'Show Data Fields' option and press **ENTER**. The Map Page will display the map with data fields along the right-hand side of the page.

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

  To measure the Bearing/Distance between two points:

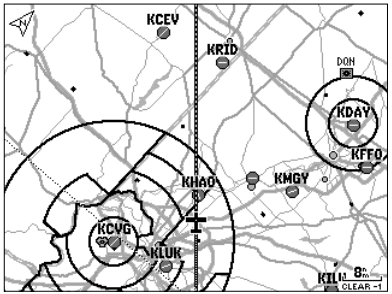
  1. Highlight the 'Measure Distance' option and press **ENTER**. An on-screen pointer will appear on the map display at your present position with 'ENT REF' below it.
  2. Move the cursor to the desired reference point (the point that you want to measure from) and press **ENTER**.
  3. Move the cursor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

- **Setup Page Layout—** provides Map Page display options for four large-text data fields, ten smaller-text data fields or four data fields with an HSI (or RMI in Land/Water modes).

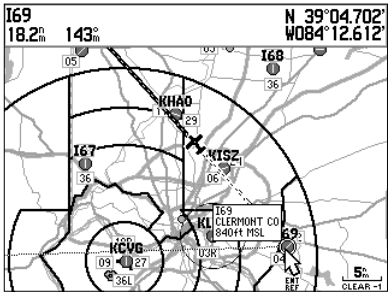
  To setup the page layout:

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

Map Page Options

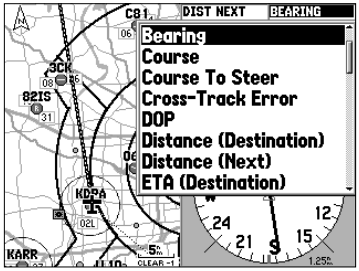


The 'Full Screen' option displays a full screen map without the data fields or graphic HSI.

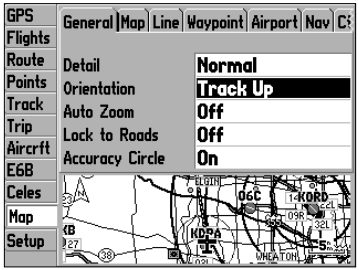


Use the 'Measure Distance' option to measure distance between two points. Bearing and distance appears at the top of the page.

Map Page Setup Options



*Select 'Change Data Fields', highlight the field you wish to change and press **ENTER** to diplay a list of available data types.*



*Selecting 'Setup Map' places you on the 'Map' tab of the Main Menu. From there, use the **ARROW KEYPAD** to select the desired map setup tab across the top of the page.*

- **Change Data Fields—** allows you to specify the type of data displayed in each data field appearing on the Map Page. There are over forty different data options including: altitude, bearing, course, distance, ETA, ETE, speed, track and a pointer. You can review the complete list on the GPSMAP 196, and refer to Appendix D for definitions of each data field term.

  To change a data field:

  1. Use the **ARROW KEYPAD** to highlight the 'Change Data Fields' option and press **ENTER**.
  2. Move the field highlight to the data field you want to change and press **ENTER**.
  3. Move up or down on the list using the **ARROW KEYPAD** to highlight the data you want to display, and press **ENTER** to select. To exit, press **QUIT**.

- **Setup Map—** jumps to the Map tab of the Main Menu, allowing you to configure the map display to your preferences. Settings include map detail, map orientation, auto zoom, text size and maximum scale for each map item to appear. The 'Auto' setting available for many map items allows you to control all map features globally using the 'Detail' setting (see below). The map setup options are organized under a series of 'file tabs' which appear at the top of the page. The file tabs make individual selections easier to locate and change.

  To change a map setup feature:

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

The following table lists the file tabs and the settings available under each tab:

General Tab

Detail— Most, More, Normal, Less, Least: controls how much map detail you will see. This setting only applies to map features set to 'Auto'. Those features which have a specified maximum scale or are turned 'Off' will not be affected by this setting.

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

Auto Zoom— On/Off: when 'On' the map will automatically adjust the map scale as you approach your destination. Auto Zoom attempts to zoom in/out to the next step when it can still display your location and the destination at the next higher/lower scale setting.

Accuracy Circle/Lock to Roads— On/Off: toggles the accuracy circle or lock to road feature 'On' and 'Off'. The accuracy circle represents the approximate position accuracy of the unit based on satellite conditions. Your position will be within the circle. The lock to roads feature is used with MapSource MetroGuide or City Select data and locks your present position icon to the nearest road.

Map Tab

Aviation Data— On/Off: turns all Jeppesen data (airports, navaids and airspace boundaries) on or off.

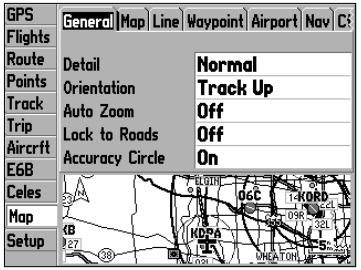
Basemap— On/Off: turns the built-in basemap (cities, highways, lakes and rivers) on or off.

Lat/Lon Grid— Off, Auto, 20 ft.-800 mi: sets the maximum scale at which latitude/longitude grid lines will appear on the screen or shuts the feature off.

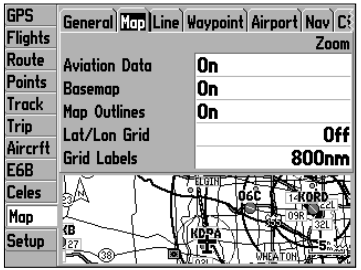
Grid Labels— Off, Auto, 20 ft.-800 mi: sets the maximum scale at which labels for latitude/longitude grid lines will appear on the map.

Map Outlines— On/Off: toggles the coverage boxes for optional MapSource map data 'On' and 'Off'. The map outlines allow you to easily identify the area of coverage for any MapSource map data shown on the map display.

Map Page Setup Options

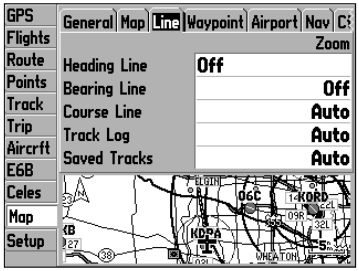


The 'General' Tab includes settings for level of detail and for map orientation. 'Track Up' orientation will rotate the map to keep the top aligned to your current direction of travel (track).

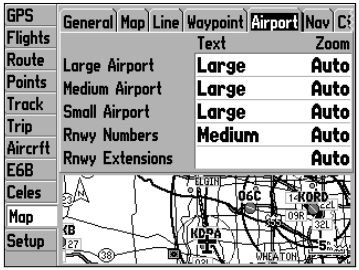


From the 'Map' Tab, you can use the 'Basemap' setting to turn On/Off the background map. 'Map Outlines' will show the boundaries of any optional MapSource data.

Map Page Options



Use the 'Line' tab to remove/display the active track log or any saved track logs.



The 'Airport' tab lets you display runway numbers and/or runway extensions, or turn these map features off.

Line Tab

Heading Line— On/Off: turns the Heading Line on or off. A Heading Line is a projected line from your current position which shows your current heading.

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

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

Track Log— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which the active Track Log appears on the screen. A track log is an electronic bread crumb trail showing where you have been.

Saved Tracks— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which any saved Track Logs will appear on the screen.

Waypoint Tab

Waypoints— Text Off, Small, Medium, and Large: controls the screen size of the waypoint name. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which user waypoints appear on the screen.

Active Route— Text Off, Small, Medium, and Large: controls the screen size of active route waypoint names. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which active route waypoints appear on the screen.

Airport Tab

Large/Medium/Small Airport— Text Off, Small, Medium, and Large: controls the screen size of the airport identifier. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which airports appear on the screen. Large airports are those with a runway longer than 8000'. Medium airports are those with a runway longer than 5000' or with a control tower.

Runway Numbers— Text Off, Small, Medium, and Large: controls the screen size of runway numbers. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which runway numbers appear on the screen.

Rnwy Extensions— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which runway extensions appear on the screen.

Nav Tab

VOR— Text Off, Small, Medium, and Large: controls the screen size of the VOR identifier. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which VORs appear on the screen.

NDB— Text Off, Small, Medium, and Large: controls the screen size of the NDB identifier. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which NDBs appear on the screen.

Intersection— Text Off, Small, Medium, and Large: controls the screen size of the intersection name. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which intersections appear on the screen.

Ctrl Tab

Class B, CTA— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which Class B or CTA airspace appears on the screen.

Class C, TMA— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which Class C or TMA airspace appears on the screen.

Towers, Cntrl Zone— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which Tower or Control Zone (Class D) airspace appears on the screen.

SUA Tab

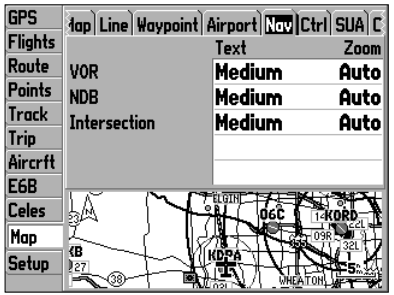
Restricted Areas— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which restricted airspace appears on the screen.

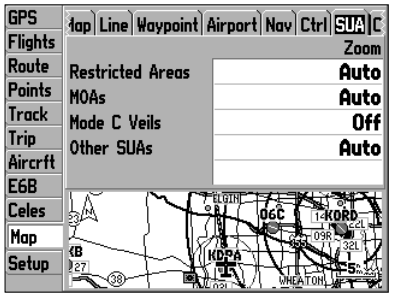
MOAs— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which military operation areas appear on the screen.

Mode C Veils— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which Mode C veils appear on the screen.

Other SUAs— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which other airspace categories appear on the screen. 'Other SUAs' includes training, caution, danger, warning and alert areas.

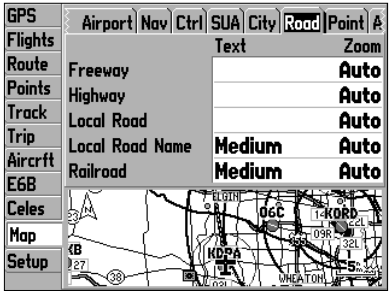
Map Page Options



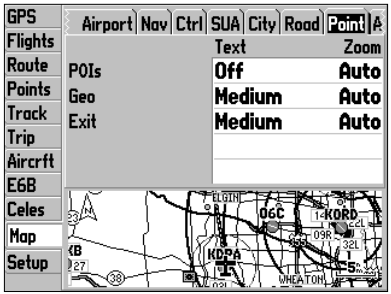


Use the 'Nav', 'Ctrl' and 'SUA' tabs to define how navaids and airspace boundaries will appear on the map display. The 'Text' setting determines the size of navaid names. 'Zoom' defines the maximum scale at which the feature will appear.

Map Page Options



Use the 'Road' tab to define how interstate highways, state highways, local roads and railways will appear on the map.



The 'Point' tab includes settings for optional MapSource points of interest (POIs) and geographic points (Geo).

City Tab

Large/Medium/Small City— Text Off, Small, Medium, and Large: controls the screen size of the city names. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which cities appear on the screen. Large cities are those with approximate populations greater than 200,000 and medium cities are those with approximate populations over 50,000.

Small Town— Text Off, Small, Medium, and Large: controls the screen size of the town names. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which towns appear on the screen. Small towns have approximate populations under 5,000 or an unknown population size.

Road Tab

Freeway/Highway/Local Road— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which each roadway category appears on the screen.

Local Road Name— Text Off, Small, Medium, and Large: controls the screen size of local road names. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which local road names appear on the screen.

Railroad— Text Off, Small, Medium, and Large: controls the screen size of railway names. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which railway lines appear on the screen.

Point Tab

POIs— Text Off, Small, Medium, and Large: controls the screen size of MapSource points of interest names. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which MapSource points of interest appear on the screen. Optional MapSource POI information can include food, lodging, attractions, entertainment, shopping and services.

Geo— Text Off, Small, Medium, and Large: controls the screen size of geographic point names. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which geographic points appear on the screen. Optional MapSource geographic points include peaks, cemeteries, dams, marinas, boat ramps and golf courses.

Exit— Text Off, Small, Medium, and Large: controls the screen size of interstate highway exit names or numbers. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which interstate highway exits appear on the screen.

Area Tab

River/Lake/Park/Other— Text Off, Small, Medium, and Large: controls the screen size of river, lake, park or other area names. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which rivers, lakes, parks or other areas appear on the screen. 'Other' areas include wetlands, glaciers, parking lots, university campuses and reservations.

Metro— Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which metropolitan areas appear on the screen.

Topo Tab

Major/Inter/Minor Contour— Text Off, Small, Medium, and Large: controls the screen size of contour line elevation numbers. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which contour lines appear on the screen.

Land Cover— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which land cover areas appear on the screen.

Marine Tab

Marine Services/Spot Soundings/Marine Navaids— Text Off, Small, Medium, and Large: controls the screen size of marine feature names or numbers. Zoom Auto, Off, 20 ft.-800 mi: sets the maximum scale at which marine features appear on the screen. Optional MapSource marine navaid information includes day markers, mile markers, buoys and lighted markers.

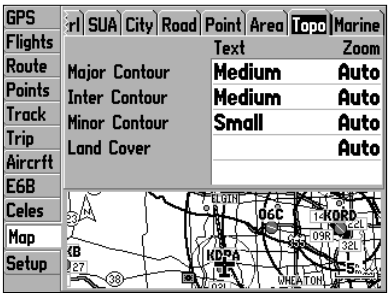
Light Sectors— Auto, Off, 20 ft.-800 mi.: sets the maximum scale at which light sectors appear on the screen.

Symbol Set— Auto, Garmin, NOAA, International: determines the symbology use for marine navaids on the map display. 'Auto' will cause the GPSMAP 196 to use the default symbol set for the MapSource cartography currently loaded on an optional data card.

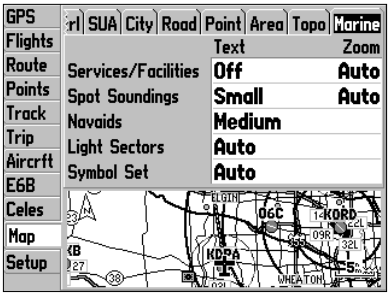
Setup Map Menu Options

As you may have noticed from the tab selections shown on the last five pages, a wide variety of information can be depicted on the map display! After making a number of changes to map settings, you may wish to return the map settings for a particular file tab, or even all map settings, back to the original factory defaults.

Map Page Options

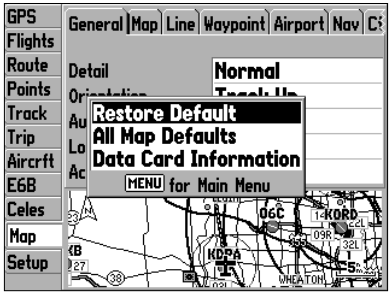


'Topo' settings are used with optional MapSource Topo data.

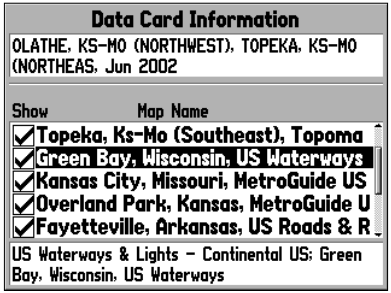


'Marine' settings are used with optional MapSource BlueChart, Waterways & Lights or Fishing HotSpots data.

Map Tab Options



*From any 'Map' tab, press **MENU** to display the Map tab options.*



Select 'Data Card Information' to list the MapSource maps available on an optional data card. The data for maps that are checked ('Show') will appear on the map display.

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

- Restore Defaults
- All Map Defaults
- Data Card Information

To restore the original factory map settings:

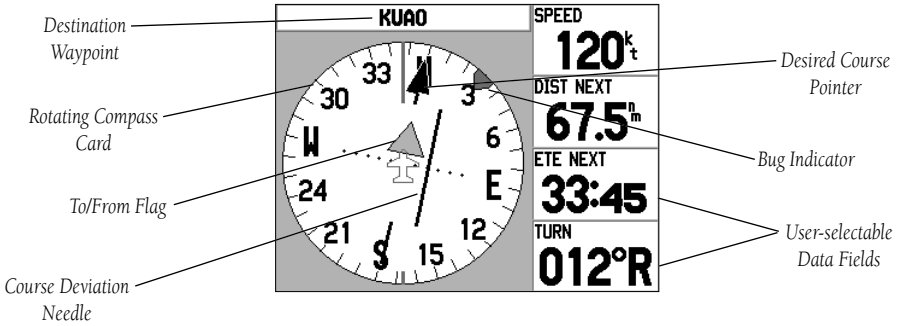
1. From the Map tab of the Main Menu, highlight the desired tab at the top of the page (to restore settings just for one tab) and press **MENU**.
2. Highlight 'Defaults' or 'All Map Defaults', as desired, and press **ENTER**. 'All Map Defaults' will restore all the map settings to the original factory settings.

You can review a list of the MapSource maps stored on an optional data card using the 'Data Card Information' option. This option also allows you to turn individual maps on or off. A box appears to the immediate left of each map name (directly under 'Show'). When the box is checked, the designated MapSource data will appear on the map—at the appropriate scales and when within the boundaries of that map's area. You will find this useful when loading several maps for the same area (for example, a MetroGuide road map and a topographic map) as the GPSMAP 196 will only display one map at a time for a given area based upon its own internal priority scheme.

To review/change data card information:

1. From the Map tab of the Main Menu, press **MENU**, highlight 'Data Card Information' and press **ENTER**.
2. Use the **ARROW KEYPAD** to scroll through the list of map coverage areas available. Those with a check mark in the box to the left of the name are selected to be displayed on the Map page.
3. To select/deselect a map for display, use the **ARROW KEYPAD** to highlight the box next to the desired map, and press **ENTER** to check/uncheck the box, OR...

   Press **MENU** and select one of the options ('Show All', 'Show None', or 'Show <MapSource product name>'), and press **ENTER**.
4. To view additional details about a map, highlight the map name and press **ENTER**. Highlight 'OK' or 'Map List', and press **ENTER** to return to the map list.
5. Press **QUIT** when finished to return to the Map tab of the Main Menu.



The HSI Page appears only when the GPSMAP 196 is in Aviation Mode (see page 7). The graphic HSI depicts the desired course to the destination waypoint (or the next waypoint in a route), current ground track, off course error and a TO/FROM indication. The rotating compass card indicates your current ground track at the top of the page. The desired course pointer and course deviation needle indicate the desired course and whether or not you're on the desired course. A bug indicator provides course to steer (CTS) information, guiding you back to the desired course should you stray off course.

The course deviation scale appears behind the course deviation needle. If you move off course, the needle will indicate how far off course you are, left or right, based upon its placement along the course deviation scale. To get back on course and center the needle, simply steer toward the needle. The course deviation scale setting is adjustable for ±0.25, 1.25 or 5.0 (nautical mile/statute mile/kilometer) full scale deflection. The default setting is 1.25, which represents the distance from the center of the CDI to full left or right limits.

As you reach your destination, a TO/FROM indicator at the center of the HSI will indicate waypoint passage. By default, four user-selectable data fields appear along the right-hand side of the page showing: distance and time to next waypoint, current speed and turn direction. Each data field may be configured to display any one of 40 data options, or you can display ten data fields with smaller text in each field (using the HSI Page Options). The default data terms and all optional data selections are described in Appendix D.

HSI Page (Aviation Mode)

What is it?

The HSI and Panel Pages display a graphic Horizontal Situation Indicator, similar to a mechanical instrument found in many aircraft. The graphic HSI appears in Aviation Mode and is replaced with a graphic RMI in Land and Water modes.

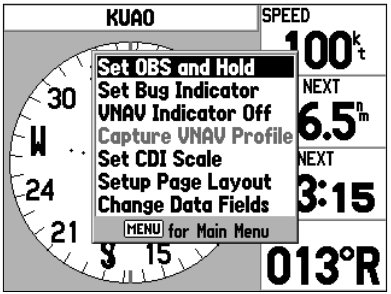
How does it work?

The graphic HSI consists of several elements:

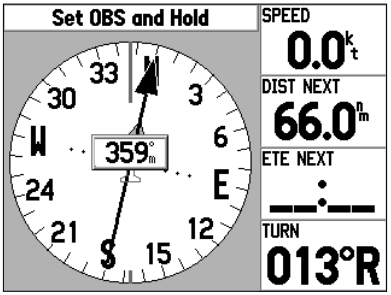
- *a rotating compass card that depicts your ground track at the top of the page.*
- *a pointer that indicates the course heading to your destination.*
- *a course deviation needle and deviation scale that indicates how far left or right of the intended course you are.*
- *a TO/FROM flag which indicates waypoint passage.*
- *a 'Bug' reference along the outer edge of the compass card that has selectable functions.*

NOTE: One key difference between a mechanical HSI and what appears on the graphic HSI is the interpretation of the rotating compass card. On the graphic HSI the top of the compass card depicts your ground track. On a mechanical instrument the compass card depicts aircraft heading. In a crosswind, these two references will be different.

HSI Page Options



*With the HSI Page displayed, press **MENU** to display context-sensitive options for this page. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*



When 'Set OBS and Hold' is selected, a pop-up window appears allowing you to enter the desired OBS course heading.

Many features of the GPSMAP 196 are menu driven. Each of the main pages has an options menu, allowing you to custom tailor the corresponding page to your preferences and/or select special features that specifically relate to that page. The data fields along the right side of the display provide a user-selectable layout of various types of useful data. Each data field may be configured to display any one of several data options. The data window layout may also be customized to change the number and size of data fields displayed, or to display a Panel Page layout. The GPSMAP 196's HSI Page options menu provides access to functions and features relating to the HSI Page and options for layout of the page.

To display the HSI Page options, press MENU (with the HSI Page displayed).

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- Set OBS and Hold
- Set Bug Indicator
- Capture VNAV Profile
- Setup Page Layout
- Release Hold
- VNAV Indicator Off/On
- Set CDI Scale
- Change Data Fields

• Set OBS and Hold— allows you to manually define the course to your destination waypoint. Once selected, the GPSMAP 196 will use the OBS course setting for steering guidance with the course deviation needle and desired course pointer.

When using the GPSMAP 196's route features, 'Set OBS and Hold' will prevent the unit from automatically sequencing to the next route waypoint. To maintain the OBS course and retain automatic sequencing, you must also select the 'Release Hold' option.

To manually set a course to the destination waypoint:

1. Highlight 'Set OBS and Hold' option and press **ENTER**. An OBS data field will appear on the HSI display. (Keep in mind, you must have a destination waypoint selected using a 'GOTO' or a route.)
2. Select the desired OBS course using the LEFT/RIGHT keys on the **ARROW KEYPAD** and press **ENTER**. The course deviation needle and desired course pointer will now provide steering guidance to the selected course.

To cancel the OBS course and reset a direct course to the waypoint, press DIRECT TO followed by ENTER (or re-activate the route).

• **Release Hold—** cancels the 'hold' feature enabled when 'Set OBS and Hold' is selected. This option returns the GPSMAP 196 to automatic sequencing of waypoints along the active route. However, if an OBS course has been selected, that course setting will be retained until cancelled (as described above) or until waypoint passage.

To release a waypoint hold and return to automatic sequencing of route waypoints, highlight the 'Release Hold' option and press ENTER.

• **Set Bug Indicator—** allows you to define the use of the bug indicator, which appears as a gray marker along the outside edge of the rotating compass card, or turn it off. By default, the bug indicator shows course to steer (CTS), but can also show bearing (BRG) to waypoint or be 'User Selected'. The 'User Selected' option allows you to mark a heading reference on the graphic HSI. This provides a visual cue of an important heading for current or future use.

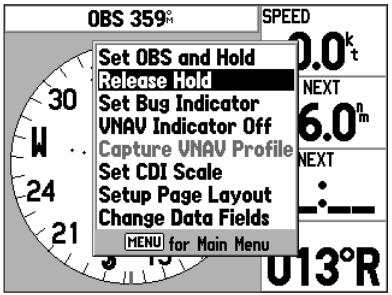
To select a bug heading function:

1. Use the **ARROW KEYPAD** to highlight 'Set Bug Indicator' option and press **ENTER**.
2. Select the desired bug heading function—'User Selected', 'Bearing', 'Course to Steer' or 'Off'—and press **ENTER**.

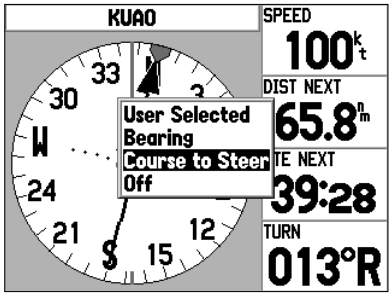
To set a user-defined bug heading reference:

1. Use the steps above and choose the 'User Selected' function. A window will appear at the center of the HSI, showing the current bug heading.
2. Select the desired heading reference using the LEFT/RIGHT portion of the **ARROW KEYPAD** and press **ENTER**. The bug indicator will remain fixed on the selected heading until a new bug heading is chosen.

HSI Page Options

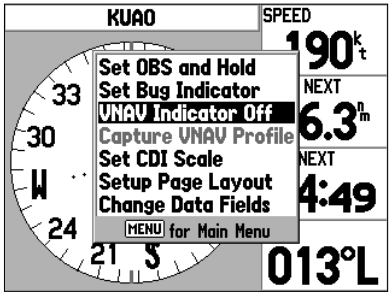


'Release Hold' appears as an option after the 'Set OBS and Hold' option is selected and an OBS course is set.

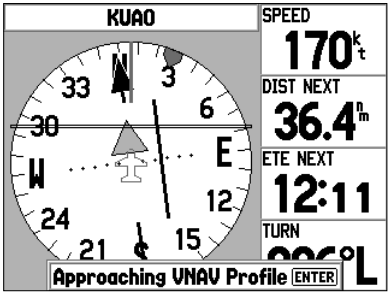


'Set Bug Indicator' allows you to define the function of the bug appearing along the HSI perimeter. The default function is 'Course to Steer'.

HSI Page Options



The VNAV indicator is a horizontal line which appears on the HSI and is used to guide you on a VNAV profile (descent).

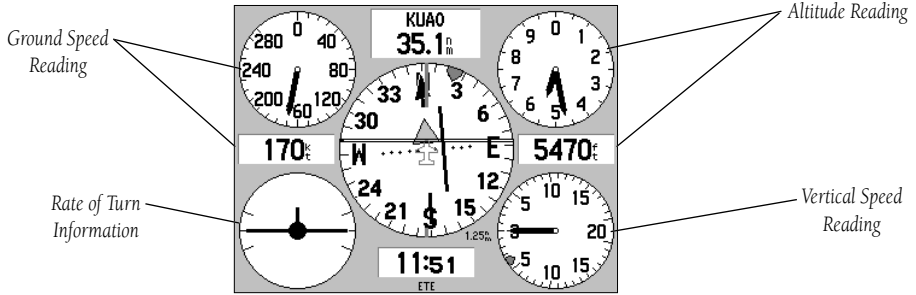


- **VNAV Indicator Off (On)—** allows you to disable/enable the vertical navigation indicator (horizontal line) on the graphic HSI. If the VNAV indicator is disabled, 'VNAV Indicator On' will appear as an HSI Page Option instead. (See page 86 for more information on vertical navigation.)
- **Capture VNAV Profile—** is used to center/re-center the VNAV indicator on the graphic HSI. To utilize this feature, a GOTO or route must be in use and a valid vertical navigation profile must be entered on the vertical navigation setup page. (See page 86 for more information on vertical navigation.)
- **Cancel Capture—** is used to return the VNAV indicator to the settings originally entered on the vertical navigation setup page. (See page 86 for more information on vertical navigation.)
- **Setup Page Layout—** allows you to configure the HSI page layout to your preferences. You can select one column of four large-text data fields, two columns with ten smaller text data fields or replace the HSI Page completely with the Panel Page.

To select an HSI Page layout:

1. Use the **ARROW KEYPAD** to highlight 'Setup Page Layout' option and press **ENTER**.
2. Use the **ARROW KEYPAD** to select the desired layout—'1 Column', '2 Columns' or 'Panel'—and press **ENTER**.

The Panel Page displays GPS-derived data in a graphical format, similar to an instrument panel. Keep in mind the differences between this page and your mechanical instruments, as your mechanical panel instruments use sensors which will provide information different from that derived using GPS. The Panel Page also displays a graphic HSI, but it is surrounded by additional indicators (in clockwise order from top left) for ground speed, distance to destination, altitude, digital altitude, vertical speed, time to next waypoint, rate of turn, and digital ground speed.



- **Set CDI Scale—** sets the full scale limits of the course deviation scale and needle. The default setting is ±1.25 (nautical mile/statute mile/kilometer), but can also be set to ±0.25 or ±5.0 ranges. The current setting is always displayed at the lower right corner of the graphic HSI (on the HSI and Panel Pages).

  To change the CDI Scale:

  1. With the HSI (or Panel Page) displayed, press **MENU** to display the HSI Page Options.
  2. Use the **ARROW KEYPAD** to highlight the 'Set CDI Scale' option and press **ENTER**. A window will appear at the center of the HSI, showing the current scale setting.
  3. Use the **ARROW KEYPAD** to select the desired scale and press **ENTER**.

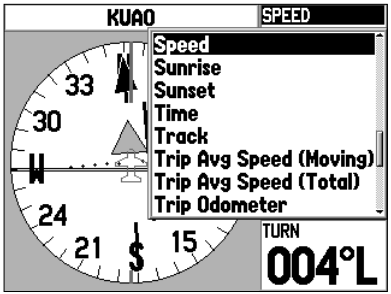
The IN and OUT zoom keys may also be used to adjust CDI scale when no map is displayed.

- **Change Data Fields—** allows you to choose the data types displayed on the four or ten data fields appearing along the right-hand side of the HSI Page. (Panel Page data cannot be changed.) There are over forty different data options including: altitude, bearing, course, distance, ETA, ETE, speed, track and a pointer. You can review the complete list on the GPSMAP 196, and refer to Appendix D for definitions of each data field term.

  To change a data field:

  1. Use the **ARROW KEYPAD** to highlight the 'Change Data Fields' option and press **ENTER**.
  2. Move the field highlight to the data field you want to change and press **ENTER**.
  3. Move up or down on the list using the **ARROW KEYPAD** to highlight the data you want to display, and press **ENTER** to select. To exit, press **QUIT**.

HSI Page Options



*Select 'Change Data Fields', highlight the field you wish to change and press **ENTER** to display a list of available data types.*

RMI Page (Land/Water Mode)

What is it?

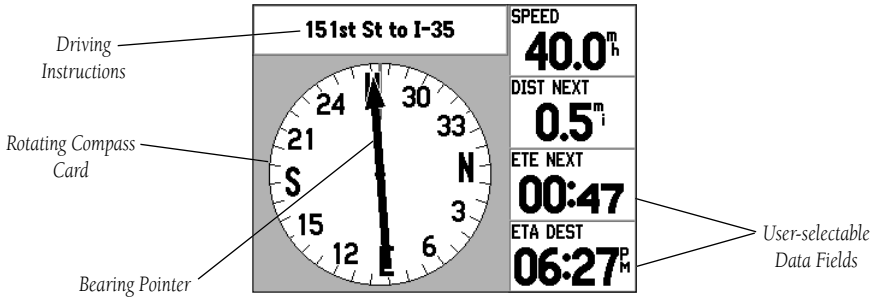
The RMI Page displays a graphic Radio Magnetic Indicator (or, bearing indicator), similar to a mechanical instrument found in many aircraft. The graphic RMI only appears in Land and Water modes and is replaced with a graphic HSI in Aviation Mode.

How does it work?

The graphic RMI consists of two elements:

- *a rotating compass card that depicts your ground track at the top of the page.*
- *a pointer that indicates the bearing to your destination.*

The graphic RMI differs from the graphic HSI in the function of the pointer. Recall that the pointer for the HSI indicates the intended course and stays fixed on this course heading. The pointer for the RMI indicates the bearing to your destination, from your current position, and constantly updates as your position changes. In this manner, it operates similar to an ADF instrument in an aircraft.



The RMI Page appears only when the GPSMAP 196 is in Land or Water modes (see page 7), and replaces the HSI Page in the main page sequence. Whenever a 'Goto' or route has been activated, the graphic RMI indicates bearing to the destination waypoint (or the next waypoint in a route) using a 'bearing pointer'. The rotating compass card indicates your current ground track at the top of the page. The compass ring and pointer arrow work independently to show, at a glance, the direction of your movement and the direction to your destination. For instance, if the arrow points up, you are going directly to the waypoint. If the arrow points any direction other than up, turn toward the arrow until it points up, then continue in that direction. As you reach your destination, the bearing pointer will swing from top to bottom to indicate waypoint passage.

The RMI Page changes slightly between Land and Water modes. In Land mode, the graphic RMI is slightly smaller to accommodate turn instructions at the top of the page. When using optional MapSource MetroGuide or City Select data in Land Mode, the GPSMAP 196 can provide automatic turn-by-turn instructions. The distance, direction and name of the next turn will appear at the top of the page, directly above the graphic RMI. In Water Mode, this text area indicates the name of the next waypoint in a 'Goto' or route.

By default, four user-selectable data fields appear along the right-hand side of the page showing: distance and time to next waypoint, current ground speed and time of arrival at destination. Each data field may be configured to display any one of over forty data options, or you can display ten smaller text data fields, using the RMI Page Options.

Much like the HSI Page, the RMI Page has an options menu, allowing you to custom tailor the RMI Page to your preferences and/or select special features which specifically relate to the RMI Page. The RMI Page Options are a subset of the HSI Page Options described on page 24.

To display the RMI Page Options, press MENU (with the RMI Page displayed).

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- **Setup Page Layout**
- **Change Data Fields**

- **Setup Page Layout—** allows you to configure the RMI page layout to your preferences. You can select one column of four large-text data fields, two columns with eight smaller text data fields or replace the RMI Page completely with the Panel Page (described on page 26).

  To select an RMI Page layout:

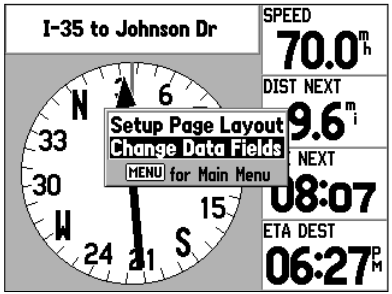
  1. Use the **ARROW KEYPAD** to highlight the 'Setup Page Layout' option and press **ENTER**.
  2. Use the **ARROW KEYPAD** to select the desired layout—'1 Column', '2 Columns' or 'Panel'—and press **ENTER**.

- **Change Data Fields—** allows you to choose the data types displayed on the five or ten data fields appearing along the right-hand side of the HSI Page. (Panel Page data cannot be changed.) There are over forty different data options including: altitude, bearing, course, distance, ETA, ETE, speed, track and a pointer. You can review the complete list on the GPSMAP 196, and refer to Appendix D for definitions of each data field term.

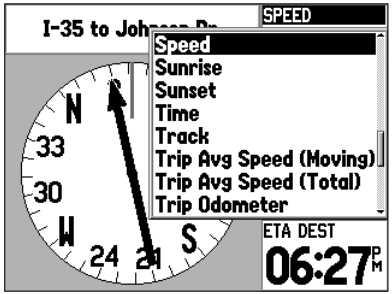
  To change a data field:

  1. Use the **ARROW KEYPAD** to highlight the 'Change Data Fields' option and press **ENTER**.
  2. Move the field highlight to the data field you want to change and press **ENTER**.
  3. Move up or down on the list using the **ARROW KEYPAD** to highlight the data you want to display, and press **ENTER** to select. To exit, press **QUIT**.

RMI Page Options



*With the RMI Page displayed, press **MENU** to display context-sensitive options for this page. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*



*Select 'Change Data Fields', highlight the field you wish to change and press **ENTER** to diplay a list of available data types.*

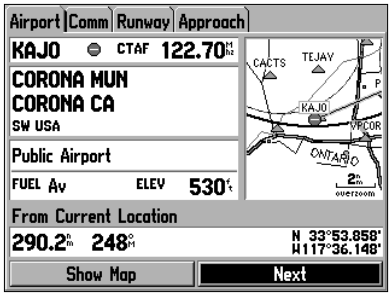
Active Route Page (Aviation and Water Modes)

What is it?

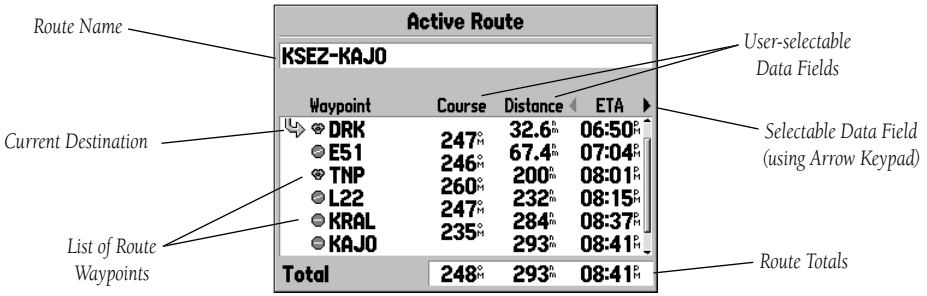
The Active Route Page lists the sequence of waypoints (by name or identifier) in the 'Goto' or route currently being used for navigation, along with additional flight plan information.

How does it work?

*The waypoints are listed in the same sequence as you will fly the route. The current destination is identified by an arrow symbol along the extreme left-hand side of the page. Three data field columns display additional route information. The last column can be used to quickly review all route information using the LEFT/RIGHT portion of the **ARROW KEYPAD**.*



*Reviewing database information from the Active Route Page is a quick, convenient way to retrieve airport, runway, communication and approach information for the destination airport. Once you have reviewed the desired information, pressing **QUIT** a few times will quickly return you to the Map or HSI pages.*



Whenever you have activated a 'Goto', route or TracBack, the Active Route page will show each waypoint (by name) of the active route, along with desired course, distance and time enroute (default selections). As you navigate the route, the information on the Active Route Page will automatically update to indicate the current destination waypoint, any remaining interim waypoints and the final destination waypoint.

The three data field columns following the route waypoint names are user-selectable to display the information you desire. There are ten different data items available, including Course, Distance to next waypoint (from present position), ETA, ETE and Fuel requirements. The first two columns are selectable using the Active Route Page Options and the third column provides quick access to all data options using the **ARROW KEYPAD**. In practical use, you will find it best to select the two data options most needed in the first two columns and use the third column to review all available data. This is especially beneficial for flight planning purposes.

From the Active Route Page, you can change the name of the active route, review information on a route waypoint, edit the route, or bypass route waypoints and GOTO any waypoint in the route.

To change the name of the active route:

1. With the Active Route Page displayed, use the **ARROW KEYPAD** to highlight the active route name field, at the top of the page, and press **ENTER**.
2. Use the **ARROW KEYPAD** to enter the desired route name. Use the UP/DOWN portion to select the desired character and RIGHT to move to the next character field.
3. Press **ENTER** once you have entered all characters for the desired route name.

To review database information for a waypoint in the active route:

1. With the Active Route Page displayed, use the **ARROW KEYPAD** to highlight any listed waypoint and press **ENTER**.
2. The waypoint information pages will appear. For airports, use the **ARROW KEYPAD** to highlight the 'AVIATION', 'RUNWAY', 'COMM' or 'APPROACH' file tabs, as desired.
3. To return to the Active Route Page, press **QUIT**.

To edit the active route:

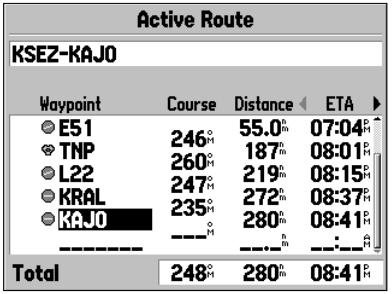
1. With the Active Route Page displayed, use the **ARROW KEYPAD** to highlight the route waypoint you wish to remove—or the waypoint in front of which you will insert a new route waypoint—and press **MENU** to display the Active Route Page Options.
2. To insert a new waypoint in front of the selected waypoint: Use the **ARROW KEYPAD** to highlight 'Insert Waypoint' and press **ENTER** to display the waypoint information pages. Select the identifier, facility name or city name field (as appropriate) and press **ENTER**. Use the **ARROW KEYPAD** to select the new waypoint—UP/DOWN to select the highlighted character and RIGHT to move to the next character field—and press **ENTER** once all characters for the new waypoint have been entered. With the on-screen 'OK' button highlighted, press **ENTER**.
3. To remove the selected route waypoint: Highlight 'Remove Waypoint' and press **ENTER**.

To skip ahead and bypass a waypoint(s) in the active route:

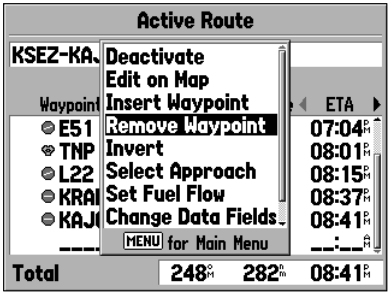
1. With the Active Route Page displayed, use the **ARROW KEYPAD** to highlight the new destination waypoint.
2. Press **DIRECT TO**, then **ENTER** to set a course directly to the designated waypoint. OR,
2. Press **DIRECT TO** twice to activate the route leg to the designated waypoint. Select 'Yes' in the pop-up window and press **ENTER**.

Selecting an active route waypoint as a 'GOTO' destination is referred to as an "on route GOTO". Once you reach the GOTO destination, the GPSMAP 196 will automatically revert back to the active route and navigate to any remaining waypoints which occur in the route after the selected GOTO destination. (This differs from an "off route GOTO" where there are no additional waypoints available once the GOTO destination is reached.)

Active Route Page

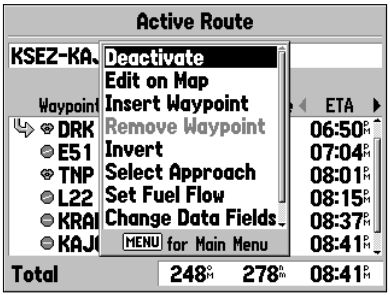


*With a waypoint on the Active Route Page highlighted, press **ENTER** to view waypoint information or press **DIRECT TO**, then **ENTER** to skip ahead to the waypoint.*

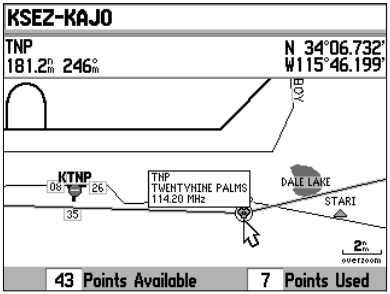


Select 'Remove Waypoint' to remove the highlighted waypoint from the Active Route.

Active Route Page Options



*With the Active Route Page displayed, press **MENU** to display context-sensitive options for this page. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*



To review or remove a route waypoint, start by placing the panning pointer on it.

Many features of the GPSMAP 196 are menu driven. Each of the main pages has an options menu, allowing you to custom tailor the corresponding page to your preferences and/or select special features which specifically relate to that page.

To display the Active Route Page Options, press MENU (with the Active Route Page displayed).

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- **Deactivate**
- **Edit on Map**
- **Insert Waypoint**
- **Remove Waypoint**
- **Invert**
- **Select Approach**
- **Remove Approach**
- **Vectors / Cancel Vectors**
- **Set Fuel Flow**
- **Change Data Fields**

- **Deactivate—** cancels navigation of the 'Goto' or route you are currently using.
- **Edit on Map—** displays the active route on a map display. The active route may be edited directly from the map display using this option.

To display/edit the active route on a map:

1. Use the **ARROW KEYPAD** to highlight 'Show Map' and press **ENTER**. The map display will appear, centered on the next destination waypoint in the route.
2. Use the **ARROW KEYPAD** and **IN/OUT** Zoom keys to pan the map and display the desired detail.
3. To review the database information for an active route waypoint: Place the panning pointer on the desired route waypoint and press **ENTER**. Press **ENTER** again to return to the map display.
4. To remove a waypoint from the active route: Place the panning pointer on the desired route waypoint and press **MENU**. From the pop-up window, use the **ARROW KEYPAD** to highlight 'Remove' and press **ENTER**.

5. To add a waypoint to the active route: Place the panning pointer on the route leg where the new waypoint will be added. Notice that when the pointer is on a route leg, the route leg changes to a dashed line. Press **ENTER** to activate a "rubber band" line for the selected route. Use the **ARROW KEYPAD** to highlight the new route waypoint and press **ENTER**. (If no waypoint exists at the pointer location, a new user waypoint will be created and added to the active route. You can also use the 'Add' menu option to add waypoints to the beginning or end of the active route.)
6. To move a user waypoint in the active route: Place the panning pointer on the desired route waypoint and press **MENU**. From the pop-up window, use the **ARROW KEYPAD** to highlight 'Move' and press **ENTER**. Use the **ARROW KEYPAD** to select the new location for the waypoint and press **ENTER**.

• **Add Waypoint—** allows you to insert a new waypoint in front of the highlighted waypoint in the Active Route (see instructions on page 31).

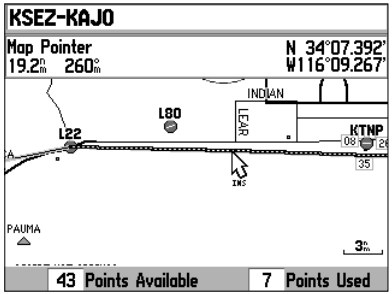
• **Remove Wapoint—** deletes the highlighted waypoint in the Active Route (see instructions on page 31).

• **Invert—** reactivates the current route in reverse order and navigates from the end waypoint back to the beginning waypoint.

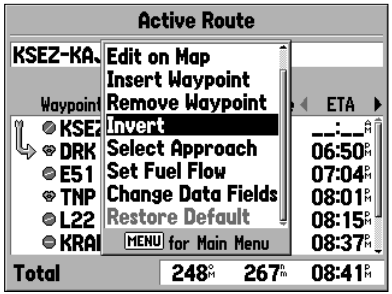
To invert the active route:

1. With the Active Route Page displayed, press **MENU** to display the Active Route Page Options.
2. Use the **ARROW KEYPAD** to highlight 'Invert' and press **ENTER**.

Active Route Page Options

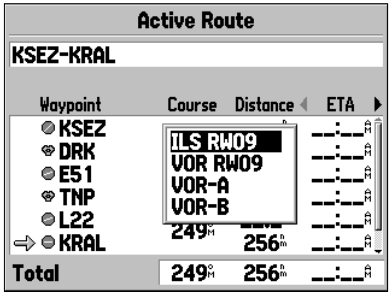


To insert a new route waypoint, place the panning pointer on the desired leg and press ***ENTER****. The route leg is now a "rubber band" and you can move the route line to the new point.*

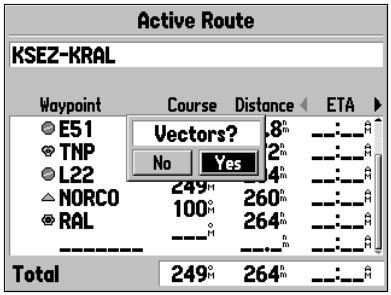


Select 'Invert' to reverse the order of waypoints in the route.

Active Route Page Options



Choosing 'Select Approach' will display a list of published approaches for the final destination airport.



Once an approach is selected, a second pop-up window will ask if you want vectors-to-final. This creates an extension of the final course segment.

- **Select Approach—** allows you to select the final course segment of a published approach, replacing the final destination airport (in a GOTO or route) with the sequence of waypoints for the selected approach. The approaches provide only the final course segment, usually from final approach fix (FAF) to missed approach point (MAP), and are based on existing GPS, RNAV, VOR, NDB, localizer or ILS approach procedures. Regardless of what type of approach it's based upon, the procedure is flown as a sequence of waypoints in the route. In order to select an approach and add the waypoints to the route, the final destination in the 'Goto' or route must be an airport with a published approach.

  To add an approach for the destination airport to the active route:

  1. Create and activate a 'Goto' or route which ends at an airport with a published approach.
  2. With the Active Route Page displayed, press **MENU** to display the Active Route Page Options.
  3. Use the **ARROW KEYPAD** to highlight 'Select Approach' and press **ENTER**. A pop-up window will appear listing the available approaches for the destination airport.
  4. Use the **ARROW KEYPAD** to select the desired approach and press **ENTER**. A second pop-up window will appear, asking if you want to activate 'Vectors?' (i.e., vectors-to-final; see the 'Vectors' option on the following page).
  5. Use the **ARROW KEYPAD** to select the on-screen 'Yes' or 'No' button, as desired, and press **ENTER**.

In some situations you may wish to load the approach while still some distance away, enroute to the destination airport. Select 'No' in step 5 above and you can later select 'Vectors' (described on the following page) to activate the final approach course.

- **Remove Approach—** removes the approach waypoints from a 'Goto' or route, replacing them with the corresponding airport waypoint (which is normally the center of the airfield).

  To remove an approach from the active route, replacing it with the corresponding airport waypoint:

  1. With the Active Route Page displayed, press **MENU** to display the Active Route Page Options.
  2. Use the **ARROW KEYPAD** to highlight 'Remove Approach' and press **ENTER**.

• **Vectors—** activates the final course segment of a published approach (after using 'Select Approach' option described on the previous page), guiding you to intercept the final course prior to the first approach waypoint in the database (typically the final approach fix [FAF]). With 'Vectors' selected, the course deviation needle on the graphic HSI will remain off center until you're established on the final approach course. The Map Page will display an extension of the final approach course using a bold dashed line. On the Active Route Page, a 'Vector to Final' symbol will appear adjacent to the first approach waypoint.

To activate the final approach course for an approach in the active route, use the ARROW KEYPAD to highlight 'Vectors' and press ENTER.

To cancel the vectors to final option, use the ARROW KEYPAD to highlight 'Cancel Vectors' and press ENTER.

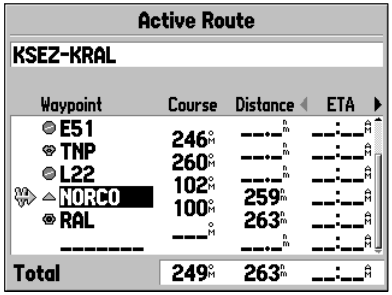
• **Set Fuel Flow—** allows you to enter a fuel flow figure, which the GPSMAP 196 uses to calculate and display the fuel required for each leg of the active route.

To enter a fuel flow figure:

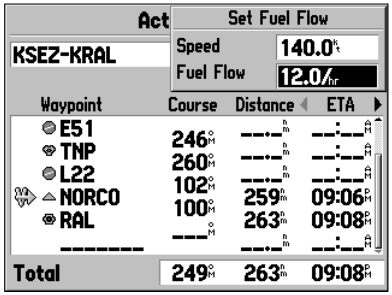
1. Use the **ARROW KEYPAD** to highlight 'Set Fuel Flow' and press **ENTER**. A pop-up window will appear, allowing you to enter a per-hour fuel flow figure.
2. Use the **ARROW KEYPAD** to enter the fuel flow rate—UP/DOWN to change the highlighted character and RIGHT to move to the next character—then press **ENTER**.

The units of measure for fuel flow (gallons or liters) are not included on the GPSMAP 196, since they are not required for calculations. Keep in mind the units from which the original flow rate figure was derived as you view the calculated fuel requirements figures.

Active Route Page Options

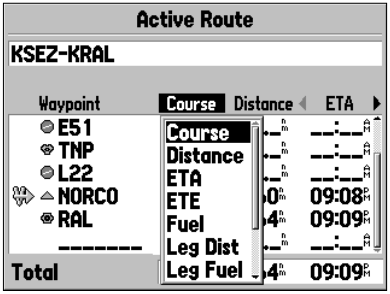


When 'Vectors' is selected, a vectors-to-final symbol appears next to the first approach waypoint.



Select 'Set Fuel Flow' to enter a fuel flow rate. This figure is used to calculate fuel requirements for the active route.

Active Route Page Options



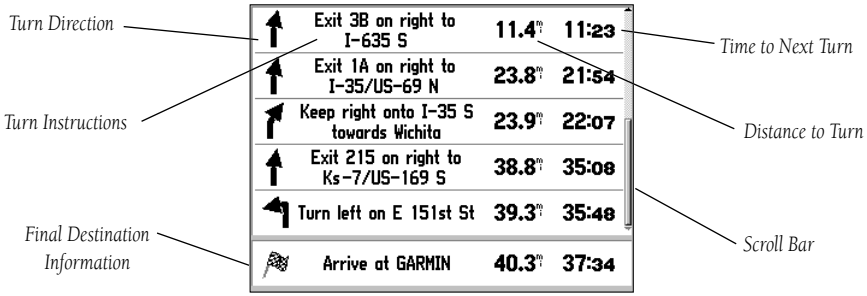
Select 'Change Data Fields', highlight the field you wish to change and press ***ENTER*** *to display a list of available data types.*

- **Change Data Fields—** allows you to choose the data types displayed on the two columns in the middle of the Active Route Page. (Recall that the data type for the column along the right hand side of the screen is changed using the **ARROW KEYPAD**.) There are ten different data options including: altitude, bearing, course, distance, ETA, ETE, speed, track and a pointer. You can review the complete list on the GPSMAP 196, and refer to Appendix D for definitions of each data field term.

  To change a data field

  1. Use the **ARROW KEYPAD** to highlight the 'Change Data Fields' option and press **ENTER**.
  2. Move the field highlight to the data field you want to change and press **ENTER**.
  3. Move up or down on the list using the **ARROW KEYPAD** to highlight the data you want to display, and press **ENTER** to select. To exit, press **QUIT**.

- **Restore Default—** resets the two data columns in the middle of the Active Route Page to the original factory settings.



When operating in Land Mode with a destination selected, the Active Route Page is replaced by the Current Route Page. The Current Route Page shows an arrow indicating the direction of each turn in a route, along with driving instructions, cumulative distance and time to each turn. When there are more turns than can be displayed on a single screen, use the UP/DOWN portion of the **ARROW KEYPAD** to scroll through the list. You can also scroll through this list and display a map of each turn location.

To display a detail map for a current route turn:

1. With the Current Route Page displayed, use the **ARROW KEYPAD** to highlight the desired turn and press **ENTER**.
2. The turn detail map indicates current speed, distance and time to the turn. To return to the Current Route Page, press **ENTER**.

As you are driving along the route, the **NRST** key can be used from any page to quickly retrieve the detail map for the next turn. This next turn detail map will remain on the screen for approximately fifteen seconds, or you can press **QUIT** to return to the previous page.

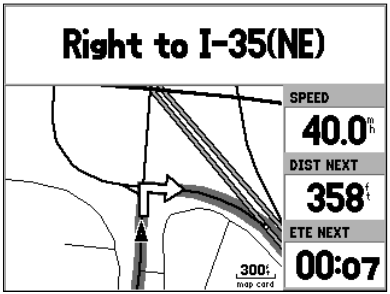
Current Route Page (Land Mode)

What is it?

The Current Route Page appears ONLY in Land Mode and displays information for each upcoming turn in your driving route.

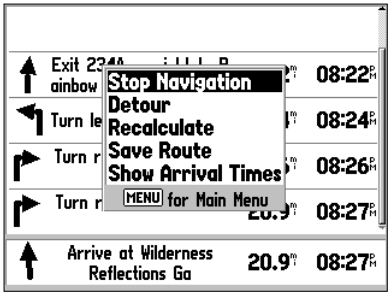
How does it work?

*Graphic arrows next to each turn indicate turn direction. A text description for each turn is provided, along with distance and time to each turn. This distance and time information is cumulative from your present position. If the list of turns fills the page, use the **ARROW KEYPAD** to scroll through the entire list. As you're scrolling through the list, use the **ENTER** key to display a detail map for any selected turn.*

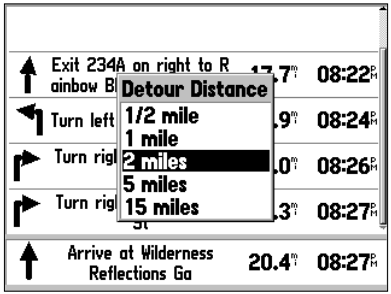


The Next Turn Page appears immediately prior to reaching each turn.

Current Route Page Options



*With the Current Route Page displayed, press **MENU** to display context-sensitive options for this page. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*



When encountering road construction, heavy traffic or emergency vehicles, use the 'Detour' option to find an alternate route.

Many features of the GPSMAP 196 are menu driven. Each of the main pages has an options menu, allowing you to custom tailor the corresponding page to your preferences and/or select special features which specifically relate to that page.

To display the Current Route Page Options, press MENU (with the Current Route Page displayed).

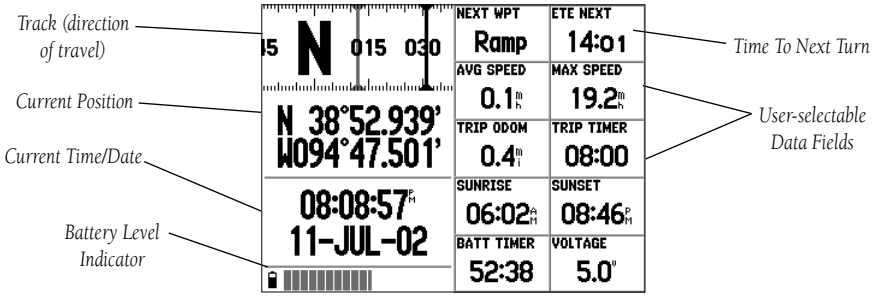
To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- **Stop Navigation**
- **Detour**
- **Recalculate**
- **Save Route**
- **Show Arrival Times / Show Times to Go**

- **Stop Navigation—** cancels navigation of the current route.
- **Detour—** calculates an alternate route for the specified distance ahead.

  To calculate a detour, select the 'Detour' option, use the ARROW KEYPAD to select the detour distance (portion of the route ahead you wish to avoid) and press ENTER.
- **Recalculate—** recalculates the route from your current position. Use this option if you have strayed off course and need an updated route.
- **Save Route—** adds the route to the Saved Route List.
- **Show Arrival Times—** display time of arrival along the right-hand side (instead of time to). When arrival times are being displayed, 'Show Times to Go' appears as an option instead.



The last main page is the Position Page, which shows current time/date, where you are, what direction you are heading, and how fast you are going. This page also provides several trip computer functions, such as average speed, maximum speed, a trip timer and a trip odometer. At the bottom left corner of the page is a battery level indicator. When using external power, the battery level indicator disappears and the battery icon (extreme bottom left corner of the page) is replaced by an external power icon.

The graphic heading display at the top of the page indicates the direction you're heading (or ground track) only while you're moving. Directly below the graphic heading display are present position and time readouts. By default, your position is displayed using latitude and longitude, in degrees and decimal minutes. Other position format options are available as described on page 94. The current time is displayed in local or UTC (coordinated universal time or "zulu"). To switch between local and UTC time displays see page 93.

Along the right-hand side of the page are ten user-selectable data fields which include the following information: time to next waypoint, average speed, trip odometer, trip timer, and sunrise/sunset times for the current date & position. There are 40 available data items that can be displayed on the Position Page. To select a different data item to display on any data field see the following page and refer to Appendix D for definitions of available data items.

You may also choose to show fewer data fields in large text for better readability. Options for one column of larger text fields or four very large fields covering the entire page are provided. Refer to the page layout option described on the following page.

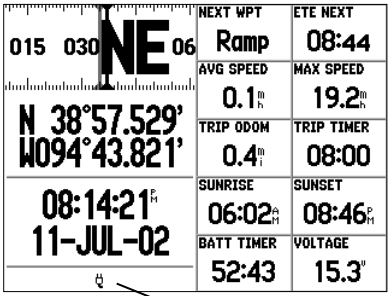
Position Page

What is it?

The Position Page displays a compass-like heading indicator, present position, current time, battery level and trip computer data.

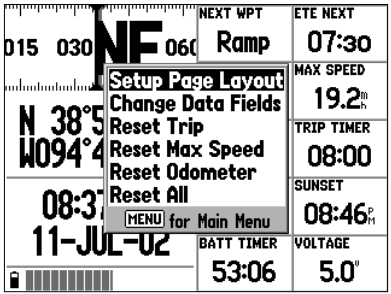
How does it work?

The heading indicator scrolls left/right to indicate your current ground track. Present position is displayed in the position format of your choice, with a default setting of latitude/longitude in degrees and decimal minutes. Current time can be displayed in local or zulu (UTC) time. Battery level is indicated at the bottom left corner of the page, and disappears when using external power. Trip computer functions include average speed, maximum speed, a trip timer and a trip odometer. These readings are individually and collectively resettable from the options menu.

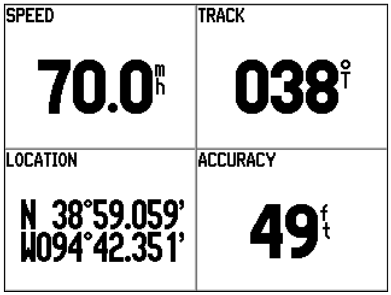


The battery icon is replaced by a power plug icon when using external power, and the battery level indicator disappears.

Position Page Options



*With the Position Page displayed, press **MENU** to display context-sensitive options for this page. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*



One 'Setup Page Layout' option for the Position Page is a big number display of four data items.

Many features of the GPSMAP 196 are menu driven. Each of the main pages has an options menu, allowing you to custom tailor the corresponding page to your preferences and/or select special features which specifically relate to that page.

To display the Position Page Options, press MENU (with the Position Page displayed).

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- **Setup Page Layout**
- **Change Data Fields**
- **Reset Trip**
- **Reset Max Speed**
- **Reset Odometer**
- **Reset All**

• **Setup Page Layout—** allows you to configure the Position Page layout to your preferences. You can select one column of four large-text data fields, two columns with ten smaller text data fields or replace the entire page with four very large text data fields.

To select an Position Page layout:

1. Use the **ARROW KEYPAD** to highlight 'Setup Page Layout' option and press **ENTER**.
2. Use the **ARROW KEYPAD** to select the desired layout—'1 Column', '2 Columns' or '4 Big Fields'—and press **ENTER**.

• **Change Data Fields—** allows you to choose the data types displayed in the columns on the right-hand side of the Position Page. There are 40 different data options including: altitude, bearing, course, distance, a flight timer, a fuel timer, speed, track and a pointer. You can review the complete list on the GPSMAP 196, and refer to Appendix D for definitions of each data field term.

To change a data field

1. Use the **ARROW KEYPAD** to highlight the 'Change Data Fields' option and press **ENTER**.
2. Move the field highlight to the data field you want to change and press **ENTER**.
3. Move up or down on the list using the **ARROW KEYPAD** to highlight the data you want to display, and press **ENTER** to select. To exit, press **QUIT**.

- **Reset Trip—** clears the trip odometer, trip timers and trip average speed readouts.

  To reset the trip computer readouts, use the ARROW KEYPAD to highlight 'Reset Trip' and press ENTER.

- **Reset Max Speed—** clears the maximum speed readout.

  To reset the maximum speed readout, highlight 'Reset Max Speed' and press ENTER.

- **Reset Odometer—** clears the odometer readout.

  To reset the odometer readout, highlight 'Reset Odometer' and press ENTER.

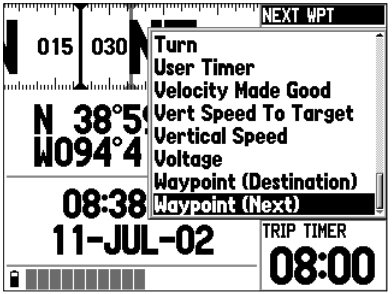
- **Reset All—** clears all trip computer, maximum speed and odometer readouts.

  To reset all trip computer/maximum speed/odometer readouts, use the ARROW KEYPAD to highlight 'Reset All' and press ENTER.

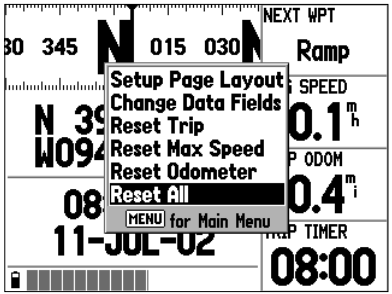
- **Restore Default—** resets all data fields to the factory default settings.

  To restore the factory default settings, use the ARROW KEYPAD to highlight 'Restore Default' and press ENTER.

Position Page Options



Select 'Change Data Fields', highlight the field you wish to change and press ***ENTER*** *to display a list of available data types.*



Select 'Reset All' to reset all trip computer, mamimum speed and odometer readouts.

Waypoint Categories

Using the Direct To Key

*The **DIRECT TO** key operates in the same fashion in Aviation, Land and Water modes. Pressing the **DIRECT TO** key displays the Goto Page, which allows you to select an airport or navaid, a recently (previously) used waypoint, or a user-created waypoint as your destination.*

*When a 'Goto' or route is currently in use, holding the **DIRECT TO** key down briefly displays a detailed information page for the current destination.*

IMPORTANT: When selecting airports, please note that the GPSMAP 196 uses International Civil Aviation Organization (ICAO) identifiers to designate airports. This means some three-character identifiers may be different from what you are used to. In the contiguous United States, the prefix letter "K" is used for ALL airports with a three letter identifier. Therefore, airports such as "JFK" become "KJFK". This DOES NOT apply to airports with letter and number identifiers. Airports such as "H41" and "4M1" do not use the "K" prefix.

The GPSMAP 196 includes an internal Jeppesen® database, additional memory for up to 1000 user-created waypoints and accepts optional memory cards to display MapSource data. The Jeppesen database provides position and facility information for thousands of airports, VORs, NDBs and intersections. Each facility in the database is stored as a 'waypoint', with its own latitude/longitude location, identifier (up to six letters and/or numbers) and other pertinent information. Updates to the Jeppesen database are available every 28 days online (www.garmin.com). The update program is designed to operate on Windows®-compatible PCs and requires the included PC Interface Cable to connect your GPSMAP 196 to the PC's serial communications port.

The following information is provided from the internal Jeppesen database:

- **Airports—** identifier, facility name, city/state/country, position (latitude/longitude), field elevation, available fuel types, runway designations/layout, runway surface(s), runway length(s), runway width(s), runway lighting, communication frequencies and published approaches.
- **VORs—** identifier, facility name, city/state/country, position (latitude/longitude), frequency and co-located weather, DME or TACAN availability.
- **NDBs—** identifier, facility name, city/state/country, position (latitude/longitude), frequency and co-located weather broadcast availability.
- **Intersections—** identifier, nearest VOR, radial and distance from nearest VOR, position (latitude/longitude) and region/country.

Any user-created waypoints will include the following information:

- **User Waypoints—** name (up to ten characters in length), symbol, position (latitude/longitude), elevation and comment.

Optional memory cards and MapSource CD-ROMs enhance the versatility of your GPSMAP 196—providing automatic route calculation capability and allowing you to display additional street detail, topographic maps, highway exit information and points of interest. With optional MapSource City Select or MetroGuide data, you can view listings of nearby restaurants, lodging, shopping centers, attractions and entertainment, and even retrieve addresses and phone numbers for any listed location. The same PC Interface Cable, mentioned above for database updates, is required to transfer MapSource CD-ROM data to the optional memory card.

To select an airport or navaid as a GOTO destination:

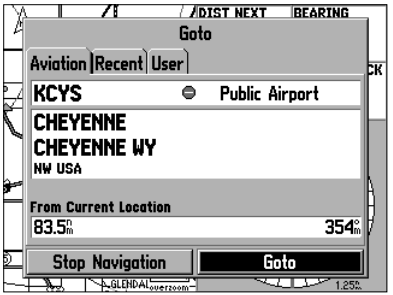
1. Press the **DIRECT TO** key to display the Goto Page.
2. Use the UP/DOWN portion of the **ARROW KEYPAD** to select the identifier, facility name or city field (in that order; identifier only for intersections) and press **ENTER**.
3. Use the **ARROW KEYPAD** to enter the identifier, facility name or city—UP/DOWN to select the highlighted character and RIGHT to move to the next character field. As you scroll through the characters the GPSMAP 196 will display any database entries with the same characters you have entered to that point. (If more than one entry exists in the database for the characters you have entered, a duplicate waypoint window will appear listing the country/region for each entry. Use the **ENTER** key and **ARROW KEYPAD** to select the desired waypoint out of the duplicate list.)
4. Press **ENTER** once the desired waypoint is displayed.
5. With the on-screen GOTO button highlighted, press **ENTER**. A course is plotted from your present position to the selected destination waypoint.

In Land Mode, the GOTO line appearing on the map is constantly updated to your present position. In Aviation (and Water) Mode, the GOTO line and navigation guidance are fixed, with the 'from' point being the position where the GOTO was initiated.

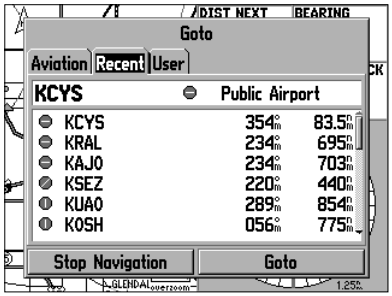
To select a recently used waypoint or user-created waypoint as a GOTO destination:

1. Press the **DIRECT TO** key to display the Goto Page.
2. Use the LEFT/RIGHT portion of the **ARROW KEYPAD** to select the 'Recent' or 'User' tab, as desired.
3. Use the UP/DOWN portion of the **ARROW KEYPAD** to highlight the desired waypoint from the list. (From the 'User' tab, you can also select the top waypoint name line and use the **ENTER** key and **ARROW KEYPAD** to select the desired waypoint by spelling it out.)
4. Press **ENTER** once the desired waypoint is highlighted.

Selecting a GOTO Destination



*Press the **DIRECT TO** key to display the Goto Page.*

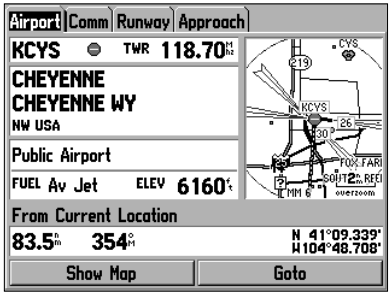


Use the 'Recent' tab to quickly retreive recently used airport, navaid or waypoint locations without having to re-enter the information. (Separate 'Recent' lists are saved for each mode: Aviation, Land and Water.)

Jeppesen Database Information

The following available fuels will appear under the 'Airport' tab: Av (Avgas, 80/87 octane, 100LL or 100-130), Jet (Jet A, Jet A-1 or Jet A+) and Mo (Mogas or 87 octane unleaded).

Under the 'Runway' tab:
Runway surface types include: hard, turf, sealed, gravel, dirt, soft, unknown and water.
Runway lighting types include: part time, full time, pilot-controlled (with frequency), no lighting and unknown.



*Press and hold the **DIRECT TO** key to display the detailed waypoint information pages for your destination waypoint. Then use the **ARROW KEYPAD** to select the tabs across the top of the page.*

The **DIRECT TO** key can also be used to retrieve detailed information for your destination waypoint (or the next waypoint in a route). You will find this feature handy for retrieving navaid frequencies or airport information, such as communication frequencies, runway information, field elevation or available fuels.

To view the Jeppesen database information for a destination airport or navaid:

1. Press and hold **DIRECT TO** to display the waypoint information pages.
2. Use the **ARROW KEYPAD** to select the desired file tab at the top of the page.
3. Use the UP/DOWN portion of the **ARROW KEYPAD** to scroll through available frequencies on the 'Comm' file tab.
4. When viewing information for the 'Runway' or 'Approach' file tabs, use the **ARROW KEYPAD** to highlight the runway designation or approach name and press **ENTER**. Then use the UP/DOWN portion of the **ARROW KEYPAD** to scroll through available runways/approaches. Choose the runway or approach you wish to see additional information for, and press **ENTER** to remove the list window.

The layout of the information pages will change based upon the type of waypoint selected. The identifier will always appear at the top of the page and an on-screen 'GOTO' button will appear at the bottom.

The following file tabs and information will appear for airports on the waypoint information pages:

- **Airport—** identifier, facility name, city/state/country, CTAF or tower frequency, available fuels, field elevation and airport position (latitude/longitude).
- **Comm—** identifier, frequency and frequency type. Available frequency types are: ATIS, Pre-taxi, Clearance, Ground, Tower, Unicom, Multicom, AWOS, ASOS, Departure, Approach, Arrival, Class B, Class C, TMA, CTA and TRSA.
- **Runway—** identifier, runway designations, runway layout (map), surface type, lighting, length, width and airport position (lattitude/longitude).
- **Approach—** appears ONLY if the airport has a published approach. Shows identifier, approach name, approach waypoints and airport position (lattitude/longitude). Available approach types include ILS, localizer, RNAV, GPS, VOR, VOR/DME and NDB.

As you view frequencies for various airports you will encounter some with an asterisk (*) immediately preceding the frequency. This denotes a frequency with usage restrictions. You can display the usage restriction information on your GPSMAP 196.

To view usage restrictions for a communication frequency:

1. With the 'COMM' tab selected, use the **ARROW KEYPAD** to highlight any frequency with usage restrictions (as denoted by an asterisk) and press **ENTER**. A Usage Restrictions Page will appear describing the restrictions for the selected frequency.
2. To return to the 'COMM' information page press **ENTER**.

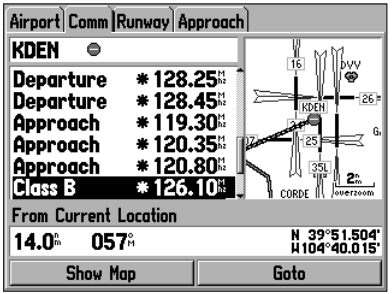
The **DIRECT TO** key is also useful for retrieving and using the final course segment of a published approach. The 'Select Approach' option replaces a destination airport with the sequence of waypoints for the selected approach. Keep in mind that the airport must have a published approach (GPS, RNAV, VOR, NDB, localizer or ILS) and only the final course segment (usually from final approach fix to missed approach point) of the published approach is available in the GPSMAP 196.

To select and navigate an approach for the destination airport:

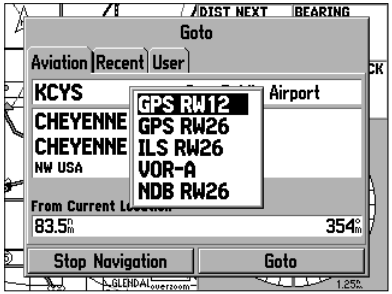
1. Press the **DIRECT TO** key to display the Goto Page. The current destination is already displayed on the GOTO Page.
2. Press **MENU** to display the Goto Options.
3. Use the **ARROW KEYPAD** to highlight 'Select Approach' and press **ENTER**. A pop-up window will appear listing the available approaches for the destination airport.
4. Use the **ARROW KEYPAD** to select the desired approach and press **ENTER**.
5. A 'Vectors?' pop-up window appears. See the following page for more information on vectors-to-final. Use the **ARROW KEYPAD** to select 'Yes' or 'No' and press **ENTER**. The GPSMAP 196 will remove the destination airport from the 'Goto' and replace it with the approach waypoints.

When using a route, and on the final leg of the route to the destination airport, the 'Select Approach' option allows you to quickly retrieve and select available approaches. This option does not edit your route but, instead, overrides it. The original route is still available for later use.

Jeppesen Database Information



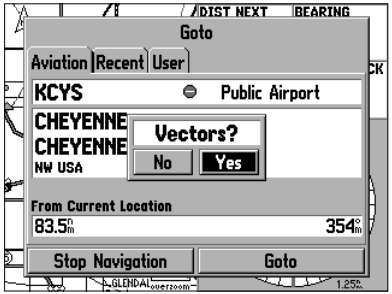
*Frequencies marked with an asterisk (*) include usage restrictions. Select the frequency and press **ENTER** to view the restriction data.*



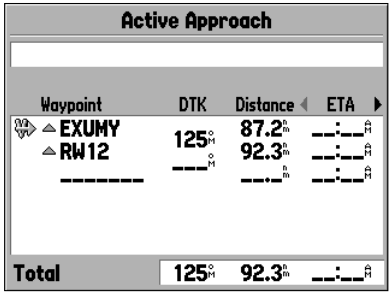
'Select Approach' allows you to retrieve a list of published approaches for a Goto destination airport.

The approaches provided in the Jeppesen database are for monitoring purposes only. The GPSMAP 196 is not an IFR-approved instrument and should not be used as a primary source of navigation guidance in instrument conditions.

Direct To Options



Select 'Yes' here to use the vectors-to-final feature. This feature creates an extension of the final course segment of the approach.



Once the approach and 'Vectors' option are selected, the Active Route Page appears. Note the vectors-to-final icon appearing next to the first approach waypoint.

The 'Vectors?' option that appears at the last step of selecing an approach determines how you will navigate to the first waypoint in the approach. If you select 'Yes', the GPSMAP 196 creates an extension of the final course, beyond the first approach waypoint in the database (usually the final approach fix [FAF]). The GPSMAP 196 will guide you to intercept the final course prior to the FAF. The course deviation needle on the graphic HSI will remain off-center until you are established on this final approach course and the Map Page will display an extension of the final approach course using a bold dashed line. On the Active Route Page, a 'Vector to Final' symbol will appear adjacent to the first approach waypoint.

If 'No' is selected for the 'Vectors?' option, the GPSMAP 196 creates a straight-line course directly to the first waypoint in the approach (from wherever you are when you initiate the approach). This works much like any other route with course guidance from point-to-point and a turn usually required as you cross each waypoint. Keep this in mind! If you select an approach and choose 'No' (to the 'Vectors?' option) from a location on the "back side" of the approach, a steep turn would be required as you reach the first waypoint in the approach.

Direct To Options

As with each of the main pages, the Goto Page has an options menu, allowing you to select special features which specifically relate to that page.

To display the Goto Page Options, press MENU (with the Goto Page displayed).

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- **Show Details**
- **Select Approach**
- **Cancel Approach**
- **Cancel Vectors / Vectors**
- **Select Route**
- **Find Land Points**

- **Show Details—** provides the same waypoint information pages display by pressing and holding the **DIRECT TO** key, and described on page 44. Use this feature to retrieve additional information for the waypoint shown on the Goto Page, including navaid frequencies, airport communication frequencies, runway information, field elevation and available fuels.

- **Select Approach—** allows you to select and navigate an approach for a destination airport, as described on page 45. This option only appears in Aviation Mode and only when the airport shown on the Goto Page has a published approach available.

- **Cancel Approach—** appears only when an approach has been selected. Allows you to cancel the approach and return to the original 'Goto' or route destination.

- **Cancel Vectors—** appears only when 'Yes' is chosen on the 'Vectors?' pop-up menu and the GPSMAP 196 is guiding you with vectors-to-final (vectors to the final approach course). Cancels the vectors option, but retains the approach. When using a route, 'Cancel Vectors' will return you to the route, with the approach included (but a direct course to the first approach waypoint). When using a 'Goto', 'Cancel Vectors' reactivates the approach with a direct course from your present position to the first approach waypoint.

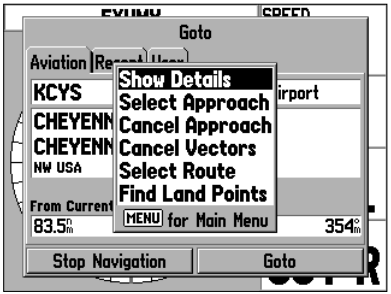
- **Select Route—** allows you to select a saved route and use it for navigation guidance (see page 64).

  To select and navigate a saved route:

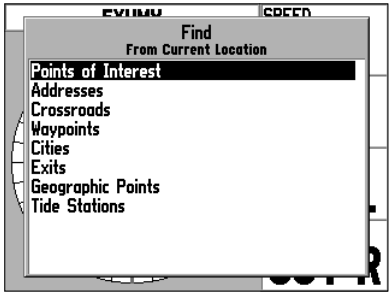
  1. Use the **ARROW KEYPAD** to highlight 'Select Route' option and press **ENTER**.
  2. Use the **ARROW KEYPAD** to select the desired route from the list and press **ENTER**.

- **Find Land Points—** displays the same Find Menu as the **NRST/FIND** key (see page 54). Use this option to retrieve information or navigate to cities, interstate highway exits, and optional MapSource data (points of interest, street addresses, marine markers, etc.).

Direct To Options



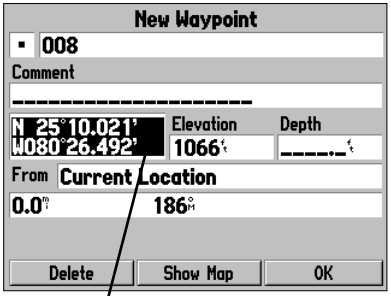
*Selecting 'Show Details' performs the same function as pressing and holding **DIRECT TO**, showing additional waypoint details.*



'Find Land Points' retrieves the Find Menu. See page 54 for more information on how to use this menu.

Marking Present Position

*Some applications of the **MARK** feature include aerial photography (mark the location in your car and navigate to it by air) and saving locations while flying that you wish to return to by car (such as a promising fishing spot or a golf course).*



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

*From the New Waypoint Page, press **MENU** to display New Waypoint options. You can average positions to improve accuracy or add the new waypoint to a saved route.*

In addition to its use for data entry, the **ENTER** key serves a secondary function which allows you to capture your present position and save it as a user-created waypoint. In order to use this feature, your GPSMAP 196 must be receiving a sufficient number of satellites to have a valid position fix.

To mark your present position and save as a user waypoint:

1. Press and hold the **ENTER** key for approximately two seconds. A New Waypoint Page will appear with a pre-assigned name, symbol, position and elevation for the new waypoint.
2. The GPSMAP 196 will automatically assign a three-digit number as the waypoint name, but you may select any name you want, up to ten characters in length. To change the name, highlight the identifier field, press **ENTER** and use the **ARROW KEYPAD** to enter the desired waypoint name. Press **ENTER** once all characters for the waypoint name have been entered.
3. To select a different waypoint symbol, which will appear on the map: Highlight the symbol field and press **ENTER**. A list of available symbols will appear. Use the **ARROW KEYPAD** to select the desired symbol and press **ENTER**.
4. To save the new waypoint, highlight the on-screen 'OK' button and press **ENTER**.

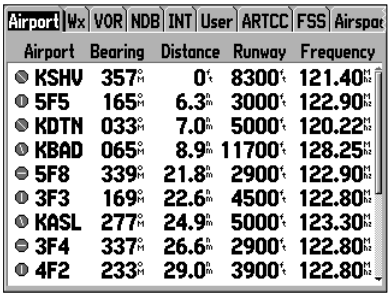
The GPSMAP 196's **NRST/FIND** key provides different information, depending upon the operating mode the unit is currently in. In Aviation Mode, it operates as a **NRST** key, providing detailed information on the fifteen nearest airports, airport weather sources, VORs, NDBs, intersections and user waypoints within 200 miles of your present position. Information regarding the five nearest FSS (flight service station) and center (ARTCC) points of communication, along with associated frequency(s) is available, as well. When an airspace alert is provided, the Nearest Pages will even provide additional detail about the airspace.

In the Land or Water modes, this same key functions as a **FIND** key allowing you to search for cities, highway exits and (with optional MapSource data) points of interest, street addresses/intersections, geographic points and tide stations. See page 54 for more information on **FIND** key operations.

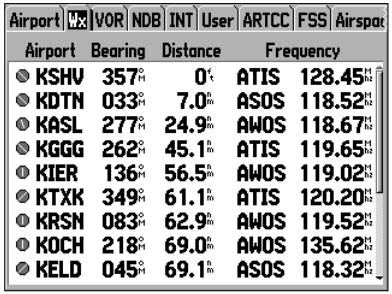
The Nearest Pages are organized by a series of file tabs across the top of the page. The following information is displayed on the Nearest Pages:

Airport	fifteen nearest with identifier, bearing to and distance, length of longest runway, and common traffic advisory (CTAF) or tower frequency.
Wx	fifteen nearest airport weather information sources, including AWOS, ASOS and ATIS.
VOR	fifteen nearest with identifier, facility type (symbol), bearing to and distance, frequency, and co-located weather broadcast availability.
NDB	fifteen nearest with identifier, facility type (symbol), bearing to and distance, frequency and co-located weather broadcast availability.
INT	fifteen nearest with identifier, bearing to and distance.
User	fifteen nearest with name, bearing to and distance.
ARTCC	five nearest with bearing to, distance and frequency(s)
FSS	five nearest with bearing to, distance, frequency(s) and VOR (for duplex operations)
Airspace	up to fifteen (depending on number of alerts provided) with name, time to entry (when applicable) and status.

Nearest Pages (Aviation Mode)

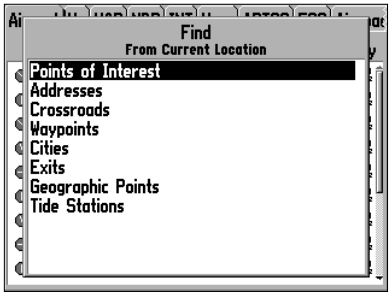


*In an emergency, a list of nearest airports is readily available by pressing the **NRST** key.*



The 'Wx' tab lists nearby airport-based weather information.

Using Nearest Pages



*In Aviation Mode, pressing the **NRST** key several times will display the Find Menu. Use the Find Menu to find ground-based reference points.*

*Use the **ARROW KEYPAD** to highlight an airport on the nearest list, then press **ENTER** to view additional airport information.*

To view the Nearest Pages (Aviation Mode):

1. Press the **NRST** key.
2. To select a different category, use the **ARROW KEYPAD** to select the desired file tab along the top of the page.

The nearest airports are displayed by selecting the leftmost tab at the top of the page, titled 'AIRPORT'. When an airspace alert is provided, pressing NRST will automatically display nearest airspace information. Press NRST a second time to quickly display the nearest airports list. Press NRST a third time to display the Find Menu.

Additional information for airports, navaids and user-created waypoints is available from the waypoint information pages.

To view additional information for a nearby airport, navaid or user waypoint:

1. Display the nearest pages and select the desired file tab as described above.
2. Use the **ARROW KEYPAD** to highlight the desired waypoint on the list and press **ENTER**. The corresponding waypoint information page will appear, showing additional waypoint information.
3. For airports, use the **ARROW KEYPAD** to select the file tabs across the top of the waypoint information pages and display the desired airport data.
4. Highlight the on-screen 'OK' button and press **ENTER** to return to the Nearest Pages.

In an emergency, a few simple keystrokes can be used to guide you to the closest point to set down.

To select a nearby waypoint as your destination:

1. Display the nearest pages and select the desired file tab as described above.
2. Use the **ARROW KEYPAD** to highlight the desired waypoint, press **DIRECT TO**, then press **ENTER**.

From the nearest airport list, an options window allows you to filter out airports that don't meet a defined criteria. This allows you to weed out airports with an undesired surface type and/or insufficient runway length. Pilots of larger, high-performance aircraft may define the nearest airport search to ignore airports at which it would be difficult, if not impossible, to land.

The following runway surface settings are available:

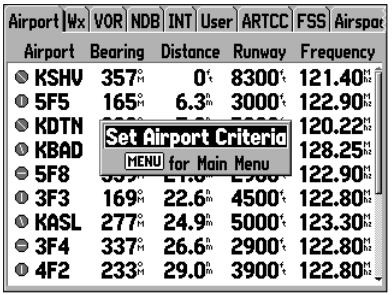
- **Any—**displays any runway, regardless of surface type, including water landing facilities.
- **Hard Only—**displays only runways with a concrete, asphalt or similar sealed surface.
- **Hard or Soft—**displays all runways except water landing facilities.
- **Water Only—**display only water landing facilities.

To select the nearest airport criteria:

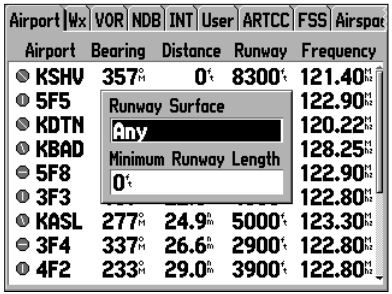
1. Display the nearest airports list by following the steps on the preceding page.
2. Press **MENU** to display an options window, then press **ENTER**. A pop-up window will appear with the current settings for runway surface and minimum runway length.
3. With the runway surface field highlighted, press **ENTER**. Use the **ARROW KEYPAD** to select the desired surface type and press **ENTER**.
4. Highlight the minimum runway length field and press **ENTER**. Use the **ARROW KEYPAD** to select the minimum acceptable runway length and press **ENTER** once all numbers have been entered.

Use caution when changing the nearest airport criteria. In an emergency, a short runway is still typically preferable to an off-field landing. If you set the runway length too high or exclude many runway surfaces, you may not be alerted to a nearby airport that otherwise would be listed.

Nearest Airport Criteria

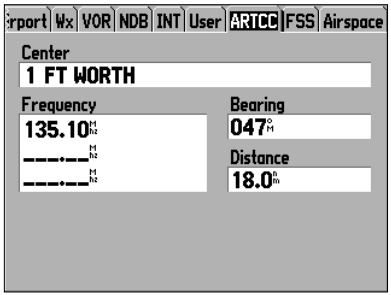


*Press **MENU** to display the 'Set Airport Criteria' option.*

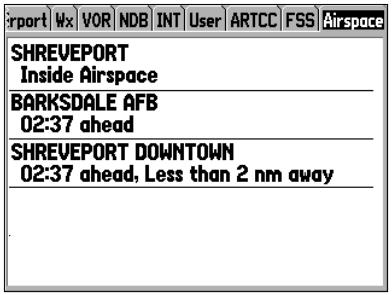


You can change the nearest airport criteria to eliminate airports at which it would be difficult or impossible for you to land.

Nearest FSS or ARTCC



The 'ARTCC' tab displays the frequencies and usage restrictions for up to five nearest air traffic control center points of commnication.



*When airspace alerts occur, press **NRST** and select the 'Airspace' tab to view additional information.*

The Nearest Pages list up to five nearest flight service station (FSS) and air route traffic control center (ARTCC) points of communication. The closest communication point—along with frequency(s), bearing to and distance—is displayed first, with additional points available when selected. For duplex operation, the corresponding VOR is listed (by identifier) and the transmit and receive frequencies are denoted by a 'TX' and 'RX' respectively.

To view additional communication frequencies:

1. Display the Nearest Pages by following the steps on page 50.
2. Use the **ARROW KEYPAD** to select the 'ARTCC' or 'FSS' file tab, as desired.
3. Use the DOWN portion of the **ARROW KEYPAD** to highlight the 'CENTER' or 'STATION' field (depending upon selection of 'ARTCC' or 'FSS' tab) and press **ENTER**.
4. Select the desired numbered item from the list and press **ENTER** to display the communication information. (The lowest numbers on the list are the closest communication points.)

Nearest Airspace Information

When an airspace alert is provided, pressing the **NRST** key automatically displays nearby airspace information. This information includes name, time to entry (if applicable) and status. Normally, only one or two airspace alerts will occur at a time, but with sectorized controlled airspace (such as many Class B areas) you may have more.

Status information can appear as follows:

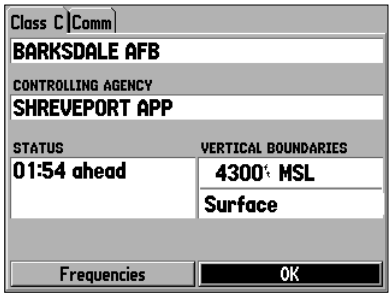
- **Ahead—**your projected course will take you inside an airspace within the next ten minutes or less.
- **Near—**you are within two nautical miles of an airspace, but not projected to enter it.
- **Near & Ahead—**you are within two nautical miles of an airspace and your current course will take you inside the airspace.
- **Inside Airspace—**you are within the boundaries of the airspace.

From the Nearest Pages you can display additional airspace information as well, such as floor and ceiling limits or communication frequency(s).

To view additional airspace information:

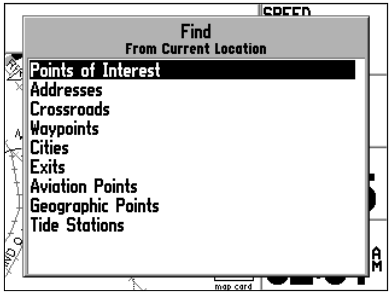
1. Once an airspace alert had been provided, press **NRST** to display the Nearest Pages and the airspace information. (If already viewing the Nearest Pages, use the **ARROW KEYPAD** to select the 'AIR-SPACE' file tab.)
2. Use the **ARROW KEYPAD** to select the desired airspace alert entry on the page, then press **ENTER**. An information page will indicate controlling agency, status and floor/ceiling limits.
3. To display a communication frequency for the airspace, select the on-screen 'Frequencies' button and press **ENTER**.
4. To return to the Nearest Pages, select the on-screen 'OK' button and press **ENTER**.

Nearest Airspace Information



*For even more airspace information, use the **ARROW KEYPAD** to highlight the desired airspace (from the 'Airspace' tab) and press **ENTER**.*

Find Menu (Land/Water Mode)



The Find Menu allows you to search for restaurants, lodging, addresses, interstate highway exits, cities, and more. Many items can be retrieved by name or by nearest.

*The Find Menu can be accessed in Aviation Mode by pressing the **NRST** key several times, OR by using the following steps:*
*1. Press the **DIRECT TO** key.*
*2. Press **MENU** to display the Goto Options.*
*3. Use the **ARROW KEYPAD** to select 'Find Land Points' and press **ENTER**.*

As mentioned previously, the GPSMAP 196's **NRST/FIND** key provides different information, depending upon the operating mode the unit is currently in. In the Land or Water modes, use the **FIND** key to search for user-created waypoints, cities, highway exits or tide stations. In addition, if you are using optional MapSource City Select or MetroGuide data, you can search for points of interest, street addresses, street intersections (crossroads) and more. Your current location is normally used as the reference point for the 'Nearest', 'Distance', and 'Direction' features. However, when panning on the Map Page, the panning pointer is used as the reference point.

User-created waypoints, cities, points of interest, geographic points on the Find Menu can be viewed in two formats, 'By Name' (a list of every item available for a category) or 'Nearest' (a list of only those items for a category that are nearby). The 'Nearest' lists update continuously.

To Find user-created waypoints, points of interest, cities or geographic points:

1. Press the **NRST/FIND** key to display the Find Menu.
2. Use the **ARROW KEYPAD** to scroll through the find categories.
3. With the desired category selected, press **ENTER**.
4. For points of interest or geographic points, additional menus will appear which allow you to refine your search criteria. Use the **ARROW KEYPAD** to scroll through these menus and the **ENTER** key to select the desired menu choices.
5. A list of waypoints for the selected category/criteria is displayed. At the top of this list are two file tabs labeled 'By Name' and 'Nearest'. Use the **ARROW KEYPAD** to select between these two file tabs. To find an item 'By Name', proceed to the following steps. To review an item on the 'Nearest' list, skip to the 'Viewing Additional Information' steps.

Finding an item 'By Name':

1. Verify that the 'By Name' tab is selected for the desired waypoint category, as described in step 5 above. The first line under the 'By Name' file tab is an editable field to enter the name of the desired user waypoint, point of interest, city or geographic point. Use the **ARROW KEYPAD** to highlight this line and press **ENTER** to begin editing (entering) the waypoint name.
2. Use the **ARROW KEYPAD** to spell out the desired waypoint name—UP/DOWN to select the highlighted character, then RIGHT to move to the next character field. Continue this process until the desired waypoint name is displayed, then press **ENTER**.

Viewing additional information for waypoints, points of interest, cities or geographic points:

1. Follow the steps on the preceding page to display the desired waypoint 'By Name' or 'Nearest'.
2. Use the UP/DOWN portion of the **ARROW KEYPAD** to scroll through the list of waypoints and highlight the desired waypoint. (In many cases, when selecting cities or points of interest 'By Name' you may be presented with a list of duplicate items by the same name. Simply scroll through the list to select the desired waypoint.)
3. Press **ENTER** to display additional information for the selected waypoint.

To navigate to a selected waypoint, point of interest, city or geographic point:

1. Follow the steps above to view additional information for the desired waypoint.
2. At the bottom right corner is an on-screen 'Goto' button. If necessary, use the **ARROW KEYPAD** to highlight this button and press **ENTER**.

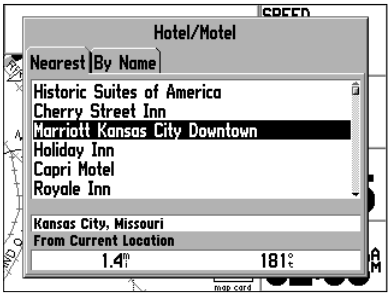
Finding Highway Exits

You can use the **FIND** key to locate a nearby exit on an interstate highway. Exits are listed only by 'Nearest'. You can also search for exits on interstates other than the nearest one, nearest to a map pointer position or nearest to your destination using an options menu.

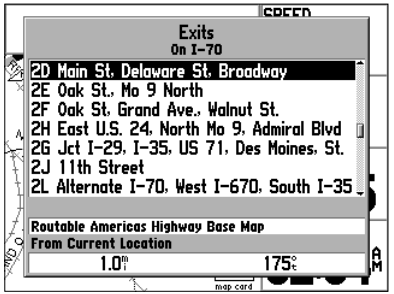
To find a highway exit:

1. Press the **FIND** key, use the **ARROW KEYPAD** to select 'Exits' and press **ENTER**.
2. A menu will appear with a choice of exit types. Use the **ARROW KEYPAD** to highlight the type of exits you wish to view, then press **ENTER**.
3. A list of the nearest exits ahead of you will be displayed. The title of the list indicates the interstate which the exits are on. Use the **ARROW KEYPAD** to scroll through the list to select the desired exit.
4. Press **ENTER** to display the Exit Page for that exit. This page contains the exit description at the top of the page and a list of services near that exit at the bottom. You can show the exit on the map or save it as a waypoint.
5. Use the **ARROW KEYPAD** to highlight an item from the list of services, then press **ENTER**. A page will appear, showing the type of services, its direction from the exit and a list of services available, each marked by a check.

Find Menu (Land/Water Mode)

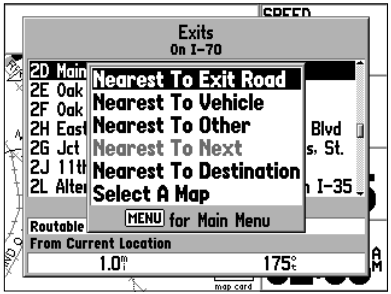


*Once a list of nearby points is displayed, use the **ARROW KEYPAD** to select the desired point and press **ENTER** for additional information or to go to this point.*

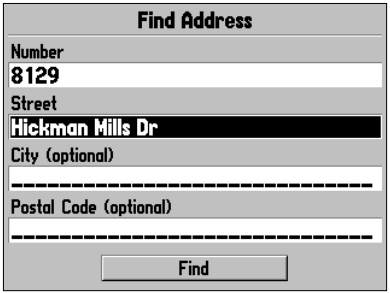


Built-in interstate highway exit data allows you to retrieve information on nearby exits, including available services.

Finding Highway Exits



*Press **MENU** and select 'Nearest to Exit Road' to search for nearby exits on another highway.*



Enter a street number and name, then select the on-screen 'Find' button to search for the address. This feature requires optional MapSource City Select or MetroGuide data.

To find a highway exit on a different interstate, at the panning pointer position or nearest to your destination waypoint:

1. Follow the steps on the previous page (steps 1 through 3) to display a list of nearest exits.
2. Press **MENU** to display an options menu.
3. To find exits on a different interstate, select 'Nearest to Exit Road' and press **ENTER**. Then use the **ARROW KEYPAD** and **ENTER** to select a different highway. (You do not need to enter the 'I' prefix for an interstate highway, just the number. The 'I' prefix will appear automatically in the list.)
4. To find exits nearest to a map cursor position, select 'Nearest to Other' and press **ENTER**. Use the **ARROW KEYPAD** to move the map pointer to the desired location and press **ENTER**.
5. To find exits nearest to your destination waypoint, select 'Nearest to Next' or 'Nearest to Destination' and press **ENTER**. Use 'Nearest to Next' to search for exits near the next destination waypoint in a route.

Use the 'Select a Map' option on this same options menu to search for exits using the built-in basemap or using optional MapSource MetroGuide or City Select data.

Finding a Street Address or Crossroads

With optional MapSource MetroGuide or City Select data, your GPSMAP 196 can be used to find street adresses or crossroads (street intersections).

To locate an address:

1. Press the **FIND** key, use the **ARROW KEYPAD** to select 'Addresses' (or 'Crossroads') and press **ENTER**.
2. In the first data field line you will enter the street number (or the first crossing street name). Use the **ARROW KEYPAD** to spell out the desired street number (name)—UP/DOWN to select the highlighted character, then RIGHT to move to the next character field. Continue this process until the desired information is displayed, then press **ENTER**.
3. In the second data field line you will enter the street name (or the second crossing street name). Again, use the **ARROW KEYPAD** and **ENTER** to key in the desired information.

4. The third and fourth data field lines are optional. In these fields, you can enter the city name and/or postal code. Entering this information allows you to narrow the search to a particular area, rather than searching through all available map areas. As in the previous steps, use the **ARROW KEYPAD** and **ENTER** to key in the desired information.
5. With the search criteria entered above, select the on-screen 'Find' button and press **ENTER** to view the 'Select Address' ('Select Crossroad') page with a list of possible matches. A window at the bottom of the list displays the quality of each match.
6. Select an address (crossroad) and press **ENTER** to display additional information.
7. To navigate to this address (crossroad), select the on-screen 'Goto' button and press **ENTER**.

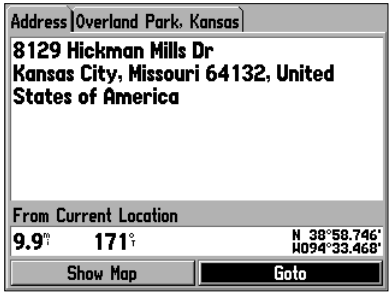
Finding Points of Interest (POI)

One of the most useful driving features of your GPSMAP 196 is the 'Find | Points of Interest' feature. Again, this requires optional MapSource MetroGuide or City Select data—as well as an optional data card to store the data. With this feature you'll be able to quickly retrieve information on nearby restaurants, entertainment, hospitals, lodging, shopping, and be able to navigate directly to these locations.

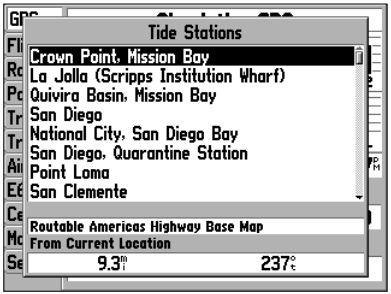
To find a point of interest:

1. Press the **FIND** key, use the **ARROW KEYPAD** to select 'Points of Interest' and press **ENTER**.
2. A list of POI categories is displayed. Use the **ARROW KEYPAD** to select the category of your choice and then press **ENTER**.
3. A list of types for the selected POI category is displayed. Select the type of your choice and press **ENTER** to display a list of the points of interest for that type.
4. At the top of this list are two file tabs labeled 'By Name' and 'Nearest'. Use the **ARROW KEYPAD** to select between these two file tabs. To find an item 'By Name', follow the steps on page 54.
5. Use the UP/DOWN portion of the **ARROW KEYPAD** to scroll through the list of waypoints and highlight the desired waypoint, then press **ENTER** to display additional information. (In many cases, when selecting cities or points of interest 'By Name' you may be presented with a list of duplicate items by the same name. Simply scroll through the list to select the desired waypoint.)
6. The option described on the previous page for 'Nearest to Other', 'Nearest to Next' and 'Nearest to Destination' are also available for Points of Interest using the **MENU** key.
7. At the bottom left corner is an on-screen 'Goto' button. If necessary, use the **ARROW KEYPAD** to highlight this button and press **ENTER**.

Finding Street Addresses

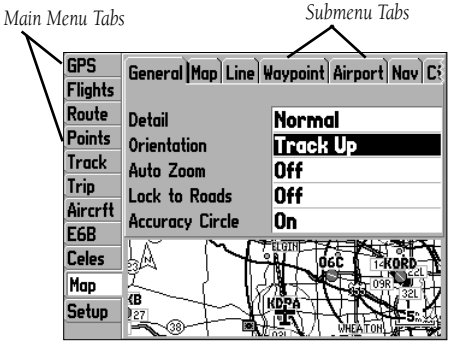


With the desired address found, select the on-screen 'Goto' button to automatically route to this address.



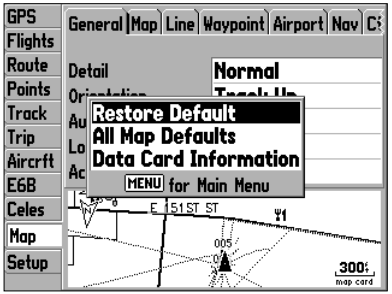
The Find Menu also allows you to search for nearby Tide Stations and display a tide chart. Select 'Tide Stations' from the Find Menu to view a list of nearby stations. Highlight the desired station, press ***ENTER****, select 'Show Chart' and press* ***ENTER*** *(again) to display a tide chart for that station location.*

Main Menu Tabs



Some of the Main Menu tabs include "tabs within tabs". For example, the 'Map' tab on the left-hand side of the screen (shown above) will display a series of tabs across the top—all of which display screens which specifically relate to map settings.

From any tab, press ***MENU*** *to display additional menu options:*



The GPSMAP 196's Main Menu Page provides access to various waypoint, system, navigation, interface and setup menus in an easy to use "tab" format. The Main Menu page is available from any page in the GPSMAP 196's system, and is accessed through the **MENU** key.

To access the Main Menu Page:

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

To select a menu tab from the Main Menu page:

1. Move the **ARROW KEYPAD** UP or DOWN to highlight the tab you want to view. The information for the highlighted tab will automatically appear to the right.
2. Press **MENU** for additional menu options, or
3. Use the **ARROW KEYPAD** to highlight any item on the page: RIGHT, then move UP or DOWN to select individual items. Press **ENTER**, then use the **ARROW KEYPAD** and **ENTER** to make changes to the selected item. Press **QUIT** to exit the Main Menu page.

The Main Menu tabs are:

- GPS— Shows satellite status, time/date, accuracy, DOP and differential information. Provides on/off selection of WAAS feature. Menu options include enable/disable built-in simulator and select location.
- Flights— Shows recorded flight information, including date, route of flight and flight time. A detail window for each listed flight also indicates flight distance.
- Route— Displays any saved routes. Allows you to create, edit, activate or delete routes. See page 64.
- Points— Allows you to create, edit or delete user waypoints. Provides proximity alarm waypoints.
- Track— Shows status of track memory, recording criteria and list of saved tracks. Provides on-screen buttons to clear or save the active track log.
- Trip— Provides trip computer functions for average speed, maximum speed, odometers and timers. Menu options allow trip computer features to be reset individually or collectively.
- Aircrft— Provides multiple aircraft profile settings that are used for flight planning/trip planning features. Also provides weight and balance computer function.
- E6B— Allows you to calculate density altitude, true airspeed and winds aloft.
- Celes— Shows sun/moon time cycles/positions, best times and good times for hunting or fishing, and 24 hour tide charts (with tide levels and times).
- Map— Provide settings for the Map Page features. See page 16 for more information on this tab.
- Setup— Displays settings for system functions, vertical navigation (VNAV), airspace alarms, general alarms, road routing, timers, time format/zone, units of measure, location format and interface.

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

The progress of satellite acquisition is shown in three stages:

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

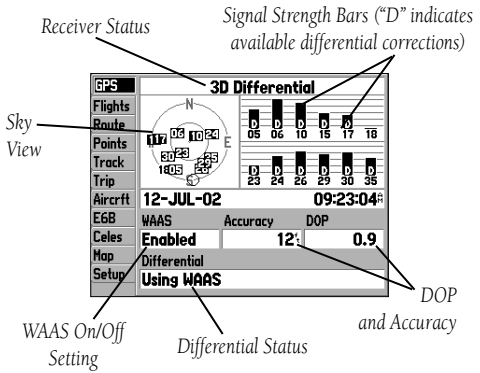
As soon as the GPSMAP 196 has collected the necessary data from the best satellites in view to calculate a fix, the status field will indicate a 2D or 3D status. The unit will then update the position, date and time.

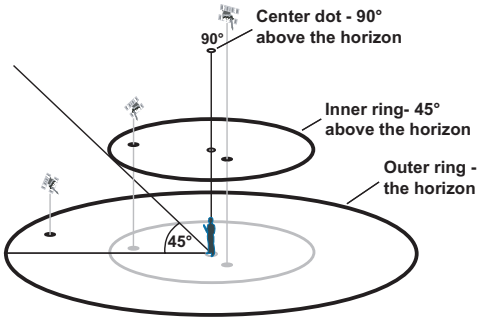
You can use the sky view to help determine if any satellites are being blocked, and whether you have a current position fix (indicated by a '2D','2D Differential','3D', or '3D Differential' in the status field). The sky view shows a bird's-eye view of the position of each satellite relative to the receiver's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

WAAS Capability

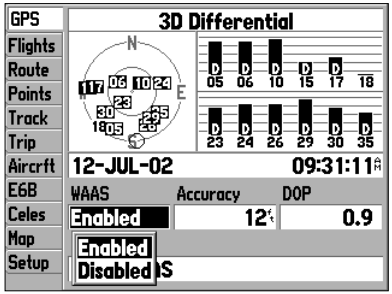
The GPSMAP 196 is capable of receiving WAAS (Wide Area Augmentation System) satellite signals. WAAS is an FAA (Federal Aviation Administration) funded project to improve the overall accuracy and integrity of the GPS signal for aviation use, but land- and sea-based users may also benefit from this system. The system is currently still in the development and may not operational at all times. There are currently two WAAS satellites covering the United States—one over the Atlantic Ocean and one over the Pacific Ocean, in a geostationary orbit over the equator. Effective use of the WAAS satellite signal may be limited by your geographic location in relation to those satellites or by obstructions.

GPS Tab





GPS Tab



Select 'Disabled' to turn the WAAS feature Off. You should turn this feature off when WAAS reception is poor or the signals are blocked, to improve system performance.

WAAS satellite signal reception requires an absolute clear view of the sky and works best when there are no nearby obstructions such as buildings, mountains, etc. WAAS satellites will be numbered 33 or higher when viewing the sky view on your GPSMAP 196. Initial reception of the WAAS signal may take up to 15-20 minutes each day, then 1-2 minutes afterwards. When WAAS differential corrections are being received for GPS satellites (numbers 32 or below), a 'D' will appear in the signal bar for any applicable satellite and '2D Differential' or '3D Differential' will appear in the receiver status. To learn more about the WAAS system, the location of WAAS satellites and current state of development, visit the FAA web site: *http://gps.faa.gov*. WAAS calculations require considerable processor time. If not needed (or not available in your current location), you may wish to disable the WAAS feature to improve unit performance. The unit will not search for WAAS satellites if the unit is in the Battery Saver mode.

To enable/disable the WAAS feature:

1. From the 'GPS' tab, highlight the WAAS field and press **ENTER**
2. Select either 'Enabled' or 'Disabled' and press **ENTER**.

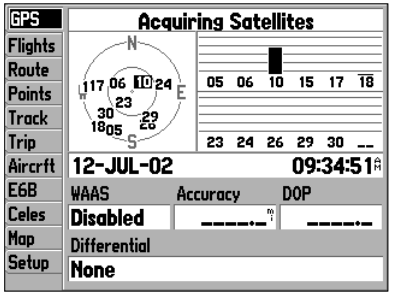
Receiver Status, Accuracy and DOP

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

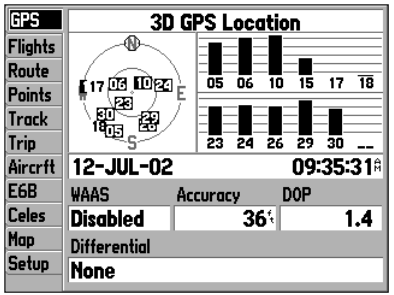
The status field will show one of the following conditions:

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

GPS Tab



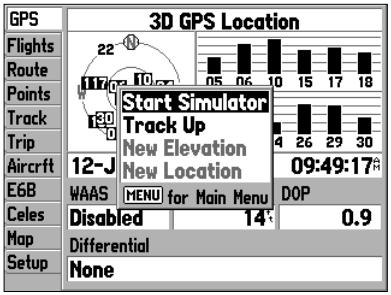
'Acquiring Satellites' appears when the GPSMAP 196 is first turned on and looking for satellites overhead.



'3D GPS Location' is displayed when the GPSMAP 196 is receiving a sufficient number of satellites to determine a latitude, longitude and altitude position.

GPS Tab

Note: If a DGPS receiver is attached to the unit and Garmin DGPS, RTCM In/NMEA Out, or Other DGPS is enabled, WAAS will be automatically disabled. It is not possible for the GPSMAP 196 to receive WAAS and DGPS corrections at the same time.



*With the GPS screen displayed, press **MENU** to display context-sensitive options for this screen. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*

The Differential Receiver status will show one of the following:

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

GPS Tab Options

The GPSMAP 196's GPS tab features an options menu that provides access to functions and features relating to the GPS tab.

To display the GPS Tab options, press MENU (with the GPS Tab information displayed):

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- Start/Stop Simulator— toggles the unit simulator on or off.
- Track Up/North Up— allows you to select between a north up or track up sky view display.
- New Location— allows you to initialize the receiver graphically on the Map Page (using the **ARROW KEYPAD**) to initially help the receiver acquire more quickly.
- New Elevation— allows you to manually enter the altitude (using the **ARROW KEYPAD**) when in 2D or Simulator mode only. Any altitude entered will ignored if the GPSMAP 196 switches to 3D mode (since altitude is automatically calculated when a sufficient number of satellites are available).

Flights Tab— displays a list of any recorded flights, including date, route of flight and flight time. The GPSMAP 196 will save up to 50 recorded flights. Selecting any listed item provides additional flight information, including flight distance. Entries on this list are automatically created for each flight (but only in Aviation Mode). Recording begins when your speed exceeds 30 knots and you gain 500' of altitude. The 'Route of Flight' information will use the nearest airport as the departure airport. The destination airport is continuously updated as your flight progresses. If you land and groundspeed drops below 30 knots, the flight entry is saved and a new entry will be recorded when you depart the airport. (Touch-and-goes or brief stops of less than ten minutes will append to the current flight record, rather than start a new entry.)

To view details for a saved flight:

1. From the 'Flights' tab, use the **ARROW KEYPAD** to highlight the the desired flight and press **ENTER.**
2. With 'OK' highlighted, press **ENTER** to return to the 'Flights' Tab.

An optional FlightBook software package is available to further simplify your flight recordkeeping. For additional detail about FlightBook, visit the Garmin website at *http://www.garmin.com/aviation*.

Flights Tab Options

The GPSMAP 196's Flights tab features an options page that provides access to functions relating to the Flights tab.

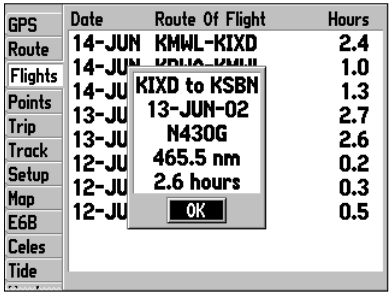
To display the Flights Tab options, press MENU (with the Flights Tab information displayed):

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

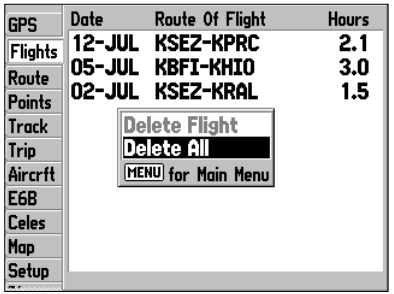
The following options are available:

- Delete Flight— deletes the highlighted flight record from memory.
- Delete All— deletes all flight records from memory.

Flights Tab

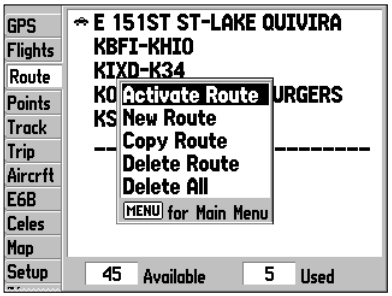


Flight records include point of origin, final destination, flight time and distance, date and aircraft identification. Aircraft ID is derived from the currently selected aircraft profile (see page 79).



Select 'Delete All' to remove the saved flight records from memory.

Route Tab



*With the Route screen displayed, press **MENU** to display context-sensitive options for this screen. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*

If you are departing from the first waypoint in a route, 'Activate Route' will place you on the first leg and guide you along the entire route. If you later stop for fuel at a point along the route, 'Activate Route' will place you on the current leg and guide you through the remainder of the route.

*Keep in mind that in Land Mode, routes are automatically calculated when you select a destination using the **FIND** key. See page 55 for more information.*

Route Tab— displays a list of any saved routes, including point of origin and final destination. Any automatically calculated driving routes will appear with a car icon to the immediate left of the route description. Selecting any listed item provides additional route information.

To view details for a saved route:

1. From the 'Route' tab, use the **ARROW KEYPAD** to highlight the the desired route and press **ENTER.**
2. If an aviation (or water) route is selected, the Route Information Page will provide details for each leg of the route, including leg course, cumulative distance and time of arrival to each route waypoint. Use the LEFT/RIGHT portion of the **ARROW KEYPAD** to view additional route information in the right-most column.
3. If a driving route is selected, a pop-up window appears with total route distance and time, along with the option to activate the route and begin using it for navigation. To navigate this route, select 'Yes' and press **ENTER**. Otherwise, select 'No'.

Route Tab Options

The GPSMAP 196's Route tab features an options page that provides access to functions relating to the Route tab.

To display the Route Tab options, press MENU (with the Route Tab info displayed):

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- Activate Route— select the highlighted route and begins navigation guidance along the closest leg.
- New Route— displays a blank Route Information Page, allowing you to enter the desired route waypoints.
- Copy Route— copies the highlighted route to a new memory location. The copied route will have the same name as the original, followed by a number. Use this option as a prelude to creating a new route IF the new route will be similar to an existing route. This will save re-keying similar information.
- Delete Route— removes the highlighted route from memory. The route waypoints will remain in memory; only the route is deleted.
- Delete All— deletes all saved routes from memory.

Creating a New Route

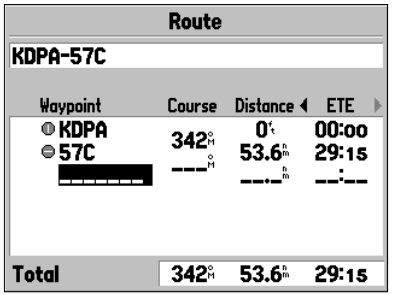
The GPSMAP 196 lets you create and store up to 50 reversible routes, with up to 50 waypoints (49 legs) in each route. Routes can be created several ways:

- In Aviation or Water modes, by entering the name/identifier of each route waypoint in the same sequence you will be navigating.
- In all modes, by using the map display to designate your departure point, interim waypoints and final destination.
- In Land Mode, by using the **FIND** key to automatically calculate the route and any turns (see page 55).

To create a route by entering waypoint names/identifiers:

1. Press the **MENU** key twice to display the Main Menu page. Use the **ARROW KEYPAD** to highlight the 'Route' tab.
2. Press the **MENU** key to display the Route Options page. Select the 'New Route' option and press **ENTER**. (Or, highlight the blank route at the end of the list and press **ENTER**.)
3. If necessary, use the **ARROW KEYPAD** to highlight the first blank waypoint name field (under the word 'Waypoint') and press **ENTER.**
4. From the 'Find' Window, use the **ARROW KEYPAD** and **ENTER** to select the desired waypoint. In Aviation Mode, the Find Window provides editable fields for identifier, facility name or city. You can select the route waypoint from any of these fields. Or, you may wish to use 'Recent' or 'User' tabs to select recently used or user-created waypoints, respectively.
   In Land and Water modes, the Find Menu appears as described on pages 54-57. Follow the steps provided on those pages to add waypoints to your route. (The Find Menu can also be displayed in Aviation Mode by pressing MENU and selecting 'Find Land Points'.)
5. Once each waypoint is selected, a review page for that waypoint is provided. With the on-screen 'OK' buttony highlighted press **ENTER** to add the waypoint to the route.
6. Repeat steps 4-5 until all the desired route waypoints have been entered.
7. Press **QUIT** to return to the Route List Page.

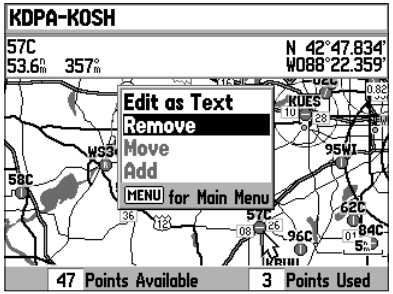
Route Tab



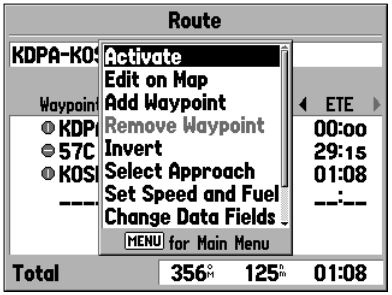
*When creating a new route, enter the waypoints into the route in the same sequence you wish to follow them. To add a point, select the next blank line in the route and press **ENTER**.*

*Use the **ARROW KEYPAD** to enter the name of the new route waypoint. Press **ENTER** when finished.*

Route Tab



You can create or edit routes from the map display. In the example above, the panning pointer is on a route waypoint. Pressing ***MENU*** *displays the option to remove the route waypoint.*



Select 'Activate' to begin navigating the route.

To create a route graphically from the map display:

1. Press the **MENU** key twice to display the Main Menu Page. Use the **ARROW KEYPAD** to highlight the 'Route' tab.
2. Press the **MENU** key to display the Route Options page. Select the 'New Route' option and press **ENTER**. (Or, highlight the first blank slot in the Route List page and press **ENTER**.)
3. Press **MENU**, select 'Edit on Map' and press **ENTER**.
4. To add an airport, navaid, user waypoint or an existing map item to the route, use the **ARROW KEYPAD** to highlight the desired waypoint and press **ENTER**. Map items will not appear in the waypoint list. To create a waypoint from a map item, see page 11.
5. To add a new user waypoint to the route, use the **ARROW KEYPAD** to select the desired map position and press **ENTER**. The New Waypoint page appears. With 'OK' highlighted, press **ENTER** again to confirm the new waypoint. (You may also change the name, symbol and other properties of the new waypoint as described on page 73.)
6. As you add each waypoint to the route, the data window at the top of the map display will show the waypoint/map item name, bearing and distance from your location, and coordinates of the cursor. The bottom of the display will show you the number of available and used points. A route line will appear on the map to indicate each completed leg, and a dotted line will appear to indicate the distance and bearing from the last route waypoint to the map pointer location.
7. Repeat steps 3 and 4 until you have finished entering all route waypoints.
8. When finished press **QUIT** twice to return to the Route List Page. (Or, press **MENU**, highlight 'Edit as Text' and press **ENTER** to review the list of route waypoints.)

Navigating a Route

Once a route has been created, it can be activated and used for navigation from the Route tab of the Main Menu. A route may be navigated in the same sequence as it was originally created, or inverted and navigated from the end waypoint back to the beginning waypoint.

To activate and follow a route:

1. Press the **MENU** key twice to display the Main Menu. Use the **ARROW KEYPAD** to highlight the 'Route' tab. A list of all saved routes is displayed.
2. Use the **ARROW KEYPAD** to highlight the route you wish to navigate and press **MENU** to display the Route Tab Options.

3. Use the **ARROW KEYPAD** to select 'Activate Route' and press **ENTER**.
4. The route will appear on the Active Route Page with the active route leg identified by an arrow icon.
5. To navigate the route in reverse order: Press **MENU** to display the Active Route Options, then use the **ARROW KEYPAD** and **ENTER** to select the 'Invert' option.

To stop navigating a route:

1. Press **PAGE** (repeatedly) until the Active Route Page appears.
2. Press **MENU** to display the Active Route Page options.
3. Use the **ARROW KEYPAD** to select 'Deactivate' and press **ENTER**.

The Route Review Page displays the first and last waypoints as the route name. You can change the route name to your preferences, up to fifteen characters long.

To enter a custom route name:

1. Press the **MENU** key twice to display the Main Menu. Use the **ARROW KEYPAD** to highlight the 'Route' tab. A list of all saved routes is displayed.
2. Use the **ARROW KEYPAD** to highlight the route you wish to rename and press **ENTER** to display the Route Review Page.
3. Use the **ARROW KEYPAD** to highlight the route name field at the top of the page, and press **ENTER**.
4. Use the **ARROW KEYPAD** to select the desired route name—UP/DOWN to select the highlighted character and RIGHT to move to the next character field. One the desired name is selected, press **ENTER**.

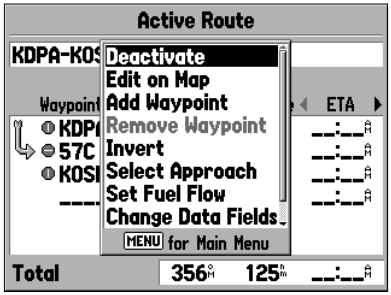
Route Review Options

The Route Review Page also features an options page which provides access to functions relating to specifically to the displayed route.

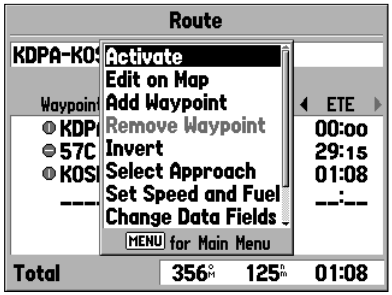
To display the Route Review options, press MENU (with the Route Review Page displayed):

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

Route Tab

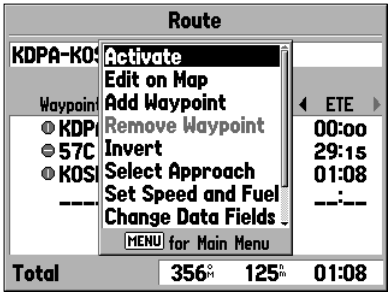


*To stop navigating the route, press **PAGE** (repeatedly) until the Active Route Page appears. Then press **MENU** and select 'Deactivate'.*

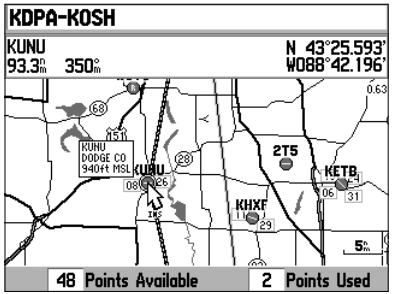


*With the Route Review Page displayed, press **MENU** to display context-sensitive options for this screen. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*

Route Tab



Select 'Activate' to begin navigating the route.



Place the panning pointer on a route leg and press ***ENTER*** *to create a "rubber band" line. Use the* ***ARROW KEYPAD*** *to drag the line to the new route waypoint.*

The following Route Review options are available:

- Activate
- Insert Waypoint
- Invert
- Remove Approach
- Delete Route
- Edit on Map
- Remove Waypoint
- Select Approach
- Set Speed and Fuel
- Change Data Fields

• **Activate—** selects the route and begins navigation guidance along the closest leg. If you are departing from the first waypoint in the route, 'Activate' will place you on the first leg and guide you along the entire route. If you later stop for fuel at a point along the route, 'Activate' will place you on the current leg and guide you through the remainder of the route.

• **Edit on Map—** allows you to review and modify the route using the map display. You can insert and remove waypoints from the route.

To edit an existing route from the map display:

1. From the 'Route' tab, use the **ARROW KEYPAD** to highlight the desired route and press **ENTER.**
2. Press MENU, highlight 'Edit on Map' and press **ENTER**.
3. To remove a route waypoint: Use the **ARROW KEYPAD** and IN/OUT zoom keys to place the panning pointer on the route waypoint you wish to remove. Press **MENU**, select 'Remove' and press **ENTER**.
4. To insert a new route waypoint: Use the **ARROW KEYPAD** and IN/OUT zoom keys to place the panning pointer on the route leg line where the new waypoint will be inserted. When the panning pointer is placed on a route leg line, the line appears highlighted. Press **ENTER** to create a "rubber band" line for this leg. Then use the **ARROW KEYPAD** to move the two ends of this line to the new route waypoint (replacing the original one leg with two route legs). Press **ENTER** to add the new route waypoint.
5. To return to the Route Review Page, press **QUIT**.

- **Insert Waypoint—** inserts a new waypoint before the highlighted waypoint in the route.

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

  1. From the 'Route' tab, use the **ARROW KEYPAD** to highlight the the desired route and press **ENTER.**
  2. On the Route Review page, use the **ARROW KEYPAD** to highlight the waypoint which will immediately follow the new waypoint you wish to insert and press **MENU**. (To add a point to the end, highlight the blank field at the bottom of the list.)
  3. Select 'Insert Waypoint' and press **ENTER**.
  4. In Aviation Mode, a pop-up window appears, allowing you to select the desired waypoint. Enter the identifier, facility name or city for the desired waypoint using the steps described on page 65.
  5. In Land or Water modes, the Find Menu appears. Highlight the desired waypoint category and press **ENTER**. Follow the additional prompts to select the desired waypoint. (For more help on using the Find Menu, see page 54.)

- **Remove Waypoint—** removes the highlight waypoint from the route. The deleted waypoint will remain in memory, just not as part of the selected route.

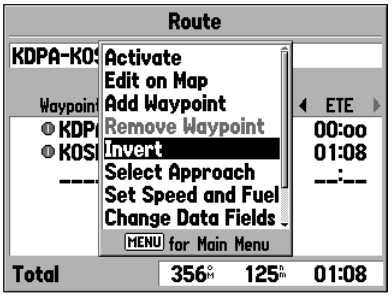
- **Invert—** reverses the order of the waypoints in the selected route, as described on page 67.

- **Select Approach—** replaces the final destination airport in the selected route with the sequence of waypoints for a selected approach. To use this option, keep in mind that the airport must have a published approach (GPS, RNAV, VOR, NDB, localizer or ILS) and only the final course segment (usually from final approach fix to missed approach point) of the published approach is available in the GPSMAP 196.

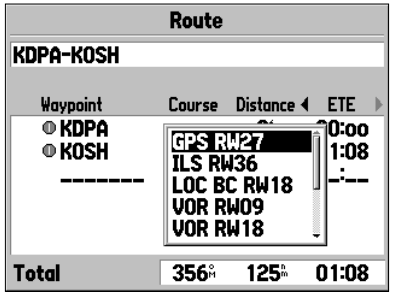
  To select and navigate an approach for the destination airport:

  1. From the 'Route' tab, use the **ARROW KEYPAD** to highlight the the desired route and press **ENTER.**
  2. Press **MENU** and highlight 'Select Approach'.
  3. Press **ENTER** to display a list of available approaches for the destination airport.
  4. Use the **ARROW KEYPAD** to select the desired approach and press **ENTER**.
  5. A 'Vectors?' pop-up window appears. (See page 45 for more information on vectors-to-final.) Use the **ARROW KEYPAD** to select 'Yes' or 'No' and press **ENTER**. The GPSMAP 196 will remove the destination airport from the route and replace it with the approach waypoints.

Route Tab

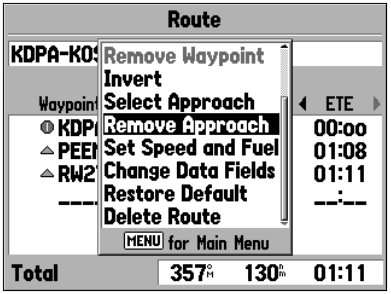


Select 'Invert' to reverse the sequence of the route. This is an easy way to re-use the route for the return trip home.

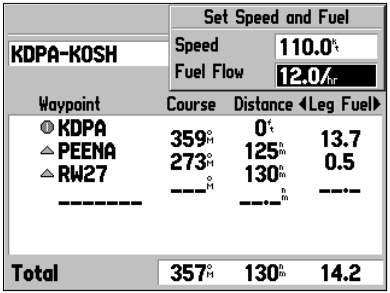


'Select Approach' displays a list of published approaches for the destination airport and will add the approach waypoints to your route.

Route Tab



'Remove Approach' will remove the approach waypoints from the route and restore the destination airport location in the route.



Fuel flow figures are used to calculate fuel requirements for the route. Note the 'Leg Fuel' figures above.

- **Remove Approach—** appears only when an approach has been selected. Allows you to cancel the approach and return to the route to the original airport destination.
- **Set Speed and Fuel—** allows you to enter a cruising speed and fuel flow figure. The GPSMAP 196 uses these figures to calculate ETA, ETE, and leg or cumulative fuel requirements. This information can be used with saved routes for trip planning purposes.

  To enter planned speed or fuel flow figures:

  1. From the 'Route' tab, use the **ARROW KEYPAD** to highlight the desired route and press **ENTER.**
  2. Press **MENU**, highlight 'Set Speed and Fuel' and press **ENTER**. A pop-up window appears to enter these figures
  3. Use the **ARROW KEYPAD** to select the desired figure and press **ENTER**.
  4. Use the **ARROW KEYPAD** to set the desired figure. Press **ENTER** once the data has been entered. (Press **QUIT** to return to the Route Review Page.)

The units of measure for fuel flow (gallons or liters) are not included on the GPSMAP 196, since they are not required for calculations. Keep in mind the units from which the original flow rate figure was derived as you view the calculated fuel requirements figures.

*For trip course, distance, time and fuel planning on the ground: create a new route as outlined on page 65, then enter a planned cruising speed and fuel flow as described above. The planning figures are displayed on the Route Review Page. Use the LEFT/RIGHT portion of the **ARROW KEYPAD** to view all the planning figures in right-most data column.*

- **Delete Route—** deletes the selected route from memory. Only the route is deleted. Any user-created waypoints contained in the route will remain in memory and will still appear in the user waypoint list.

- **Change Data Fields—** allows you to choose the data types displayed on the two data field columns appearing at the center of the Route Review Page. There are ten different data options including: leg course (DTK), distance, ETA, ETE, and cumulative or leg fuel requirements. You can review the complete list on the GPSMAP 196, and refer to Appendix D for definitions of each data field term.

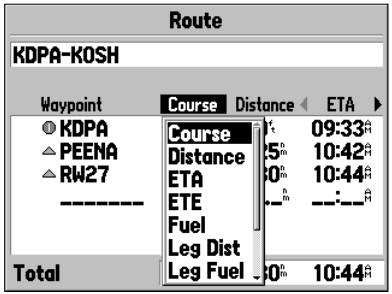
To change a data field

1. From the 'Route' tab, use the **ARROW KEYPAD** to highlight the desired route and press **ENTER.**
2. Press MENU, highlight 'Change Data Fields' and press **ENTER**.
3. Use the **ARROW KEYPAD** to select the data field column you wish to change, then press **ENTER**. A pop-up window appears listing the available data field types.
4. Use the **ARROW KEYPAD** to select the desired data type and press **ENTER**.

Creating Routes on a PC

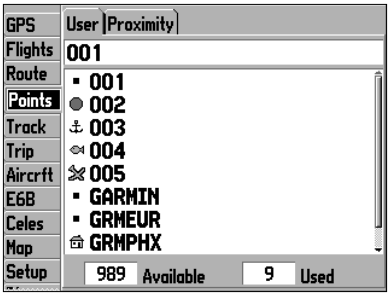
If you intend to use your GPSMAP 196 regularly, you may wish to do your flight planning on your home or office PC and upload the route to the GPS unit. For frequent users, this will save some time over creating the route directly on the unit. Some aftermarket software programs are available to support this capability, including FliteMap®/FliteStar® by Jeppesen, Inc., and FliteSoft® by RMS Technology., Inc. Garmin has not tested and does not endorse any third-party software, and there may be other products available with this feature in addition to those referenced here.

Route Tab

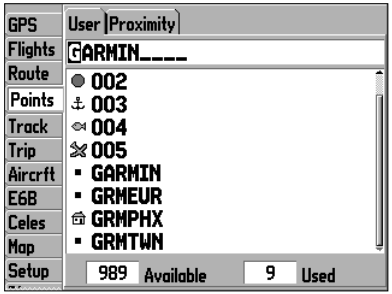


Select 'Change Data Fields', highlight the field you wish to change and press ***ENTER*** *to diplay a list of available data types.*

Points Tab



The 'Points' tab displays a list of user-created waypoints. Use the ***ARROW KEYPAD*** *to scroll through the list.*



For longer lists, you can quickly jump to the desired point by entering the name at the top of the page.

Points Tab— divided into two separate screens: 'User' and 'Proximity'. 'User' displays a list of any user-created waypoints, total number of waypoints saved ("Used") and available free user waypoint memory. 'Proximity' includes an On/Off switch for the Proximity Alarm, a list of any waypoints which are used for proximity alarms and the proximity alarm radius. Selecting any listed item (on either screen) provides additional waypoint information.

To view additional information for a saved waypoint:

1. From the 'Points' tab, use the **ARROW KEYPAD** to select the 'User' or 'Proximity' tab at the top of the page.
2. Use the **ARROW KEYPAD** to scroll through the waypoint list and highlight the desired waypoint.
3. Press **ENTER** to display additional information for the selected waypoint.
4. To exit the Waypoint Information Page, press **QUIT**.

The GPSMAP 196 stores up to 1000 user waypoints, which can result in a very long list (under the 'User' tab). To quickly jump to the desired waypoint, use the editable name field at the top of the User Waypoint List.

To jump to the desired waypoint in the user list:

1. From the 'Points' tab, use the **ARROW KEYPAD** to select the 'User' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the editable waypoint name field at the top of the page, then press **ENTER**.
3. Use the **ARROW KEYPAD** to enter the name of the desired waypoint—UP/DOWN to select the highlighted character and RIGHT to move to the next character field—and press **ENTER** once all characters for the waypoint name have been entered. The on-screen cursor will jump to the corresponding location in the user waypoint list.

Points Tab: User Waypoint Options

The 'User' screen under the Points tab features an options page which provides additional user waypoint features.

To display the Points Tab: User Waypoint options, press MENU (with 'User' selected from the Points Tab):

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

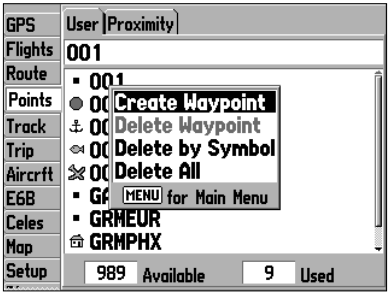
The following options are available:

- Create Waypoint— allows you to create a new waypoint by entering the position coordinates (latitude/longitude) or by referencing bearing/distance from another point. (Recall from page 48 that the **ENTER/MARK** key can also be used to create a user waypoint at your present position.)
- Delete Waypoint— deletes the highlighted user waypoint from the list.
- Delete By Symbol— allows you to delete all user waypoints that have a common waypoint symbol. The waypoint symbols are shown at the waypoint location on the map display.
- Delete All— deletes all saved user waypoints from memory.

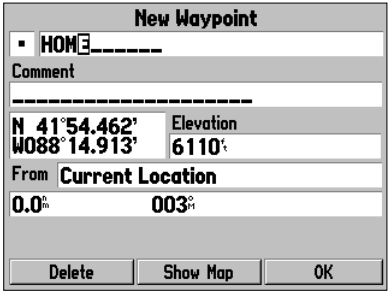
To create a user waypoint by entering position coordinates or referencing another point:

1. From the 'Points' tab, use the **ARROW KEYPAD** to select 'User' at the top of the page and press MENU.
2. Use the **ARROW KEYPAD** to select 'Create Waypoint' and press **ENTER**. A New Waypoint Page will appear with a pre-assigned name, symbol and present position for the new waypoint.
3. To change the waypoint name (or comment): highlight the name (comment) field at the top of the page and press **ENTER**. Use the **ARROW KEYPAD** to enter the desired waypoint name (comment)—UP/DOWN to select the highlighted character and RIGHT to move to the next character field. Press **ENTER** once all characters for the waypoint name (comment) have been entered.
4. To select a different waypoint symbol which will appear on the map: Highlight the symbol field (at the top left corner of the page) and press **ENTER**. A list of available symbols will appear. Use the **ARROW KEYPAD** to select the desired symbol and press **ENTER**.
5. To enter the waypoint position (or elevation): highlight the position (elevation) field in the middle of the page and press **ENTER**. Use the **ARROW KEYPAD** to enter the position coordinates. Press **ENTER** once all characters for the position (elevation) have been entered.
6. To enter the waypoint position by referencing another point: highlight the 'From' field and select 'Current Location' or another location as the reference point. Next, highlight the distance field and enter the distance from the reference point to the new waypoint location. Finally, highlight the bearing field and enter the bearing from the reference point to the new waypoint location.
7. To save the new waypoint, highlight the on-screen GOTO button and press **ENTER**.

Points Tab

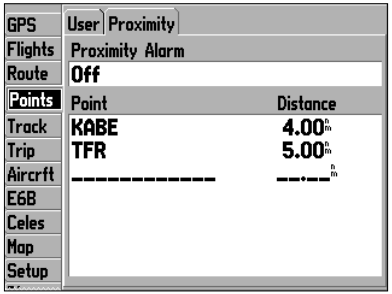


*With the User waypoints screen displayed, press **MENU** to display context-sensitive options for this screen. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*

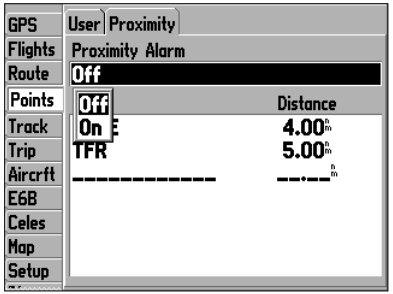


*When creating a new waypoint, use the **ARROW KEYPAD** and **ENTER** to input waypoint name and position.*

Points Tab



Use proximity waypoints to create alarm circles around areas you wish to avoid. Proximity waypoints can be created for Jeppesen data (airports or navaids), user waypoints, MapSource data points, etc.



The second screen under the 'Points' tab is devoted to Proximity Waypoints, which are existing waypoints that have an alarm circle defined around the waypoint location. You select the waypoints for which you want proximity alarms, and enter the desired alarm radius. The GPSMAP 196 stores up to ten proximity waypoints with a maximum alarm radius of 99.99 nautical or statute miles.

To create a proximity waypoint:

1. Use the **ARROW KEYPAD** to highlight the first blank line on the Proximity Waypoint List and press **ENTER**.
2. The Find Menu appears as described on pages 54-57. Follow the steps provided on those pages to select the desired waypoint. Once the desired point is selected, you will return to the 'Proximty' screen.
3. With the 'Distance' field highlighted for the selected waypoint, press **ENTER** and use the **ARROW KEYPAD** to enter the proximity alarm radius. Once the desired alarm radius is selected, press **ENTER** again.

To turn proximity alarms on or off:

1. Use the **ARROW KEYPAD** to highlight the field at the top of the page, below 'Proximity Alarm', and press **ENTER**.
2. Select 'ON' or 'OFF' and press **ENTER**.

If a proximity alarm circle overlaps with another existing alarm circle, a 'Proximity Overlaps Another Proximity Waypoint' message will appear. If you enter this overlap area, the GPSMAP 196 will only alert you to the closet proximity point. Use caution when navigating in these areas.

If temporary flight restrictions (TFRs) are issued in your area, the proximity waypoint feature provides an easy way to designate a no-fly or restricted flight area. Simply designate a waypoint at the center of the TFR and then an alarm radius. The GPSMAP 196 will provide and alarm if you enter this area.

Points Tab

Points Tab: Proximity Waypoint Options

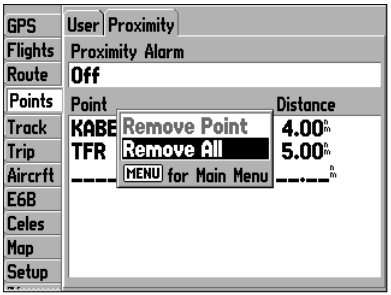
The 'Proximity' screen under the Points tab features an options page which provides additional proximity waypoint features.

To display the Points Tab: Proximity Waypoint options, press MENU (with 'Proximity' selected from the Points Tab):

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

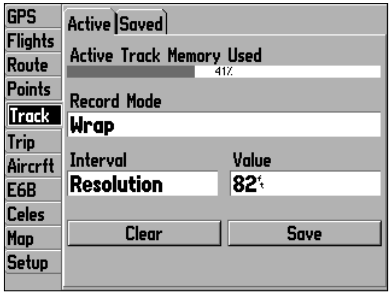
The following options are available:

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

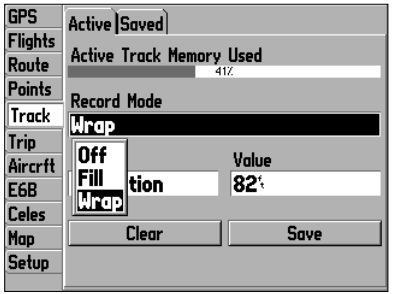


*With the Proximity waypoints screen displayed, press **MENU** to display context-sensitive options for this screen. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*

Track Tab



The 'Track' tab shows information on the track log currently being recorded (active) and any saved track logs.



The 'Wrap' setting will continuously record track log points, overwriting the oldest data in memory with new information.

Track Tab— divided into two separate screens: 'Active' and 'Saved'. 'Active' displays available track log memory, recording mode and has on-screen buttons for clear or save the track log data. 'Saved' displays a list of any saved track logs.

A track log is an electronic "breadcrumb trail" recording of the path you have traveled. The 'Active' screen lets you specify whether or not to record a track log and define how it is recorded. The active track log can store up to 2500 position points.

To define how a track log is recorded or shut the feature off:

1. From the 'Track' tab, use the **ARROW KEYPAD** to select the 'Active' tab at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the field under 'Record Mode' and press **ENTER**. A list of recording options appears.
3. To turn track log recording off: select 'Off' and press **ENTER**.
4. To continuously record track log data, overwriting the oldest data in memory with new data: select 'Wrap' and press **ENTER**.
5. To record track log data only until track log memory is full: select 'Fill' and press **ENTER**.
6. With 'Wrap' or 'Fill' selected above, highlight 'Interval', select 'Distance', 'Time' or 'Resolution', and press **ENTER**. ('Time' allows you to specify a time interval between recorded points. 'Distance' adds a new track point once you have traveled the specified distance. 'Resolution' adds a new track point only if you deviate off a projected course, left or right, the specified distance.)
7. The 'Value' field allows you to specify the desired time interval or distance. Use the **ARROW KEYPAD** and **ENTER** to input the desired setting.

To clear active track log memory:

1. From the 'Track' tab, use the **ARROW KEYPAD** to select the 'Active' tab at the top of the page.
2. Use the **ARROW KEYPAD** to select the on-screen 'Clear' tab and press **ENTER**.

The active track log can be saved for later use. You must save the active track log to use the TracBack navigation feature. A saved log will contain up to 500 position points.

To save the active track log:

1. From the 'Track' tab, use the **ARROW KEYPAD** to select the 'Active' tab at the top of the page.
2. Use the **ARROW KEYPAD** to select the on-screen 'Save' tab and press **ENTER**.

The 'Saved' screen under the Track Tab displays a list of saved tracks. By selecting an item on the list, you can view additional information, such as distance traveled and number of track points.

To display additional details for a saved track:

1. From the 'Track' tab, use the **ARROW KEYPAD** to select the 'Saved' tab at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the desired track record and press **ENTER**.

Saved track logs can be used for navigation guidance with the TracBack feature. TracBack allows you to retrace your path using the automatically-recorded track log. TracBack routes are created by reducing your track log into a route of up to 50 points (representing the most significant points in the original track log data). The TracBack route will lead you back through the points to the oldest track log point, so it's a good idea to clear the existing track log before you start a new trip.

To activate a TracBack route:

1. From the steps above, use the **ARROW KEYPAD** to select the on-screen 'TracBack' button and press **ENTER**. Or,
1. From the 'Track' tab, use the **ARROW KEYPAD** to select the 'Saved' tab at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the desired track record and press MENU.
3. Use the **ARROW KEYPAD** to select 'TracBack' and press **ENTER**.

Track Tab: Saved Track Logs Options

The 'Saved' screen under the Track tab features an options page with additional track log features.

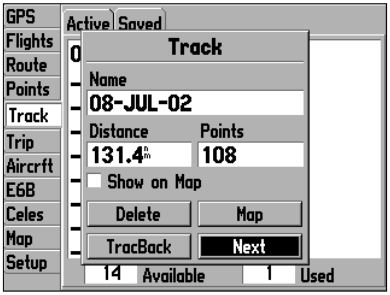
To display the Track Tab: Saved Track Log options, press MENU (with 'Saved' selected from the Track Tab):

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

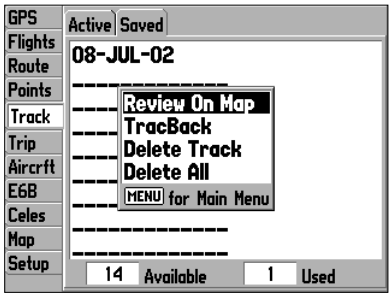
The following options are available:

- Review on Map— shows the selected track log on the map display.
- TracBack— activates a TracBack route, in reverse order, along the selected track log.
- Delete Track— deletes the selected track log.
- Delete All— removes all saved track logs from memory.

Track Tab

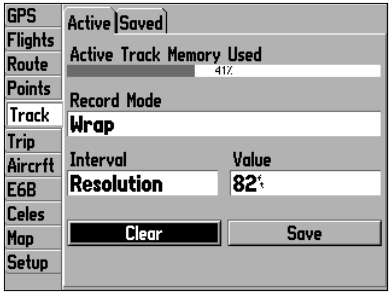


*From the Saved Track screen, use the **ARROW KEYPAD** to highlight a saved track and press **ENTER** to view additional information.*

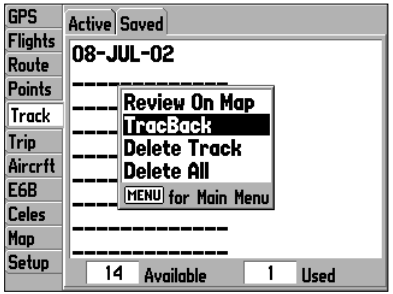


*With the Saved Tracks screen displayed, press **MENU** to display context-sensitive options for this screen. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*

Track Tab



Be sure to 'Clear' the track log before you start your trip IF you will be using the TracBack feature.



*'TracBack' can be selected by highlighting a saved track and pressing **MENU**.*

To get the most out of the TracBack feature, remember these Navigating tips:

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

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

To reset the trip data:

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

Aircrft Tab— divided into two separate screens: 'Aircraft Profile' and 'Weight & Balance'. 'Aircraft Profile' allows you to define cruising speed, maximum speed and fuel flow for up to ten aircraft that you regularly fly. Cruising speed and fuel flow are used as default settings when viewing trip planning information on the Route Review Page. The maximum speed figure is used to define the range for airspeed on the Panel Page (and is automatically updated if you exceed this figure).

To enter an aircraft profile:

1. From the 'Aircrft' tab, use the **ARROW KEYPAD** to select 'Aircraft Profile' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the on-screen 'New' button and press **ENTER**.
3. Use the **ARROW KEYPAD** to enter the aircraft tail number (or other identifying information) in the 'Current Aircraft' field. Press **ENTER** when finished.
4. Use the **ARROW KEYPAD** to highlight the 'Cruise Speed' field and press **ENTER**.
5. Use the **ARROW KEYPAD** to enter the cruising speed for your aircraft. Press **ENTER** when finished.
6. Repeat steps 4 and 5, entering the 'Maximum Speed' and 'Fuel Flow' figures for your aircraft.

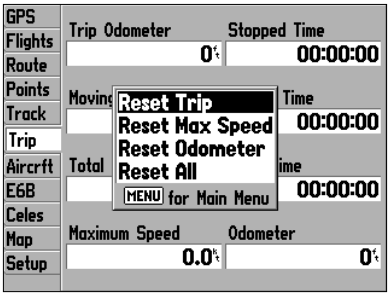
To select a saved aircraft profile:

1. From the 'Aircrft' tab, use the **ARROW KEYPAD** to select 'Aircraft Profile' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the 'Current Aircraft' field and press **ENTER**.
3. USe the **ARROW KEYPAD** to select the desired aircraft profile and press **ENTER**.

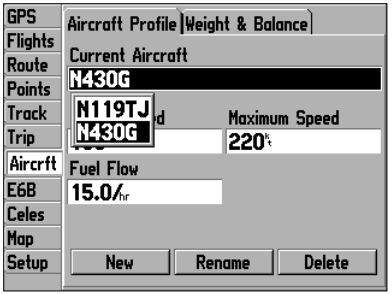
To rename or delete a saved aircraft profile:

1. From the 'Aircrft' tab, use the **ARROW KEYPAD** to select 'Aircraft Profile' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the 'Current Aircraft' field and press **ENTER**.
3. Use the **ARROW KEYPAD** to select the on-screen 'Rename' or 'Delete' button and press **ENTER**. If 'Rename' is selected, use the **ARROW KEYPAD** and **ENTER** to enter a new tail number.

Trip/Aircrft Tabs

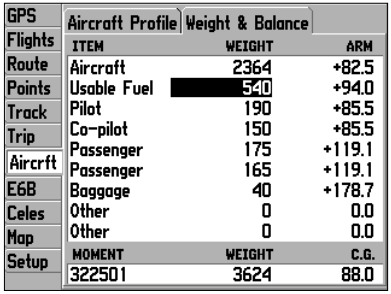


The trip computer readouts can be reset individually or collectively.

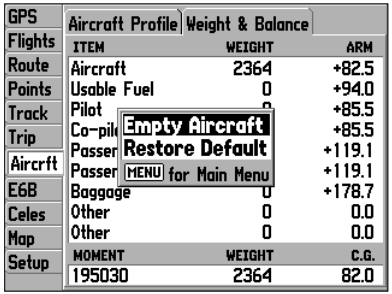


The Aircraft Profile screen allows you to save cruising speed, maximum speed and fuel flow figures for multiple aircraft. The information is used on the Active Route and Panel pages.

Aircrft Tab



The GPSMAP 196 will store separate weight and balance information for each aircraft on the Aircraft Profile screen.



Select the 'Empty Aircraft' option to zero out the weight figures for all but the aircraft empty weight (and still retain all the arm values).

'Weight & Balance' may be used during your pre-flight preparations to verify the weight and balance conditions for your aircraft. By entering the weight and arm values on this page, the GPSMAP 196 can calculate the total weight, moment and center of gravity (CG) figures, ensuring a safe flight every time.

Before entering the various figures, you will need to determine the basic empty weight of the airplane and the arm (or 'station') for each weight entered. These figures should be determined using the pilot's operating handbook for your airplane. The pilot's operating handbook will also note the weight limitations and fore/aft CG limits. Compare those figures to the values calculated by the GPSMAP 196.

To perform weight and balance calculations:

1. From the 'Aircrft' tab, use the **ARROW KEYPAD** to select 'Weight & Balance' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the desired weight field and press **ENTER**.
3. Use the **ARROW KEYPAD** to enter the weight figure. Press **ENTER** when finished.
4. Use the **ARROW KEYPAD** to highlight the corresponding arm field and press **ENTER**.
5. Use the **ARROW KEYPAD** to enter the arm figure. Press **ENTER** when finished.
6. Repeat steps 2 through 5 above until all figures are entered. The calculated moment, weight and CG figures will appear at the bottom of the page. Keep in mind that the "Aircraft" (empty weight/arm) figures must be entered as a reference to calculate a valid moment, weight and CG.

Aircrft Tab: Weight & Balance Options

The 'Weight & Balance' screen under the Aircrft tab features an options page with additional weight and balance options.

To display the Aircrft Tab: Weight & Balance options, press MENU (with 'Weight & Balance' selected from the Aircrft Tab):

To select a menu option, use the ARROW KEYPAD to highlight the desired option and press ENTER.

The following options are available:

- Empty Aircraft— retains aircraft empty weight and arm figures, retains other arm figures, but zeros all other weight values.
- Restore Default— restores all settings to zero.

E6B Tab— displays Density Altitude, True Airspeed and Winds Aloft information, based upon information you enter.

To calculate density altitude and true airspeed:

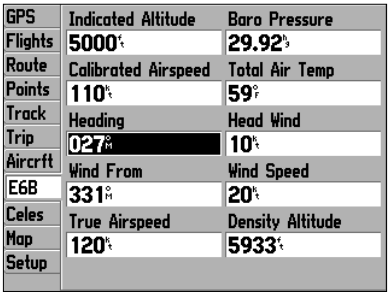
1. From the 'E6B' tab, use the **ARROW KEYPAD** to hightlight the 'Indicated Altitude' field (at the top of the page) and press **ENTER**.
2. Use the **ARROW KEYPAD** to enter the altitude displayed on your altimeter. Press **ENTER** when finished.
3. Repeat steps 1 and 2 to enter the 'Calibrated Airspeed', 'Baro Pressure' and 'Total Air Temperature'. (For 'Calibrated Airspeed', use the speed displayed on your airspeed indicator. Use the current altimeter setting for 'Baro Pressure'. 'Total Air Temperature' is the temperature of the outside air including the heating effect caused by speed. For most aircraft, this is the temperature reading on a standard outside air temperature gauge.)
4. The calculated figures for density altitude and true airspeed are displayed at the bottom of the page.

To calculate winds aloft:

1. Follow the steps above to determine true airspeed. Or, use the **ARROW KEYPAD** and **ENTER** to manually enter a true airspeed figure in the 'True Airspeed' field.
2. Use the **ARROW KEYPAD** to highlight the 'Heading' field and press **ENTER**.
3. Use the **ARROW KEYPAD** to enter the aircraft heading displayed on your directional gyro or compass. Press **ENTER** when finished.
4. The calculated figures for head/tail wind, wind direction and speed are displayed at the center of the page.

If a True North reference is currently selected (as the heading reference; see page 95) on your GPSMAP 196, you must enter 'Heading' using a True North reference to accurately determine winds.

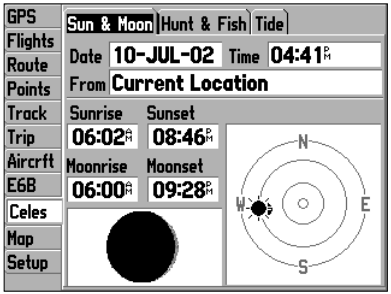
E6B Tab



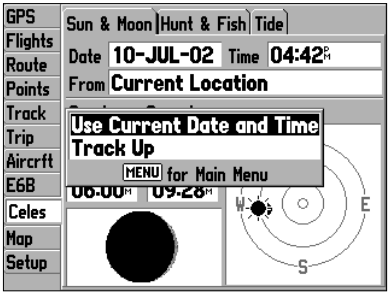
To calculate density altitude and true airspeed, enter Indicated Altitude, Baro Pressure, Calibrated Airspeed and Total Air Temp.

To calculate winds aloft, perform the above calculations to determine true airspeed or enter it manually. Then enter aircraft heading.

Celes Tab



The Sun & Moon screen displays the overhead location of the sun and/or moon.



Sun & Moon information can be displayed for any location or any time and date.

Celes Tab— divided into three separate screens: 'Sun & Moon', 'Hunt & Fish' and 'Tide'. 'Sun & Moon' displays celestial data for sun rise/set, moon rise/set, moon phases and approximate skyview locations for the sun and moon. The moon phase will display the current visible portion of the moon as a light color. You may display this data for your current position, a position from the map, or a waypoint location. Also, you may select a different date and time, or use the current date.

To choose another position:

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Sun & Moon' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the 'From' field and press **ENTER**.
3. The Find Menu appears. See page 54 for more information on using the Find Menu.

The location used for Sun & Moon calculation appears in the 'From' field. The timetables displayed will be based upon your current time zone. When using a position from another location outside of your time zone, you will need to set the Time Zone for that location under the 'Setup' tab on the Main Menu (see page 93).

To change the time or date:

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Sun & Moon' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the date or time field and press **ENTER**.
3. Use the **ARROW KEYPAD** to enter a new date or time. Press **ENTER** when finished.

To use current date and time:

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Sun & Moon' at the top of the page.
2. Press **MENU**, use the **ARROW KEYPAD** to highlight 'Use Current Date and Time' and press **ENTER**.

The skyview display showing the location of the sun and moon in the sky can be oriented with North at the top of the screen, or rotated to the top of the screen is the direction you're currently travelling (track).

To change the skyview orientation:

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Sun & Moon' at the top of the page.
2. Press **MENU**, then use the **ARROW KEYPAD** to highlight 'North Up' or 'Track Up' and press **ENTER**.

The 'Hunt & Fish' screen displays good and best times for hunting or fishing. You can select a date and location of your choice.

To change the date:

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Hunt & Fish' at the top of the page.
2. Use the ARROW **KEYPAD** to highlight the 'Date' field and press **ENTER**.
3. Use the **ARROW KEYPAD** to enter a new date. Press **ENTER** when finished.

To use current date and time:

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Hunt & Fish' at the top of the page.
2. Press **MENU**, use the **ARROW KEYPAD** to highlight 'Use Current Date' and press **ENTER**.

To choose another position:

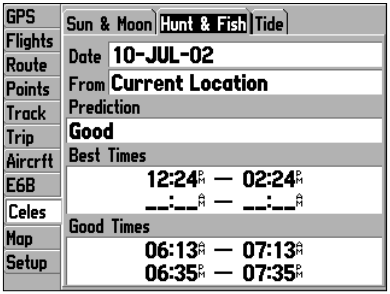
1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Hunt & Fish' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the 'From' field and press **ENTER**.
3. The Find Menu appears. See page 54 for more information on using the Find Menu.

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

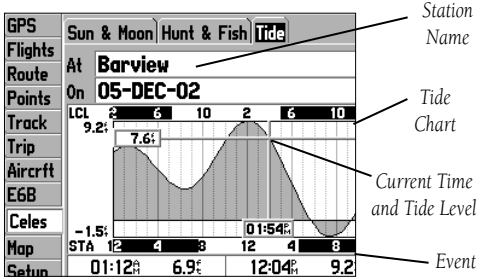
The top of the page displays the tide station being referenced, with the date directly below. The top of the chart shows a 24-hour block of local time (LCL) for your position, with the reported station time (STA) appearing at the bottom. Daytime (light bar) and nighttime (dark bar) show across the time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

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

Celes Tab

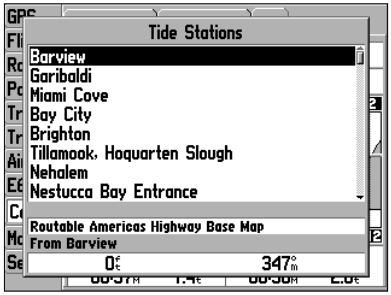


Hunt & Fish indicates the best times for hunting and fishing. This information can be displayed for any location or any time/date.

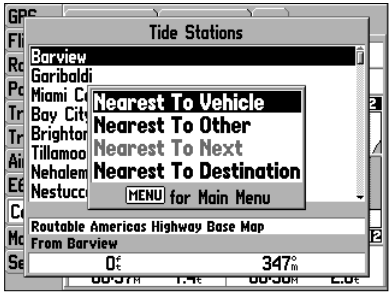


The Tide screen displays graphic tide station information.

Celes Tab



*To view tide data at another station, use the **ARROW KEYPAD** to select the station name and press **ENTER** to list nearby stations.*



*With nearby stations listed, press **MENU** to display context-sensitive options for this screen. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*

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

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Tide' at the top of the page.
2. Use the **ARROW KEYPAD** to select 'At' (tide station) and press **ENTER** to display a tide station list.
3. Press **MENU**, select 'Nearest to Vehicle' and press **ENTER**.
4. USe the **ARROW KEYPAD** to select the desired station from the list and press **ENTER**. Press **ENTER** again to display the chart.

To view a tide chart for another station:

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Tide' at the top of the page.
2. Use the **ARROW KEYPAD** to select 'At' (tide station) and press **ENTER**.
3. A list of stations nearest to the currently selected station is displayed. Use the **ARROW KEYPAD** to highlight the desired station from the list and press **ENTER**. Press **ENTER** again to display the chart.

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

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Tide' at the top of the page.
2. Use the **ARROW KEYPAD** to select 'At' (tide station) and press **ENTER**.
3. Press **MENU**, select 'Nearest to Other' and press **ENTER**.
4. Use the **ARROW KEYPAD** to select a position on the map with the Map Pointer and press **ENTER**.
5. Select the desired station from the list and press **ENTER** (twice) to view the chart.

To view the tide chart for another date:

1. From the 'Celes' tab, use the **ARROW KEYPAD** to select 'Tide' at the top of the page.
2. Use the **ARROW KEYPAD** to select 'On' (date) and press **ENTER**.
3. Enter the desired date with the **ARROW KEYPAD** and press **ENTER**.
4. To return to the current date, press **MENU**, select 'Use Current Date' and press **ENTER**.

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

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

Map Tab— provides the setup options for the Map Page. See page 16 for additional information on using the Map Tab.

Setup Tab— divided into ten separate screens. Allows you to configure GPSMAP 196 system and feature settings to your preferences. These ten screens are organized under a second set of file tabs which appear across the top of the page. The file tabs make individual selections easier to locate and change.

To change a setup feature:

1. From the 'Setup' tab on the left-hand side of the page, move LEFT or RIGHT on the **ARROW KEYPAD** to select desired file tab at the top of the page.
2. Move UP or DOWN on the **ARROW KEYPAD** to highlight the setting you want to change and press **ENTER**.
3. Use the **ARROW KEYPAD** to select or input the desired setting. Press **ENTER** when finished.
4. To exit, press **QUIT**.

The following pages list the setup file tabs and the settings available under each tab:

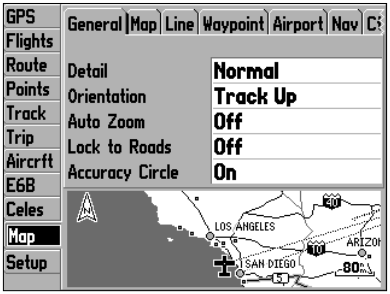
System

System Mode— Normal: provides continuous, once-per-second position and nvigation updates; Battery Saver: provides position updates at three second intervals to conserve battery power, but navigation data is continuously updated based on last know speed and course; Simulator: used for demo or training operation; allows you to animate the screens and observe unit operation without actually receiving satellites. (Use the Simulator setting when creating waypoints or flight plans indoors to conserve battery power.)

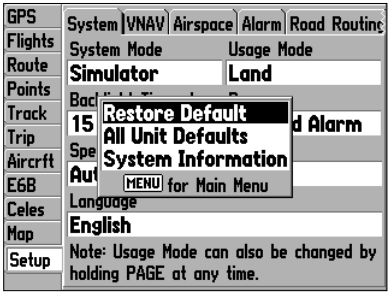
Usage Mode— Aviation: displays a graphic HSI for navigation guidance, sets NRST key to display nearest airports/navaids, enables airspace alarms and airspace boundaries on the map; Land: displays a graphic RMI for navigation guidance, enables the Find Menu from the NRST key, disables airspace features; Water Mode: reverses shading of land and water on the map display, uses graphic RMI, enables Find Menu and disables airspace. For more information on differences between each mode, see page 7.

Backlight Timeout— Always On or time settings from 15 Seconds through 2 Minutes: determines how long the screen backlighting will remain on after the last keypress. Select a time setting to conserve battery power.

Map/Setup Tabs

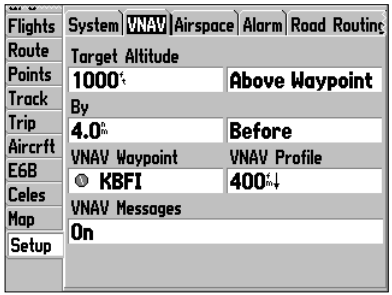


See page 16 for details on using the Map setting screens.

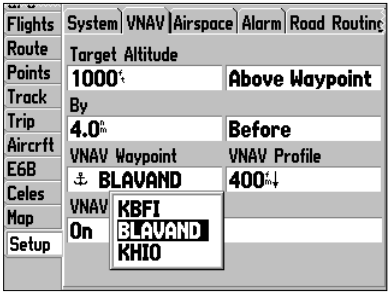


*The System screen allows you to enable simulator mode or change usage mode. Press **MENU** and select 'System Information' to view software version and unit ID.*

Setup Tab: VNAV



Use the VNAV screen to define a vertical navigation profile, including target altitude and descent rate.



When navigating a route, you can use the VNAV feature to aid in climbs or descents by selecting an interim route waypoint and defining target altitude.

Speed Filter— Auto: automatically averages speed readings; Off: disables speed filtering; On: allows you to manually enter a filtering value from 1 to 255 seconds.

Language— allows you to select between available languages used on-screen for tabs, menu options and main page descriptions.

VNAV

The 'VNAV' file tab provide settings for the vertical navigation feature. These settings create a three-dimensional profile which guides you from your present position and altitude to a final (target) altitude at a specified location. Once the profile is defined, message alerts and additional data on the HSI Page will keep you informed of your progress. The user-defined data fields on the HSI Page can display time to beginning of VNAV maneuver (ETV), glide ratio and vertical speed to target. Expect the following to occur when using the GPSMAP 196's VNAV features:

- As you approach the initial descent point, the time to vertical navigation field (ETV) indicates the time to reach the initial descent point.
- At one minute prior to the initial descent point, a message 'Approaching VNAV Profile' occurs. The time to vertical navigation will sequence from indicating time to initial descent point to indicating time to reach the target altitude. Finally, the descent angle will lock to prevent changes in speed from altering the profile. Keep this in mind, since the VNAV feature will not take into account any changes in groundspeed that occur during the transistion from level flight to descent or climb.
- At 500 feet above the target altitude, an 'Approaching Target Altitude' message appears. The time to vertical navigation will go blank and the VNAV indicator will disappear from the HSI Page.

GPS accuracy may be degraded by the U.S. Department of Defense imposed Selective Availability (SA) program. With 'SA' on, GPS altitude may be in error by several hundred feet. Errors of this magnitude may result in fluctuations in the VNAV indicator on the HSI Page. The GPSMAP 196 is a VFR navigation tool and should not be used to perform instrument approaches.

Target Altitude— defines the altitude you want to be at when you reach your target location. Specified as 'Above Waypoint' (using field elevation for airports in the Jeppesen database) or 'Above MSL' (to specify an exact MSL altitude target).

By— defines the target location with settings of distance 'Before' or 'After' a reference waypoint (normally the final destination airport). To set a target location AT a reference waypoint, enter a distance of zero.

VNAV Waypoint— allows you to select any waypoint along the currently active route (or Goto) as your reference waypoint. The reference waypoint defines the target location (see above).

VNAV Profile— allows you to select the desired descent rate.

VNAV Messages— allows you to enable/disable the VNAV alert messages.

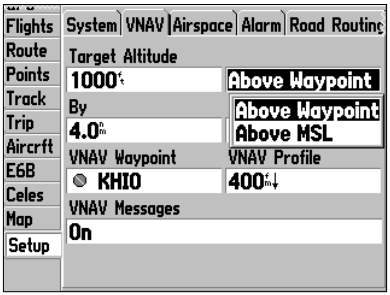
To define VNAV profile settings:

1. From the 'Setup' tab, use the **ARROW KEYPAD** to select 'VNAV' at the top of the page.
2. Use the **ARROW KEYPAD** to select 'Target Altitude' and press **ENTER**. Use the **ARROW KEYPAD** to enter the target altitude and press **ENTER** once all characters have been entered. If necessary, select the adjacent field, press **ENTER** and choose 'Above Waypoint' or 'Above MSL'. Then press **ENTER** again.
3. Use the **ARROW KEYPAD** to select 'By' and press **ENTER**. Use the **ARROW KEYPAD** to enter the distance and press **ENTER** once all characters have been entered. If necessary, select the adjacent field, press **ENTER** and choose 'Before' or 'After'. Then press **ENTER** again.
4. If using a route: use the **ARROW KEYPAD** to select 'VNAV Waypoint' and press **ENTER**. Select any waypoint along the currently active route and press **ENTER**.
5. Use the **ARROW KEYPAD** to select 'VNAV Profile' and press **ENTER**. Use the **ARROW KEYPAD** to enter the descent rate and press **ENTER** once all characters have been entered.

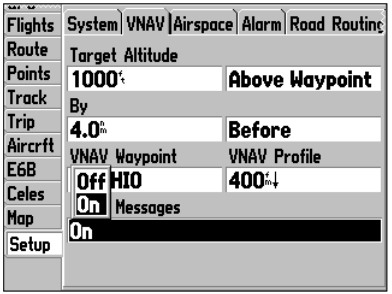
To enable/disable VNAV messages:

1. From the 'Setup' tab, use the **ARROW KEYPAD** to select 'VNAV' at the top of the page.
2. Use the **ARROW KEYPAD** to select 'VNAV Messages' and press **ENTER**.
3. Use the **ARROW KEYPAD** to select 'On' or 'Off' and press **ENTER**.

Setup Tab: VNAV

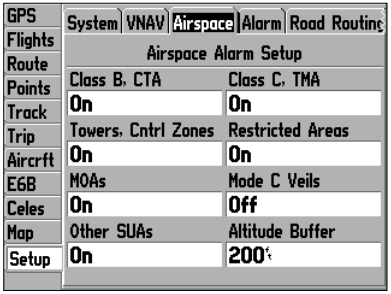


Target altitude and be defined above an airport elevation or you can set a specific MSL altitude.

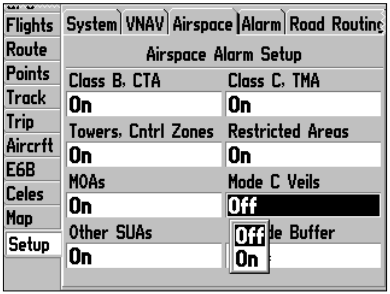


If desired, you can disable the VNAV messages.

Setup Tab: Airspace



The Airspace screen allows you to enable/disable airspace alert messages.



Select 'On' or 'Off' for each airspace type.

Airspace

Airspace alarms are designed to provide message alerts in several stages, depending on whether you are projected to enter an airspace or are just in close proximity. The GPSMAP 196 provides the following airspace alerts:

- **Ahead—**your projected course will take you inside an airspace within the next ten minutes or less.
- **Near—**you are within two nautical miles of an airspace, but not projected to enter it.
- **Near & Ahead—**you are within two nautical miles of an airspace and your current course will take you inside the airspace.
- **Inside Airspace—**you are within the boundaries of the airspace.

Some airspace altitude limits may be charted in terms of altitude above ground level (AGL). If the actual lower limit of an airspace is charted in AGL, the GPSMAP 196 will alert you at any altitude below the upper limit. However, if the actual upper limit is also charted in AGL, the GPSMAP 196 will provide the alert at all altitudes.

Alarms for most categories by be turned off, except for Prohibited Areas. Disabling an airspace alert will prevent the alert message, but the airspace boundary will still appear on the map.

If you fly above or below an airspace, then descend or climb to enter the airspace, the 'Inside Airspace' message may be the only alert provided! The 'Airspace Ahead' and/or 'Airspace Near' messages will not occur if you are outside the vertical limits defined by the airspace plus the altitude buffer setting.

Class B, CTA— enable/disable alarm for Class B or CTA (ICAO control areas) airspace.

Class C, TMA— provides alarm for Class C or TMA (ICAO terminal control areas) airspace.

Towers, Control Zones— provides alarm within a 4.3 nm radius from airports with control towers which are not associated with Class B or Class C airspace. (Typically Class D airspace.)

Restricted Areas— enable/disable alarm for restricted areas.

MOAs— enable/disable alarm for military operations areas.

Mode C Veils— provides alarm within the outer limit of an airspace (usually Class B or C) where a Mode C altitude-encoding transponder is required.

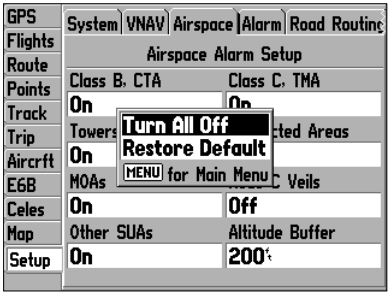
Other SUAs— provides alarm for other special-use airspace categories including: training, caution, danger, warning and alert areas.

Altitude Buffer— expands the vertical range of an airspace, providing an added margin of safety. For example, if the buffer is set to 500 feet, and you are more than 500 feet above or below an airspace, you will not be notified with an alert message. If you are less than 500 feet from the floor-ceiling limits of the airspace, you will be notified with an alert message.

To turn an airspace alarm on or off and enter an altitude buffer:

1. From the 'Setup' tab, use the **ARROW KEYPAD** to select 'Airspace' at the top of the page.
2. Use the **ARROW KEYPAD** to select the field corresponding to the desired airspace category and press **ENTER**.
3. Use the **ARROW KEYPAD** to select 'On' or 'Off' and press **ENTER**.
4. To change the altitude buffer, use the **ARROW KEYPAD** to select 'Altitude Buffer' and press **ENTER**. Use the **ARROW KEYPAD** to enter a new buffer setting and press **ENTER** once all characters for the new setting have been entered.

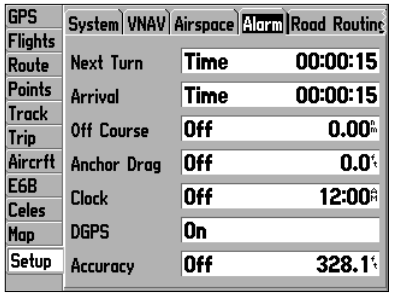
Setup Tab: Airspace



*With the Airspace screen displayed, press **MENU** to display context-sensitive options for this screen. Use the **ARROW KEYPAD**, then **ENTER** to select the desired option.*

Select the 'Turn All Off' option to disable all airspace alerts.

Setup Tab: Alarm



Use the Alarm screen to set alarms for approaching waypoints, arrival at destination, off course, loss of differential corrections (or WAAS), diminished position accuracy or to set an alarm clock.

Alarm

Next Turn— provides an alarm message within the specified time or distance of each route waypoint or the 'Goto' destination waypoint.

Arrival— provides an alarm message within a set time or distance from your final destination waypoint. As you approach the destination waypoint, an 'Arriving at Destination' message occurs.

Off Course— provides a message when you deviate off course beyond the specified distance.

Anchor Drag— provides an alarm message when your boat has drifted outside a specific range from a point of origin.

Clock— provides a daily alarm at the time you specify. The GPSMAP 196 must be on at the specified time for the alarm to occur.

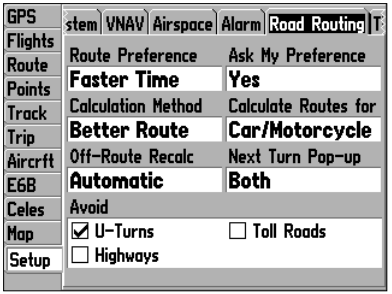
DGPS— used with WAAS or an RTCM-compatible differential device, provides an alert message if differential GPS coverage is lost or not available.

Accuracy— provide an alarm if position accuracy degrades beyond the specified limits. Use this alarm to ensure a required level of position accuracy or to be alerted when satellite coverage deteriorates.

To set approach, arrival, off course, clock, DGPS or accuracy alarms:

1. From the 'Setup' tab, use the **ARROW KEYPAD** to select 'Alarm' at the top of the page.
2. Use the **ARROW KEYPAD** to select 'Approach', 'Arrival', 'Off Course', 'Clock', 'DGPS' or 'Accuracy' and press **ENTER**. A pop-up window will show the available settings.
3. For the DGPS alarm: Use the **ARROW KEYPAD** to select 'Off' or 'On' and press **ENTER**.
4. For the approach or arrival alarm: Use the **ARROW KEYPAD** to select 'Off', 'Distance' or 'Time' and press **ENTER**. If necessary, select the adjacent field (in the right column), press **ENTER**, use the **ARROW KEYPAD** to enter the desired time or distance and press **ENTER** once all characters have been entered. (Time is entered as hours:minutes:seconds.)
5. For the course deviation, clock and accuracy alarms: Use the **ARROW KEYPAD** to select 'Off' or 'On' and press **ENTER**. If necessary, select the adjacent field (in the right column), press **ENTER**, use the **ARROW KEYPAD** to enter the distance, alarm time or accuracy limit and press **ENTER** once all characters have been entered.

Setup Tab: Road Routing



Road Routing settings define how thoroughly calculations are performed, the type of vehicle you are driving and road features you wish to avoid.

Road Routing

Route Preference— determines what criteria are used for finding the route to your destination. Faster Time: causes time to be used as the criteria for calculations and creates a route that will be faster to drive but may be a longer distance; Shorter Distance: causes distance to be used as the criteria for calculations and creates a route that is shorter in distance but take more time to drive; Off Road: creates a route as a direct line from your present position to the selected destination.

Ask My Preference— Yes: displays a prompt each time a road route is created asking for your route preference; No: uses the route preference setting above and does not display a prompt each time a new road route is created.

Calculation Method— allows you to control how thoroughly the GPSMAP 196 searches for the perfect route. A trade-off exists between the length of time it takes to find a route and the quality of that route (or how close to an ideal route is determined). Quickest Calculation: gives the fastest results and minimizes the time you have to wait; Best Route: results in a longer time for route calculations but provides the best possible routing.

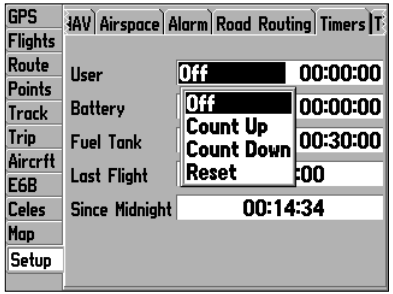
Calculate Routes for— takes full advantage of the routing information built into the MapSource map data. Some roads have vehicle-based restrictions associated with them. For example, a street or gate may be accessible by emergency vehicles only. Or, a residential street may not allow commercial truck traffic. By specifying the type of vehicle you are driving, you can avoid being routed somewhere you cannot legally go.

Off-Route Recalc— Automatic: will automatically recalculate the road route if you are off course; Prompted: provides a pop-up prompt if you are off course asking if you would like to recalculate the route; Off: uses the original route and will not recalculate the route if you are off course.

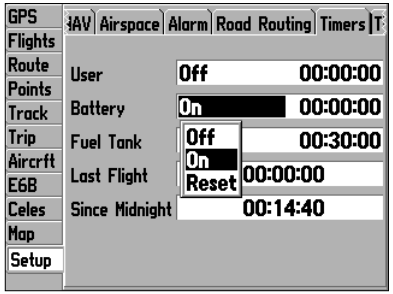
Next Turn Pop-up— Automatic Only: temporarily displays next turn information on a pop-up screen immediately prior to reaching the turn; NRST Key Only: displays next turn information on a pop-up screen only if the NRST key is pressed; Off: disables the next turn information screen.

Avoid— provides check boxes to select items you wish to avoid: U-turns, Toll Roads or Highways (interstates or major highways). Route calculations will attempt to avoid any of these selected items unless it is impossible or impractical to avoid them (if the route would be unnecessarily long).

Setup Tab: Timers



The user timer can be used as a count down or count up (elapsed) timer.



The battery timer will automatically reset when you install a fresh set of batteries, or you can manually reset it here.

Timers

User— lets you select a count up or count down timer. For a count down timer, you may also specify the count down duration.

Battery— provides a running count of how long the GPSMAP 196 has been in operation with the current batteries. The timer automatically stops when using an external power source. The timer will automatically reset when depleted batteries are replaced. Or, the timer can be manually reset.

Fuel Tank— allows you to set a reminder for switching fuel tanks. The reminder message will repeat at the specified interval.

Last Flight— indicates the duration of the last recorded flight. During flight, this field is titled "Flight" and counts up as the flight is in progress.

Since Midnight— displays a running count of how long the GPSMAP 196 has been in operation since midnight of the current day.

To set the user timer, fuel tank timer or reset the battery timer:

1. From the 'Setup' tab, use the **ARROW KEYPAD** to select 'Timers' at the top of the page.
2. Use the **ARROW KEYPAD** to select 'User', 'Fuel Tank' or 'Battery' and press **ENTER**. A pop-up window will show the available settings for the selected field.
3. For the user timer: Use the **ARROW KEYPAD** to select 'Off', 'Count Up', 'Count Down' or 'Reset' and press **ENTER**.

For 'Count Up' you may wish to select 'Reset' first to zero the counter. For 'Count Down' you may wish to enter a count down duration first in the field to the immediate right.

4. For the fuel tank timer: Use the **ARROW KEYPAD** to select 'Off' or 'On'. When turned 'On', select the adjacent field, press **ENTER**, use the **ARROW KEYPAD** to enter the timer interval and press **ENTER**.
5. To reset the battery timer (or turn the timer off), select 'Reset' (or 'Off') and press **ENTER**.

Time

Time Format— lets you select between a 12-hour or 24-hour time format.

Time Zone— provides a list of time zones and makes it easy to display the correct local time on your GPSMAP 196. For areas where a time zone is not listed, you can also enter an offset time for UTC (zulu) time.

Daylight Savings Time— Auto: automatically adjusts for daylight savings time based on current location and date; On: enables daylight savings time; Off: disables daylight savings time.

Units

Defines units of measure used for altitude, distance, speed, etc. Units of measure settings can be different for each operating mode. For example, you may wish to use 'knots' for speed in Aviation Mode and 'miles per hour' for speed in Land Mode.

Altitude— Feet or Meters

Pressure— Inches or Millibars

Vertical Speed— Feet/Minute, Meters/Minute or Meters/Second

Distance and Speed— Nautical, Statute or Metric

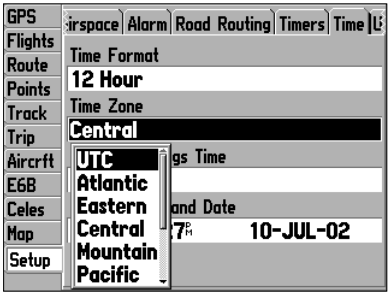
Temperature— Fahrenheit or Celsius

Direction Display— Cardinal Letters, Numeric Degrees or Mils

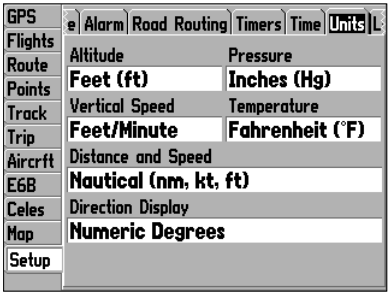
To change a units of measure setting:

1. From the 'Setup' tab, use the **ARROW KEYPAD** to select 'Units' at the top of the page.
2. Use the **ARROW KEYPAD** to select the field corresponding to the units of measure you wish to change and press **ENTER**.
3. Use the **ARROW KEYPAD** to select the desired units setting and press **ENTER**.

Setup Tab: Time/Units



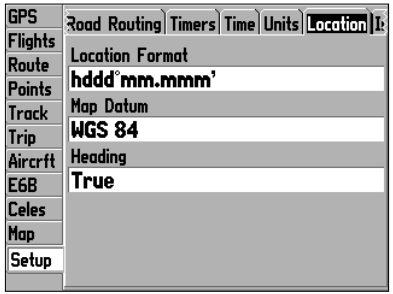
Use the Time screen to select time format (12- or 24- hour) and the correct time zone (for local time display).



Units of measure for distance, speed, etc., are set on the Units screen. The GPSMAP 196 will retain independent units settings for Aviation, Land and Water modes.

Setup Tab

Location screen settings will affect how navigation information is displayed on the GPSMAP 196. When in doubt, seek assistance. If you are using a map or chart in conjunction with your GPS, make sure the settings under the 'Units' tab of the GPSMAP 196 match that of the map or chart. This information should be displayed somewhere on the map or chart. If the information is not present, contact the map or chart maker to determine what position format, datum, north reference and units of measure are being used for the map or chart.



Location Tab

Location

Location Format— used to change the coordinate system in which a given position reading is displayed. The default format is latitude/longitude in degrees and decimal minutes (hddd°mm.mmm'). The following additional formats are available:

- hddd.ddddd°— latitude/longitude in decimal degrees only
- hddd°mm'ss.s"— latitude/longitude in degrees, minutes, seconds
- UTM/UPS— Universal Transverse Mercator / Universal Polar Stereographic grids
- British Grid
- Dutch Grid
- Finnish KKJ27
- German Grid
- Irish Grid
- India Zone Grids
- Maidenhead
- MGRS
- New Zealand
- Qatar Grid
- RT 90
- Swedish Grid
- Swiss Grid
- Taiwan Grid
- Loran TD
- User Grid
- W Malayan RSO

Map Datum— allows you to manually select the datum reference used to determine a given position. The default setting is 'WGS 84'. The GPSMAP 196 will automatically choose the best datum depending upon your chosen position format. You should only change the datum if you are using a map or chart that specifies a different datum and you want position readings on the unit to correspond with position readings on the chart. Datums are used to describe geographic positions for surveying, mapping, and navigation and are not actual maps built into the unit. The GPSMAP 196 contains over 100 map datums.

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

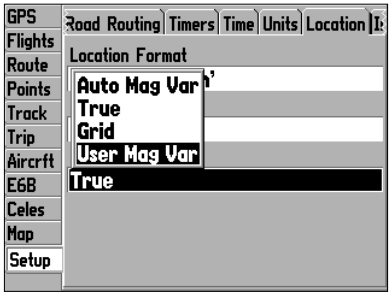
Heading— lets you select the reference used in calculating heading information. Auto Mag Var: provides magnetic north heading references which are automatically determined from your current position; True: provides headings based upon a true north reference; Grid: provides headings based on a grid north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

To set a user-defined magnetic variation:

1. From the 'Setup' tab, use the **ARROW KEYPAD** to select 'Units' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the "Heading" field and press **ENTER**.
3. Select 'User Mag Var' and press **ENTER**.
4. Use the **ARROW KEYPAD** to highlight the 'Magnetic Variation' field and press **ENTER**.
2. Use the **ARROW KEYPAD** to enter the magnetic variation at your current position and press **ENTER**.

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

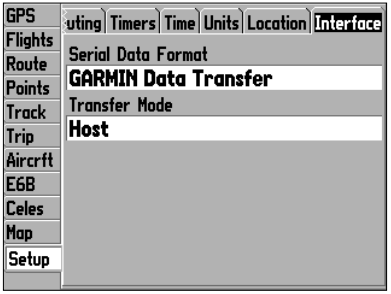
Setup Tab: Location



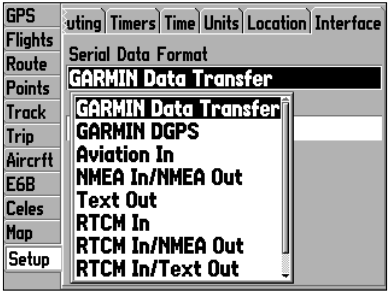
Heading reference options include True North, Auto Magnetic Variation and User Magnetic Variation. 'Auto Mag Var' will automatically calculate magnetic north for your location.

In areas with high iron deposits or other factors affecting magnetic variation, you may wish to select 'User Mag Var' and enter a specific variation between true north and local magnetic north.

Setup Tab: Interface



The Interface screen lets you select the various input/output settings.



Select 'Garmin Data Transfer' for database updates and for use with MapSource software products.

Interface

Serial Data Format— lets you control the input/output format used when connecting your GPSMAP 196 to external NMEA devices, a DGPS beacon receiver, a personal computer, etc. If a DGPS receiver is used, WAAS capability will automatically be turned 'Off'. The following formats are available:

- Garmin Data Transfer— the proprietary format used to upload/download MapSource data, exchange waypoint, route, track, flights, almanac, and proximity data with a PC or another Garmin GPSMAP 196. When you select 'Garmin Data Transfer', there are 11 Transfer Modes to choose from: Host, Request Almanac, Request Proximity, Request Routes, Request Tracks, Request Waypoints, Send Almanac, Send Proximity, Send Routes, Send Tracks and Send Waypoints.
- Garmin DGPS— used to connect the GPSMAP 196 with a Garmin DGPS beacon receiver.
- Aviation In— the proprietary format used for connection to a Garmin panel-mounted GPS receiver. Allows Goto or route selection on the panel-mounted GPS receiver to be automatically displayed on the GPSMAP 196. This eliminates the need to enter the destination on both units.
- NMEA In/NMEA Out— supports the input/output of standard NMEA 0183 version 2.3 data, and sonar NMEA input support for the DPT, MTW and VHW sentences.
- Text Out— allows the unit to output simple text data that includes, data, time, position and velocity. The Baud can be set to 1200, 2400, 4800, or 9600bps.
- RTCM In— allows Differential GPS (DGPS) input using a standard RTCM format.
- RTCM In/NMEA Out— allows Differential GPS (DGPS) input using a standard RTCM format and also provides NMEA 0183 version 2.3 output.
- RTCM In/Text Out— allows Differential GPS (DGPS) input using a standard RTCM format and also outputs simple text data that includes, data, time, positoin and velocity.
- None— provides no interfacing capabilities.

To select a transfer mode:

1. From the 'Setup' tab, use the **ARROW KEYPAD** to select 'Interface' at the top of the page.
2. Use the **ARROW KEYPAD** to highlight the 'Serial Data Format' field and press **ENTER**.
3. Use the **ARROW KEYPAD** to select the desired data transfer format and press **ENTER**.
4. Highlight the 'Transfer Mode' field and press **ENTER**.
5. Use the **ARROW KEYPAD** to select the desired setting and press **ENTER**.

If 'Garmin DGPS' or 'RTCM In/NMEA Out' format is selected, additional fields are provided to control a Garmin differential beacon receiver directly from your GPSMAP 196. You may have the unit automatically scan for the DGPS beacon signal or you can enter the beacon frequency and bit rate on the unit and the information will be used to tune the beacon receiver.

To have the unit automatically scan for a frequency:

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

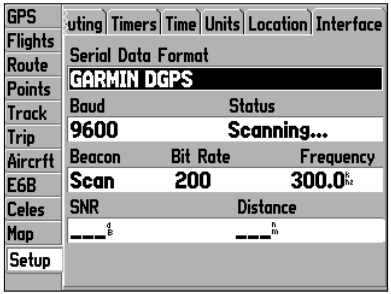
To restart the scan:

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

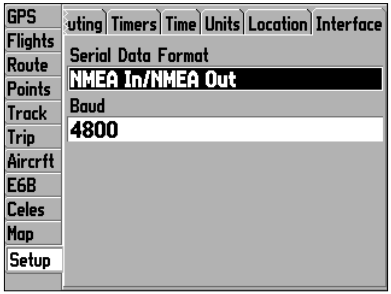
To manually enter a frequency and bit rate:

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

Setup Tab: Interface

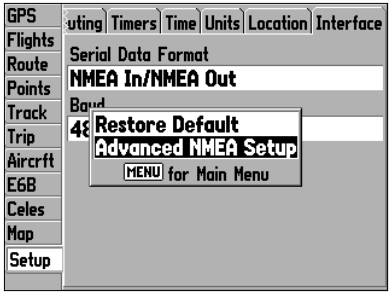


If you select 'Garmin DGPS' or 'RTCM In/NMEA Out,' additional data fields are provided allowing you to control the frequency and bit rate that the DGPS receiver uses.

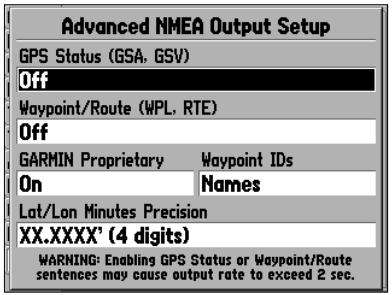


Select 'NMEA Out' for connection to NMEA-compatible devices.

Setup Tab: Interface



An 'Advanced NMEA Setup' option allows you so select the types of data you wish to have the GPSMAP 196 output.



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

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

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

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

Advanced NMEA Output Setup

The GPSMAP 196 NMEA data transmission can be customized to keep the output rate at two seconds. If the unit is set up to output all of the available NMEA sentences, the output rate may exceed two seconds. The 'Advanced NMEA Output Setup' page will allow you to turn on/off the GPS status (GSA. GSV), Waypoint/Route (WPL, RTE) and the Garmin Proprietary sentences. You can also change the precision of the Lat/Lon minutes.

To set up the Advanced NMEA page:

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

GPSMAP 196 NMEA Sentence Output (NMEA version 3.0 compliant)

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

Switchable sentences: GPGSA, GPGSV, GPWPL, GPRTE

Garmin proprietary: PGRME, PGRMZ, PGRMM

Cleaning

The GPSMAP 196 is constructed of high quality materials and does not require user maintenance other than cleaning. Clean the unit using a cloth dampened with a mild detergent solution and then wipe dry. Avoid chemical cleaners and solvents that may damage plastic components.

WARNING: *The GPSMAP 196 lens has an anti-reflective surface which is very sensitive to chemicals and abrasive cleaners. CLEANERS CONTAINING SOLVENTS MAY DAMAGE THIS ANTI-REFLECTIVE SURFACE. Garmin recommends cleaning the lens using an eyeglass lens cleaner which is specified as safe for anti-reflective coatings and a clean, lint-free cloth.*

Storage

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

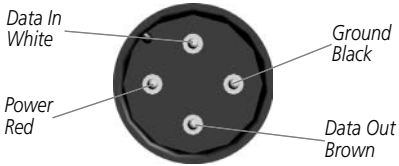
Do not store the GPSMAP 196 where prolonged exposure to temperature extremes may occur (such as on the yoke of a parked airplane or in the trunk of a car) as permanent damage may result. User information, such as waypoints, routes, etc., are retained in the unit's memory without the need for external power. However, it is always a good practice to back up important user data by manually recording it or downloading it to a PC (user data can be transferrred with the optional MapSource software).

Water Immersion

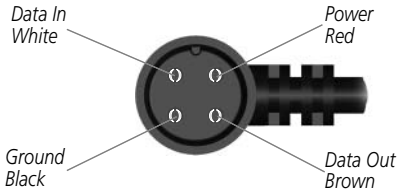
The GPSMAP 196 is waterproof to IEC Standard 529 IPX7. It can withstand immersion in 1 meter of water for 30 minutes. Prolonged submersion can cause damage to the unit. If the unit is submersed in water, be certain to remove the batteries and data card and dry the compartments before reuse.

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

Wiring and Interfacing



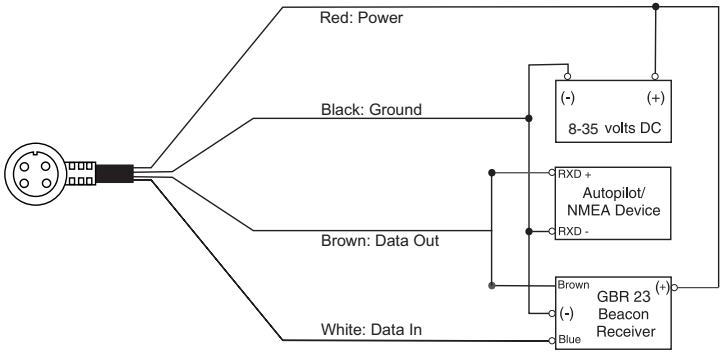
Unit View



Cable View

Connecting the Power/Data

The power/data cable connects the GPSMAP 196 to an 8-35 volt DC system and provides interface capabilities for connecting external devices. The color code in the diagram below indicates the appropriate harness connections. Replacement fuse is a AGC/3AG - 2.0 Amp fuse.



Interfacing

The following formats are supported for connection of external devices:

Garmin proprietary Differential GPS (DGPS), Garmin proprietary aviation input, NMEA 0183 (versions 3.0), ASCII Text Output, RTCM SC-104 input (version 2.0).

The following are the sentences for NMEA 0183, version 3.0 output:

Approved sentences — GPRMC, GPGGA, GPRMB, GPGLL, GPBWC, GPVTG, GPXTE and GPBOD; Proprietary sentences — PGRME, PGRMZ, PGRMM and PSLIB. The GPSMAP 196 also includes optional NMEA sentences for the GPGSA, GPGSV, GPWPL, GPRTE.

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

Physical Specifications

Size:	6.18"W x 3.4"H x 2.22"D (15.7 x 8.64 x 5.72cm)
Weight:	1.5 lbs (.68 kg) with batteries
Display:	3.8" diagonal (9.65cm) high-contrast, FSTN display with backlighting (320 x 240 pixels, 12-gray levels)
Case:	Fully gasketed, high-impact plastic alloy, waterproof to IEC 529-IPX-7
Temp. Range:	5°F to 158°F (-15°C to 70°C)

Performance

Receiver:	WAAS- and Differential-capable 12 parallel channel receiver
Acquisition Times:	Approx. 15 seconds (warm start) Approx. 45 seconds (cold start) Approx. 2 minutes (First Time/AutoLocate™)
Update Rate:	1/second, continuous
GPS Accuracy:	*< 15 meters (49 feet) RMS 95% typical
DGPS (USCG) Accuracy:	3-5 meters (10-16 ft), 95% typical
DGPS (WAAS) Accuracy:	3 meters (10ft) 95% typical with DGPS corrections
Velocity Accuracy:	0.05 meter/sec steady state
Dynamics:	6g's

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

Power

Batteries:	4 AA Alkaline (not included)
Battery Life:	Up to 16 hours in Battery Saver Mode
External Power Source:	8-35 Vdc
Fuse:	AGC/3AG - 2.0 Amp

Appendix C

Specifications

User Waypoints:	1000, with 10-character name
Routes:	50, reversible and with up to 50 points per route
Tracks:	Up to 2500 points in active log Up to 500 points per saved log, with up to 15 saved logs
Base Map:	Built in; available in Americas, Atlantic (Europe) and Pacific versions
Jeppesen Data:	Available in Americas, Atlantic (Europe) and Pacific coverage areas.
Optional Data Card:	Available in 8, 16, 32, 64 and 128 MB sizes
Optional Map Data:	MapSource, available in City Select, MapSource, Roads & Recreation, Topo and Fishing HotSpots versions

Appendix D

Glossary of Terms

Accuracy — Estimated position accuracy in feet or meters.

Altitude — Height above mean sea level (MSL).

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

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

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

Course To Steer — The recommended direction to steer in order to reduce cross-track error and return to the course line.

Cross-Track Error — The distance you are off a desired course in either direction, left or right.

DOP — Dilution of Precision. A measure of satellite geometry quality (i.e., number of satellites received and where they are in the sky relative to one another).

Distance (Destination) — The 'great circle' distance from current location to a GOTO destination, or the final waypoint in a route.

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

DTK — Desired Track. The compass course between "from" and "to" waypoints in a route. (Same as Course.)

ETA (Destination) — Estimated Time of Arrival. The estimated time you will reach a GOTO destination, or the final waypoint in a route.

ETA (Next) — Estimate Time of Arrival. The estimated time you will reach a GOTO destination, or the next waypoint in a route.

ETE (Destination) — Estimated Time Enroute. The estimated time required to reach a GOTO destination, or the final waypoint in a route.

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

Est. Time to VNAV — The estimated time required to reach the initial descent point in a VNAV profile.

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

Glide Ratio — The ratio of horizontal distance travelled to vertical distance travelled. For example, a 6:1 glide ratio indicates a 1000' vertical descent for every 6000' horizontal distance travelled.

Glide Ratio To Target — The glide ratio required to descend from present position and altitude to the target altitude at the location specified on the VNAV screen.

Leg Dist — The distance between two route waypoints.

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

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

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

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

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

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

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

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

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

Trip Avg Speed (Moving) — Average speed of unit when moving since last reset.

Trip Avg Speed (Total) — Average speed of unit for both moving and stopped speeds since last reset.

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

Trip Timer (Moving) — Time the unit has been moving since last reset of the trip timers.

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

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

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

Vertical Speed To Target — The speed at which you are descending to the target altitude. A figure higher or lower than specified on the VNAV screen indicates you are descending too fast or too slow.

Voltage — Direct current voltage level of an external power source.

Appendix D

Glossary of Terms

Appendix E

Messages

Accuracy Alarm — Accuracy has degraded beyond user-defined limits set on the Alarm screen.

Alarm Clock — The alarm time defined on the Alarm screen has been reached.

Approaching Target Altitude — The current altitude is within 1000 feet of the final VNAV target altitude.

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

Approaching VNAV Profile — You are within one minute of reaching the initial VNAV descent point.

Arriving at Destination — Displayed when you are nearing your destination.

Basemap Failed — Internal hardware error. Contact your dealer or Garmin Customer Service for assistance.

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

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

Can't Unlock Maps — No applicable unlock code for one or more maps was found. The affected MapSource maps are not accessible.

Database Error — Internal hardware error. Contact your dealer or Garmin Customer Service for assistance.

Detail Maps Don't Support Routing — The MapSource maps currently in use do not include routable road data.

Fuel Tank Timer — The time interval set on the Timer screen has expired.

Inside SUA — Your aircraft has entered the boundaries of a special use or controlled airspace.

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

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

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

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

None Found — No data matched the search criteria.

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

Off Course — You are off course the distance set an the Alarm screen.

Proximity Alarm — You have entered the alarm radius of a user-defined proximity waypoint.

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

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

RAM Failed — Internal hardware error. Contact your dealer or Garmin Customer Service for assistance.

ROM Failed — Internal hardware error. Contact your dealer or Garmin Customer Service for assistance.

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

Route Memory Full — No additional routes can be saved.

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

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

Steep Turn Ahead — This message appears approximately one minute prior to a turn that requires a bank angle in excess of 25 degrees in order to stay on course.

SUA Near 10 Min — Your projected course and current altitude will place you within an airspace within 10 minutes, based on your current track.

SUA Near and Ahead — Your present position is within two nautical miles of an airspace boundary, and you are projected to enter the airspace based upon your course and current altitude.

Switched to Land Mode — Occurs in Aviation or Water modes when a Find Menu destination is selected and automatic road routing to the destination is activated.

Near SUA — Your present position is within two nautical miles of an airspace boundary, but you are not projected to enter the airspace based upon your current course.

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

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

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

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

Transfer Complete — Data transfer has been completed.

VNAV Cancelled — The VNAV feature has been cancelled due to a change in the active route.

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

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

Accessories

Data Card

Non-Skid Friction Mount

Data Card Programmer

Carrying Case

Optional Accessories

In addition to the standard accessories included with your GPSMAP 196, the following optional accessories are designed to enhance the operation of the GPSMAP 196.

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

WARNING: *Garmin accessories have been designed and specifically tested for use with Garmin products. Accessories offered for sale by other manufacturers have not been tested or approved for use with Garmin products. Use of such accessories c ould cause damage to the GPSMAP 196 and void the warranty.*

MapSource Software CD-ROMs— Provides more detailed mapping, download user-created waypoints and routes to your PC, or—with City Select or MetroGuide CDs—perform automatic turn-by-turn routing on secondary roads and residential streets.

Programmable Data Cards— Blank data cards are available in 8MB, 16MB, 32MB, 64MB, and 128MB sizes. Download street-level map detail, points of interest, business addresses and phone numbers, marine data, topographical information and more from MapSource CD-ROMs to a data card, either directly through your GPSMAP 196 using the PC Interface Cable, or with the USB Data Card Programmer.

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

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

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

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

Carrying Case— Protects the GPSMAP 196 when not in use; with storage for data cards.

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