

Pilot's
Guide
&
Reference



GPSMAP 195

 **GARMIN**[®]

FOREWORD

Software Version 2.02 or above

Land Data Base Map Version 1.00 or above

© 1996 GARMIN Corporation
1200 E. 151st Street, Olathe, KS 66062, USA

GARMIN (Europe) LTD
Unit 5, The Quadrangle, Abbey Park Industrial Estate, Romsey, SO51 9AQ UK

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The GPS system is operated by the United States government, which is solely responsible for its accuracy and maintenance. The system is subject to changes which could affect the accuracy and performance of all GPS equipment. Although the GARMIN GPSMAP 195 is a precision electronic NAVigation AID (NAVAID), any NAVAID can be misused or misinterpreted and, therefore, become unsafe.

Use the GPSMAP 195 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 195 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: *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. There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference, the user is encouraged to try to correct the interference by relocating the equipment or connecting the equipment to a different circuit. Consult an authorized dealer or other qualified technician for additional help if these remedies do not correct the problem.*

This device complies with part 15 of the FCC limits for class B digital devices. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The GPSMAP 195 contains no user-serviceable parts. Repairs should only be made by an authorized service center. Unauthorized repairs or modifications could void your warranty and your authority to operate this device under Part 15 regulations.



WARNING: *The moving map display 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 airmen contain all information needed for safe navigation—and, as always, the user is responsible for their prudent use.*

LIMITED WARRANTY

GARMIN warrants this product to be free from defects in materials and workmanship for one year from the date of purchase. GARMIN International, Inc. will at its sole option, repair or replace any components which fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts or labor. The customer is, however, responsible for any transportation costs. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs. GARMIN International, Inc. assumes no responsibility for special, incidental, punitive or consequential damages, or loss of use.

The warranties and remedies contained herein are exclusive, and in lieu of all other warranties expressed or implied, including any liability arising under warranty of merchantability or fitness for a particular purpose, statutory or otherwise. This warranty gives you specific legal rights, which may vary from state to state.

To obtain warranty service call the GARMIN Customer Service department for a returned merchandise tracking number. The unit should be securely packaged with the tracking number clearly marked on the outside of the package, and sent freight prepaid and insured to GARMIN. A copy of the original sales receipt is required as the proof of purchase for warranty repairs. GARMIN retains the exclusive right to repair or replace the unit or software at its sole discretion. Warranty service may also be obtained from an authorized GARMIN warranty service station which, in many cases, is the dealer from which you purchased this product.



Designed for detailed electronic charting and simple operation, the GARMIN GPSMAP 195 is a powerful navigation device that can help guide you during flights anywhere in the world:

Precision Performance

- High-contrast, four-level gray LCD screen
- PhaseTrac12™ receiver tracks and uses up to 12 satellites simultaneously for fast, accurate positioning
- Differential-ready— just add the optional GBR 21 beacon receiver, or any other device providing standard RTCM SC-104 corrections, for under 10 meter accuracy

Advanced Navigating and Plotting

- Internal Jeppesen® database includes detailed airport information: runway length, surface and lighting, airport position and elevation, communication frequencies and fuel services, as well as information about VORs, NDBs, intersections, flight service stations (FSS) and air route traffic control centers (ARTCC)
- Built-in worldwide basemap covering coastlines, lakes, rivers, interstate highways, U.S. highways, major thoroughfares— optimized for 3000 through 20 nm scales and usable down to 1/10 nm.
- Three-dimensional controlled and special-use airspace data with multiple airspace incursion warnings
- Built-in final course segment approaches for all published ILS, localizer, RNAV, GPS, VOR and NDB approaches
- Graphic HSI display for navigation guidance shows current conditions at a glance
- On-screen “point and shoot” GOTO simplifies destination selection
- One-button nearest airport search
- 250 alphanumeric waypoints with selectable icons and comments
- 250 symbol waypoints with selectable icons
- 20 reversible routes with up to 30 waypoints each
- GARMIN detail cartridges provide additional detail at scales down to 1/10 nm
- On-screen point-to-point distance and bearing calculations
- TracBack™ route feature allows you to quickly retrace your track log to a starting position
- E6-B features to determine density altitude, true airspeed, winds aloft, headwind/tailwind components, trip and fuel planning, weight and balance
- Enhanced vertical navigation feature indicates time and vertical speed to target, glide ratio and provides vertical guidance from the graphic HSI display
- Built-in simulator mode makes learning new features fun and easy



PACKING LIST

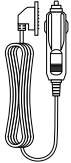
Before you get started, please check to see that your GPSMAP 195 package includes the following items. If any parts are missing, contact your GARMIN dealer immediately.

Standard Package:

- GPSMAP 195 Unit
- External Antenna with 8' Cable
- Cigarette Lighter Adapter
- Yoke Mount
- Carrying Case
- AA Battery Pack
- Wrist Strap
- Cartridge Removal Tool
- Owner's Manual
- Quick Reference Guide



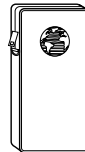
GPSMAP 195 Receiver
(AA Battery Pack attached)



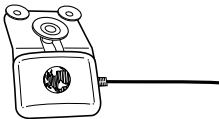
Cigarette Lighter Adapter



Wrist Strap



Carrying Case



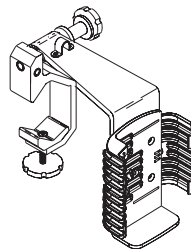
External Antenna w/ 8' Cable



Cartridge Removal Tool

Optional Accessories:

- PC Software Kit
- PC Interface Cable
- Power/Data Cable
- NiCad Battery & Charger
- GARMIN Detail Cartridges



Yoke Mount

Congratulations on choosing one of the most advanced aircraft navigation systems available today! The GARMIN GPSMAP 195 combines the proven performance of GARMIN PhaseTrac12™ GPS with powerful GARMIN detail cartridges for unparalleled moving map detail wherever you fly.

To get the most out of your new mapping/navigation system, take the time to go through this owner's manual and learn the operating procedures for your unit. This manual is divided into two main sections for your convenience.

Section One: Takeoff Tour introduces the basic features of the GPSMAP 195. This section is a "getting started" guide to acquaint you with the unit's major features. This will provide you with the basic working knowledge necessary to use the unit to its full potential. In this section you will learn how to power the unit on and obtain a position fix. Then you will place the GPSMAP 195 in "Simulator Mode" for a sample trip, which will introduce many of the unit's capabilities.

Section Two: Reference provides a detailed reference to all the features and operations of the GPSMAP 195. This allows you to concentrate on a specific topic quickly, without reading through entire sections of text. You may also wish to refer to this section for information about the more advanced features not covered in Section One.



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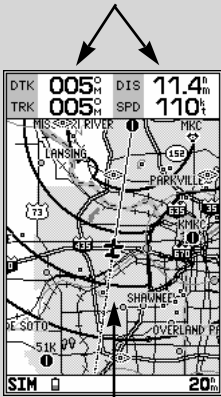
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TAKEOFF TOUR

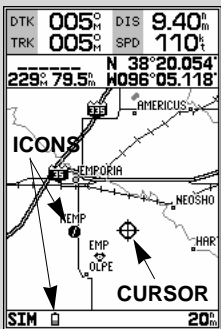
THE GPSMAP 195 FEATURES

TEXT FIELDS



MAP DISPLAY GRAPHIC

The information displayed on your GPSMAP 195's screen is also referred to as a "page". A page can include graphics, text or both.



Graphics displayed on a page include detailed map information, icons and a cursor.

EXTERNAL ANTENNA CONNECTOR

BUILT-IN ANTENNA



KEYPAD

DISPLAY SCREEN

POWER/DATA CONNECTOR
(Back Side)

BATTERY PACK
(Back Side)











The GPSMAP 195 features a 10-key keypad and a 4-level gray scale LCD display. Both the display and keypad may be illuminated for nighttime operation.

Information which appears on the display is referred to as a **page**. A page can include graphics, text or both. The graphic information may include a detailed map, **icons** and a cursor. Icons are symbols which appear on the screen and represent airports, nav aids, user waypoints, etc. For example, your present position is represented on the map by an airplane icon.



At the bottom of each page is a **status bar**. Icons appear on the status bar to indicate valid position, battery level, and backlighting. The status bar is also used to show scale settings and messages.

KEYPAD USAGE

	Turns the unit on and off and controls 3-level screen backlighting.
	Scrolls the main pages in sequence and returns display from a submenu page to a main page.
	Displays the GOTO waypoint page, allowing you to select the destination waypoint.
	Displays a list of nine nearest airports, VORs, NDBs, or intersections, plus nearest FSS and center frequencies. Provides special-use airspace detail during an airspace incursion. Press twice to return automatically to nearest airport list.
	Retrieves airport or navaid information from database or user waypoint from memory. Press twice to capture your present position and save as a waypoint.
	Adjusts the map and HSI scales up or down.
	Used to select (highlight) options and enter data. Also controls the movement of the cursor on the map page.
	Returns display to a previous page or restores a data field's previous value.
	Displays context-sensitive options window. Press twice to display main menu page.
	Activates highlighted fields. Confirms menu options and data entry.

The GPSMAP 195's advanced keypad system is designed to allow for fast, convenient selection of navigation options and data entry.

The Takeoff Tour will introduce you to the keypad keys and provide a "hands-on" lesson in using the GPSMAP 195. We strongly encourage you to read the Takeoff Tour before using your unit for actual navigation.

The GPSMAP 195 Quick Reference Card contains helpful tips on using the unit and performing various navigation tasks. It's a good idea to keep the Quick Reference Card nearby when using this new navigation tool.

Many features of the GPSMAP 195 are menu driven. This makes learning and using your new GPS receiver a simple process. Some pages can also be custom tailored to your preferences by changing the information and/or layout of the display.

To reconfigure the page currently displayed:

1. Press **MENU** to view the options for that page.
2. Select the desired option using UP/DOWN arrows on the **⬆** keypad.
3. Press **EDIT ENTER** to confirm your selection.
4. In some cases, a list may appear with even more options available. If this occurs, select the desired option using the **⬆** keypad and press **EDIT ENTER**.

For example, the map page can be changed from map & data to map only (and vice versa) by pressing **MENU**, selecting 'Data Fields Off (On)?' and pressing **EDIT ENTER**.

Some keys can perform a variety of functions. The **MENU** key is also used to display the options for the key you have selected.

To select additional options for a given key:

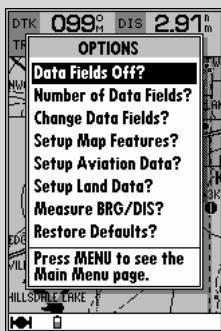
1. Press that key, followed by **MENU**.

For example, by pressing **WPT** followed by **MENU**, you can easily select from a number of user waypoint options: create, edit, delete and rename.

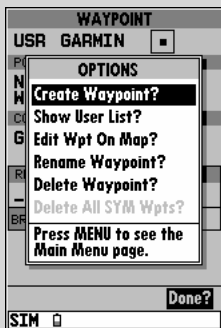
A data field is a location on the page which provides specific information. Some data fields on certain pages can be changed to display a variety of data types. These data fields are also part of the menu process since the available options are listed for you to choose from.

To select a data field option:

1. Select 'Change Data Fields?' from an options menu.
2. Highlight the data field you wish to change using the **⬆** keypad.
3. Press **EDIT ENTER** to display the available options for that data field.
4. Select the desired option using the **⬆** keypad.
5. Press **EDIT ENTER**.

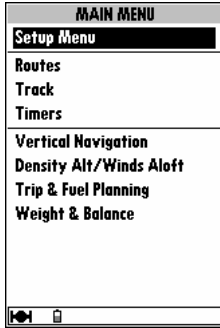


Menus are available to reconfigure many GPSMAP 195 screens and change system settings.



The menu key is also used to display options for a given function key. The key options menu is used to create, edit, delete and rename user waypoints.

USING MENUS (cont.)



A main menu is provided to make changes to system settings. Selecting miles per hour instead of knots, using the built-in simulator mode, creating routes or performing E6-B calculations are all accomplished from the main menu.

To view the main menu:

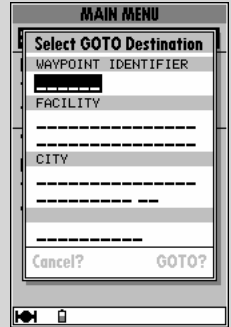
1. Press the **MENU** key twice.

ENTERING DATA

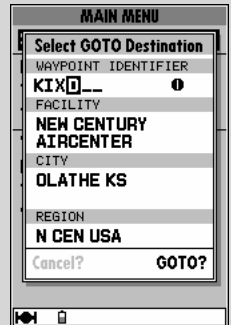
You may enter data, such as airport identifiers and user waypoint coordinates, on certain pages. To enter data, you must first highlight (using the **ENTER** keypad) the area on the display where it will be placed. The data entry process begins and ends by pressing **EDIT/ENTER**. The **ENTER** keypad is used to enter the actual data.

For example, to enter “KIXD” as a destination airport:

1. Highlight the data entry field using the **ENTER** keypad.
2. Press **EDIT/ENTER**.
3. Use the UP/DOWN arrows of the **ENTER** keypad to select the first character.
4. Use the RIGHT arrow of the **ENTER** keypad to move to the next character. If you make a mistake, back up with the LEFT arrow. To clear the data field entirely, press the LEFT arrow repeatedly until the field is blank.
5. Repeat steps 3 and 4 until the identifier is selected.
6. Press **EDIT/ENTER** to accept the identifier.



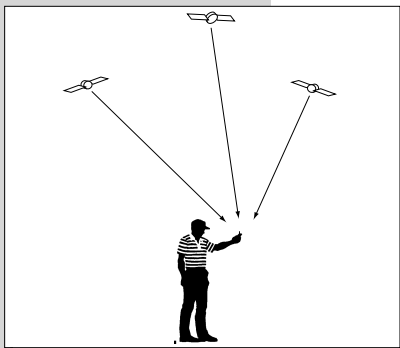
The rocker keypad is used to enter an airport identifier. To start, highlight the data entry field and press **ENTER**.



Enter the airport identifier using the **ENTER** keypad, UP/DOWN arrows to change characters or RIGHT arrow to move to the next character, then press **EDIT/ENTER** when finished.

ACQUIRING SATELLITE SIGNALS

Because the GPSMAP 195 relies on satellite signals to provide you with navigation guidance, the receiver needs to have an unobstructed, clear view of the sky for best performance. What exactly does this mean? In a nutshell, the GPS receiver's view of the sky will generally determine how fast you get a position fix, or if you get a fix at all. GPS signals are relatively weak and do not travel through large obstructions made of metal or wood, for example.

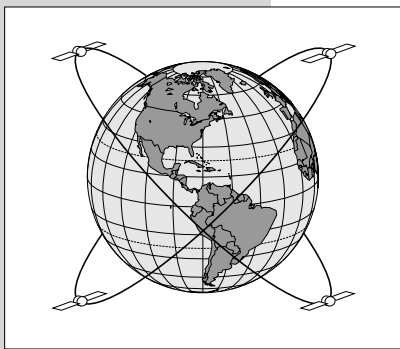


The GPSMAP 195's view of the sky will determine how fast you get a position fix, or if you get a fix at all. GPS signals do not pass through large obstructions made of wood or metal.

Once the GPS has calculated a position fix, you'll typically have anywhere from five to nine satellites in view. Your GPSMAP 195 will continuously use all satellites in view to update your position. If some of the satellites in view are blocked, or "shaded," the receiver can use the remaining satellites to maintain the position fix. Although a GPS receiver needs four satellites to provide a 3D fix, the GPSMAP 195 may obtain a 2D fix with only three satellites.

INITIALIZING THE RECEIVER

Take your GPSMAP 195 outside and find a large, open area (away from towers, buildings and hangars) that has a clear view of the sky from horizon to horizon. Hold the receiver at a comfortable height, at arm's length from your body, with the built-in antenna (the top part above the display) parallel to the ground.



The 24 GPS satellites are constantly moving, orbiting the earth twice a day. In order to calculate your position, the GPS receiver needs to continuously "see" at least three satellites.

Your GPSMAP 195 calculates your position and movement by tracking signals sent from GPS satellites. Each of the 24 GPS satellites circle the earth twice a day in a very precise orbit and transmit information back to earth. In order to determine a position fix, your GPS receiver needs to continuously "see" at least three satellites.

Because a GPS receiver can only see satellites above the horizon, it needs to know what satellites to look for at any given time. By using an almanac (a timetable of satellite numbers and their orbits) stored in the receiver's memory, the GPSMAP 195 can determine the distance and position of any GPS satellite.

To use this almanac data, your GPSMAP 195 needs to know where you are, or be given the opportunity to "find itself." Once you initialize the unit to this position, the GPSMAP 195 will usually compute a fix within a few minutes. Remember, this process is only necessary under the following conditions:

- First-time use from the factory;
- The receiver has been moved over 500 miles from the last calculated position with power off; or
- The receiver's memory has been cleared and all stored data has been lost.

INITIALIZING THE RECEIVER (cont.)

The first time you power up your new GPSMAP 195 is an important step in getting the best possible GPS performance. The receiver must be given an opportunity to collect satellite data and establish its present position. To ensure proper initialization, the GPSMAP 195 is shipped from the factory in AutoLocate™ mode, which will allow the receiver to find itself anywhere in the world. To speed up the initialization process, we recommend using the graphic initialization procedure described below, which will usually provide a position fix in about a minute.

To turn the GPSMAP 195 on:

1. Press and hold the **POC** key until the power tone sounds.

The welcome page will appear while the unit conducts a self test. Once the internal test is complete, the aviator's warning will appear, asking you to read and acknowledge important information regarding the proper use of electronic charts. The aviator's warning also displays the effective date of the internal Jeppesen™ database.

To acknowledge the aviator's warning:

1. Press the **PAGE** key.

A message alert and prompt will now appear to ask you to select an initialization method.

To view a system message:

1. Press the **PAGE** key.
2. Press the **PAGE** key again to return to the previous page.

The select initialization window will appear, with the 'select from map' option highlighted.

To initialize your present position graphically:

1. Press **EDIT ENTER** to initialize the receiver from the built-in worldwide map. The map page will appear, prompting you to select your approximate present position with the map cursor.
2. Use the **MAP** keypad to move the map cursor to a location close to your present position. If you have difficulty identifying your approximate position, use the down arrow of the **ZOOM** key to zoom in to a lower map scale.
3. Press **EDIT ENTER** to confirm your selection.

Americas Aviation Data

**Cycle 9608 Effective
18-JUL-96 to 15-AUG-96**

**Copyright 1996
Jeppesen Sanderson, Inc.**

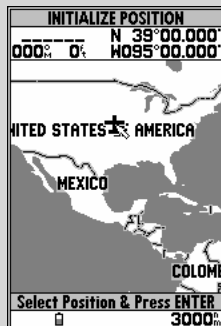
**Americas Land Data 1.00
Copyright 1996
GARMIN Corporation**

WARNING:

FOR VFR USE ONLY AS AN AID TO
PRUDENT NAVIGATION. LAND DATA
IS PROVIDED ONLY AS A GENERAL
REFERENCE TO YOUR SURROUNDINGS.
SEE MANUAL FOR MORE INFORMATION.

Press PAGE to continue

The aviator's warning indicates the effective date of the Jeppesen database. This warning is also a reminder that electronic charts should always be double-checked for accuracy against your current paper charts.



The initialization window offers several options to speed the process of obtaining your first position fix. Choose 'Select from Map' to designate your approximate position from the map page.

INITIALIZING THE RECEIVER (cont.)

The GPSMAP 195 will now begin searching for the appropriate satellites at your present position and should acquire a fix within a minute or so. While the receiver searches for satellites, a flashing satellite icon will appear at the left-hand side of the status bar. A signal strength bar will also appear for each satellite received, with the appropriate satellite number under each bar. The progress of satellite acquisition is shown in three stages:

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

Once the receiver has collected information from at least three satellites, the flashing satellite icon on the status bar will remain on steadily, and the GPSMAP 195 is ready for use.


TURNING THE GPSMAP 195 ON & OFF

The GARMIN GPSMAP 195 is a powerful electronic charting/navigating system that provides detailed chart coverage and convenient control of many advanced features right from the moving map display. The tour is designed to take you through the basic pages and functions of the system, first by demonstrating the normal process of obtaining a position fix, and then by using the simulator mode. Once you're familiar with the main pages and functions of the unit, refer to the reference section for instructions on performing specific tasks and functions.

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



Now that you've initialized the receiver and obtained a position fix, let's look at the normal power on sequence and see how it differs without the initialization steps. For starters, we'll need to turn the GPSMAP 195 off for a moment.

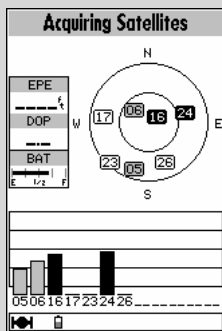
To turn the GPSMAP 195 off:

1. Press and hold the  key for approximately 3 seconds, until the screen is blank.

Now we can turn the receiver back on again.


To turn the GPSMAP 195 on:

1. Press and hold the  key until the power tone sounds. The welcome page will appear while the unit conducts a self test.
2. Once the self test is complete, press the  key to acknowledge the aviator's warning.



Hollow signal strength bars will appear on the status page while the receiver collects satellite data. Once the data is collected and the satellite is ready to use, the signal strength bar changes to solid.



When the GPSMAP 195 is turned on a welcome screen appears briefly while the receiver conducts an internal self test. The same  key is used to turn the receiver on or off.




TURNING THE GPSMAP 195 ON & OFF (cont.)


The **satellite status page** will appear, and the receiver will begin to acquire satellites. Notice that when the GPSMAP 195 is properly initialized, the page sequence is shorter—the select initialization window no longer appears. The time to obtain a position fix is also much quicker.

ADJUSTING CONTRAST/BACKLIGHTING


From the status page, you may quickly adjust the screen contrast and backlighting.

To adjust the screen contrast:

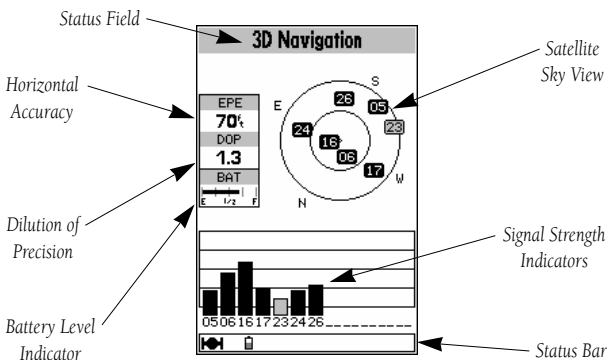
1. Increase the screen contrast by pressing the right arrow of the  keypad.
2. Decrease the screen contrast by pressing the left arrow of the  keypad.
3. Press the  key to finish.

The GPSMAP 195's three-level screen backlighting is controlled with the  key, and may be adjusted at any time from any page. When backlighting is on, a bulb icon will appear on the status bar.

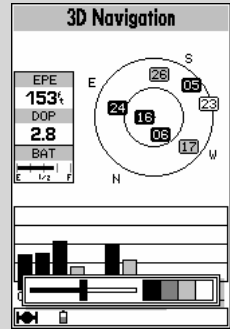
To turn on and adjust the backlighting:


1. Press the  repeatedly until the backlighting is at the desired level (off, low, medium, or high).

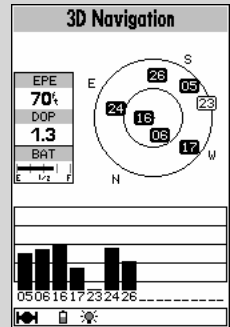
SATELLITE STATUS PAGE



The GPSMAP 195's **satellite status page** provides a visual reference of satellite acquisition and receiver status, with a signal strength bar graph and a satellite sky view in the center of the page. The accuracy of your position reading is indicated on the upper left hand side of the page.

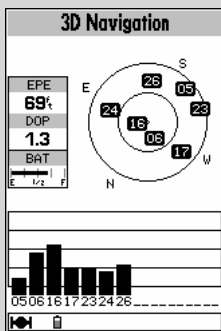


The screen contrast may be adjusted from the status page by pressing the left/right arrows on the  KEYPAD. Press to confirm changes.



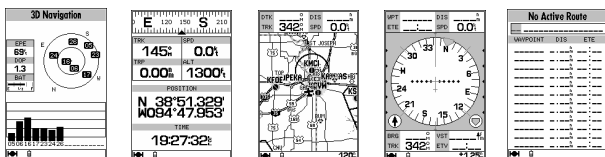
Whenever the screen backlighting is on, a bulb icon will appear on the status bar at the bottom of every GPSMAP 195 page.

The satellite sky view and signal strength bars give you an indication of what satellites are visible to the receiver and whether they are being tracked. Satellites, numbered from 01 through 32, are placed on the page indicating their position in the sky. The signal strength bars indicate how strong the signal is from each satellite being tracked—the taller the bar, the stronger the signal. (For more information on the satellite status page, turn to page 44.)



The signal strength bars indicate how strong the signal is from each satellite being received. Taller bars indicate stronger signals.

PAGE SEQUENCE



PAGE



QUIT

The satellite status page is one of five main pages displayed on your GPSMAP 195. All five pages are linked together in a simple chain, which allows you to scroll through the pages in either direction using the **PAGE** or **QUIT** keys. To continue the tour, let's move on to the next page, the **position page**.

To scroll to the next page in sequence:

1. Press the **PAGE** key until the position page is displayed. (Or press **QUIT** to sequence in reverse order until the position page appears.)

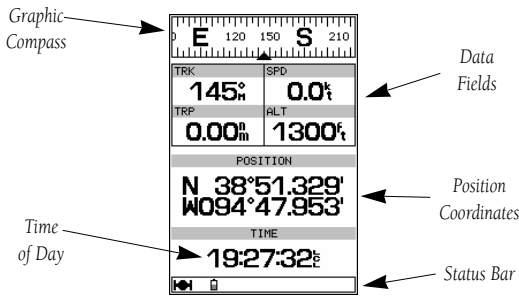


NOTE: During normal use the GPSMAP 195 will automatically sequence to the map page once enough satellites are received to compute a position fix. If any keys are pressed during the process of acquiring satellites, it will cancel this automatic sequence.



During normal use the GPSMAP 195 will automatically sequence to the map page once enough satellites are received to compute a position fix.

POSITION PAGE



The GPSMAP 195's **position page** shows where you are, what direction you're heading and how fast you're going. The compass at the top of the page indicates your current ground track (or direction of travel) while you're moving. The four user-selectable data fields below the compass show your current ground track and ground speed, along with a resettable trip odometer and altitude display. Your current latitude and longitude, along with a 12/24-hour clock, appear at the bottom of the page.

SELECTING SIMULATOR MODE

To continue the takeoff tour and explore the rest of the main pages, you'll need to put the GPSMAP 195 in simulator mode.

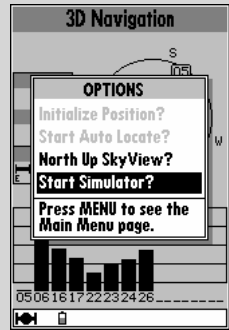
To place the GPSMAP 195 in simulator mode:

1. Press the **PAGE** or **QUIT** key until the satellite status page is displayed.
2. Press the **MENU** key. The options page will appear, displaying a menu of options and functions for the status page.
3. Use the UP or DOWN arrow of the **⦿** keypad to highlight the 'Start Simulator?' option and press **EDIT ENTER**.
4. Press the **EDIT ENTER** key to confirm the simulator warning.

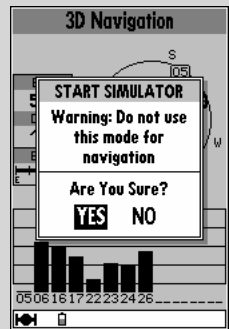


WARNING: Keep in mind that the GPSMAP 195 does not track satellites in simulator mode and should never be used for actual navigation. (The GPSMAP 195 cannot turn on in simulator mode. If you forget to change back to normal operation before shutting the receiver off, the next time you use the receiver it will return to normal operation mode.)

Once the simulator has been started, the status field at the top of the page will display a 'Simulating Navigation' status. Since the GPSMAP 195 doesn't receive satellite signals in simulator mode, you don't need to be outside anymore. This is a good time to settle into a comfortable chair, at home or in the office, and continue the rest of the Takeoff Tour.



To place the GPSMAP 195 in simulator mode, press **MENU** from the satellite status page and select 'Start Simulator?'.



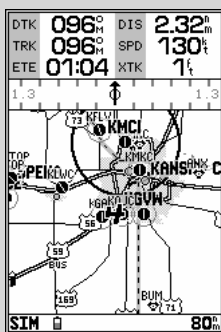
To start the simulator, confirm the simulator warning by pressing **YES**. Remember, simulator mode should never be used for actual navigation!

The next main page is the **map page**. To continue the Takeoff Tour, let's select this screen now.

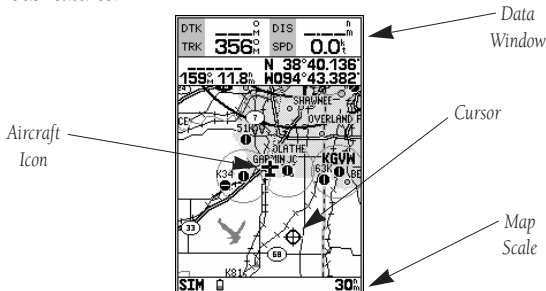
To select the map page:

1. Press **PAGE** or **QUIT** until the map page appears.

The GPSMAP 195's map page combines digital charts with a user-selectable display of navigation data and a built-in Jeppesen database. Before we take off on our practice flight, let's take a brief look at its various features.



The map page can also be configured to display additional data fields and a graphic course deviation indicator (CDI) or ground track compass.



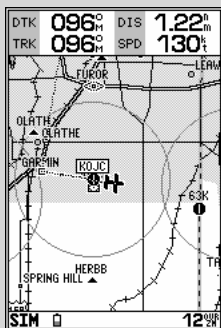
The **map display**, located in the middle of the page, shows your aircraft as an airplane icon on an electronically-generated chart, which includes airports, VORs, NDBs, intersections and airspaces. The map display on your GPSMAP 195 should show the local area around your present position. An internal base map adds geographic names, lakes, rivers, coastlines, interstate highways, U.S. highways and state highways. It also displays your track, routes and nearby waypoints. An on-screen **cursor** lets you pan to other map areas, determine the range and bearing to a position, and perform various waypoint and route functions. Optional GARMIN detail cartridges allow you to display more detail at scales down to 1/10 nautical mile.

The **data window**, located at the top of the page, provides a user-selectable display of various navigation data, including ground track, ground speed, and the bearing and distance to the cursor or a particular waypoint.

The **status bar**, located at the bottom of the page, displays the current map scale setting. The scale setting represents the distance from the left side of the map display to the right side. To get a better view of your current surroundings, zoom in or out to provide the level of detail you desire.

To zoom in or out on the map page:

1. Press the down arrow on the **▼ ZOOM ▲** key to zoom in and display more detail for a smaller area.
2. Press the up arrow on the **▼ ZOOM ▲** key to zoom out and display less detail for a larger area.




Use the **▼ ZOOM ▲** key to zoom in or out, displaying the desired level of detail.







MAP PAGE (cont.)

The built-in base map provides geographic detail at scales down to 1/10 nautical mile. At lower scale settings, a GARMIN detail cartridge is required for best performance. Keep in mind that whenever you do exceed the usable range of the base map or a detail cartridge, the range field will display 'OVR ZM' to indicate that you should exercise caution using the cartography data. See page 51 and 93 for more information on map scales and using detailed cartridges.

USING THE MAP CURSOR


Working from the map page is a simple process that centers around the use of the cursor. Controlled by the  keypad, the cursor is an important tool that can be used to pan to other map locations, create waypoints, edit routes, and review database information for on-screen airports and nav aids.


To get a feel for using the map page and using the cursor, try the following exercise:

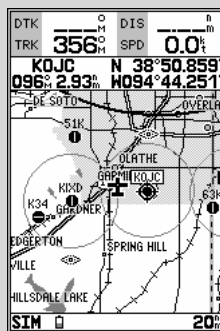
1. Use the  key's DOWN arrow to set the map scale to the 50 nm setting. The airplane icon should be centered on the map.
2. Using the  keypad to move the cursor, try following a highway near your position. Notice how another data field appears at the top of the page, showing the bearing and distance from your aircraft to the cursor, along with the lat/long of the cursor.
3. Using the  keypad, move the cursor to one of the airport icons appearing on the map display, then press . The airport location page appears showing the database information for that airport. Press  to return to the map display.
4. Press the  key to remove the cursor and recenter your aircraft on the map display.





NOTE: As you pan the map display, moving the cursor to a new area, the GPSMAP 195 will need to load additional map data before it can be displayed. You will be alerted to this condition with a 'Loading...' message on the map.


The cursor can also be used to select a GOTO destination right from the map page. With the cursor over a given point on the screen — even without an icon at that point — you can designate that point as a GOTO destination by simply pressing the  key. (This feature is not part of the takeoff tour, but may prove handy on many occasions. It's described in more detail on page 50.)

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



To select an on-screen airport, navaid or waypoint; simply move the cursor over the desired waypoint. The name and position, along with the bearing and distance to that point, from present position, will appear.

WAYPOINT	
APT KOJC	 Public
FACILITY	
JOHNSON CD	
EXECUTIVE	
CITY	
OLATHE KS	
POSITION	
N 38°50.859'	
W094°44.251'	
ELEVATION	
1100'	
FUEL	
AV JET	
Appr?	Comm? Rwy? Done?
SIM 	

By selecting an on-screen airport, navaid or airspace and pressing , you can view the database information for that waypoint.



Now that you have a feel for how the cursor works, it's time to move on and see how the GPSMAP 195 would look in the air. To help you practice using the map page and other features, let's use the GOTO function to fly to an airport stored in the receiver's memory. From this, you'll learn what to expect when you're out flying with your new GPS receiver.

Suppose you experienced an emergency during your trip and needed to find a place to land. Better yet, you just want to stop for a break at a nearby airport or top off the tanks. A list of the nine nearest airports within 200 miles of your present position is just a keystroke away! Instantly, you can select an airport from the list and designate it as your destination waypoint. Or, you can review all the available Jeppesen data for that particular airport. Let's take a look at the closest airports in your area.

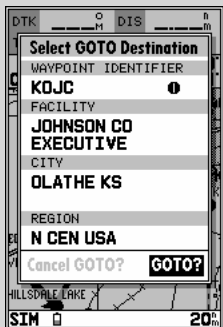
To view the nine nearest airports:

1. Press the **NRST** key to display the nearest waypoints page.

A list of the nine nearest airports appears, along with the bearing and distance to each one.

NEAREST AIRPORTS			
WAYPOINT	BRG	DIS	LENGTH
KOJC	095°	2.9m	4000'
KIXD	248°	4.5m	7300'
51K	315°	6.1m	2400'
K34	245°	7.9m	3200'
63K	099°	9.1m	1800'
KGVH	090°	11m	9200'
K64	263°	18m	3200'
KMKC	027°	19m	7000'
MO06	042°	19m	2600'

To display the nine nearest airports, press the **NRST** key. If the nearest list shows nav aids, airspaces, etc.; press **NRST** again to return to the nearest airport list.



By pressing the **NRST** key, followed by **NRST**, the highlighted airport instantly becomes your destination waypoint.



NOTE: If for any reason the nearest waypoints page does not show airports, but instead lists nearest airspaces (which we'll cover in just a moment), VORs, NDBs, intersections or user waypoints; just press the **NRST** key a second time to return to the nearest airport list.

To GOTO a nearest airport:

1. Use the UP or DOWN arrows on the **NRST** keypad to highlight the desired airport.
2. Press the **GOTO** key, followed by **EDIT ENTER**, to designate the airport as your destination waypoint.

Now you can use the map or navigation pages to guide you to your destination airport. Oftentimes, you may want more information about an airport, like how long the runways are or if fuel is available. From the nearest waypoints page you can view the Jeppesen data for any listed airport or nauid, using the waypoint definition page(s).

To view the Jeppesen data for a nearest airport:

1. Use the UP or DOWN arrows on the **NRST** keypad to highlight the desired airport.
2. Press the **EDIT ENTER** key to view the waypoint definition page(s) for that airport.

USING THE GOTO KEY

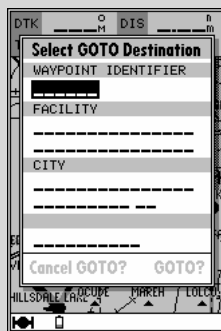
GPS is all about using positions called **waypoints** and navigating to them using the receiver's navigation guidance and map displays. Now that you've seen how the status page can be used to monitor satellite acquisition and the position and map pages can be used to observe your present position, it's time to explore the navigation features of the GPSMAP 195—starting with the GOTO function. The **GOTO** key, located on the left side of the keypad below the **30E** key, is the primary tool used to select a destination waypoint or a route to navigate. The **GOTO** key can be used in three main ways:

- Pressing **GOTO** once displays a GOTO window from which you may select any airport or navaid in the database, or any user waypoint in memory. When the destination is an airport, it may be selected by identifier, facility name or city.
- Pressing **GOTO** followed by the **MENU** key provides a list of GOTO options that lets you start a TracBack™ route, select a published approach for an airport, or select a stored route to navigate.
- After panning to a location on the map display, pressing **GOTO** allows you to graphically select an on-screen waypoint, navaid or cursor position as your destination.

For this simulated trip, we will select a nearby airport and fly directly to that location. If you don't recall the identifiers of any nearby airports, return to the nearest airports page discussed on the preceding page and select your destination directly from the list. Otherwise, we'll enter the identifier using the keypad.

To select the destination airport:

1. Press **GOTO**. The GOTO window will appear.
2. Highlight the waypoint identifier field by pressing the DOWN arrow on the **0** keypad.
3. Press **EDIT ENTER** to begin entering the airport identifier.
4. Use the UP and DOWN arrow on the **0** keypad to enter the first character of the airport identifier.
5. Use the RIGHT arrow of the **0** keypad to move to the next character. (If you make a mistake, back up with the LEFT arrow.)
6. Repeat steps 3 and 4 until the airport identifier has been selected.
7. Press **EDIT ENTER** to accept the selected airport. The top of the map page should now indicate the bearing and distance to the selected airport.



*Pressing **GOTO** displays the GOTO window, from which you may select any airport or navaid in the Jeppesen database, or any user waypoint you've entered in memory.*



The GOTO options page lets you start a TracBack™ route or activate a stored route to navigate.

The next screen following the map page is the **HSI** (Horizontal Situation Indicator) **page**.

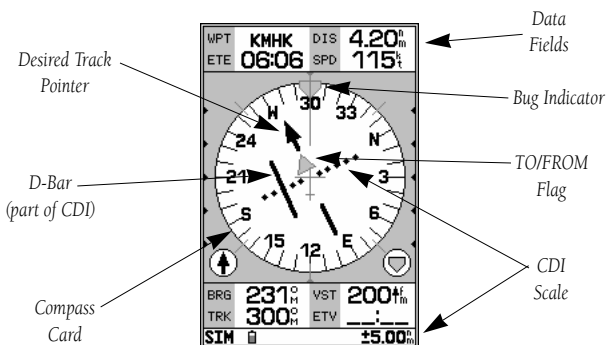
To select the HSI page:

1. Press the **PAGE** key.

The HSI page is your primary navigation screen and graphically depicts desired track, ground track, crosstrack error (course deviation) and a TO/FROM indication. The HSI display also provides vertical guidance when using the unit's vertical navigation features.



The HSI page graphically depicts desired track, ground track, course deviation and TO/FROM. The example shown above is on course and heading toward the destination waypoint.



User-selectable data fields appear at the top of the page and also provide distance to destination waypoint, ground speed and estimated time en route, among others.

Whenever the GPSMAP 195 is in simulator mode, you can adjust your speed and course from the navigation page using the **⬆** keypad. Now let's head toward our airport by adjusting the ground speed and track to get a feel for how the HSI works.

To adjust the simulated aircraft ground speed:

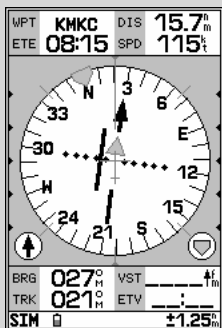
1. Press the **UP** arrow of the **⬆** keypad to increase the speed in 5-knot increments. Press the **DOWN** arrow to decrease the speed in the same increments.

To control the ground track:

1. Press the **LEFT** and **RIGHT** arrows of the **⬆** keypad.

To reset the simulator to automatically track the desired course:

1. Press **GOTO**, followed by **EDIT ENTER**.



Use the **⬆** keypad to 'drive' simulator mode operations. The **UP**/**DOWN** arrows control speed. The **RIGHT**/**LEFT** arrows control ground track.

HSI PAGE (cont.)



Off course to the Left



Off course to the Right

Notice that as you get off course, the compass card, desired track pointer and D-bar move to give you graphic guidance to get back on course. The compass card rotates to indicate your current ground track at the top of the page. (Don't confuse this with aircraft heading because it may be different!) The desired track pointer stays fixed on the desired track (DTK) to your destination waypoint—the original course line from point of origin to destination waypoint. The D-bar and CDI (course deviation indicator) show just how far left or right of the desired course you have drifted.

The scale setting for the CDI is shown at the bottom right of the page. The scale setting represents the distance from the center of the CDI to full left or right limits. The default CDI setting is 1.25 nm, but can also be set for 0.25 or 5.0 nm ranges.

To change the CDI scale:

1. Press the **ZOOM** key in either direction (up to increase, down to decrease the scale).

The HSI page data fields may also be configured to display any of fourteen different navigation values. These navigation values are defined in Appendix F. To demonstrate how data fields are changed, let's change the ETE (estimated time en route) data field so it displays DTK (desired track).

To change a data field:

1. Press the **MENU** key to display the HSI page options.
2. Highlight the 'Change Data Fields?' option and press **EDIT ENTER**. The field highlight will now appear in the top-left data field (starting with the WPT field).
3. Use the **ROV** keypad to move the field highlight to the ETE field and press **EDIT ENTER**.
4. Highlight the 'DTK' option and press **EDIT ENTER**.
5. Press **QUIT** to finish.



The scale setting for the CDI is shown on the status bar. Use the **ZOOM** key to change the scale.

BRG	- Bearing
CTS	- Course To Steer
DIS	- Distance
DTK	- Desired Track
ETE	- Est. Time Enroute
ETV	- Est. Time To VNAV
GR	- Glide Ratio
GRT	- Glide Ratio To Trgt
SPD	- Ground Speed
TRK	- Track
TRN	- Turn
VST	- Vert Speed To Trgt
WPT	- Active Waypoint
XTK	- Cross-Track Error

The data fields may be configured to display any of fourteen different values. To change a data field, select the HSI options page by pressing .

AIRSPACE WARNINGS (cont.)

When the airspace warning occurs the GPSMAP 195 will beep several times and 'Message-Press Page' will flash on the status bar at the bottom of the screen.

To view the airspace message:

1. Press the **PAGE** key.
2. Press **PAGE** again to return to the map page.

Additional information, including name, class, controlling agency and altitudes, is also available for each airspace you are alerted to.

To view the additional airspace information:

1. Press the **NRST** key. The nearest airspace page will appear, listing information for up to 6 airspaces you are being warned about. Each listing will display the type of warning and your ETE to intrusion, if applicable.
2. To view specific information on any listed airspace, highlight the desired airspace name using the **⬇️** keypad and press **EDIT/ENTER**. The airspace definition page appears, providing additional information including floor and ceiling limits for the selected airspace.
3. To return to the nearest airspace page, press the **QUIT** key.
4. To return to the previous page, press **QUIT**.



NOTE: When an airspace alert is provided, expect the **NRST** key to default to the nearest airspace page—not the nearest airport list. However, there may be rare instances when an airspace alert is provided and pressing **NRST** provides a list of airports or nav aids instead. This simply means the alert condition no longer exists. During maneuvers or heading changes, your course may momentarily be projected into an airspace creating a temporary alert condition.

Airspace alert messages for class B, class C, MOA, restricted and other areas may be turned off to avoid nuisance alerts, and may also be removed from the map display to avoid excess clutter at higher map scales. For complete information and definitions on airspaces, see page 65-66.

NEAREST AIRSPACES
JOHNSON CO EXECUTIVE
Inside
KANSAS CITY DOWNTOWN
06:36 ahead
NEW CENTURY AIRCENTER
Less than 2 nm away
SIM

A list of any airspace alerts is available from the nearest airspace page, which also shows the type of warning and time to entry.

NEAREST AIRSPACES
AIRSPACE
JOHNSON CO EXECUTIVE
Control Tower
CONTROLLING AGENCY
TOWER
Frequencies?
VERTICAL BOUNDARIES
See Chart
Surface
STATUS
Inside
Next?
SIM

The airspace definition page provides even more detail regarding an airspace alert. Consult this page to find the floor and ceiling limits, controlling agency and frequency.

As you've seen, the GPSMAP 195's main pages provide vital status, position, navigation and map information. The last page we'll cover in the tour is the **main menu page**, which provides access to the GPSMAP 195's route and planning functions, as well as various operation and navigation setup features. The main menu is available from any page, and is accessed through the **MENU** key.

To access the main menu page:

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

The main menu page's 8 submenus are divided into categories by function. You can select a particular submenu by simply highlighting the desired option with the **UP** key and pressing **EDIT ENTER**. To get a feel for how the main menu page works, let's clear out the track log created during the simulated tour. This will ensure that you have a clean slate once you start navigating on your own.

To select the track submenu:

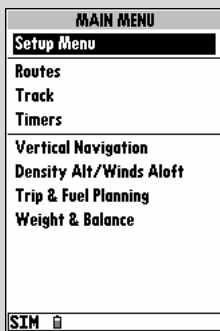
1. Highlight the 'Track' menu option with the **UP** keypad and press **EDIT ENTER**.

The track log page allows you to specify whether to record a track log and define how it is recorded. A track log is a record of position samples showing where you have been. This information can be automatically stored by the GPSMAP 195 and displayed on the map, leaving a trail behind you as your flight progresses. The track log page also provides both an indicator of the total memory used and the individual functions to clear the track log and start a TracBack route. (A TracBack route allows you to retrace your flight, following the track log information back to where you started. See page 79 for more information on this feature.)

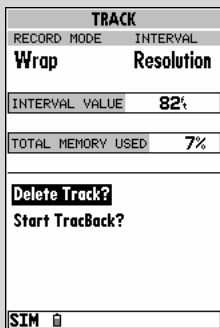
To delete the track log:

1. Highlight the 'Delete Track' option and press **EDIT ENTER**. A confirmation page will appear.
2. Highlight the 'Yes' prompt and press **EDIT ENTER** to confirm.
3. Press **PAGE** to return to the main page sequence.

Congratulations! You've now gone through the basic operation of the GARMIN GPSMAP 195. Your new receiver is a powerful tool with many advanced features not covered in the takeoff tour. For detailed instructions on using these features or performing a specific task, please refer to the quick reference guide or the appropriate reference section of this manual.



The main menu page is used to select the setup, route, track and E6B features of the GPSMAP 195. To display the main menu page, press **MENU** twice.



To delete the track log select the 'Delete Track?' option and press **EDIT ENTER**.

WAYPOINT CATEGORIES

The GPSMAP 195 uses an internal Jeppesen database to provide 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, identifier (up to six letters and/or numbers) and other pertinent information. Up to 250 user waypoints and 250 symbol waypoints may also be created and stored in memory.

Waypoint information is available through the GPSMAP 195's **WPT** key. Waypoints are divided into five categories for your convenience. Each category provides different types of detailed information for a selected facility:

- **Airports**— Identifier, city/state, country, facility name, position (lat/lon), elevation, fuel services, runways, approaches and communications frequencies.
- **VORs**— Identifier, city/state, country, facility name, position (lat/lon), frequency and co-located DME or TACAN availability.
- **NDBs**— Identifier, city/state, country, facility name, position (lat/lon) and frequency.
- **Intersections**— Identifier, region/country, position (lat/lon) and range/bearing to nearest VOR.
- **User**— Identifier (name), position (lat/lon), user comments and reference waypoint.

To view the waypoint information for a desired waypoint, select the waypoint category from the category field, located at the top left of the waypoint page.

To choose a waypoint category:

1. Press **WPT** to display the waypoint definition page.
2. Highlight the waypoint category field using the **⬤** keypad.
3. Press **EDIT ENTER** to begin selection of the waypoint category. A listing of all five category types will appear.
4. Use the UP or DOWN arrows to select the desired category.
5. Press **EDIT ENTER** to confirm the category selection.

After a waypoint category is selected, information for a waypoint can be viewed by entering the identifier or name of the desired waypoint. Airports, VORs, and NDBs may be entered by either the identifier, name, or the location (city) of the facility. Intersections and user waypoints must be entered by the identifier.

Americas Aviation Data

**Cycle 9608 Effective
18-JUL-96 to 15-AUG-96**

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Jeppesen Sanderson, Inc.**

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Copyright 1996
GARMIN Corporation**

WARNING:
FOR VFR USE ONLY AS AN AID TO
PRUDENT NAVIGATION. LAND DATA
IS PROVIDED ONLY AS A GENERAL
REFERENCE TO YOUR SURROUNDINGS.
SEE MANUAL FOR MORE INFORMATION.




Press PAGE to continue

The GPSMAP 195's internal Jeppesen database is available in Americas, Atlantic International and Pacific International versions. Americas covers North, Central and South America. Atlantic International covers Europe, Africa, Middle East and northern Asia. Pacific International covers Asia, Australia, Middle East and Eastern Europe.

The database cycle is displayed with the aviator's warning. A database update can be ordered from your dealer or directly from GARMIN.



To enter a waypoint identifier:


1. Use the  keypad to highlight the identifier field.
2. Press .
3. Use the UP and DOWN arrows to spell out the desired identifier, using the RIGHT arrow to move to the next character position.
4. As the identifier is entered, the GPSMAP 195's Spell'N'Find feature will scroll through the available database, displaying any waypoints with the same identifier letters you have entered to that point. When the desired waypoint is displayed, press .



NOTE: The GPSMAP 195 uses ICAO (International Civil Aviation Organization) identifiers to designate airports. In the United States, the prefix letter for airports is 'K'. This applies to airport identifiers that are letters only. For example, 'LAX' becomes 'KLAX' and 'JFK' becomes 'KJFK'. Airport identifiers that use numbers, such as 'H34' or '7M5', do not use the 'K' prefix.





Some waypoints in the database may have the same identifier. When you have entered a waypoint name that is not unique, the duplicate waypoint page will be displayed for you to select the desired waypoint. A list showing each duplicate by waypoint category and region makes it easy to identify the correct one.

To select the desired waypoint from a list of duplicates:

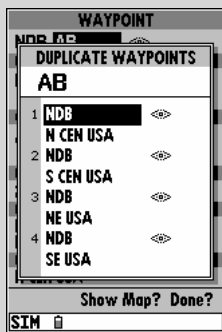
1. With the duplicate waypoint page displayed, highlight the desired waypoint and press .

Once you've selected a waypoint category, waypoint information can also be retrieved by entering the facility name of the airport, VOR or NDB, or the city name. (Intersections and user waypoints cannot be retrieved by facility or city name.)

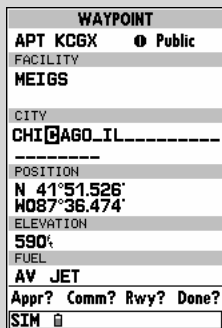
To select a waypoint by facility or city name:

1. Select the desired waypoint category (Airport, VOR or NDB).
2. Use the  keypad to highlight the facility name or city name field. If the facility and city name fields do not appear on the airport page, you must select the airport location page first. Refer to the following page for information on scrolling through airport pages.
3. Press  to begin entry of the facility or city name.
4. Enter the name of the facility or city with the  keypad.
5. The GPSMAP 195's Spell'N'Find feature will scroll through the database, displaying any waypoints with the same letters you have entered. When the desired waypoint appears, press .

With the waypoint category and identifier selected, the GPSMAP 195 will provide extensive information through various waypoint definition pages.



Waypoints are selected by their identifier (or name). If more than one waypoint uses the same identifier, the duplicate waypoint page will be displayed, allowing you to choose the correct waypoint



Besides using waypoint identifiers; airports, VORs and NDBs may be selected by facility name or city.

AIRPORT INFORMATION

WAYPOINT	
APT KOMA	Public
FACILITY	
EPPLEY	
CITY	
OMAHA NE	
POSITION	
N 41°18.124'	
W095°53.619'	
ELEVATION	
980'	
FUEL	
AV JET	
Appr? Comm? Rwy? Done?	
SIM	0

WAYPOINT	
APT KOMA	Public
COMMUNICATION FREQUENCIES	
1 ATIS	120.40
2 Clearance	119.90
3 Ground	121.90
4 Tower	132.10
5 Unicom	122.95
6 Departure?	120.10
7 Departure?	124.50
8 Approach?	120.10
9 Approach?	124.50
10 Class C?	120.10
Rwy? Loc? Appr? Done?	
SIM	0

WAYPOINT	
APT KOMA	14R-32L
Hard Surface 8500' 150'	
Full Time Lights	
Loc? Appr? Comm? Done?	
SIM	0

WAYPOINT	
APT KOMA	FLTK
ILS RW17 RW17	
Comm? Rwy? Loc? Done?	
SIM	0

The GPSMAP 195 features four airport pages:

- **Airport location**— allows entry of desired airport by identifier, facility name or city; displays latitude, longitude, elevation; and fuel availability.
- **Airport communication**— allows entry of desired airport by identifier and displays radio frequencies/usage.
- **Airport runway**— allows entry of desired airport by identifier; displays runway designations, length, surface and lighting information, and/or pilot-controlled lighting frequencies.
- **Airport approach**— allows entry of desired airport by identifier; displays final course segment of published ILS, localizer, RNAV, GPS, VOR, VOR/DME or NDB approaches.

To scroll through the airport pages:

1. Select the airport category and enter the desired airport identifier. The airport page initially displayed will be the same as the last airport page viewed.
2. Use the LEFT arrow to move the field highlight to the 'Loc?', 'Comm?', 'Rwy?' or 'Appr?' prompt and press **EDIT/ENTER**. (Only three of these prompts are available at any time. The fourth item is the screen you're currently viewing.)

To exit the airport pages and return to the previously viewed page:

1. Press the **QUIT** key.

Waypoint	→	APT KOMA	Public	←	Facility Name
Category	→	FACILITY	EPPLEY	←	
Airport Identifier	→	CITY	OMAHA NE	←	City Location
Airport Position Coordinates	→	POSITION	N 41°18.124'		
			W095°53.619'		
			ELEVATION	←	Airport Elevation
			980'		
			FUEL		
Other Airport Pages	→	AV JET		←	Available Fuel
		Appr? Comm? Rwy? Done?			
		SIM	0		

WAYPOINT	
APT KOMA	14R-32L
Hard Surface 8500' 150'	
Full Time Lights	
Loc? Appr? Comm? Done?	
SIM	0

The airport runway page shows runway data and a map of the area around the airport. To zoom in/out and see more detail for the airport area, use the **VIEW ZOOM** key.

WAYPOINT	
APT KOMA	Public
COMMUNICATION FREQUENCIES	
1 ATIS	120.40
2 Clearance	119.90
3 Ground	121.90
4 Tower	132.10
5 Unicom	122.95
6 Departure?	120.10
7 Departure?	124.50
8 Approach?	120.10
9 Approach?	124.50
10 Class C?	120.10
Rwy? Loc? Appr? Done?	
SIM	0

To scroll through the various airport pages select 'Loc?', 'Comm?', 'Rwy?' or 'Appr?'.

The GPSMAP 195's airport location page displays the latitude, longitude and elevation of the selected airport, as well as fuel availability. From the airport location page, you can enter a desired airport by identifier, facility name or city as described on page 28. The following descriptions and abbreviations are used on the airport location page:

Elevation— Field elevation in feet or meters

Position— Airport location in the position format you have currently selected from the setup page (e.g., latitude/longitude or UTM/UPS)

Fuel— Lists the types of fuel available on the airport:

- AV— AVGAS: 80-87 octane, 100 LL, 100-130 octane
- JET— Jet A, Jet A-1 or Jet A+
- MO— MOGAS: 87 octane unleaded

WAYPOINT	
APT KOMA	Public
FACILITY	
EPPLEY	
CITY	
OMAHA NE	
POSITION	
N 41°18.124'	
W095°53.619'	
ELEVATION	
980'	
FUEL	
AV JET	
Appr?	Comm? Rwy? Done?
SIM	


The airport location page shows the facility name, city, position coordinates, field elevation and available fuels for the selected airport.

WAYPOINT		COMMUNICATION FREQUENCIES	
1	ATIS	120.40	MHz
2	Clearance	119.90	MHz
3	Ground	121.90	MHz
4	Tower	132.10	MHz
5	Unicom	122.95	MHz
6	Departure?	120.10	MHz
7	Departure?	124.50	MHz
8	Approach?	120.10	MHz
9	Approach?	124.50	MHz
10	Class C?	120.10	MHz
Rwy? Loc? Appr? Done?		SIM	

The airport communication page displays radio frequencies and their usage for the selected airport, and allows entry of a desired airport by identifier only (see page 28). The following frequencies are displayed if available:

- ATIS
- Clearance
- Tower
- Multicom
- Departure
- Arrival
- TMA
- Class C
- Pre-Taxi
- Ground
- Unicom
- Other
- Approach
- Class B
- CTA
- TRSA

WAYPOINT	
APT KOMA	Public
COMMUNICATION FREQUENCIES	
2	Clearance 119.90 MHz
3	Ground 121.90 MHz
4	Tower 132.10 MHz
5	Unicom 122.95 MHz
6	Departure? 120.10 MHz
7	Departure? 124.50 MHz
8	Approach? 120.10 MHz
9	Approach? 124.50 MHz
10	Class C? 120.10 MHz
11	Class C? 124.50 MHz
Rwy? Loc? Appr? Done?	SIM

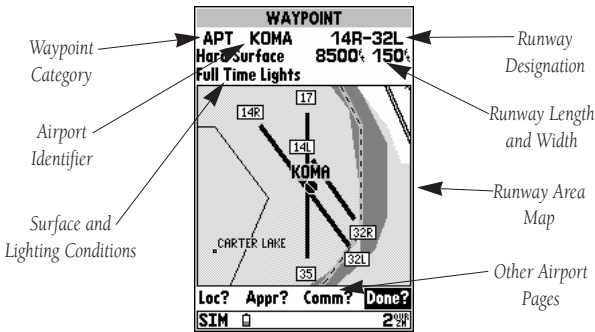
Use the  keypad to scroll through the list of frequencies. As you progress through the list, the location bar on the right margin shows which portion of the list is currently being displayed.

AIRPORT INFORMATION (cont.)

When a frequency type is followed by a question mark (?), restrictions apply to that frequency. Restrictions based on sector and/or altitude may apply.

To view frequency restrictions:

1. Highlight the desired frequency type.
2. Press the **EDIT ENTER** key. The frequency information page appears with additional detail about the selected frequency.



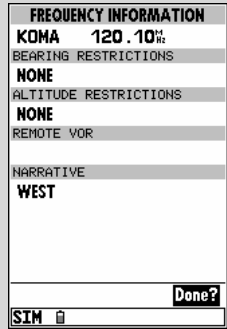
The next airport page is the runway page, which features a diagram of available runways, along with designations, length, width, surface and lighting information for the selected airport.

The runway area map provides a north-up graphic of available runways, with length, width, surface and lighting data listed below the runway designation. The 'Surface' field will display one of the following surface types: hard, turf, sealed, gravel, dirt, soft, unknown or water. The 'Lights' field will indicate one of five lighting schemes: part time, full time, pilot controlled (with frequency), no lighting or unknown.

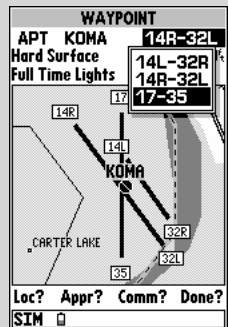
If the airport has more than one runway, additional runway data can be viewed by selecting another runway from the runway designation field.

To view additional runway data:

1. Highlight the runway designation field.
2. Press the **EDIT ENTER** key.
3. Use the **⏮** keypad to select the desired runway.
4. Press **EDIT ENTER** to confirm the selection.



Some frequencies have usage restrictions, as denoted by the '?' at the end of the frequency type. By highlighting these frequency types and pressing **EDIT ENTER**, the restriction information will appear.



Data for each runway is available from the runway designation field.

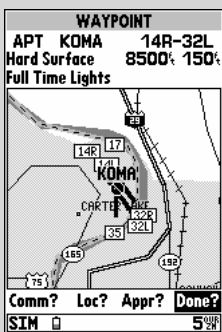
The runway page also allows you to zoom in, zoom out and pan the screen to see the level of detail you desire. For larger airports you may zoom out and/or pan around the runway area map to see additional detail.

To zoom in or out on the runway page:

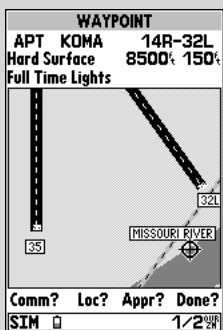
1. Press the UP arrow of the **▼ ZOOM ▲** key to zoom out. The higher scale setting will show a larger area, but in less detail.
2. Press the DOWN arrow of the **▼ ZOOM ▲** key to zoom in. The lower scale setting will show a smaller area, but in greater detail.

To pan the runway area map:

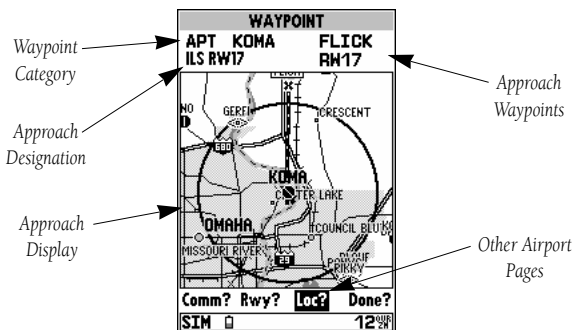
1. Highlight the runway area map using the **⊙** keypad. When the runway area map is highlighted the outline border becomes wider.
2. Press **EDIT ENTER** to activate the panning function and use the **⊙** keypad to pan in the desired direction. A cursor will appear and as it reaches the edge of the runway area map, the map will scroll under the cursor.
3. If you zoom in or out while panning, the cursor will be centered on the runway area map over the last cursor position.
4. To exit the panning function, press the **QUIT** key.



Use the **▼ ZOOM ▲** key to zoom in or out to the desired level of detail.



Select the runway area map and pan around the map display using the **⊙** keypad.



The last airport page is the approach page, which displays the final course segment and waypoints for each published approach to the selected airport. The GPSMAP 195's Jeppesen database includes ILS, localizer, RNAV, GPS, VOR, VOR/DME and NDB approaches. Only one approach course is shown at a time. If there are additional approaches for the selected airport, you may view the additional approaches from the approach designation field.

AIRPORT INFORMATION (cont.)

To view additional approaches:

1. Highlight the approach designation field.
2. Press the **EDIT ENTER** key.
3. Use the **⊙** keypad to select the desired approach.
4. Press **EDIT ENTER** to confirm the selection and display the approach data.

The approach page also allows you to zoom in, zoom out and pan to see the level of detail you desire. For longer approach segments, you may wish to pan and zoom in to see the desired map detail.

To zoom in or out on the approach area map:

1. Press the UP arrow of the **▼ ZOOM ▲** key to zoom out. The higher scale setting will show a larger area, but in less detail.
2. Press the DOWN arrow of the **▼ ZOOM ▲** key to zoom in. The lower scale setting will show a smaller area, but in greater detail.

To pan the approach area map:

1. Highlight the approach area map using the **⊙** keypad. When the approach area map is highlighted the outline border becomes wider.
2. Press **EDIT ENTER** to activate the panning function and use the **⊙** keypad to pan in the desired direction. A cursor will appear and as it reaches the edge of the approach area map, the map will scroll under the cursor.
3. If you zoom in or out while panning, the cursor will be centered on the approach area map over the last cursor position.
4. To exit the panning function, press the **QUIT** key.

VOR INFORMATION

The GPSMAP 195's VOR waypoint page (shown in the left margin, next page) allows you to enter a desired VOR by identifier, facility name, or city name and displays the selected facility's position, frequency and other information.

To view waypoint information for a VOR:

1. Select the VOR category from the waypoint category field.
2. Enter the identifier, facility name or city of the desired VOR.
3. Press the **EDIT ENTER** key.

The VOR page lists the identifier, type (terminal/low altitude/high altitude) facility name, city/state and transmitting frequency at the top of the page. If DME or TACAN equipment is co-located at the site, it will be indicated next to the transmitting frequency of the VOR. The latitude and longitude is also displayed, with the region and country indicated at the bottom of the page. The 'Show Map?' option displays a map of the area surrounding the VOR.



To view additional approaches highlight the approach designation field and press **⊙**.



Select the approach area map and pan around the map display using the **⊙** keypad.

VOR INFORMATION (cont.)

To view the map area around a VOR:

1. With the desired VOR selected, highlight 'Show Map?' at the bottom of the page and press **EDIT ENTER**. A map appears showing the VOR location and surrounding area.
2. Zoom in or out to see the desired detail using the **▼ ZOOM ▲** key.
3. When finished, highlight 'Location?' and press **EDIT ENTER** to return to the VOR page.

You may also pan the VOR area map to see the adjacent area surrounding the VOR waypoint.

To pan the VOR area map:

1. Highlight the VOR area map using the **⊙** keypad. When the VOR area map is highlighted the outline border becomes wider.
2. Press **EDIT ENTER** to activate the panning function and use the **⊙** keypad to pan in the desired direction. A cursor will appear and as it reaches the edge of the VOR area map, the map will scroll under the cursor.
3. If you zoom in or out while panning, the cursor will be centered on the VOR area map over the last cursor position.
4. To exit the panning function, press the **QUIT** key.

WAYPOINT	
VOR BAX	☐ Terminal
FACILITY	
BAD AXE	
CITY	
BAD AXE MI	
FREQUENCY	
108.20 MHz DME	
POSITION	
N 43°46.965'	
W082°59.031'	
COUNTRY	
GR LKS USA	
Show Map? Done?	
◀	☐

The VOR waypoint page provides complete information about the selected VOR, including facility name, city, frequency and designation for a co-located DME or TACAN.

WAYPOINT	
NDB BP	◀>
FACILITY	
KAZOO	
CITY	
BEAUMONT TX	
FREQUENCY	
257.00 MHz	
POSITION	
N 29°59.777'	
W094°06.379'	
REGION	
S CEN USA	
Show Map? Done?	
◀	☐

The NDB waypoint page provides complete information about the selected NDB, including facility name, city and frequency.

NDB INFORMATION

The next waypoint category in the GPSMAP 195's internal database is NDB facilities. The NDB waypoint page allows you to select a desired NDB by entering the identifier, facility name or city (see page 28). In addition to displaying the identifier, facility name and city/state of the NDB, the NDB page will show the latitude and longitude of the facility, the region/country and the transmitting frequency.

To view waypoint information on a NDB:

1. Select the NDB category from the waypoint category field.
2. Enter the identifier, facility name (on the second line) or city (on the third line) of the desired NDB.
3. Press the **EDIT ENTER** key.

A map of the area surrounding the NDB is available using the same steps described above for VORs. Refer to the VOR section above for additional information.

INTERSECTION INFORMATION

The GPS 195's intersection waypoint page allows entry of a desired intersection by identifier, and displays position and nearest VOR data for a selected intersection.

To view waypoint information on an intersection:

1. Select the intersection category from the waypoint category field.
2. Enter the identifier of the desired intersection and press the **EDIT ENTER** key.

The GPSMAP 195 will display the intersection's latitude, longitude, region and country below the identifier field. The display also shows the bearing and distance to the nearest VOR facility.



NOTE: The VOR displayed may not necessarily be the facility used to define the intersection.

A map of the area surrounding the intersection is available using the same steps described previously for VORs. Refer to that section for additional information.

USER WAYPOINT INFORMATION

Waypoint Category

Waypoint Name

Reference Waypoint Name

Waypoint Symbol

Waypoint Position

Comment Field

Reference Waypoint Bearing and Distance

The last waypoint category available from the GPSMAP 195's **WPT** key is user waypoints. The user waypoint page allows entry of a desired waypoint by name/identifier and displays the waypoint's position, user comments and a reference waypoint field to calculate the distance and bearing from any other waypoint in the database. The user waypoint page can also be used to create up to 250 waypoints by manually entering a position or defining a range and bearing from an existing waypoint.

Waypoint Category

Waypoint Name

Waypoint Position

Country

Nearest VOR

Nearest VOR Name

Nearest VOR Bearing

Nearest VOR Distance

The intersection waypoint page provides complete information about the selected intersection, including name, location and nearest VOR.

Waypoint Name

Waypoint Symbol

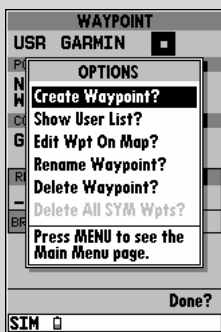
Done?

The icons used to designate user waypoints on the map display are user-selectable. Thirty-five different symbols are provided to meet any application you may have.

USER WAYPOINT INFORMATION (cont.)

To view waypoint information for a user waypoint:

1. Select the USR category from the waypoint category field.
2. Enter the identifier/name of the desired user waypoint.
3. Press the **EDIT ENTER** key.



The waypoint options menu allows you to create new waypoints by entering their coordinates or by referencing another position.

WAYPOINT OPTIONS MENU

The waypoint options page provides a list of additional waypoint options which let you create, list, edit or delete user waypoints.

To display the waypoint options:

1. With a waypoint definition page displayed, press **MENU**.



NOTE: If the waypoint options page is selected from an airport or navaid page, only the 'Create Waypoint?' and 'Show User List?' options will appear. To display the additional options, you must start from the user waypoint page.

To select a menu option:

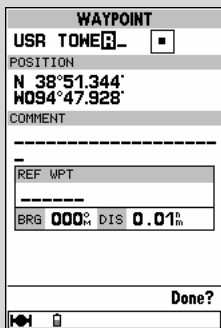
1. Highlight the desired option and press **EDIT ENTER**.

The following options are available:

- **Create Waypoint?**— allows you to create a new waypoint using the user waypoint page.

To create a user waypoint:

1. Highlight the 'Create Waypoint?' option and press **EDIT ENTER**. The user waypoint page appears with the waypoint name highlighted.
2. Press **EDIT ENTER** and select the desired waypoint name.
3. Press **EDIT ENTER**. The waypoint position coordinates are highlighted.
4. To create the new waypoint by entering its coordinates, press **EDIT ENTER** and enter the desired coordinates. Press **EDIT ENTER** when finished.
5. To create the new waypoint by referencing a bearing and distance from another location, highlight the 'Ref Wpt' field, press **EDIT ENTER**, enter the reference waypoint name and press **EDIT ENTER**. (If the reference waypoint name is not entered, your present position will be used as the reference position.) Use the same procedure to enter the bearing and distance from the reference waypoint to the new waypoint. Press **EDIT ENTER** when finished.
6. When the waypoint is created a two-line comment is added showing the time and date the waypoint was created. You can change to a custom comment up to 20 characters long. To change the comment, highlight the comment field, press **EDIT ENTER**, enter the new comment and press **EDIT ENTER** again.



The first step to creating a waypoint is to give it a name, up to six characters long.

WAYPOINT OPTIONS MENU (cont.)

7. The default symbol on the map display for user waypoints is a solid dot ('•'). Additional symbols are available for a wide variety of applications. To change the waypoint symbol, highlight the waypoint symbol field, press **EDIT ENTER**, select the new symbol and press **EDIT ENTER** again.

- **Show User List?**— displays a master list of all user waypoints currently stored in memory. From the list, you may highlight a waypoint, press **EDIT ENTER** and perform many of the same editing functions described above.

To review the user waypoint list:

1. Highlight the 'Show User List?' option and press **EDIT ENTER**. The user waypoint list appears, showing all user waypoints.
2. To edit a waypoint from the list, highlight the desired waypoint, press **EDIT ENTER**, and edit the desired item(s) using the steps outlined above for the 'Create Waypoint?' option.
3. To delete a waypoint from the list, highlight the desired waypoint, press **MENU**, select 'Delete Waypoint?' and press **EDIT ENTER**. A confirmation box appears. Highlight 'Yes' and press **EDIT ENTER** to delete the waypoint.
4. To delete all user waypoints from memory, press **MENU**, select 'Delete All User Wpts?' and press **EDIT ENTER**. A confirmation box appears. Highlight 'Yes' and press **EDIT ENTER** to delete the waypoint.



NOTE: A waypoint which is part of the active leg of a route or the current GOTO destination cannot be deleted without first deactivating the route or canceling the GOTO.

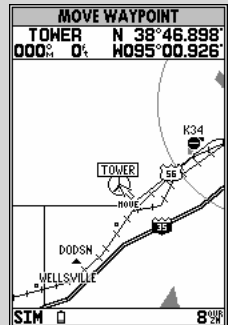
- **Edit Wpt on Map?**— lets you use the map display to review or edit the selected waypoint's location.

To review/edit the selected waypoint from the map display:

1. Highlight the 'Edit Wpt On Map?' option and press **EDIT ENTER**. The map display appears showing the area surrounding the selected waypoint. The waypoint name and coordinates are displayed at the top of the map, along with the bearing and distance to the waypoint from your present position.
2. To move the selected waypoint's position, press **EDIT ENTER**. A 'Move' label will appear under the cursor arrow.
3. Use the **▲** keypad to move the cursor arrow to the new position. The cursor's coordinates, along with the distance and bearing from your present position, will be displayed at the top of the page.
4. Press **EDIT ENTER** to save the new position for the waypoint.

WAYPOINTS	
AVAILABLE	238 USED 13
001	TOWER
BLAVND	-----
CHATOO	-----
GARMIN	-----
GRMEUR	-----
GRMTWN	-----
HELENS	-----
MAPHPT	-----
NAPALI	-----
RUSHMR	-----
SUNRIS	-----
TIETON	-----

The waypoint list shows the name and icon for each waypoint stored in memory, plus the total number of waypoints stored ('used').



'Edit Wpt on Map' allows you to view the area around the waypoint or update its position with the cursor.

WAYPOINT OPTIONS MENU (cont.)

- **Rename Waypoint?**— allows you to specify a new name for the selected waypoint.

To rename a user waypoint:

1. Highlight the 'Rename Waypoint?' option and press **EDIT ENTER**.
2. Enter the new waypoint name and press **EDIT ENTER**.
3. Press **EDIT ENTER** to confirm the 'Yes' prompt.

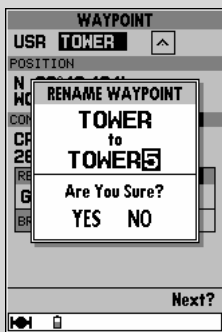
- **Delete Waypoint?**— allows you to remove the selected waypoint from memory.

To delete a user waypoint:

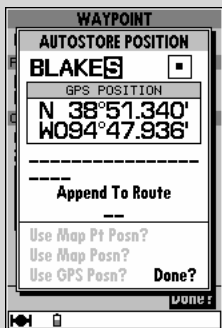
1. Highlight the 'Delete Waypoint?' option and press **EDIT ENTER**.
2. Press **EDIT ENTER** to confirm.



NOTE: A waypoint which is part of the active leg of a route or the current GOTO destination cannot be deleted without first deactivating the route or canceling the GOTO.



Enter the new waypoint name on the 'Rename Waypoint' window.



AutoStore allows you to mark your current position as a user waypoint. You can give this waypoint any name you choose.

AUTOSTORE WAYPOINTS

The **WPT** key is also used to save new waypoints using the GPSMAP 195's AutoStore function. AutoStore allows you to quickly store your present position and add the new waypoint to a selected route, if desired.

To save your present position using AutoStore:

1. Press the **WPT** key twice to capture your position. (If you're already on a waypoint definition page, you'll only need to press the **WPT** key once.)

The AutoStore page will appear, showing the captured position and a default 3-digit waypoint name.

To change the default name:

1. Use the **0** keypad to highlight the name field.
2. Press **EDIT ENTER** to begin entry of your waypoint name.
3. Use the **0** keypad to enter the name.
4. Press **EDIT ENTER**. The field highlight will move to the 'route' field.

AUTOSTORE WAYPOINTS (cont.)

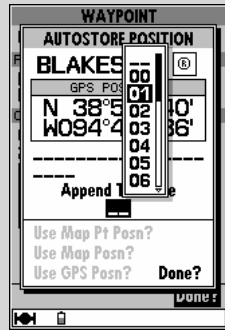
The AutoStore feature can also be used to mark a series of waypoints to create a route. Each time you save an AutoStore position to a route, the position is added at the end of any existing waypoints in the route.

To add the waypoint to a route:

1. Press the **EDIT ENTER** key.
2. Select the desired route with the **0** keypad and press **EDIT ENTER**.
3. Press the **EDIT ENTER** key to confirm the route number.

To save the AutoStore waypoint:

1. Highlight the 'done' field and press **EDIT ENTER**.



NEAREST WAYPOINTS

NEAREST AIRPORTS			
WAYPOINT	BRG	DIS	LENGTH
KOJC	096°	2.9 ^m	4000'
KIXD	248°	4.5 ^m	7300'
51K	315°	6.1 ^m	2400'
K34	245°	7.9 ^m	3200'
63K	099°	9.1 ^m	1800'
KBVH	090°	11 ^m	9200'
K64	263°	18 ^m	3200'
KMCC	027°	19 ^m	7000'
M006	042°	19 ^m	2600'

Annotations: 'Bearing to Airport' points to the BRG column; 'Distance to Airport' points to the DIS column; 'Airport Identifier' points to the WAYPOINT column; 'Longest Runway' points to the LENGTH column.

The GPSMAP 195's **NRST** key provides detailed information on the nine nearest airports, VORs, NDBs, intersections and user waypoints within 200 miles of your present position. The nearest waypoint feature can locate the nearest facility(s) in the event of an in-flight emergency. The nearest waypoints of a particular category are selected using the nearest waypoint options page. The nearest waypoint page lists the nearest waypoints of the selected category, along with the bearing and distance to each waypoint. With airports selected, the longest runway for each airport also appears.

To view the nearest waypoints:

1. Press the **NRST** key to display the nearest waypoint page.
2. If an airspace alert was recently provided, the GPSMAP 195 will default to the airspace alert page. To instantly change to the nearest airports, press **NRST** a second time.
3. To select a different waypoint category, press **MENU**. The nearest options page appears. Select the desired category using the **0** keypad and press **EDIT ENTER**.

AutoStore waypoints can also be added to a route, allowing you to build a route as your flight progresses.

NEAREST AIRSPACES
JOHNSON CO EXECUTIVE
Inside
KANSAS CITY DOWNTOWN
06:47 ahead
NEW CENTURY AIRCENTER
Less than 2 nm away
STIM

Nearest airspace information is available using once an airspace alert has been provided.



NEAREST WAYPOINTS (cont.)

As mentioned earlier, additional waypoint information is stored in the GPSMAP 195's internal database. This information may be retrieved using the **WPT** key, but it is also available from the nearest waypoint page.

To view additional information for a nearest waypoint:

1. Highlight the desired waypoint (airport, VOR, NDB, intersection or user waypoint) using the **⬇️** keypad.
2. Press **EDIT ENTER** to view the waypoint information page(s) for the selected waypoint.
3. Press **QUIT** to return to the previous page.

You can easily set a GOTO course directly to a nearest waypoint. In an emergency, a few simple keystrokes can guide you to the closest point to set down. (We'll discuss the GOTO features in more detail on page 42.)

To GOTO a nearest waypoint:

1. Highlight the desired waypoint from the nearest waypoint list.
2. Press **GOTO**, followed by **EDIT ENTER**, to set a course directly to the selected waypoint.

NEAREST VORs		
WAYPOINT	BRG	DIS
QJC ☒	156°	3.8ⁿ
RIS ☒	027°	15.4ⁿ
MKC ↔	016°	24.2ⁿ
ANX ↔	065°	32.0ⁿ
TOP ↔	287°	39.3ⁿ
BUM ↔	157°	39.9ⁿ
HIG ↔	075°	51.8ⁿ
STJ ↔	350°	64.2ⁿ
EMP ↔	237°	74.2ⁿ
◀ ▶		

The nearest waypoint page can also show the nearest VORs, NDBs, or intersections...

NEAREST FREQUENCIES	
ARTCC	
KANSAS CITY	
FREQUENCY	
125.55^{MHz}	
BRG	DIS
154ⁿ	37.9ⁿ
FSS	
COLUMBIA	
FREQUENCY	
122.15^{MHz}	
VOR FACILITY	
BRG	DIS
017ⁿ	7.62ⁿ
◀ ▶	

...and the nearest FSS and center frequencies.

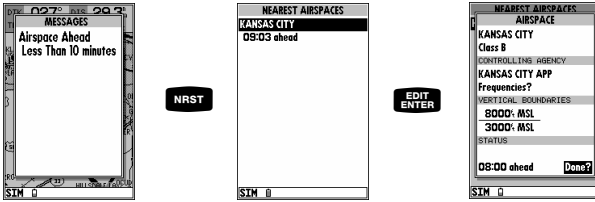
NEAREST FSS OR ARTCC

The **NRST** key also gives you detailed information on the nearest flight service station (FSS) or air route traffic control center (ARTCC). The nearest FSS or ARTCC pages display the facility name, bearing and distance from your present position, and the facility's frequency(s).

To view the nearest FSS or ARTCC:

1. Press the **NRST** key to display the nearest waypoint page.
2. To select the desired category, press **MENU**. The nearest options page appears. Select 'Nearest Frequencies?' using the **⬇️** keypad and press **EDIT ENTER**.

NEAREST AIRSPACE INFORMATION



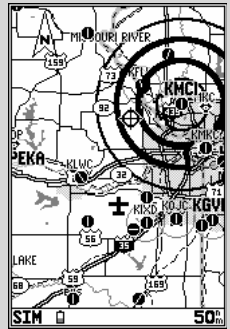
When an airspace alert message is provided, the **NRST** key can provide additional detail about the airspace. The nearest airspace page lists the six nearest airspaces for which airspace alerts have been issued. Normally, only one or two airspace alerts will occur at a time, but with sectorized controlled-airspace (such as many Class B areas) you can have more.

The nearest airspace page shows the name of the airspace and time to entry if your course is projected to enter the airspace. If the airspace is nearby (less than 2 nm), but you are not projected to enter it, the time to entry is replaced by 'Near'. If you are already inside the airspace, 'Inside' is displayed.

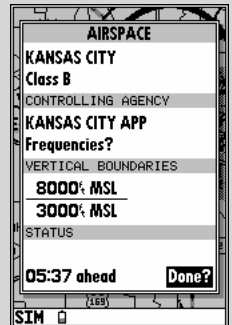
To view additional airspace information:

1. Press the **NRST** key to display the nearest waypoint page.
2. If an airspace alert was issued, the nearest airspace page will appear by default. If you've selected another category, you can return to this screen by selecting 'Nearest Airspaces?' from the nearest options page.
3. To view even more detail for a particular airspace, highlight the airspace name and press **EDIT ENTER**. An airspace information page appears showing the airspace type, controlling agency, and floor/ceiling limits.

The airspace alert messages may be turned on or off by airspace type at your discretion. Doing so will prevent any nuisance alarms if you've planned ahead and are expecting to enter an airspace(s). The setting for these messages are on the alarms submenu, described on page 64.



The map page depicts airspace boundaries. Place the cursor inside the airspace boundary (in this case a Class B sector) and press **EDIT ENTER** to display the airspace information page.



The airspace information page provides additional airspace information (such as controlling agency, floor, and ceiling limits). Select this page from the nearest airspace page or the map display.

The GPSMAP 195 provides three ways to navigate to a destination: **GOTO**, **TracBack** and **route navigation**. The simplest method of selecting a destination is the GOTO function, which lets you select a waypoint as your destination and quickly sets a direct course from your present position. The **GOTO** key can be used in four ways: by specifying the destination waypoint's identifier, graphically from the map display, by highlighting a waypoint name on any page, and from the GOTO options page. Pressing the **GOTO** key once displays a prompt for you to enter the identifier of the destination waypoint.

To activate a GOTO using a waypoint identifier:

1. Press the **GOTO** key.
2. Highlight the identifier field on the GOTO window and press **EDIT ENTER**.
3. Select the waypoint name using the **⬇** keypad and press **EDIT ENTER**.

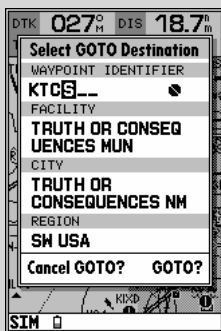
The GOTO window is also used to cancel the current GOTO destination. When cancelled, the GPSMAP 195 will resume navigation using any previously selected route. If no route is currently in use; bearing, distance, etc. will remain blank until a destination waypoint is defined.

To cancel the current GOTO destination:

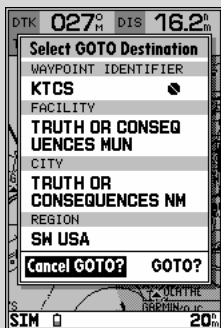
1. Press the **GOTO** key.
2. Highlight 'Cancel GOTO?' on the GOTO window and press **EDIT ENTER**.

Pressing the **GOTO** key from the map page allows you to graphically select an on-screen waypoint, navaid or cursor position as a destination. This feature is described in more detail on page 50.

GOTO A HIGHLIGHTED WAYPOINT NAME

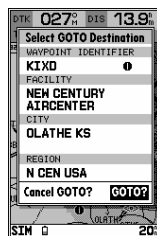


When using the GOTO feature, enter the destination identifier, facility, or city using the **⬇** keypad.



To cancel the current GOTO, select 'CANCEL GOTO?' from the GOTO window.

NEAREST AIRPORTS				
WAYPOINT	BRG	DIS	LENGTH	
KDJC	096:	2.9:	4000:	
KIXD	248:	4.5:	7300:	
51K	315:	6.1:	2400:	
K34	245:	7.9:	3200:	
63K	095:	9.1:	1800:	
KBVH	090:	11:	9200:	
K64	263:	18:	3200:	
KMKC	027:	19:	7000:	
H006	042:	19:	2600:	



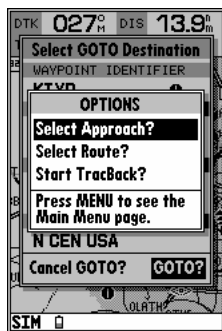
On many screens that display a waypoint name, or a list of waypoint names, you can highlight the waypoint name before pressing the **GOTO** key. This allows you to quickly select a GOTO destination without having to enter the name. You may find this a very useful timesaving tool. (You may recall from the nearest waypoints section that this method was used to select a nearest airport and go to that airport.)

GOTO A HIGHLIGHTED NAME (cont.)

To GOTO a highlighted waypoint name:

1. Select the desired waypoint by highlighting its name.
2. Press the **GOTO** key to designate this waypoint as the destination.
3. Press **EDIT ENTER** to confirm the selection.

GOTO OPTIONS PAGE



The GOTO options page lists additional GOTO options that let you select a published approach for an airport, select a route to navigate or start a TracBack route.

To display the GOTO options:

1. Press **MENU** (After you've already pressed **GOTO**).

To select a menu option:

1. Highlight the desired option and press **EDIT ENTER**.

The following options are available:

- **Select Route?**— allows you to quickly select a stored route (one that you previously entered) for navigation.

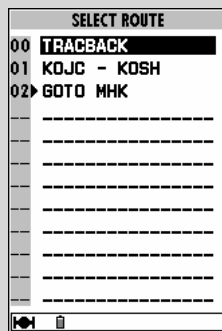
To select a route to navigate:

1. Highlight the 'Select Route' option and press **EDIT ENTER**.
2. Select the desired route and press **EDIT ENTER**.

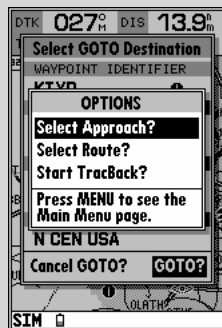
- **Select Approach?**— allows you to replace an airport waypoint with the waypoints that comprise the final course segment of a published approach to the airport.

To select an approach to an airport:

1. Select an airport with a published approach as your GOTO destination and press **EDIT ENTER**. With 'GOTO?' highlighted, press **MENU**.
2. Highlight the 'Select Approach?' option and press **EDIT ENTER**.
3. Select the desired approach from the list and press **EDIT ENTER**. The airport reference waypoint is replaced with the approach waypoints.



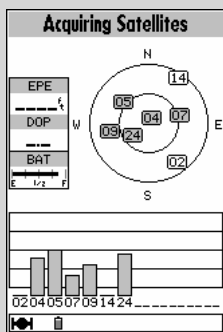
You may quickly select a previously stored route using the GOTO options page.



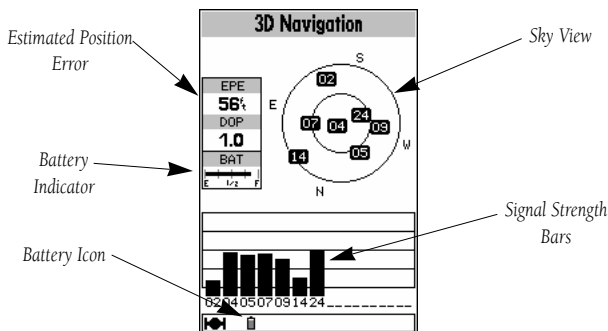
'Select Approach?' allows you to replace the GOTO destination airport with those waypoints which comprise the final course of a published approach.

- **Start TracBack?**— allows you to create and start navigation of a TracBack route back to the oldest track log point in memory. (See pages 78-79 for more on using the TracBack function.)

STATUS PAGE



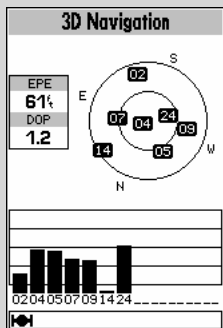
When the satellite signals are first received, the signal strength bars are hollow, indicating the data from these satellites is still being processed.



The GPSMAP 195's **status page** provides a visual reference of various receiver functions, including current satellite coverage, receiver operating mode, battery strength and current receiver accuracy. The status information will give you an idea of what the receiver is doing at any given moment.

The **sky view** and **signal strength bars** give you an indication of what satellites are in view and whether or not they are being received. The signal strength is shown on a bar graph for each satellite, with the satellite number below. When a satellite is in view but not received, the strength bar will not be shown and the sky view indicator will not be highlighted.

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, the inner circle 45° above the horizon, and the center point a position directly overhead. Use the sky view to determine if there are obstructions shading your reception of GPS signals.



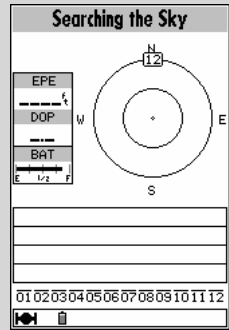
Once the data is processed, the signal strength bars are filled in. At this point, the GPSMAP 195 can use the satellites to determine its position.

STATUS PAGE (cont.)

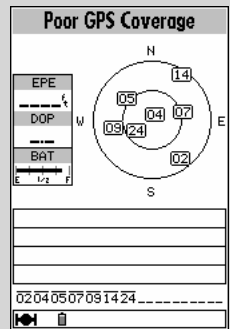
Receiver status is indicated at the top of the page, with the current **estimated position error (EPE)**, **dilution of precision (DOP)**, and battery level to the left of the sky view. DOP measures satellite geometry quality on a scale of one to ten (lowest numbers are best, highest numbers are worst). EPE uses DOP and other factors to calculate a horizontal position error in feet or meters. Your GPSMAP 195 shows battery strength in two ways: a battery gauge located below the DOP measurement and a battery icon located on the status bar. Both methods show continuous battery level updates. The battery gauge works like the fuel gauge in your plane or car. As battery energy is depleted, the highlighted area of the gauge is reduced, showing the remaining capacity. The battery icon provides similar information by shading a portion of the icon to show the remaining capacity. (This icon appears on every page when using battery power. It's not necessary to return to the status page to see battery condition.)

The status field will show one of the following conditions:

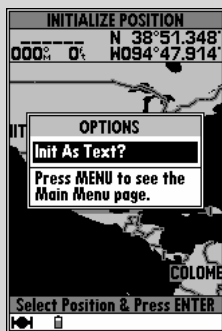
- **Searching the Sky**— the receiver is looking for any satellites. This process can take 10-15 minutes.
- **AutoLocate**— the receiver is looking for any satellite whose almanac has been collected. This process can take up to five minutes.
- **Acquiring Satellites**— the receiver is looking for and collecting data from satellites visible at its last known or initialized position in order to calculate a fix.
- **2D Navigation**— at least three satellites with good geometry have been acquired and a 2D position fix (latitude and longitude) is being calculated. '2D Differential Navigation' will appear when you are receiving DGPS corrections in 2D mode.
- **3D Navigation**— at least four satellites have been acquired, and your position is now being calculated in latitude, longitude and altitude. '3D Differential Navigation' will appear when you are receiving DGPS corrections in 3D mode.
- **Poor GPS Coverage**— the receiver isn't tracking enough satellites for a 2D or 3D fix.
- **Receiver Not Usable**— the receiver is unusable, possibly due to incorrect initialization or abnormal satellite conditions. Turn the unit off and back on to reset.
- **Simulating Navigation**— the receiver is operating in simulator mode, and not using actual satellite data.



'Searching the Sky' means no almanac data is stored in the GPSMAP 195. Almanac data tells your unit where to find the satellites. The receiver will 'search' for satellites and recollect the data.



'Poor GPS Coverage' means not enough satellites are being received to determine a position, possibly because some obstruction is blocking the signal.



When the receiver has been moved over 500 miles from the last known position, it can be reinitialized from the map or by entering coordinates. This helps the GPSMAP 195 look for the correct satellites.



For planning, learning, or just plain fun, the simulator mode can be easily accessed from the status page options.



The GPSMAP 195's status page features a context-sensitive options page that provides access to the functions and features of that page.

To display the status page options:

1. Press **MENU** (with the status page displayed).

To select a menu option:

1. Highlight the desired option and press **EDIT ENTER**.

The following options are available:

- **Initialize Position?**— allows you to initialize a starting position for the receiver graphically or by text. See page 13 for instructions on graphic initialization.

To initialize your position by text entry:

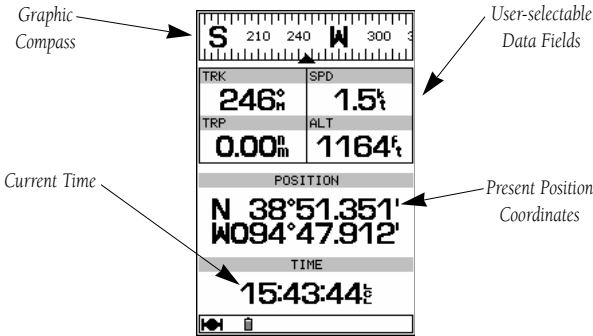
1. Highlight the 'Initialize Position?' option and press **EDIT ENTER**. The map display appears so that you can graphically select your position.
2. Press **MENU** to view the initialization options.
3. Highlight 'Init As Text?' and press **EDIT ENTER**. The initialization window is displayed.
4. Press **EDIT ENTER**, enter the starting position altitude and press **EDIT ENTER**.
5. Press **EDIT ENTER**, enter the starting position coordinates and press **EDIT ENTER**.

- **Start AutoLocate?**— allows the receiver to locate your position automatically. This process may take up to five minutes, but lets you avoid the initialization steps above.
- **Track Up SkyView?** or **North Up SkyView?**— allows you to select between a north up or track up sky view display. A north up display means the top of the screen is always north. A track up display will reorient the top of the display to your current ground track.

STATUS PAGE OPTIONS (cont.)

- **Start Simulator** or **Exit Simulator?**— allows you to start the simulator mode or to cancel simulator mode and return to normal operation. (See the TakeOff Tour for more information on using simulator mode.)

POSITION PAGE

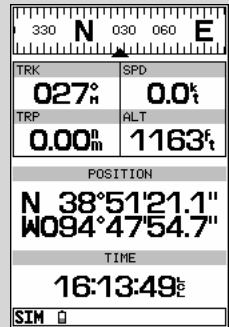


The GPSMAP 195's **position page** shows you where you are, what direction you are heading and how fast you are going. The top of the page features a graphic compass to indicate your ground track (or course over ground) while moving, and four user selectable data fields: ground track (TRK), ground speed (SPD), distance travelled (TRP) and altitude (ALT). The bottom half of the page displays coordinates for your present position, along with the time of day as calculated using GPS satellites. The status bar at the bottom of the page indicates position fix status, and is described on page 8.

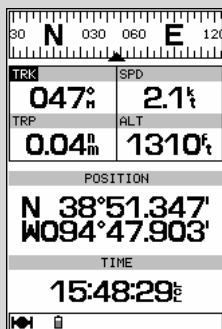
The units of measure for speed, distance, position and altitude are all user selectable through the navigation setup option on the main menu page. The time of day, shown in UTC (Universal Time Coordinated, Greenwich Mean Time or Zulu Time), may be set to display in a 12- or 24-hour time format and may also be adjusted to local time through the setup menu option on the main menu page.



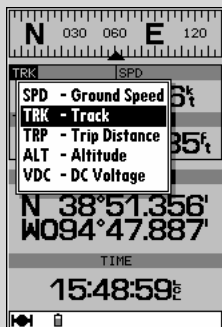
To reset the trip (TRP) odometer, select 'Reset Trip Distance?' from the position page options.




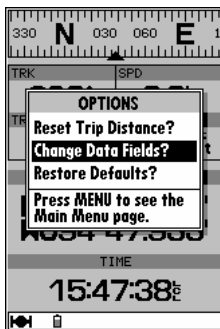
Other position coordinate formats, such as the degree/minute/second format shown, are readily available from the main menu (described on page 68).



To change a user-selectable data field, select 'Change Data Fields?' and highlight the desired field. (The 'TRK' field is highlighted in this example.)




Press  to display a list of available options.




The GPSMAP 195s position page features a context-sensitive options page providing access to the functions and features of the position page.

To display the position page options:

1. Press  (with the position page displayed).




To select a menu option:

1. Highlight the desired option and press .

The following options are available:

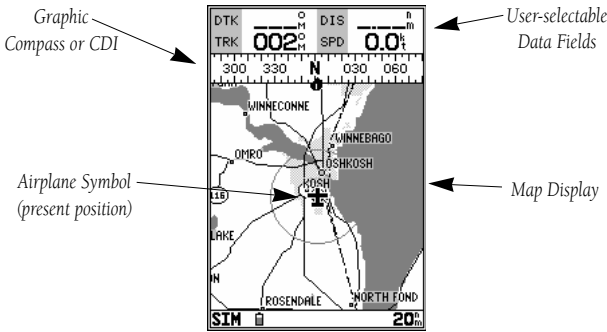
- **Reset Trip Distance?**— resets the trip odometer (TRP) field to zero.
- **Change Data Fields?**— allows you to choose the data displayed in the four user-selectable data fields. Five data types are available:
 - SPD— ground speed
 - TRK— ground track
 - TRP— trip distance (odometer)
 - ALT— altitude
 - VDC— DC voltage

To change a data field:

1. Highlight the 'Change Data Fields?' option and press .
2. Highlight to the data field you wish to change and press .
3. Select the desired data field option and press .

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

MAP PAGE



The GPSMAP 195's **map page** provides a comprehensive moving map display showing your aircraft on a digital chart, complete with geographic names, airports, navaids, lakes, rivers, coastlines and highways. It also plots your track and displays any routes and waypoints you create. An on-screen **cursor** lets you pan and scroll to other map areas, determine the distance and bearing to a position, and perform various route and waypoint functions.

The **data window**, located at the top of the page, provides a user-selectable display of your current track and ground speed, along with the bearing and distance to a destination waypoint. Whenever the cursor is active, a pop-up window will appear below the data window to indicate the position, range and bearing to the cursor or a selected waypoint or navaid. Each data field may be configured to display any one of fourteen data options. The data window may also be changed to display additional data fields, a graphic compass, or a CDI scale. The **status bar** at the bottom of the page displays the map scale currently in use.

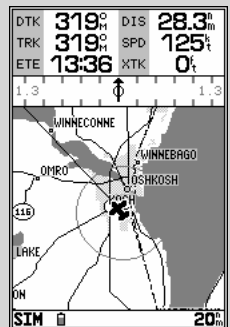
USING THE CURSOR

The map display uses the **ENTER** keypad and **▼ ZOOM ▲** key to control most map display functions. The **▼ ZOOM ▲** key, combined with the **ENTER** keypad, lets you select zoom ranges and move the cursor. Two basic map operating modes, position mode and cursor mode, determine what cartography is shown on the map display. Position mode pans the map to keep the present position symbol within the display area, while cursor mode pans the map to keep the cursor within the display area.

Your GPSMAP 195 will always power up in the position mode, with your aircraft centered on the map display. Whenever the **ENTER** keypad is pressed, the GPSMAP 195 will enter cursor mode.






A full screen map, without the data fields, is available from the map page options.






The compass may be replaced with a graphic CDI, to provide course guidance on the map page. You can also add additional data fields to the display (six in this example).


To move the cursor:

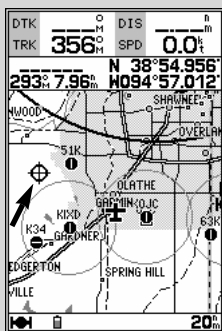
1. The cursor can be moved over the map display using the  keypad.
2. Whenever the cursor reaches the edge of the display, the map will scroll forward under the cursor. Keep in mind that the airplane icon will move with the map scrolling and may go off the display screen. (You may not be able to see your present position.)
3. When the cursor is stationary, a fixed coordinate position will appear in the position field. Note that the distance and bearing will change as your position changes.
4. Whenever you zoom in or out with the  key, the cursor will be centered on the map display.
5. To return to position mode (and show your present position again), press the  key.


As you move the cursor, the distance and bearing from your present position to the cursor will be displayed in the data window, along with the cursor's position coordinates. Keep in mind that when the cursor is stationary, the distance and bearing from your present position will change as your aircraft moves. The cursor may also be used to 'snap to' on-screen airports and nav aids, allowing you to review a selected position directly from the map display.

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

1. Use the  keypad to move the cursor to the desired airport or navaid. (If there are several waypoints grouped closely together, zoom in closer for a better view.)
2. When an airport or navaid is selected, it becomes highlighted on screen, with the name and position displayed.
3. To view additional database information about the selected waypoint, press . A waypoint definition page will appear.
4. To exit the waypoint definition page, press .

Pressing the  key from the map page allows you to graphicaly select an on-screen waypoint, navaid or cursor position as a destination. A graphical GOTO may be used to select one of three items from the map display: an existing waypoint, an on-screen navaid, or a cursor position. If you select the cursor position as the GOTO destination, the GPSMAP 195 will automatically create a waypoint named 'MAPWPT' at the map position.



Use the  keypad to display the cursor and pan away from your present position (denoted by the airplane icon). The position of the cursor, plus bearing and distance, appear above the map display.



Place the cursor over an airport, navaid or user waypoint to see bearing and distance to the waypoint, plus its coordinates.

USING THE CURSOR (cont.)

To activate a GOTO from the map display:

1. To select an existing airport, navaid, user waypoint or symbol waypoint, highlight the waypoint on screen and press **EDIT ENTER**.
2. To select a cursor position as your destination, move the cursor to the desired position and press **EDIT ENTER**. The GOTO window will appear and display the position as the 'MAPWPT' waypoint. Press **EDIT ENTER** to save the waypoint and begin navigation.



NOTE: Keep in mind that the 'MAPWPT' waypoint will be overwritten each time a new 'MAPWPT' GOTO is initiated. This allows you to navigate to on-screen locations without permanently storing them as waypoints. If you wish to save the 'MAPWPT' waypoint, rename it following the steps on page 38.

The cursor may also be used to create new user waypoints or symbol waypoints directly from the map. Symbol waypoints are locations identified on the map by any one of thirty-five waypoint symbols, but do not have a waypoint name. The GPSMAP 195 stores up to 250 symbol waypoints.

To create a user or symbol waypoint with the cursor:

1. Use the **⬆** keypad to move the cursor to the desired map position.
2. Press **EDIT ENTER**, select 'User Waypoint' or 'Symbol Waypoint' and press **EDIT ENTER** again.
3. For user waypoints, highlight the waypoint name field and enter the desired name.
4. For both waypoint types highlight the waypoint symbol field, press **EDIT ENTER**, select the desired waypoint symbol and press **EDIT ENTER** again.
5. With 'Done?' highlighted, press **EDIT ENTER** to save the waypoint.

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

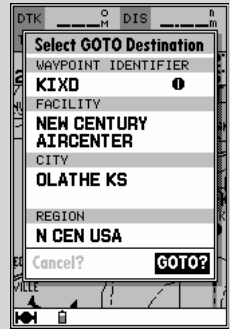
1. Press the **QUIT** key.

SELECTING MAP SCALES

The map display has 21 available range scales from 1/10th to 3000 miles (nautical or statute; or 1/4 to 5000 km). The map scale is controlled by the **▼ ZOOM ▲** key, with the current scale displayed on the status bar at the bottom of the page.

To select a map scale:

1. Press the UP arrow of the **▼ ZOOM ▲** key to zoom out. The higher scale setting will show a larger area, but in less detail.
2. Press the DOWN arrow of the **▼ ZOOM ▲** key to zoom in. The lower scale setting will show a smaller area, but in greater detail.



By highlighting a waypoint on the map display, and pressing you won't have to enter the identifier for the waypoint.



If no waypoint is highlighted at the cursor position, you can still go to the position. The GPSMAP 195 automatically creates a waypoint named 'MAPWPT'.



SELECTING MAP SCALES (cont.)

The GPSMAP 195's system has a built-in worldwide base map providing best map detail at scales down to 20 nautical miles. More detailed coverage is available through the use of GARMIN detail cartridges. The GPSMAP 195 will display map detail for the scale you've selected. Map detail will conform to the following conditions:

- When the selected zoom range is covered by both the internal base map and a detail cartridge, map detail will be displayed using the data with the best resolution.
- When the selected zoom range exceeds the resolution of the available chart data, overzoom map detail will be displayed. An 'Ovr Zm' warning will appear on the status bar, next to the map scale. Additional caution should be used while navigating in this mode.

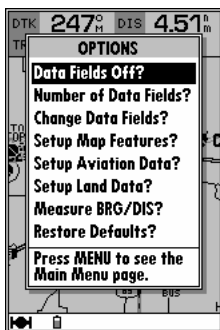


Zoom in to see more detail for a smaller area. Notice the 'ovr zm' warning in the lower right corner. Extra caution should be used when exceeding the resolution of the map data.



Select 'Restore Defaults?' to instantly reset the map options to the factory default settings.

MAP PAGE OPTIONS



The GPSMAP 195 map page is designed to be a flexible tool that can be custom-tailored to your navigation needs. The map options page provides access to many of the features and functions that will help you configure the map page to your own preferences.

To display the map page options:

1. Press **MENU** (with the map page displayed).

To select a menu option:

1. Highlight the desired option and press **EDIT/ENTER**.

The following options are available:



- **Data Fields Off or Data Fields On?**— allows you to select between a full-screen map display or the default map display with data window.

MAP PAGE OPTIONS (cont.)

- **Number of Data Fields?**— allows you to specify the number of fields displayed in the data window section of the map page. A graphic compass or CDI scale may also be displayed. The following options are available:

- 2 Fields
- 2 Fields & Compass
- 2 Fields & CDI
- 4 Fields
- 4 Fields & Compass
- 4 Fields & CDI
- 6 Fields
- 6 Fields & Compass
- 6 Fields & CDI
- 8 Fields




To change the number of data fields:

1. Highlight the 'Number of Data Fields?' option and press .
2. Select the desired option and press .

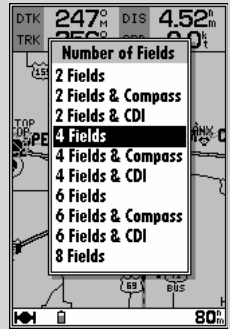
- **Change Data Fields?**— allows you to specify the data displayed in each data field used on the map display. Definitions for unfamiliar terms may be found in Appendix F. The following options are available:

- BRG- bearing to active (destination) waypoint
- CTS- course to steer
- DIS- distance to active (destination) waypoint
- DTK- desired track
- ETE- estimated time enroute
- ETV- estimated time to VNAV
- GR- glide ratio
- GRT- glide ratio to target
- SPD- ground speed
- TRK- ground track
- TRN- turn angle to waypoint
- VST- vertical speed to target
- WPT- active (destination) wpt name
- XTK- crosstrack error

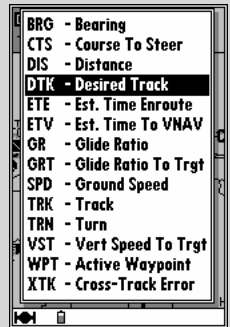
To change a data field:

1. Highlight the 'Change Data Fields?' option and press .
2. Highlight the data field you wish to change and press .
3. Select the desired data field option and press .

- **Setup Map Features?**— allows you to configure the map display to your preferences, including the map orientation, automatic zoom, track and route, detail and character fonts.



Select from 2, 4, 6, or 8 data fields plus compass or CDI. As you add more data fields the area covered by the map display becomes smaller.



From the 'Change Data Fields?' option, a list of available data options is displayed.

To change the map orientation:

1. Highlight the 'Setup Map Features?' option and press **EDIT ENTER**.
2. Highlight the 'Orientation' field and press **EDIT ENTER**.
3. To keep the top of the map display fixed at North, select 'North Up' and press **EDIT ENTER**.
4. To keep the top of the map display fixed along your desired course, select 'DTK Up' and press **EDIT ENTER**.
5. To allow the map display to rotate, keeping your current ground track at the top of the display, select 'Track Up' and press **EDIT ENTER**.

To turn the automatic zoom feature on or off:

1. Highlight the 'Setup Map Features?' option and press **EDIT ENTER**.
2. Highlight the 'Automatic Zoom' field and press **EDIT ENTER**.
3. Select 'On' or 'Off' and press **EDIT ENTER**. With the automatic zoom feature on, the map display will automatically adjust from an enroute scale of 500 through each lower scale, stopping at 2 as you approach your destination waypoint.

To turn latitude/longitude gridlines on or off:

1. Highlight the 'Setup Map Features?' option and press **EDIT ENTER**.
2. Highlight the 'Lat/Lon Grid' field and press **EDIT ENTER**.
3. Select the maximum scale for this feature or 'Off' and press **EDIT ENTER**.

To display track log history on the map:

1. Highlight the 'Setup Map Features?' option and press **EDIT ENTER**.
2. Highlight the 'Track History' field and press **EDIT ENTER**.
3. Select the maximum scale at which the track log data should appear on screen, or select 'Off' to never display, and press **EDIT ENTER**.

To display a route line to the destination or between route points:

1. Highlight the 'Setup Map Features?' option and press **EDIT ENTER**.
2. Highlight the 'Active Route Lines' field and press **EDIT ENTER**.
3. Select the maximum scale at which the route lines should appear on screen, or 'Off' to never display, and press **EDIT ENTER**.

To display the active route and change route waypoint fonts:

1. Highlight the 'Setup Map Features?' option and press **EDIT ENTER**.
2. Highlight the 'Active Route' text field and press **EDIT ENTER**.
3. Select the waypoint text size, or 'None' to not display. Press **EDIT ENTER**.
4. Highlight the 'Active Route' zoom field and press **EDIT ENTER**.
5. Select the maximum scale at which the route waypoints should appear on screen, or 'Off' to never display, and press **EDIT ENTER**.

SETUP MAP FEATURES			
Orientation		North Up	
Automatic Zoom		Off	
Lat/Lon Grid		Off	
Track History		3000 ^m	
Active Route Lines		3000 ^m	
WAYPOINTS	TEXT	ZOOM	
Active Route	Medium	3000 ^m	
User	Medium	500 ^m	
Symbol		80 ^m	
SIM <input type="checkbox"/>			

Select the 'North Up' option to keep the top of the map display fixed on North. 'Track Up' will cause the map to rotate so the top of the map is the direction you are heading.

SETUP MAP FEATURES			
Orientation		North Up	
Automatic Zoom		Off	
Lat/Lon Grid		Off	
Track History		500 ^m	
Active Route Lines		120 ^m	
WAYPOINTS	TEXT	ZOOM	
Active Route	Med	300 ^m	
User	Med	500 ^m	
Symbol		800 ^m	
		1200 ^m	
		2000 ^m	
		3000 ^m	
SIM <input type="checkbox"/>			

The scale list allows you to define the maximum scale at which the feature will appear. Once selected, that feature will appear at the selected scale and all lower scale settings.

MAP PAGE OPTIONS (cont.)

To display user/symbol waypoints & change user waypoint fonts:

1. Highlight the 'Setup Map Features?' option and press **EDIT ENTER**.
2. Highlight the 'User' text field and press **EDIT ENTER**.
3. Select the text character size, or 'None' to not display. Press **EDIT ENTER**.
4. Highlight the 'User' or 'Symbol' zoom field and press **EDIT ENTER**.
5. Select the maximum scale at which user or symbol waypoints should appear on screen, or 'Off' to never display, and press **EDIT ENTER**.

- **Setup Aviation Data?**— allows you to control whether or not Jeppesen data appears on the map display, plus select what airports, nav aids and airspace to show.

To enable/disable Jeppesen aviation data on the map:

1. Highlight the 'Setup Aviation Data?' option and press **EDIT ENTER**.
2. Highlight the 'Aviation Data' field and press **EDIT ENTER**.
3. Select 'On' or 'Off' and press **EDIT ENTER**.

To display airports and change their fonts:

1. Highlight the 'Setup Aviation Data?' option and press **EDIT ENTER**.
2. Highlight an 'Airports' text field and press **EDIT ENTER**. Large airports are those with a runway longer than 8069'. Medium airports include airports with a runway longer than 5000' or with a control tower.
3. Select the text character size, or 'None' to not display. Press **EDIT ENTER**.
4. Highlight an 'Airports' zoom field and press **EDIT ENTER**.
5. Select the maximum scale at which the airports should appear on screen, or 'Off' to never display, and press **EDIT ENTER**.

To display nav aids and change their fonts:

1. Highlight the 'Setup Aviation Data?' option and press **EDIT ENTER**.
2. Highlight a 'Nav aids' text field and press **EDIT ENTER**.
3. Select the text character size, or 'None' to not display. Press **EDIT ENTER**.
4. Highlight a 'Nav aids' zoom field and press **EDIT ENTER**.
5. Select the maximum scale at which the nav aids should appear on screen, or 'Off' to never display, and press **EDIT ENTER**.

To display airspaces and change their fonts:

1. Highlight the 'Setup Aviation Data?' option and press **EDIT ENTER**.
2. Highlight a zoom field and press **EDIT ENTER**.
3. Select the maximum scale at which the airspace should appear on screen, or 'Off' to never display, and press **EDIT ENTER**.

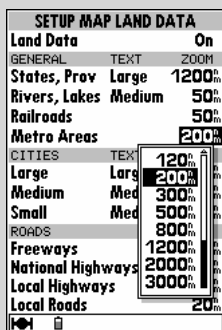
SETUP MAP AVIATION DATA		
Aviation Data		On
AIRPORTS	TEXT	200m
Large	Large	120m
Medium	Medium	80m
Small	Medium	50m
NAVAIDS	TEXT	200m
VORs	Medium	120m
NDBs	Medium	8m
Intersections	Medium	5m
AIRSPACES		200m
Class B, CTAs		200m
Class C, TMAs		200m
Towers, Control Zones		200m
Restricted Areas		200m
MOAs & other SUAs		200m

Airports, nav aids and airspaces may all appear on the map display or be disabled based upon the maximum scale.

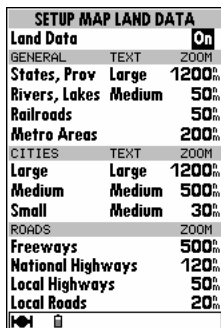
SETUP MAP AVIATION DATA		
Aviation Data		On
AIRPORTS	TEXT	200m
Large	Large	120m
Medium	Medium	80m
Small	Medium	50m
NAVAIDS	None	200m
VORs	Small	120m
NDBs	Small	8m
Intersections	Medium	5m
AIRSPACES		200m
Class B, CTAs		200m
Class C, TMAs		200m
Towers, Control Zones		200m
Restricted Areas		200m
MOAs & other SUAs		200m

The font size for airports can also be changed or disabled entirely, which allows you to display the airport/nav aid icons without the text identifier.





Geographic detail may also be enabled/disabled by defining the maximum scale at which each feature will appear.



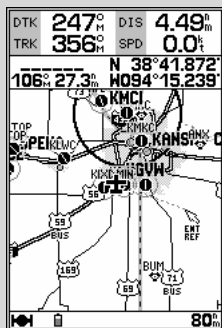
- **Setup Land Data?**— allows you to control whether or not geographic data appears on the map display, or individually select what geographic data to show. Controls for state boundaries, rivers, lakes, railroads, highways and metro areas are provided. Cities may also be selected based upon size. (Large cities are those with approximate populations greater than 100,000. Medium cities are those with approximate populations greater than 5,000.) The setup procedures for land data options are very similar to the aviation data options described on the preceding page. Refer to the ‘Setup Aviation Data?’ section for a better understanding of how these setup features are used.

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

To measure the BRG/DIS between two points:

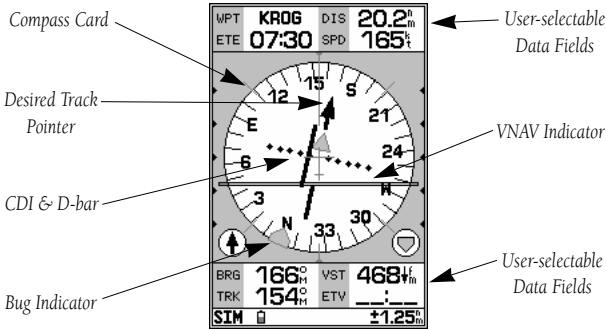
1. Highlight the ‘Measure BRG/DIS?’ option and press **EDIT ENTER**. An on-screen pointer will appear on the map display at your present position.
2. Move the cursor to the desired reference point (the point that you want to measure from) and press **EDIT ENTER**.
3. Move the cursor to the point that you want to measure to. The bearing and distance from the reference point will be displayed at the bottom left of the data window.
4. Press the **QUIT** key to finish.

- **Restore Defaults?**— resets all map data field options to the factory default settings. (Does not change map features, aviation data or land data setups.)



When using the ‘Measure BRG/DST?’ option the cursor is replaced with an arrow and an ‘Enter Reference’ prompt.

HSI PAGE



Whenever a GOTO, TracBack or route has been activated, the GPSMAP 195 will provide digital and graphic guidance to the destination waypoint with the **HSI page**. The top and bottom of the page features eight user-selectable **data fields** that display destination waypoint (WPT), distance to waypoint (DIS), estimated time enroute (ETE), ground speed (SPD) and more.

The center of the page is the **HSI display**. The HSI graphically depicts the desired track to destination waypoint, ground track, cross track error (course deviation) and a TO/FROM indication. The compass card will rotate to indicate your current ground track, at the top of the page. The desired track pointer points in the direction of your destination waypoint and will rotate with the compass card as your ground track changes.

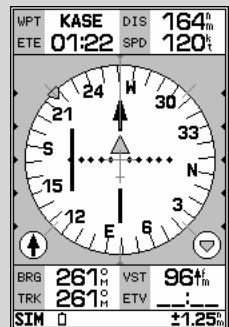
The CDI (course deviation indicator) across the center of the display shows your course deviation left or right of the desired course. To get back on course and center the D-bar needle, steer toward the D-bar needle. A TO/FROM indicator at the center of the display indicates waypoint passage. The CDI scale setting is shown on the status bar at the bottom of the page. The scale setting represents the distance from the center of the CDI to full left or right limits. The default CDI setting is 1.25 (nautical mile/statute mile/kilometer), but can also be set for 0.25 or 5.0 ranges.

To change the CDI scale:

1. Press the **▼ ZOOM ▲** key in either direction (up to increase, down to decrease the scale).



This example shows the aircraft heading parallel to the desired course, to the right more than .5 nm.



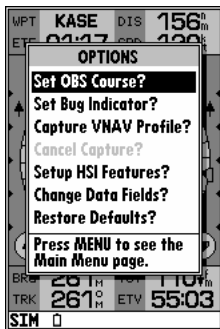
This example shows the aircraft even further off course beyond the limits of the CDI scale. The D-bar will stay at the edge of the scale until your cross-track error is less than the limits of the scale.



The 'Set OBS Course?' function allows you to specify an inbound heading to a destination waypoint. When this option is selected, an OBS heading appears in the bottom left corner of the HSI display. Use the keypad to select the OBS heading.



To turn the VNAV indicator on or off, select 'Setup HSI Features?' from the HSI options page. By default, the VNAV indicator is turned on.



The HSI options page allows you to define the user-selectable data fields, set OBS or track bug headings, or capture a VNAV profile.

To display the HSI page options:

1. Press (with the HSI page displayed).

To select a menu option:

1. Highlight the desired option and press .

The following options are available:

- **Set OBS Course?**— allows you to manually define the course to your destination waypoint. Once selected, the GPSMAP 195 will use the OBS course setting for CDI and DTK (desired track) steering guidance.

To manually set a course to the destination waypoint:

1. Highlight the 'Set OBS Course?' option and press . The OBS data field (bottom left of HSI display) will present an OBS heading.
2. Select the desired OBS course using the LEFT and RIGHT arrows of the keypad and press . The D-bar on the CDI will now show steering guidance to the selected course.

To cancel the OBS course and reset a direct course to the waypoint:

1. Press followed by .

- **Set Bug Indicator?**— allows you to mark a heading reference on the HSI display, which provides a visual cue of an important heading for current/future use.

To set a TRK bug heading reference:

1. Highlight the 'Set Bug Indicator?' option and press . The data field, bottom right of the HSI display, will present a bug heading.
2. Select the desired heading reference using the LEFT and RIGHT arrows of the keypad and press . The bug indicator will remain fixed on this heading reference until a new bug is selected.

HSI PAGE OPTIONS (cont.)

- **Capture VNAV Profile?**— is used to center/re-center the VNAV indicator on the HSI display. To utilize this feature, a GOTO or route must be in use and a valid VNAV profile must be entered on the vertical navigation submenu. See page 82 for more information on VNAV.
- **Cancel Capture?**— is used to return the VNAV indicator to the settings originally entered on the vertical navigation submenu. See page 82 for more information on VNAV.
- **Setup HSI Features?**— allows you to redefine the use of the bug indicator or turn it off and enable/disable the VNAV indicator. By default, the bug indicator shows course to steer (CTS), but can also be used to show bearing (BRG) to waypoint or user selectable (as described on the preceding page, ‘Set Bug Indicator?’).

To redefine the bug indicator:

1. Highlight the ‘Setup HSI Features?’ option and press **EDIT ENTER**.
2. Press **EDIT ENTER** to display the bug indicator options.
3. Select ‘Off’, ‘User Selected’, ‘Bearing (BRG)’ or ‘Course to Steer (CTS)’ and press **EDIT ENTER**.

- **Change Data Fields?**— allows you to specify the data displayed in each data field used on the map display. The following options are available:

- BRG- bearing to active (destination) waypoint
- CTS- course to steer
- DIS- distance to active (destination) waypoint
- DTK- desired track
- ETE- estimated time enroute
- ETV- estimated time to VNAV
- GR- glide ratio
- GRT- glide ratio to target
- SPD- ground speed
- TRK- ground track
- TRN- turn angle to waypoint
- VST- vertical speed to target
- WPT- active (destination) wpt name
- XTK- crosstrack error

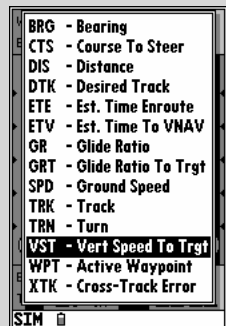
To change a data field:

1. Highlight the ‘Change Data Fields?’ option and press **EDIT ENTER**.
2. Highlight the data field you wish to change and press **EDIT ENTER**.
3. Select the desired data field option and press **EDIT ENTER**.

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



To change the data displayed select ‘Change Data Fields?’ and highlight the field you wish to change. In this example, ‘VST’ is highlighted...



...Press to display a list of available data options for that field.






ACTIVE ROUTE PAGE OPTIONS (cont.)

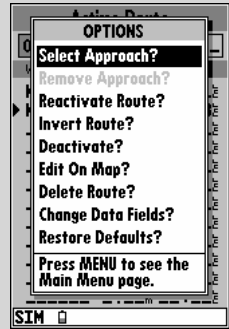
The following options are available from the active route page:

- **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. (Approach features are described on pages 32 and 76.)
- **Remove Approach?**— removes the approach waypoints from a GOTO or route, replacing them with the airport reference waypoint.
- **Reactivate Route?**— reactivates the active route and selects the route leg closest to your current position as the new active leg.
- **Invert Route?**— reactivates the active route in reverse order and begins navigation.
- **Deactivate?**— stops navigation of the route you are currently using.
- **Edit On Map?**— allows you to edit the selected route from the map display. (See page 75 for specific instructions.)
- **Delete Route?**— allows you to clear all waypoints from the selected route.
- **Change Data Fields?**— allows you to define the data displayed in the two user-selectable data fields. Four data options are available:
 - DIS— distance to destination waypoint(s)
 - DTK— desired track
 - ETE— estimated time enroute
 - ETA— estimated time of arrival

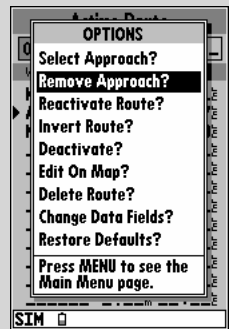
To change a data field:

1. Highlight the 'Change Data Fields?' option and press .
2. Highlight the data field you wish to change and press .
3. Select the desired data field option and press .

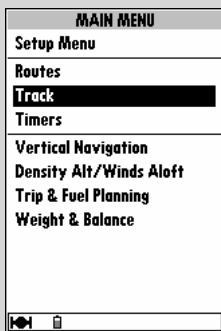
- **Restore Defaults?**— resets all active route page options to the factory default settings.



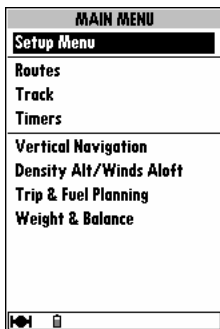
'Select Approach?' allows you to replace a destination waypoint with those waypoints which comprise the final course segment of an approach for the airport.



To remove the approach waypoints and replace them with the airport reference waypoint, select 'Remove Approach?'.



Select the desired menu item by highlighting it with the keypad and then press .



The GPSMAP 195's **main menu page** provides access to various system, navigation, planning, interface management and setup menus. The main menu page is available from any page in the GPSMAP 195's system, and is accessed through the key.

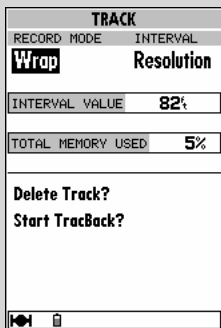
To access the main menu page:

1. Press twice.

The 8 submenus are divided into categories by function: system setup, route/track/timer features, and navigation planning features.

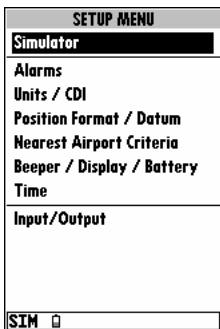
To select a submenu from the main menu page:

1. Highlight the submenu you want to view and press .



A submenu for the selected item will appear with additional options to choose from.

SETUP MENU



The first main menu item, 'Setup Menu', provides another list of menu choices to perform various system setup functions, including selection of position format and units of measure, setting various alarms, and configuring the display and backlighting. The setup submenus are used to configure the GPSMAP 195 to your preferences.

To select a submenu item from the setup menu:

1. Highlight the submenu you want to view and press .


SETUP MENU (cont.)

The following options are available from the setup menu:

- **Simulator**— allows you to enable and configure the GPSMAP 195's built-in simulator mode. From this submenu, you can setup the simulator to a specific location and altitude, plus enter the simulated speed and track.
- **Alarms**— offers complete control over the alarm clock, arrival alarm and course deviation alarm settings. This submenu also is used to enable/disable the various airspace alerts and set a buffer altitude from the floor/ceiling limits of these airspaces.
- **Units / CDI**— is used to change the units of measure, heading reference and the CDI scale.
- **Position Format / Datum**— is used to change the format in which position readings are offered and the datum reference used to determine where your position is.
- **Nearest Airport Criteria**— is used to set minimum surface conditions and minimum runway lengths when viewing the nearest airport list.
- **Beeper / Display / Battery**— lets you select if and when you want the internal beeper to sound and how long the internal display backlighting should remain on, and lets you adjust the display contrast. This submenu is also used to designate which battery type (alkaline or NiCad) is in use, for proper battery gauge readings.
- **Time**— provides control over the format used to display time and the option to display local time instead of UTC.
- **Input/Output**— allows you to control the interface settings used to connect the GPSMAP 195 to external devices, such as a personal computer or DGPS receiver.


Each setup submenu also features an options page which lets you quickly reset the system setup options for that submenu to the factory default settings.

To view the options for a setup submenu:


1. Press the  key (with one of the submenu pages displayed).

To restore the default settings:

1. Highlight the 'Restore Defaults?' option, and press .

SIMULATOR	
MODE	SPEED
Simulator On	119.9k
TRACK CONTROL	TRACK
Auto Track	027° _H
POSITION	
N 38°53.198'	
W094°46.454'	
ALTITUDE	
0400[0]k	
SIM 	

The simulator submenu allows you to enable/disable simulator mode, define a starting position/altitude, and define an initial ground track and speed.

NEAREST AIRPORT CRITERIA	
RUNWAY SURFACE	
Any	LENGTH
Hard Only	
Hard or Soft	
Water Only	
Any	
SIM 	

From a submenu, additional pull-down lists are available, such as these runway surface categories, by highlighting the desired item and pressing .



SIMULATOR SETTINGS

The **simulator submenu** provides complete setup control of the simulator mode. From this page, you may designate a starting position and altitude, enter a simulated speed and define a ground track.

SIMULATOR	
MODE	SPEED
Simulator On	119.9%
TRACK CONTROL	TRACK
Auto Track	027°
Auto Track	
User Track	
ALTITUDE	
1362'	
SIM <input type="checkbox"/>	

The 'Auto Track' setting allows the simulator to automatically "line up" on the correct bearing to a destination waypoint. 'User Track' allows you to set the ground track to any direction.

To turn the simulator mode on or off:

1. Highlight the 'Mode' field and press **EDIT ENTER**.
2. Select 'Simulator On' or 'Simulator Off' and press **EDIT ENTER**.

To designate the simulated position and altitude:

1. Highlight the 'Position' field and press **EDIT ENTER**.
2. Enter the latitude/longitude coordinates for the starting position and press **EDIT ENTER**.
3. The highlight will move to the 'Altitude' field. Press **EDIT ENTER**.
4. Enter the starting altitude and press **EDIT ENTER**.

To set the simulated track and speed:

1. Highlight the 'Track Control' field and press **EDIT ENTER**.
2. Select 'Auto Track' or 'User Track' and press **EDIT ENTER**. If 'User Track' is selected press **EDIT ENTER**, enter the desired ground track and press **EDIT ENTER** again. 'Auto Trac' will automatically adjust the ground track based upon the bearing to an active GOTO or route waypoint.
3. Highlight the 'Speed' field and press **EDIT ENTER**.
4. Enter the desired speed and press **EDIT ENTER**.

An options menu allows you to designate the simulated position using the map display, instead of entering position coordinates.

To designate the simulated position from the map display:

1. Press **MENU** followed by **EDIT ENTER** to select 'Initialize Position?'
2. Select the starting location using the **⬇️** keypad (and **⬇️ ZOOM ⬆️** if necessary) and press **EDIT ENTER** when finished.

ALARMS	
AIRSPACE ALARMS	
Class B, CTA	On
Class C, TMA	On
Towers, Control Zones	On
Restricted Areas	On
MOAs & other SUAs	On
Mode C Veils	Off
Altitude Buffer	200'
ARRIVAL ALARM	
Off	0.00%
COURSE DEVIATION ALARM	
Off	0.00%
CLOCK ALARM	
Off	00:00E
SIM <input type="checkbox"/>	

Alarms are provided for various airspace categories: arrival, CDI and an alarm clock. To set the alarm clock, enter the time when you wish the alarm to sound.

ALARMS SETTINGS

The **alarms submenu** provides controls for the alarm clock, arrival alarm, course deviation alarm and the various airspace alerts. The alarm clock uses the internal clock to provide an 'Alarm Clock' message at the time you set.





To enable/disable the alarm clock:

1. Highlight the 'Clock Alarm' field and press **EDIT ENTER**.
2. Select 'On' or 'Off' as desired and press **EDIT ENTER**.
3. If enabling the alarm, highlight the time field and press **EDIT ENTER**. Enter the alarm time and press **EDIT ENTER**. When the alarm time is reached the GPSMAP 195 will alert you with the 'Alarm Clock' message. (The GPSMAP 195 must be powered on when the alarm time is reached. Otherwise, the message will not occur.)

ALARMS SETTINGS (cont.)





The waypoint arrival alarm will activate an alarm message once you've come within a set distance to a destination waypoint.

To enable/disable the arrival alarm:

1. Highlight the 'Arrival Alarm' field and press .
2. Select 'Auto', 'On' or 'Off' as desired and press . 'Auto' provides the alarm one minute before reaching your destination, based upon current ground speed and track.
3. If 'On' is selected, highlight the distance field and press . Enter the alarm distance and press . As you approach the destination waypoint, an 'Arrival at _____' message occurs when you are within the alarm distance you entered.

The course deviation alarm provides a message when you deviate off course beyond the specified distance.

To enable/disable the course deviation alarm:

1. Highlight the 'Course Deviation Alarm' field and press .
2. Select 'On' or 'Off' as desired and press .
3. If enabling the alarm, highlight the distance field and press . Enter the alarm distance and press . If you deviate beyond the alarm distance, left or right of course, a 'CDI Alarm' message occurs.


AIRSPACE ALARMS

The last item on the alarms submenu is airspace alarms. The airspace alarms will inform you of any special use or controlled airspace near your position or in your flight path, according to the following conditions:


- **'Airspace Ahead Less Than 10 minutes'**— occurs if your projected course will take you inside an airspace within the next 10 minutes.
- **'Airspace Near and Ahead'**— is displayed when you are within two nautical miles of an airspace and your current course will take you inside the airspace.
- **'Inside Airspace'**— is presented when you have entered the boundaries of the airspace.
- **'Near Airspace Less Than 2 nm'**— appears when you are within two nautical miles of an airspace, but your current course will not take you inside the airspace.



WARNING: 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.

ALARMS	
AIRSPACE ALARMS	
Class B, CTA	On
Class C, TMA	On
Towers, Control Zones	On
Restricted Areas	On
MOAs & other SUAs	On
Mode C Veils	Off
Altitude Buffer	200'
ARRIVAL ALARM	
Off	0.00 ^m
On	0.00 ^m
Auto	00:00 ^E
DEVIATION ALARM	
Off	0.00 ^m
On	00:00 ^E
ALARM	
Off	00:00 ^E
SIM 	

The arrival alarm 'Auto' setting, provides an 'Arrival at _____' message one minute before reaching the destination waypoint.

ALARMS	
AIRSPACE ALARMS	
Class B, CTA	On
Class C, TMA	On
Towers, Control Zones	On
Restricted Areas	On
MOAs & other SUAs	On
Mode C Veils	Off
Altitude Buffer	200'
ARRIVAL ALARM	
Off	0.00 ^m
On	01.00 ^m
COURSE DEVIATION ALARM	
On	01.00 ^m
CLOCK ALARM	
Off	00:00 ^E
SIM 	

The course deviation alarm provides an alert when you drift off course beyond the limits you have set.





Airspace alerts may be enabled/disabled by airspace type. Alerts for the following airspace categories may be controlled from the alarms submenu:

- **Class B, CTA**— ICAO control areas
- **Class C, TMA**— ICAO terminal control areas
- **Towers, Control Zones**— In U.S., a 4.3 nm radius from airports with control towers which are not associated with Class B or Class C airspace; control zones in Europe
- **Restricted Areas**— Restricted areas
- **MOAs & Other SUAs**— Includes military operations, alert, training, caution, danger and warning areas
- **Mode C Veils**— Outer limit of an airspace (usually Class B or C) where mode C altitude-encoding transponder is required



Alarms for prohibited areas may not be turned off. Keep in mind that turning a warning off will only prevent you from receiving a message alert for an airspace. Airspace boundaries will still be displayed on the map page unless that category is turned off from the map options page.

To turn an airspace alarm on or off:

1. Highlight the desired airspace category and press .
2. Select 'On' or 'Off', as desired, and press .


The airspace altitude buffer field, located at the bottom of the page, expands the vertical range of an airspace, providing an added margin of safety. For example, if the buffer is set at 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. The default setting for the altitude buffer is 200 feet.

To enter an altitude buffer:


1. Highlight the 'Altitude Buffer' field and press .
2. Enter the desired buffer distance and press .



NOTE: 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 terms of AGL, the GPSMAP 195 will alert you at any altitude below the upper limit. However, if the actual upper limit is also charted as an AGL altitude, the GPSMAP 195 will provide the alert at all altitudes.

ALARMS	
AIRSPACE ALARMS	
Class B, CTA	On
Class C, TMA	Off
Towers, Control Zones	On
Restricted Areas	Off
MOAs & other SUAs	On
Mode C Veils	Off
Altitude Buffer	200'
ARRIVAL ALARM	
Off	0.00%
COURSE DEVIATION ALARM	
Off	0.00%
CLOCK ALARM	
Off	00:00E
SIM 	

You may enable/disable the airspace alerts by the individual airspace categories shown.

ALARMS	
AIRSPACE ALARMS	
Class B, CTA	On
Class C, TMA	On
Towers, Control Zones	On
Restricted Areas	On
MOAs & other SUAs	On
Mode C Veils	Off
Altitude Buffer	00500'
ARRIVAL ALARM	
Off	0.00%
COURSE DEVIATION ALARM	
Off	0.00%
CLOCK ALARM	
Off	00:00E
SIM 	

The altitude buffer provides an added margin of safety beyond the floor and ceiling limits of the given airspace.

UNITS/CDI SETTINGS

UNITS / CDI	
DISTANCE & SPEED	
Nautical (nm, kt)	
HEADING	
Auto Mag Var	E004°
ALTITUDE	
Feet (ft)	
VERTICAL SPEED	
Feet per Minute (fm)	
PRESSURE	
Inches (hg)	
TEMPERATURE	
Fahrenheit (F)	
CDI SCALE	
± 1.25	

The **units/CDI submenu** is used to select the desired units of measure, heading reference and CDI (course deviation indicator) scale. The heading selection determines what reference is used in calculating heading information. You can select from the following:

- **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.
- **User Mag Var**— lets you specify the magnetic variation at your current position and provides magnetic north heading references based upon the variation you enter.



WARNING: The ‘User Mag Var’ setting is provided for circumstances where ‘Auto Mag Var’ may not provide the correct magnetic variation. Be advised that if you select ‘User Mag Var’ and enter a value, this value does not change as your position changes. If the magnetic variation changes as your flight progresses, you must go back and periodically update this figure.

- **Grid**— provides headings based on a grid north reference. This selection is used in conjunction with the grid position formats described on page 69.

To change the heading reference:

1. Highlight the ‘Heading’ field and press .
2. Select the desired heading reference and press .

The desired units of measure for distance, speed, altitude, vertical speed, pressure and temperature are also selected from the units/CDI submenu. The following options are available for each units of measure selection:

- **Distance & Speed Units**— may be presented in nautical (nautical miles and knots), statute (statute miles and miles per hour) or metric (kilometers and kilometers per hour) terms.

UNITS / CDI	
DISTANCE & SPEED	
Nautical (nm, kt)	
HEADING	
User Mag Var	E004°
ALTITUDE	
Feet (ft)	
VERTICAL SPEED	
Feet per Minute (fm)	
PRESSURE	
Inches (hg)	
TEMPERATURE	
Fahrenheit (F)	
CDI SCALE	
± 1.25	

The ‘User Mag Var’ option allows you to define the magnetic variation for your area. ‘Auto Mag Var’ is the preferred setting in most cases.



UNITS / CDI	
DISTANCE & SPEED	
Nautical (nm, kt)	
 	Nautical (nm, kt) Statute (mi, mh) Metric (km, kh)
	E004°
VERTICAL SPEED	
Feet per Minute (fm)	
PRESSURE	
Inches (hg)	
TEMPERATURE	
Fahrenheit (F)	
CDI SCALE	
± 1.25	

Select nautical, statute or metric units of measure from the Unit/CDI submenu.

UNITS/CDI SETTINGS (cont.)



- **Altitude Units**— may be presented in feet or meters.
- **Vertical Speed Units**— may be measured in feet per minute, meters per minute or meters per second.
- **Pressure Units**— may be specified in inches of mercury (Hg) or in millibars (mb).
- **Temperature Units**— may be measured in degrees Fahrenheit or degrees Celsius.

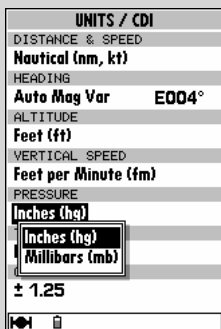
To change a units of measure setting:

1. Highlight the desired field and press .
2. Select the desired units and press .

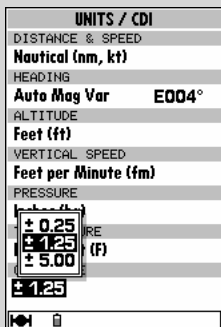
The graphic CDI that is part of the HSI page may be configured to scale distances of ± 0.25 , ± 1.25 or ± 5.00 units (nautical miles, statute miles or kilometers). The scale distance is the distance from center of the CDI to full left or right limits.


To change the CDI scale:

1. Highlight the 'CDI Scale' field and press .
2. Select the desired scale and press .

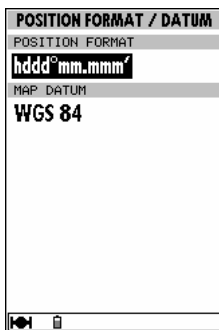


Barometric pressure figures may be entered/displayed in inches of mercury or millibars.



The CDI Scale may be set on the HSI page using the  key or from the Units/CDI submenu.

POSITION FORMAT/DATUM





The **position format/datum submenu** is used to change the coordinate system in which a given position reading is displayed and to select the datum reference used to determine where the position is.

POSITION FORMAT/DATUM (cont.)

The default position format is latitude and longitude in degrees and minutes (hddd°mm.mmm'). The following additional formats are available:

- **hddd.dddd°**— latitude and longitude in decimal degrees only
- **hddd°mm'ss.s"**— latitude and longitude in degrees, minutes and seconds
- **British Grid**— British National Grid
- **German Grid**— German National Grid
- **Irish Grid**— Irish Transverse Mercator Grid
- **Maidenhead**— Maidenhead Locator System
- **Swedish Grid**— Swedish Grid
- **Swiss Grid**— Swiss Grid
- **Taiwan Grid**— Taiwan Grid
- **UTM/UPS**— Universal Transverse Mercator and Universal Polar Stereographic grids

To change the position format:



1. Highlight the 'Position Format' field and press .
2. Select the desired position format and press .

The map datum field is located below the position format field. The default setting is WGS 84. Although over 100 datums are available (as listed in Appendix G) for use, you should only change the datum if you are using a map or chart that specifies a different datum than WGS 84. If the map/chart does not specify a reference datum, you may select each datum applicable to your region until you find the datum that provides the best positioning at a known point.



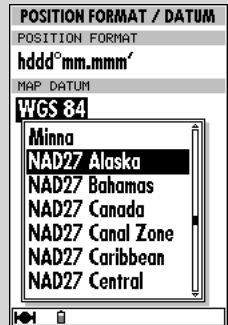
WARNING: Selecting the wrong map datum, or a datum that does not apply to your region, can result in substantial position error. When in doubt, use the default WGS 84 datum for best overall performance.

To change the map datum reference:

1. Highlight the 'Map Datum' field and press .
2. Select the desired position format and press .



The GPSMAP 195 provides 11 different position formats to display your location. All grid formats, except UTM/UPS and Maidenhead, cover only a specific region.



Over 100 different datum references are provided to allow the GPS position to correspond to various paper charts. Use WGS 84 unless your chart specifies otherwise.





NEAREST AIRPORT CRITERIA

The **nearest airport criteria submenu** defines the surface type and minimum length for runways when determining the nearest airports. Pilots of large, high-performance aircraft may direct the nearest airport search to ignore those airports at which it would be difficult, if not impossible, to land. The following runway surface types are available:



- **Any**— (Default) any runway, regardless of surface type, including water landing facilities
- **Hard Only**— Only runways with a concrete, asphalt or similar sealed surface
- **Hard or Soft**— All runways except water landing facilities
- **Water Only**— Only water landing facilities

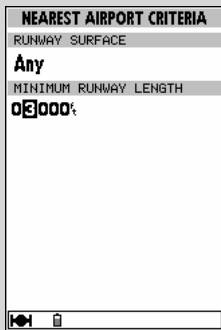
To select a runway surface:

1. Highlight the 'Runway Surface' field and press .
2. Select the desired setting and press .

The default setting for minimum runway length is zero.

To enter a minimum runway length:

1. Highlight the 'Minimum Runway Length' field and press .
2. Enter the desired minimum and press .



The minimum runway length setting is used to exclude airports whose runways are too short for you to land or take off from. These airports will not appear on the nearest airport list.





The beeper field allows you to turn off the keypad beeper or shutoff the message tone.

BEEPER/DISPLAY/BATTERY SETTINGS



The **beeper/display/battery submenu** provides access to internal beeper tone, backlighting, screen contrast and battery type settings. The GPSMAP 195 features an internal beeper to signal message alerts and keypad operation. The beeper may be set to sound for messages only, messages and key presses (default), or no sound at all.

To select a beeper setting:

1. Highlight the 'Beeper' field and press .
2. Select the desired setting and press .

The display backlighting features an automatic shutoff to preserve battery life. Six settings are available: Always On (the backlight will stay on until it is manually turned off), 15 seconds (default), 30 seconds, 1 minute, 2 minutes or 4 minutes.




To set the backlight timer:

1. Highlight the 'Backlight Timeout' field and press .
2. Select the desired setting and press .

The display contrast is adjustable for optimum viewing in all lighting conditions. Display contrast is set using an on-screen bar scale. The display contrast can also be set from the status page as outlined on page 15.



BEEPER/DISPLAY/BATTERY SETTINGS (cont.)

To set the screen contrast:

1. Highlight the 'Display Contrast' field and press .
2. Adjust the bar scale for desired contrast using the LEFT and RIGHT arrows of the  keypad.
3. Press .

The battery setting is used to designate which battery type (alkaline or NiCad) is in use. This setting ensures accurate readings from the battery gauge on the satellite status page and the battery icon on the status bar.



To change the battery setting:

1. Highlight the 'Battery Type' field and press .
2. Select the desired battery type and press .

TIME SETTINGS





The **time submenu** provides access to the time format and local time zone functions. The time format field allows you to display current time using a 12- or 24-hour clock. This field is also used to select between local or UTC time.

To select the desired time format:

1. Highlight the 'Time Format' field and press .
2. Select the desired setting and press .

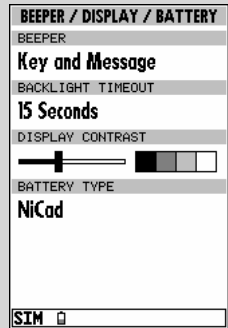
The local time zone field is used to define the current local time. UTC date and time are calculated directly from the satellites' signals and cannot be edited. If you prefer to use local time, you may designate an offset either 'Behind UTC' or 'Ahead of UTC'. The offset is the difference, in hours and minutes, between local time and UTC time.

To enter the local time zone:

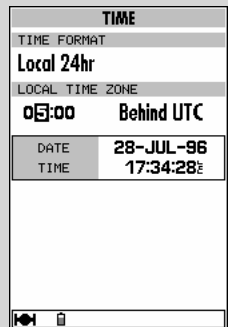
1. Highlight the 'Local Time Zone' field and press .
2. Select the desired offset and press .
3. The highlight should move to the right. Press .
4. Select 'Behind UTC' or 'Ahead of UTC', as desired, and press .



NOTE: If you are unsure of the exact offset, select a 'Local' time format above, then enter offset values until you arrive at the correct local time. Setting the local time incorrectly will not adversely affect the operation of the GPSMAP 195. However, ETA, sunrise and sunset figures will be incorrect.



You can adjust the display contrast from the status page (see page 15) or from the beeper/display submenu.



Enter the offset amount to adjust the time display to your local area. In the United States, all offset amounts will be 'Behind UTC'.



The **input/output submenu** lets you control interface settings for connecting to external NMEA devices, a DGPS receiver or a personal computer. The 'Input/Output Format' field, at the top of the page, lets you specify one of seven interface formats:



The 'Data Transfer' option allows the GPSMAP 195 to exchange track log, waypoint, almanac, and route data with a personal computer or another GPSMAP 195.

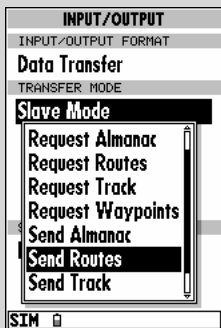
- **Data Transfer** is the proprietary interface that allows you to update the Jeppesen database. This format is also used to exchange data such as waypoints, routes and track logs between GPSMAP units or with a GARMIN PC Software Kit.
- **NMEA In/NMEA Out** supports input from an NMEA compatible external device and provides NMEA 0183 output. (See Appendix B for additional NMEA sentence information.)
- **NMEA In/No Out** allows input from a NMEA compatible external device, with no output capabilities.
- **No In/NMEA Out** provides navigation information to a compatible NMEA 0183 v.2.0 device at 4800 baud.
- **No In/No Out** provides no interfacing capabilities.
- **RTCM In/NMEA Out** allows Differential GPS (DGPS) input using a standard RTCM format and also provides selectable NMEA output.
- **RTCM In/No Out** allows DGPS input using a standard RTCM format, without output capabilities.

To select an input/output format:

1. Highlight the 'Input/Output Format' field and press **EDIT/ENTER**.
2. Select the desired setting and press **EDIT/ENTER**.

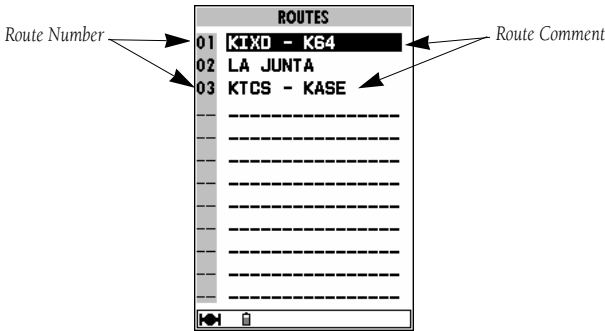
When the 'Data Transfer' option is selected, you'll need to specify what information to request or send to the remote unit through the Transfer Mode field. The 'slave' setting lets you control all data transfer from the 'external' GPS receiver, or PC, while the other settings request or send specific data from the primary unit. Information describing the settings required is provided with each Database Update diskette and with the PC Software Kit.

If you are using the NMEA 0183 v.2.0 interface setting, the baud rate is automatically set to 4800.



When transferring data to/from another GPSMAP 195, select the type of data and whether to 'request' it from or 'send' it to the other unit.

ROUTES



The second item on the main menu, 'Routes', provides another means of navigation over the direct GOTO. Unlike the GOTO function, which provides a course from present position to a single destination waypoint, the 'Routes' selection lets you create and store up to 20 reversible user-defined routes (numbered 0-19), with up to 30 waypoints in each route.

The GPSMAP 195's **route list page** displays all the routes currently stored in memory in numerical order, with the route number and comment displayed. Route 00 is used for TracBack and GOTO approach routes, while routes 1-19 serve as storage routes. The route list page is accessed from the main menu.

To view the route list page:

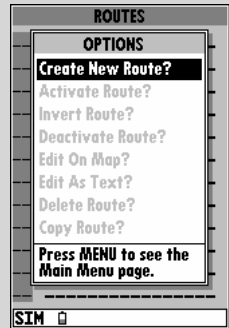
1. Highlight 'Routes' from the main menu and press **EDIT ENTER**.

Routes can be created and modified from the route edit page, allowing you to enter the identifier for each waypoint along the route.

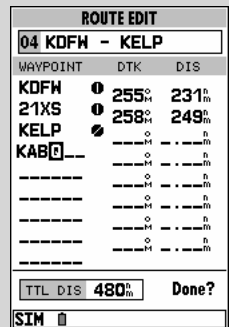
To create a new route:

1. Highlight 'Routes' from the main menu and press **EDIT ENTER**. The route list page will appear, showing all the routes stored in memory.
2. Press the **MENU** key to display the route options page.
3. Select 'Create New Route?' and press **EDIT ENTER**. The route edit page will appear, with the cursor on the first blank waypoint identifier line.
4. Enter the identifier for the first route waypoint using the **0-9** keypad and press **EDIT ENTER** when finished.
5. Continue adding waypoints to the route using the **0-9** keypad and **EDIT ENTER**, as necessary. When finished select 'Done?' and press **EDIT ENTER**.

As you add each new waypoint to the route, the desired track and distance will appear for each leg of the route. The total route distance is displayed at the bottom of the route edit page.

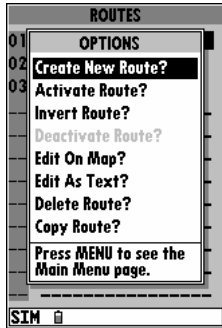


'Create New Route?' allows you to create a new route by entering the identifier for each route waypoint.



Route waypoints are selected using the **0-9** keypad and **EDIT ENTER**.

ROUTE OPTIONS



The route options page provides additional features for creating, using or deleting routes. These functions may be selected by highlighting the desired function and pressing **EDIT ENTER**.

To display the route options page:

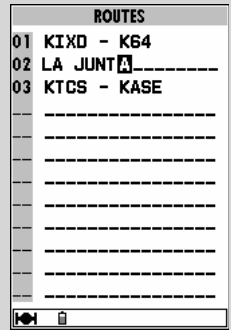
1. Press **MENU** (with the route list page displayed).

The following options are available from the route list page:

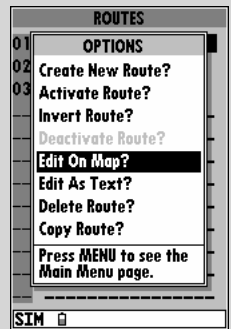
- **Create New Route?**— activates the text route editing function. Route waypoints are selected using the **ENTER** keypad, as described on page 73.
- **Activate Route?**— activates the route you are editing and begins navigation.
- **Invert Route?**— activates the route you are editing in reverse order and begins navigation.
- **Deactivate Route?**— stops navigation of the route currently selected.
- **Edit on Map?**— allows you to edit the route directly from the map display. Waypoints may be added, removed or changed.

To edit a route graphically:

1. Select 'Edit on Map?' and press **EDIT ENTER**. The selected route is shown on the map display, centered on the first route waypoint.
2. Place the cursor on the desired route waypoint and press **EDIT ENTER**. A pop-up menu appears to review, remove or insert a waypoint.
3. Select 'Review?' to review the database information about that waypoint and press **EDIT ENTER**.
4. Select 'Remove?' to delete the waypoint from the route and press **EDIT ENTER**.
5. Select 'Insert?' to add a new waypoint to the route, immediately prior to the selected route waypoint. Use the **ENTER** keypad to select an existing airport, navaid, or user waypoint and press **EDIT ENTER** to finish.

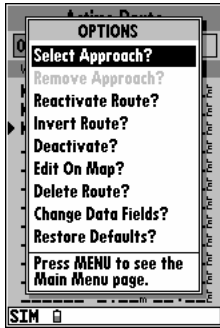


Each route may be given a 16-character comment from the route list page. The default route comment is the starting and ending waypoints of the route.



To edit a route graphically from the route options page, place the cursor on the waypoint you wish to edit and press **EDIT ENTER** to display the pop-up menu.

USING APPROACHES (cont.)



To select an approach using the GOTO function:

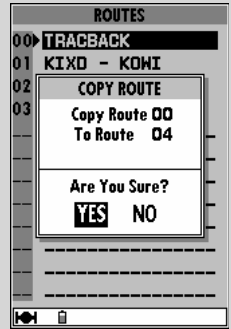
1. Press the **GOTO** key and select an airport as your destination waypoint (see pg. 21).
2. Press **EDIT ENTER**. The 'GOTO?' option is highlighted. (Pressing **EDIT ENTER** here would take us directly to the airport reference waypoint.)
3. Press **MENU** to show the GOTO options.
4. Highlight 'Select Approach?' and press **EDIT ENTER**.
5. Select the desired approach for the destination airport, using the **0-9** keypad and press **EDIT ENTER**.

The GPSMAP 195 will guide you to the first point in the approach and automatically sequence through each point in the approach to the missed approach point (MAP).

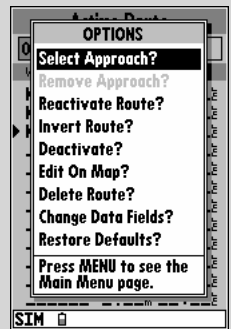
If you're currently navigating a route (instead of using the GOTO function), selecting an approach will automatically remove the final destination airport from the route and replace it with the approach waypoints. Each route can contain up to 30 waypoints. If there is insufficient empty space to add the approach waypoints to the end of the route, the GPSMAP 195 will delete waypoints from the beginning of the route to make space and provide a 'Route Truncated' message.

To select an approach for the active route:

1. Press the **PAGE** key until the active route page (see pg. 60) appears.
2. Press **MENU** to display the active route options.
3. Highlight the 'Select Approach?' option and press **EDIT ENTER**.
4. Select the desired approach for the destination airport, using the **0-9** keypad and press **EDIT ENTER**.



The 'copy route?' option allows you to copy the selected route to another location before making changes.



'Select Approach?' allows you to replace the destination airport with the waypoints that comprise the final course segment of an approach for the airport.

The **track submenu** lets you specify whether or not to record a track log (an electronic recording of your path) and define how it is recorded. It also provides an indicator of the track memory used and selects functions to clear the track memory and start a TracBack route. The following functions are available:

- **Record Mode**— lets you select one of three track recording options:
 - Off— No track log will be recorded.

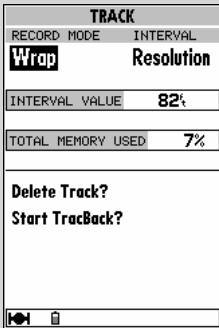


NOTE: Selecting the 'Off' setting will prevent you from using the TracBack feature.

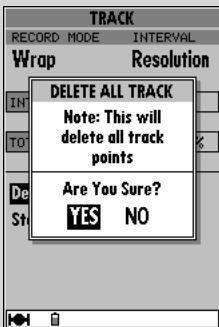
- **Fill**— a track log will be recorded until the track memory is full.
- **Wrap (default)**— A track log will be continuously recorded, wrapping through the available memory; replacing the oldest track data with new data.
- **Interval**— defines the frequency with which the track plot is recorded. Three interval settings are available:
 - **Time**— records track plot based on a user-defined time interval.
 - **Resolution (default)**— records track plot based upon a user-defined variance from your course over ground. The resolution option is recommended for the most efficient use of memory and TracBack performance. The distance value (entered in the interval field) is the maximum left/right deviation allowed from the last defined ground track before recording a new point.
 - **Distance**— records track based on a user-defined distance between points.
- **Interval Value**— defines the distance or time used to record the track log.
- **Delete Track?**— allows you to clear the track log currently stored in memory.
- **Start TracBack?**— converts the current track log into an inverted route and begins route navigation along the track log.

To reset all track options to the default settings:

1. Press the **MENU** key, followed by **EDIT ENTER**.



The 'Wrap' option allows the GPSMAP 195 to continue storing track log data after memory is full. The oldest track log data is continuously overwritten with new data in an infinite loop.



To utilize the TracBack feature, you should clear the track log before leaving the departure airport.

TRACBACK NAVIGATION

The third, and final, method of navigating to a destination is by using the GPSMAP 195's TracBack feature. The TracBack function allows you to retrace your path using the track log automatically stored in the receiver's memory, which eliminates the need to store waypoints along the way. TracBack routes are created by reducing your track log into a route of up to 30 waypoints and activating the new route in reverse order. Once activated, a TracBack route will lead you back to the oldest track log point stored in memory, so it's a good idea to clear the existing track log at the start of your current trip (i.e., at the airport).

To clear the old track log and begin a new one:

1. Press the **MENU** key twice to display the main menu page.
2. Highlight the 'Track' option and press **EDIT ENTER**.
3. Select the 'Delete Track?' option and press **EDIT ENTER**.
4. Highlight the 'Yes' field and press **EDIT ENTER**.
5. Verify that the 'Record Mode' field indicates 'Fill' or 'Wrap'. If the field indicates 'Off', highlight the field, press **EDIT ENTER** and select another option.

To activate a TracBack route:

1. Select 'Track' from the main menu and press **EDIT ENTER**.
2. Highlight the 'Start TracBack?' option and press **EDIT ENTER**.



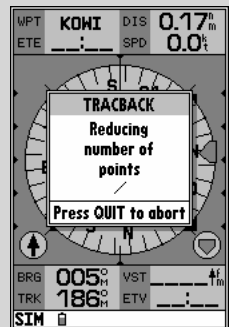
NOTE: The 'Start TracBack?' selection is also available from the GOTO options page.

Once a TracBack has been activated, the GPSMAP 195 will take the track log currently stored in memory and divide it into segments called 'legs'. Up to 30 temporary symbol waypoints will be created to mark the most significant features of the track log in order to duplicate your exact path as closely as possible. To get the most out of the TracBack feature, remember the following tips:

- Always clear the track log at the point that you want to go back to (airport, etc.).
- The 'RECORD' 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.

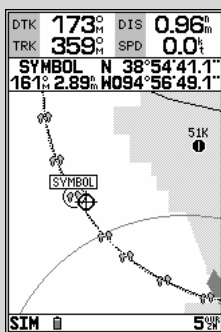


To start TracBack navigation, highlight the 'Start TracBack?' option and press **EDIT ENTER**. The 'Start TracBack?' selection is also available from the GOTO options page.



To stop the TracBack function before a route is created, press the **QUIT** key while the progress window is displayed.

TRACBACK NAVIGATION (cont.)

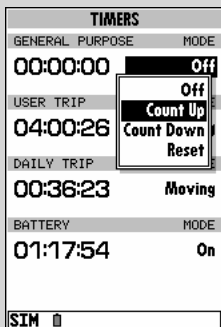


The TracBack function will create a series of temporary waypoints along your track log back to the oldest track log point in memory.

- If there is not enough available memory to add more waypoints and create a TracBack route, you will be alerted with a 'waypoint memory full' message, and the receiver will use available waypoints to create a route with an emphasis on the track log closest to the destination.
- If the track log interval is set to the 'Time' option, the route may not follow your exact path. (Keep the interval set to resolution for best performance.)
- If the receiver is turned off or satellite coverage is lost during your trip, the TracBack will draw a straight line between any point where coverage was lost and where it resumed.
- If the changes in direction and distance in your track log are very complex, 30 waypoints may not accurately mark your exact path. The receiver will then assign the 30 waypoints to the most significant points of your track, and simplify segments with fewer changes in direction.

TIMERS

The **timers submenu** provides count down, count up, battery and trip timers for the various time management needs you may encounter in flight. The first timer function will count down from an entered interval and alert you with a message or keep a running timer that will count up to 99:59:59 while the unit is powered on.



The general purpose timer field offers a count up and count down timer. You may also select from a variety of other timers to keep track of trip times, battery life or elapsed time using the other timer options.

To set the general purpose timer to count down:

1. Highlight the time field, enter the total countdown using the **key-pad** and press **EDIT ENTER**.
2. Highlight the timer mode field and press **EDIT ENTER**. A pull-down menu appears with options to:
 - Count Down
 - Count Up
 - Reset
 - Off
3. Select the 'Count Down' option and press **EDIT ENTER**. The highlight moves to the time field. The GPSMAP 195 will begin counting down and a 'Timer Has Expired' message will inform you when the count reaches zero.

Before using the count up timer, you may need to reset it to zero.

To reset the timer to zero:

1. Highlight the timer option field and press **EDIT ENTER**.
2. Select the 'Reset' option and press **EDIT ENTER**.



TIMERS (cont.)

The count up timer measures time from the point at which it was started. This timer will not generate a message.

To set the general purpose timer to count up:

1. Highlight the timer option field and press **EDIT ENTER**.
2. Select the 'Count Up' option and press **EDIT ENTER**. The GPSMAP 195 will begin counting up.

You may also stop or pause the timer as desired.

To stop the timer:

1. Highlight the timer option field and press **EDIT ENTER**.
2. Select the 'Off' option and press **EDIT ENTER**.
3. To restart the timer, select the 'Count Down' or 'Count Up' options as described above.

The battery timer provides a running count of how long your GPSMAP 195 has been in operation using the batteries. In addition to the battery gauge, this will provide another indication of how long a given set of batteries should last. The battery timer is a continuous count up timer which automatically stops when using external power. When depleted batteries are replaced with a fresh set, the GPSMAP 195 will automatically reset the timer to zero. You can also manually reset the battery timer.

To reset the battery timer:

1. Highlight the battery timer field and press **EDIT ENTER**.
2. Select the 'Reset' option and press **EDIT ENTER**.

The GPSMAP 195 features a trip timer which will display the time enroute. This information can be helpful to maintain your trip and/or pilot logs.

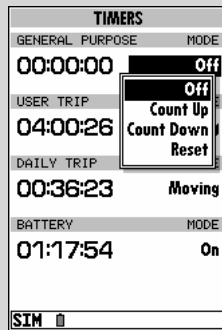
The trip timer can be configured to run whenever the GPSMAP 195 is powered on, or whenever the ground speed exceeds one knot. The trip time is cumulative and will not reset automatically when the unit is powered off and back on. The trip time may be manually reset at any time during your flight.

To change the trip timer settings:

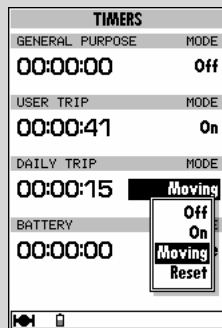
1. Highlight the trip timer option field and press **EDIT ENTER**.
2. Select 'On' or 'Moving' and press **EDIT ENTER**. If 'Moving' is selected, the timer will run only when your ground speed exceeds one knot.

To reset the departure time/trip timer:

1. Highlight the trip timer option field and press **EDIT ENTER**.
2. Select 'Reset' and press **EDIT ENTER**.



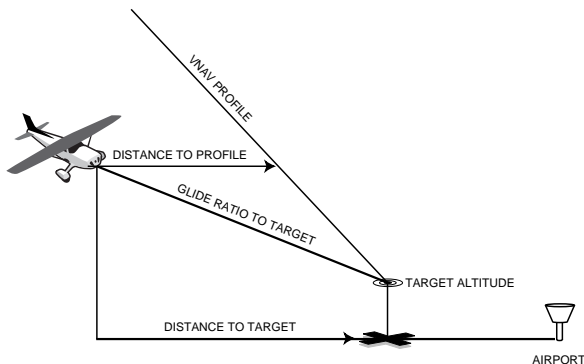
To stop the count up or count down timers, select the 'off' option and press the **key**.



The 'Moving' option will only count the elapsed trip time when your ground speed exceeds one knot.



VERTICAL NAVIGATION	
TARGET ALTITUDE	1000ft Above Wpt
BY	4.0m Before
ACTIVE DESTINATION WPT	KROG
VNAV PROFILE	400ft/m
VNAV MESSAGES	On
SIM	



The vertical navigation submenu allows you to define a target altitude and guide you on a descent to it. The default settings are intended to guide you to pattern altitudes.

The **vertical navigation submenu** lets you create a VNAV profile which guides you from your present position and altitude to a final altitude at a specified location. Once the descent profile is defined, message alerts and additional data on the HSI page will keep you informed of your progress. To use the vertical navigation feature, your ground speed must be greater than 35 knots and you must be navigating using the GOTO feature or a route.

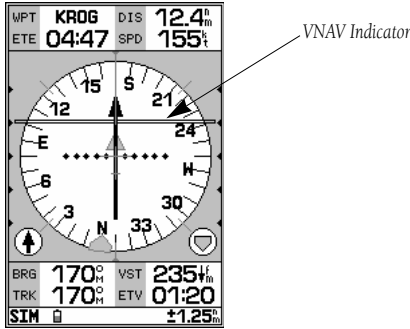
To create a VNAV profile:

1. Highlight the 'Vertical Navigation' option from the main menu page and press **EDIT ENTER**.
2. With the target altitude field highlighted, press **EDIT ENTER**.
3. Enter the desired target altitude and press **EDIT ENTER**.
4. With the altitude reference field highlighted, press **EDIT ENTER**.
5. Select 'Above Wpt' or 'MSL' as desired and press **EDIT ENTER**. 'Above waypoint' will use the altitude of the destination waypoint as stored in the internal Jeppesen database. 'MSL' lets you set a specific target altitude.
6. With the waypoint distance field highlighted, press **EDIT ENTER**.
7. Enter an offset distance from the destination waypoint where the target distance should be reached. If the target altitude occurs at the destination waypoint, enter zero. Press **EDIT ENTER** when finished.
8. Press **EDIT ENTER** and select 'Before' or 'After' for the offset distance. Press **EDIT ENTER** when finished. This setting designates whether the offset distance defines a point before you reach the destination waypoint or after you reach the destination waypoint.
9. The default VNAV profile is a 400 foot-per-minute descent. To change the VNAV profile, highlight the VNAV profile field, press **EDIT ENTER**, enter a new descent rate and press **EDIT ENTER** again.

WPT	KROG	DIS	20.2 ^{nm}
ETE	07:30	SPD	165 ^{kt}
BRG	166 ^{deg}	VST	468 ^{ft}
TRK	154 ^{deg}	ETV	
SIM			
		±1.25%	

A VNAV indicator (horizontal bar) will guide you as you descend to the target altitude.

VERTICAL NAVIGATION (cont.)

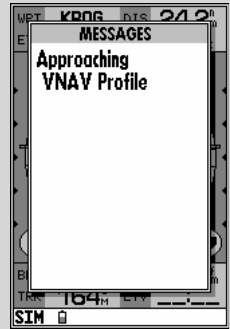


With the VNAV profile set, the HSI page will guide you through the maneuver. Data fields on the HSI page will indicate time to beginning of maneuver, time to target altitude and vertical speed to target. A VNAV indicator on the HSI display will guide you along the proper descent angle. Expect the following to occur when using the vertical navigation feature:

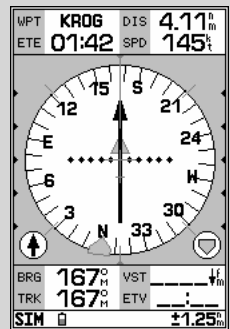
- As you approach the initial descent point, the estimated time to VNAV profile (ETV) field indicates the time to reach the initial descent point.
- At one minute before you reach the initial descent point, a message, 'Approaching VNAV Profile', occurs. The estimated time to VNAV profile (ETV) will sequence from indicating time to initial descent point to indicating time to reach target altitude. Finally, the descent angle will lock to prevent changes in ground speed from altering the profile.
- At 500 feet above the target altitude, an 'Approaching Target Altitude' message is provided. The estimated time to target (ETV) figure will go blank and the VNAV indicator will disappear from the HSI display.



WARNING: GPS accuracy may be degraded by the U.S. Department of Defense-imposed Selective Availability program. With selective availability 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 display. The GPSMAP 195 is a VFR navigation tool and should not be used to perform approaches.



Within one minute of the initial descent point, an 'Approaching VNAV Profile' message will appear.



Once you are within 500 feet of the target altitude, the 'Approaching Target' message will appear, and the VNAV indicator will be removed from the HSI display.

DENSITY ALT/WINDS ALOFT	
INDICATED ALTITUDE	
0:	
CALIBRATED AIRSPEED	
0:	
BAROMETRIC PRESSURE	
29.92:	
TOTAL AIR TEMPERATURE	
59:	
DENSITY ALT	-1:
TRUE AIRSPEED	0:
HEADING	TRUE AIRSPEED
000:	0:
TAIL WIND	145:
WIND FROM	350:
WIND SPEED	145:
SIM	

Density altitude may be calculated by entering values for indicated altitude, calibrated airspeed, barometric pressure and total air temperature.

DENSITY ALT/WINDS ALOFT	
INDICATED ALTITUDE	
2500:	
CALIBRATED AIRSPEED	
155:	
BAROMETRIC PRESSURE	
29.85:	
TOTAL AIR TEMPERATURE	
69:	
DENSITY ALT	3399:
TRUE AIRSPEED	163:
HEADING	TRUE AIRSPEED
180:	170:
HEAD WIND	25:
WIND FROM	232:
WIND SPEED	44:
SIM	

When calculating density altitude and winds aloft, be sure to enter the required values from the appropriate aircraft instrument.

DENSITY ALT/WINDS ALOFT	
INDICATED ALTITUDE	
2500:	
CALIBRATED AIRSPEED	
155:	
BAROMETRIC PRESSURE	
29.85:	
TOTAL AIR TEMPERATURE	
69:	
DENSITY ALT	3399:
TRUE AIRSPEED	163:
HEADING	TRUE AIRSPEED
180:	170:
HEAD WIND	25:
WIND FROM	232:
WIND SPEED	44:
SIM	

The **density altitude/winds aloft submenu** provides E6-B functions for calculating density altitude, true airspeed and winds aloft.

To calculate density altitude and true airspeed:

1. Highlight the 'Density Altitude/Winds Aloft' option from the main menu page and press **EDIT ENTER**.
2. Highlight the indicated altitude field and press **EDIT ENTER**.
3. Enter the altitude from your altimeter and press **EDIT ENTER**.
4. Press **EDIT ENTER** to begin entry of your calibrated airspeed.
5. Enter the calibrated airspeed and press **EDIT ENTER**.
6. Press **EDIT ENTER** to begin entry of your current barometric pressure (altimeter setting).
7. Enter the barometric pressure and press **EDIT ENTER**.
8. Press **EDIT ENTER** to begin entry of the total air temperature (TAT).
9. Enter the TAT and press the **EDIT ENTER** key. The calculated density altitude and true airspeed will be displayed at the bottom of the page.



NOTE: TAT is the temperature of the air including the heating effect caused by speed. The temperature reading on a standard outside air temperature gauge found in most piston aircraft is IAT.

The winds aloft function will calculate the wind direction, speed and head/tail wind component for you by entering your true airspeed and current heading. If the true airspeed was calculated from previously entered density altitude data, the calculated figure may be used here without re-entering.

To calculate winds aloft:

1. Highlight the true airspeed field (TAS) and press **EDIT ENTER**.
2. Enter the TAS and press **EDIT ENTER**.
3. Press **EDIT ENTER** to begin entry of your current heading.
4. Enter your heading and press **EDIT ENTER**. The wind direction, speed and head wind component will be displayed at the bottom of the page.

TRIP & FUEL PLANNING

TRIP & FUEL PLANNING			
PLAN			
Point-To-Point			
_____ to _____			
SPEED	145 $\frac{K}{hr}$		
FUEL FLOW	0.0 $\frac{hr}{hr}$		
DEPART	28-JUL-96 20:55 $\frac{E}{E}$		
DTK	000 $\frac{M}{M}$	FUEL	0.0
DIS	0.0 $\frac{M}{M}$	ETE	00:00
ETA	20:55 $\frac{E}{E}$	RISE	11:20 $\frac{E}{E}$
DATE	28-JUL	SET	01:26 $\frac{E}{E}$
SIM			

The GPSMAP 195's **trip and fuel planning submenu** lets you plan and review distance, fuel, and ETE/ETA information between any two waypoints; your present position and a stored waypoint; or any part of a stored route. Sunrise and sunset information is also provided. Two planning modes are available: point-to-point and route planning.

To use the point-to-point planning mode:

1. Highlight the 'Trip & Fuel Planning' option from the main menu page and press .
2. If the plan field is not set to 'Point-To-Point', press the and select it from the options page.
3. Highlight the first waypoint field and press . Press the left arrow key to clear the field, and use the keypad to enter the name of the starting waypoint. You may leave the waypoint field blank to use your present position, or press the to select the waypoint from the waypoint list or the map display. Press to confirm the waypoint.
4. Move the field highlight to the second waypoint field and follow the steps above to select the destination waypoint.
5. Enter a speed for your trip in the speed field, or press to select your current SPD for the speed value.
6. Enter an hourly fuel flow (if desired) in the fuel field, and press .
7. Enter the date and time of your departure (the default date and time will be the current date and time in UTC or local time, whichever you have selected) and press .

The bottom of the page will now display the desired track and distance between the two points; the estimated time enroute and fuel required; the date and time of your arrival; and the sunrise and sunset times at the destination for the date of arrival.

The route planning mode lets you calculate the same planning information for any route stored in memory, in leg or cumulative leg or route totals.

TRIP & FUEL PLANNING			
PLAN			
Point-To-Point			
KAA $\frac{K}{K}$ to _____			
SPEED	145 $\frac{K}{hr}$		
FUEL FLOW	0.0 $\frac{hr}{hr}$		
DEPART	28-JUL-96 20:55 $\frac{E}{E}$		
DTK	000 $\frac{M}{M}$	FUEL	0.0
DIS	0.0 $\frac{M}{M}$	ETE	00:00
ETA	20:57 $\frac{E}{E}$	RISE	11:20 $\frac{E}{E}$
DATE	28-JUL	SET	01:26 $\frac{E}{E}$
SIM			

You may use your present position as the starting or ending waypoint for trip and fuel planning by leaving the corresponding field blank.

TRIP & FUEL PLANNING			
PLAN			
Point-To-Point			
KAAF to KDH $\frac{K}{K}$			
SPEED	145 $\frac{K}{hr}$		
FUEL FLOW	0.0 $\frac{hr}{hr}$		
DEPART	28-JUL-96 20:58 $\frac{E}{E}$		
DTK	314 $\frac{M}{M}$	FUEL	0.0
DIS	592.3 $\frac{M}{M}$	ETE	04:05
ETA	01:04 $\frac{E}{E}$	RISE	11:21 $\frac{E}{E}$
DATE	29-JUL	SET	01:25 $\frac{E}{E}$
SIM			

Once you have entered the desired waypoints, speed and other data, the planning values will be displayed at the bottom of the trip and fuel planning page.



To use the route planning mode:

1. Highlight the 'Trip & Fuel Planning' option from the main menu page and press **EDIT ENTER**.
2. If the plan field is not set to 'Route', press **MENU** and select it from the options page.
3. Highlight the route number field and press **EDIT ENTER**.
4. Select the route you want to plan and press **EDIT ENTER**.
5. The leg field will be highlighted. Press **EDIT ENTER**.
6. To plan the cumulative totals for all route legs, select the 'ALL' option—or use the **0** keypad to select a specific route leg to plan. Press **EDIT ENTER** to confirm.
7. Enter the planned speed for your trip, or press **MENU** to select your current SPD for the speed value.
8. Enter an hourly fuel flow (if desired) in the fuel field, and press **EDIT ENTER**.
9. Enter the date and time of your departure (the default date and time will be the current date and time in UTC or local time, whichever you have selected) and press **EDIT ENTER**.

The bottom of the page will now display the planning information for the route leg selected or the cumulative values for the entire route. The route planning mode will also let you plan cumulative totals for multiple route legs by using the 'Hold First Waypoint?' selection from the options window.

To plan multiple route legs:

1. Follow steps 1-6 above to select the last route leg you want to plan. For example, select leg 03 if you want to plan cumulative totals for the first three legs of the route (without including the rest of the route).
2. Enter the speed, fuel and date/time values as described in steps 7-9 above.
3. Press the **MENU** key to display the options page.
4. Select the 'Hold First Waypoint?' option and press **EDIT ENTER**. The cumulative totals from the first route waypoint to the end of the selected leg will appear at the bottom of the page.

The fuel and trip planning submenu also allows you to calculate the sunrise and sunset times for your present position or any waypoint for a selected date. To use this feature the 'from' and 'to' waypoints listed at the top of the page must be the same waypoint (or blank to figure times for present position).

TRIP & FUEL PLANNING		
PLAN	ROUTE	LEG
Route	01	ALL
KMCI to KSTL		
SPEED	0.0	
FUEL FLOW	0.0/hr	
DEPART	28-JUL-96 21:03z	
DTK	FUEL	
DIS 207.5%	ETE	
ETA	RISE	
DATE	SET	

To perform trip and fuel planning for cumulative totals for a selected route, choose the 'ALL' option from the leg field.

TRIP & FUEL PLANNING		
PLAN	ROUTE	LEG
Route	01	01
KMCI to CO		
SPEED	01	
FUEL FLOW	02	
DEPART	28-JUL-96 21:03z	
DTK 100%	FUEL 13.4	
DIS 120.2%	ETE 01:13	
ETA 22:15z	RISE 11:06z	
DATE 28-JUL	SET 01:25z	

To calculate trip and fuel values for a particular route leg, select the desired route leg from the leg field.

TRIP & FUEL PLANNING

To use the sunrise/sunset planner:

1. Highlight the 'Trip & Fuel Planning' option from the main menu page and press **EDIT ENTER**.
2. Using 'Point-To-Point' planning, highlight the first waypoint field and press **EDIT ENTER**. Press the left arrow key to clear the field, and use the **⏪** keypad to enter the name of the desired waypoint. You may leave the waypoint field blank to use your present position, or press the **MENU** key to select the waypoint from the waypoint list or the map display. Enter the same waypoint name or blank field for the second waypoint field.
3. Press **EDIT ENTER** to confirm.
4. Highlight the date field and press **EDIT ENTER**.
5. Enter the date you want sunrise/sunset information for (the current date and year will be used as the default setting) and press **EDIT ENTER**. The sunrise and sunset times for the selected location and date will be displayed at the bottom right of the planning page.

WEIGHT & BALANCE CALCULATIONS

The weight and balance submenu may be used during your pre-flight preparations to verify the weight and balance conditions for your aircraft. By entering the weight and arm value on this page, the GPSMAP 195 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 195.

To perform weight & balance calculations:

1. Highlight the 'Weight & Balance' option from the main menu page and press **EDIT ENTER**.
2. Highlight the desired 'Weight' field and press **EDIT ENTER**.
3. Enter the weight figure and press **EDIT ENTER**.
4. Highlight the desired 'Arm' field and press **EDIT ENTER**.
5. Enter the arm figure and press **EDIT ENTER**.
6. Repeat steps 2 through 5 above until all figures are entered. Keep in mind that the 'Aircraft' figures must be entered as a reference to calculate a valid moment, weight and CG.

TRIP & FUEL PLANNING	
PLAN	
Point-To-Point	
_____ to _____	
SPEED	0.0
FUEL FLOW	0.0/hr
DEPART	28-JUL-96 16:19E
DTK	000%
FUEL	0.0
DIS	0.0%
ETE	00:00
ETA	16:19E
RISE	06:16E
DATE	28-JUL
SET	20:35E
◀ ▶	

The sunrise/sunset planner will calculate the sunrise and sunset times for your present position or any stored waypoint.

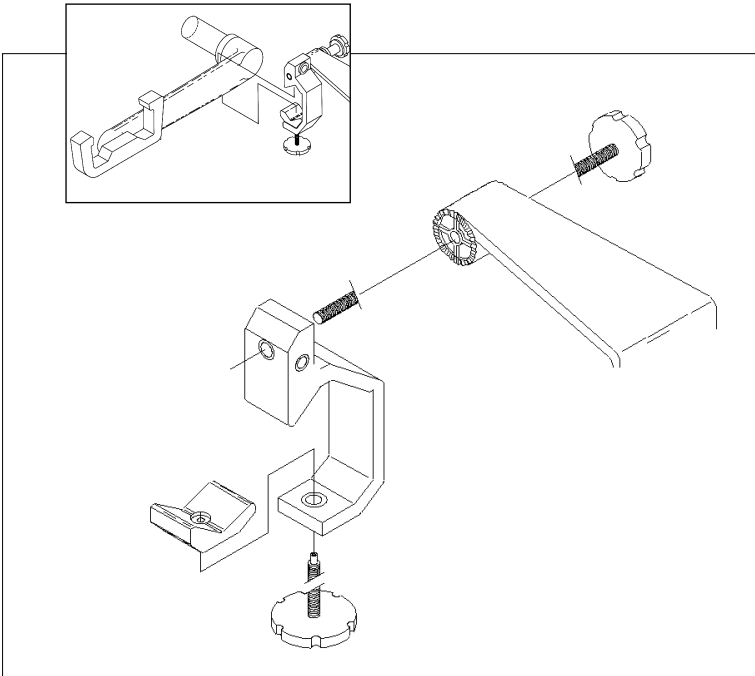
WEIGHT & BALANCE		
ITEM	WEIGHT	ARM
Aircraft	2364	82.5
Usable Fuel	540	94.0
Pilot	190	85.5
Co-pilot	150	85.5
Passenger	175	119.1
Passenger	165	119.1
Baggage	40	178.7
Other	0	0.0
Other	0	0.0
MOMENT	WEIGHT	C.G.
322502	3624	89.0
SIM		

See the pilot's guide for your aircraft for the necessary weight and balance data and CG limits.



Universal Yoke Mount

The GPSMAP 195 includes an adjustable yoke mount that may be attached to the control yoke of an aircraft for easy access without blocking the view of the instrument panel. The clamp that comes with the standard yoke mount is configured to fit the control yoke of more than 90% of general aviation aircraft.



To attach the yoke mount to the control yoke:

1. Loosen the lower knob.
2. Slide the clamp over the control yoke shaft just behind the control wheel.
3. Tighten the lower knob securely.
4. Make sure that the clamp is as close as possible to the control wheel and check to make sure that the yoke travel is not limited or hindered in any way by the yoke mount.
5. If it is necessary to change the direction of the clamp, completely loosen and remove the upper knob, then mate up the appropriate sets of teeth so the clamp opens to the left or right (for conventional yokes), or toward the instrument panel (for Baron or Bonanza yokes or conventional control arms).
6. Tighten the upper knob.
7. Loosen the clamp adjustment knob enough to slide the clamp over the control yoke shaft or arm.
8. Tighten the clamp over the control yoke shaft or arm using the clamp adjustment knob.

The yoke includes a mounting bracket which is used to secure the GPSMAP 195 during flight.

Using the Mounting Bracket

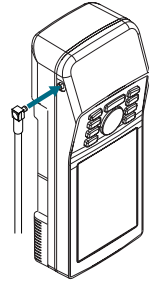
To secure the GPSMAP 195 using the mounting bracket:

Note: The unit is most easily inserted into the bracket holder by placing the right side of the unit into the bracket first, then lowering the left side in until it locks into place..

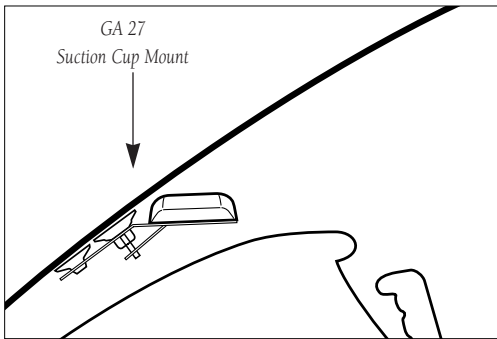
1. Slightly spread the sides of the bracket holder and insert the unit, mating the four notches on the sides of the unit with the four tabs on the bracket holder. Lock the unit in place by pushing in and turning the lock/unlock knob located on the side of the bracket holder to the lock position. Note: When removing the unit, push in and turn the knob to the unlock position and lift the unit out.
2. If it is necessary to change the angle of the bracket for proper viewing angle, loosen the upper bracket knob and rotate the GPSMAP 195 up or down, then re-tighten the knob.

Remote GPS Antenna

The optional GARMIN GA 27 remote GPS antenna can be used to enhance satellite reception. Simply plug the “MCX” male connector on the end of the GA 27 cable into the socket located on the side of the GPSMAP 195. Place the antenna in view of satellites, and the system is ready for operation. The GA 27 can be mounted using a suction cup or magnetic mount, which are included with the antenna. Whichever mounting method you choose, you must ensure that the antenna’s location provides an unobstructed view of much of the sky. This is critical to allow the antenna to “see” at least four satellites in order to compute your position and track your flight.



The optional GARMIN GA 27 low-profile remote-mount antenna is designed to be used with several different GARMIN GPS units. To use this antenna with the GPSMAP 195, simply plug the right-angle “MCX” male connector on the end of the GA 27 cable into the socket on the left side of the top of the unit.



To use the suction cup mount:

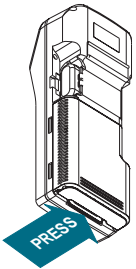
1. Attach the suction cup mount to the bottom of the GA 27 antenna using the two flat head screws (provided). Position the antenna as low as possible on the windshield to maximize satellite visibility and not obstruct your view of the sky.
2. The suction cup mount can be adjusted to compensate for aircraft windshields of varying angles. The adjustment is made by rotating the large suction cup until the proper angle for mounting is obtained.

To use the magnetic mount:

1. Attach the magnetic mount to the bottom of the GA 27 antenna using the two flat head screws (provided). The antenna will now mount to a flat metal surface.



WARNING: Do not use the magnetic mount in areas near the directional compass!

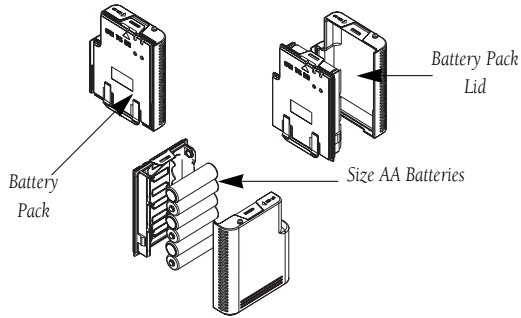
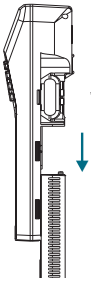


Powering Your GPSMAP 195

Your unit uses 6 AA batteries that provide up to 10 hours of battery life. The GPSMAP 195 may also be hard-wired to 5-40 volt DC power using the cigarette lighter adapter or power/data cable.

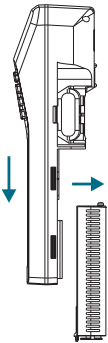
To remove and install a battery pack:

1. Push down on the spring tab on the bottom of the battery pack.
2. Slide the battery pack off from underneath the unit.



To install alkaline batteries:

1. Depress the plastic tab at the top of the pack and pull the lid of the pack off, revealing the batteries inside.
2. Replace the batteries, observing the polarity diagram engraved in the lid.
3. Match the two tabs on the lid with the slots in the base of the pack. The lid will snap into place.



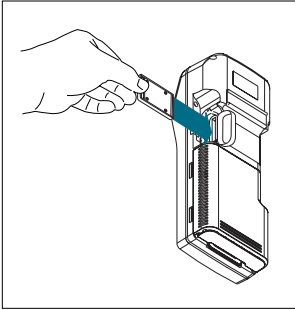
NiCad Battery Pack

A NiCad Battery Pack Kit is available as an optional accessory for your GPSMAP 195. This kit consists of a NiCad battery and A/C wall charger. The NiCad battery will provide up to 10 hours of battery life. Instructions are included with the kit, but for your reference, please note the following points:

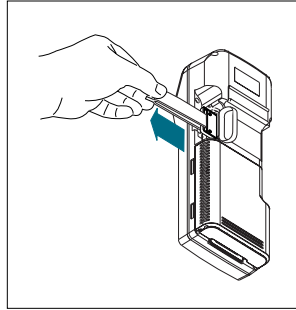
- Typical charging time is 12-14 hours.
- The NiCad battery should never be left on the charger more than 24 hours.

INSTALLING/REMOVING CARTRIDGES

The GARMIN GPSMAP 195 system uses GARMIN detail cartridges to display additional geographic detail at zoom levels down to 1/10 mile (or 1/4 kilometer). GARMIN detail cartridges are inserted in the card slot located on the right side of the unit, and may be installed or removed at any time, whether the unit is on or off.



Installing a Cartridge



Removing a Cartridge

To install a detail cartridge:

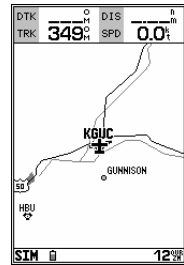
1. Open the cartridge door.
2. Insert the card into the slot. (Label should face up, toward the unit.)
3. Use your thumb to firmly push the cartridge into place (until the cartridge will not go any further into the unit). If your GPSMAP 195 is on, a confirmation tone will sound when the cartridge has been properly installed and accepted.
4. Close the door.



NOTE: If you insert a detail cartridge and get a 'card format not recognized' message, try removing the card and reinserting it. If the card is still not recognized, contact the dealer you purchased it from for assistance. Detail cartridges are not waterproof, should not be exposed to moisture or excessive static charges, and should be stored in the package supplied with the cartridge.

To remove a detail cartridge:

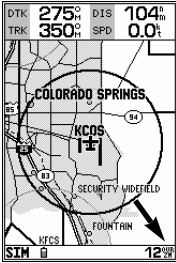
1. Open the cartridge door.
2. Using the cartridge removal tool supplied with the unit, grasp the card along the groove and pull outward.
3. If your unit is on, a confirmation tone will sound as the cartridge is removed.
4. Close the door.



Installing a GARMIN detail cartridge allows you to display additional geographic detail at lower map scales.

Once a detail cartridge has been inserted, the map coverage and detail will conform to the following conditions:

- When the selected zoom range is covered by both the internal base map and a detail cartridge, map detail will be displayed using the data with the best resolution.
- When the selected zoom range exceeds the resolution of the available chart data, overzoom map detail will be displayed. An 'Ovr Zm' warning will appear on the status bar, next to the map scale. Additional caution should be used while navigating in this mode, since at these zoom levels highway, waterway and railway detail may appear slightly displaced from actual position.



'OVR ZM' appears next to the map scale when the zoom level exceeds the resolution of the map data. Exercise caution when using this data.



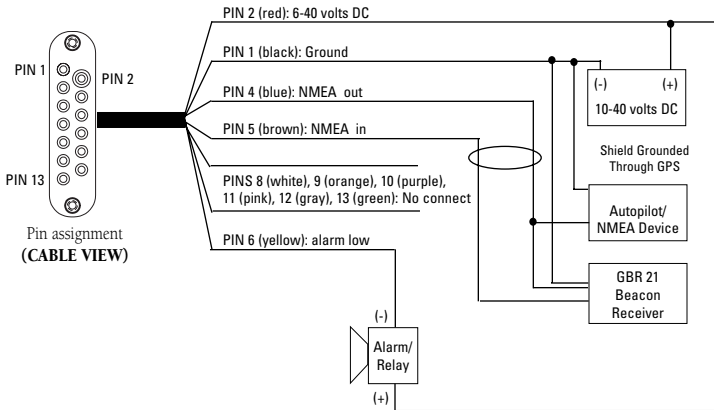
NOTE: Whenever you zoom past the usable range of a cartridge, the range field will display 'Ovr Zm'. This warning indicates that although the information is still being displayed, you should exercise extreme caution using the data.

When a detail cartridge is installed, the GPSMAP 195's system will automatically use the best available chart for display. As your position changes and you zoom in/out, the system will automatically display the appropriate data for the area you are in. When you exit the area covered by the cartridge, the GPSMAP 195 will revert back to the built-in basemap.

If you are not seeing certain map items (navaids, towns, highways, etc.), check the map configuration settings available from the map options page, as described on pages 50-54.

DC Wiring

The GPSMAP 195 may be hard-wired to an aircraft's 6-40v DC system using an optional power/data cable. Consult the wiring diagram below for proper connections. The connector end of the cable attaches to the back of the unit using either the long brass thumb screws supplied or standard M3 x .5 (6mm) machine screws. The connector end may also be attached to the yoke mount for convenient attachment to aircraft power.



To attach the unit to the adapter:

1. Place the connector end over the contact pad located on the bottom of the unit, making sure the connector end is facing the correct way in order to match the terminals.
2. Match the two small screw holes, and secure the adapter using either the long thumb screws supplied or standard M3 x .5 (6mm) machine screws. To use this adapter with the yoke mount, insert the adapter connector through the slot in the bracket.



WARNING: The temperature range for the GPSMAP 195 is -4 to +158°F (-20 to 70°C). Extended exposure to temperatures exceeding this range (in storage or operating conditions) may cause failure of the LCD screen. This type of failure and related consequences is not covered by the manufacturer's limited warranty.

Interfacing

The following formats are supported for connection to up to three NMEA devices:

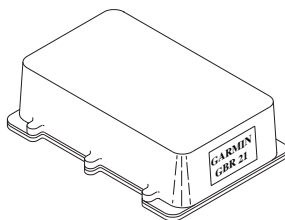
- NMEA 0183 version 2.0
Approved sentences— GPGGA, GPGSA, GPGSV, GPRMB, GPRMC, GPRTE, GPWPL, GPBOD

Proprietary sentences—

PGRME (estimated error), PGRMM (map datum)

PGRMZ (altitude), PSLIB (beacon receiver control input)

DGPS



GARMIN GBR 21 Beacon Receiver

DGPS corrections are accepted in RTCM-104 v. 2.0 format through the NMEA In (BROWN) harness lead. The GARMIN GBR 21 is the recommended beacon receiver for use with the GPSMAP system. Other receivers with the correct RTCM format may be used, but may not correctly display status or allow tuning control from the GPSMAP 195 unit.

SPECIFICATIONS

GPSMAP 195 Specifications

PHYSICAL

Case:	Fully gasketed, nitrogen-filled
Size:	7.6"H x 2.9"W x 2.1"D (19.3 x 7.4 x 5.3 cm)
Weight:	1.4 lbs. (635g)
Temperature Range:	5° to 158°F (-15° to 70°C)

PERFORMANCE (GPSMAP 195)

Receiver:	Differential-ready, 12-channel PhaseTrac12
Acquisition Time:	Approx. 15 seconds (warm) Approx. 45 seconds (cold) Approx. 5 minutes (AutoLocate) Approx. 5 minutes (Search the sky)
Update Rate:	1/second, continuous
Position Accuracy:	1-5 meters (3-16 ft.)* 15 meters (49 ft.) RMS**
Velocity Accuracy:	0.1 knot RMS steady state
Dynamics:	Performs to specification to 6g's

POWER

Range:	6-40v DC
Usage:	1.5 watts max.

Specifications are subject to change without notice.

* With optional GARMIN GBR 21 Beacon Receiver Input.

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

Airspace Ahead Less Than 10 min—Your projected course and current altitude will place you within an airspace within 10 minutes, based on your current track over ground.

Airspace Near and Ahead—Your present position is within 2 nm of an airspace based upon your current course and altitude.

Alarm Clock—The alarm clock time that was set from the alarms submenu has been reached.

Approaching—You are one minute away from reaching a destination waypoint.

Approaching Target Altitude—The current altitude is within 1000 feet of the final VNAV target altitude.

Approaching VNAV Profile—You are within one minute of reaching the initial VNAV descent point.

Arrival At—You are within the arrival alarm circle of the indicated waypoint.

Battery Power is Low—The batteries are low and should be replaced or recharged.

Cannot Navigate Locked Route—You have attempted to navigate a route with a locked waypoint. A waypoint can be 'locked' when the database is updated if the waypoint does not exist in the new database.

Can't Change An Active Waypoint—You have attempted to change the 'Active To' or 'Active From' waypoint. Clear the active route or GOTO before making your changes.

Cross-Track Alarm—You are right or left of course, beyond the limits set on the alarms/CDI submenu.

Data Card Checksum Failure—The data on the detail cartridge is corrupt or missing. The cartridge should be replaced.

Data Card Format is Not Recognized—The detail cartridge is blank or programmed in an incompatible format. No cartridge data will be displayed.

Data Transfer is Complete—Transfer of data to the unit, for database update or using the PC software kit, has been completed.

Database Memory Has Failed—The internal memory for the Jeppesen database has failed. The unit should be taken to an authorized GARMIN service center immediately.

Degraded Accuracy—The accuracy of the GPSMAP 195 has been degraded beyond 500 meters due to poor satellite geometry or data quality. You should check other navigational sources to verify the position indicated.

Inside Airspace—Your aircraft has entered the boundaries of special use or controlled airspace.

Leg Not Smoothed—The upcoming route leg is too short for smooth waypoint transitions.

Memory Battery Power is Low—The battery that sustains user memory is low and should be replaced by an authorized GARMIN service center as soon as possible. Failure to do so may result in loss of stored data, including all user waypoints and routes.

Near Airspace Less Than 2 nm—Your position is within 2 nautical miles of an airspace, and your current course will not take you inside.

Need Altitude—The GPSMAP 195 needs altitude input in order to start and/or continue 2D navigation.

Need to Select Init Method—The GPSMAP 195 needs altitude in order to start and/or continue 2D navigation. Press the NAV key and enter your antenna altitude on the position page. The altitude you enter should be as accurate as possible. An inaccurate altitude can translate directly into an inaccurate position.

No Differential GPS Position—Not enough data is available to compute a DGPS position.

Oscillator Needs Adjustment—The GPSMAP 195 has detected excessive drift in its internal crystal oscillator which may result in longer acquisition time. The unit should be taken to an authorized GARMIN service center immediately.

Poor GPS Coverage—The GPSMAP 195 cannot acquire the necessary number of satellites to compute a position. Try another location with a clearer view of the sky.

Power Down and Re-init—The GPSMAP 195 is not able to calculate a position due to abnormal satellite conditions. Turn the unit off and verify the last position shown by other means. Try the unit again later, possibly in a different location.

MESSAGES (cont.)

RAM has Failed—The GPSMAP 195 has detected a failure in its internal memory. If the message persists, the GPSMAP 195 is unusable and should be taken to an authorized GARMIN service center.

Received an Invalid Waypoint—A waypoint was received during upload transfer that has an invalid identifier.

Receiver has Failed—A failure in receiver hardware has been detected. If this message persists, do not use the unit and take it to an authorized dealer for repair.

ROM has Failed—The GPSMAP 195 has detected a failure in its permanent memory. If this message occurs, the unit is unusable and should be taken to an authorized GARMIN service center.

Route is Full—You have attempted to add more than 30 waypoints to a route.

Route Memory is Full—Route memory is full and no additional routes can be added from another GPSMAP or using the PC software kit.

Route Truncated—The route was truncated because not enough room existed to insert an approach. Waypoints are removed from the beginning of the route to make room for the approach waypoints.

Route Waypoint Locked—The waypoint was locked when the database was updated, since the waypoint does not exist in the new database.

Route Waypoint Moved—The waypoint was moved when the database was updated, due to a change in the position information in the database.

Route Waypoint was Deleted—A route waypoint entered does not exist in the database and has been deleted from the route.

RTCM Input has Failed—DGPS data being received has been lost. You are no longer receiving the beacon signal.

Searching the Sky—The GPSMAP 195 is in searching the sky for almanac data or the unit is in AutoLocate mode.

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.

Stored Data was Lost—All waypoints, routes, time and almanac data has been lost due to battery failure or clearing the receiver's memory.

There is No RTCM Input—The GPSMAP 195 is extracting DGPS corrections using an RTCM format. No corrections are being received.

Timer Has Expired—The countdown timer has expired.

Track Memory Is Full—Track log memory is full. No additional track log data can be stored without deleting old data to fill memory space.

Transfer has been Completed—The receiver is finished uploading or downloading information to the connected device.

Vertical Nav Cancelled—The VNAV function has been cancelled due to a change in the active route.

VNAV Needs MSL Target Altitude—The VNAV function was implemented for a user waypoint or a database waypoint without an altitude reference. Select an MSL target altitude to use the VNAV feature with this waypoint.

Waypoint Already Exists—You have entered a waypoint name on the AutoStore page or user waypoint page that already exists in memory. Enter a waypoint name that does not exist.

Waypoint Memory is Full—You have used all 250 waypoints in the GPSMAP 195. Delete unwanted waypoints to make room for new entries.

This appendix provides a complete list of GPSMAP 195 abbreviations and their meanings.

ALT-	Altitude	FT-	Full Time
APP-	Approach	GL-	Gallons
APR-	Approach	GND-	Ground
APT-	Airport Waypoint	GPS-	Global Positioning System
ARV-	Arrival	GR	Glide Ratio
ATF-	Aerodrome Traffic Frequency	GRT	Glide ratio to Target
ATS-	Automatic Terminal Information Service (ATIS)	GS-	Ground Speed
AVGS-	Aviation Gas	HDG-	Heading
AZM-	Azimuth (bearing)	HG-	Inches of Mercury
BRG-	Bearing	IALT-	Indicated Altitude
CAS-	Calibrated Airspeed	ILS-	Instrument Landing System
CDI-	Course Deviation Indicator	IG-	Imperial Gallons
CL B-	Class B	INT-	Intersection Waypoint
CL C-	Class C	JET A-	Jet Fuel - Type A
CLR-	Clearance Delivery	JET B-	Jet Fuel - Type B
CPA-	Closest Point of Approach	KH-	Kilometers Per Hour
CTA-	ICAO Control Area	KM-	Kilometers
CTAF-	Common Traffic Advisory Frequency	KT-	Knots
CTF-	Common Traffic Advisory Frequency	LB-	Pounds
CTS-	Course To Steer	LCL-	Local
CUM-	Cumulative	LEN-	Length
DALT-	Density Altitude	LFOB-	Leftover Fuel On Board
DEG-	Degrees	LFLOW-	Left Fuel Flow
DEP-	Departure	LOC-	Localizer
DIS-	Distance To Waypoint	LT-	Liters
DME -	Distance Measuring Equipment	MAG VAR-	Magnetic Variation
DOP-	Dilution of Precision	MB-	Millibars Of Pressure
DTK-	Desired Track	MF-	Mandatory Frequency
ELEV-	Elevation	MH-	Statute Miles Per Hour
ENDUR-	Endurance	MI-	Statute Miles
EPE-	Estimated Position Error	MIN-	Minimum
ESA-	Enroute Safe Altitude	MIN -	Minutes
ETA-	Estimated Time of Arrival	MOA-	Military Operations Area
ETE-	Estimated Time Enroute	MPM-	Meters Per Minute
ETV	Estimated Time to VNAV	MPS-	Meters Per Second
FLOW-	Fuel Flow Rate	MSA-	Minimum Safe Altitude
FOB-	Fuel On Board	MT-	Meters
FPM-	Feet Per Minute	MUL-	Multicom
FR-	From	NDB-	NDB Waypoint
FSS-	Flight Service Station	NM-	Nautical Miles
FT-	Feet	NP-	Non-Precision
		NR-	Nearest



ABBREVIATIONS (cont.)

OTH-	Other	STAR-	Standard Terminal Arrival Route
°C-	Degrees Celsius	STR-	Steer To
°F-	Degrees Fahrenheit	TACAN-	Tactical Air Navigational Aid
PC-	Pilot Controlled	TAS-	True Airspeed
POSN-	Position	TAT -	Total Air Temperature
PRES-	Barometric Pressure (Altimeter Setting)	TEMP-	Temperature
PROX-	Proximity	TMA-	ICAO Terminal Control Area
PRX-	Proximity	TRK-	Ground Track
PT-	Part Time	TRN-	Transition
PTX-	Pre-Taxi	TRN-	Turn Angle to Waypoint
PWR-	Power	TRSA-	Terminal Radar Service Area
RDR-	Radar	TWR-	Tower
REQ-	Required	TX-	Transmit Only
RF-	Reference	U-	UTC Time
RFLOW-	Right Fuel Flow	UNI-	Unicom
RNG-	Range	URA-	User Range Accuracy
RNWX-	Runway	USER-	User Waypoint
RSTCD-	Restricted	USR-	User Waypoint
RSV-	Reserves	UTC-	Universal Time Coordinated (GMT/Zulu)
RTE-	Route	VN-	VNAV or Vertical Navigation
RX-	Receive Only	VNAV-	Vertical Navigation
SAR-	Search And Rescue	VOR-	VOR Waypoint
SEC-	Seconds	VST	Vertical Speed To Target
SEQ-	Sequence	WPT-	Active (Destination) Waypoint Name
SGL-	Signal	WX-	Weather
SID-	Standard Instrument Departure		
SLCT-	Select		
SPD-	Ground Speed		
SRFC-	Surface		

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

Course Made Good (CMG)—The bearing from the 'active from' waypoint (your starting point when using GOTO) to your present position.

Course To Steer (CTS)—The recommended direction to steer in order to reduce cross track error and stay on course. Provides the most efficient heading to get back to the desired track and proceed along your route.

Crosstrack Error (XTK)—The distance you are off a desired course in either direction, left or right.

Desired Track (DTK)—The compass course between the 'from' and 'to' waypoints.

Distance To Active (Destination) Waypoint—Distance from present position to the destination waypoint in a GOTO or the next waypoint in a route.

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

Estimated Time Enroute (ETE)—The time it will take to reach the destination waypoint, from present position, based on current ground speed and track.

Estimated Time To VNAV (ETV)—Prior to reaching the initial descent point, ETV indicates the time it will take to reach the initial descent point. After passing the initial descent point, ETV indicates the time to reach the target altitude following the designated vertical navigation parameters.

Glide Ratio (GR)—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 (GRT)—The glide ratio required to descend from present position and altitude to the target altitude at the location specified on the vertical navigation submenu.

Grid—A coordinate system that projects the earth on a flat surface, with position measurements based on northing and easting distances from square grid zones.

Ground Speed—The velocity you are travelling relative to a ground position.

Ground Track (TRK)—see Track

Latitude—A north/south measurement of position perpendicular to the earth's polar axis.

Longitude—An east/west measurement of position in relation to the Prime Meridian, an imaginary circle that passes through the north and south poles.

Position—An exact, unique location based on a geographic coordinate system.

Track (TRK)—The direction of movement relative to a ground position.

Turn Angle To Waypoint (TRN)—The difference between Bearing (BRG) and Track (TRK). 'L' indicates you should turn left, 'R' indicates you should turn right. The degrees indicate the angle you are off course.

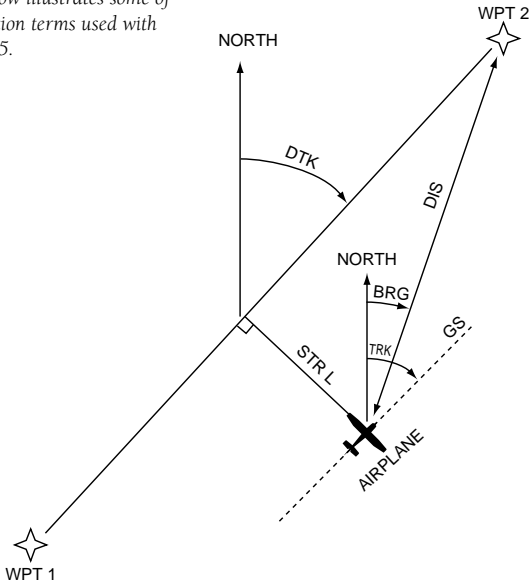
Universal Transverse Mercator/Universal Polar Stereographic- (UTM/UPS)—A grid coordinate system that projects global sections onto a flat surface to measure position in specific zones.

Velocity Made Good (VMG)—The speed you are closing in on a destination along a desired course.

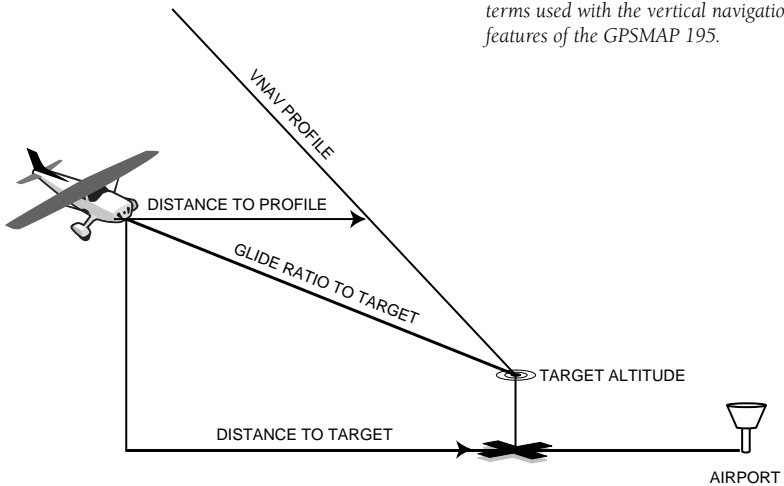
Vertical Speed To Target (VST)—The speed at which you are descending to the target altitude. A VST higher or lower than specified on the vertical navigation submenu indicates you are descending too fast or too slow.

GLOSSARY OF NAVIGATION TERMS (cont.)

The diagram below illustrates some of the basic navigation terms used with the GPSMAP 195.



The diagram below illustrates some of the terms used with the vertical navigation features of the GPSMAP 195.



The following list shows the map datums available for the GPSMAP 195. Menu page abbreviations are listed first, followed by the corresponding map datum name and area. The default map datum for the GPSMAP 195 is WGS 84.

Adindan	Adindan- Ethiopia, Mali, Senegal, Sudan	Finland Hayfrd	Finland Hayford- Finland
Afgoooye	Afgoooye- Somalia	Gandajika Base	Gandajika Base- Republic of Maldives
AIN EL ABD '20	AIN EL ANBD 1970- Bahrain Island, Saudi Arabia	Geod Datm '49	Geodetic Datum '49- New Zealand
Anna 1 Ast '65	Anna 1 Astro '65- Cocos Isl.	Guam 1963	Guam 1963- Guam Island
ARC 1950	ARC 1950- Botswana, Lesotho, Malawi, Swaziland, Zaire, Zambia, Zimbabwe	Gux 1 Astro	Gux 1 Astro- Guadalcanal Island
ARC 1960	ARC 1960- Kenya, Tanzania	Hjorsej 1955	Hjorsej 1955- Iceland
Ascnsn Isl'd '58	Ascension Island '58- Ascension Island	Hong Kong '63	Hong Kong '63- Hong Kong
Astro B4 Sorol	Astro B4 Sorol Atoll- Tern Island	Hu-Tzu-Shan	Hu-Tzu-Shan- Taiwan
Astro Bcn "E"	Astro Beacon "E"- Iwo Jima	Indian Bngldsh	Indian- Bangladesh, India, Nepal
Astro Dos 71/4	Astro Dos 71/4- St. Helena	Indian Thailand	Indian- Thailand, Vietnam
Astr Stn '52	Astronomic Stn '52- Marcus Island	Indonesia '74	Indonesia 1974- Indonesia
Astrln Geod '66	Australian Geod '66- Australia, Tasmania Island	Ireland 1965	Ireland 1965- Ireland
Astrln Geod '84	Australian Geod '84- Australia, Tasmania Island	ISTS 073 Astro	ISTS 073 ASTRO '69- Diego Garcia
Bellevue (IGN)	Efate and Erromango Islands	Johnston Island	Johnston Island Kandawala Kandawala- Sri Lanka
Bermuda 1957	Bermuda 1957- Bermuda Islands	Kerguelen Islnd	Kerguelen Island
Bogata Observ	Bogata Observatry- Colombia	Kertau 1948	Kertau 1948- West Malaysia, Singapore
Campo Inchspe	Campo Inchauspe- Argentina	L. C. 5 Astro	Cayman Brac Island
Canton Ast '66	Canton Astro 1966- Phoenix Islands	Liberia 1964	Liberia 1964- Liberia
Cape	Cape- South Africa	Luzon Mindanao	Luzon- Mindanao Island
Cape Canavrl	Cape Canaveral- Florida, Bahama Islands	Luzon Philippine	Luzon- Philippines (excluding Mindanao Island)
Carthage	Carthage- Tunisia	Mahe 1971	Mahe 1971- Mahe Island
CH-1903	CH 1903- Switzerland	Marco Astro	Marco Astro- Salvage Island
Chatham 1971	Chatham 1971- Chatham Island (New Zealand)	Massawa	Massawa- Eritrea (Ethiopia)
Chua Astro	Chua Astro- Paraguay	Merchich	Merchich- Morocco
Corrego Alegre	Corrego Alegre- Brazil	Midway Ast '61	Midway Astro '61- Midway
Djakarta	Djakarta (Batavia)- Sumatra Island (Indonesia)	Minna	Minna- Nigeria
Dos 1968	Dos 1968- Gizo Island (New Georgia Islands)	NAD27 Alaska	North American 1927- Alaska
Easter Isl'd 67	Easter Island 1967	NAD27 Bahamas	North American 1927- Bahamas (excluding San Salvador Island)
European 1950	European 1950- Austria, Belgium, Denmark, Finland, France, Germany, Gibraltar, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland	NAD27 Canada	North American 1927- Canada and Newfoundland
European 1979	European 1979- Austria, Finland, Netherlands, Norway, Spain, Sweden, Switzerland	NAD27 Canal Zone	North Am. 1927- Canal Zone
		NAD27 Caribbn	North American 1927- Caribbean (Barbados, Caicos Islands, Cuba, Dom. Rep., Grand Cayman, Jamaica, Leeward and Turks Islands)
		NAD27 Central	North American 1927- Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua)

MAP DATUMS (cont.)

NAD27 Alaska	North American 1927- Alaska	Prov S Am '56	Prov So Amrcin '56- Bolivia, Chile, Colombia, Ecuador, Guyana, Peru, Venezuela
NAD27 Bahamas	North American 1927- Bahamas (excluding San Salvador Island)	Prov S Chln '63	Prov So Chilean '63- S. Chile
NAD27 Canada	North American 1927- Canada and Newfoundland	Puerto Rico	Puerto Rico & Virgin Islands
NAD27 Canal Zone	North Am. 1927- Canal Zone	Qatar National	Qatar National- Qatar
NAD27 Caribbn	North American 1927- Caribbean (Barbados, Caicos Islands, Cuba, Dom. Rep., Grand Cayman, Jamaica, Leeward and Turks Islands)	Qornoq	Qornoq- South Greenland
NAD27 Central	North American 1927- Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua)	Reunion	Reunion- Mascarene Island
NAD27 CONUS	North Am. 1927- Mean Value	Rome 1940	Rome 1940- Sardinia Island
NAD27 Cuba	North American 1927- Cuba	RT 90	Sweden
NAD27 Grnland	North American 1927- Greenland (Hayes Peninsula)	Santo (Dos)	Santo (Dos)- Espirito Santo Island
NAD27 Mexico	N. American 1927- Mexico	Sao Braz	Sao Braz- Sao Miguel, Santa Maria Islands (Azores)
NAD27 San Sal	North American 1927- San Salvador Island	Sapper Hill '43	Sapper Hill 1943- East Falkland Island
NAD83	North American 1983- Alaska, Canada, Central America, CONUS, Mexico	Schwarzeck	Schwarzeck- Namibia
Nhrwn Masirah	Nahrwn- Masirah Island (Oman)	Sth Amrcn '69	South American '69- Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Venezuela, Trinidad and Tobago
Nhrwn Saudi A	Nahrwn- Saudi Arabia	South Asia	South Asia- Singapore
Nhrwn United A	Nahrwn- United Arab Emirates	SE Base	Southeast Base- Porto Santo and Madiera Islands
Naparima BWI	Naparima BWI- Trinidad and Tobago	SW Base	Southwest Base- Faial, Graciosa, Pico, Sao Jorge and Terceira Islands (Azores)
Obsrvtorio '66	Observatorio 1966- Corvo and Flores Islands (Azores)	Timbalai 1948	Timbalai 1948- Brunei and E. Malaysia (Sarawak and Sabah)
Old Egyptian	Old Egyptian- Egypt	Tokyo	Tokyo- Japan, Korea, Okinawa
Old Hawaiian	Old Hawaiian- Mean Value	Tristan Ast '68	Tristan Astro 1968- Tristan da Cunha
Oman	Oman- Oman	Viti Levu 1916	Viti Levu 1916- Viti Levu/ Fiji Islands
Ord Srvy GB	Old Survey Grt Britn- England, Isle of Man, Scotland, Shetland Isl., Wales	Wake-Eniwetok	Wake-Eniwetok- Marshall Isl.
Pico De Las Nv	Canary Islands	WGS 72	World Geodetic System 1972
Ptcairn Ast '67	Pitcairn Astro '67- Pitcairn Isl.	WGS 84	World Geodetic System 1984
		Zanderij	Zanderij- Surinam

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