



GPS 500

Pilot's Guide
& Reference

This manual reflects the operation of Main System Software version 4.00 or above. Some differences in operation may be observed when comparing the information in this manual to earlier software versions.

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Introduction

Foreword



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Introduction

Cautions



NOTE: This device complies with Part 15 of the FCC limits for Class B digital devices. 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. Furthermore, 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 than the affected equipment. Consult an authorized dealer or other qualified avionics technician for additional help if these remedies do not correct the problem.

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



CAUTION: The Global Positioning 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 GPS 500 is a precision electronic NAVigation AID (NAVAID), any NAVAID can be misused or misinterpreted and therefore become unsafe.



CAUTION: Use the GPS 500 at your own risk. To reduce the risk of unsafe operation, carefully review and understand all aspects of this Owner's Manual and the Flight Manual Supplement, and thoroughly practice basic operation prior to actual use. When in actual use, carefully compare indications from the GPS 500 to all available navigation sources, including the information from other NAVAIDS, visual sightings, charts, etc. For safety, always resolve any discrepancies before continuing navigation.



WARNING: The altitude calculated by the GPS 500 is geometric height above mean sea level and could vary significantly from altitude displayed by pressure altimeters in aircraft. GPS accuracy may be degraded by the U.S. Department of Defense-imposed Selective Availability (SA) program. With "SA" on, GPS altitude may be in error by several hundred feet. Never use GPS altitude for vertical navigation.



WARNING: The Jeppesen database incorporated in the GPS 500 must be updated regularly in order to ensure that its information is current. Updates are released every 28 days. A database information packet is included in your GPS 500 package. Pilots using an out-of-date database do so entirely at their own risk!



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



CAUTION: The Garmin GPS 500 does not contain any user-serviceable parts. Repairs should only be made by an authorized Garmin service center. Unauthorized repairs or modifications could void your warranty and authority to operate this device under FCC Part 15 regulations.

Congratulations on choosing the world's finest panel-mounted IFR navigation system! The GPS 500 represents Garmin's continued commitment to provide you with the most advanced technology available today—in an accurate, easy-to-use design suitable for all of your flying needs.

Before installing and getting started with your new system, please check to see that your package includes the following items. If any parts are missing or damaged, please see your Garmin dealer immediately.

Standard Package:

- GPS 500 Unit & NavData® Card
- GPS Antenna
- Installation Rack & Connectors
- Pilot's Guide & Quick Reference Guide
- 400/500 Series Display Interfaces Pilot's Guide Addendum
- GNS 530/GPS 500 Simulator Interactive Training CD & FDE Prediction Software
- Database Subscription Packet
- Warranty Registration Card

Your Garmin dealer will perform the installation and configuration of your new GPS 500. After installation, the NavData® card will already be installed into the correct slot on the front of the unit in5eR 0.00 3n7Rd, please see your Garmin dealerhe unit



Introduction

Warranty



Garmin is fully committed to your satisfaction as a customer. If you have any questions regarding the GPS 500, please contact our customer service department at:

*Garmin International, Inc.
1200 East 151st Street
Olathe, KS 66062-3426
Phone: (913) 397-8200
Fax: (913) 397-8282*

LIMITED WARRANTY

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

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

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

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

To obtain warranty service, contact your local Garmin Authorized Service Center. For assistance in locating a Service Center near you, call Garmin Customer Service at the number listed on the right.

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

Introduction

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The GPS 500 is designed to make operation as simple as possible. The descriptions on the next three pages provide a general overview of the primary function(s) for each key and knob. This Takeoff Tour section is intended to provide a brief overview of the primary functions of your GPS 500. Experiment with the unit and refer to the reference sections for more information.

Left-hand Knob

- The **power knob** on the left hand side controls unit power. Rotate clockwise to turn the unit on.

Takeoff Tour

Key and Knob Functions



Left hand knob. Turn the unit on with the power knob on the left hand side of the unit.

Takeoff Tour

Key and Knob Functions



Data is entered using the **large** and **small right knobs**. Experiment with them to become efficient at entering data. This greatly reduces the amount of time spent operating the GPS 500 in flight.

Right-hand Keys and Knobs



The **range key** allows you to select the desired map scale. Use the up arrow side of the key to zoom out to a larger area, or the down arrow side to zoom in to a smaller area.



The **direct-to key** provides access to the direct-to function; this allows you to enter a destination waypoint and establishes a direct course to the selected destination. See Section 2.



The **menu key** displays a context-sensitive list of options. This options list allows you to access additional features or make settings changes which relate to the currently displayed page.



The **clear key** is used to erase information or cancel an entry. Press and hold this key to immediately display the Default Navigation page (see pages 10 and 22), regardless of the page currently displayed.



The **enter key** is used to approve an operation or complete data entry. It is also used to confirm information, such as the Database page during power on.



The **large right knob** is used to select between the various page groups: NAV, WPT, AUX or NRST. With the on-screen cursor enabled, the large right knob allows you to move the cursor about the page.



The **small right knob** (PUSH CRSR) is used to select between the various pages within one of the groups listed above. Press this knob momentarily to display the on-screen cursor. The cursor allows you to enter data and/or make a selection from a list of options.

Takeoff Tour

Key and Knob Functions



Bottom Row Keys

NRST

The **NRST key** displays the Nearest Airports page. Then, rotating the **small right knob** steps through the NRST pages.

OBS

The **OBS key** is used to select manual or automatic sequencing of waypoints. Pressing this key selects OBS mode; this retains the current “active to” waypoint as your navigation reference even after passing the waypoint (i.e., prevents sequencing to the next waypoint). Pressing the **OBS key** again returns to normal operation, with automatic sequencing of waypoints. Whenever OBS mode is selected, you may set the desired course to/from a waypoint using the OBS page, or an external OBS selector on your HSI or CDI.

MSG

The **message key** is used to view system messages and to alert you to important warnings and requirements. See Sections 10 and 7 for more information on messages and unit settings.

FPL

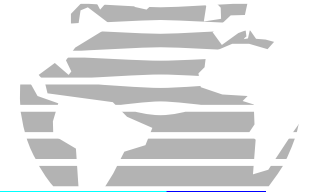
The **flight plan key** allows you to create, edit, activate and invert flight plans, as well as access approaches, departures and arrivals. A closest point to flight plan feature is also available from the flight plan key. See Section 3 for more information on flight plans.

VNAV

The **vertical navigation key** allows you to create a three-dimensional profile that guides you to a final (target) altitude at a specified location. See Section 8.

PROC

The **procedures key** allows you to select approaches, departures and arrivals from your flight plan. When using a flight plan, available procedures for your departure and/or arrival airport are offered automatically. Otherwise, you may select the desired airport, then the desired procedure.



Whenever the GPS 500 is displaying a list of information that is too long for the display screen, a scroll bar appears along the right-hand side of the display. The scroll bar graphically indicates the number of additional items available within the selected category.

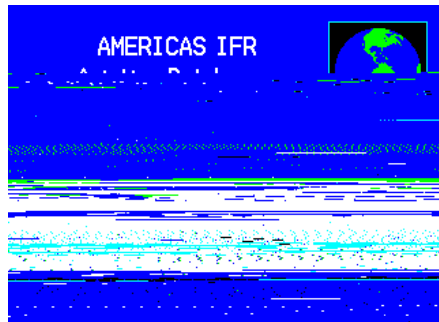
Simply press the **small right knob** to activate the cursor and rotate the **large right knob** to scroll through the list.

Takeoff Tour

Power On



The Welcome page appears when the GPS 500 is powered on. During the time this screen is displayed, the GPS 500 performs a self-test to ensure proper operation.



The Database page shows the effective and expiration dates of the Jeppesen database on the NavData Card.

The Garmin GPS 500 offers you accurate navigational capability, along with non-precision and precision approach certification in the IFR environment. The Takeoff Tour is designed to familiarize you with the basic operation of the GPS 500—including powering up the unit, entering data, performing simple direct-to navigation, selecting IFR procedures and providing a limited introduction to using flight plans. In addition, this section briefly covers the default navigation, map and frequency pages available as part of the NAV page group. These pages are used for most of your in-flight navigation.

The Takeoff Tour assumes that the unit and antennas have been properly installed and the system is operating normally. In some pictures in this manual, the factory default settings may have been changed to display a more descriptive illustration. Whether or not you have changed any of the factory default settings (position format, units of measure, selectable fields, etc.), the pictures shown here may not exactly match what you see on your GPS 500. Prior to using your GPS 500 for the first time, we recommend that you taxi to a location that is well away from buildings and other aircraft so the unit can collect satellite data without interruption.

Powering up the GPS 500

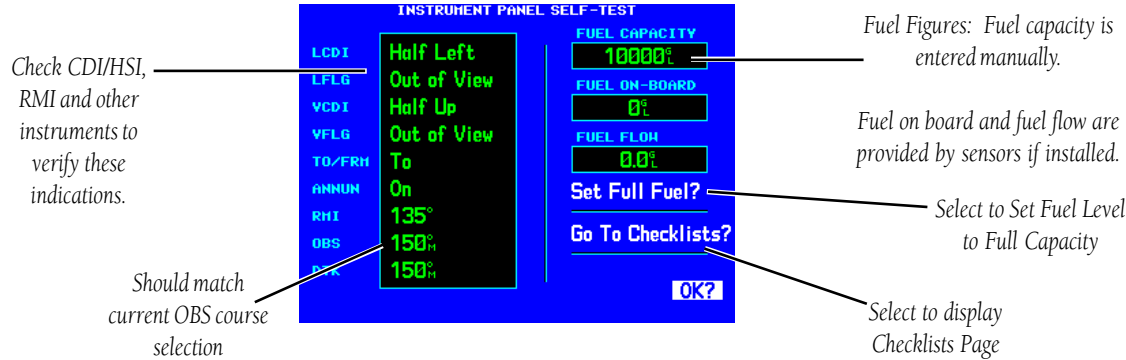
The GPS 500 power is controlled by the **power knob** at the top left corner of the unit. Rotating it clockwise turns the unit on. After turn-on, a Welcome page is displayed (while the unit performs a self-test), followed by a Land Data page.

The Database Confirmation page appears next and shows the current database information on the NavData card (with the valid operating dates, cycle number and database type indicated). The database is updated every 28 days, and must be current for approved instrument approach operations. Information on database subscriptions is available inside your GPS 500 package.

To acknowledge the database information, press the ENT key.

Takeoff Tour

Instrument Panel Self-Test



Once the database has been acknowledged, the Instrument Panel Self-Test page appears. To ensure that your GPS 500 and any connected instruments are working properly, check for the following indications on your CDI/HSI, RMI, external annunciators and other connected instruments:

- Course deviation - half left / no flag
- TO/FROM flag - TO
- Bearing to destination - 135°
- Distance to dest. - 10.0 nautical miles
- All external annunciators (if installed) - on
- Glideslope - half up / no flag
- Time to destination - 4 minutes
- Desired track - 149.5°
- Ground speed - 150 knots

The Instrument Panel Self-Test page indicates the currently selected OBS course, fuel capacity (CAP), fuel on board (FOB) and fuel flow (FF). The fuel capacity is entered manually. Fuel on board and fuel flow may be manually entered if your installation does not include connection to sensors which automatically provide these figures.

To enter fuel capacity, fuel on board or fuel flow figures (if not provided by sensors):

1. Rotate the **large right knob** to select the "CAP", "FOB" or "FF" field.
2. Rotate the **small and large right knobs** to enter the desired figure, then press **ENT**.



Enter the fuel capacity, fuel on board or fuel flow figures directly onto the appropriate field of the Instrument Panel Self-Test page. Fuel on board and fuel flow are automatically provided if your installation includes connection to external sensors.

Takeoff Tour

Fuel On Board and Checklists



Select “Set Full Fuel?” to set fuel on board (FOB) to full capacity.



Select “Go To Checklist?” to display the Checklist page and any available checklists. The GPS 500 can hold up to nine checklists with up to 30 entries in each checklist.

The Instrument Panel Self-Test page includes selections to set fuel on board (FOB) to full capacity and access the Checklists page. This allows you to quickly set fuel to full limits and display any checklists you’ve entered, such as start up or takeoff checklists.

To set fuel on board to full (if not provided by sensor):

1. Rotate the **large right knob** to highlight “Set Full Fuel?”.
2. Press **ENT** and verify that fuel on board (FOB) now matches the fuel capacity (CAP) figure. Fuel on board is now reduced, over time, based on the fuel flow (FF) figure.

To view the Checklists page:

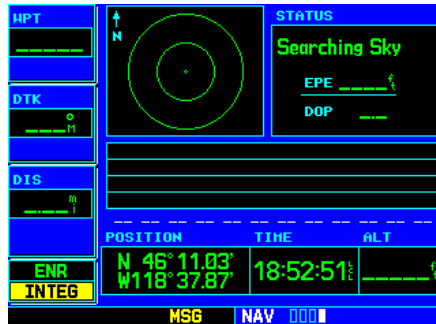
1. Rotate the **large right knob** to highlight “Go To Checklist?” and press **ENT**.
2. Rotate the **large right knob** to select the desired checklist, then follow the steps on page 123 to execute each step in the selected checklist.
3. Once you complete the desired checklist(s), press the **small right knob** to return to the Checklists page. Press the **small right knob** again to return to normal operation on the Satellite Status or Map pages.

Once you’ve verified instrument operation with the Instrument Panel Self-Test page displayed, press the ENT key.

The Satellite Status page appears as the GPS 500 begins to collect satellite information. An ‘Acquiring’ status is displayed on the Satellite Status page, and the signal strength of any satellites received appears as “bar graph” readings. This is a good indication that you are receiving signals and that a position fix is being determined. Following the first-time use of your GPS 500, the time required for a position fix varies—usually from one to two minutes.

If the unit can only obtain enough satellites for 2D navigation (no altitude), the unit uses the altitude provided by your altitude encoder (if one is connected).

If the GPS 500 has not been operated for a period of six months or more, it may have to ‘Search the Sky’ to collect new data. This means the unit is acquiring satellite data to establish almanac and satellite orbit information - this can take 5 to 10 minutes. The Satellite Status page displays a ‘Searching Sky’ status, and the message annunciator (MSG), above the **MSG** key, also flashes to alert you of a system message, ‘Searching the Sky’.



SATELLITE STATUS PAGE

‘Searching Sky’ indicates that satellite almanac data is not available or has expired (if the unit hasn’t been used for six months or more). The data is recollected from the first available satellite.

The ‘INTEG’ annunciator (bottom left corner of the screen) indicates that satellite coverage is insufficient to pass built-in integrity monitoring tests. In the example above, not enough satellites are being received to determine a position.

To view a system message, press MSG.

The Message page appears and displays the status or warning information applicable to the receiver’s current operating condition.

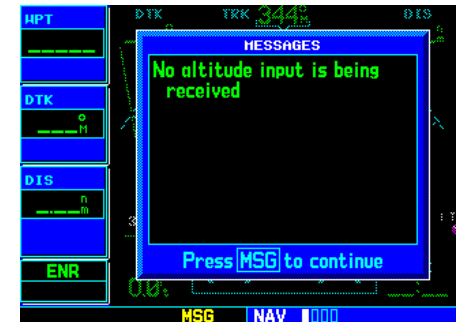
To return to the previous page after viewing a message, press MSG again.

Takeoff Tour

Acquiring Satellites / Messages



The Satellite Status page shows the ID numbers for the satellites and the relative signal strength of each satellite received (as a “bar graph” reading).



Press **MSG** to view the alert message. Press **MSG** again to return to the previous display.

Takeoff Tour

Map Page

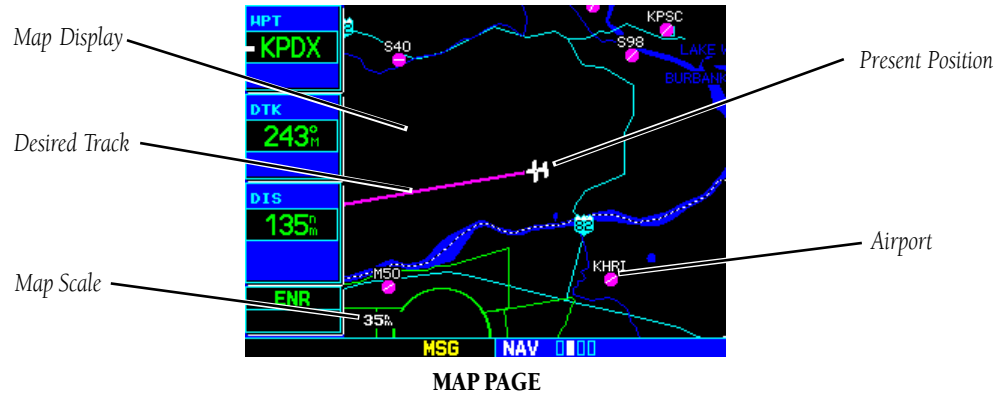


By adding data fields along the sides, the Map page can combine a moving map display and navigation data for complete situational awareness. Map setup pages are provided to add these data fields and to designate the maximum scale at which each map feature appears. These settings provide an automatic decluttering of the map (based upon your preferences) as you adjust the scale.

While viewing the Map page, you can quickly declutter and remove many of the background map details by pressing the **CLR** key (repeatedly) until the desired detail is depicted.

To change the map scale, use the **RNG** key.

After the GPS 500 acquires satellites and computes a position, the Map page appears automatically.



The Map page displays your present position (using an airplane symbol) relative to nearby airports, VORs, NDBs, intersections, user waypoints and airspace boundaries—and your route displayed as a solid line. The current map scale is indicated in the lower left corner and adjustable using the **RNG** key.

To adjust the map scale:

1. Press the up arrow on the **RNG** key to zoom out to a larger area. **OR**,
2. Press the down arrow on the **RNG** key to zoom in to a smaller area.

Takeoff Tour

Page Groups



The Map page is one of four pages available under the NAV group*:

- Default NAV page
- NAVCOM page
- Map page
- Satellite Status page

To select the desired NAV page, rotate the small right knob until the desired page is displayed.

If you are currently viewing a page which is not part of the NAV group, you can quickly return to the NAV group using the **CLR** key.

To select the NAV group and display the Default NAV page, press and hold CLR.

In addition to the NAV group of pages, additional groups of pages are available for waypoint information (WPT), auxiliary (AUX) functions such as flight planning or unit settings, and listings for nearest (NRST) airports or other facilities.

NAV
4 available pages* (see pg. 21)

WPT
10 available pages (see list pg. 76)

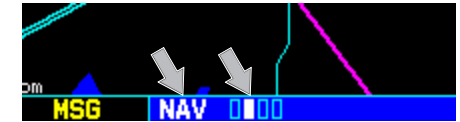
AUX
3 available pages (see list pg. 113)

NRST
8 available pages (see list pg. 101)

To select the desired page group, rotate the large right knob until a page from the desired group is displayed. To select the desired page within the group, rotate the small right knob until the desired page is displayed.

Page 11 depicts the organization of the main page groups. Additionally, page groups for flight plans, procedures and vertical navigation are available by pressing the key corresponding to the desired function (**FPL**, **PROC**, **VNAV** or **NRST**). Selecting one of these stand-alone page groups, in effect, exits the main page groups and displays a page for the desired function. By pressing the same function key a second time, (except **NRST**) the GPS 500 returns to the main page group and the previously displayed page.

To select a stand-alone page group, press the corresponding key (FPL, PROC, VNAV or NRST). To return to the previous page from the main page groups, press the same stand-alone page group key (FPL, PROC or VNAV) a second time. Pressing NRST selects only the nearest airports page.

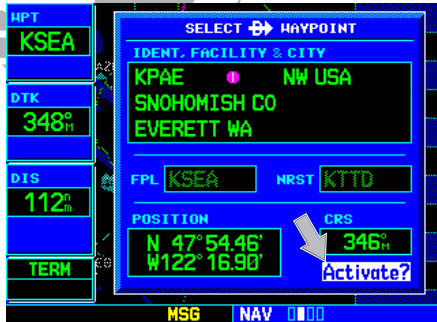


The bottom right corner of the screen indicates the page group currently being displayed (e.g., NAV or NRST), the number of screens available within that group (indicated by square icons) and the placement of the current screen within that group (indicated by a highlighted square icon). To select a different page within the group, rotate the **small right knob**.

* Five NAV pages are available when the GPS 500 installation includes connection to traffic and/or weather information sources. See 400/500 Series Display Interfaces Pilot's Guide Addendum.

Takeoff Tour

Direct-To Navigation

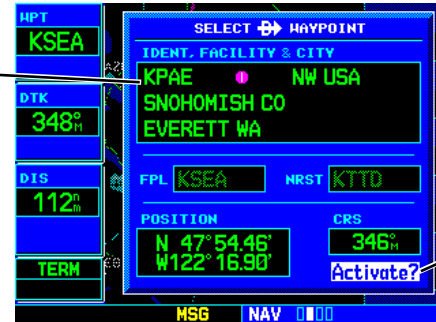


Confirm the selected direct-to destination by highlighting “Activate?” and pressing **ENT**.



Once a direct-to destination is selected, press and hold **CLR** to display the Default NAV page.

Destination Waypoint Identifier Field



“Activate?” Function Field

SELECT DIRECT-TO WAYPOINT PAGE

The GPS 500 can use direct point-to-point navigation to guide you from takeoff to touchdown, even in the IFR environment. Once a destination is selected, the unit provides speed, course and distance data based upon a direct course from your present position to your destination. A destination can be selected from any page with the **direct-to key**.

To select a direct-to destination:

1. Press the **direct-to key**. The Select Direct-to Waypoint page appears with the destination field highlighted.
2. Rotate the **small right knob** to enter the first letter of the destination waypoint identifier. The destination waypoint may be an airport, VOR, NDB, intersection or user waypoint, as long as it is in the database or stored in memory as a user waypoint.
3. Rotate the **large right knob** to the right to move the cursor to the next character position.
4. Repeat steps 2 and 3 to spell out the rest of the waypoint identifier.
5. Press **ENT** to confirm the identifier. The “Activate?” function field is highlighted.
6. Press **ENT** to activate a direct-to course to the selected destination.

Takeoff Tour

Page Groups



(Small right knob to select pages within the group)

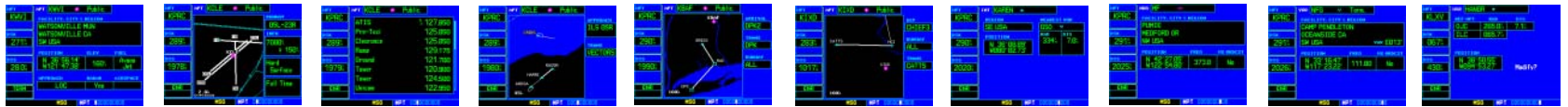
NAV Group



Default NAV Map NAVCOM Satellite Status

NOTE: Five NAV pages are available when the GPS 500 installation includes connection to traffic and/or weather information sources. See 400/500 Series Display Interfaces Pilot's Guide Addendum. To quickly select the Default NAV page, press and hold **CLR**.

WPT Group



Airport Location Airport Runway Airport Frequency Airport Approach Airport Arrival Airport Departure Intersection NDBs VOR User Waypoint

AUX Group



Flight Planning Utility Setup

FPL Group



Active Flight Plan Flight Plan Catalog

VNAV



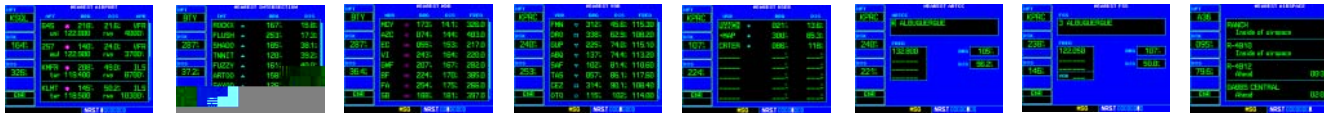
Vertical Navigation

PROC



Procedures

NRST Group



Nearest Airport Nearest Intersection Nearest NDB Nearest VOR Nearest User Wpt Nearest Center Nearest FSS Nearest Airspace

(Large right knob to change page groups)

Selection of any main page is performed using the **large** and **small right knobs**. The **large right knob** selects the page group: NAV, WPT, AUX or NRST. The **small right knob** selects the desired page within a group. To quickly select the Nearest Airport page, press **NRST**.

Takeoff Tour

Default NAV Page

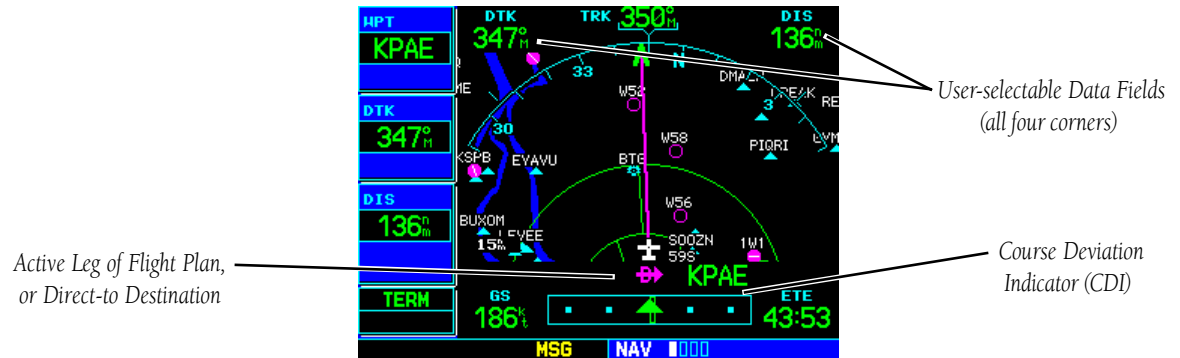


The data fields on the Default NAV page may be custom-tailored to your preferences. A menu selection is provided to “Change Fields?”



The **large right knob** is used to select the data field you wish to change. Then use the **small right knob** to display a list of data options and select the desired data item.

During most flights, the Default NAV, Map and NAVCOM pages are the primary pages used for navigation. The Default NAV page displays a “look ahead” map, graphic course deviation indicator (CDI), the active leg of your flight plan (as defined by the current “from” and “to” waypoints), and four user-selectable data fields. The default settings for these fields are distance to waypoint (DIS), desired track (DTK), ground speed (GS) and estimated time en route (ETE). See Section 10 for definitions of these navigation terms. The Default NAV page is selected using the steps described on page 9.



DEFAULT NAV PAGE

From the Default NAV page, simply rotate the **small right knob** to display the Map page (see page 11) and again to display the NAVCOM page. The NAVCOM page displays the available frequencies (communication and navigation) for the departure airport, any en-route airports which are included in your flight plan, and the final destination airport. When using the direct-to function, frequencies are listed for the airport nearest to your starting position and the destination airport.

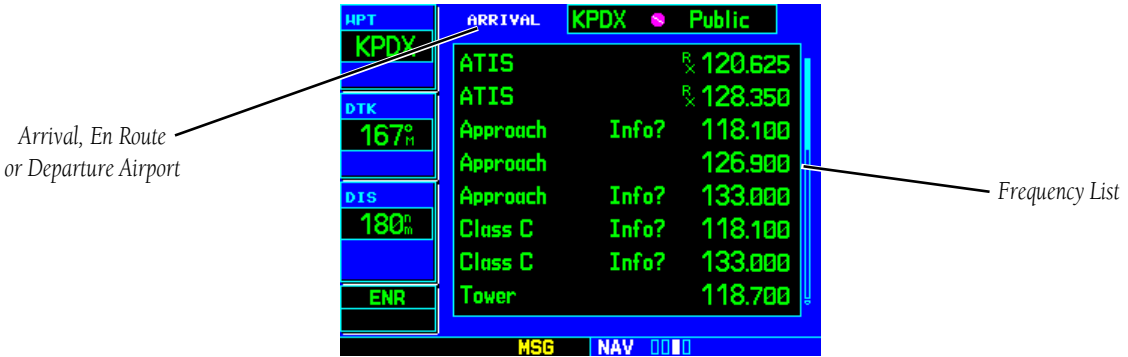
Takeoff Tour

NAVCOM Page



To display the frequency list for the desired flight plan or direct-to airport:

1. Push the **small right knob** to activate the cursor on the airport identifier field (in the GPS window).
2. Rotate the **small right knob** to display the list of airports (departure, arrival and en route) for your flight plan or direct-to. Continue to rotate the **small right knob** until the desired airport is selected.
3. Press **ENT** to display the frequency list for the selected airport.



NAVCOM PAGE



The Navigation/Communications (NAVCOM) page provides a complete list of airport frequencies at your departure, en-route and arrival airports.

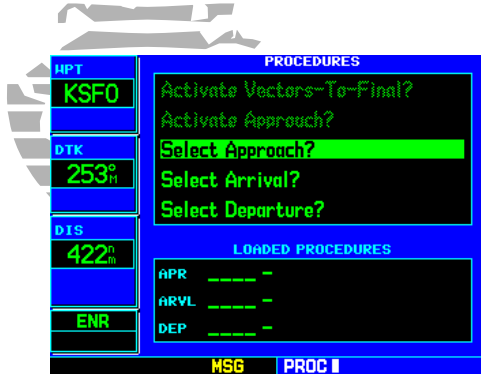
To display frequencies for a different airport along your flight plan, press the **small right knob** to highlight the airport identifier field. Rotate the **small right knob** to display the list of airports within your flight plan.

To view a communication or navigation frequency:

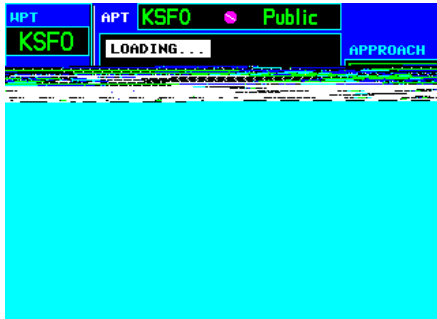
1. Push the **small right knob** to activate the cursor in the GPS window.
 2. Rotate the **large right knob** to highlight the desired frequency from the list.
- The selected frequency is provided for entry into a separate COM or NAV unit. (COM and NAV frequencies are shown for reference only)

Takeoff Tour

IFR Procedures



Press the **PROC** key to display the procedures page. Rotate the **large right knob** to select the desired option.



A window appears to select the desired procedure. Use the **small right knob** to make your selection.

Once the direct-to or flight plan is confirmed, the whole range of instrument procedures is available to you. Departures (DPs), arrivals (STARs), non-precision and precision approaches are stored within the NavData card and available using the **PROC** key.

To display the Procedures page, press PROC.

The steps required to select and activate an approach, departure or arrival are very similar. In this introductory section, we will show examples of the steps required to select an approach, but keep in mind the same process also applies to departures and arrivals.

To select an approach, departure or arrival:

1. Rotate the **large right knob** to highlight the “Select Approach?” option (or “Select Arrival?”/“Select Departure?”) from the Procedures page.
2. Press **ENT** to display a list of available procedures for the arrival (when using approaches or STARs) or departure (when using DPs) airport.
3. Rotate the **small right knob** to select the desired procedure and press **ENT**.
4. For approaches, a window appears to select the desired initial approach fix (IAF) or a “vectors” option to select just the final course segment of the approach. Rotate the **small right knob** to select the desired option and press **ENT** (the “vectors” option extends the final inbound course beyond the final approach fix, allowing you to intercept the final course segment beyond its normal limits).
5. For departures and arrivals, pop-up windows appear to select the desired transition and runway(s). Rotate the **small right knob** to select the desired option and press **ENT**.
6. With “Load?” highlighted, press **ENT** to add the procedure to the flight plan or direct-to.

The selected procedure for the departure or arrival airport is added to the sequence of waypoints in the flight plan or direct-to (as shown on the Active Route page). You can later “activate” the selected procedure from the Procedures page or the Active Flight Plan page. See pages 54 and 55 for additional information.

One of the main page groups, NRST, provides listings for nearest airports or other facilities. The NRST group includes detailed information on the nine nearest airports, VORs, NDBs, intersections and user-created waypoints within 200 nautical miles of your current position. In addition, pages are also provided to display the five nearest center (ARTCC/FIR) and Flight Service Station (FSS) points of communication, plus alert you to any special-use or controlled airspace you may be in or near.

To display the NRST pages using the NRST key:

1. Press the **NRST** button to select the Nearest Airport page.
2. Rotate the **small right knob** to select the desired NRST page.

To display the NRST pages using the knobs:

1. If necessary, press the **small right knob** to remove the cursor from the page.
2. Rotate the **large right knob** to select the NRST page group, as indicated by "NRST" appearing in the lower right corner of the screen (see page 9).
3. Rotate the **small right knob** to select the desired NRST page.

The Nearest Airport page (shown at left) is one of eight pages available under the NRST group:

- Nearest Airport Page
- Nearest NDB Page
- Nearest User Waypoints Page
- Nearest FSS Page
- Nearest Intersection Page
- Nearest VOR Page
- Nearest ARTCC Page
- Nearest Airspace Page

You may examine both the communication frequencies and runway information directly from the Nearest Airport page.

Takeoff Tour

Nearest Airports

HPT	NEAREST AIRPORT			
	APT	BRG	DIS	APR
KSQL	645	218°	21.6%	VFR
	uni	122.800	rwy	4000'
DTK	257	140°	24.0%	VFR
	mul	122.900	rwy	3700'
DIS	KMFR	208°	49.0%	ILS
	twr	119.400	rwy	8700'
ENR	KLMT	145°	50.2%	ILS
	twr	118.500	rwy	10300'

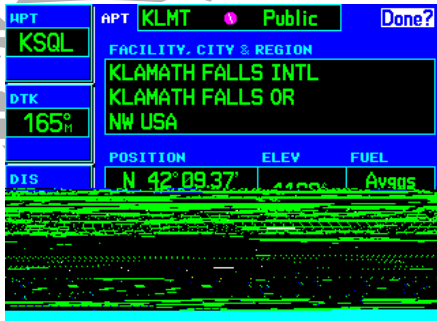
NRST ■■■■■■

To display a list of nearby airports, press the **NRST button** to select the NRST page group. Pressing the **NRST button** always defaults to the Nearest Airport page.

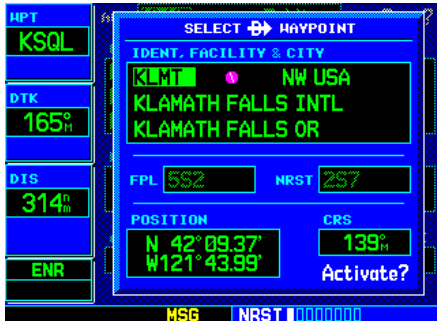
To scroll through the Airport list, press the **small right knob**, then rotate the **large right knob**.

Takeoff Tour

Nearest Airports



Additional information for a nearby airport is available by highlighting an identifier on the list and pressing **ENT**.



To select a nearby airport as a new destination, highlight its identifier, press the **direct-to key**, **ENT** and **ENT** (again).

To view additional information for a nearby airport:

1. Press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to select the desired airport from the list.
3. Press **ENT** to display waypoint (WPT) information pages for the selected airport.
4. To display runway and frequency information, press the **small right knob** to remove the cursor and rotate the **small right knob** to display the desired information page.

The Nearest Airport page may be used in conjunction with the **direct-to key** to quickly set a course to a nearby facility in an in-flight emergency. Selecting a nearby airport as a direct-to destination overrides your flight plan or cancels a previously selected direct-to destination (you will still have the option of returning to your flight plan by cancelling the direct-to; see page 42).

To select a nearby airport as a direct-to destination:

From the Nearest Airport page:

1. Press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to select the desired airport from the list.
3. Press the **direct-to key**, **ENT** and **ENT** (again) to navigate to the nearby airport.

From an Airport Information page:

1. Press the **direct-to key**, **ENT** and **ENT** (again) to navigate to the nearby airport.

Takeoff Tour

Special-use/Controlled Airspace

The last page in the NRST group, the Nearest Airspace page, provides information for up to nine controlled or special-use airspaces near or in your flight path. Airspace information appears on this page based upon the same criteria used for airspace alert messages. Nearby airspace information and airspace alert messages are provided according to the following conditions:

- If your projected course will take you inside an airspace within the next ten minutes, the message “Airspace ahead -- less than 10 minutes” appears.
- If you are within two nautical miles of an airspace and your current course will take you inside, the message “Airspace near and ahead” appears.
- If you are within two nautical miles of an airspace and your current course will not take you inside, the message “Near airspace less than 2 nm” appears.
- If you have entered an airspace, the message “Inside Airspace” appears.

By default, airspace alert messages are turned off. When turned on, the message (MSG) annunciator located directly above the **MSG** key flashes to alert you to the airspace message (see page 131 for information on enabling airspace alert messages).

To view an airspace alert message:

1. Press the **MSG** key. The message page appears with the alert message.
2. Press **MSG** again to return to the previous display.

Note that the airspace alerts are based upon three-dimensional data (latitude, longitude and altitude) to avoid nuisance alerts. The alert boundaries for controlled airspace are also sectorized to provide complete information on any nearby airspace. Additional information about a nearby airspace—such as controlling agency, frequency and floor/ceiling limits—is available from the nearest airspace page (see page 109 and illustrations shown at left).



When an airspace alert occurs, the message (MSG) annunciator flashes at the bottom of the screen. Press **MSG** to view the alert message.



To view additional information about the airspace, select the nearest airspace page. Detailed information is available by highlighting the airspace name and pressing **ENT**.

Takeoff Tour

Flight Plans



Active Flight Plan page with flight plan currently in use.



To create a new flight plan, select “Create New Flight Plan?” from the Flight Plan catalog options.

The GPS 500 lets you create up to 20 flight plans, with up to 31 waypoints in each flight plan. Flight plans are created, edited and activated using the **FPL** key. The FPL page group includes two pages: the Active Flight Plan page and the Flight Plan catalog. The Active Flight Plan page provides information and editing features for the flight plan currently in use (referred to as “flight plan 00”). The Flight Plan catalog serves as the main page for creating new flight plans, as well as editing or activating previously created flight plans.

Since using flight plans is one of the more complex features of the GPS 500, it will only be discussed briefly here—focusing on creating a new flight plan and activating it to use for navigation. After reading through this brief introduction, answers to additional questions about flight plans can be found in the reference section, starting on page 43.

To create a new flight plan:

1. Press the **FPL** key and rotate the **small right knob** to select the Flight Plan catalog.
2. Press the **MENU** key to display the Flight Plan catalog options.
3. Rotate the **large right knob** to select “Create New Flight Plan?” and press **ENT**.
4. The cursor appears on the first waypoint identifier field (located directly below “WAYPOINT”). Use the **large** and **small right knobs** to enter the identifier of the first waypoint in the flight plan (the small knob is used to select the desired letter or number and the large knob is used to move to the next character space).
5. Press **ENT** once the identifier has been selected. The cursor moves to the next blank waypoint identifier field.
6. Repeat steps 4 and 5, above, until all waypoints for the flight plan have been entered. Once the flight plan is created, it may be activated from an options window. Activating the flight plan places it into “flight plan 00” (a copy of it will still reside in the original catalog location) and replaces any flight plan which currently exists in “flight plan 00.”

Takeoff Tour

Flight Plans

To activate the new flight plan:

1. Press the **MENU** key to display the Flight Plan Catalog options.
2. Rotate the **small right knob** to select "Activate Flight Plan?" and press **ENT**.



Once activated, the flight plan can be displayed on the map page.



Enter the identifier for each airport and/or navaid into the flight plan in the same sequence you wish to fly.



Select "Activate Flight Plan?" from the page menu to begin using the new flight plan.

Takeoff Tour

Additional Reading



This Takeoff Tour is intended to provide a brief introduction of the major features of the GPS 500. The reference section of this manual describes these features, and others, in additional detail. Use the reference section, as needed, to learn or review the details regarding a particular feature. The Index (beginning on page 168) may be used to quickly locate the information you want within the reference section.

Now that you're familiar with the basics, some suggested additional reading includes:

- Flight plan features - see page 43
- Waypoint information pages (database information) - see page 76
- IFR procedures - see page 55
- Unit settings (configuring the unit to your preferences) - see page 113

If you are unable to locate the information you need, Garmin's Customer Service staff is available during normal business hours (U.S. Central time zone) at the phone and fax numbers listed on page iv. You can also reach us by mail (see page iv) or via our web site (www.garmin.com).



1 - NAV Pages



Default NAV Page



The first NAV page is the Default NAV page. This page may be quickly selected from ANY page by using the **CLR** key.

To select the NAV group and display the Default NAV page, press and hold CLR.

The Default NAV page provides a “look ahead” map display with your present position at the bottom center of the page. The top of the page displays desired track (DTK), ground track (TRK) and distance to destination waypoint (DIS). The bottom of the page indicates ground speed (GS), active to/from waypoints (only active to, for a direct-to destination) and estimated time en route. A graphic course deviation indicator (CDI) also appears at the bottom of the page. Unlike the angular limits used on a mechanical CDI coupled to a VOR or ILS receiver, full scale limits for this CDI are defined by a GPS-derived distance (0.3, 1.0 or 5.0 nm). By default, the CDI scale automatically adjusts to the desired limits based upon the current phase of flight: en route, terminal area or approach. You may also manually select the desired scale setting as outlined on page 128.

The graphic CDI shows your position at the center of the indicator, relative to the desired course (the moving course deviation needle). As with a traditional mechanical CDI, when you're off course



NOTE: The GPS 500 always navigates TO a waypoint unless the OBS switch is set (preventing automatic waypoint sequencing), or you have passed the last waypoint in your flight plan.

Directly above the CDI appears the active leg of your flight plan, or the direct-to destination when using the **direct-to** key. This automatically sequences to the next leg of your flight plan as you reach each interim waypoint. If no flight plan or direct-to destination has been selected, this line remains blank.

The scale of the “look ahead” map display appears in the bottom left corner. Nine scale settings, ranging from 5.0 nm to 200 nm are available. Use the **RNG** key to select the desired scale.

To adjust the map scale:

1. Press the up arrow on the **RNG** key to zoom out to a larger area. **OR**,
2. Press the down arrow on the **RNG** key to zoom in to a smaller area.

Selecting Desired On-Screen Data

At the corners of the Default NAV page, four user-definable fields display the data you need as your flight progresses. By default, these fields display: desired track (DTK), distance to destination (DIS), ground speed (GS) and estimated time en route (ETE). However, each of these fields can be customized to your preferences by selecting a different data item. Fuel flow is selectable with valid sensor data installed. Available data items include:

- Bearing to destination (BRG)
- Distance to destination (DIS)
- En-route safe altitude (ESA)
- Estimated time en route (ETE)
- Total fuel flow (FLOW)
- Minimum safe altitude (MSA)
- Ground track (TRK)
- Cross track error (XTK)
- Course to steer (CTS)
- Desired track (DTK)
- Estimated time of arrival (ETA)
- Ground speed (GS)
- Track angle error (TKE)
- Vertical speed required (VSR)

1 - NAV Pages

Default NAV Page



Nine map scale settings are available on the Default NAV page—from 5.0 to 200 nautical miles. To adjust the map scale, use the **RNG** key.



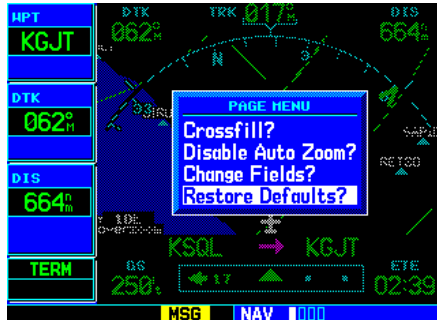
To change the data type displayed at any of the four corners on the page, press **MENU** and select the “Change Fields?” option.

1 - NAV Pages

Default NAV Page



Once “Change Fields?” is selected, use the **large right knob** to select the field you wish to change and the **small right knob** to select the new data type.



The “Restore Defaults?” option returns all data fields to their original factory settings.

If no flight plan or direct-to destination has been selected only speed, track, altitude, fuel flow and minimum safe altitude data may be displayed. All other data types appear as blank lines on the Default NAV page until a destination is selected.

To select a different data item for any data field:

1. Starting with the Default NAV page, press the **MENU** key to display an options menu.
2. Rotate the **large right knob** to highlight “Change Fields?” and press **ENT** to select this option.
3. Use the **large right knob** to highlight the data field you wish to change.
4. Rotate the **small right knob** to display the list of available data items. Continue rotating the **small right knob** to select the desired data item from the list.
5. Press **ENT** to select the desired data item and return to the Default NAV page.
6. Press the **small right knob** momentarily to remove the cursor from the page.

Restoring Factory Settings

You can also quickly return all data field settings to their original factory settings.

To restore all four selectable data fields to factory default settings:

1. Starting with the Default NAV page, press the **MENU** key to display an options menu.
2. Rotate the **large right knob** to highlight the “Restore Defaults?” option and press **ENT**.

Dual Unit Considerations

A “Crossfill?” option is provided from the Default NAV page. This option allows you to transfer a direct-to destination, the active flight plan, any stored flight plan or user waypoints to a second 500-series Garmin unit.

Some crossfill operations can be done automatically. If both 500-series units are set to “auto”, a change in the direct-to destination or active flight plan on one unit can also be seen on the other. See page 47 for additional details on using the “Crossfill?” option.

1 - NAV Pages

Default NAV Page

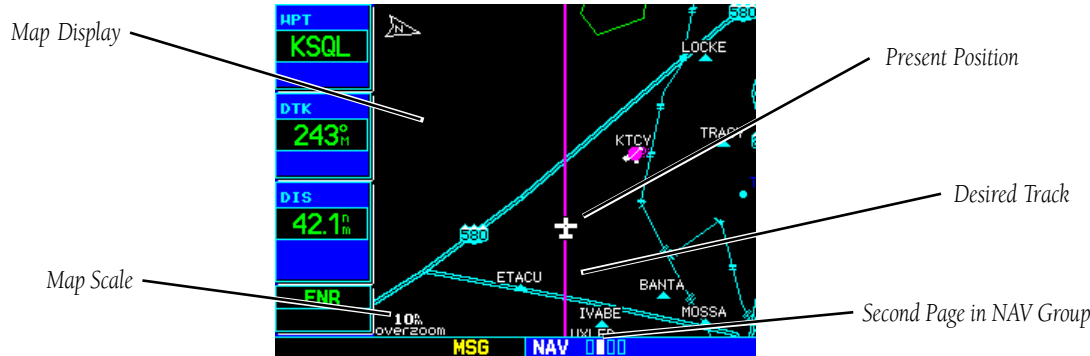
Auto Zoom

An autozoom feature is available for the Default NAV page; this feature automatically adjusts from an en-route scale of 200 nautical miles through each lower scale, stopping at 5.0 nautical miles as you approach your destination waypoint. By default, the autozoom feature is disabled.

To enable (disable) the autozoom feature:

1. Starting with the Default NAV page, press the **MENU** key to display an options menu.
2. Rotate the **large right knob** to highlight "Enable Auto Zoom?" (or "Disable Auto Zoom?") and press **ENT** to select this option.

Map Page



The second NAV page is the Map page, which displays your present position using an airplane symbol, along with nearby airports, nav aids, user-defined waypoints, airspace boundaries, lakes, rivers, highways and cities.



NOTE: If the GPS 500 is unable to determine a GPS position, the present position (airplane) symbol does not appear on the Map page.



Autozoom automatically adjusts the map scale as you approach your destination waypoint.



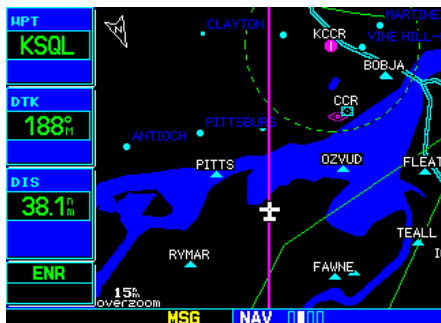
The Map page is the second of four Nav pages (five if equipped with weather and/or traffic systems). The map scale is depicted in the lower left corner and adjusted with the **RNG** key.

1 - NAV Pages

Map Page















Examples of several symbols used to depict airports and nav aids on the Map page. Note the airports, Locator Outer Marker, VORTAC and Intersections.



The map scale appears in the lower left corner. Use the **RNG** key to select the desired map scale.

Different symbols are used to distinguish between waypoint types. The identifiers for any on-screen waypoints can also be displayed (by default the identifiers are enabled). Special-use and controlled airspace boundaries appear on the map, showing the individual sectors in the case of Class B or Class C airspace. The following symbols are used to depict the various airports and nav aids on the Map page:

-  Airport with hard surface runway(s); Primary runway shown
-  Airport with soft surface runway(s) only
-  Private Airfield
-  VOR
-  VOR/DME
-  DME
-  Localizer
-  Intersection
-  VORTAC
-  TACAN
-  NDB
-  Locator Outer Marker

The map display can be set to 23 different scale settings from 500 feet to 2000 nautical miles (statute and metric units are also available). The scale is indicated in the lower left-hand corner of the map display, and represents the top-to-bottom distance covered by the map display.

To select a map scale:

1. Press the up arrow side of the **RNG** key to zoom out to a larger map area.
2. Press the down arrow side of the **RNG** key to zoom in to a smaller map area and more detail.

An autozoom feature is available which automatically adjusts from an en-route scale of 2000 nm through each lower scale, stopping at a scale of 1.0 nm as you approach your destination waypoint. The autozoom feature is turned on/off from the map setup page described on page 29.

The Map page also displays a background map showing lakes, rivers, coastlines, highways, railways and towns. When a map scale is selected below the lower limit at which the map detail was originally created, an “overzoom” indication appears on the map display, below the scale reading. “Overzoom” indicates that the detail at this scale may not accurately represent actual conditions (and extra caution should be observed when these scales are used for navigation).

1 - NAV Pages

Map Page

The “Setup Map?” option (described on page 29) allows you to define the maximum scale at which each map feature appears. This provides you with complete control to minimize screen clutter. You can also quickly remove items from the map using the **CLR** key.

To quickly declutter the map display, press the CLR key momentarily (as often as needed) to select the desired amount of map detail.

Five user-selectable data fields can be added to the right-hand side of the Map page. By default, the displayed data is: destination waypoint name (WPT), desired track (DTK), ground track (TRK), distance to destination waypoint (DIS) and ground speed (GS). Adding these data fields or changing the data types is outlined on pages 31-32.

Map Panning

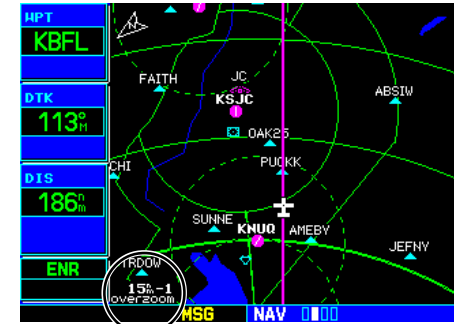
Another Map page function is panning; this function allows you to move the map beyond its current limits without adjusting the map scale. When you select the panning function—by pressing the **small right knob**—a target pointer flashes on the map display. A window also appears at the top of the map display, showing the latitude/longitude position of the pointer as well as the bearing and distance to the pointer from your present position.

To select the panning function and pan the map display:

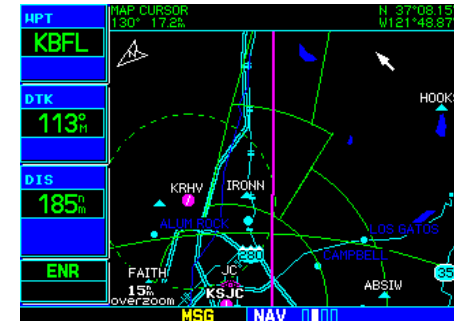
1. Press the **small right knob** to activate the panning target pointer.
2. Rotate the **small right knob** to move up (rotate clockwise) or down (counterclockwise).
3. Rotate the **large right knob** to move right (rotate clockwise) or left (counterclockwise).
4. To cancel the panning function and return to your present position, press the **small right knob**.

When the target pointer is placed on an object, the name of that object is highlighted (even if the name was not originally displayed on the map). This feature applies to airports, nav aids, user-created waypoints, roads, lakes, rivers—everything displayed on the map with the exception of route lines.

When an airport, nav aid, or user waypoint is selected on the map display, you can review information about the waypoint or designate the waypoint as your direct-to destination.



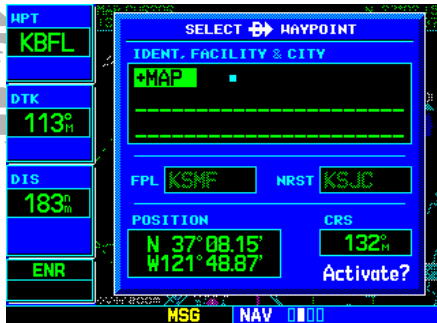
To quickly declutter the map, press **CLR**. Continue pressing **CLR** to select the desired declutter level. Note the scale is followed by “-1”, “-2” or “-3”.



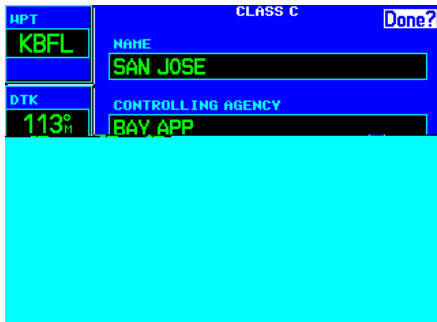
Panning the map lets you look beyond the boundaries of the current map area without changing the scale. Start by pressing the **small right knob**.

1 - NAV Pages

Map Page



Use the panning function and direct-to key to select a destination waypoint directly from the map. “+MAP” is created as a waypoint if nothing exists at the pointer’s location.



Use the panning function and **ENT** key to retrieve airspace information from the map.

To review information for an on-screen airport, navaid or user waypoint:

1. Use the panning function (as described on the previous page) to place the target pointer on a waypoint.
2. Press **ENT** to display the waypoint information page(s) for the selected waypoint.
3. Press **CLR** to exit the information page(s).

Map Direct-To

To designate an on-screen airport, navaid or user waypoint as your direct-to destination:

1. Use the panning function (see previous page) to place the target pointer on a waypoint.
2. Press the **direct-to** key. The Select Direct-to Waypoint page appears, with the selected waypoint already listed.
3. Press **ENT** twice to confirm the selection and begin navigating to the waypoint.

The direct-to function can be used anywhere on the map. If nothing currently exists at the crosshair position, a new waypoint (called “+MAP”; shown at left) is created at the target pointer location before the direct-to is initiated.

Airspace Information on the Map

When a special-use or controlled airspace boundary appears on the map display, you can quickly retrieve information, such as floor/ceiling limits and controlling agency, directly from the map.

To view airspace information for an on-screen special-use or controlled airspace:

1. Use the panning function (see previous page) to place the target pointer on an open area within the boundaries of an airspace. If the area is congested and it is difficult to select an open area, you may need to zoom in or press **CLR** to make the selection easier.
2. Press **ENT** to display an options menu.
3. “Review Airspace?” should already be highlighted. If not, select it with the **small right knob**. Press **ENT** to display the airspace information page for the selected airspace.
4. To display the COM frequency for the controlling agency, rotate the **large right knob** to highlight “Frequencies?” and press **ENT**. Press **CLR** to return to the airspace information page.
5. Press **CLR** to exit the airspace information page.

1 - NAV Pages

Map Page Options

Many of the functions of the GPS 500 are menu-driven. Each of the main pages has an options menu, allowing you to custom tailor the corresponding page to your preferences and/or select special features which specifically relate to that page. A Map page Options menu provides additional settings to customize the Map page and additional features related specifically to the Map page.

To display the Map Page Options menu, press MENU (with the Map page displayed).

The following options are available: “Setup Map?”, “Measure Dist?”, “Data Fields Off?”, “Clear Storm Data?”*, “Change Fields?” and “Restore Defaults?”.

Map Setup

“Setup Map?” allows you to configure the map display to your preferences, including map orientation, land data enable/disable, Jeppesen data enable/disable, automatic zoom, airspace boundaries, and text size. The following table lists the group names and available settings:

Map	Orientation, AutoZoom, Land Data, Aviation Data, Wind Vector
Weather*	Lightning Mode, Lightning Symbol
Traffic*	Traffic Mode, Traffic Symbol, Traffic Label
Line/Road	Active Flight Plan/Direct-To, Lat/Long Grid, Freeways, National Highways, Local Highways, Local Roads, Railroads
Waypoint	Active Flight Plan Waypoints, Large/Medium/Small Airports, Intersections, NDBs, VORs, User Waypoints, Waypoint Text
Airspace	Class B, Class C, Tower Zone, Restricted, MOA, Other
City/Other	Large/Medium/Small Cities and Text, State/Province Boundaries, Rivers/Lakes



With the Map page displayed, press **MENU** to display the Map Page Options menu. Use the **large right knob** to select the desired option.



* Weather and Traffic settings are only available when the GPS 500 installation includes connection to traffic and/or weather information sources. See 400/500 Series Display Interfaces Pilot’s Guide Addendum.

1 - NAV Pages

Map Page Options



To select a map setup group, rotate the **small right knob**. Rotate the **large right knob** to highlight the desired setting within the group.

Large, Medium and Small classifications are used on the GPS 500 for airports and cities. Large airports are those with a runway longer than 8100 feet. Medium airports include those with a runway longer than 5000 feet or with a control tower. Large cities are those with approximate populations greater than 200,000 and medium cities are greater than 50,000.

* Wind Vector information can only be displayed if your GPS 500 installation includes connections to an air data system.

To change a map setup feature:

1. Press **MENU** (with the Map page displayed).
2. Rotate the **large right knob** to highlight "Setup Map?" and press **ENT**.
3. To change map orientation: Rotate the **small right knob** to select "Map" and press **ENT**. Rotate the **large right knob** to highlight the "Orientation" field, then rotate the **small right knob** to select the desired option. Select "North up" to fix the top of the map display to a north heading. Select "Track up" to adjust the top of the map display to your current ground track heading. Select "DTK up" to fix the top of the map display to your desired course. Press **ENT** to accept the selected option.
4. To enable/disable automatic zoom: Rotate the **small right knob** to select "Map" and press **ENT**. Rotate the **large right knob** to highlight the "Auto Zoom" field and rotate the **small right knob** to select "On" or "Off". Press **ENT** to accept the selected option. The automatic zoom feature automatically adjusts the map scale from 2000 nm through each lower scale, stopping at 1.0 nm as you approach your destination waypoint.
5. To enable/disable all background land data or Jeppesen aviation data: Rotate the **small right knob** to select "Map" and press **ENT**. Use the **large right knob** to highlight the appropriate field and rotate the **small right knob** to select "On" or "Off". Press **ENT** to accept the selected option.
6. To enable/disable the on-screen wind vector*: Rotate the **small right knob** to select "Map" and press **ENT**. Use the **large right knob** to highlight the "Wind Vector" field and rotate the **small right knob** to select "On" or "Off". Press **ENT** to accept the selected option.
7. For airports, NAVAIDs, active flight plan waypoints, user-created waypoints, state/provincial boundaries, rivers/lakes and cities: Rotate the **small right knob** to select the appropriate "Group" name (per the chart on the previous page) and press **ENT**. Use the **large right knob** to highlight the "RNG" field for the desired feature and rotate the **small right knob** to select the maximum scale at which the feature should appear on screen. Or select "Off" to never display the selected feature. Press **ENT** to accept the selected option. Next, rotate the **large right knob** to highlight the "TEXT" field for the desired feature and rotate the **small right knob** to select the desired text size, or select "Off" to disable text descriptions. Press **ENT** to accept the selected option.
8. For airspace boundaries, highways, roads, railroad lines, active flight plan course lines, and lat/long grid lines: Rotate the **small right knob** to select the appropriate "Group" name (per the chart on the previous page) and press **ENT**. Use the **large right knob** to highlight the "RNG" field for the desired feature and rotate the **small right knob** to select the maximum scale at which the feature should appear on screen. Or select "Off" to never display the selected feature. Press **ENT** to accept the selected option.

1 - NAV Pages

Map Page Options

Distance Measurements

The “Measure Dist?” option provides a quick, easy method for determining the bearing and distance between any two points on the map display.

To measure bearing and distance between two points:

1. Press **MENU** (with the Map page displayed).
2. Rotate the **large right knob** to highlight “Measure Dist?” and press **ENT**. An on-screen reference pointer appears on the map display at your present position.
3. Use the **small** and **large right knobs** to place the reference pointer at the location you wish to measure FROM and press **ENT**.
4. Again, use the **small** and **large right knobs** to place the reference pointer at the location you wish to measure TO. The bearing and distance from the first reference location appear at the top of the map display.
5. To exit the “Measure Dist?” option, press the **small right knob**.

Adding Data Fields to the Map

The “Data Fields On?” option provides a map display (shown at right) with five user-selectable data fields along the right-hand side of the screen. Select this option when you wish to display additional on-screen data—such as destination waypoint name (WPT), desired track (DTK), ground track (TRK), distance to destination (DIS) and ground speed (GS). If this option has been selected and the data fields are being displayed, “Data Fields Off?” appears as an option instead.

To turn the data fields on (or off), rotate the large right knob to highlight “Data Fields On?” (or “Data Fields Off?”) and press ENT.

Clearing On-Screen Weather Data

“Clear Storm Data?” removes storm history information from the map. New storm data appears as detected and relayed by a connected weather data source. Weather data and the “Clear Storm Data?” option are only available when the GPS 500 installation includes connection to weather information sources. See 400/500 Series Display Interfaces Pilot’s Guide Addendum.



Once “Measure Dist?” is selected, place the on-screen pointer on the point you wish to measure FROM and press **ENT**.



“Data Fields On?” adds five user-selectable data fields to the right-hand side of the page. Select “Change Fields?” to change any of these fields to a different data type.

1 - NAV Pages

Map Page Options



Once “Change Fields?” is selected, rotate the **large right knob** to highlight the data field you wish to change, then rotate the **small right knob** to select the type of data to display in that field.



“Restore Defaults?” resets all five user-selectable data fields to their original factory settings.

Selecting Desired On-Screen Data

“Change Fields?” allows you to choose the data displayed on the five user-selectable data fields along the right-hand side of the map page (see previous page). There are sixteen available data types, including bearing to destination, distance to destination, estimated time of arrival, ground speed, minimum safe altitude and track. See page 145 for descriptions of these (and other) navigation terms.

To change a data field:

1. Press **MENU** (with the Map page displayed).
2. Rotate the **large right knob** to highlight “Change Fields?” and press **ENT**.
3. Rotate the **large right knob** to highlight the data field you wish to change.
4. Rotate the **small right knob** to select the type of data you want to appear on this field and press **ENT**.
5. Press the **small right knob** to remove the cursor.



NOTE: The on-screen traffic information (TRFC) occupies two data fields, leaving room to display only three additional data types. Traffic information is only available when the GPS 500 installation includes connection to traffic information sources. See 400/500 Series Display Interfaces Pilot’s Guide Addendum.

Restoring Factory Settings

“Restore Defaults?” resets all five user-selectable data fields to their original factory default settings.

To restore the factory default settings, rotate the large right knob to highlight “Restore Defaults?” (see bottom left) and press ENT.

NAVCOM Page

Departure, En-route
or Arrival Airport

HPT	ARRIVAL	KPDX	Public
KPDX	ATIS		120.625
DTK	ATIS		128.350
	Approach	Info?	118.100
	Approach		126.900
DIS	Approach	Info?	133.000
	Class C	Info?	118.100
	Class C	Info?	133.000
ENR	Tower		118.700

Assigned Frequency
and Usage Information
(when applicable)

Frequency Type

Third Page in NAV Group*

The third NAV page is the NAVCOM (navigation communications) page. The NAVCOM page provides a list of the airport communication and navigation frequencies at your departure, en-route and arrival airports. The NAVCOM page makes selection of the frequencies you'll need along your flight plan quick and convenient. If you do not have an active flight plan with a departure airport, the NAVCOM page displays the frequencies for the airport nearest your departure position.



NOTE: The NAVCOM page is the fourth page in the NAV group when the GPS 500 installation includes connection to traffic and/or weather information sources. See 400/500 Series Display Interfaces Pilot's Guide Addendum.

To select a frequency list for a departure, en-route or arrival airport:

1. Press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to place the cursor on the airport identifier field (top line on the NAVCOM page).
3. Rotate the **small right knob** to select the desired airport and press **ENT**.

1 - NAV Pages NAVCOM Page

HPT	BLW	OPER
KBFL		
DTK		
DIS		
ENR		

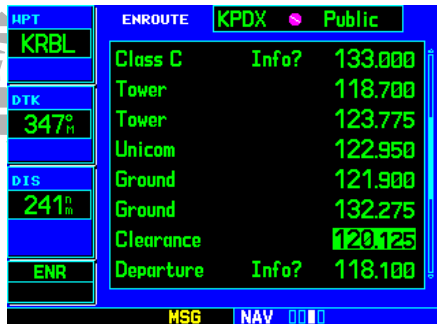
If your installation includes connection to traffic and/or weather systems, the Traffic/Weather page appears as one of five available NAV pages.

HPT	ARRIVAL	KPDX	Public
KPDX	ATIS		120.625
DTK	ATIS		128.350
	Approach	Info?	118.100
	Approach		126.900
DIS	Approach	Info?	133.000
	Class C	Info?	118.100
	Class C	Info?	133.000
ENR	Tower		118.700

The NAVCOM page lists available frequencies for your departure, en-route and arrival airports.

1 - NAV Pages

NAVCOM Page



The scroll bar along the right-hand side of the page indicates the length of the NAVCOM frequency list and what portion of the list is currently being displayed.



Highlight "Info?" adjacent to the desired frequency and press ENT to display usage restrictions for the corresponding frequency.

To scroll through the list of frequencies:

1. Activate the cursor, if not already active, by pressing the **small right knob**.
2. Rotate the **large right knob** to move the cursor through the list of frequencies. If there are more frequencies in the list than can be displayed on the screen, a scroll bar along the right-hand side of the screen indicates the part of the list that is currently being displayed.

The selected frequency is provided for entry into a separate COM or NAV unit (COM and NAV frequencies are shown for reference only).

Some listed frequencies may include designations for limited usage, as follows:

- "TX" - transmit only
- "PT" - part time frequency
- "RX" - receive only

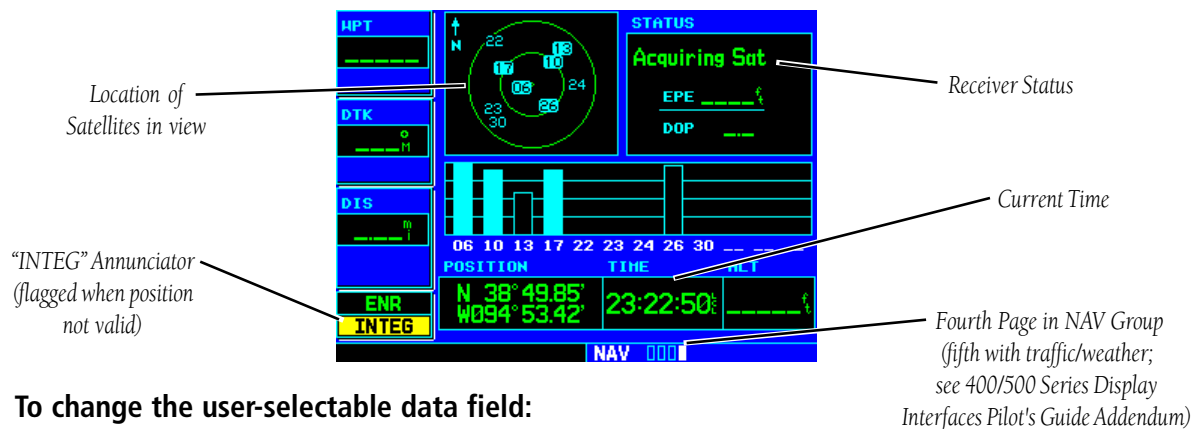
If a listed frequency has sector or altitude restrictions, the frequency is preceded by an "Info?" designation.

To view usage restrictions for a frequency:

1. Rotate the **large right knob** to place the cursor on the "Info?" designation directly in front of the desired frequency.
2. Press **ENT** to display the restriction information.
3. To return to the NAVCOM page, press **ENT**.

Satellite Status Page

The Satellite Status page (the last NAV page) provides a visual reference of GPS receiver functions, including current satellite coverage, GPS receiver status, position accuracy, and displays your present position (by default, in latitude and longitude) and altitude. The Satellite Status page also displays the current time at the bottom center of the page. The altitude field (ALT) is user-selectable to configure the page to your own preferences and current navigation needs.



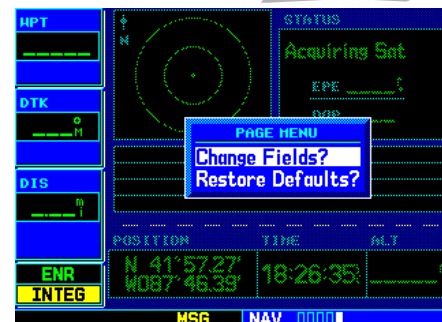
To change the user-selectable data field:

1. Press **MENU** to display the Satellite Status Page Options menu.
2. Rotate the **large right knob** to highlight “Change Fields?” and press **ENT**.
3. Rotate the **small right knob** to display the list of available data items. Continue rotating the **small right knob** to select the desired data item from the list.
4. Press **ENT** to select the desired data item and return to the position page.
5. Press the **small right knob** momentarily to remove the cursor from the page.

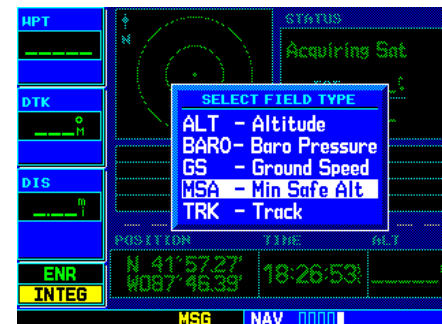
To restore the user-selectable data field factory default setting:

1. Press **MENU** to display the Satellite Status Page Options menu.
2. Rotate the **large right knob** to highlight “Restore Defaults?” and press **ENT**.

1 - NAV Pages Satellite Status Page



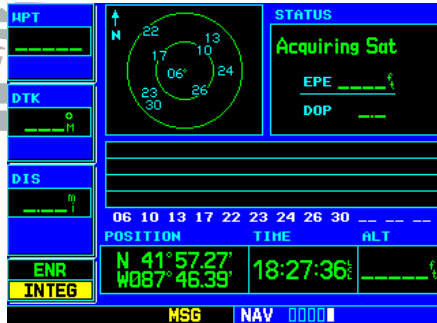
By default, current altitude (ALT) is displayed in the lower right corner of the page. This field is user selectable using the “Change Fields?” option.



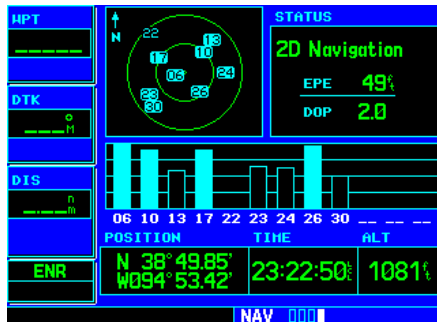
Select a different data type from the list using the **small right knob**. NOTE: Do not rely solely on MSA as an absolute measure of safe altitude. Consult current charts and NOTAMs for your area.

1 - NAV Pages

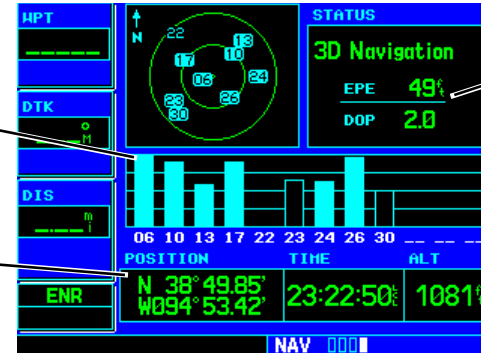
Satellite Status Page



When the GPS 500 is first powered on, an “Acquiring” status appears at the top of the page and no signal strength bars are displayed.



As satellites are received, the status changes to “2D Navigation” or “3D Navigation”. “3D Navigation” includes altitude, whereas “2D Navigation” is only the latitude/longitude position.



Satellite Signal Strength Bar

Present Position

Estimated Position Error / Dilution of Precision

GPS-calculated Altitude

The Satellite Status page is helpful in troubleshooting weak (or missing) signal levels due to poor satellite coverage or installation problems. You may wish to refer to this page occasionally to monitor GPS receiver performance and establish a normal pattern for system operation. Should problems occur at a later date, you may find it helpful to have an established baseline from which to compare.

As the GPS receiver locks onto satellites, a signal strength bar appears for each satellite in view, with the appropriate satellite number (01-32) underneath each bar. The progress of satellite acquisition is shown in three stages:

- No signal strength bars—the receiver is looking for the satellites indicated.
- Hollow signal strength bars—the receiver has found the 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.

The sky view display, at the top left corner of the page, shows the satellites currently in view, and where they are. The outer circle of the sky view represents the horizon (with north at top of the circle); the inner circle 45° above the horizon; and the center point directly overhead.

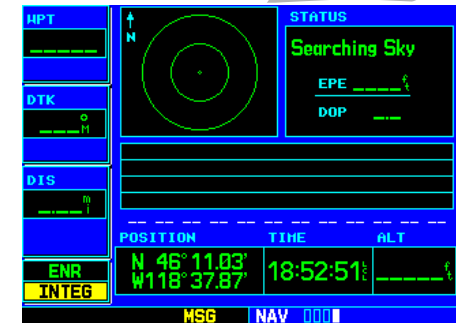
1 - NAV Pages

Satellite Status Page

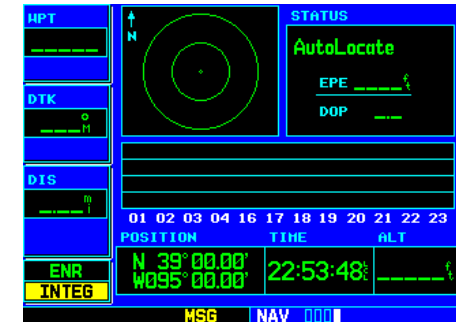
Each satellite has a 30-second data transmission that must be collected (hollow signal strength bar) before the satellite may be used for navigation (solid signal strength bar). Once the GPS receiver has determined your coordinates, the GPS 500 indicates your position, altitude, track and ground speed. The GPS receiver status field (see page 35) also displays the following messages under the appropriate conditions:

- Searching Sky— The GPS receiver is searching the sky for ANY visible satellites. You are also informed of this status with a “Searching the Sky” message.
- Acquiring Sat— The GPS receiver is acquiring satellites for navigation. In this mode, the receiver uses satellite orbital data (collected continuously from the satellites) and last known position to determine the satellites that should be in view.
- 2D Navigation— The GPS receiver is in 2D navigation mode. Altitude data is provided by an altitude serializer (if installed).
- 3D Navigation— The GPS receiver is in 3D navigation mode and computes altitude using satellite data.
- Poor Coverg— The GPS receiver cannot acquire sufficient satellites for navigation.
- Rcvr Not Usbl— The GPS receiver is unusable due to incorrect initialization or abnormal satellite conditions. Turn the unit off and on again.
- AutoLocate— The GPS receiver is looking for any available satellite. This process can take up to five minutes to determine a position.

The Satellite Status page also indicates the accuracy of the position fix, using Estimated Position Error (EPE) and Dilution of Precision (DOP) figures. DOP measures satellite geometry quality (i.e., number of satellites received and where they are relative to each other) on a scale from one to ten. The lowest numbers are the best accuracy and the highest numbers are the worst. EPE uses DOP and other factors to calculate a horizontal position error, in feet or meters.



“Searching Sky” appears when the GPS 500 is searching for any available satellite to collect orbital (almanac) data.

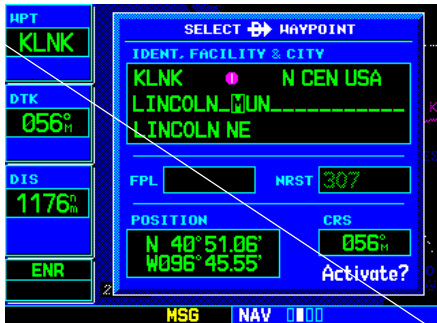


“AutoLocate” appears when the GPS 500 has orbital data, but last known position and/or time information are significantly different from current conditions.

2 - Direct-To Selecting a Destination



Pressing the **direct-to** key displays the Select Direct-to Waypoint page.



Use the **small** and **large right knobs** to enter the name of the destination waypoint. Press **ENT** once the name has been fully entered.

Section 2: Direct-To Navigation

The direct-to function of the GPS 500 provides a quick method of setting a course to a destination waypoint. Once a direct-to is activated, the GPS 500 establishes a point-to-point course line (great circle) from your present position to the selected direct-to destination. Navigation data on the various NAV pages provides steering guidance until the direct-to is cancelled or replaced by a new destination.

To select a direct-to destination:

1. Press the **direct-to** key. The Select Direct-to Waypoint page appears, with the waypoint identifier field highlighted.
2. Use the **small** and **large right knobs** to enter the identifier of the desired destination waypoint.
3. Press **ENT** to confirm the selected waypoint, and **ENT** (again) to activate the direct-to function.

If you're navigating to a waypoint and get off course, the direct-to function may also be used to re-center the CDI (HSI) needle and proceed to the same waypoint.

To re-center the CDI (HSI) needle to the same destination waypoint:

1. Press the **direct-to** key, followed by **ENT** twice.



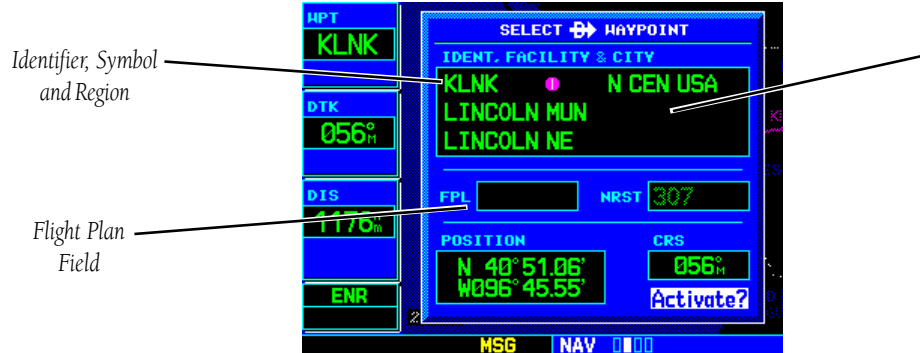
NOTE: If you're navigating an approach with the missed approach point (MAP) as the current destination, re-centering the CDI (HSI) needle with the **direct-to** key cancels the approach.

2 - Direct-To Selecting by Facility or City



Selecting a Destination by Facility Name or City

In addition to selecting a destination by identifier, the Select Direct-to Waypoint page also allows you to select airports, VORs and NDBs by facility name or city location. If duplicate entries exist for the entered facility name or city, additional entries may be viewed by continuing to rotate the **small right knob** during the selection process (see page 78 for more information on duplicate waypoints).



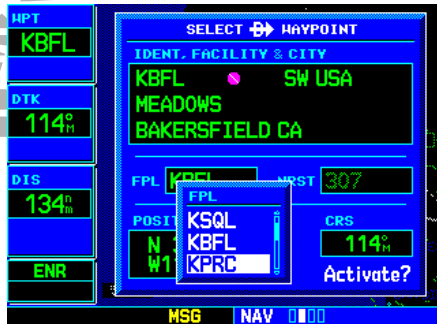
Select the third line on the Select Direct-to Waypoint page to choose your destination waypoint (airport, VOR, NDB) by city name.

To select a direct-to destination by facility name or city:

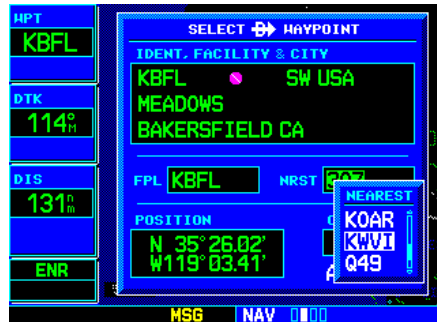
1. Press the **direct-to** key. The Select Direct-to Waypoint page appears, with the waypoint identifier field highlighted.
2. Rotate the **large right knob** to highlight the facility name (second line; see above) or the city (third line; see above) field.
3. Use the **small** and **large right knobs** to enter the facility name or city location of the desired destination waypoint. As you spell the facility name or city, the GPS 500 Spell'N'Find feature selects the first entry in the database based upon the characters you have entered up to that point.
4. Continue rotating the **small right knob** to scroll through any additional database listings for the selected facility name or city. You can also scroll backwards with the **small right knob** if you scroll past the desired waypoint.
5. Press **ENT** to confirm the selected waypoint, and **ENT** (again) to activate the direct-to function.

Use the **small** and **large right knobs** to enter the city name. Continue rotating the **small right knob** to view any additional listings for the selected city.

2 - Direct-To Flight Plan / Nearest Waypoints



The flight plan (FPL) field allows you to select any active flight plan waypoint as your current destination waypoint.



The nearest airport (NRST) field allows you to select any of the nine nearest airports as your current destination waypoint.

Selecting a Destination from the Active Flight Plan

If you are navigating an active flight plan, any waypoint contained in the flight plan may be selected as a direct-to destination from the Select Direct-to Waypoint page (see section 3 for more information on flight plans).

To select a direct-to destination from the active flight plan:

1. Press the **direct-to** key. The Select Direct-to Waypoint page appears, with the waypoint identifier field highlighted.
2. Rotate the **large right knob** to highlight the flight plan (FPL) field.
3. Rotate the **small right knob** to display a window showing all waypoints in the active flight plan.
4. Continue rotating the **small right knob** to scroll through the list and highlight the desired waypoint.
5. Press **ENT** to confirm the selected waypoint, and **ENT** (again) to activate the direct-to function.

Selecting the Nearest Airport as a Direct-To Destination

The Select Direct-to Waypoint page always displays the nearest airports (from your present position) on the NRST field. Navigating directly to a nearby airport is always just a few simple steps away (nearby airports may also be selected as direct-to destinations using the steps described on page 103).

To select a nearby airport as a direct-to destination:

1. Press the **direct-to** key. The select direct-to waypoint page appears, with the waypoint identifier field highlighted.
2. Rotate the **large right knob** to highlight the nearest airport (NRST) field.
3. Rotate the **small right knob** to display a window showing up to nine nearby airports.
4. Continue rotating the **small right knob** to scroll through the list and highlight the desired airport.
5. Press **ENT** to confirm the selected waypoint, and **ENT** (again) to activate the direct-to function.

2 - Direct-To Direct-to Shortcuts

Shortcuts

Shortcuts are available when using the **direct-to** key, allowing you to bypass the use of the **small** and **large right knobs** to enter the destination waypoint's identifier. A direct-to can be performed from any page displaying a single waypoint identifier (such as the WPT pages for airports and nav aids) by simply pressing **direct-to** and **ENT**. For pages that display a list of waypoints (e.g., the Nearest Airport page), you must highlight the desired waypoint with the cursor before pressing the **direct-to** key.

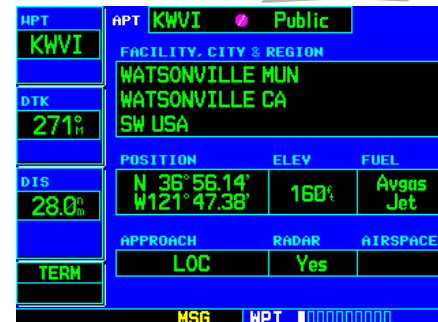
To select an on-screen waypoint as a direct-to destination:

1. If a single airport, navaid or user waypoint is displayed on-screen: press **direct-to**, then press **ENT** twice.
2. If a list of waypoints is displayed on-screen: press the **small right knob** to activate the cursor, rotate the **large right knob** to highlight the desired waypoint, then press **direct-to** followed by **ENT** twice.

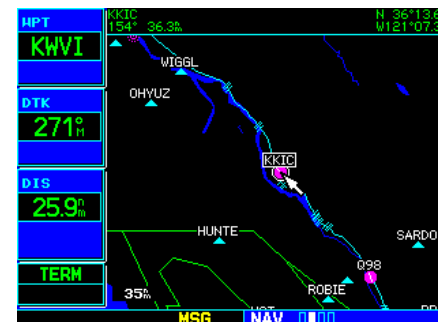
Direct-to destinations may also be selected from the Map page, by panning to the desired destination location and pressing **direct-to** and **ENT** (twice). If no airport, navaid or user waypoint exists at the desired location, a waypoint named "+MAP" is automatically created at the location of the panning pointer.

To select a direct-to destination from the Map page:

1. From the Map page, press the **small right knob** to display a panning pointer.
2. Rotate the **small** and **large right knobs** to place the panning pointer at the desired destination location.
3. If the panning pointer is placed on an existing airport, navaid or user waypoint, the waypoint name is highlighted. Press **direct-to** and **ENT** twice to navigate to the waypoint.
4. If the panning pointer is placed on an open location, press **direct-to** and **ENT** twice to create a "MAP" waypoint and navigate to it.

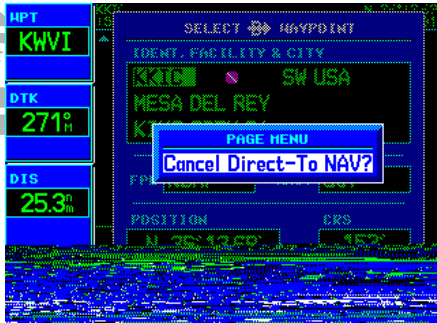


When a single waypoint is displayed on-screen, select it as your destination by pressing **direct-to**. When a list of waypoints is displayed, press the **small right knob** to display a cursor, highlight the desired waypoint, then press **direct-to**.

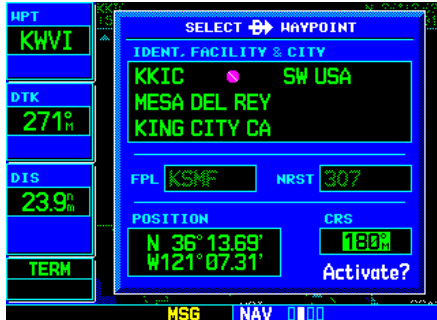


Use the panning pointer to select your destination directly from the map.

2 - Direct-To Cancelling / Manual Course



To cancel a direct-to, select a new direct-to destination, activate a flight plan or select the “Cancel Direct-To NAV?” option.



The “CRS” field allows you to define the course to a direct-to destination waypoint. Use the **small** and **large right knobs** to enter the desired course.

Cancelling Direct-To Navigation

Once a direct-to is activated, the GPS 500 provides navigation guidance to the selected destination until the direct-to is either replaced with a new direct-to or a flight plan, or cancelled, or until the unit is turned off.

To cancel a direct-to:

1. Press the **direct-to** key to display the Select Direct-to Waypoint page.
2. Press **MENU** to display the Direct-to Options menu.
3. With “Cancel Direct-To NAV?” highlighted, press **ENT**. If a flight plan is still active, the GPS 500 resumes navigating the flight plan along the closest leg.

Specifying a Course to a Waypoint

When you perform a direct-to, the GPS 500 sets a direct great circle course to your selected destination. You can also manually define the course to your destination, using the course field (“CRS”) on the Select Direct-to Waypoint page.

To manually define the direct-to course:

1. Press the **direct-to** key.
2. Use the **small** and **large** right knobs to select the destination waypoint.
3. Press **ENT** to confirm the selected waypoint, then rotate the **large right knob** to highlight the course (“CRS”) field.
4. Rotate the **small** and **large right knobs** to select the desired course and press **ENT**.
5. Press **ENT** again to begin navigation using the selected destination and course.
6. To reselect a direct course from present position (or select a new manually-defined course), simply press **direct-to**, follow by **ENT** twice.

3 - Flight Plans

Creating Flight Plans

Section 3: Flight Plans

The GPS 500 lets you create up to 20 different flight plans, with up to 31 waypoints in each flight plan. The flight plan (FPL) page group consists of two pages, accessed by pressing the **FPL** key. The flight plan pages allow you to create, edit and copy flight plans.



Active Flight Plan



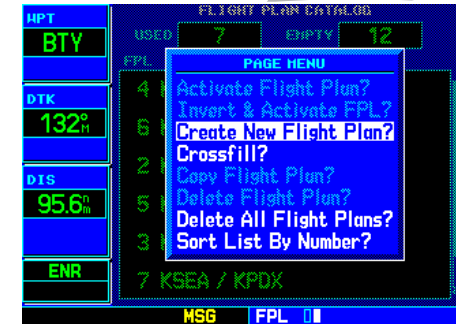
Flight Plan Catalog

Flight Plan Catalog

The Flight Plan Catalog allows you to create, edit, activate, delete and copy flight plans. Flight plans numbered from 1 through 19 are used to save flight plans for future use. “Flight plan 0” is reserved exclusively for the flight plan currently in use for navigation. Any time you activate a flight plan, a copy of the flight plan is automatically transferred to “flight plan 0” and overwrites any previously active flight plan.

To create a new flight plan:

1. Press **FPL** and rotate the **small right knob** to display the Flight Plan catalog.
2. Press **MENU** to display the Flight Plan Catalog options.
3. Rotate the **large right knob** to highlight “Create New Flight Plan?” and press **ENT**.
4. A blank flight plan page appears for the first empty storage location. Use the **small** and **large right knobs** to enter the identifier of the departure waypoint and press **ENT**.
5. Repeat step 4 above to enter the identifier for each additional flight plan waypoint.
6. Once all waypoints have been entered, press the **small right knob** to return to the Flight Plan catalog.



From the Flight Plan catalog, press **MENU** to display the options menu and select “Create New Flight Plan?”.



Use the **small** and **large right knobs** to enter the identifier of each flight plan waypoint.

3 - Flight Plans

Editing Flight Plans



HPT	00	ACTIVE FLIGHT PLAN		
HPT	00	KSQL / KIXD		
WAYPOINT	DTK	DIS	CUH	
KSQL				
062 ⁿ	062 ⁿ	641 ⁿ	641 ⁿ	
641 ⁿ	045 ⁿ	44.4 ⁿ	685 ⁿ	
640 ⁿ	094 ⁿ	68.2 ⁿ	753 ⁿ	
	078 ⁿ	534 ⁿ	1288 ⁿ	

Highlight the point in the existing flight plan where you wish to add the new waypoint. If an existing waypoint is highlighted, the new waypoint is placed directly in front of it.



HPT	00	ACTIVE FLIGHT PLAN		
HPT	00	KSQL / KIXD		
WAYPOINT	DTK	DIS	CUH	
KSQL				
062 ⁿ	062 ⁿ	640 ⁿ	640 ⁿ	
640 ⁿ	045 ⁿ	44.4 ⁿ	685 ⁿ	
	094 ⁿ	68.2 ⁿ	753 ⁿ	
	078 ⁿ	534 ⁿ	1287 ⁿ	

Highlight the waypoint you wish to delete and press **CLR** to display the “REMOVE WAYPOINT” confirmation window.

Flight Plan Editing

To add a waypoint to an existing flight plan:

1. Press **FPL** and rotate the **small right knob** to display the Flight Plan catalog.
2. Press the **small right knob** to activate the cursor.
3. Rotate the **large right knob** to highlight the desired flight plan and press **ENT**.
4. Rotate the **large right knob** to select the point where you wish to add the new waypoint. If an existing waypoint is highlighted, the new waypoint is placed directly in front of this waypoint.
5. Use the **small** and **large right knobs** to enter the identifier of the new waypoint and press **ENT**.
6. Once all changes have been made, press the **small right knob** to return to the Flight Plan catalog.

To delete a waypoint from an existing flight plan:

1. Press **FPL** and rotate the **small right knob** to display the Flight Plan catalog.
2. Press the **small right knob** to activate the cursor.
3. Rotate the **large right knob** to highlight the desired flight plan and press **ENT**.
4. Rotate the **large right knob** to select the waypoint you wish to delete and press **CLR** to display a “REMOVE WAYPOINT” confirmation window.
5. With “Yes” highlighted, press **ENT** to remove the waypoint.
6. Once all changes have been made, press the **small right knob** to return to the Flight Plan catalog.

A one-line user comment may be added to any flight plan and is then displayed on the Flight Plan catalog, next to the flight plan number. By default, as the flight plan is being created, the comment shows the first and last waypoints in the flight plan.

3 - Flight Plans Activating / Inverting

To change the comment line for an existing flight plan:

1. From the Flight Plan catalog, press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to highlight the desired flight plan and press **ENT**.
3. Rotate the **large right knob** to select the comment line at the top of the screen.
4. Use the **small** and **large right knobs** to enter the new comment. Press **ENT** when finished.
5. Once all changes have been made, press the **small right knob** to return to the Flight Plan catalog.

Activating Flight Plans

Once a flight plan is defined through the Flight Plan catalog (using the steps previously outlined), it may be activated for navigation. Activating the flight plan places it into “flight plan 0” and overwrites any previous information at that location.

To activate an existing flight plan:

1. From the Flight Plan catalog, press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to highlight the desired flight plan and press **MENU** to display the Flight Plan Catalog options.
3. Rotate the **large right knob** to highlight “Activate Flight Plan?” and press **ENT**.

Inverting Flight Plans

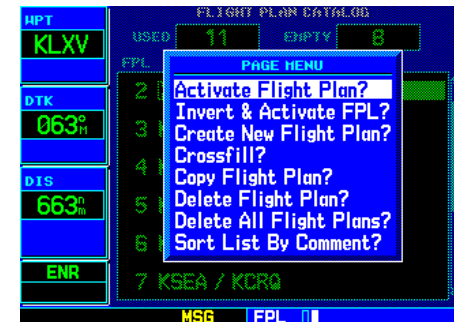
After traveling along a flight plan, you may wish to reverse the route for navigation guidance back to your original departure point.

To activate an existing flight plan in reverse order:

1. From the Flight Plan catalog, press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to highlight the desired flight plan and press **MENU** to display the Flight Plan Catalog options.
3. Rotate the **large right knob** to highlight “Invert & Activate FPL?” and press **ENT**. The original flight plan remains intact in its Flight Plan Catalog storage location.



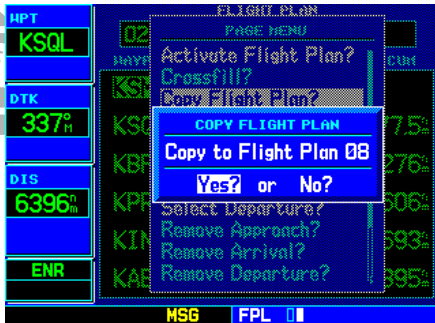
The comment line at the top of the page can be edited to change the name/comment assigned to the flight plan.



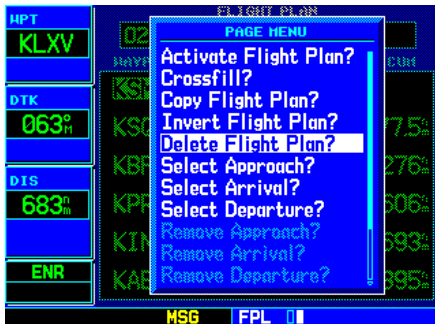
“Activate Flight Plan?” selects the highlighted flight plan for navigation guidance. “Invert & Activate FPL?” reverses the sequence of the highlighted flight plan, then activates it for navigation guidance.

3 - Flight Plans

Copying / Deleting



Use the “Copy Flight Plan.” option to save a copy of a flight plan to another memory location. This is useful for saving the active flight plan, or to save a stored flight plan before editing.



Select “Delete Flight Plan?” to remove the designated flight plan from memory.

Copying Flight Plans

If you want to save a flight plan currently located in “flight plan 0”, be sure to copy it to an open catalog location (1-19) before the flight plan is cancelled, overwritten or erased.



NOTE: Once a flight plan is activated, it is copied to “flight plan 0” and overwrites the previous contents of this flight plan memory location.

To copy a flight plan to another Flight Plan Catalog location:

1. From the Active Flight Plan page: Press **MENU** to display the Active Flight Plan Options window.
2. From the Flight Plan catalog: Press the **small right knob** to activate the cursor, rotate the **large right knob** to highlight the flight plan you wish to copy, then press **MENU** to display the Flight Plan Catalog options.
3. Rotate the **large right knob** to highlight “Copy Flight Plan?” and press **ENT**.
4. By default, the next empty catalog location is offered. To select a different location, rotate the **large right knob** to select the flight plan number, use the **small** and **large right knobs** to enter a different number and press **ENT**.
5. With “Yes?” highlighted, press **ENT** to copy the flight plan.

Deleting Flight Plans

Once you are finished with a flight plan, it can easily be deleted from the Flight Plan catalog or the Active Flight Plan page.

To delete a flight plan:

1. From the Active Flight Plan page: Press **MENU** to display the Active Flight Plan Options window.
2. From the Flight Plan catalog: Press the **small right knob** to activate the cursor, rotate the **large right knob** to highlight the flight plan you wish to delete, then press **MENU** to display the Flight Plan Catalog options.
3. Rotate the **large right knob** to highlight “Delete Flight Plan?” and press **ENT**.
4. With “Yes?” highlighted, press **ENT** to delete the flight plan.

3 - Flight Plans

Flight Plan Catalog Options

Flight Plan Catalog Options

The following options (some covered on the preceding pages) are available for the Flight Plan Catalog:

Activate Flight Plan? allows you to select the flight plan for navigation guidance, as described on page 45.

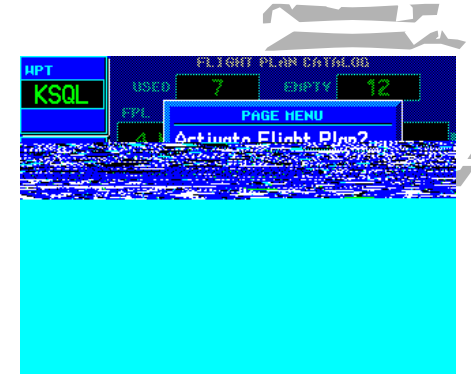
Invert & Activate FPL? allows you to reverse the highlighted flight plan and select it for navigation guidance, as described on page 45.

Create New Flight Plan? allows you to create a new flight plan, as described on page 43.

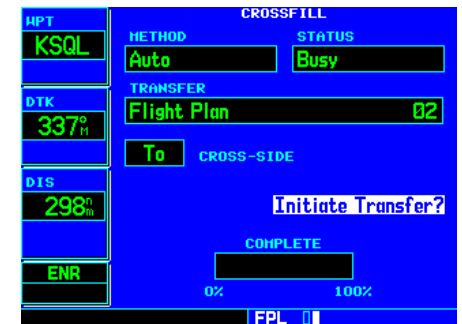
Crossfill? allows you to transfer a direct-to destination, the active flight plan, any stored flight plan or user waypoints to a second 400-series or 500-series Garmin unit. Some crossfill operations can be done automatically. If both units are set to “auto”, a change in the direct-to destination or active flight plan on one unit can also be seen on the other.

To crossfill information between two 500-series (or 400-series) Garmin units:

1. From the Flight Plan catalog, press **MENU** to display the Flight Plan Catalog options.
2. Rotate the **large right knob** to select the “Crossfill?” option and press **ENT**.
3. Rotate the **large right knob** to select the “Method” field.
4. Rotate the **small right knob** to select “Auto” or “Manual” and press **ENT**. “Auto” automatically transfers the active flight plan or direct-to selection to another 400- or 500-series Garmin unit, without user intervention.
5. If “Manual” is selected: Rotate the **large right knob** to select the “Transfer” field, then rotate the **small right knob** to select the type of information to transfer between units (Active Flight Plan, Flight Plan, All User Waypoints or User Waypoint). When “Flight Plan” or “User Waypoint” is selected, a second field appears to the immediate right of the “Transfer” field. Use the **small and large right knobs** to enter the number of the flight plan or the name of the user waypoint you wish to transfer.
6. The “Cross-Side” field allows you to designate the sending and receiving units in a crossfill operation. Rotate the **large right knob** to select the “Cross-Side” field, then rotate the small right knob to select “To” or “From”. Press **ENT** to confirm the selection (for more information on Crossfill, see page 120).
7. Rotate the **large right knob** to highlight “Initiate Transfer?” and press **ENT** to transfer the selected data.



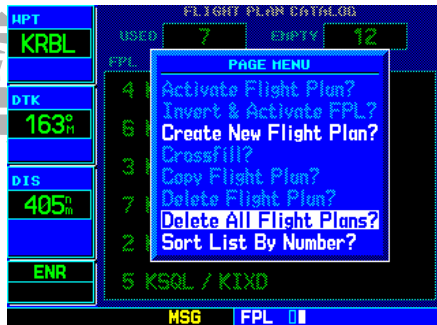
“Activate Flight Plan?” selects the highlighted flight plan and uses it for navigation guidance. “Invert & Activate FPL?” reverses the order of waypoints in the flight plan, then selects it for navigation guidance.



Once “Initiate Transfer?” is selected, a progress bar at the bottom of the page indicates the status of the crossfill transfer until completed.

3 - Flight Plans

Flight Plan Catalog Options



Select “Delete Flight Plan?” to remove the highlighted flight plan from memory. “Delete All Flight Plans?” removes all flight plans from memory.



The Active Flight Plan page shows waypoint names and data for the route currently being used for navigation guidance.

Copy Flight Plan? allows you to copy the selected flight plan to a new flight plan location, as described on page 46. The copy function is useful for duplicating an existing flight plan before making changes.

Delete Flight Plan? allows you to remove the selected flight plan from memory, as described on page 46. Deleting a flight plan does not delete the individual waypoints contained in the flight plan from the database or user waypoint memory.

Delete All Flight Plans? allows you to remove all flight plans from memory at one time.

To delete all flight plans:

1. Select the “Delete All Flight Plans?” option from the Flight Plan Catalog options and press **ENT**.
2. A confirmation window appears. With “Yes?” highlighted, press **ENT**.

Sort List By Number?/Sort List by Comment? allows you to select between a Flight Plan Catalog sorted numerically by the flight plan number or sorted alphanumerically based upon the comment assigned to each flight plan. When either option is selected, the other option appears on the Flight Plan Catalog options window.

To sort the catalog listing by number or comment:

1. Select the “Sort List By Number?” or “Sort List By Comment?” option (whichever one is currently displayed) from the Flight Plan Catalog options and press **ENT**.

Active Flight Plan

The Active Flight Plan page provides information and editing functions for “flight plan 0”—the flight plan currently in use for navigation. Once you have activated a direct-to or flight plan, the Active Flight Plan page shows each waypoint for the flight plan (or a single waypoint for a direct-to), along with the desired track (DTK), distance (DIS) for each leg and cumulative distance (CUM). The data fields are user-selectable and may be changed to display estimated time of arrival (ETA) or estimated time en route (ETE).

3 - Flight Plans

Active Flight Plan Options

To change a data field on the Active Flight Plan page:

1. With the Active Flight Plan page displayed, press **MENU** to display the Active Flight Plan Page options window.
2. Rotate the **large right knob** to highlight "Change Fields?" and press **ENT**.
3. Rotate the **large right knob** to highlight the field you wish to change.
4. Rotate the **small right knob** to select the desired data item and press **ENT**.
5. Press the **small right knob** to remove the cursor.

To restore factory default settings for data fields on the Active Flight Plan page:

1. With the Active Flight Plan page displayed, press **MENU** to display the Active Flight Plan Page options window.
2. Rotate the **large right knob** to highlight "Restore Defaults?" and press **ENT**.

Active Flight Plan Options

The following options (some covered on the preceding pages) are available for the Flight Plan catalog:

Activate Leg? activates/reactivates the flight plan and selects the highlighted leg as the "active leg" (the leg which is currently being used for navigation guidance).

To activate a flight plan along a specific leg:

1. From the Active Flight Plan page, press the **small right knob** to activate the cursor and rotate the **large right knob** to highlight the desired destination waypoint.
2. Press **MENU**, select the "Activate Leg?" option from the Active Flight Plan Page options and press **ENT**.
3. A confirmation window appears. With "Activate?" highlighted, press **ENT**.

Crossfill? allows you to transfer the active flight plan between two GPS 500s in a dual unit installation. See page 47 for additional information on this feature.

Copy Flight Plan? copies the active flight plan to a Flight Plan Catalog location, as described on page 46. The copy function is useful for duplicating the active flight plan before making changes.

Invert Flight Plan? reverses the active flight plan. See description of "Invert & Activate FPL" option on page 45.



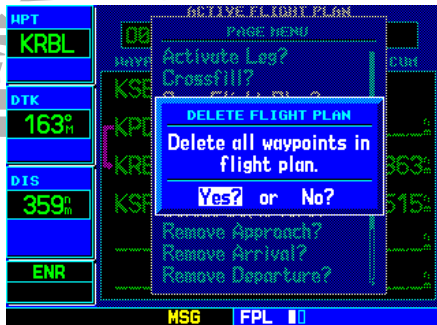
Change the displayed data using the "Change Fields?" option. Highlight the data field you wish to change and rotate the small right knob to display available data types.



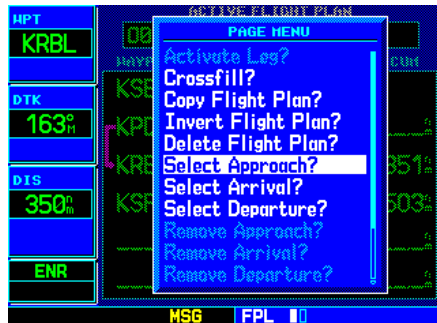
"Activate Leg?" selects the highlighted flight plan leg as the leg currently in use for navigation guidance (even if it isn't the closest leg).

3 - Flight Plans

Active Flight Plan Options



“Delete Flight Plan?” cancels navigation and removes the active flight plan from memory.



Published instrument approaches can be selected and used from the Active Flight Plan Options, or by pressing the **PROC** key. The “Select Approach?” option appears in both places.

Delete Flight Plan? allows you to remove all waypoints from the active flight plan, as described on page 46 (deleting a flight plan does not delete the waypoints contained in the flight plan from the database or user waypoint memory).

Select Approach? allows you to select a published instrument approach for the destination airport, or replace the current approach with a new selection (in many cases, it is more convenient to select approaches using the **PROC** key—as described on page 55).

To select an approach for a direct-to or flight plan destination airport:

1. From the Active Flight Plan page, press **MENU** to display the Active Flight Plan Page options.
2. Highlight the “Select Approach?” option and press **ENT**.
3. A window appears listing the available approaches for your destination airport. Rotate the **small right knob** to highlight the desired approach and press **ENT**.
4. A second window appears listing available transitions for the approach. Rotate the **small right knob** to highlight the desired transition waypoint and press **ENT** (the “Vectors” option assumes you will receive vectors to the final course segment of the approach and provides navigation guidance to intercept this final course).
5. Rotate the **large right knob** to highlight “Load?” or “Activate?” and press **ENT**. “Load?” adds the approach to the flight plan without immediately using the approach for navigation guidance. This allows you to continue navigating the original flight plan until cleared for the approach—but, keeps the approach available for quick activation when needed. “Activate?” adds the approach to the flight plan and begins navigating the approach course.
6. For precision approaches, and non-precision approaches not approved for GPS, a reminder window appears, indicating that GPS guidance on such approaches is strictly for monitoring only. To confirm this reminder, highlight “Yes?” and press **ENT**.

3 - Flight Plans

Active Flight Plan Options

Select Arrival? allows you to select a published standard terminal arrival route (STAR) for the destination airport, or replace the current arrival with a new selection (see page 55 for information on selecting arrivals using the **PROC** key).

To select an arrival for a direct-to or flight plan destination airport:

1. From the Active Flight Plan page, press **MENU** to display the Active Flight Plan Page options.
2. Highlight the "Select Arrival?" option and press **ENT**.
3. A window appears, listing the available arrivals for your destination airport. Rotate the **small right knob** to select the desired arrival and press **ENT**.
4. A second window appears, listing available transitions for the arrival. Rotate the **small right knob** to highlight the desired transition waypoint and press **ENT**.
5. With "Load?" highlighted, press **ENT**.

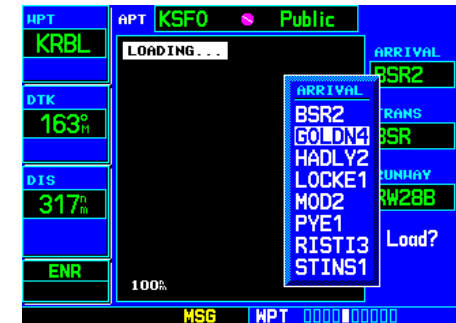
Select Departure? allows you to select a published instrument departure procedure (DP) for the departure airport, or replace the current departure with a new selection. When using a direct-to, the GPS 500 uses the nearest airport as a reference when displaying available departures (see page 55 for information on selecting departures using the **PROC** key).

To select a departure for the departure airport:

1. From the Active Flight Plan page, press **MENU** to display the Active Flight Plan Page options.
2. Highlight the "Select Departure?" option from the Active Flight Plan Page options and press **ENT**.
3. A window appears listing the available departures for your departure airport. Rotate the **small right knob** to select the desired departure and press **ENT**.
4. A second window appears, listing available transitions for the departure. Rotate the **small right knob** to highlight the desired transition waypoint and press **ENT**.
5. With "Load?" highlighted, press **ENT**.



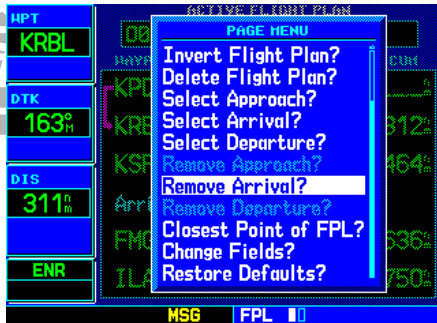
"Select Arrival?" and "Select Departure?" allow you to select and use published arrival routes (STARs) and published departure procedures (DPs).



Once the arrival or departure is selected, a window appears to select the desired transition waypoint.

3 - Flight Plans

Active Flight Plan Options



Approaches, arrivals and departures can all be removed from the active flight plan by selecting the corresponding “Remove...” option.



To determine the closest point where the active flight plan passes a particular waypoint, use the “Closest Point of FPL?” option. A waypoint can be added to the flight plan at the calculated location.

Remove Approach? deletes the currently selected approach from the active flight plan.

Remove Arrival? deletes the current STAR from the active flight plan.

Remove Departure? deletes the current DP from the active flight plan.

To remove an approach, arrival or departure from the active flight plan:

1. From the Active Flight Plan page, press **MENU** to display the Active Flight Plan Page options.
2. Select the “Remove Approach?”, “Remove Arrival?” or “Remove Departure?” option and press **ENT**.
3. A confirmation window appears listing the procedure you are about to remove. With “Yes?” highlighted, press **ENT**.

Closest Point of FPL? calculates the bearing to a reference waypoint and the closest distance that a flight plan passes from this reference waypoint. This may also be used to create a new user waypoint along the flight plan at the location closest to a chosen reference waypoint.

To determine the closest point, along the active flight plan, to a selected waypoint:

1. From the Active Flight Plan page, press **MENU** to display the Active Flight Plan Page options.
2. Select the “Closest Point of FPL?” option from the Active Flight Plan page options and press **ENT**.
3. A window appears with the reference waypoint field highlighted. Use the **small** and **large right knobs** to enter the identifier of the reference waypoint and press **ENT**.
4. The GPS 500 displays the bearing (BRG) and distance (DIST) to the closest point along the flight plan, from the selected reference waypoint. To create a user waypoint at this location and add it to the flight plan, highlight “Load?” and press **ENT**. The name for the new user waypoint is derived from the identifier of the reference waypoint.

Change Fields? allows you to select the desired data items to display on the Active Flight Plan page, as described on page 49.

Restore Defaults? returns all data fields to the factory default settings. See page 49.

3 - Flight Plans

Active Flight Plan Editing

Shortcuts

A number of shortcuts are available to save time when using the Active Flight Plan page. These shortcuts speed the process of removing approaches, departures and arrivals, and aid in selecting a specific flight plan leg for navigation guidance.

On the preceding page, options to remove approaches, departures and arrivals were introduced. This process may also be completed using the **CLR** key, as described below and illustrated at right.

To remove an approach, departure or arrival using the CLR key:

1. With the Active Flight Plan page displayed, press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to highlight the title for the approach, departure or arrival you wish to delete. Titles appear in light blue directly above the procedure's waypoints.
3. Press **CLR** to display a confirmation window.
4. With "Yes?" highlighted, press **ENT** to remove the selected procedure.

This same process may also be used to remove individual waypoints from the active flight plan.

To remove a waypoint using the CLR key:

1. With the Active Flight Plan page displayed, press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to highlight the identifier for the waypoint you wish to delete. Identifiers appear in green text.
3. Press **CLR** to display a confirmation window.
4. With "Yes?" highlighted, press **ENT** to remove the selected procedure.



To remove an approach, departure or arrival from the active flight plan, highlight the procedure name (appears in light blue text) and press **CLR**.



To remove an individual waypoint from the active flight plan, highlight the waypoint you wish to remove and press **CLR**.

3 - Flight Plans

Flight Plan Leg Selection



From the Active Flight Plan page, use the **direct-to** key to activate a highlighted route leg...



...including any portion of an instrument procedure, such as a procedure turn, DME arc or holding pattern.

The “Activate Leg?” option discussed on page 49 allows you to specify the leg of the flight plan that should currently be used for navigation guidance. A shortcut also exists for this operation, using the **direct-to** key.

To activate a specific leg of the active flight plan:

1. Press the **small right knob** to activate the cursor and rotate the **large right knob** to highlight the desired destination waypoint.
2. Press **direct-to** twice to display an “Activate Leg” confirmation window.
3. With “Activate?” highlighted, press **ENT**.

During instrument procedures, this feature can be used not only to activate a specific point-to-point leg, but to also activate a departure, an arrival, the procedure turn portion of an approach, follow a DME arc or activate a holding pattern.

Any approach, departure or arrival can be reviewed on the appropriate airport page in the WPT page group. See section 5 starting on page 76.

To review a procedure while viewing a Flight Plan page:

1. With the Flight Plan page displayed, press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to highlight the procedure header and press **ENT** to select the WPT page group.

Section 4: Approaches, Departures & Arrivals

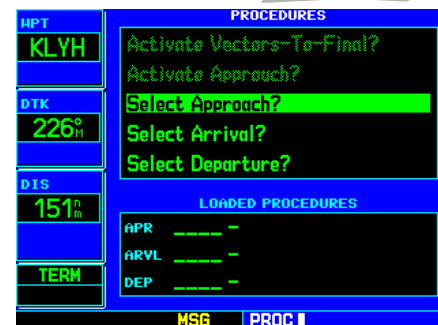
The GPS 500 allows you to fly non-precision approaches to airports with published instrument approach procedures. All available approaches are stored on your Jeppesen NavData® card, and are automatically updated when you replace the card with a new one. Subscription information for NavData cards is included in your GPS 500 package.

The Procedures page (shown at top right) is displayed by pressing the **PROC** key. The Procedures page provides direct access to approaches, departures and arrivals based upon the active flight plan or direct-to destination. In either case, the departure and destination airports must have published procedures associated with them.

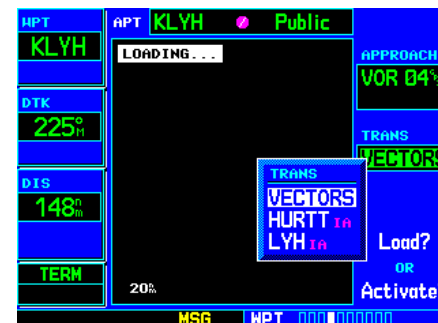
To select an approach, departure or arrival:

1. Press the **PROC** key to display the Procedures page.
2. Rotate the **large right knob** to highlight “Select Approach?”, “Select Departure?” or “Select Arrival?” and press **ENT**.
3. A window appears, listing the available procedures. Rotate the **large right knob** to highlight the desired procedure and press **ENT** (when a direct-to destination is selected, departures are offered for the nearest airport).
4. A second window appears, listing the available transitions. Rotate the **large right knob** to highlight the desired transition waypoint and press **ENT** (the approach “Vectors” option assumes you will receive vectors to the final course segment of the approach and provides navigation guidance relative to the final approach course).
5. Rotate the **large right knob** to highlight “Load?” or “Activate?” (approaches only) and press **ENT**. “Load?” adds the procedure to the flight plan without immediately using it for navigation guidance. This allows you to continue navigating the original flight plan, but keeps the procedure available on the Active Flight Plan page for quick activation when needed. To later activate a departure or arrival, follow the steps on page 54.
6. For precision approaches and some non-precision approaches, a reminder window appears indicating that GPS guidance on such approaches is strictly for monitoring only—use the external VOR/ILS receiver and external CDI (or HSI) for primary navigation. To confirm this reminder, highlight “Yes?” and press **ENT**.

4 - Procedures Approaches/Departures/Arrivals



Press the **PROC** key to display the Procedures page. Options are available to select published approaches, arrivals (STARs) and departures (DPs).



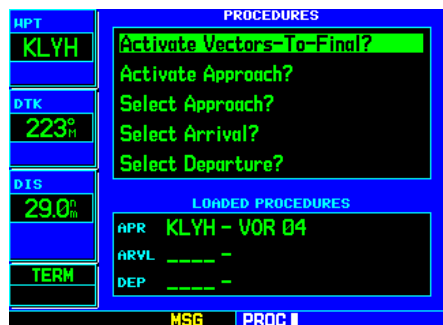
You can select a transition waypoint for an approach, or choose “VECTORS” to provide navigation guidance to the final approach course.

4 - Procedures

Activating Approaches



When an approach is “Loaded”, it is added to the end of the active flight plan. Prior to reaching the approach course, select “Activate Approach?” to begin navigation along the approach course.



With the full approach “Loaded”, select “Activate Vectors-To-Final?” to provide navigation guidance along the final approach course segment only.

Not all approaches in the database are approved for GPS use. As you select an approach, a “GPS” designation to the right of the procedure name indicates the procedure can be flown using the GPS receiver. **For procedures that do not have the “GPS” designation, the GPS receiver can only be used for supplemental navigation guidance.** ILS approaches, for example, must be flown by tuning the external VOR/ILS receiver to the proper frequency and using the external CDI (or HSI) for guidance.

Once an approach is selected, it may be activated for navigation from the Procedures page. Activating the approach overrides the en-route portion of the active flight plan, proceeding directly to the “approach” portion (for a full approach, directly to the initial approach fix). Activating the approach also initiates automatic CDI scaling transition as the approach progresses.

To activate an approach (which was previously loaded):

1. Press the **PROC** key to display the Procedures page.
2. Rotate the **large right knob** to highlight “Activate Approach?” and press **ENT**.

Another Procedures page option allows you to activate the final course segment of the approach. This option assumes you will receive vectors to the final approach fix (FAF) and guides you to intercept the final course, before reaching the FAF.

To activate the (previously loaded) approach, with vectors to final:

1. Press the **PROC** key to display the Procedures page.
2. Rotate the **large right knob** to highlight “Activate Vectors-To-Final?” and press **ENT**.

In many cases, it may be easiest to “Load” the full approach while still some distance away, en route to the destination airport. Later, if vectored to final, use the steps above to select “Activate Vector-To-Final”—which makes the inbound course to the FAF waypoint active. Otherwise, activate the full approach using the “Activate Approach?” option.

If you reactivate the approach currently being flown using the **PROC** key, prior to reaching the MAP a restart approach confirmation window appears on the screen. If you have passed the MAP, the GPS 500 proceeds to the transition waypoint without a restart confirmation.



4 - Procedures

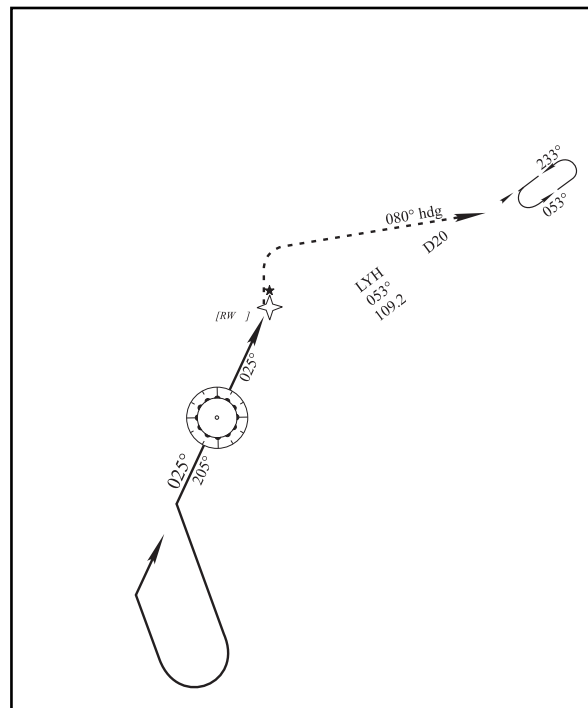


Approaches with Procedure Turns

The procedure turn portion of an approach is stored as one of the legs of the approach. For this reason, the GPS 500 requires no special operations from the pilot—other than flying the procedure turn itself—beyond what is required for any other type of approach.

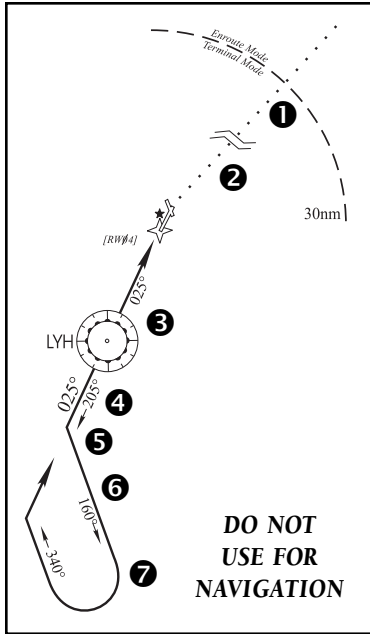
This example uses the VOR Runway 04 approach for Lynchburg (Virginia) Regional Airport, KLYH, and assumes a departure from Frederick (Maryland) Municipal Airport, KFDK. The steps required to set up and fly the approach are detailed below:

1. Prior to departing KFDK, the destination (KLYH) is selected using the **direct-to** key or by creating a flight plan terminating at Lynchburg Regional.
2. While en route to KLYH, 40-50 nautical miles away, you select the ATIS frequency to monitor airport conditions and runway usage. This is accomplished by displaying the NAVCOM page (see page 33) and tuning the external COM transceiver to the ATIS frequency shown on the list.
3. You learn from ATIS that runway 04 is in use and plan your approach accordingly. Press the **PROC** key and select the "VOR 04" approach using the steps outlined on page 55. From the transitions window, select LYH VOR (the IAF). Also, select "Load?" to load (but not activate) the approach.
4. Once you are cleared for the approach, press the **PROC** key, select "Activate Approach?" and press **ENT**.



4 - Procedures

Procedure Turn Approach



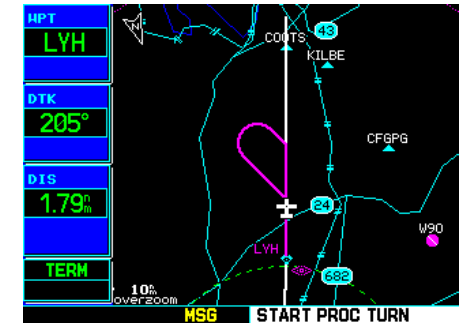
Flying the Procedure Turn

1. Within 30 nautical miles of the destination airport, the GPS 500 switches from "en route" mode to "terminal" mode (as indicated in the lower left corner of the screen). The switch to terminal mode is accompanied by a gradual Course Deviation Indicator (CDI) scale transition from 5.0 to 1.0 nautical miles, full scale deflection.
2. Several miles prior to reaching the IAF (LYH), you may wish to review the approach sequence. Press the **FPL** key to display the Active Flight Plan page. Press the **small right knob** and rotate the **large right knob** to review each segment of the approach. When finished, press **FPL** again to return to the previous page.
3. As you approach the IAF (LYH), a waypoint alert ("NEXT DTK 205°") appears in the lower right corner of the screen. As the distance (DIS) to the IAF approaches zero, the alert is replaced by a turn advisory ("TURN TO 205°"). Dial the outbound course of 205° into the CDI (or HSI) using the OBS knob and initiate a standard rate turn to this course heading.
4. Fly the outbound course, keeping the CDI needle centered.
5. Once you have flown approximately one minute past the IAF (LYH), the alert message "START PROC TRN" appears in the lower right corner of the screen. You may initiate the procedure turn at any time after receiving this alert message.
6. Turn left to a heading of 160° to initiate the procedure turn. Course guidance is provided relative to the outbound leg from the FAF. No guidance through the procedure turn itself is given (the procedure turn is displayed on the Map page and indicated as the active leg on the Default NAV and Active Flight Plan pages). The CDI needle starts moving to the right.

[continued]



STEP 3: As you approach the IAF, the "NEXT DTK 205°" waypoint alert appears in the lower right corner. Prepare to turn to this heading.



STEP 5: At approximately one minute past the IAF, an alert message ("START PROC TRN") will remind you to begin the procedure turn.

4 - Procedures

Procedure Turn Approach



STEPS 7 & 8: Procedure turn, inbound. The CDI needle will swing to the opposite side for proper sensing and “NEXT DTK 025°” appears. Turn to the new heading as the needle begins to center.

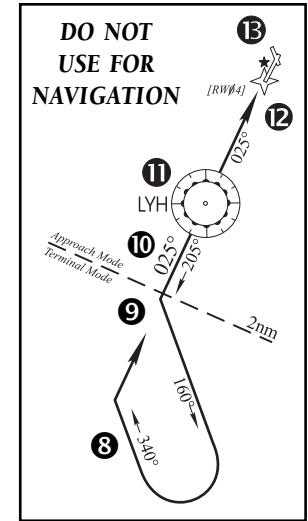


STEP 11: As you cross the FAF, the GPS 500 will automatically sequence to the final course segment, which appears in magenta on the Map page.

7. After approximately one minute, make a 180° right turn to a heading of 340° to intercept the inbound course. The GPS 500 sequences to the inbound leg to the FAF, the CDI needle swings to the opposite side to provide proper sensing along the final course segment and “NEXT DTK 025°” appears in the lower right corner of the screen.
8. As the CDI needle starts to center, make a right turn to 025°—the final approach course.
9. Within 2.0 nautical miles of the FAF (LYH), the GPS 500 switches from terminal mode to “approach” mode. CDI scaling is tightened from 1.0 to 0.3 nautical mile, full scale deflection.
10. As you approach the FAF, a waypoint alert in the lower right corner (“NEXT DTK 026°”) appears. Make any course adjustments necessary for the final course segment (FAF to MAP).
11. As you cross the FAF, the destination sequences to the MAP (“RW04”, the runway threshold). With the needle centered, fly toward the MAP, observing the altitude minimums indicated by the approach plate.
12. As you approach the MAP, a waypoint alert (“APPROACHING WPT”) appears in the lower right corner.
13. As you cross the MAP, “SUSP” appears above the **OBS** key, indicating that automatic sequencing of approach waypoints is suspended at the MAP. A “from” indication is displayed on the CDI and Default NAV page, but course guidance along the final approach course continues. If a missed approach is required, use the **OBS** key to initiate the missed approach sequence, as outlined on the following page.

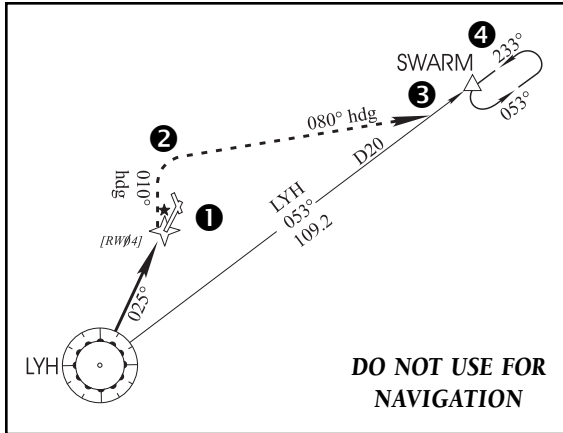


NOTE: Once you cross the FAF, the Map page displays the final course segment in magenta (the active leg of the flight plan always appears in magenta) and a dashed line extends the course beyond the missed approach point (MAP). The dashed line is provided for situational awareness only and should NOT be used for navigation. Follow the published missed approach procedures.



4 - Procedures

Missed Approach



Flying the Missed Approach

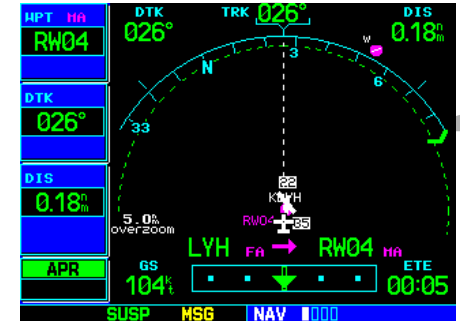
After you pass the MAP, if the runway is not in sight, you must execute a missed approach. The GPS 500 continues to give guidance along an extension of the final course segment (FAF to MAP) until you manually initiate the missed approach procedure (as mentioned previously in reference to the “SUSP” advisory). The **OBS** key is used to initiate the missed approach, as follows:

1. Press the **OBS** key. The missed approach holding point (MAHP; in this case “SWARM” intersection) is automatically offered as the destination waypoint.

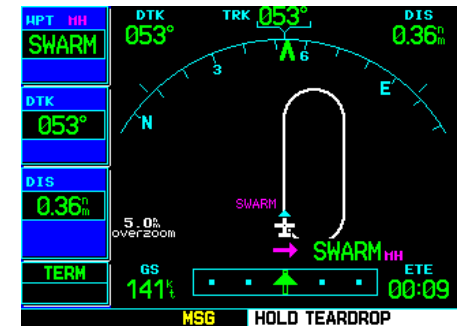


NOTE: In some cases, an additional hold waypoint is added to the missed approach sequence. This additional waypoint is used as an aid in establishing the holding pattern—especially where the MAP and MAHP are the same waypoint.

2. Follow the missed approach procedures, as published on your approach plate, for proper climb and heading instructions. The GPS 500 guides you to the holding pattern, along the 053° radial from LYH VOR.
3. An alert message in the lower right hand corner of the screen recommends entry procedures for the holding pattern (i.e., “HOLD DIRECT”, “HOLD PARALLEL”, or “HOLD TEARDROP”). As you fly the holding pattern, a timer appears on the Default NAV page. The timer automatically resets on the outbound side of the hold when you are abeam the hold waypoint. The timer again resets as you turn inbound (within approximately 30° of the inbound course). This allows you to use standard timing (typically one minute) to fly the inbound and outbound legs of the hold.
4. The GPS 500 provides course guidance only on the inbound side of the holding pattern. When leaving the holding pattern to re-fly the approach (or another approach) press the **PROC** key to “Select Approach?” or “Activate Approach?” as previously described (or use the **direct-to** key to select another destination).



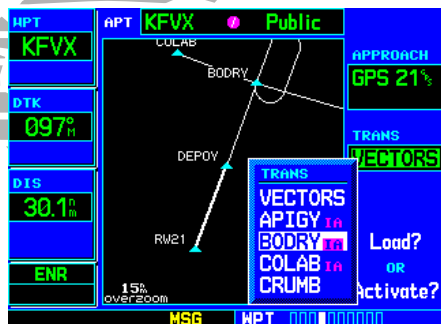
STEP 13: As you cross the missed approach point, “SUSP” will appear on-screen above the **OBS** key. Press the **OBS** key to provide navigation guidance to the missed approach holding point.



STEP 3: An alert message in the lower right hand corner will recommend entry procedures for the holding pattern (e.g., “HOLD TEARDROP”).

4 - Procedures

Approach with Hold



STEPS 4 & 5: Press **PROC** and select the “GPS 21” approach. Then, select BODRY intersection (the IAF) from the transitions window.



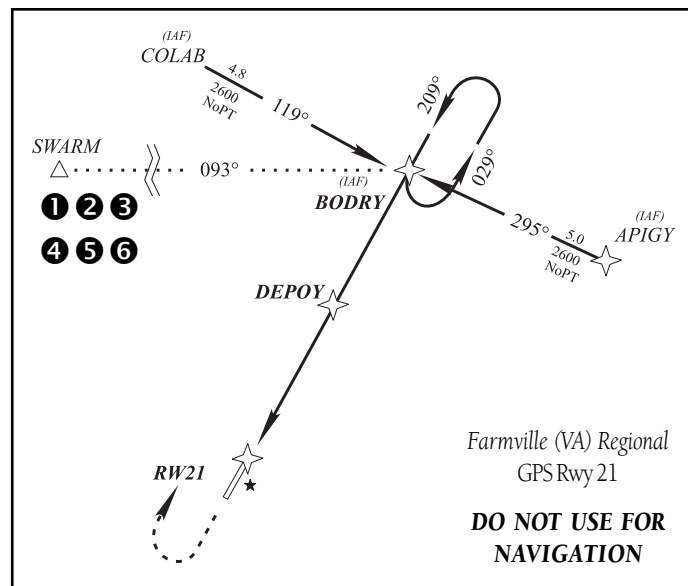
STEP 6: Once you “Activate?” the approach, the Active Flight Plan page appears showing the sequence of waypoints in the approach.

Flying an Approach with a Hold

Starting where the previous example ended, assume weather conditions resulted in a missed approach at Lynchburg Regional. Now, you decide to divert to Farmville Regional (KFBV) instead.

1. Press **direct-to**.
2. Use the **small** and **large right knobs** to enter the destination airport identifier (KFBV).
3. Press **ENT** twice.

This time, you select the GPS runway 21 approach into Farmville Regional. The GPS runway 21 approach begins with a holding pattern at the IAF, BODRY intersection.



4. Press **PROC** and select the “GPS 21” approach (see page 55 for additional instructions).
5. From the transitions window, select BODRY intersection as the IAF. Also, select “Activate?” to load and activate the approach.
6. Once you activate the approach, the Active Flight Plan page appears. You may review the approach sequence by pressing the **small right knob** and rotating the **large right knob**. Press **FPL** to return to the navigation pages.
7. As in the last example, within 30 nautical miles of the airport, the GPS 500 switches from en-route mode to terminal mode, and the CDI scale transitions from 5.0 to 1.0 nautical miles, full scale deflection.

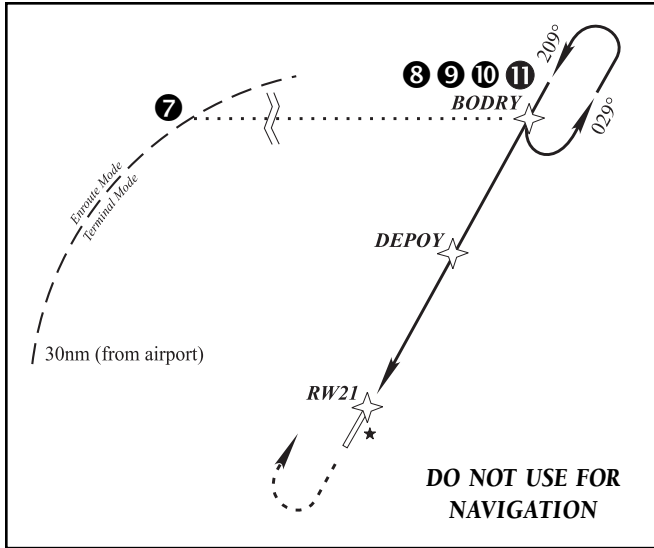


NOTE: Upon activating an RNAV GPS approach, you are given the option to skip any non-required holding patterns during the initial transitions of the approach.

{continued}

4 - Procedures

Approach with Hold



- Just prior to crossing BODRY intersection, an alert—"HOLD TEARDROP"—appears in the lower right corner of the screen to suggest the proper holding pattern entry ("HOLD DIRECT" or "HOLD PARALLEL" may be offered on other similar approaches).
- As in the missed approach example, the Default NAV page displays a timer during the holding pattern. Use this timer to fly the one minute outbound portion of the holding pattern (the holding pattern is displayed on the Map page and indicated as the active leg on the Default NAV and Active Flight Plan pages).
- When crossing the IAF, "SUSP" appears above the **OBS** key, indicating that auto-

matic sequencing of approach waypoints is temporarily suspended. As you make the turn inbound, "SUSP" is cancelled and the GPS 500 returns to automatic sequencing.



NOTE: If you need to lose extra altitude or speed by going around the holding pattern again, press **OBS** to manually suspend waypoint sequencing *BEFORE* crossing the holding waypoint the second time. If you've already passed this waypoint, re-activate the holding pattern using the shortcut steps described on page 53.

- As you approach BODRY intersection from within the holding pattern, a waypoint alert ("NEXT DTK 209°") appears in the lower right corner of the screen.

{continued}



STEP 9: While flying the holding pattern, a timer appears on the Default NAV page. Use the timer to fly the one minute outbound portion of the pattern.



STEP 10: When crossing the IAF, "SUSP" appears above the **OBS** key to alert you that automatic waypoint sequencing is temporarily suspended.

4 - Procedures

Approach with Hold



STEP 13: As you approach the FAF, the “NEXT DTK 209°” waypoint alert appears in the lower right corner of the screen.

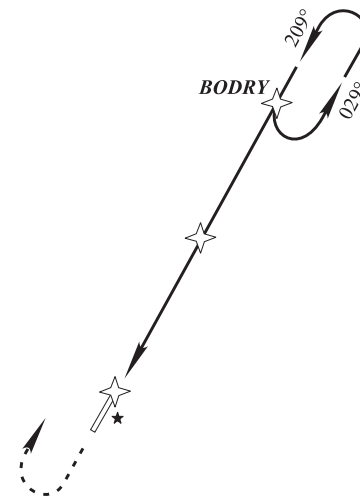
STEP 15: As you approach the MAP, the “APPROACHING WPT” waypoint alert appears in the lower right corner of the screen.

- At 2.0 nautical miles from the FAF (DEPOY intersection), the GPS 500 switches from terminal mode to approach mode. CDI scaling is tightened from 1.0 to 0.3 nautical mile, full scale deflection.
- As you approach the FAF, a waypoint alert in the lower right corner (“NEXT DTK 209°”) appears. Make any course adjustments necessary for the final course segment (FAF to MAP).
- As you cross the FAF, the destination sequences to the MAP (“RW21”, the runway threshold). With the needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.



NOTE: When viewing the Map page, note that the final course segment is displayed in magenta—the active leg of the flight plan always appears in magenta—and a dashed line extends the course beyond the MAP. Do NOT follow this extended course. Instead, follow published missed approach procedures.

- As you approach the MAP, a waypoint alert (“APPROACHING WPT”) appears in the lower right corner.
- As you cross the MAP, “SUSP” appears above the **OB**S key, indicating that automatic sequencing of approach waypoints is suspended at the MAP. A “from” indication is displayed on the CDI and Default NAV page, but course guidance along the final approach course continues. If a missed approach is required, use the **OB**S key to initiate the missed approach sequence, as outlined on page 61.



4 - Procedures

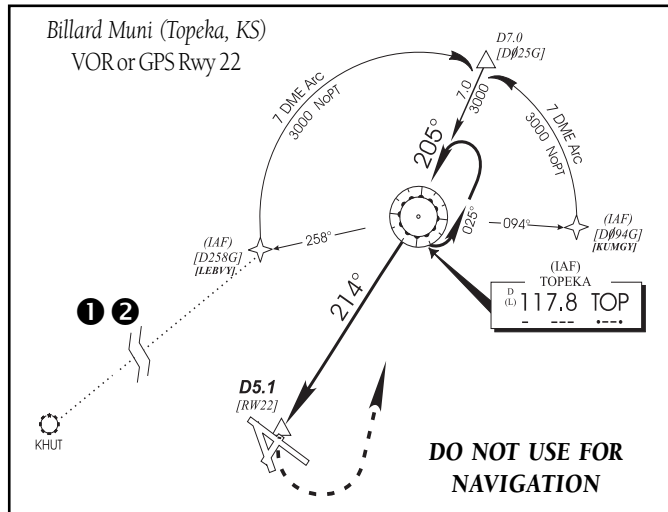
DME Arc Approach

Flying a DME Arc Approach

The GPS overlay for a DME arc approach uses additional Jeppesen-provided waypoints to define the arc. These waypoints are indicated by “D” as the first letter in the waypoint name. This is followed by three numbers indicating the radial the waypoint lies on. The last letter indicates the radius of the arc.



NOTE: As this manual was being written, the letter/number DME arc names were being replaced with standard five-letter intersection names. You may encounter either naming convention for an approach you select.



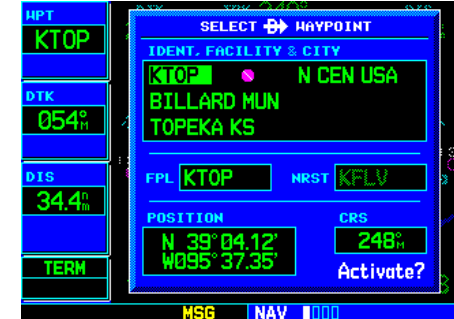
1. Select Billard Muni (KTOP) as your destination, via the **direct-to** key or as the last waypoint in a flight plan.
2. Press the **PROC** key and select the “VOR 22” approach using the steps outlined on page 55. From the transitions window, select “KUMGY” as the IAF. Also, select “Load?” (or “Activate?”, if already cleared for the approach).

{continued}

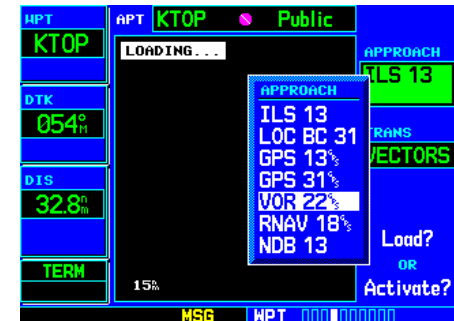
When cleared for a DME arc approach, you may do either of the following to intercept the arc:

- Follow a specified radial inbound to intercept the IAF.
- Follow ATC vectors which allow you to intercept the arc at any point along the arc.

This example is based upon a flight from Hutchinson (Kansas) Municipal KHUT to Billard Municipal (KTOP) in Topeka, Kansas. The VOR runway 22 approach is selected, along with “LEBVY” as the IAF.



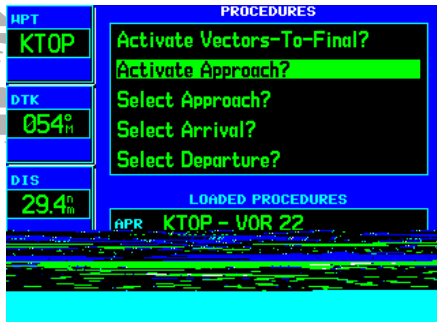
STEP 1: Press **direct-to** and select “KTOP” as your destination (using the **small and large right knobs**).



STEP 2: Press **PROC** and select the “VOR 22” approach and “KUMGY” transition (using the **large right knob** and **ENT** key).

4 - Procedures

DME Arc Approach

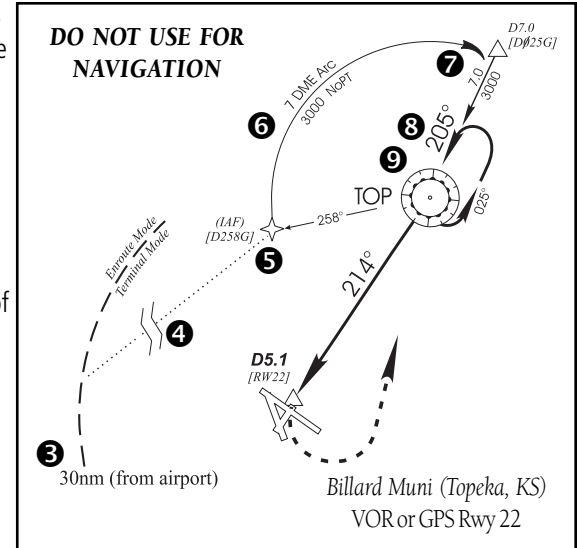


STEP 4: If you've loaded the approach, but not activated it, press **PROC** and select "Activate Approach?".



STEP 6: As you fly the DME arc, "Set Course to ###°" alerts you to periodically adjust the course select on the external CDI (or HSI).

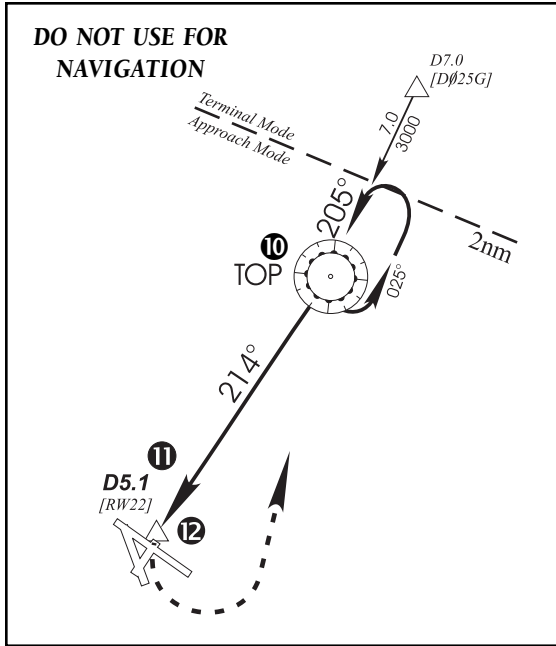
3. Within 30 nautical miles of KTOP, the GPS 500 switches from en-route mode to terminal mode and the CDI scale transitions from 5.0 to 1.0 nautical miles, full scale deflection.
4. If you have not already activated the approach (in step 2), ensure to do so when cleared for the approach. See page 55, step 5 for a description of this operation.
5. As you approach the IAF (LEBVY), a waypoint alert ("NEXT DTK 351°") appears in the lower right corner of the screen. As the distance (DIS) to the IAF approaches zero, the alert is replaced by a turn advisory ("TURN TO 351°").
6. Follow the arc, keeping the CDI needle centered. When using an autopilot, the course select on the CDI (or HSI) must be periodically updated with the desired track (DTK) to ensure proper tracking through the arc. Whenever the course select setting and desired track differ by more than 10°, a "Set course to ###°" message appears on the Message page.
7. The next point in the approach is an intermediate fix, labeled "D025G". As you approach this intermediate fix, a waypoint alert ("NEXT DTK 205°") appears in the lower right corner of the screen. As the distance to this fix approaches zero, the alert is replaced by a turn advisory ("TURN TO 205°"). Dial this course into the CDI (or HSI) using the OBS knob and initiate a standard rate turn to this course heading.
8. At 2.0 nautical miles from the FAF (TOP VOR), the GPS 500 switches from terminal mode to approach mode. CDI scaling is tightened from 1.0 to 0.3 nautical mile, full scale deflection.
9. As you approach the FAF, a waypoint alert in the lower right corner ("NEXT DTK 214°") appears. Select this course on the CDI (or HSI) using the OBS knob and turn to the final course segment (FAF to MAP) heading.



[continued]

4 - Procedures

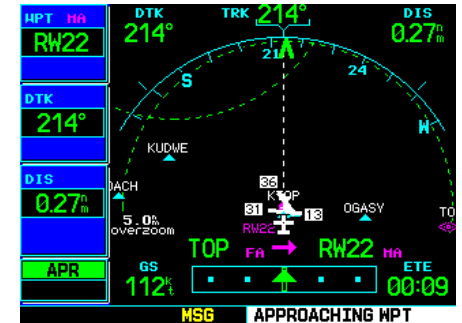
DME Arc Approach



- As you cross the FAF, the destination sequences to the MAP ("RW22", the runway threshold). With the needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate. When viewing the Map page, note that the final course segment is displayed in magenta (the active leg of the flight plan always appears in magenta) and a dashed line extends the course beyond the MAP.
- As you approach the MAP, a waypoint alert ("APPROACHING WPT") appears in the lower right corner of the screen.
- As you cross the MAP, "SUSP" appears above the **OBS** key, indicating that automatic sequencing of approach waypoints is suspended at the MAP. A "from" indication is displayed on the CDI and Default NAV page, but course guidance along the final approach course continues. Do NOT follow this extended course. Follow published missed approach procedures using the **OBS** key to initiate the missed approach sequence, as outlined on page 61.



STEP 9: As you approach the FAF, a "NEXT DTK 214°" waypoint alert will appear in the lower right corner of the screen.



STEP 11: As you approach the MAP, an "APPROACHING WPT" alert will appear in the lower right corner of the screen.

4 - Procedures

Vectors-To-Final Approach



STEP 3 (top): Selecting “VECTORS” from the transitions window activates only the final approach course.



STEP 4 (top): Select “Activate?” if already cleared for the approach.

Vectors to Final

Let’s take a second look at the “VOR 22” approach into Billard Municipal. Instead of following the DME arc, ATC tells you to expect vectors onto the final approach course. There are several ways to select “vectors to final” with the GPS 500. The first two options below normally require the least workload to accomplish:

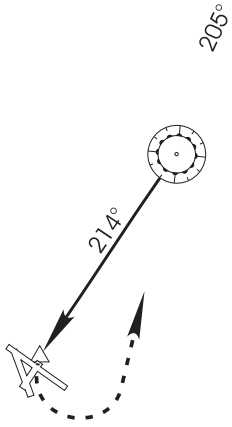
- When the approach is first selected, choose “VECTORS” from the transitions (“TRANS”) window.
- Load a full approach—including the IAF from the transitions window—as described on page 55. When cleared, press **PROC** and select “Activate Vectors-To-Final?” (see page 56).
- Load the full approach as described on page 55. Use the **direct-to** key (by pressing it twice) from the Active Flight Plan page to select the desired leg of the approach (see page 54).

To select “VECTORS” from the transitions window:

1. Select Billard Muni (KTOP) as your destination, using the **direct-to** key, or as the last waypoint in a flight plan.
2. Press the **PROC** key and select the “VOR 22” approach using the steps outlined on page 55.
3. From the transitions window, select “VECTORS”.
4. Select “Load?” (or “Activate?”, if already cleared for the approach).

To activate vectors-to-final from the procedures page:

1. Select Billard Muni (KTOP) as your destination, using the **direct-to** key or as the last waypoint in a flight plan.
2. Press the **PROC** key and select the “VOR 22” approach using the steps outlined on page 55.
3. From the transitions window, select “TOP” as the IAF. Also, select “Load?”.
4. When cleared, press the **PROC** key and select “Activate Vectors-To-Final?”.



4 - Procedures

Vectors-To-Final Approach

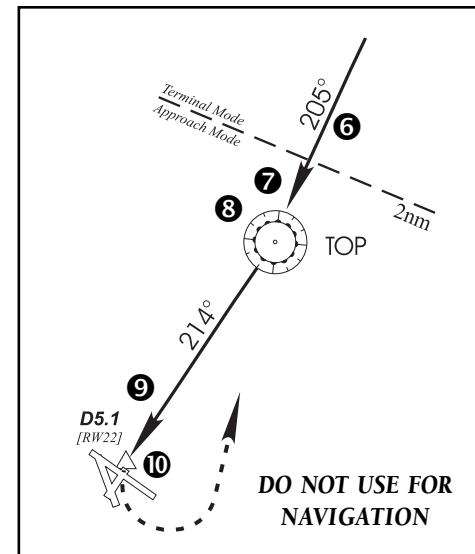


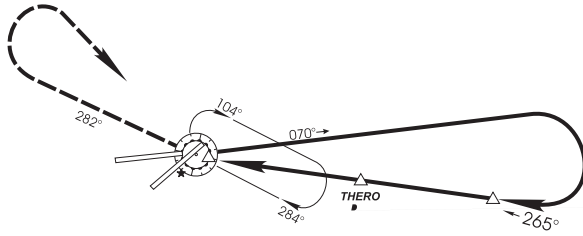
STEP 6: At 2.0 nautical miles from the FAF, the GPS 500 will switch from terminal (“TERM”) to approach (“APR”) mode. The CDI scale will transition from 1.0 to 0.3 nautical mile, full scale.



STEP 10: As you cross the MAP, “SUSP” will appear above the **OBS** key, indicating automatic sequencing is suspended.

- As the CDI needle centers, make any remaining course corrections to establish yourself on the final approach course. At 2.0 nautical miles from the FAF (TOP VOR), the GPS 500 switches from terminal mode to approach mode. CDI scaling is tightened from 1.0 to 0.3 nautical mile, full scale deflection.
- As you approach the FAF, a waypoint alert in the lower right corner (“NEXT DTK 214°”) appears. Make any course adjustments necessary for the final course segment (FAF to MAP).
- As you cross the FAF, the destination sequences to the MAP (“RW22”). With the needle centered, fly toward the MAP, observing the altitude minimums depicted on the approach plate.
- As you approach the MAP, a waypoint alert (“APPROACHING WPT”) appears in the lower right corner.
- As you cross the MAP, “SUSP” appears above the **OBS** key, indicating that automatic sequencing of approach waypoints is suspended at the MAP. A “from” indication is displayed on the CDI and Default NAV page, but course guidance along the final approach course continues. Do NOT follow this extended course. Follow published missed approach procedures using the **OBS** key to initiate the missed approach sequence, as outlined on page 61.





Course From Fix Flight Plan Legs

Certain approach, departure, and arrival procedures in the Jeppesen database contain *course from fix* flight plan legs. The GPS 500 is able to load these legs into the flight plan along with the rest of the procedure data, and to provide navigation along these legs.

There are three different types of course from fix legs:

TYPE 1: Course from fix to distance, or Course from fix to DME distance

Course from fix to distance legs appears in the flight plan like normal waypoints, but the destination name always begins with a "D", followed by a distance in tenths of nautical miles from the waypoint fix. This example uses the VOR/DME RWY 25 approach into Palmdale, California (KPMD) and includes a teardrop course reversal.

1. As you reach the initial approach fix (PMD), a waypoint alert ("NEXT DTK 070°") appears in the lower right corner of the screen. As the distance to the IAF approaches zero, the alert is replaced by a turn advisory ("TURN TO 070°"). Dial the outbound course into the CDI (or HSI) using the OBS knob and initiate a standard rate turn to this course heading.
2. Fly the outbound course, keeping the CDI needle centered. You are now on the 'course from fix to distance' leg, as shown on the Active Flight Plan and Default NAV pages. Note the magenta line in the bottom figure, which represents the currently active leg of the approach. The distance (DIS) displayed on the screens is TO the "D13.0" point. The flight plan automatically sequences to the next leg upon reaching "D13.0".
3. At 13.0 nm from the FAF, a waypoint alert ("NEXT DTK 265°") appears in the lower right corner of the screen. Make a standard rate turn to the right to intercept the final approach course and watch for the CDI needle to begin to center.

{continued}



4 - Procedures

Course-From-Fix Legs



STEP 9: As you cross the MAP, “SUSP” will appear above the **OBS** key, indicating that automatic sequencing of approach waypoints is suspended at the MAP. Press **OBS** to initiate a missed approach.



STEP 2: Within a few seconds of pressing **OBS** to start the missed approach, “SUSP” will re-appear above the **OBS** key.

- As you approach the intermediate fix (CF25), a waypoint alert (“NEXT DTK 265°”) appears. Make any necessary course adjustments.
- Within 2.0 nautical miles of the FAF (THERO), the GPS 500 switches from terminal mode to approach mode (“APR” appears in the lower left corner of the screen—replacing “TERM”). CDI scaling is tightened from 1.0 to 0.3 nautical mile, full scale deflection.
- As you approach the FAF, “NEXT DTK 265°” appears in the lower right corner of the screen.
- As you cross the FAF, the destination sequences to the MAP (MA25). With the CDI needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.
- As you approach the MAP, a waypoint alert (“APPROACHING WPT”) appears in the lower right corner of the screen.
- As you cross the MAP, “SUSP” appears above the **OBS** key, indicating that automatic sequencing of approach waypoints is suspended at the MAP. If a missed approach is required, use the **OBS** key to initiate the missed approach sequence, as outlined below.

TYPE 2: Course from fix to altitude

Course from fix to altitude legs shows the specific target altitude on the Active Flight Plan and Default NAV pages. The missed approach sequence for the Palmdale VOR/DME RWY 25 approach includes a *course from fix to altitude* leg. In this instance, the leg corresponds to the initial phase of the missed approach, which reads “Climb to 5000’ outbound via PMD VOR R-282”.

- After crossing the MAP, press the **OBS** key. The missed approach sequence is automatically offered, starting with the ‘course from fix to altitude’ leg. The “NEXT DTK 282°” waypoint alert appears in the lower right corner of the screen. Follow the missed approach procedures, as published on your approach plate, for proper climb and heading instructions.
- Note that within a few seconds of pressing **OBS** to release suspend mode and start the missed approach sequence, “SUSP” re-appears above the **OBS** key as the GPS 500 returns to suspend mode. This is normal when flying a ‘course from fix to altitude’ leg and indicates that automatic leg sequencing is suspended.

{continued}



3. Fly the outbound course keeping the CDI needle centered. The Map page depicts the flight path extending indefinitely from PMD VOR. The distance (DIS) on the Default NAV, Map and Active Flight Plan pages increases and indicates the distance back to PMD VOR.
4. Upon reaching the desired altitude (5000'), press **OBS** to return to automatic leg sequencing. Confirm that "SUSP" no longer appears directly above the **OBS** key.
5. An alert ("NEXT DTK 115°") appears guiding you to the inbound course. The actual desired track (DTK) depends on your ground speed and distance from PMD VOR. Intercept and fly the inbound course, keeping the CDI needle centered.
6. As you approach PMD VOR (the missed approach holding point), an alert message in the lower right hand corner of the screen recommends the holding pattern entry procedure ("HOLD PARALLEL"). As you fly the holding pattern, a timer appears on the Default NAV page. The timer automatically resets on each outbound and inbound portion of the holding pattern.
7. Note that the GPS 500 again displays "SUSP" above the **OBS** key. Automatic waypoint sequencing is suspended at the missed approach holding point. A waypoint alert ("APPROACHING WPT") appears in the lower right corner of the screen each time you approach PMD VOR in the holding pattern.
8. When leaving the holding pattern, press the **PROC** key to reactivate the approach or select a different approach, or press **direct-to** to select another destination.

on the Active Flight Deck (AFD) screen. Press the **FROM** key to select the departure route FROM the waypoint (HFD VOR in this example).

3. Fly the outbound course key. Once you are cleared to sequence, press the **OUT** key directly above the **OBS** key. An arrow will appear pointing you to the next waypoint (HFD VOR). The departure route is from HFD VOR.
4. Once the **OBS** key is pressed, the GPS 500 will display the departure route, including the selected transition.

4 - Procedures Additional Approach Info



“SUSP” indicates that automatic sequencing of approach waypoints is suspended. In some instances “SUSP” will automatically cancel (holding pattern entry). In other cases, press **OBS** to manually cancel.

Points to Remember for ALL Approaches

- The GPS 500 is designed to complement your printed approach plates and vastly improve situational awareness throughout the approach. However, **you must always fly an approach as it appears on the approach plate.**
- The active leg (or the portion of the approach currently in use) is depicted in magenta on the Map page. As you fly the approach, the GPS 500 automatically sequences through each leg of the approach unless “SUSP” appears above the **OBS** key. “SUSP” indicates that automatic sequencing of approach waypoints is *suspended* on the current leg and normally appears at holding patterns and upon crossing the missed approach point (MAP).



You are now on the ‘course from fix to manual sequence’ leg. Once cleared to sequence to the next leg, pressing the **OBS** key removes the SUSP annunciator.



STEPS 3 & 4: Once cleared to the next leg, press **OBS**. An alert appears indicating the desired track and the unit will sequence to the next waypoint.

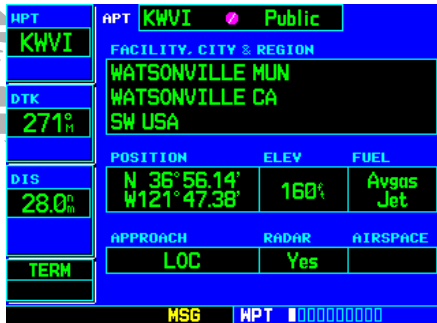
5 - WPT PAGES

WPT Page Group

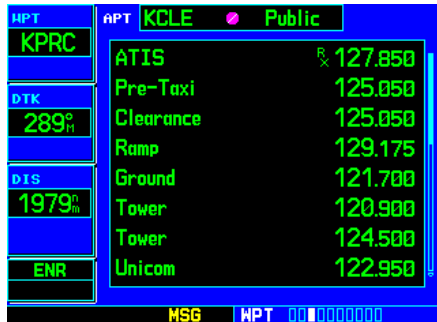
Section 5: WPT Pages

WPT Page Group

Section 1 introduced the GPS 500's main page groups—NAV, WPT, AUX, NRST—and described each page in the NAV group. This second page group (WPT) provides information for the thousands of airports, VORs, NDBs, intersections, runways, frequencies and procedures stored on your Jeppesen NavData® card. A WPT page is also provided to display information for up to 1,000 user-created waypoints.



The Airport Location page is the first of ten pages available in the WPT page group.



To view a different WPT page, the on-screen cursor must not be visible (press the **small right knob** to remove the cursor, if necessary). Rotate the **small right knob** to select the desired WPT page.

NAV
4 available pages
(see pg. 21)

WPT
10 available pages
(see list below)

AUX
3 available pages
(see list pg. 113)

NRST
8 available pages
(see list pg. 101)



Airport Location



Airport Runway



Airport Frequency



Airport Approach



Airport Arrival



Airport Departure



Intersection



NDB



VOR



User Waypoint



5 - WPT PAGES

Duplicate Waypoints



When selecting a waypoint by facility name or city, you can scroll through duplicate entries by continuing to rotate the **small right knob**.



When selecting a waypoint by identifier, a Duplicate Waypoints window may appear, allowing you to select a desired waypoint by type and region.

5. Rotate the **large right knob** to select the next character field.
6. Repeat steps 4 and 5 until the facility name or location is selected, then press **ENT**.
7. To remove the flashing cursor, press the **small right knob**.

Duplicate Waypoints

Once the identifier, facility name or location is entered, all six airport pages display information for the selected airport. As you enter an identifier, facility name or location, the GPS 500's Spell'N'Find™ feature scrolls through the database, displaying those waypoints matching the characters you have entered to that point. If duplicate entries exist for the entered facility name or location, additional entries may be viewed by continuing to rotate the **small right knob** during the selection process (see page 77). If duplicate entries exist for an entered identifier, a duplicate waypoint page appears once you select the identifier by pressing **ENT**.

To select a facility name or city location, where duplicate entries exist:

1. Select the desired facility name or location, following the steps on page 77.
2. As you spell the facility name or location, using the **small** and **large right knobs**, the GPS 500's Spell'N'Find feature selects the first entry in the database based upon the characters you have entered up to that point.
3. Continue rotating the **small right knob** to scroll through any additional database listings for the selected facility name or location. You can scroll backwards with the **small right knob** if you scroll past the desired facility name or location.
4. Press **ENT** to select the desired facility name or location.
5. To remove the flashing cursor, press the **small right knob**.

To select a waypoint identifier from a list of duplicates:

1. Select the desired airport or navaid identifier following the steps on page 77.
2. A Duplicate Waypoints window appears. Rotate the **large right knob** to select the desired waypoint and press **ENT**.
3. To remove the flashing cursor, press the **small right knob**.

Airport Location Page

The Airport Location page displays the latitude, longitude and elevation of the selected airport. The Airport Location page also displays facility name and location, as well as fuel availability, best available instrument approach, radar coverage and airspace type. The following descriptions and abbreviations are used:

- Type— Usage type: Public, Military or Private
- Position— Latitude/Longitude (degrees/minutes or degrees/minutes/seconds), MGRS or UTM/UPS
- Elevation— In feet or meters
- Fuel— For public-use airports, the available fuel type(s) are: Avgas (80-87/100LL/100-130/Mogas), Jet, or None
- Approach— Best available approach: ILS, MLS, LOC, LDA, SDF, GPS, VOR, RNAV (“RVN”), LORAN (“LOR”), NDB, TACAN (“TCN”), Helicopter (“HEL”), or VFR
- Radar— Radar coverage: Yes or No
- Airspace— Control environment: Class C, CTA, TMA, TRSA, Class B or none



NOTE: Upon active navigation changes, the active destination airport appears as the default airport on the WPT pages. Manual selection of the destination airport is available from the page menu.

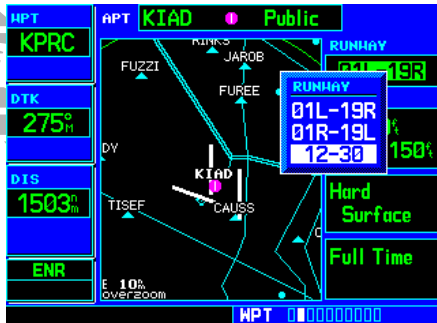
5 - WPT PAGES Airport Location

Airport Location page indicating radar coverage and airspace type.

The Airport Location page indicates the best available approach for the selected airport. To see additional approach information, select the Airport Approach page (see page 84).

5 - WPT PAGES

Airport Runways



STEPS 2 & 3 (page 81, top): Highlight the RUNWAY field and rotate the **small right knob** to display a listing of all runways at the selected airport.



STEP 5 (page 81): Press **ENT** to display information for the selected runway.

Finding the Desired Airport

Your GPS 500 uses ICAO identifiers for all airports. All U.S. airport identifiers which contain only letters use the prefix “K”. For example, Los Angeles International is KLAX under the ICAO standard. Other airports, such as Otten Memorial (3VS), that contain numbers in the identifier, do not require the “K” prefix. Alaska, Hawaii and many foreign countries use two letter prefixes. For more information on ICAO identifiers, contact ICAO at: Document Sales Unit, International Civil Aviation Organization, 999 University Street, Montreal, Quebec, Canada, H3C 5H7.

If you encounter difficulty when selecting an airport, try retrieving the desired airport using the facility name or the city in which it is located, using the steps on page 77.

Airport Runway Page



The Airport Runway page displays runway designations, length, surface type and lighting for the selected airport. A map image of the runway layout and surrounding area is also displayed on the Airport Runway page. The map image scale appears in the lower left corner and is adjustable using the **RNG** key. For airports with multiple runways, information for each runway is available.

5 - WPT PAGES

Airport Frequencies

To display information for each additional runway:

1. Press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to place the cursor on the "Runway" designation field.
3. Rotate the **small right knob** to display a window listing all runways for the selected airport.
4. Continue rotating the **small right knob** to select the desired runway.
5. Press **ENT** to display information for the selected runway on the Airport Runway page.
6. To remove the flashing cursor, press the **small right knob**.

To adjust the scale of the map image:

1. Press the down arrow side of the **RNG** key to display a smaller map area.
2. Press the up arrow side of the **RNG** key to display a larger map area.

The following descriptions and abbreviations are used on the Airport Runway page:

- Type— Usage type: Public, Military or Private
- Surface— Runway surface types include: Hard, Turf, Sealed, Gravel, Dirt, Soft, Unknown or Water
- Lighting— Runway lighting types include: No Lights, Part Time, Full Time, Unknown or Frequency (for pilot-controlled lighting)

Airport Frequency Page

The Airport Frequency page displays radio frequencies and frequency types for the selected airport, as well as sector and altitude restrictions (where applicable). If the selected airport has a localizer-based approach, the localizer frequency(s) is also listed on the Airport Frequency page. The Airport Frequency page may be used for reference to tune external COM or VOR/ILS frequencies.

APT	KIAD	Public
KPRC	ATIS	134.850
DTK	Pre-Taxi	135.700
DIS	Clearance	135.700
ENR	Ramp	119.125
	Ramp	129.550
	Ground	121.900
	Ground	132.450
	Tower	120.100

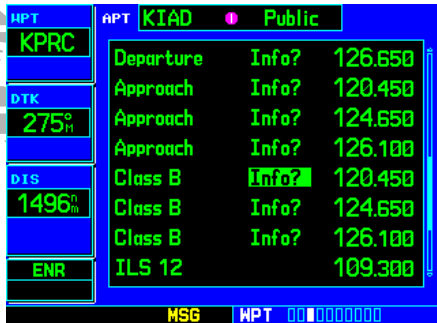
When the frequency list is too long to display on a single page, the scroll bar along the right-hand side of the list indicates the portion of the list you are currently viewing (the shaded area) and the overall length of the list (indicated by the height of shaded and unshaded areas).

APT	KIAD	Public
KPRC	Departure	Info? 126.650
DTK	Approach	Info? 120.450
DIS	Approach	Info? 124.650
ENR	Approach	Info? 126.100
	Class B	Info? 120.450
	Class B	Info? 124.650
	Class B	Info? 126.100
	ILS 12	109.300

Rotate the **large right knob** to scroll through the list.

5 - WPT PAGES

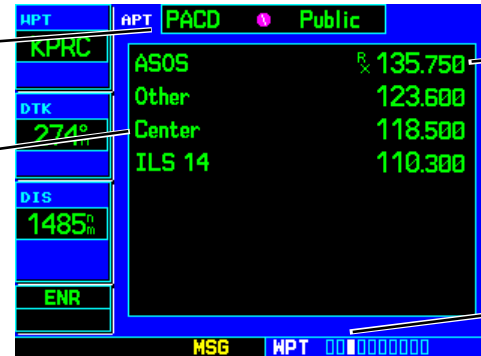
Airport Frequencies



When "Info?" appears to the left of a displayed frequency, the frequency has usage restrictions.



To display the usage restrictions, highlight "Info?" and press **ENT**. A pop-up window displays the restriction information.



Identifier, Symbol and Type

Frequency Type

Frequency

Third Page in WPT Group

To scroll through the frequency list and view a desired frequency on the list:

1. Press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to scroll through the list, placing the cursor on the desired frequency. If there are more frequencies in the list than can be displayed on the screen, a scroll bar along the right-hand side of the screen indicates where you are within the list.
3. Enter the selected frequency in the external COM transceiver or VOR/ILS receiver.
4. To remove the flashing cursor, press the **small right knob**.

Some listed frequencies may include designations for limited use, as follows:

- “TX” - transmit only
- “PT” - part time frequency
- “RX” - receive only

If a listed frequency has sector or altitude restrictions, the frequency is preceded by an “Info?” designation.

To view usage restrictions for a frequency:

1. Rotate the **large right knob** to place the cursor on the “Info?” designation directly to the left of the desired frequency.
2. Press **ENT** to display the restriction information.
3. To return to the Airport Frequency page, press **ENT**.

5 - WPT PAGES

Airport Frequencies

The following descriptions and abbreviations are used on the Airport Frequency page:

- Type— Usage type: Public, Military or Private
- Frequency— Communication frequencies which may include restrictions:

Approach	Arrival	Class B
Class C	CTA	Departure
TMA	Terminal	TRSA

 Communication frequencies without restrictions:

ATIS	ASOS	AWOS
Center	Clearance	Gate
Control	Ground	Helicopter
Multicom	Pre-taxi	Radar
Ramp	Other	Tower
	Unicom	

 Navigation frequencies:

ILS	LOC
-----	-----

Frequency	Frequency	Restrictions
ATIS	134.850	RX
Pre-Taxi	135.700	
Clearance	135.700	
Ramp	119.125	
Ramp	129.550	
Ground	121.900	
Ground	132.450	
Tower	120.100	

Listed communication frequencies include ATIS, clearance delivery, ground control, tower, unicom, approach and departure. The “RX” next to ATIS identifies it as a “receive only” frequency.

Frequency	Frequency	Restrictions
Class B	120.450	Info?
Class B	124.650	Info?
Class B	126.100	Info?
ILS 12	109.300	
ILS 19R	111.300	
ILS 01R	110.100	
ILS 01L	111.300	
ILS 19L	110.100	10.100

Navigation frequencies for ILS and localizer (LOC) also appear on the list.

5 - WPT PAGES





NOTE: Not all approaches in the database are approved for GPS use. As you select an approach, a “G_P” designation to the right of the procedure name indicates the procedure can be flown using the GPS receiver. Some procedures do not have this designation, meaning the GPS receiver may be used for supplemental navigation guidance only. ILS approaches, for example, must be flown by tuning the external VOR/ILS receiver to the proper frequency and following the external CDI (or HSI) for guidance.

Airport Approach Page Options

The following options are available for the Airport Approach page, by pressing the **MENU** key:

Load into Active FPL? allows you to load the selected approach into the active flight plan—without activating it. This performs the same operation as selecting “Load?” from the Procedures page “Select Approach?” option. See page 55.

To load an approach from the Airport Approach page:

1. Select the desired approach and transition using the steps outlined on page 84.
2. Press **MENU** to display the Airport Approach page Options.
3. Rotate the **large right knob** to highlight “Load into Active FPL?” and press **ENT**.
4. The Active Flight Plan page appears. Press **FPL** to return to the Airport Approach page.

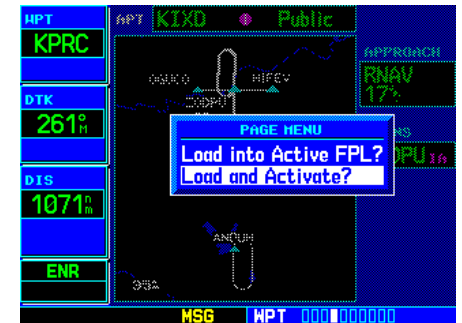
Load and Activate? allows you to load the selected approach into the active flight plan and activate navigation guidance to the approach transition. See page 57.

To load and activate an approach from the Airport Approach page, follow the steps above, but select “Load and Activate?” in step 3.

5 - WPT PAGES Airport Approach Options



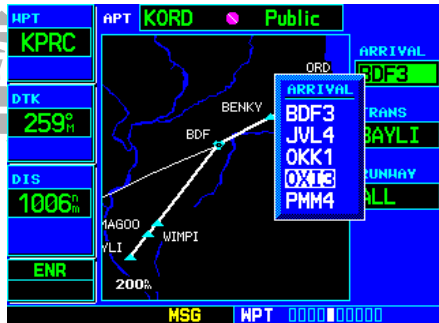
STEPS 2 & 3: From the Airport Approach page, press **MENU** to display an options list. Select “Load into Active FPL?” to load the approach for later use.



Select “Load and Activate?” to immediately begin using the approach waypoints for navigation guidance.

5 - WPT PAGES

Airport Arrivals



STEPS 2 & 3: With the cursor on the "ARRIVAL" field, rotate the **small right knob** to display a list of available arrival procedures.



STEP 5: With the cursor on the "TRANS" field, rotate the **small right knob** to display a list of available transitions.

Airport Arrival Page



The Airport Arrival page shows the available Airport Standard Terminal Arrival (STAR) procedures for the selected airport. Where multiple transitions or runways are associated with the arrival procedure, that information may also be displayed. A map image provides a layout diagram for each arrival, transition and runway.

To scroll through the available arrivals:

1. Press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to place the cursor on the "ARRIVAL" procedure name field.
3. Rotate the **small right knob** to display a window of available arrivals for the selected airport. Continue rotating the **small right knob** to select the desired arrival.
4. Press **ENT**. The cursor moves to the transitions (TRANS) field.
5. Rotate the **small right knob** to display a window of available transitions. Continue rotating the **small right knob** to select the desired transition.
6. Press **ENT**. The cursor moves to the runway field.

{continued}

5 - WPT PAGES

Airport Arrivals

7. Rotate the **small right knob** to display a window of available runways. Continue rotating the **small right knob** to select the desired runway.



NOTE: "ALL" may appear in the runway field, indicating the arrival procedure applies to all runways. For airports with parallel runways, "B" may appear at the end of the runway designation to indicate the arrival procedure applies to both runways.

8. Press **ENT**. To remove the flashing cursor, press the **small right knob**.

Airport Arrival Page Options

The following option is available for the Airport Arrival page, by pressing the **MENU** key:

Load into Active FPL? allows you to load the selected arrival into the active flight plan. This is identical to loading an arrival procedure from the Procedures page, as described on page 55.

To load an arrival procedure from the Airport Arrival page:

1. Select the desired arrival, transition and runway using the steps above.
2. Press **MENU** to display the Airport Arrival page Options.
3. Press **ENT** to select the "Load into Active FPL?" option.
4. The Active Flight Plan page appears. Press **FPL** to return to the Airport Arrival page.



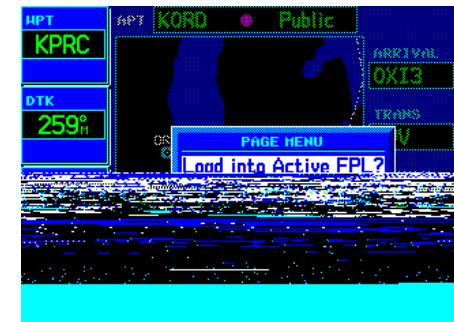
Loading an arrival procedure into the active flight plan does NOT automatically alter the active flight plan leg or direct-to navigation. Once loaded, the arrival is simply placed at the end of the flight plan. To manually transition to a loaded arrival, please see the procedure below (an alternative method would be to remove the first occurrence of the destination airport identifier).

To manually transition to a loaded arrival procedure:

1. From the Active Flight Plan Page, press the **small right knob** to activate the cursor and scroll down through the list of loaded arrival waypoints.
2. When the desired loaded arrival waypoint is highlighted, press the **direct-to** key, then press **ENT** to highlight the 'Activate?' prompt (note that any loaded arrival waypoint may be selected).
3. Press **ENT** again to confirm activation.



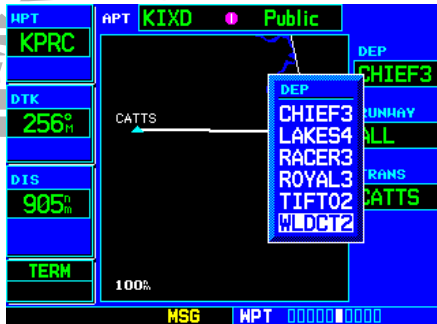
STEP 7: With the "RUNWAY" field highlighted, rotate the **small right knob** to select the desired runway. Many arrivals apply to all runways for a particular airport, as indicated by "ALL".



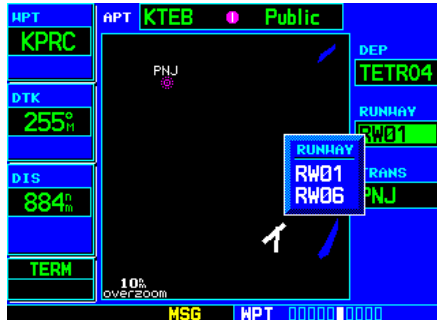
STEPS 2 & 3: From the Airport Arrival page, press **MENU** to display an options list. "Load into Active FPL?" allows you to add the arrival procedure to your flight plan for later use.

5 - WPT PAGES

Airport Departures

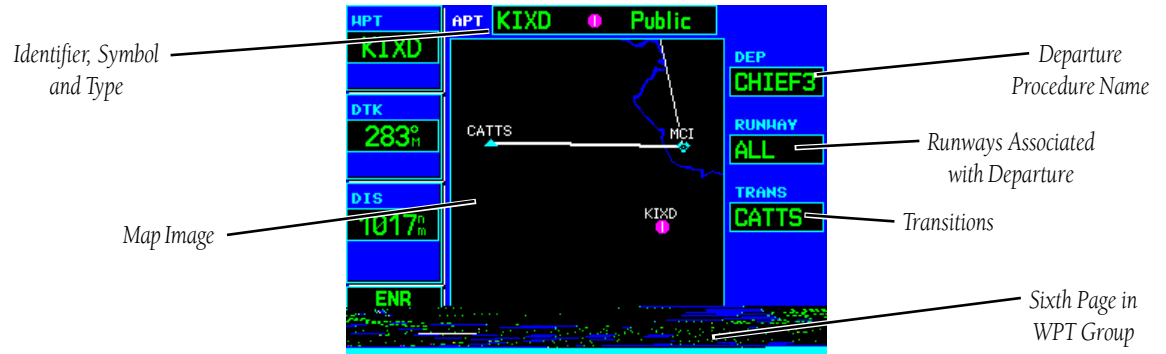


STEPS 2 & 3: With the cursor on the “DEP” field, rotate the **small right knob** to display a list of available departure procedures.



STEP 5: With the cursor on the “RUNWAY” field, rotate the **small right knob** to display a list of available runways.

Airport Departure Page



The Airport Departure page shows the available Airport Standard Instrument Departure Procedures [DP (formerly SID)] for the selected airport. Where multiple runways or transitions are associated with the departure procedure, that information may also be displayed. A map image provides a layout diagram for each departure, runway and transition.

To scroll through the available departures:

1. Press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to place the cursor on the departure (DEP) procedure name field.
3. Rotate the **small right knob** to display a window of available departures for the selected airport. Continue rotating the **small right knob** to select the desired departure.
4. Press **ENT**. The cursor moves to the runway field.
5. Rotate the **small right knob** to display a window of available runways. Continue rotating the **small right knob** to select the desired runway.

{continued}



NOTE: "ALL" may appear in the runway field, indicating the departure procedure applies to all runways. For airports with parallel runways, "B" may appear at the end of the runway designation to indicate the departure procedure applies to both runways.

6. Press **ENT**. The cursor moves to the transitions (TRANS) field.
7. Rotate the **small right knob** to display a window of available transitions. Continue rotating the **small right knob** to select the desired transition.
8. Press **ENT**. To remove the flashing cursor, press the **small right knob**.

Airport Departure Page Options

The following option is available for the Airport Departure page, by pressing the **MENU** key:

Load into Active FPL? allows you to load the selected departure into the active flight plan. This is identical to loading a departure procedure from the Procedures page, as described on page 55.

To load a departure procedure from the Airport Departure page:

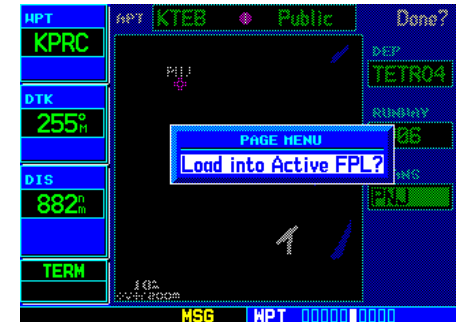
1. Select the desired departure, runway and transition using the steps above.
2. Press **MENU** to display the Airport Departure Page options.
3. Press **ENT** to select the "Load into Active FPL?" option.
4. The Active Flight Plan page appears. Press **FPL** to return to the Airport Departure page.

5 - WPT PAGES

Airport Departures



STEP 7: With the "TRANS" field highlighted, rotate the **small right knob** to select the desired transition.



STEPS 2 & 3: From the Airport Departure page, press **MENU** to display an options list. "Load into Active FPL?" allows you to add the arrival procedure to the beginning of your flight plan.

5 - WPT PAGES

Intersections



To display information for an intersection, highlight the identifier field. Then use the **small** and **large right knobs** to enter the intersection name.



Intersection Page



The Intersection page displays the latitude, longitude, region and country for the selected intersection. The Intersection page also displays the identifier, radial and distance from the nearest VOR, VORTAC or VOR/DME. The following descriptions and abbreviations are used:

- Position— Latitude/Longitude (degrees/minutes or degrees/minutes/seconds), MGRS or UTM/UPS
- RAD— Radial from nearest VOR in degrees magnetic or degrees true (depending upon unit configuration)
- DIS— Distance from nearest VOR, in nautical miles/statute miles/kilometers (depending upon unit configuration)



NOTE: The VOR displayed on the Intersection page is the nearest VOR, not necessarily the VOR used to define the intersection.

Intersections may only be selected by identifier, as described on page 77.

NDB Page

Identifier and Symbol

Latitude/Longitude Position

Facility Name, City and Region/Country

Frequency and Weather Broadcast Indication

Eighth Page in WPT Group

HPT	NDB	FACILITY, CITY & REGION		
KPRC	MF	PUMIE MEDFORD OR NW USA		
DTK	291 _{Hz}			
DIS	2025 _{Hz}	POSITION	FREQ	WX BRDCST
		N 42° 27.05' W 122° 54.80'	373.0	No
ENR				
MSG WPT 00000000 00				

The NDB page displays the facility name, city, region/country, latitude and longitude for the selected NDB. The NDB page also displays the frequency and a weather broadcast indication (if applicable). The following descriptions and abbreviations are used:

- Symbol— See page 26 for a graphic illustration of available NDB symbols
- Position— Latitude/Longitude (degrees/minutes or degrees/minutes/seconds), MGRS or UTM/UPS
- FREQ— Frequency in kilohertz (kHz)
- Wx Brdcst— Weather information is broadcast on the selected facility's frequency

NDBs may be selected by identifier, facility name or location (city).

5 - WPT PAGES

NDBs

HPT	NDB	FACILITY, CITY & REGION		
KPRC	MF	PUMIE MEDFORD OR NW USA		
DTK	248 _{Hz}			
DIS	633 _{Hz}	POSITION	FREQ	WX BRDCST
		N 42° 27.05' W 122° 54.80'	373.0	No
ENR				
MSG WPT 00000000 00				

To display information for an NDB, highlight the identifier field. Then use the **small** and **large right knobs** to enter the NDB's identifier.

HPT	NDB	FACILITY, CITY & REGION		
KPRC	ULS	ULYSSES ULYSSES KS N CEN USA		
DTK	248 _{Hz}			
DIS	630 _{Hz}	POSITION	FREQ	WX BRDCST
		N 37° 35.83' W 101° 22.89'	395.0	No
ENR				
MSG WPT 00000000 00				

5 - WPT PAGES



User Waypoint Page

The screenshot shows the User Waypoint page with the following fields and labels:

- User Waypoint Name:** Points to the HPT field containing 'KLXV'.
- Reference Waypoint Information:** Points to the REF WPT, RAD, and DIS fields. The REF WPT is '0JC', RAD is '265.0°', and DIS is '7.1°'.
- Latitude/Longitude Position:** Points to the POSITION field showing 'N 38° 50.55' W 094° 53.27'.
- Create/Modify Action Field:** Points to the 'Modify?' button.
- Tenth Page in WPT Group:** Points to the 'MSG WPT 0000000000' indicator at the bottom.

In addition to the airport, VOR, NDB and intersection information contained in your Jeppesen NavData® card, the GPS 500 allows you to store up to 1,000 user-defined waypoints. The User Waypoint page displays the waypoint name (up to five characters long), identifier and radial from two reference waypoints, distance from one reference waypoint, along with the user waypoint's latitude/longitude position.

The following descriptions and abbreviations appear on the User Waypoint page:

- REF WPT— Reference waypoint identifier (name)
- RAD— Radial from reference waypoint, in degrees magnetic or degrees true (depending upon unit configuration)
- DIS— Distance from reference waypoint, in nautical miles/statute miles/kilometers (depending upon unit configuration)
- Position— Latitude/Longitude (degrees/minutes or degrees/minutes/seconds), MGRS or UTM/UPS

User waypoints may only be selected by name (identifier), as described on page 77.

5 - WPT PAGES User Waypoints

The screenshot shows the User Waypoint page with a 'PAGE MENU' overlay. The menu options are 'Review Airspace?' and 'Create User Wpt?'. The background shows the same fields as the previous screenshot, but with a different reference waypoint: REF WPT 'TBE', RAD '062.3°', and DIS '479°'.

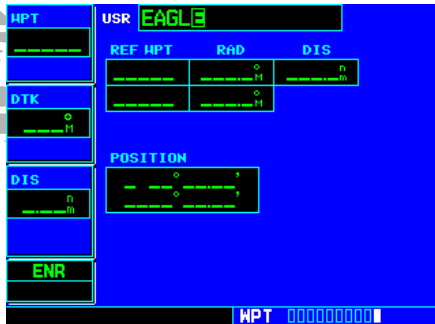
When panning with the target pointer (see page 27) press the **menu** key and select “Create User Wpt?” to create a user waypoint at that location.

The screenshot shows the User Waypoint page with the HPT field 'KPRC' highlighted. The REF WPT is '0JC', RAD is '265.0°', and DIS is '7.1°'. The POSITION field shows 'N 38° 50.55' W 094° 53.27' and the 'Modify?' button is visible.

To display information for a user waypoint, highlight the name field. Then use the **small** and **large right knobs** to enter the waypoint name.

5 - WPT PAGES

Creating User Waypoints



STEP 2: Use the **small and large right knobs** to enter a name for the new waypoint. When you press **ENT**, your present position automatically appears in the “Position” field.



STEPS 3 & 4: To enter a different position, highlight the position field and use the **small and large right knobs** to enter the new position coordinates.

Creating User Waypoints

User waypoints may be created from the User Waypoint page or the Map page. To create a new user waypoint, simply enter its name (identifier) and position, or reference another waypoint by radial and distance.

To create a new user waypoint by entering its latitude/longitude position:

1. With the User Waypoint page displayed, press the **small right knob** to activate the cursor.
2. Use the **small and large right knobs** to enter a name for the new waypoint and press **ENT**. Your present position appears in the position field at the bottom of the page. To create a waypoint at your present position, rotate the **large right knob** to highlight “Create?” and skip to step 6.
3. Rotate the **large right knob** to highlight the position field at the bottom of the page.
4. Use the **small and large right knobs** to enter the position coordinates for the new waypoint.
5. Press **ENT** to accept the selected position.
6. The cursor moves to “Create?”. Press **ENT** to add the new waypoint to memory.
7. Press the **small right knob** to remove the flashing cursor.

5 - WPT PAGES

Creating User Waypoints

To create a new user waypoint by referencing an existing waypoint:

1. With the User Waypoint page displayed, press the **small right knob** to activate the cursor.
2. Use the **small** and **large right knobs** to enter a name for the new waypoint and press **ENT**.
3. Rotate the **large right knob** to highlight the first reference waypoint (REF WPT) field.
4. Use the **small** and **large right knobs** to enter the identifier of the reference waypoint. The reference waypoint can be an airport, VOR, NDB, intersection or another user waypoint. Press **ENT** to accept the selected identifier.
5. The cursor moves to the radial (RAD) field. Use the **small** and **large right knobs** to enter the radial from the reference waypoint to the new user waypoint. Press **ENT** to accept the selected radial.
6. The cursor moves to the distance (DIS) field. Use the **small** and **large right knobs** to enter the distance from the reference waypoint to the new user waypoint. Press **ENT** to accept the selected distance.
7. Rotate the **large right knob** to highlight "Create?" and press **ENT**.
8. Press the **small right knob** to remove the flashing cursor.



NOTE: The GPS 500 allows you to create a new user waypoint at a defined radial and distance from your present position. To reference your present position, follow the steps above, but press **CLR** in step 4. "P.POS" appears in the reference waypoint (REF WPT) field to indicate that radial and distance information references your present position.

The second reference waypoint field (REF WPT) is a temporary reference only—not a reference that is stored with the user waypoint. You may also use this in conjunction with the first reference waypoint to create a position using the intersection of two radials. By default, this field displays a radial from the nearest VOR. However, you can select any waypoint—by identifier—to use as a reference in this field.

Your GPS 500 can store user-defined waypoints which are generated from other equipment in your panel. For example, an EFIS equipped with joystick inputs can be used to create user waypoints which (if your installation supports it) automatically transfer to your GPS 500.

WPT	USR	LAKE	
KPRC	REF WPT	RAD	DIS
	EAGLE	269.0°	810.0%
DTK	TAS	266.4%	
242°			
DIS			
325°			
ENR			
	POSITION		
	N 37° 37.14'		
	W 122° 22.49'		
			Modify?
	MSG	WPT	00000000

STEPS 3 & 4: Use the **small** and **large right knobs** to enter the name of the reference waypoint. Press **ENT** and the cursor moves to the radial (RAD) field.

WPT	USR	LAKE	
KPRC	REF WPT	RAD	DIS
	EAGLE	189.0°	810.0%
DTK	TAS	266.4%	
242°			
DIS			
324°			
ENR			
	POSITION		
	N 37° 37.14'		
	W 122° 22.49'		
			Modify?
	MSG	WPT	00000000

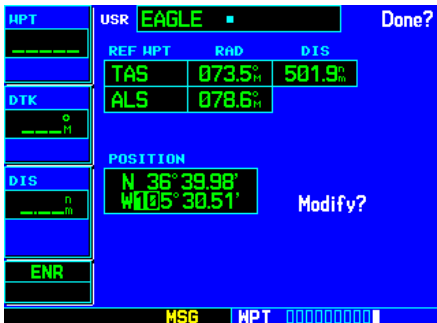
STEP 5: Use the **small** and **large right knobs** to enter the radial from the reference waypoint to the new user waypoint.

5 - WPT PAGES

Creating User Waypoints



The Map page can be used to create a user waypoint, by panning to the desired location and pressing **ENT**.



From the User Waypoint page, use the **small** and **large right knobs** to modify the position coordinates of an existing user waypoint.

Creating User Waypoints from the Map page

The Map page and panning target pointer (see page 27) provide a quick means of saving your present position as a user-defined waypoint.

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

1. With the Map page displayed, press the **small right knob** to activate the panning function. The target pointer appears at your present position.
2. Press **ENT** to capture the pointer's position and display the User Waypoint page.
3. A four-digit number is automatically assigned as the waypoint's name. To change this name, rotate the **large right knob** to highlight the name field, then use the **small** and **large right knobs** to select a new name. Press **ENT** to accept the selected name. Use the **large right knob** to move the cursor to the "Create?" action field.
4. With "Create?" highlighted, press **ENT** to save the new waypoint.

Modifying User Waypoints

To modify an existing waypoint, select that waypoint on the User Waypoint page and enter the new position information directly over the old information.

To modify a user waypoint by changing its latitude/longitude position:

1. With the User Waypoint page displayed, press the **small right knob** to activate the cursor.
2. Rotate the **large right knob** to highlight the "Modify?" field at the bottom of the page and press **ENT**.
3. Rotate the **large right knob** to highlight the position field at the bottom of the page.
4. Use the **small** and **large right knobs** to enter the new position coordinates and press **ENT** to accept the selected position.
5. The cursor moves to the "Modify?" action field. Press **ENT** to modify the waypoint.
6. Press the **small right knob** to remove the flashing cursor.

5 - WPT PAGES

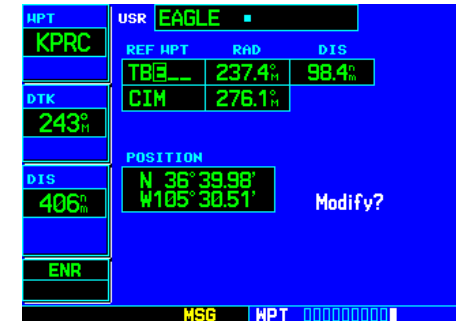
Modifying User Waypoints

To modify a user waypoint by changing reference waypoint information:

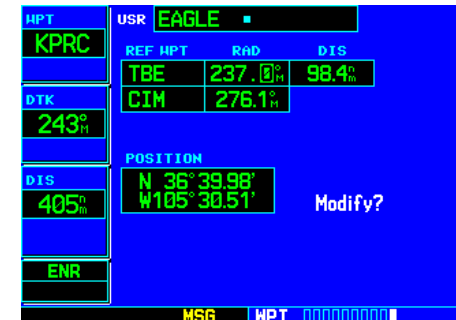
1. With the User Waypoint page displayed, press the **small right knob** to activate the cursor.
2. Use the **small** and **large right knobs** to enter the name of the desired waypoint and press **ENT**.
3. Rotate the **large right knob** to highlight the first reference waypoint (REF WPT) field, if you wish to change the reference waypoint. Otherwise, continue rotating the **large right knob** to highlight the radial (RAD) or distance (DIS) field, as desired.
4. Use the **small** and **large right knobs** to change the identifier—if desired—of the reference waypoint. The reference waypoint can be an airport, VOR, NDB, intersection or another user waypoint. Press **ENT** to accept the selected identifier.
5. The cursor moves to the radial (RAD) field. Use the **small** and **large right knobs** to change the radial from the reference waypoint, if desired. Press **ENT** to accept the selected radial.
6. The cursor moves to the distance (DIS) field. Use the **small** and **large right knobs** to change the distance from the reference waypoint to the new user waypoint, if desired. Press **ENT** to accept the selected distance.
7. The cursor moves to the “Modify?” action field. Press **ENT** to modify the waypoint.
8. Press the **small right knob** to remove the flashing cursor.



NOTE: If you attempt to modify or delete a waypoint which is currently a direct-to waypoint or the current “from” or “to” waypoint in the active flight plan, the GPS 500 alerts you with a “Can’t change an active waypoint” or “Waypoint is active and can’t be deleted” message. You must first cancel the direct-to or remove the waypoint(s) from the active flight plan before modifying or deleting the waypoint(s).



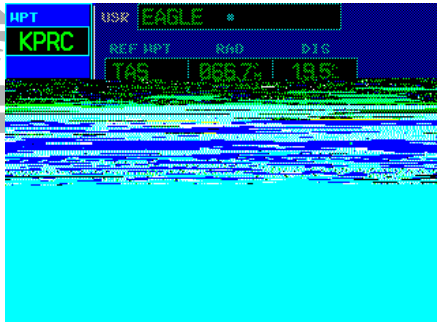
STEP 3: You can modify the location of an existing waypoint by changing the reference waypoint and/or by changing the radial and distance.



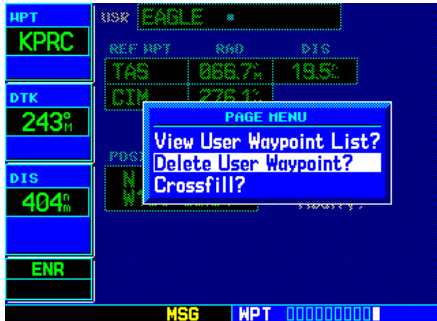
STEP 5: With the radial (RAD) field highlighted, use the **small** and **large right knobs** to enter a new radial from the reference waypoint.

5 - WPT PAGES

Deleting / Waypoint List



STEP 2 (top): Select “View User Waypoint List?” to display a list of all user waypoints currently stored in memory.



STEP 2 (bottom): Select “Delete User Waypoint?” to delete the selected waypoint from memory.

User Waypoint Page Options

The following User Waypoint page Options are available by pressing the **MENU** key (with the User Waypoint page displayed):

View User Waypoint List? displays a list of all user waypoints currently stored in memory.

To view a list of all user waypoints:

1. From the User Waypoint page, press **MENU** to display the User Waypoint Page options.
2. Rotate the **large right knob** to highlight “View User Waypoint List?” and press **ENT**.
3. The top of the User Waypoint List indicates the total number of user waypoints currently used and available memory. If more user waypoints are stored than can be displayed on a single screen, rotate the **large right knob** to scroll through the User Waypoint List.
4. Press the **small right knob** to return to the User Waypoint page.

Delete User Waypoint? allows you to delete the selected waypoint from memory.

To delete a user waypoint:

1. Select the desired waypoint on the User Waypoint page and press **MENU** to display the User Waypoint Page options.
2. Rotate the **large right knob** to select “Delete User Waypoint?” and press **ENT**. Press **ENT** again to confirm.

Crossfill? allows you to transfer the active flight plan between two GPS 400/500 series units in a dual unit installation. See page 120 for additional information on this feature.

User Waypoint List

The User Waypoint List allows you to review, modify, rename or delete a selected user waypoint, or to delete all user waypoints currently stored in memory. At the top of the page are indications for number of waypoint locations used and available memory.

To review and/or modify a user waypoint from the User Waypoint List:

1. Select the User Waypoint List, as described on page 98.
2. Rotate the **large right knob** to highlight the desired user waypoint.
3. Press **ENT** to display the User Waypoint page for the selected waypoint. From this page you may review all information defining the waypoint and its position.
4. To modify the waypoint's position or reference waypoint information, follow the steps described on page 96 and 97 (keep in mind that you have already selected a User Waypoint page which displays the desired user waypoint, so you may skip the first two steps of the procedure on page 96 or 97).
5. To exit the User Waypoint page, rotate the **large right knob** to highlight "Done?" and press **ENT**.

To rename a user waypoint from the User Waypoint List:

1. Select the User Waypoint List, as described on page 98.
2. Rotate the **large right knob** to highlight the desired user waypoint.
3. Use the **small** and **large right knobs** to change the name of the user waypoint (enter the new name directly over the old name). Press **ENT** to accept the new name.
4. A "Rename Waypoint" confirmation window is displayed. With "Yes?" highlighted, press **ENT** to rename the selected user waypoint.



5 - WPT PAGES Modifying/Deleting Waypoints



STEPS 3 & 4 (bottom): From the User Waypoint List, use the **small** and **large right knobs** to rename an existing waypoint. Press **ENT** to display a "Rename Waypoint" confirmation window.



STEP 4 (page 100, top): With the desired waypoint highlighted on the User Waypoint List, press **CLR** to display a "Delete Waypoint" window.

5 - WPT PAGES

Deleting All Waypoints



STEP 2 (bottom): With the User Waypoint List displayed, press **MENU** to display an options window with "Delete All User Waypoints?" highlighted.



STEP 4 (bottom): A "Delete all waypoints in user waypoint list" confirmation window allows you to verify your intent to remove ALL user waypoints from memory.

To delete a user waypoint from the User Waypoint List:

1. Select the User Waypoint List, as described on page 98.
2. Rotate the **large right knob** to highlight the desired user waypoint.
3. Press **CLR** to display a "Delete Waypoint" confirmation window.
4. With "Yes?" highlighted, press **ENT** to delete the selected user waypoint.

To delete all user waypoints from memory:

1. Select the User Waypoint List, as described on page 98.
2. Press **MENU** to display an options window for the User Waypoint List.
3. With "Delete All User Waypoints" highlighted, press **ENT**.
4. A "Delete all waypoints in user waypoint list" confirmation window is displayed. With "Yes?" highlighted, press **ENT** to delete all user waypoints from memory.

Section 6: NRST Pages

NRST Page Group

Section 2 introduced the main page groups of the GPS 500—NAV, WPT, AUX, NRST—and described each page in the NAV group. A fourth separate page group (NRST) provides detailed information for the nine nearest airports, VORs, NDBs, intersections and user waypoints within 200 nm of your current position. In addition, the NRST pages include the five nearest Flight Service Station (FSS) and center (ARTCC/FIR) points of communication, plus alerts you to any Special Use (SUA) or Controlled Airspace you may be in or near.

NAV
4 available pages (see pg. 21)

WPT
10 available pages (see list pg. 76)

AUX
3 available pages (see list pg. 113)

NRST
8 available pages (see below)

6 - NRST PAGES

NRST Page Group



To display the NRST pages from any page, press **NRST** to display the Nearest Airport page...



Nearest Airport



Nearest Intersection



Nearest NDB



Nearest VOR



Nearest User



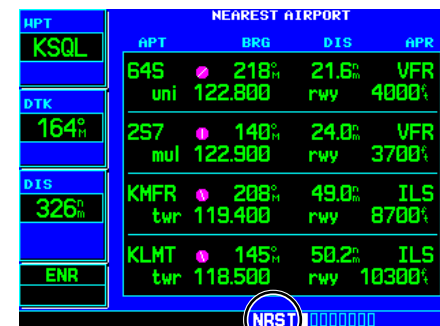
Nearest ARTCC



Nearest Flight Service



Nearest Airspace



...as indicated by "NRST" at the bottom of the screen. Rotate the **small right knob** to select the desired page within the group.

6 - NRST PAGES

NRST Pages / Scrolling

HPT	NEAREST VOR			
KPRC	VOR	BRG	DIS	FREQ
DTK	FMN	312°	45.6%	115.30
240%	DR0	338°	62.9%	108.20
DIS	GUP	225°	74.0%	115.10
253%	ABQ	137°	74.4%	113.20
ENR	SAF	102°	81.4%	110.60
	TAS	057°	86.1%	117.60
	CEZ	314°	90.1%	108.40
	OTO	115°	102%	114.00

MSG NRST

You may also rotate the **large right knob** to select the NRST page group.

HPT	NEAREST AIRPORT			
KPRC	APT	BRG	DIS	APR
DTK	Q19	331°	48.0%	VFR
240%	mul	122.900	rwy	4300'
DIS	KGNT	178°	55.2%	GPS
245%	uni	122.800	rwy	7100'
ENR	5V5	298°	60.1%	VFR
	mul	122.900	rwy	4800'
	24N	031°	61.1%	VFR
	mul	122.900	rwy	7500'

MSG NRST

While rotating the **large right knob** to scroll through the nearest list, the scroll bar along the right-hand side of the page indicates where you are in the list.

To quickly select a NRST page:

- 1a. From any page, press **NRST** to select the Nearest Airport page. "NRST" appears at the bottom of the screen.
OR,
- 1b. Rotate the **large right knob** to select the NRST page group. "NRST" appears at the bottom of the screen.
2. Rotate the **small right knob** to select the desired NRST page.

Not all nine nearest airports, VORs, NDBs, intersections or user waypoints can be displayed on the corresponding NRST page at one time. The Nearest Airport page displays detailed information for four nearest airports, with a scroll bar along the right-hand side of the page indicating the part of the list currently being viewed. The Nearest Airspace page displays detailed information for up to four special use or controlled airspace alerts. The NRST pages for VORs, NDBs, intersections, and user waypoints display eight waypoints at a time. The flashing cursor and **large right knob** are used to scroll and view the rest of the waypoints or airspaces in the list.

To scroll through the list of nearest airports, VORs, NDBs, intersections, user waypoints or airspaces:

1. Select the desired NRST page, using the steps outlined above.
2. Press the **small right knob** to activate the cursor.
3. Rotate the **large right knob** to scroll through the list. The scroll bar along the right-hand side of the page indicates the part of the list that is currently being viewed.
4. Press the **small right knob** to remove the flashing cursor.

The Nearest ARTCC and Nearest FSS pages present detailed information for up to five nearby facilities—displaying only one facility at a time. Again, the additional information is viewed using the flashing cursor and **large right knob** to scroll through the list.

6 - NRST PAGES

Nearest Airports

To scroll through the list of nearest flight service station or center points of communication:

1. Select the desired NRST page, using the steps outlined on page 102.
2. Press the **small right knob** to activate the cursor.
3. Rotate the **small right knob** to scroll through the list.
4. Press the **small right knob** to remove the flashing cursor.

Navigating to a Nearby Waypoint

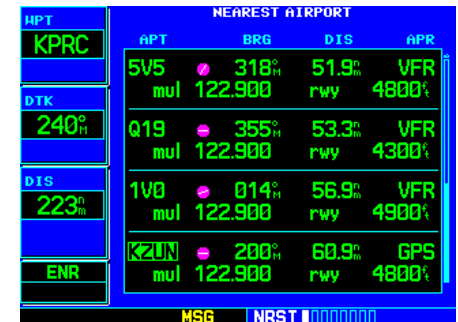
The NRST pages can be used in conjunction with the direct-to function of the GPS 500 to quickly set a course to a nearby facility. This feature can be a real time saver compared to retrieving information from the database using the WPT pages. More importantly, it instantly provides navigation to the nearest airport in case of an in-flight emergency.

To select a nearby airport, VOR, NDB, intersection or user waypoint as a direct-to destination:

1. Use the flashing cursor to scroll through a NRST page list and highlight the desired nearest waypoint, as outlined on page 102.
2. Press the **direct-to** key to display the Select Direct-to Waypoint page.
3. Press **ENT** to accept the selected waypoint's identifier and press **ENT** a second time (with "Activate?" highlighted) to begin navigating to the selected waypoint.



To scroll through the ARTCC or FSS frequencies, highlight the number adjacent to the communication point name and rotate the **small right knob**.



STEPS 1 & 2 (bottom): You can select a direct-to destination directly from a NRST page (e.g. Nearest Airports) by highlighting the desired waypoint and pressing the **direct-to** key.

6 - NRST PAGES

Nearest Airports

APT	BRG	DIS	APR
5V5	344°	52.6%	VFR
mul	122.900	rwy	4800'
KGNT	127°	52.7%	GPS
uni	122.800	rwy	7100'
KMFR	208°	58.1%	ILS
twr	118.900	rwy	6700'
Q19	014°	66.9%	VFR
mul	122.900	rwy	4300'

To quickly find additional frequencies on the Nearest Airport page, highlight the desired airport identifier and press **ENT**.

APT	BRG	DIS	APR
ATIS	Public	127.150	
Ground		121.700	
Tower		118.900	
Unicom		122.950	
Center		118.575	
ILS 25		111.900	

Then press the small right knob to remove the cursor, and rotate the small right knob to select the Airport Frequency page (see page 81).

Airport Identifier,
Symbol, Bearing To
and Distance To

Tower or CTAF
Frequency and
Longest Runway

APT	BRG	DIS	APR
645	218°	21.6%	VFR
uni	122.800	rwy	4000'
257	140°	24.0%	VFR
mul	122.900	rwy	3700'
KMFR	208°	49.0%	ILS
twr	119.400	rwy	8700'
KLMT	145°	50.2%	ILS
twr	118.500	rwy	10300'

Scroll Bar

Best Available
Approach

First Page in
NRST Group

Nearest Airport Page

The Nearest Airport page displays the identifier, symbol, bearing and distance to the nine nearest airports (within 200 nautical miles of your present position). For each airport listed, the Nearest Airport page also indicates the best available approach, common traffic advisory frequency (CTAF) and the length of the longest runway.

The Nearest Airport page can be configured to exclude shorter runways or undesirable runway surface types, so that the corresponding airports do not appear on the list. You may wish to use this feature to exclude seaplane bases or runway lengths on which it would be difficult or impossible to land. See page 136 for additional details.

The Nearest Airport page may be used to quickly find the communication frequencies on a nearby airport for tuning the external COM transceiver.

Additional communication frequencies, runway information and more is available from the Nearest Airport page by highlighting the identifier of the desired airport and pressing **ENT**.

6 - NRST PAGES

VORs, NDBs and Intersections

To view additional information for a nearby airport:

1. Select the Nearest Airport page, using the steps outlined on page 102.
2. Press the **small right knob** to activate the cursor.
3. Rotate the **large right knob** to scroll through the list, highlighting the identifier of the desired airport.
4. Press **ENT** to display the Airport Location page for the selected airport.
5. To view additional WPT pages for the selected airport (including the Airport Runway and Airport Frequency pages) press the **small right knob** to remove the flashing cursor. Rotate the **small right knob** to display the additional WPT pages. When finished, press the **small right knob** to return the flashing cursor to the screen.
6. To return to the Nearest Airport page, verify that "Done?" is highlighted by the flashing cursor and press **ENT** (or press **CLR**).

Nearest Intersection Page

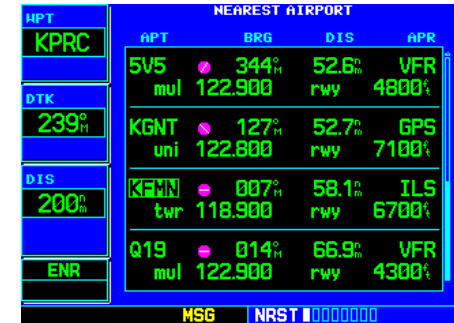
The Nearest Intersection page displays the identifier, symbol, bearing and distance to the nine nearest intersections (within 200 nautical miles of your present position).

To view additional information for a nearby intersection, start from the Nearest Intersection page and follow steps 2 through 4 above.

Nearest NDB Page

The Nearest NDB page displays the identifier, symbol, bearing, distance and frequency to the nine nearest NDBs (within 200 nautical miles of your present position).

To view additional information for a nearby NDB, start from the Nearest NDB page and follow steps 2 through 4 above.



STEPS 3 & 4: Highlight the identifier of the desired airport and press **ENT** to display the database information—beginning with location and fuel.



STEP 5: To display additional database information, press the **small right knob** to remove the cursor, then rotate the **small right knob** to select the desired page.

6 - NRST PAGES

Nearest VORs

HPT	VOR	BRG	DIS	FREQ
KPRC	GUP	133°	15.9 ⁿ	115.10
DTK	ZUN	173°	44.3 ⁿ	113.40
239°	SJN	172°	76.7 ⁿ	112.30
DIS	FMN	022°	78.1 ⁿ	115.30
177°	INW	232°	93.8 ⁿ	112.60
ENR	CEZ	359°	104 ⁿ	108.40
	DRO	022°	108 ⁿ	108.20
	TBC	268°	111 ⁿ	113.50

To find a VOR frequency from the Nearest VOR page, scroll through the list using the **large right knob**.

VOR	INW	Hi Alt.	Done?
FACILITY, CITY & REGION			
WINSLOW			
WINSLOW AZ			
SW USA VAR E014°			
POSITION		FREQ	HX BRDCST
N 35° 03.70'		112.60	No
W 110° 47.70'			

To view additional information for a nearby VOR, highlight the desired VOR on the list and press **ENT**.

Nearest VOR Page

VOR Identifier and Symbol

Bearing To and Distance To

VOR Frequency

Scroll Bar

Fourth Page in NRST Group

The Nearest VOR page displays the identifier, symbol, bearing and distance to the nine nearest VORs (within 200 nautical miles of your present position). For each VOR listed, the Nearest VOR page also indicates the frequency of the nearby VOR for reference in tuning a VOR receiver.

To view additional information for a nearby VOR:

1. Select the Nearest VOR page, using the steps outlined on page 102.
2. Press the **small right knob** to activate the cursor.
3. Rotate the **large right knob** to scroll through the list, highlighting the identifier of the desired VOR.
4. Press **ENT** to display the VOR page for the selected VOR.
5. To return to the Nearest VOR page, verify that "Done?" is highlighted by the flashing cursor and press **ENT** (or press **CLR**).
6. Press the **small right knob** to remove the flashing cursor.

Nearest User Waypoint Page

The Nearest User Waypoint page displays the name, bearing and distance to the nine nearest user waypoints (within 200 nautical miles of your present position). To view additional information for a nearby user waypoint, highlight the desired waypoint and press **ENT**.

Nearest Center (ARTCC) Page



The Nearest Center page displays the facility name, bearing to and distance to the five nearest ARTCC points of communication (within 200 nautical miles of your present position). For each ARTCC listed, the Nearest Center page also indicates the frequency(s).

6 - NRST PAGES

Nearest ARTCC

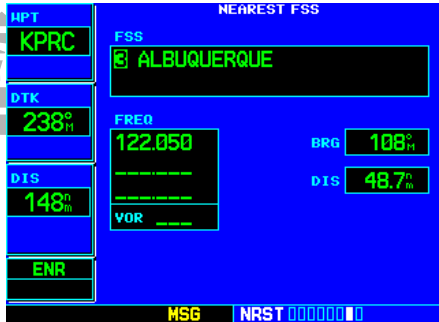


STEPS 3 & 4: Rotate the **small right knob** to select the desired center. You can rotate the **large right knob** to highlight the desired frequency.



6 - NRST PAGES

Nearest FSS



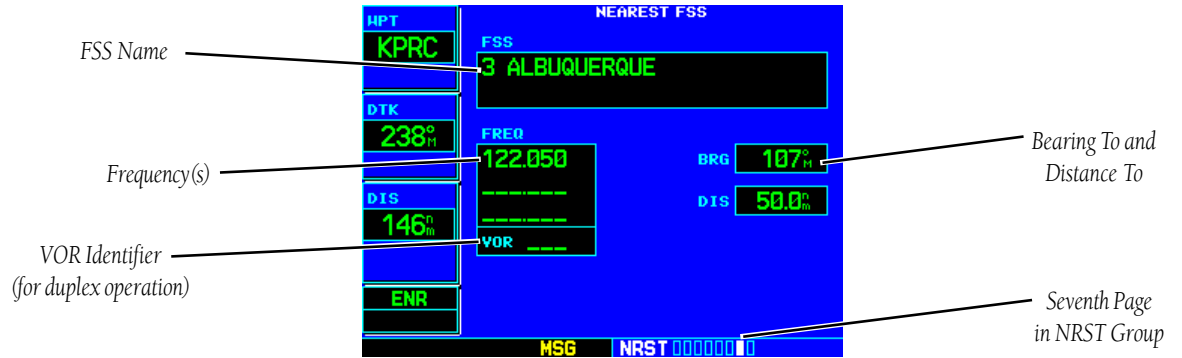
Rotate the **small right knob** to select the desired FSS. Rotating the **large right knob** highlights the frequency list.



Nearest Flight Service Station (FSS) Page

The Nearest Flight Service Station page displays the facility name, bearing to and distance to the five nearest FSS points of communication (within 200 nautical miles of your present position). For each FSS listed, the Nearest Flight Service Station page also includes the frequency(s).

For duplex operations, “RX” and “TX” indications appear beside the listed frequencies—indicating “receive only” or “transmit only” frequencies. The associated VOR is also provided for reference.



6 - NRST PAGES

Nearest Airspaces

Nearest Airspace Page

The last page in the NRST group, the Nearest Airspace page, alerts you to as many as nine controlled or special use airspaces near or in your flight path. Alerts are provided according to the following conditions:

- If your projected course will take you inside an airspace within the next ten minutes, the alert message “*Airspace ahead -- less than 10 minutes*” appears. The Nearest Airspace page shows the airspace as “Ahead”.
- If you are within two nautical miles of an airspace and your current course will take you inside, the message “*Airspace near and ahead*” appears. The Nearest Airspace page shows the airspace as “Ahead < 2nm”.
- If you are within two nautical miles of an airspace and your current course will not take you inside, the message “*Near airspace less than 2nm*” appears. The Nearest Airspace page shows “Within 2nm of airspace”.
- If you have entered an airspace, the message “*Inside Airspace*” appears. The Nearest Airspace page shows “Inside of airspace”.

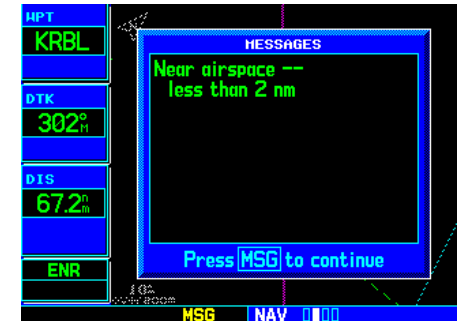
Note that the airspace alerts are based on three-dimensional data (latitude, longitude and altitude) to avoid nuisance alerts. The alert boundaries for controlled airspace are also sectorized to provide complete information on any nearby airspace. Once one of the described conditions exists, the message annunciator flashes, alerting you of an airspace message (if airspace alert messages are enabled, as described on page 131).

To view an airspace alert message:

1. When the message annunciator above the **MSG** key flashes, press **MSG**.
2. Press **MSG** again to return to the previous page.



“Airspace near and ahead” indicates that you are within two nautical miles of an airspace and projected to enter the airspace.



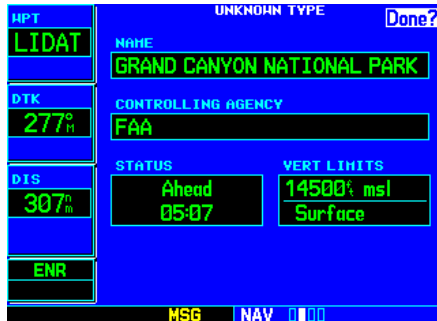
“Near airspace less than 2nm” indicates that you are within two nautical miles of an airspace, but are NOT projected to enter the airspace.

6 - NRST PAGES

Nearest Airspaces

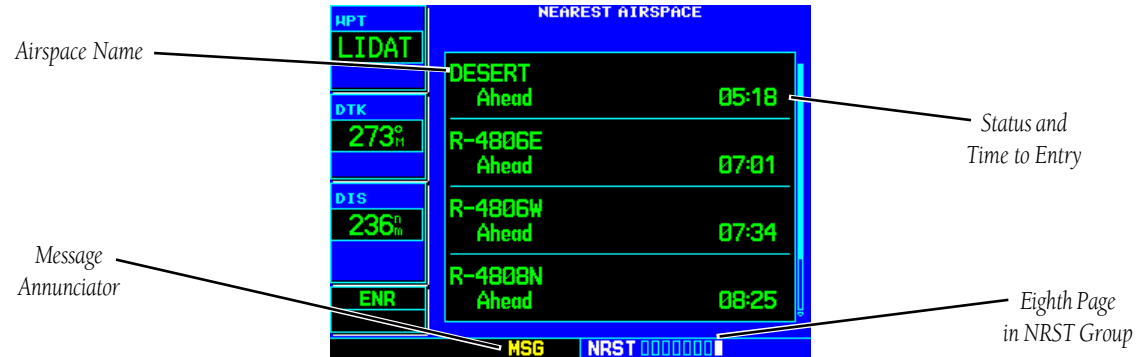


Press **MSG** to view an airspace alert message.
Press **MSG** again to remove the message window and return to the previous page.



STEPS 3 & 4: From the Nearest Airspace page, highlight the desired airspace and press **ENT** to display additional airspace information.

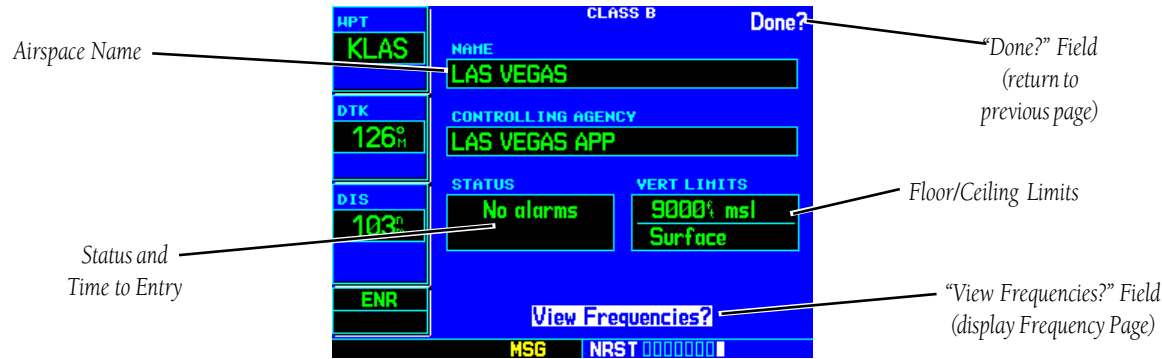
Once you have been provided an airspace alert message, detailed information concerning the specific airspace is provided on the Nearest Airspace page. The Nearest Airspace page displays the airspace name, status (“Ahead”, “Ahead < 2nm”, etc. as described on the previous page), and a time to entry (if applicable). When selecting any airspace name listed on the Nearest Airspace page, additional details are provided—including controlling agency, communication frequencies and floor/ceiling limits.



To view additional details for an airspace listed on the Nearest Airspace page:

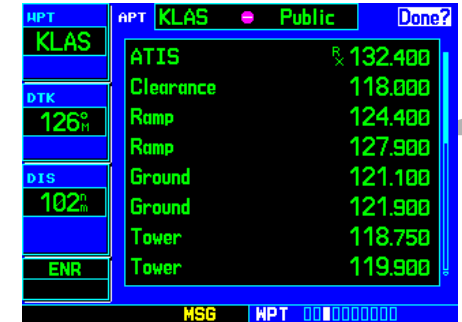
1. Select the Nearest Airspace page, using the steps outlined on page 102.
2. Press the **small right knob** to activate the cursor.
3. Rotate the **large right knob** to scroll through the list, highlighting the desired airspace.
4. Press **ENT** to display the Airspace Information page for the selected nearby airspace.
5. To return to the Nearest Airspace page, verify that “Done?” is highlighted by the flashing cursor and press **ENT**.
6. Press the **small right knob** to remove the flashing cursor.

6 - NRST PAGES Nearest Airspaces

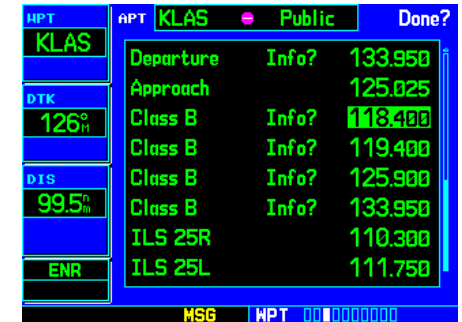


The Airspace Information page displays—and airspace alert messages are provided for—the following airspace types:

- Alert
- Class B
- CTA
- MOA
- Restricted
- Training
- Unspecified
- Caution
- Class C
- Danger
- Prohibited
- TMA
- TRSA
- Warning



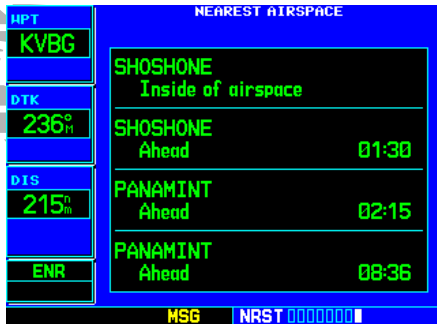
Highlight “View Frequencies?” and press **ENT** to display the communication frequency(s) for the controlling agency.



Rotate the **large right knob** to highlight the desired frequency.

6 - NRST PAGES

Nearest Airspaces



Airspace alert for a military operations area (MOA).



Airspace Information page for the Shoshone military operations area.

The bottom right-hand corner of the Airspace Information page displays the floor and ceiling limits of the airspace. The following are examples of what may appear as vertical limits for an airspace:

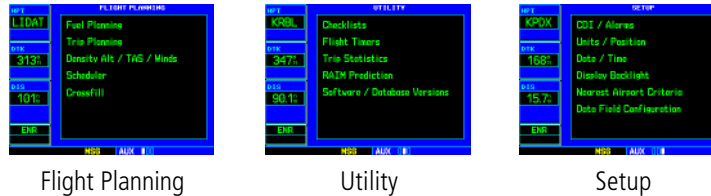
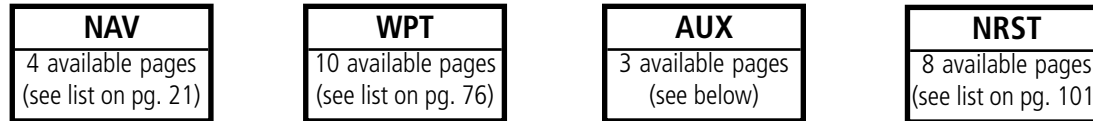
- 5000ft msl (5000 feet mean sea level)
- 5000ft agl (5000 feet above ground level)
- MSL (at mean sea level)
- Notam (see Notice to Airmen)
- Unknown
- See Chart
- Unlimited
- Surface

All airspace alert messages, except for prohibited areas, may be turned on or off from the Airspace Alarms page. An altitude buffer is also provided on the Airspace Alarms page to provide an extra margin of safety above/below the published limits. See page 131 for additional details.

Section 7: AUX Pages

AUX Page Group

Section 2 introduced the main page groups of the GPS 500—NAV, WPT, AUX, NRST—and described each page in the NAV group. The third page group (AUX) allows you to change unit settings, customizing operation to your preferences. The AUX pages also provide E6B functions—such as trip planning, fuel planning, density altitude, true airspeed and winds aloft calculations.



To quickly select an AUX page:

1. From any page, press and hold **CLR** to select the Default NAV page (you may skip this step if you are already viewing any of the main pages; see page 21).
2. Rotate the **large right knob** to select the AUX page group. "AUX" appears in the lower right corner of the screen.
3. Rotate the **small right knob** to select the desired AUX page.

7 - AUX PAGES

AUX Page Group



To display one of the AUX pages, start from any main page—or press and hold **CLR** to display the Default NAV page...



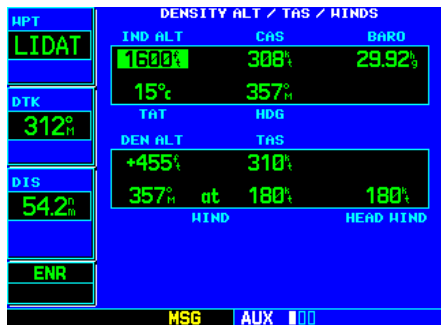
...then, rotate the **large right knob** to select the AUX page group, as indicated by "AUX" at the bottom of the screen. Rotate the **small right knob** to select the desired page within the group.

7 - AUX PAGES

Flight Planning



STEP 2: From the Flight Planning page, highlight the desired menu option and press **ENT**...



...to display the corresponding option page (e.g. Density Alt / TAS / Winds page).

Flight Planning Page



Menu Option: to select, highlight with cursor and press **ENT**.

First Page in AUX Group

The Flight Planning page provides access (via a list of “menu options”) to E6B functions for fuel planning, trip planning, density altitude/true airspeed/winds aloft calculations, scheduled messages and a “Crossfill” function to transfer flight plans/user waypoints to a second GPS 500. When a menu option is selected, the corresponding page appears providing additional information and features.

To select a menu option from the Flight Planning page:

1. Press the **small right knob** momentarily, to activate the flashing cursor.
2. Rotate the **large right knob** to select the desired menu option, and press **ENT**.

The following menu options are available:

Fuel Planning— When equipped with fuel flow (FF) and/or fuel on board (FOB) sensors, this option displays current fuel conditions along the active direct-to or flight plan. You may also manually enter fuel flow, ground speed (GS) and (in some instances) fuel on board figures for planning purposes. Fuel planning figures can be displayed not only for the currently active flight plan or direct-to, but also point-to-point between two specified waypoints and for any programmed flight plan. Fuel planning figures can be entered and displayed based upon one of three configurations:

- **No Fuel Sensors Connected**—In this instance fuel flow is manually entered and is used to calculate fuel on board. When fuel flow or fuel on board is manually entered, the figures are retained the next time you view the page (with fuel on board continuously recalculated).

7 - AUX PAGES

Flight Planning

- Fuel Flow Sensor Installed, But No Fuel On Board Sensor—Fuel on board is manually entered. Fuel flow is automatically provided by sensor. If fuel flow is manually entered (to override the sensor), it does not affect the FOB figure and is not retained the next time you view the page.
- Fuel Flow and Fuel On Board Sensors Installed—Fuel flow and fuel on board are automatically provided by sensors. Fuel on board can NOT be entered manually. Fuel Flow can be entered manually, but does not affect the FOB figure and is not retained the next time you view the page.

Trip Planning— allows you to view desired track (DTK), distance (DIS), estimated time en route (ETE), en-route safe altitude (ESA) and estimated time of arrival (ETA) information for a direct-to, point-to-point between two specified waypoints or for any programmed flight plan. This option also displays the sunrise/sunset times for your destination waypoint (for the selected departure date).



NOTE: Point-to-point waypoints, flight plans and/or ground speeds (default is current GPS-calculated ground speed) entered on the Fuel Planning page automatically transfer to the Trip Planning page, and vice versa.

Density Alt / TAS / Winds— indicates the theoretical altitude at which your aircraft performs depending upon several variables, including indicated altitude (IND ALT), barometric pressure (BARO) and total air temperature (TAT; the temperature, including the heating effect of speed, read on a standard outside temperature gauge). This menu option computes true airspeed (TAS), based upon the factors above and the calibrated airspeed (CAS). Also, this menu option determines winds aloft—the wind direction and speed—and a head wind/tail wind component, based upon the calculated density altitude (DEN ALT), true airspeed, aircraft heading (HDG) and ground speed.

Scheduler— displays reminder messages (such as “Change oil”, “Switch fuel tanks”, “Overhaul”, etc.). One-time, periodic, and event-based messages are allowed. One-time messages appear once the timer expires and reappear each time the GPS 500 is powered on, until the message is deleted. Periodic messages automatically reset to the original timer value, once the message is displayed. Event-based messages do not use a timer, but rather a specific date and time.

Crossfill— allows the pilot to transfer the active flight plan, any stored flight plan, a user waypoint or all user waypoints between two 500-Series (or 400-Series) Garmin units in a dual-unit installation.



The Trip Planning page calculates desired track, distance, estimated time en route, en-route safe altitude and estimated time of arrival for a specified direct-to, point-to-point or flight plan.



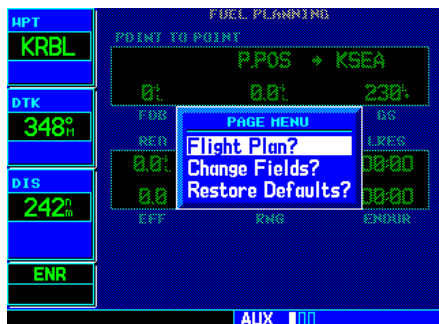
Select the “Density Alt / TAS / Winds” option to calculate density altitude, true airspeed and winds aloft.

7 - AUX PAGES

Flight Planning



STEP 3a: For direct-to fuel planning, press **CLR** (with the “from” waypoint field highlighted) to display “PPOS” (which represents your present position).



STEPS 2 & 3c: For “flight plan leg” fuel planning, select “Flight Plan?” from the options window. Use the **small right knob** to select the desired flight plan and the **desired leg of the flight plan**.

Flight Planning Page: Fuel Planning

To perform fuel planning operations:

1. Select “Fuel Planning” from the Flight Planning page, using the steps described on page 114.
2. The current fuel planning “leg mode” is displayed at the top of the page: “POINT TO POINT” or “FPL” (for a flight plan leg). To change the leg mode, press **MENU** to display an options window for the other leg mode, then press **ENT** to accept the other leg mode.
- 3a. For direct-to planning, verify that the “from” waypoint field indicates “P.POS” (present position). If necessary, press **CLR** to display “P.POS”. Press **ENT** and the flashing cursor moves to the “to” waypoint field. Rotate the **small and large right knobs** to enter the identifier of the “to” waypoint and press **ENT** to accept the waypoint. **OR**,
- 3b. For point-to-point fuel planning, rotate the **small and large right knobs** to enter the identifier of the “from” waypoint. Once the waypoint’s identifier is entered, press **ENT** to accept the waypoint. The flashing cursor moves to the “to” waypoint. Again, rotate the **small and large right knobs** to enter the identifier of the “to” waypoint and press **ENT** to accept the waypoint. **OR**,
- 3c. For “flight plan leg” fuel planning, rotate the **small right knob** to select the desired flight plan (already stored in memory), by number. Rotate the **large right knob** to highlight the “LEG” field and rotate the **small right knob** to select the desired leg of the flight plan, or select “Cum” to apply fuel planning calculations to the entire flight plan.
4. If your fuel management system does not enter the data automatically, rotate the **large right knob** to highlight the fuel on board (FOB) field.
5. Use the **small and large right knobs** to enter the amount of fuel on board. Press **ENT** when finished.
6. The flashing cursor moves to the fuel flow (FF) field. Use the **small and large right knobs** to enter the fuel flow rate. Press **ENT** when finished. Note that if a fuel system is providing current fuel flow, the fuel flow defaults to this value.
7. The flashing cursor moves to the ground speed (GS) field. Use the **small and large right knobs** to enter the ground speed. Press **ENT** when finished.
8. With all variables entered, information such as fuel required (REQ), range (RNG), and endurance (ENDUR) is provided. You can change the information displayed on the page by pressing **MENU** and selecting the “Change Fields?” option. If your GPS 500 installation includes connection to fuel sensors, additional information items are presented when the “Change Fields?” option is selected.

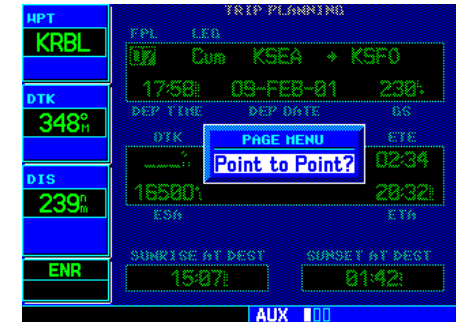
Flight Planning Page: Trip Planning

To perform trip planning operations:

1. Select "Trip Planning" from the Flight Planning page, using the steps described on page 114.
2. The current trip planning "leg mode" is displayed at the top of the page: "POINT TO POINT" or "FPL LEG" (for a flight plan leg). To change the leg mode, press **MENU** to display an options window for the other leg mode, then press **ENT** to accept the other leg mode.
- 3a. For direct-to planning, verify that the "from" waypoint field indicates "P.POS" (present position). If necessary, press **CLR** to display "P.POS". Press **ENT** and the flashing cursor moves to the "to" waypoint field. Rotate the **small** and **large right knobs** to enter the identifier of the "to" waypoint and press **ENT** to accept the waypoint. *OR*,
- 3b. For point-to-point trip planning, rotate the **small** and **large right knobs** to enter the identifier of the "from" waypoint. Once the waypoint's identifier is entered, press **ENT** to accept the waypoint. The flashing cursor moves to the "to" waypoint. Again, rotate the **small** and **large right knobs** to enter the identifier of the "to" waypoint and press **ENT** to accept the waypoint. *OR*,
- 3c. For "flight plan leg" trip planning, rotate the **small right knob** to select the desired flight plan (already stored in memory), by number. Rotate the **large right knob** to highlight the "LEG" field and rotate the **small right knob** to select the desired leg of the flight plan, or select "Cum" to apply trip planning calculations to the entire flight plan.
4. Rotate the **large right knob** to highlight the departure time (DEP TIME) field.
5. Use the **small** and **large right knobs** to enter the departure time. Press **ENT** when finished. (Departure time may be entered in local or UTC time, depending upon unit settings (see page 135).
6. If necessary, use the **small** and **large right knobs** to enter the departure date. Press **ENT** when finished.
7. The flashing cursor moves to the ground speed (GS) field. Use the **small** and **large right knobs** to enter the ground speed. Press **ENT** when finished.
8. With all variables entered, the following information is provided:
 - DTK—Desired track, or desired course
 - DIS—Desired track, or desired course
 - ETE—Estimated time en route
 - ESA—En-route safe altitude
 - ETA—Estimated time of arrival
 - Sunrise/Sunset times at the destination

7 - AUX PAGES

Flight Planning



STEP 2: Press **MENU** and use the options window to select the other leg mode: Point-to-Point or Flight Plan.



STEP 6: The current time and date are automatically offered for departure time and date. To accept either automatic selection, simply press **ENT** when the selection is highlighted.

7 - AUX PAGES

Flight Planning

Flight Planning Page: Density Alt / TAS / Winds

To calculate density altitude, true airspeed, winds aloft:

1. Select "Density Alt / TAS / Winds" from the Flight Planning page, using the steps described on page 114.
2. The flashing cursor highlights the indicated altitude (IND ALT) field. Use the **small** and **large right knobs** to enter the altitude indicated on your altimeter. Press **ENT** when finished.
3. The flashing cursor moves to the calibrated airspeed (CAS) field. Use the **small** and **large right knobs** to enter the airspeed from your airspeed indicator. Press **ENT** when finished.
4. The flashing cursor moves to the barometric pressure (BARO) field. Use the **small** and **large right knobs** to enter the barometric pressure (altimeter setting). Press **ENT** when finished.
5. The flashing cursor moves to the total air temperature (TAT) field. Use the **small** and **large right knobs** to enter the temperature. Press **ENT** when finished.
6. The flashing cursor moves to the aircraft heading (HDG) field. Use the **small** and **large right knobs** to enter the aircraft heading from the directional gyro or compass. Press **ENT** when finished.
7. With all variables entered, the following information is provided:
 - DEN ALT—Density altitude
 - TAS—True airspeed
 - WIND—Wind direction and speed
 - HEAD/TAIL WIND—Magnitude of head wind or tail wind component



STEP 2: Use the **small** and **large right knobs** to enter the indicated altitude.



STEP 5: Use the **small** and **large right knobs** to enter the total air temperature (TAT). TAT is the temperature, including the heating effect of speed, read on an outside temperature gauge.



NOTE: If your installation includes components (such as an air/data sensor) to provide any of the variables above, the Density Alt / TAS / Winds page data default to the values provided by these components.

Flight Planning Page: Scheduler

To enter a scheduled message:

1. Select "Scheduler" from the Flight Planning page, using the steps described on page 114.
2. The flashing cursor highlights the first message field. If necessary, rotate the **large right knob** to highlight the first blank message field.
3. Use the **small** and **large right knobs** to enter the message text. Press **ENT** when finished (the GPS 500 stores up to nine scheduled messages holding 20 characters each).
4. The flashing cursor moves to the type field under the new message. Rotate the **small right knob** to display a window of available options: Event, One Time or Periodic. Press **ENT** to select the highlighted option.
5. The flashing cursor moves to the time (or date) field. Use the **small** and **large right knobs** to set the time (or date) required before the message is displayed. Time is entered as hours/minutes/seconds (hh:mm:ss). Event-based messages expire at a specified date and time. Press **ENT** when finished entering time (or date).

To edit a scheduled message:

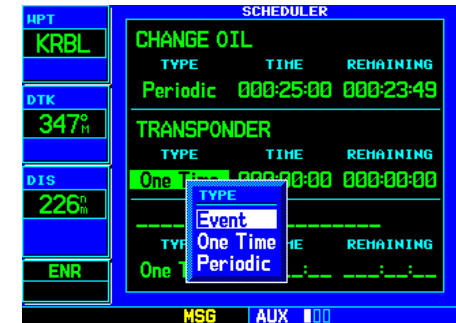
1. Select "Scheduler" from the Flight Planning page, using the steps described on page 114.
2. The flashing cursor highlights the first message field.
3. To edit the message text, rotate the **large right knob** to highlight the desired message field. Use the **small** and **large right knobs** to edit the message text—entering the new text directly over the old message. Press **ENT** when finished.
4. To edit the time field, rotate the **large right knob** to highlight the field. Use the **small** and **large right knobs** to edit the new date or time—entering the new value directly over the old figure. Press **ENT** when finished.

To delete a scheduled message:

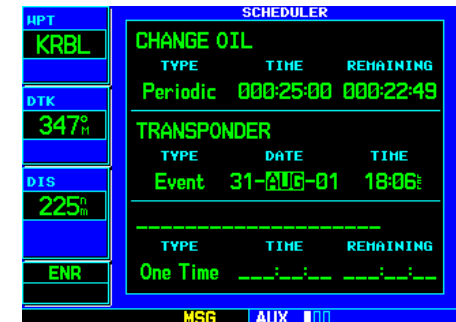
1. Select "Scheduler" from the Flight Planning page, using the steps described on page 114.
2. The flashing cursor highlights the first message field. Rotate the **large right knob** to highlight the desired message field.
3. Press **CLR** to delete the message text, followed by **ENT** to confirm the deletion.

7 - AUX PAGES

Flight Planning



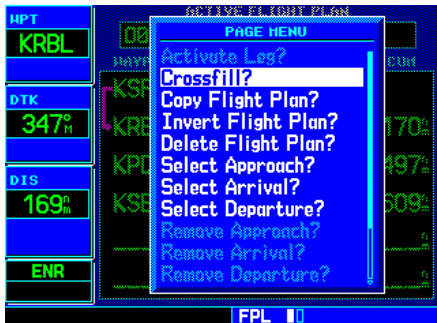
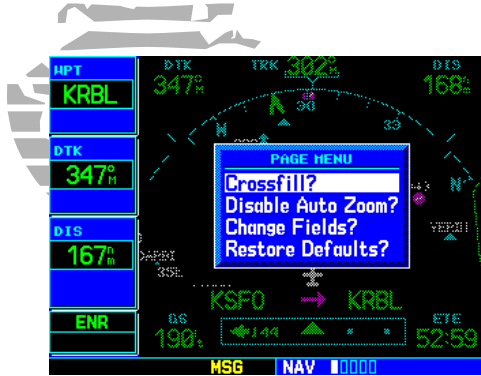
STEP 4 (top): Rotate the **small right knob** to select the desired message type. One-time and periodic messages appear when the time expires. Event-based messages expire at a specified time and date.



STEP 5 (top): Use the **small** and **large right knobs** to enter the time or date.

7 - AUX PAGES

Flight Planning



You can select the “Crossfill?” option from the Default NAV page or the Flight Plan Catalog, as well as from the Flight Planning page.

Flight Planning Page: Crossfill

Select “Crossfill?” from the Default NAV page or Flight Plan page by pressing **MENU** or while on the Flight Planning page by scrolling down to “Crossfill” and pressing **ENT**.

Automatic Operation: If both units are set to automatic, a change in the active flight plan on one unit can also be seen on the other. Initiating a direct-to to a waypoint on one unit also initiates a direct-to to the same waypoint on the other unit.

If one unit is set for automatic crossfill and the other is set for manual crossfill, then only the auto unit automatically sends data to the manual unit. In this configuration, the auto unit could be thought of as the master unit.

Manual Operation: If manual operation is desired, the pilot must invoke all transfers from that unit. When a unit is configured for automatic transfer, a manual transfer can also be done on command. If either of the messages “data transfer error” or “data transfer cancelled” are received during an automatic or manual transfer, the pilot must force another transfer.

To transfer flight plans or user waypoints to/from a second 500-Series (or 400-Series) unit:

1. Select “Crossfill” from the Flight Planning page, using the steps described on page 114.
2. The flashing cursor highlights the method field. Rotate the **small right knob** to select “Auto” or “Manual”. “Auto” automatically transfers any selection of (or any change to) a direct-to destination or active flight plan to a second 500/400-Series Garmin unit.

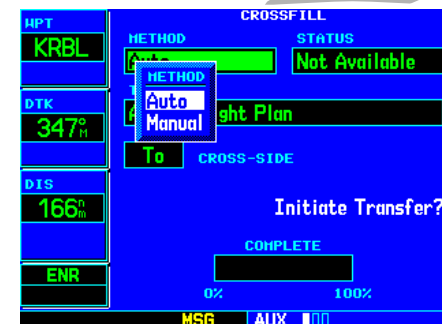
{continued}

Flight Planning Page: Crossfill (cont.)

3. The flashing cursor highlights the transfer data option (TRANSFER) field. Rotate the **small right knob** to display a window of available data options:
 - **Active Flight Plan**—transfers the active flight plan to/from a second 500-Series (or 400-Series) Garmin unit in a dual unit installation. This option is the default when selecting “Crossfill” from the Flight Planning page. Active Flight Plan information is automatically transferred between units when the “Auto” method is selected above.
 - **Flight Plan**—transfers any stored flight plan to/from a second 500-Series (or 400-Series) unit, by selecting the flight plan by number. This option is the default when selecting “Crossfill” from the Flight Plan catalog. See page 47.
 - **User Waypoints (all)**—transfers all stored user waypoints to/from a second 500/400-Series unit.
 - **User Waypoint**—transfers the specified user waypoint to a second 500/400-Series unit.
4. Continue rotating the **small right knob** to select the desired data option. Press **ENT** when finished.
- 5a. For a stored flight plan (“Flight Plan” data option), the flight plan number field is highlighted. Rotate the **small right knob** to select the desired flight plan and press **ENT**. *OR,*
- 5b. For a specified user waypoint (“User Waypoint” data option), the waypoint identifier field is highlighted. Use the **small and large right knobs** to enter the identifier of the desired user waypoint. Press **ENT** when finished.
6. The flashing cursor moves to the “CROSS-SIDE” field. Rotate the **small right knob** to select “To” or “From” and press **ENT**.
7. The flashing cursor moves to the “Initiate Transfer?” confirmation field. Press **ENT** to transfer the selected data.

7 - AUX PAGES

Flight Planning



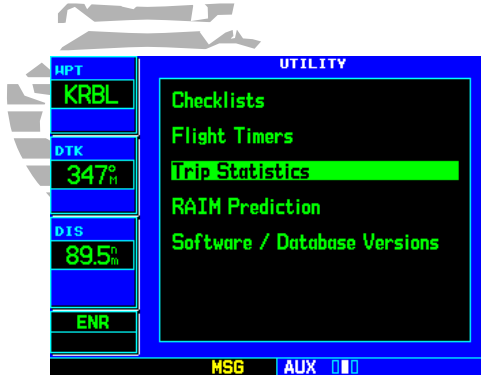
STEP 2: From the METHOD field, rotate the **small right knob** to select “Auto” or “Manual”. “Auto” automatically transfers direct-to or active flight plan selections between units.



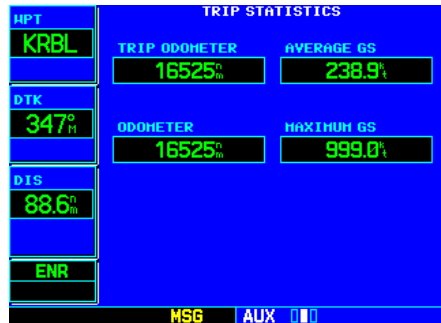
STEP 3: Rotate the **small right knob** to display a list of TRANSFER options. Continue rotating the **small right knob** to select the desired option.

7 - AUX PAGES

Utility Page



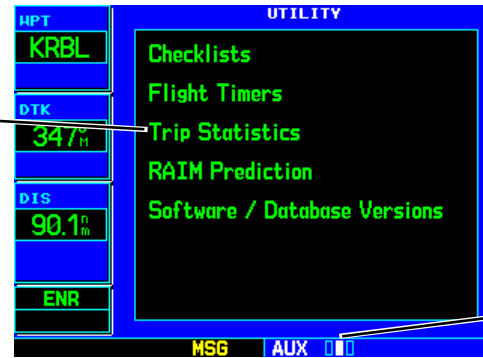
STEP 2: From the Utility page, highlight the desired menu option and press **ENT**...



...to display the corresponding option page (e.g., Trip Statistics page).

Utility Page

Menu Option: to select, highlight with cursor and press **ENT**.



Second Page in AUX Group

The Utility page provides access (via a list of “menu options”) to checklists, a count down/up timer, trip timers, trip statistics, RAIM (Receiver Autonomous Integrity Monitoring) prediction and software/database version information. When a menu option is selected, the corresponding page appears, providing additional information and features. Checklists may be viewed at power on (see page 6) or at any other time by following the steps below.

To select a menu option from the Utility page:

1. Press the **small right knob** momentarily, to activate the flashing cursor.
2. Rotate the **large right knob** to select the desired menu option, and press **ENT**.

The following menu options are available:

Checklists— provides up to nine different user-defined checklists containing up to 30 items each.

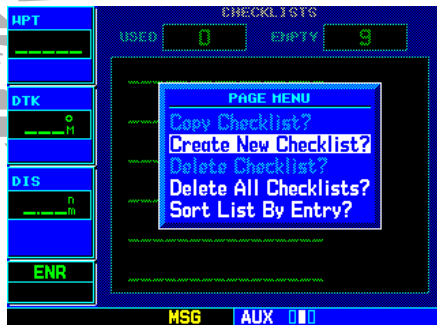
Flight Timers— provides count up/down timers, plus automatic recording of departure time and total trip time. Departure and total trip time recording can be configured to run either any time GPS 500 power is on, or only when your ground speed exceeds 30 knots.

Trip Statistics— provides readouts for trip odometers, average speed and maximum speed. These readouts can be reset (individually or all at once) by pressing **MENU** to display an options window.

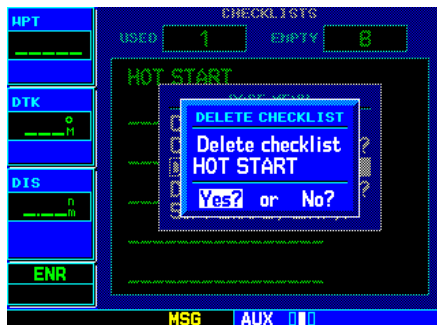


7 - AUX PAGES

Utility Page



Select “Create New Checklist?” to enter a new checklist into memory. If the new checklist is similar to a checklist you’ve already created, you may wish to use the “Copy Checklist?” option and then edit the checklist copy.



To delete a checklist, highlight it on the Checklists page, press **MENU** and select “Delete Checklist?”

Utility Page: Checklists (cont.)

To execute a checklist:

1. With the Checklists page displayed, rotate the **large right knob** to select the desired checklist and press **ENT**.
2. As you complete each checklist item, press **ENT** to move to the next item on the list.

To edit a checklist:

1. With the Checklists page displayed, rotate the **large right knob** to select the desired checklist and press **ENT**.
2. Press **MENU** to display an options menu. Select “Edit Item?” and press **ENT**, then use the **small** and **large right knobs** to edit each checklist item. Press **ENT** when finished.

To insert a checklist step into an existing checklist:

1. With the Checklists page displayed, rotate the **large right knob** to select the desired checklist and press **ENT**.
2. Rotate the **large right knobs** to highlight the existing checklist entry which immediately follows the new checklist step.
3. Rotate the **small** and **large right knobs** to enter the new checklist step. Press **ENT** when finished.

To delete a checklist or all checklists:

1. With the Checklists page displayed, press **MENU** to display an options menu.
2. Rotate the **large right knob** to select “Delete Checklist?” or “Delete All Checklists?” and press **ENT** to remove the highlighted checklist or all checklists from memory.

To copy a checklist:

1. With the Checklists page displayed and the desired checklist selected, press **MENU** to display an options menu.
2. Rotate the **large right knob** to select “Copy Checklist?” and press **ENT** to copy the checklist to an empty checklist memory location.

To sort the checklists by name or entry:

1. With the Checklists page displayed, press **MENU** to display an options menu.
2. Rotate the **large right knob** to select “Sort List By Entry?” or “Sort List By Name?” and press **ENT**.

Utility Page: Flight Timers

To view, use or reset the generic timer:

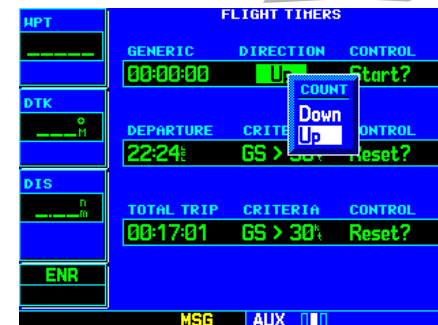
1. Select "Flight Timers" from the Utility page, using the steps described on page 122.
2. The flashing cursor highlights "Start?". To start the generic timer, press **ENT** (you should typically begin with this step for count-up timers. However, for countdown timers, you may wish to enter a count direction and time before starting the timer; see below).
3. To change the count direction, rotate the **large right knob** to highlight the count direction field: "Down" or "Up". Rotate the **small right knob** to select the desired count direction. Press **ENT** when finished.
4. For a count down timer, rotate the **large right knob** to highlight the time field. Use the **small** and **large right knobs** to enter the count down time—in hours, minutes and seconds. Press **ENT** when finished.
5. To stop the generic timer, rotate the **large right knob** to highlight "Stop?" and press **ENT**.
6. To reset the generic timer, rotate the **large right knob** to highlight the time field. Press **CLR**, followed by **ENT**.

To record or reset the departure time:

1. Select "Flight Timers" from the Utility page, using the steps described on page 122.
2. Rotate the **large right knob** to highlight the reset mode field, under "Departure Time" (the reset mode field indicates "Pwr-on" or "GS>30kt").
3. Rotate the **small right knob** to select the desired reset mode ("Pwr-on" records a departure time when the GPS 500 is turned on. "GS>30kt" records a departure time once the GPS-computed ground speed exceeds 30 knots).
4. Press **ENT** when finished.
5. To reset the departure time, rotate the **large right knob** to highlight "Reset?" and press **ENT**.

7 - AUX PAGES

Utility Page



STEP 3 (top): Rotate the **small right knob** to select a count "Down" or count "Up" timer.



STEP 3 (bottom): The GPS 500 can be configured to record the departure time when the unit is powered on or when your ground speed exceeds 30 knots.

7 - AUX PAGES

Utility Page



STEP 3 (top): Rotate the **small right knob** to select when the trip timer should reset: each time the GPS 500 is powered on or when ground speed exceeds 30 knots.



STEP 2 (bottom): Press **MENU** to display an options window, listing several reset options.

Utility Page: Flight Timers (cont.)

To view, use or reset total trip time:

1. Select "Flight Timers" from the Utility page, using the steps described on page 122.
2. Rotate the **large right knob** to highlight the reset mode field, under "Total Trip Time" (the reset mode field indicates "Pwr-on" or "GS>30kt").
3. Rotate the **small right knob** to select the desired reset mode ("Pwr-on" resets trip time to zero hours/minutes/seconds each time the GPS 500 is turned on. "GS>30kt" resets trip time to zero after power on and when the GPS-computed ground speed exceeds 30 knots).
4. Press **ENT** when finished.
5. To reset the total trip time, rotate the **large right knob** to highlight "Reset?" and press **ENT**.

Utility Page: Trip Statistics

To reset trip statistics readouts:

1. Select "Trip Statistics" from the Utility page, using the steps described on page 122.
2. Press **MENU** to display an options window with several reset options:
 - **Reset Trip?**— Resets trip odometer and average ground speed readouts
 - **Reset Max Speed?**— Resets maximum speed readout only
 - **Reset Odometer?**— Resets odometer readout only
 - **Reset All?**— Resets all trip statistics readouts
3. Rotate the **large right knob** to select the desired reset option and press **ENT**.



7 - AUX PAGES

Setup Page



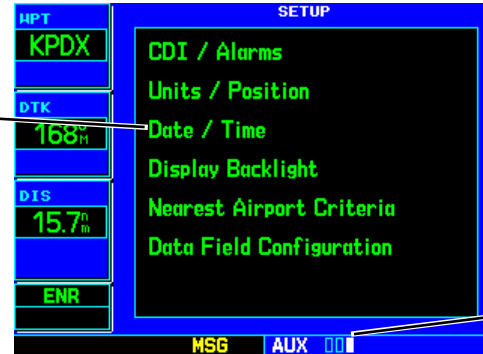
STEP 2: From the Setup page, highlight the desired menu option and press **ENT**...



...to display the corresponding option page (e.g., Units / Position page).

Setup Page

Menu Option: to select, highlight with cursor and press **ENT**.



Third Page in AUX Group

The Setup page provides access (via a list of “menu options”) to airspace alarms, CDI scale adjustments, an arrival alarm, units of measure settings, position formats, map datums, settings for local or UTC time display, display adjustments, nearest airport search parameters, and data field configurations. When a menu option is selected, the corresponding page appears, providing access to the various unit settings.

To select a menu option from the Setup page:

1. Press the **small right knob** momentarily, to activate the flashing cursor.
2. Rotate the **large right knob** to select the desired menu option, and press **ENT**.

The following menu options are available:

CDI / Alarms— allows you to define the scale for the GPS 500’s on-screen course deviation indicator. The scale values represent full scale deflection for the CDI to either side. The default setting is “5.0 nm”. At this setting, the CDI scale is set to 5.0 nautical miles during the “en-route” phase of flight. Within 30 nm of your destination airport, the CDI scale gradually ramps down to 1.0 nm (terminal area). Likewise, when leaving your departure airport the CDI scale is set to 1.0 nm and gradually ramps UP to 5 nm beyond 30 nm (from the departure airport). During approach operations the CDI scale gradually ramps down even further, to 0.3 nm. This transition normally occurs within 2.0 nm of the final approach fix (FAF).

If a lower CDI scale setting is selected (i.e., 1.0 or 0.3 nm) the higher scale settings are not be selected during ANY phase of flight. For example, if 1.0 nm is selected, the GPS 500 uses this for en-route and terminal phases and ramps down to 0.3 nm during approach. Note that the Receiver Autonomous Integrity Monitoring (RAIM) protection limits listed below follow the selected CDI scale and corresponding flight phases.

CDI Scale	RAIM Protection
+/-5.0 nm or Auto (en route)	2.0 nm
+/-1.0 nm or Auto (terminal)	1.0 nm
+/-0.3 nm or Auto (approach)	0.3 nm

An arrival alarm, provided on the CDI / Alarms page, may be set to notify you with a message when you have reached a user-defined distance to the final destination (the direct-to waypoint or the last waypoint in a flight plan). Once you have reached the set distance (up to 99.9 units), an “Arrival at [waypoint]” message is displayed.

The Airspace Alarms fields allow you to turn the controlled / special-use airspace message alerts on or off. This does not affect the alerts listed on the Nearest Airspace page or the airspace boundaries depicted on the Map page. It simply turns on/off the warning provided when you are approaching or near an airspace.

An altitude buffer is also provided which “expands” the vertical range above or below an airspace. 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 above or below an airspace and projected to enter it, you will be notified with an alert message. The default setting is 200 feet.

7 - AUX PAGES

Setup Page



CDI scales and corresponding flight phases:



En Route



Terminal



Approach

(for each scale/phase to be available, “Selected CDI” must be set to “5.0 nm”)

7 - AUX PAGES

Setup Page



Use the Units / Position page to switch distance and speed measurements between Nautical, Statute and Metric units.



The Date / Time page allows you to display time information (such as ETA) in UTC (zulu) or local time.

Units / Position— allows you to configure the displayed data to standard or metric units of measure. This setting applies to distance, speed, altitude, fuel, pressure and temperature. Also provides three magnetic variation (heading) options: True, Auto or User-defined. If “Auto” is selected, all track, course and heading information is corrected to the magnetic variation computed by the GPS receiver. The “True” setting references all information to true north, and the “User” setting corrects information to a user-entered value.

Configuration settings for position format and map datum are also provided. Position formats include latitude/longitude, MGRS and UTM/UPS. The NavData® card contains over 100 map datums to adjust your position reading, making it conform to specific paper charts. The default datum setting is WGS 84. If you are using a chart based on another datum, you should set the GPS 500 to use the same datum. Using a map datum that does not match the charts you are using can result in significant differences in position information. If you are using the paper charts for reference only, the GPS 500 still provides correct navigation guidance to the waypoints contained in the database, regardless of the datum selected.

Date / Time— provides settings for time format (local or UTC; 12- or 24-hour) and time offset. The time offset is used to define current local time. UTC (also called “GMT” or “zulu”) date and time are calculated directly from the GPS satellites’ signals and cannot be changed. If you prefer to use local time, simply designate the offset by adding or subtracting the correct number of hours.

Display Backlight— allows you to adjust the display for optimum viewing in any condition. Automatic backlighting is available which uses a built-in photocell (at the top left corner of the display bezel) to make the proper display adjustments without any user intervention. You may select manual control of the display backlighting to tailor the GPS 500 display to your needs.



NOTE: Display backlighting changes are not saved when the GPS 500 is turned off. Backlighting reverts to the “Auto” setting the next time the unit is turned on.

7 - AUX PAGES

Setup Page

Nearest Airport Criteria— defines the minimum runway length and surface type used when determining the nine nearest airports to display on the Nearest Airport page. A minimum runway length and/or surface type may be entered to prevent airports with small runways, or runways that are not of appropriate surface, from being displayed. The default settings are “0 feet (or meters)” for runway length and “any” for runway surface type.

Data Field Configuration— determines the information type displayed in the user-selectable data fields on the left hand side of the screen. Navigation data field options such as bearing, ground speed, track or distance to destination, or a traffic watch screen (when connected to a traffic sensor) are available. The selected data option appears on EVERY page.

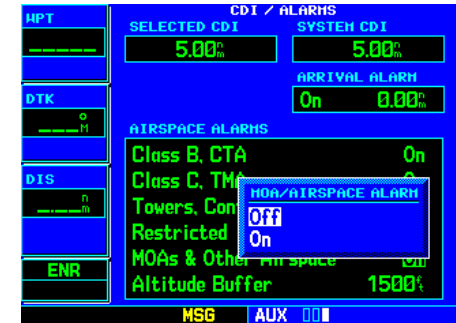
Setup Page: CDI / Alarms

To set the airspace warning messages or change the altitude buffer:

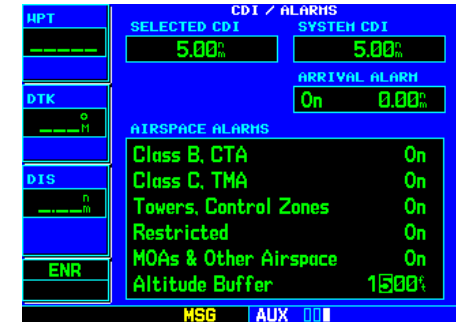
1. Select “CDI / Alarms” from the Setup page, using the steps described on page 128.
2. Rotate the **large right knob** to highlight the “On”/“Off” field next to the desired airspace type (“MOAs & Other Airspace” includes military operation, alert, caution, danger, training and warning areas).
3. Rotate the **small right knob** to select “On” or “Off”, as desired. Press **ENT** to accept the selection.
4. To change the altitude buffer, rotate the **large right knob** to highlight the “Altitude Buffer” field. Use the **small and large right knobs** to enter the desired buffer distance. Press **ENT** when finished.



NOTE: When an approach has been loaded into the active flight plan, airspace alert messages are disabled within 30 nm of the destination airport.



STEPS 2 & 3: Rotate the **large right knob** to select the desired airspace type, then rotate the **small right knob** to select “On” or “Off”.



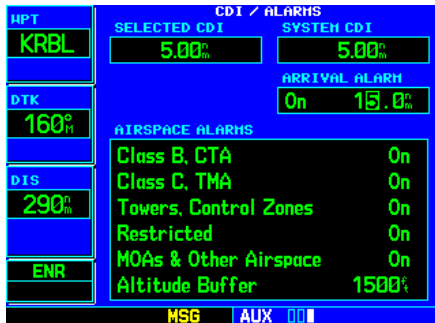
STEP 4: Use the **small and large right knobs** to enter the desired altitude buffer. This buffer distance is added to the floor/ceiling limits and provides an added margin of safety.

7 - AUX PAGES

Setup Page



STEP 3 (top): The “System CDI” field indicates the current CDI scale in use. This setting may be lower than the “Selected CDI” setting when necessary for the current phase of flight—such as during an approach.



STEP 4 (bottom): Use the **small** and **large right knobs** to enter the desired alarm distance.

Setup Page: CDI / Alarms (cont.)

To change the maximum CDI scale setting:

1. Select “CDI / Alarms” from the Setup page, using the steps described on page 128.
2. The flashing cursor highlights the “Selected CDI” field. Rotate the **small right knob** to select the desired CDI scale. The selected scale and any lower scale settings are used during the various phases of flight as described on page 129.
3. Press **ENT** to accept the selected scale. The “System CDI” field displays the CDI scale currently in use. The “System CDI” setting may differ from the “Selected CDI” depending upon the current phase of flight. See page 129 for more information.

To set the arrival alarm and alarm distance:

1. Select “CDI / Alarms” from the Setup page, using the steps described on page 128.
2. Rotate the **large right knob** to highlight the “On”/“Off” field (left-hand side of the field directly below “Arrival Alarm”).
3. Rotate the **small right knob** to select “On” or “Off”, as desired. Press **ENT** to accept the selection.
4. The flashing cursor moves to the alarm distance field (to the immediate right of “On” or “Off”). To enter an arrival alarm distance, use the **small** and **large right knobs** to enter the desired alarm distance. Press **ENT** when finished.



NOTE: The CDI scale is always measured in nautical miles, regardless of the current distance units of measure selected on the Units / Position page.

Setup Page: Units / Position

To set the magnetic variation:

1. Select "Units / Position" from the Setup page, using the steps described on page 128.
2. The flashing cursor highlights the heading mode field. Rotate the **small right knob** to select the desired heading mode: Auto, True or User. Press **ENT** to accept the selection (the heading modes are described on pages 128-130).
3. If "User" is selected, the flashing cursor moves to the user value field (to the immediate right of "User"). Use the **small** and **large right knobs** to enter the desired magnetic variation direction and value. Press **ENT** when finished.

To change the units of measure:

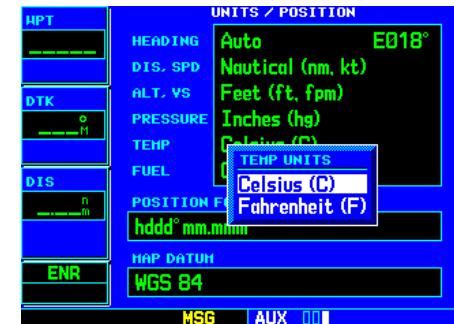
1. Select "Units / Position" from the Setup page, using the steps described on page 128.
2. Rotate the **large right knob** to highlight the desired units of measure category. The following categories, and corresponding units of measure, are available:
 - **DIS, SPD**—distance and speed in Nautical (nautical miles/knots), Statute (miles/miles per hour) or Metric (kilometers/kilometers per hour) terms.
 - **ALT, VS**—altitude and vertical speed in Feet/feet per minute, Meters/meters per minute, or Meters/meters per second.
 - **PRESSURE**—barometric pressure in Inches or Millibars.
 - **TEMP**—temperature in degrees Celsius or Fahrenheit.
 - **FUEL**—fuel units in Gallons, Imperial Gallons, Kilograms, Liters or Pounds.
3. Rotate the **small right knob** to select the desired units of measure for the selected category. Press **ENT** to accept the selection.

7 - AUX PAGES

Setup Page



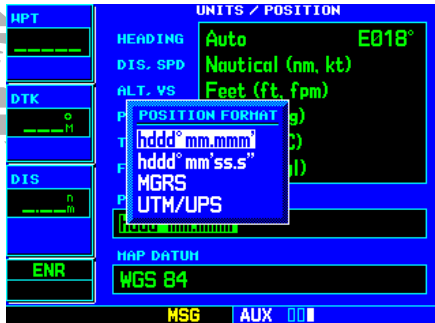
STEP 2 (top): Rotate the **small right knob** to select the desired heading mode. The default setting is "Auto", which automatically calculates the magnetic variation at your current position.



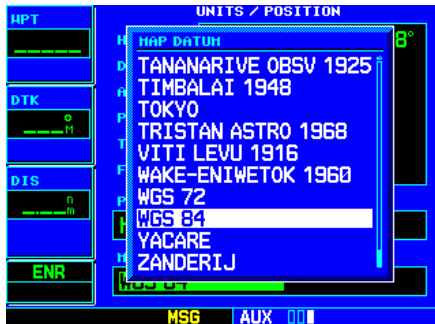
STEPS 2 & 3 (bottom): Use the **small** and **large right knobs** to select the desired units category and the desired units of measure for that category.

7 - AUX PAGES

Setup Page



STEP 3 (top): Rotate the **small right knob** to select the desired position format.



STEP 4 (bottom): Use the **small right knob** to select the desired map datum.

Setup Page: Units / Position (cont.)

To change the position format:

1. Select "Units / Position" from the Setup page, using the steps described on page 128.
2. Rotate the **large right knob** to highlight the "Position Format" field.
3. Rotate the **small right knob** to select the desired position format. The following position formats are available:
 - **hdd°mm.mmm**—latitude and longitude in degrees and decimal minutes
 - **hdd°mm'ss.s**—latitude and longitude in degrees, minutes and decimal seconds
 - **MGRS**—Military Grid Reference System
 - **UTM/UPS**—Universal Transverse Mercator / Universal Polar Stereographic grids
4. Press **ENT** to accept the selected format.

To change the map datum:

1. Select "Units / Position" from the Setup page, using the steps described on page 128.
2. Rotate the **large right knob** to highlight the "Map Datum" field.
3. Rotate the **small right knob** to display a window showing the available map datums.
4. Continue rotating the **small right knob** to select the desired map datum (see page 176 for a list of available map datums).
5. Press **ENT** to accept the selected datum.



NOTE: Per TSO C129a, the WGS-84 map datum should be used in the United States. For use outside the U.S., select the geodetic datum required by that country.

Setup Page: Date / Time

To display local time or UTC:

1. Select "Date / Time" from the Setup page, using the steps described on page 128.
2. The flashing cursor highlights the "Time Format" field. Rotate the **small right knob** to display a window of available time formats: Local 12hr, Local 24hr, or UTC.
3. Continue rotating the **small right knob** to select the desired time format.
4. Press **ENT** to accept the selection.

To set the local time:

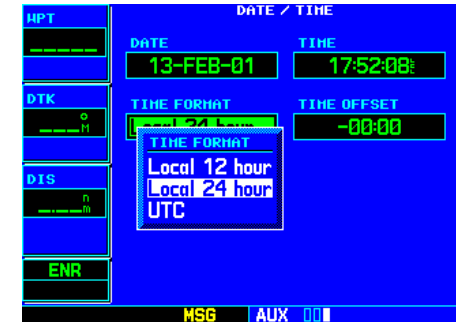
1. Select "Date / Time" from the Setup page, using the steps described on page 128.
2. Rotate the **large right knob** to highlight the time offset field.
3. Use the **small** and **large right knobs** to enter the desired offset, beginning by entering a minus (-) or plus (+) sign to indicate whether the offset is behind UTC or ahead of UTC (in the United States, all local time offsets are minus (-) , or behind UTC).
4. Press **ENT** to accept the selected offset.



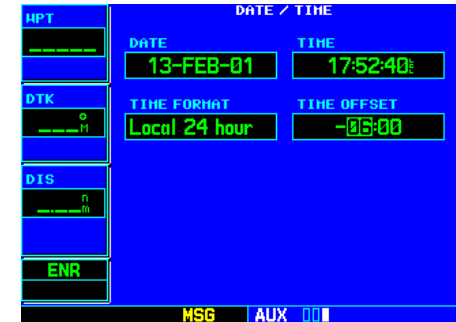
NOTE: When a local time offset is entered, you must also select "Local 12 hour" or "Local 24 hour" time format. The "UTC" time format setting ignores any time offset entry.

7 - AUX PAGES

Setup Page



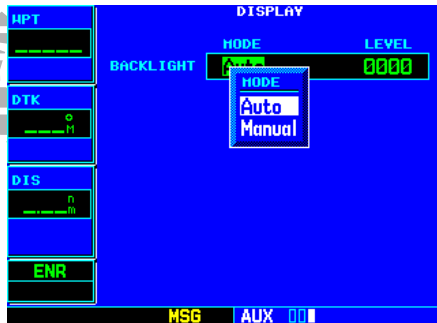
STEPS 2 & 3 (top): Rotate the **small right knob** to select the desired time format.



STEP 3 (bottom): Use the **small** and **large right knobs** to enter the difference between UTC (zulu) and local time.

7 - AUX PAGES

Setup Page



STEP 2 (top): Rotate the **small right knob** to select the backlight mode. If "Manual" is selected, use the **small right knob** to select the backlight level.



STEP 2 (bottom): Use the **small right knob** to select the desired runway surface type. Select "Any" to include all runway surface types.

Setup Page: Display Backlight

To change the backlighting intensity:

1. Select "Display Backlight" from the Setup page, using the steps described on page 128.
2. The flashing cursor highlights the backlight "Mode" field. Rotate the **small right knob** to select the desired mode: Auto or Manual. Press **ENT** to accept the selection.
3. If "Manual" is selected, the flashing cursor moves to the backlight "Level" field. Rotate the **small right knob** to select the desired level. Press **ENT** to accept the selection.

Setup Page: Nearest Airport Criteria

To set the minimum runway length and runway surface:

1. Select "Nearest Airport Criteria" from the Setup page, using the steps described on page 128.
2. The flashing cursor highlights the "Runway Surface" field. Rotate the **small right knob** to select the desired surface. The following options are available:
 - **Any** surface
 - **Hard** surfaces **Only**
 - **Hard / Soft** surfaces
 - **Water** landings only
3. Press **ENT** to accept the runway surface selection.
4. The flashing cursor moves to the minimum runway length field. To enter a different minimum runway length, use the **small** and **large right knobs** to enter the desired length. Press **ENT** when finished.



NOTE: Exercise caution when changing the Nearest Airport Criteria. Remember, by excluding certain surface types or shorter runway lengths, you may be excluding airports from the list that are more than adequate for an emergency landing!

Setup Page: Data Field Configuration

To change the configuration of the bottom left hand data field:

1. Select "Data Field Configuration" from the Setup page, using the steps described on page 128.
2. Rotate the **small right knob** to select the desired data field option. The following options are available:
 - **Configurable Data Fields**—displays a user-selectable data field of navigation data (e.g., bearing, minimum safe altitude, ground speed, track, distance to destination, etc.).
 - **Traffic Watch**—if your GPS 500 is connected to other equipment providing traffic alert information (e.g., BF Goodrich SKYWATCH™ or RYAN TCAD), a window is provided to display traffic information. This allows you to monitor traffic conditions from ANY page and quickly identify traffic hazards. See 400/500 Series Display Interfaces Pilot's Guide Addendum for more information on traffic data.
3. Press **ENT** to accept the selection.
4. When "Configurable Data Fields" is selected, the three selectable fields appear to allow you to select the desired data type for each one. Rotate the **large right knob** to highlight the fields, then rotate the **small right knob** to display a list of available navigation data types. Continue rotating the **small right knob** to select the desired data type and press **ENT** to approve your selection.

7 - AUX PAGES

Setup Page



STEP 2: Rotate the **small right knob** to select the desired data field option.



STEP 4: When "Configurable Data Fields" is selected, a second field appears to select the desired navigation data type. Rotate the **large right knob** to select this field, then rotate the **small right knob** to display the available navigation data types.

7 - AUX PAGES

Setup Page



STEPS 2 & 3: To restore any Setup page option to the factory settings, select the “Restore Defaults?” menu option.

Restoring Factory Settings

When making changes to any Setup page option, a “Restore Defaults?” menu selection allows you to restore the original factory settings (for the selected option only). For example, with the CDI / Alarms page displayed, the “Restore Defaults?” option restores the arrival alarm, all airspace alarms and CDI settings to the original factory values.

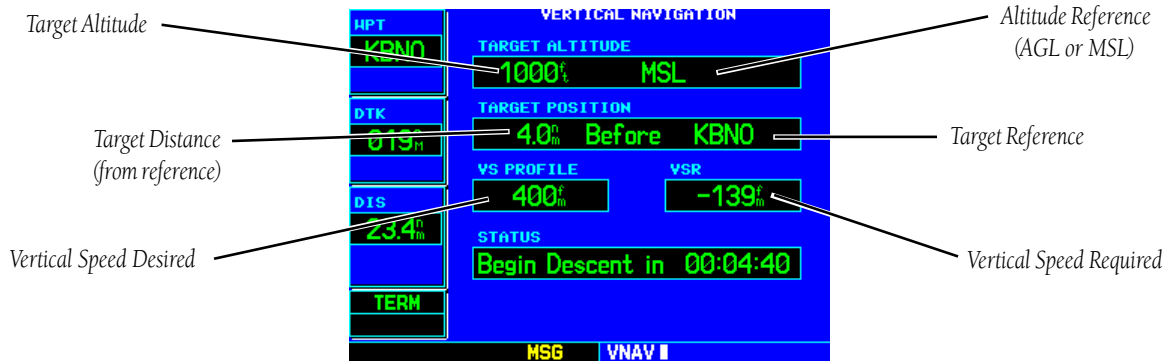
To restore a Setup page option to the original factory settings:

1. Select the desired menu option from the Setup page, using the steps described on page 128.
2. Press **MENU** to display a page options window.
3. With “Restore Defaults?” highlighted, press **ENT**.

Section 8: Vertical Navigation (VNAV)

The Vertical Navigation page of the GPS 500 allows you to create a three-dimensional profile which guides you from your present position and altitude to a final (target) altitude at a specified location. This is helpful when you wish to descend to a certain altitude near an airport or climb to an altitude before reaching a route or direct-to waypoint. Once the profile is defined, message alerts and additional data on the Default NAV and Map pages keep you informed of your progress.

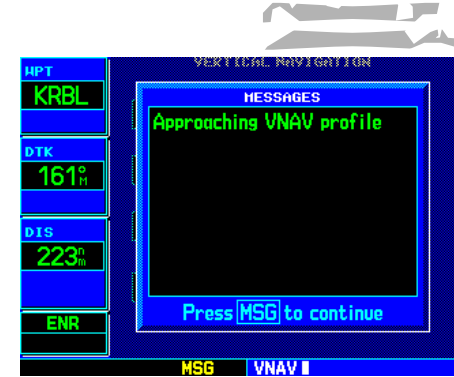
To display the Vertical Navigation page, press the VNAV key.



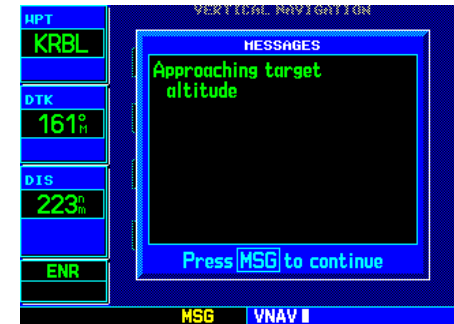
To use the vertical navigation features, your ground speed must be greater than 35 knots and you must be navigating to a direct-to destination or using a flight plan.

8 - VNAV

Vertical Navigation Page



A message alert lets you know when to begin a VNAV descent...



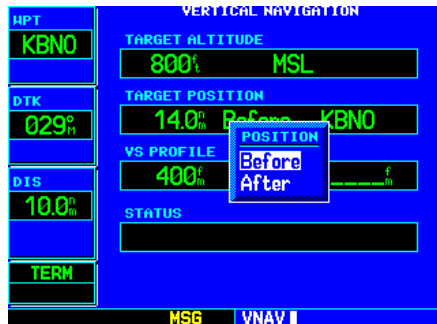
...as well as when you're approaching your new target altitude.

8 - VNAV

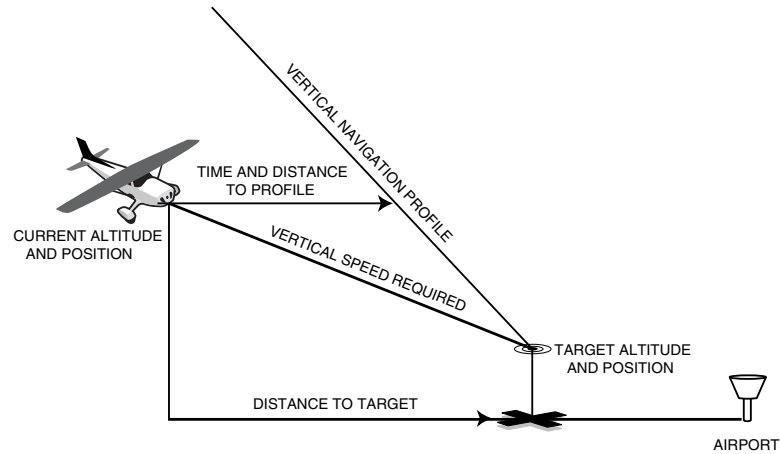
Vertical Navigation Profile



STEPS 3 & 4: Rotate the **small and large right knobs** to select a target altitude. The target altitude can be above field elevation (for an airport) or you can specify an MSL altitude for any waypoint category.



STEP 6: Rotate the **small right knob** to select whether the distance is "Before" or "After" the reference waypoint.



To create a vertical navigation profile:

1. Press **VNAV** to display the Vertical Navigation page.
2. Press the **small right knob** to activate the cursor.
3. With the **TARGET ALTITUDE** field highlighted, rotate the **small and large right knobs** to select the target altitude and press **ENT**.
4. Rotate the **small right knob** to select "Above Wpt" (AGL) or "MSL", and press **ENT**. "Above Wpt" uses the altitude of a destination airport as stored on the Jeppesen NavData card. "MSL" lets you set a specific target altitude for any waypoint category: airport, VOR, NDB, intersection or user waypoint.
5. Rotate the **small and large right knobs** to select a distance from the target reference waypoint and press **ENT**. If the target altitude should occur at the target reference waypoint, enter a distance of zero.
6. Rotate the **small right knob** to select "Before" or "After" and press **ENT**. This setting designates whether the offset distance defines a point before you reach the target reference waypoint or after you reach the waypoint.
7. When using a flight plan, the target reference waypoint itself can be specified from the waypoints contained in the flight plan. By default, the last waypoint in the flight plan is selected. To select a different waypoint, rotate the **small right knob** to select the desired waypoint and press **ENT**.

{continued}

8 - VNAV VNAV Messages

- The default profile utilizes a 400-foot-per-minute descent rate. To change the rate, rotate the **large right knob** to highlight the “VS Profile” field and use the **small** and **large right knobs** to enter a new rate. Press **ENT** when finished.

With the profile set, the vertical speed required (VSR) is displayed on the Vertical Navigation page. Expect the following to occur when using the vertical navigation feature:

- One minute prior to reaching the initial descent point, a message “Approaching VNAV Profile” occurs. The descent (or climb) angle also locks to prevent changes in speed from altering the profile.
- If selected, the vertical speed required (VSR) readout on the Default NAV and map pages shows the desired vertical speed to maintain the proper descent (or climb) angle.
- At 500 feet above (or below, for a climb) the target altitude, an “Approaching Target Altitude” message is provided. The VSR readout on the Default NAV and Map pages is blanked out at this point.

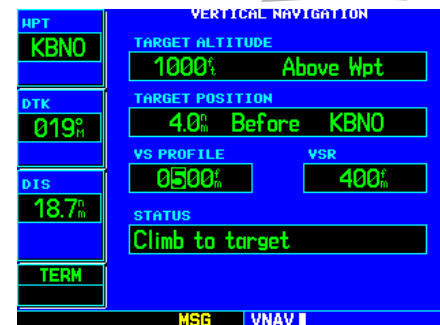
Vertical navigation messages can be turned on or off (by default the messages are off). Turning the messages off allows you to keep the profile settings you have entered previously, without having them generate messages when the feature is not needed.

To disable/enable the vertical navigation (VNAV) messages:

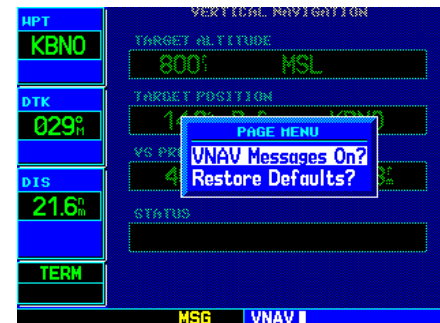
- Press **MENU** to display the Vertical Navigation Page options menu.
- With “VNAV Messages On?” highlighted, press **ENT**. Or, if the messages are already on and you wish to turn them off, make sure “VNAV Messages Off?” is highlighted and press **ENT**.

To restore the factory default VNAV settings:

- Press **MENU** to display the Vertical Navigation Page options menu.
- Rotate the large right knob to highlight “Restore Defaults?” and press **ENT**.



STEP 8: The default profile is a 400-foot-per-minute climb/descent. Use the **small** and **large right knobs** to enter a different vertical speed figure.



STEP 2: Select “VNAV Messages On?” to display the vertical navigation alert message.



Section 9: Fault Detection and Exclusion (FDE) Interface



NOTE: The following section is aimed at users who have experience operating the GPS 500 unit and are familiar with the operation of RAIM.

Fault Detection and Exclusion (FDE)

The Garmin GPS 500 Main and GPS Software version 3.00 and higher incorporate a Fault Detection and Exclusion (FDE) algorithm, thus providing a basis for approval per FAA Notice N8110.60 requirements for “GPS as a Primary Means of Navigation for Oceanic/Remote Operations”.

The FDE consists of two distinct features: fault detection and fault exclusion. The fault detection feature detects the presence of an unacceptably large pseudorange error for a given mode of flight — if included, this error would result in a position error. Upon detection, fault exclusion follows and excludes the source of the unacceptably large pseudorange error, thereby allowing navigation to return to normal performance without an interruption in service. To enhance safety, FDE functionality is provided for other phases of flight (non-precision approach, terminal, en route). The FDE functionality for non-oceanic flight phases adheres to the same missed alert probability, false alert probability and failed exclusion probability specified by FAA Notice N8110.60.

Pre-departure Verification of FDE

An FDE prediction must be performed prior to departure for a flight plan involving Oceanic/Remote operation where GPS is to be the sole source of navigation. Prior to departure, the operator must use the FDE prediction program supplied with the GPS 500 trainer software to demonstrate that there are no outages in the capability to navigate on the specified route of flight (the FDE prediction program determines whether the GPS constellation is robust enough to provide a navigation solution for the specified route of flight). Please, refer to the instructions included in the [Garmin GNS 530/GPS 500 Simulator Interactive Training CD & FDE Prediction Software](#) for complete details on using the FDE prediction program.



FDE Interface and Control

- **RAIM Prediction** — Receiver Autonomous Integrity Monitoring (RAIM) is a GPS receiver function that performs a consistency check on all tracked satellites. RAIM ensures that the available satellite geometry allows the receiver to calculate a position within a specified protection limit (4.0 nm for oceanic, 2.0 nm for en route, 1.0 nm for terminal and 0.3 nm for non-precision approaches).

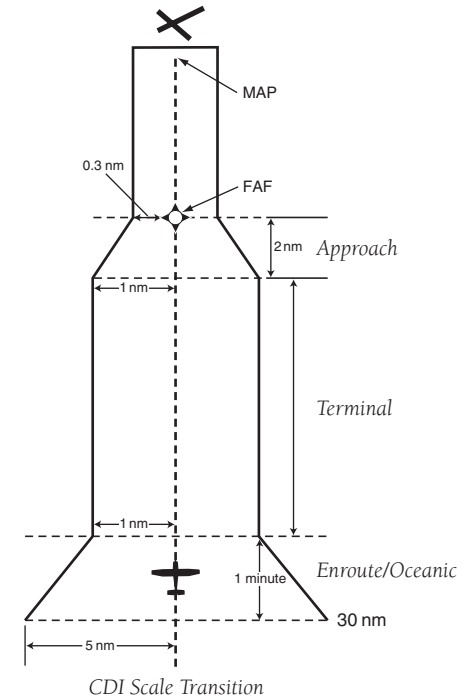
During the oceanic, en-route and terminal phases of flight, RAIM is almost always available. Sometimes, RAIM may be unavailable during an approach because of the tighter protection limits on the terminal phase of flight. The unit automatically monitors RAIM and indicates through an alert message when RAIM is not available (in which case the INTEG annunciator appears at the bottom left corner of the screen). If RAIM is not available when crossing the final approach fix (FAF), the pilot must fly a missed approach procedure. The RAIM prediction function also shows whether RAIM will be available for a specified date and time.



NOTE: If RAIM is predicted to be unavailable for the final approach course, the approach does not become active and an "Approach is not active" message, a "RAIM not available from FAF to MAP" message and the INTEG annunciator is displayed.

- **CDI/Alarms** — Allows you to define the scale for the GPS 500 on-screen course deviation indicator. The scale values represent full scale deflection for the CDI to either side. The default setting is "Auto". At this setting, the CDI scale is set to 5.0 nm during the en-route and oceanic/remote phases of flight. Within 30 nm of your destination airport, the CDI scale gradually decreases to 1.0 nm (terminal area). Likewise, after departure, the CDI scale is set to 1.0 nm and gradually increases to 5.0 nm beyond 30 nm from the departure airport. Oceanic flight phase (OCN) begins when the aircraft is farther than 200 nm from the nearest airport.

During approach operations, the CDI scale gradually decreases even further (i.e., to 0.3 nm). This transition normally occurs within 2.0 nm of the FAF. If a lower CDI scale setting is selected (i.e., 1.0 nm or 0.3 nm), the higher scale settings are not selected during ANY phase of flight. For example, if 1.0 nm is selected, the GPS 500 uses this for the en-route and terminal phases, and decreases its scale to 0.3 nm during approach.





An “Auto” ILS CDI selection allows the GPS 500 to automatically switch the external CDI from the GPS receiver to the VLOC receiver, when established on the final approach course. Selecting “manual” allows to manually switch the external CDI connection as needed. An arrival alarm, provided on the CDI / alarms page, may be set to notify the user with a message when the user-defined distance to a final destination has been reached (the direct-to waypoint or the last waypoint in a flight plan). Once the set distance has been reached (up to 99.9 units), an “Arrival at [waypoint]” message is displayed.

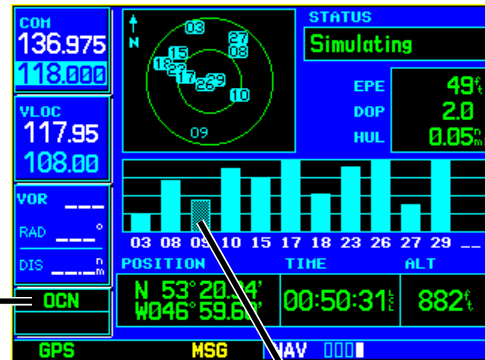


Satellite Status Page

The Satellite Status page below shows the exclusion of satellite number 9 during the oceanic phase of flight. No message of exclusion appears on the screen. In addition to the EPE and DOP fields, there is the Horizontal Uncertainty Level (HUL) field, which displays a 99% confidence level that the aircraft position is within the radius displayed in the HUL field.

CDI Scale	RAIM Protection (no display)
Auto (oceanic)	4.0 nm
±5.0 nm or Auto (en route)	2.0 nm
±1.0 nm or Auto (terminal)	1.0 nm
±0.3 nm or Auto (approach)	0.3 nm

Note: the Receiver Autonomous Integrity Monitoring (RAIM) protection limits listed above follow the selected CDI scale and corresponding modes.



Oceanic Mode Annunciation (OCN)

Horizontal Uncertainty Level

Excluded Satellite (checked pattern)



Messages

The GPS 500 uses a flashing “MSG” annunciator at the bottom of the screen (directly above the **MSG** key) to alert you of any important information or warnings. While most messages are advisory in nature, warning messages may require your intervention. Whenever the “MSG” annunciator flashes, press the **MSG** key to display the message. Press **MSG** again to return to the previous page.

The following is a list of available messages and their meanings:

Airspace ahead—less than 10 minutes—Your GPS-calculated course is projected to enter a special use airspace within 10 minutes. This message is automatically disabled within 30 nautical miles of an arrival airport, when an approach is loaded.

Airspace near and ahead—Your GPS-calculated position is within 2 nautical miles of the boundary of a special use airspace and your course is projected to enter the airspace within 10 minutes. This message is automatically disabled within 30 nautical miles of an arrival airport, when an approach is loaded.

Altitude input failure—The GPS 500 is configured to receive altitude serializer data (Icarus, Rosetta or Shadin) and it is not being received. Or, the data was being received, but has been interrupted. If a grey code altitude input is available, it will be used instead. If the problem persists, contact your Garmin dealer and check the installation and installation settings. When this message occurs, no pilot action is required if enough satellites are available for a 3D position fix (provided no RAIM warnings are present). However, if only a 2D position fix is possible, the pilot should maintain the GPS altitude within 1,000 feet of pressure altitude—by entering the altitude on the Position page.

Approach is not active—The approach could not transition to “active”, at 2 nautical miles or closer to the FAF. Verify that “SUSP” DOES NOT appear directly above the **OBS** key, indicating the auto waypoint sequencing is suspended. This message also appears if Receiver Autonomous Integrity Monitoring (RAIM) has determined that sufficient GPS satellite coverage DOES NOT exist for the phase of flight you are currently in (along with a “RAIM not available from FAF to MAP” message).

Approaching target altitude—The current GPS-computed altitude is within 500 feet of the final Vertical Navigation target altitude.

Approaching VNAV profile—You are within one minute of reaching the initial Vertical Navigation descent, or climb, point.

Arrival at waypoint [waypoint name]—You are within the arrival alarm circle for the indicated waypoint. The size of the arrival alarm circle is defined from the “CDI / alarms” menu option on the Setup page.

Cannot navigate locked FPL—You have attempted to navigate a flight plan (FPL) with one or more locked waypoints. A waypoint can be “locked” when the NavData® card is replaced and the waypoint(s) does not exist in the new database.

10- Messages, Abbreviations & Nav Terms



Can't change an active waypoint—An attempt has been made to modify the position of the active “to” or “from” waypoint. The GPS 500 does not allow modifications to user waypoints currently being utilized for navigation guidance.

Can't delete an active or FPL waypoint—An attempt has been made to delete the active “to” or “from” waypoint. The GPS 500 does not allow you to delete user waypoints currently being utilized for navigation guidance.

Check unit cooling—The GPS 500 has detected excessive display backlighting temperature. The backlighting has been automatically dimmed to reduce the temperature. Check for adequate ventilation or check cooling airflow. Contact your Garmin dealer for assistance.

Data card failure—The GPS 500 has detected a problem with the NavData® card. The data is not usable and the card should be returned to Jeppesen or your Garmin dealer.

Data transfer cancelled (crossfill is busy)—An attempt to transfer flight plan data during a unit-to-unit crossfill was cancelled. The host unit is busy. Wait until any previous crossfill operation is complete, before re-attempting the transfer.

Data transfer cancelled (data invalid)—An attempt to transfer a single user waypoint during a unit-to-unit crossfill was cancelled. No waypoint was specified on the Crossfill page. Select a user waypoint and re-attempt the transfer.

Data transfer cancelled (version mismatch)—An attempt to transfer data during a unit-to-unit crossfill was cancelled. The database versions of the two GPS 500s are not identical. If necessary, update the database(s) so they match. Contact Jeppesen or your Garmin dealer for assistance.

Data transfer error, please re-transmit—An error was detected during unit-to-unit crossfill of user data (user waypoints and/or flight plans). The data transfer should be re-attempted.

Data transfer is complete—The unit-to-unit crossfill of all user waypoint data has finished.

Database changed, validate user modified procedures—You have modified one or more approaches, departures or arrivals from their original published form. When the NavData® card is replaced (database update), you must manually verify your changes in the new database. This message occurs each time a flight plan containing a modified procedure (generated from a prior database version) is activated. To eliminate the message, re-create the flight plan from the new database, then make the desired modifications.



Degraded accuracy—GPS position accuracy has been degraded and RAIM is not available. Poor satellite geometry (or coverage) has resulted in a horizontal DOP greater than 4.0. Additional cross-checking using another navigation source is required to verify the integrity of the GPS position.

Display backlight failure—The GPS 500 has detected a failure in the display backlighting. The unit should be taken to your Garmin dealer for service.

Do not use for navigation—The GPS 500 is in Demo Mode and must not be used for actual navigation.

FPL has been truncated—The flight plan (FPL) was truncated because not enough room existed to insert an approach, departure or arrival. This may occur upon power up when a database change increases the number of waypoints within an instrument procedure.

FPL is full— remove unnecessary waypoints—An attempt has been made to add more than 31 waypoints to a flight plan (FPL). The GPS 500 does not allow more than 31 waypoints per flight plan.

FPL leg will not be smoothed—The upcoming flight plan (FPL) leg is too short for smooth waypoint transitions. Expect a rapid change in the CDI.

FPL waypoint is locked—At least one flight plan (FPL) waypoint is locked because the waypoint has been removed from the current NavData® card (database change), the data card is missing, or the data card has failed.

FPL waypoint moved—The position data for one or more flight plan (FPL) waypoints moved at least 0.33 arc minutes in the current NavData® card (database change).

FPL waypoint was deleted—At least one flight plan (FPL) waypoint is no longer available when a new NavData® card was installed (database change).

GAD configuration required—The GAD 42 Interface Adapter has lost the configuration information stored in its internal memory. Any mechanical indicators connected to your GPS 500 are unusable and the GAD 42 should be returned to your Garmin dealer for service.

GAD needs service—The GPS 500 has detected a failure in the GAD 42 interface adapter. Any mechanical indicators connected to your GPS 500 are unusable and the GAD 42 should be returned to your Garmin dealer for service.

GPS has failed—The GPS 500 has detected a failure in its GPS receiver. The GPS receiver is not available and the unit should be returned to your Garmin dealer for service.

GPS is not responding—Internal system-to-system communication between the main processor and the GPS receiver has failed. Operational status of the GPS receiver is unknown and the unit should be returned to your Garmin dealer for service.

10- Messages, Abbreviations & Nav Terms



GPS needs service—The GPS 500 has detected a failure in its GPS receiver. The GPS receiver may still be usable, but the unit should be returned (at your earliest convenience) to your Garmin dealer for service.

GPS stored data was lost—Satellite almanac, ephemeris and time data have been lost due to a memory battery failure, system reset or data expiration (data over six months old).

Heading input failure—The heading selection on the external HSI's (or CDI's) OBS course selector cannot be read properly. Your Garmin dealer may need to check the installation.

Inside airspace—Your GPS-calculated position lies within the boundaries of a special use airspace. This message is automatically disabled within 30 nautical miles of an arrival airport, when an approach is loaded.

Invalid closest pt of FPL—A closest point cannot be created from the waypoint entered on the “Closest point of flight plan” window. This occurs when the selected waypoint is beyond the limits of all legs in the flight plan, too far away, or when a unique waypoint name for the closest point cannot be created.

Invalid FPL modification—An attempt was made to modify the final course segment (FAF to MAP) of an instrument approach. The GPS 500 does not allow the modifications.

Invalid waypoint ident—An attempt was made to create a user waypoint with an invalid name. The GPS 500 does not allow spaces between characters in the waypoint name.

MAIN processor requires service—The GPS 500 has detected a failure in the main system processor. The GPS 500 is not usable and should be taken to your Garmin dealer for service.

Memory battery low—The internal battery that sustains user memory is low and should be replaced by a Garmin dealer as soon as possible. Failure to do so may result in loss of stored data, including flight plans, user waypoints, unit settings and satellite data.

Near airspace—less than 2 nm—Your GPS-calculated position is within 2 nautical miles of a special use airspace boundary, but you are not projected to enter the airspace. This message is automatically disabled within 30 nautical miles of an arrival airport, when an approach is loaded.

Need altitude - display position page—The GPS receiver needs altitude input in order to start and/or continue 2D navigation. Select the Position page and verify the altitude reading. If the altitude is in error by more than 500 feet, enter the current altitude as accurately as possible. An inaccurate altitude directly translates into inaccurate position information.

No altitude input is being received—No altitude data is being received from RS-232 (Serializer: Icarus, Rosetta or Shadin) or grey code inputs. If the problem persists, contact your Garmin dealer and check the



installation and installation settings. When this message occurs, no pilot action is required if enough satellites are available for a 3D position fix (provided no RAIM warnings are present). However, if only a 2D position fix is possible, the pilot should maintain the GPS altitude within 1,000 feet of pressure altitude—by entering the altitude on the Position page.

No basemap data available—The GPS 500 has detected a failure in the built-in basemap (land data) memory. Land data will not appear on the Map Page. Other unit functions will continue to work normally, however the GPS 500 should be taken to your Garmin dealer for service at your earliest convenience.

Non-WGS84 wpt navigation—The active “to” and/or “from” waypoints are based upon a map datum other than WGS 84 and cannot be converted from that map datum to WGS 84. Expect some error in the position of the waypoint(s) and cross-check with an alternate means of navigation.

Not receiving input data on 429 Channel #1—No data has been received on the ARINC 429 channel #1 connection for a period exceeding five seconds. If the problem persists, the installation should be checked by your Garmin dealer.

Not receiving input data on 429 Channel #2—No data has been received on the ARINC 429 channel #2 connection for a period exceeding five seconds. If the problem persists, the installation should be checked by your Garmin dealer.

Not receiving input data on 232 Channel #(1 through 5)—No data has been received on the RS-232 numbered channel #1 through 5 connection for a period exceeding ten seconds. If the problem persists, the installation should be checked by your Garmin dealer.

OBS key stuck—The **OBS** key is stuck in the enabled (or pressed) state. Try pressing the **OBS** key again to cycle its operation. If the message persists, contact your Garmin dealer for assistance.

Poor GPS coverage—The GPS receiver cannot acquire a sufficient number of satellites to compute a position and provide navigation.

Power down and re-initialize—The GPS 500 cannot calculate a position due to abnormal satellite conditions. The unit is unusable until power has been cycled off and back on. Abnormal satellite conditions may exist and you may need to use an alternate means of navigation.

RAIM is not available—Receiver Autonomous Integrity Monitoring (RAIM) has determined that sufficient GPS satellite coverage DOES NOT exist for the phase of flight you are currently in. (The CDI/HSI NAV flag also appears.) Select an alternate source for navigation guidance, such as an external VOR/ILS receiver.

10- Messages, Abbreviations & Nav Terms



RAIM not available from FAF to MAP waypoints—When performing an instrument approach, Receiver Autonomous Integrity Monitoring (RAIM) has determined that sufficient GPS satellite coverage DOES NOT exist to meet the required protection limits. Select an alternate source for navigation guidance, such as an external VOR/ILS receiver.

RAIM position warning—Although sufficient GPS satellite coverage may exist, Receiver Autonomous Integrity Monitoring (RAIM) has determined the information from one or more GPS satellites may be in error. The resulting GPS position may be in error beyond the limits allowed for your current phase of flight. Cross-check your position with an alternate navigation source. If the warning occurs during a final approach segment (FAF to MAP), execute the published missed approach.

Scheduler message — [user entered text]—The user-entered scheduler message time has expired, and the scheduler message is displayed.

Searching the sky—The GPS 500 is searching the sky for GPS satellite almanac data or the GPS receiver is in AutoLocate Mode. Allow the unit to complete data collection (approx. 5 minutes) before turning it off.

Select auto sequence mode—The **OBS** key was pressed, disabling auto sequencing of waypoints (in a flight plan or instrument procedure). The **OBS** key should be pressed again to enable auto sequencing, because 1) no destination waypoint has been selected, or 2) the GPS receiver cannot currently determine its position.

Set course to [###]°—The course select for the external CDI (or HSI) should be set to the specified course. The message only occurs when the current selected course is greater than 10° different from the desired track.

Steep turn ahead—This message appears approximately one minute prior to a turn in one of the following three conditions: 1) the turn requires a bank angle in excess of 25° in order to stay on course, 2) the turn requires a course change greater than 175°, or 3) during a DME arc approach the turn anticipation distance exceeds 90 seconds.

Stored data was lost—All user waypoints, flight plans and system settings have been lost due to a memory battery failure or system reset.

Stormscope device has failed—The GPS 500 cannot communicate with the WX-500 and/or the WX-500 is reporting a system failure.

Stormscope heading has failed—The WX 500 is reporting invalid heading data. The failure may be within the WX 500 or other connected equipment.

Timer has expired—The count down timer has reached zero.

Traffic device has failed—The GPS 500 cannot communicate with the SKY497 or TCAD and/or the SKY497 or TCAD is reporting a system failure.



Unit configuration has changed—The GPS 500 has detected a failure (during initial power up) in its system configuration. Some system components may be unusable. Try cycling power off and back on. If the message persists, contact your Garmin dealer for assistance.

User card format unknown—A data card has been inserted, but the format of the card is not recognized.

Waypoint already exists—The name you have entered for a user waypoint already exists in memory.

Waypoint(s) have been replaced—One or more user waypoints were updated during a unit-to-unit crossfill operation.

Waypoint memory is full—You have used all 1000 user waypoint locations in the GPS 500's memory. Delete unwanted waypoints to make room for new entries.

WGS 84 datum has been selected—The system map datum was changed to WGS 84 because the selected map datum was removed from the current NavData® card (database update), the data card is missing or the data card has failed.

The following additional annunciator messages may appear in the lower right corner of the GPS 500's display:

APPROACHING WPT—Approaching waypoint (waypoint alert)

HOLD DIRECT—"Direct" holding pattern entry

HOLD PARALLEL—"Parallel" holding pattern entry

HOLD TEARDROP—"Teardrop" holding pattern entry

NEXT DTK—Waypoint alert. Prepare to turn to the indicated heading upon waypoint passage.

START PROC TRN—Start Procedure Turn. Reminder message to commence course reversal maneuver.

TURN TO ###° — Turn advisory. Turn to the indicated heading.

The following abbreviations appear next to waypoint names during approach procedures.

IA – Initial Approach fix – (IAF)

FA – Final Approach fix – (FAF)

MA – Missed Approach point – (MAP)

MH – Missed Hold – The waypoint at which to hold after missing the approach.

10- Messages, Abbreviations & Nav Terms



Abbreviations

The following is a list of abbreviations used on the GPS 500 and their meanings:

ACTV—	Active
ALT—	Altitude
APR—	Approach
APT—	Airport
ARSPC—	Airspace
ARTCC—	Air Route Traffic Control Center
ARVL—	Arrival
AUX—	Auxiliary
AVGAS—	Aviation-grade Gasoline
AVTN—	Aviation

BARO—	Barometric Pressure	DP—	Departure Procedure
BRG—	Bearing To	DTK—	Desired Track
°C—	Degree Celsius	EFF—	Efficiency
C/V—	COM/VLOC	ELEV—	Elevation
CAS—	Calibrated Airspeed	ENDUR—	Endurance
CDI—	Course Deviation Indicator	ENR—	En Route
CLR—	Clear	ENT—	Enter
COM—	Communications Transceiver	EPE—	Estimated Position Error
CRSR—	Cursor	ESA—	En Route Safe Altitude
CTA—	ICAO Control Area	ETA—	Estimated Time of Arrival
CTAF—	Common Traffic Advisory Frequency	ETE—	Estimated Time En Route
CTR—	Center (see ARTCC)	°F—	Degrees Fahrenheit
CTS—	Course To Steer	FDE—	Fault Detection and Exclusion
CUM—	Cumulative	FF—	Fuel Flow
DB—	Database	FOB—	Fuel On Board
DEN—	Density	FPL—	Flight Plan
DEP—	Departure	fpm—	Feet Per Minute
DIS—	Distance	FREQ—	Frequency
DME—	Distance Measuring Equipment	FSS—	Flight Service Station
DOP—	Dilution of Precision	ft—	Feet

10- Messages, Abbreviations & Nav Terms



G/S— Glideslope
gl— gallons
GPS— Global Positioning System
GS— Ground Speed

HDG— Heading
hg— Inches of Mercury
HWY— Highway

ID— Identifier
ig— Imperial Gallons
ILS— Instrument Landing System
IND— Indicated
INT— Intersection
INTEG— Integrity

kg— Kilograms
kHz— Kilohertz
km— Kilometers
kph— Kilometers Per Hour
kt— Knots

LAT/LON—Latitude/Longitude

lb— Pounds
LCL— Local
LFOB— Leftover Fuel On Board
LOC— Localizer
LRES— Leftover Fuel Reserve Time
Lrg— Large
lt— Liters

°M— Degrees Magnetic
m— Meters
mb— Millibars of Pressure
Med— Medium
MHz— Megahertz
mi— Statute Miles
MOA— Military Operations Area
mph— Statute Miles Per Hour
mpm— Meters Per Minute
mps— Meters Per Second
MSA— Minimum Safe Altitude
MSG— Message
MSL— Mean Sea Level
mul— Multicom

NATNL— National
NAV— Navigation
NAVAID— Navigational Aid
NDB— Non-Directional Radio Beacon
nm— Nautical Miles
NRST— Nearest
NUM— Number

OBS— Omnibearing Selector
OCN— Oceanic Mode

P.POS— Present Position
PROC— Procedure(s)
PROV— Province
PWR— Power

10- Messages, Abbreviations & Nav Terms



RAD— Radial
RAIM— Receiver Autonomous Integrity Monitoring
REF— Reference
REQ— Required / Requirements
RESTRICTD— Restricted
RNG— Range
RX— Receive

Sml— Small
SPD— Speed
SQ— Squelch
SRFC— Surface
STAR— Standard Terminal Arrival Route

SUA— Special Use Airspace
SUSP— Suspend Waypoint Sequencing

°T— Degrees True
TACAN— Tactical Air Navigation
TAS— True Airspeed
TAT— Total Air Temperature
TEMP— Temperature
TERM— Terminal
TKE— Track Angle Error
TMA— ICAO Terminal Control Area
TRANS— Transition
TRK— Track (also Ground Track)
TRSA— Terminal Radar Service Area
twr— Tower

uni— Unicom
UTC— Coordinated Universal Time (also GMT or “zulu”)

VAR— Variation
VER— Version
VFR— Visual Flight Rules

VNAV— Vertical Navigation
VOR— VHF Omnidirectional Radio Range

VS— Vertical Speed
VSR— Vertical Speed Required

WPT— Waypoint
WX— Weather

XTK— Crosstrack Error



Navigation Terms

The following navigation terms are used on the GPS 500:

ALT(altitude)—Height above mean sea level (MSL).

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

CAS(calibrated airspeed)—Indicated airspeed corrected for instrument errors.

CTS(course to steer)—The recommended direction to steer in order to reduce course error or stay on course. Provides the most efficient heading to get back to the desired course and proceed along your flight plan.

CUM(cumulative)—The total of all legs in a flight plan (such as “cumulative distance”).

DIS(distance)—The “great circle” distance from your present position to a destination waypoint.

DOP(dilution of precision)—A measure of satellite geometry quality on a scale of one to ten (lowest numbers are best, highest numbers are worst).

DTK(desired track)—The desired course between the active “from” and “to” waypoints.

EFF(efficiency)—A measure of fuel consumption, expressed in distance per fuel units (e.g., nautical miles per gallon).

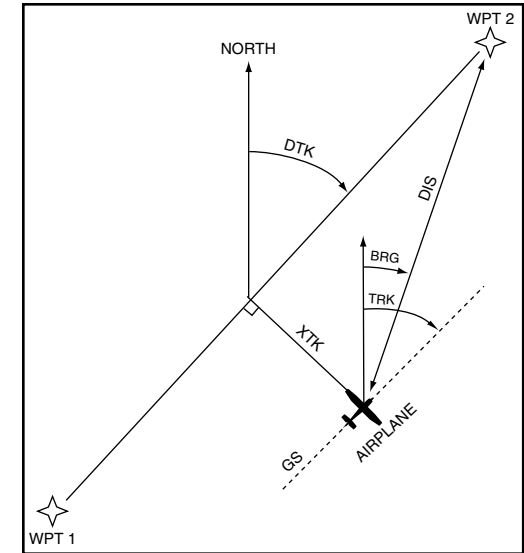
ENDUR(endurance)—Flight endurance, or total available flight time based upon available fuel.

EPE(estimated position error)—A measure of satellite geometry quality and additional factors, expressed as a horizontal position error in feet or meters.

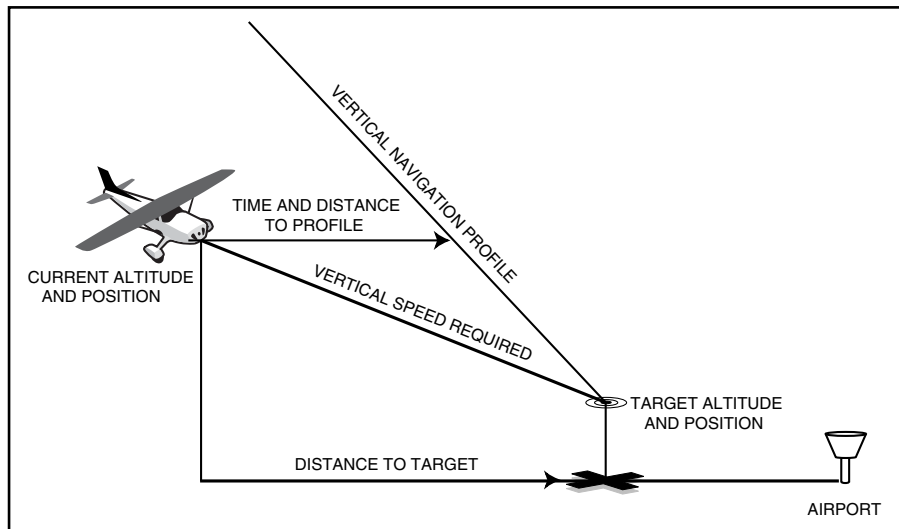
ESA(en-route safe altitude)—The recommended minimum altitude within a ten mile radius of your course on an active flight plan or direct-to.

ETA(estimate time of arrival)—The estimated time at which you will reach your destination waypoint, based upon current speed and track.

ETE(estimated time en route)—The time it will take to reach the destination waypoint, from present position, based upon current ground speed.



10- Messages, Abbreviations & Nav Terms



FDE(Fault Detection and Exclusion)—Detects the presence of an unacceptably large pseudorange error and excludes the source of such error without interrupting navigation.

FF(fuel flow)—The fuel flow rate, expressed in fuel units per time (e.g., gallons per hour).

FOB(fuel on board)—The total amount of usable fuel on board the aircraft.

GS(ground speed)—The velocity you are traveling relative to a ground position.

HDG(heading)—The direction an aircraft is pointed, based upon indications from a magnetic compass or a properly set directional gyro.

HUL(Horizontal Uncertainty Level)—HUL represents the aircraft position accuracy with a 99% confidence level.

IND(indicated)—Information provided by properly calibrated and set instrumentation in the aircraft panel (e.g., “indicated altitude”).

LFOB(left-over fuel onboard)—The amount of fuel remaining on board after the completion of a one or more legs of a flight plan (or a direct-to).

LRES(left-over fuel reserve)—The amount of fuel remaining on board after the completion of a one or more legs of a flight plan (or a direct-to), expressed in time and based upon a known fuel consumption (flow) rate.

MSA(minimum safe altitude)—Uses Grid Minimum Off-route Altitudes (Grid MORAs) to determine a safe altitude within ten miles of your present position. Grid MORAs are one degree latitude by one degree longitude in size and clear all reference points within the grid by 1000 feet in areas where the highest reference point is 5000 feet MSL or lower. If the highest reference point is above 5000 feet, the clearance above the highest reference point is 2000 feet.

RAIM(Receiver Autonomous Integrity Monitoring)—A GPS receiver function that performs a consistency check on all tracked satellites.

TKE(track angle error)—The angle difference between the desired track and your current track. An arrow indicates the proper direction to turn to reduce TKE to zero.

TRK(track)—The direction of movement relative to a ground position. Also referred to as “ground track”.

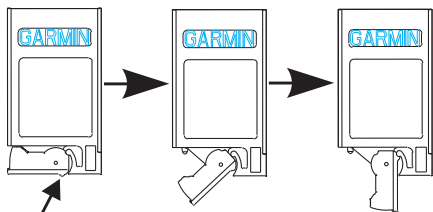
VSR(vertical speed required)—The vertical speed necessary to descend/climb from current position and altitude to a defined target position and altitude, based upon your current ground speed.

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



APPENDIX A

NavData Card Use



Press here to
deploy handle

Appendix A: NavData Card Use

The Jeppesen NavData® card supplied with your GPS 500 can be installed or removed when the GPS 500 is on or off. Insert the card with the swing arm handle on the left and the label facing up (see illustration at left). If the NavData card is not present when the unit is turned on, you will receive a “No Jeppesen Aviation Database - Limited to user defined waypoints” message on the Database Confirmation page. If the NavData card is removed during operation, a “Data card removed-Unit will restart in 30 seconds” warning appears. A counter begins to count down and, if the card is not replaced within 30 seconds, the GPS 500 automatically reinitializes. You may also reinitialize the unit manually by pressing **ENT**.

To insert the NavData card:

1. Place the card into the NavData card slot, with the label facing up and the swing arm handle on the left.



There are two data card slots on the face of the GPS 500. The Jeppesen NavData® card should be inserted in the left-most slot. The second slot is provided for future expansion capabilities.

2. Press the NavData card into place until it touches the internal connector and the front of the card is flush with the face of the GPS 500 unit.
3. If the swing arm handle is up, gently lower the handle and push it into place—flush with the face of the GPS 500 unit.

To remove the NavData card:

1. Gently press on the tab—using a slight motion toward the right—at the front center of the NavData card. This will partially deploy the swing arm handle.
2. Rotate the swing arm handle outward until it locks into place and is perpendicular to the face of the GPS 500 unit.
3. Grab the swing arm handle between your thumb and forefinger, and pull directly away from the face of the GPS 500 unit and remove the NavData card.

Appendix B: Specifications

PHYSICAL

Unit Size: H 6.25 in (159 mm) x W 11.00 in (279 mm) x D 4.60 in (117 mm)
Unit Weight: 5.7 lb (2.6 kg), 7.2 lb (3.3 kg) installed

POWER

Input: 13.8/27.5VDC

ENVIRONMENTAL

Temperature: -20°C to +55°C (operating range)
(-4°F to +131°F)
Humidity: 95% non-condensing
Altitude: -1,500 ft to 50,000 ft
(-457m to 15,240m)

GPS PERFORMANCE

Receiver: 12 parallel channel PhaseTrac12™
Acquisition Time: 12 seconds (warm)
45 seconds (cold)
Update Rate: Once per second, continuous
Accuracy: Position: <15 m (49 ft), 95% typical*
Velocity: 0.05 m/sec steady state
Dynamics: 999 kt maximum velocity
6-g maximum acceleration

Appendix B Specifications



INTERFACES

ARINC 429; Aviation RS-232; CDI/HSI; RMI (digital: clock/data); Superflag Out; Altitude (serial: Icarus, Shadin-Rosetta or encoded: Gillham/Greycode); Fuel Sensor; Fuel/Air Data; BFG WX 500 Stormscope; BF SKY497 SkyWatch; Ryan 9900B TCAD

* Subject to accuracy degradation to 100 m 2DRMS when under the U.S. Department of Defense imposed Selective Availability (SA) Program.

APPENDIX C

Map Datums



Adindan Ethiopia, Mali, Senegal, Sudan
Afgooye Somalia
AIN EL ABD 1970 Bahrain Island, Saudi Arabia
Anna 1 Astro 1965 Cocos Islands
ARC 1950 Botswana, Lesotho, Malawi, Swaziland, Zaire, Zambia, Zimbabwe
ARC 1960 Kenya, Tanzania
Ascension Is 1958 Ascension Island
Astro B4 Sorol Atoll Tern Island
Astro Beacon "E" Iwo Jima Island
Astro Dos 71/4 St. Helena Island
Astronomic Stn 1952 Marcus Island
Australian Geod 1966 Australia, Tasmania Island
Australian Geod 1984 Australia, Tasmania Island
AUSTRIA NS Austria
BELGIUM 1950 Belgium
Bellevue (IGN) Elate and Erromango Islands
Bermuda 1957 Bermuda Islands
Bogota Observatory Colombia
BUKIT RIMPAH Indonesia

CAMP AREA ASTRO
Campo Inchauspe
Canton Astro 1966
Cape
Cape Canaveral
Carthage
CH-1903
Chatham 1971
Chua Astro
Corrego Alegre
DANISH GI 1934
Djakarta (BATAVIA)
Dos 1968

Easter Island 1967
European 1950

European 1979

Finland Hayford 1910
G. SEGARA
Gandajika Base
Geodetic Datum 1949
GGRS 87
Guam 1963
Gux 1 Astro

Antarctica
Argentina
Phoenix Islands
South Africa
Florida, Bahama Islands
Tunisia
Switzerland
Chatham Island (New Zealand)
Paraguay
Brazil
Denmark
Sumatra Island (Indonesia)
Gizo Island
(New Georgia Islands)
Easter Island
Austria, Belgium, Denmark, Finland, France, Germany, Gibraltar, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland
Austria, Finland, Netherlands, Norway, Spain, Sweden, Switzerland
Finland
Borneo
Republic of Maldives
New Zealand
Greece
Guam Island
Guadalcanal Island

Appendix C: Map Datums

Herat North
Hjorsey 1955
Hong Kong 1963
HU-TZU-SHAN
Indian Bngldsh NEPAL

INDIAN MEAN VALUE
Indian Thailand Vietn
INDONESIA 74
Ireland 1965
ISTS 073 Astro 1969
Johnston Island 1961
KANDAWALA
Kerguelen Island
Kertau 1948
L. C. 5 Astro
Liberia 1964
LUZON MEAN VALUE
Luzon Mindanao Is
Luzon Philippines

Mahe 1971
Marco Astro
Massawa
Merchich
Midway Astro 1961
Minna
NAD27 Alaska
NAD27 Bahamas

Afghanistan
Iceland
Hong Kong
Taiwan
Bangladesh, India, Nepal
India
Thailand, Vietnam
Indonesia
Ireland
Diego Garcia
Johnston Island
Sri Lanka
Kerguelen Island
West Malaysia, Singapore
Cayman Brac Island
Liberia
Philippines
Mindanao Island
Philippines (excluding Mindanao Isl.)
Mahe Island
Salvage Islands
Eritrea (Ethiopia)
Morocco
Midway Island
Nigeria
North American 1927- Alaska
Bahamas (excluding San Salvador Island)

Appendix C

Map Datums



NAD27 Canada	Canada (including Newfoundland Island)	Oman	Oman		
NAD27 Canal Zone	Canal Zone	Ord Srv Grt Britain	England, Isle of Man, Scotland, Shetland Islands, Wales		
NAD27 Caribbean	Caribbean (Barbados, Caicos Islands, Cuba, Dom. Rep., Grd. Cayman, Jamaica, Leeward and Turks Islands)	Pico De Las Nieves	Canary Islands		
		Pitcairn Astro 1967	Pitcairn Island		
		PORTUGUESE 1973	Portugal		
		POTSDAM	Germany		
NAD27 Centrl America	Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua)	Prov So American '56	Bolivia, Chile, Colombia, Ecuador, Guyana, Peru, Venezuela		
			South Chile		
NAD27 CONUS	Mean Value (Continental U.S.)	Prov SO Chilean 1963	Puerto Rico & Virgin Isl.		
NAD27 Cuba	Cuba	Puerto Rico	Qatar	Timbalai 1948	Brunei and East Malaysia (Sarawak and Sabah)
NAD27 Greenland	Greenland (Hayes Peninsula)	Qatar National	South Greenland	Tokyo	Japan, Korea, Okinawa
NAD27 Mexico	Mexico	Qornoq	Mascarene Island	Tristan Astro 1968	Tristan da Cunha
NAD27 San Salvadr Is	San Salvador Island	Reunion	Sardinia Island	Viti Levu 1916	Viti Levu Island/Fiji Islands
NAD83	North American 1983-Alaska, Canada, Central America, CONUS, Mexico	Rome 1940	Sweden	Wake-Eniwetok 1960	Marshall Islands
		RT 90	Espirito Santo Island	WGS 72	World Geodetic System 1972
Nahrwan Masirah Is	Masirah Island (Oman)	Santo (Dos)	Sao Miguel, Santa Maria Islands (Azores)	WGS 84	World Geodetic System 1984
Nahrwan Saudi Arabia	Saudi Arabia	Sao Braz	East Falkland Island	YACARE	Uruguay
Nahrwan Unitd Arab E	United Arab Emirates		Namibia	Zanderij	Surinam
Naparima BWI	Trinidad and Tobago	Sapper Hill 1943	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Venezuela, Trinidad/Tobago		
Netherland TRIAG '21	Netherlands	Schwarzeck	Singapore		
NOU TRIAG France	France	South American 1969	Porto Santo and Madeira Islands		
NOU TRIAG Luxembourg	Luxembourg		Faial, Graciosa, Pico, Sao Jorge and Terceira Islands (Azores)		
Observatorio 1966	Corvo and Flores Islands (Azores)	South Asia	Madagascar		
Old Egyptian	Egypt	SouthEast Base			
Old Hawaiian Kauai	Kauai				
Old Hawaiian Maui	Maui	SouthWest Base			
Old Hawaiian MEAN	Mean Value				
Old Hawaiian Oahu	Oahu	Tananarive obsv 1925			

Appendix D

Troubleshooting Q & A



Appendix D: Troubleshooting Q & A

This Appendix is designed to answer some of the common questions regarding the capabilities and operation of the GPS 500. If you have a problem operating the unit, read through this appendix and refer to the reference section noted. If you don't find answers to your particular question here, use the index to find the appropriate section elsewhere in this manual. If, after reading through the appropriate reference section, you still haven't found the answer to your question, please see your authorized dealer or contact Garmin directly at the address or phone numbers listed on page i. Garmin is dedicated to supporting its products and customers.

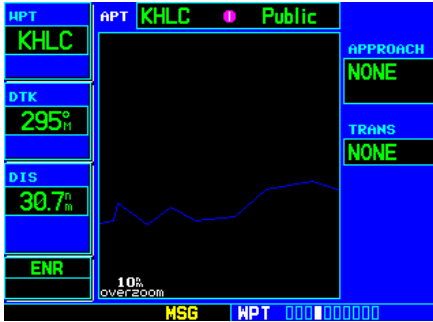
What is RAIM, and how does it affect approach operations?

RAIM is an acronym for Receiver Autonomous Integrity Monitoring, a GPS receiver function that performs a consistency check on all tracked satellites. RAIM ensures that the available satellite geometry allows the receiver to calculate a position within a specified protection limit (2.0 nautical miles for oceanic and en route, 1.0 nm for terminal and 0.3 nm for non-precision approaches).

During oceanic, en-route and terminal phases of flight, RAIM is available nearly 100% of the time. Because of the tighter protection limit on approaches, there may be times when RAIM is not available. The GPS 500 automatically monitors RAIM and warns you with an alert message (see Section 10) when it is not available, and the INTEG annunciator (**INTEG**) appears at the bottom left corner of the screen. If RAIM is not available when crossing the FAF, the pilot must fly the missed approach procedure. The GPS 500 RAIM prediction function (see page 123) also allows you to see whether RAIM will be available for a specified date and time.

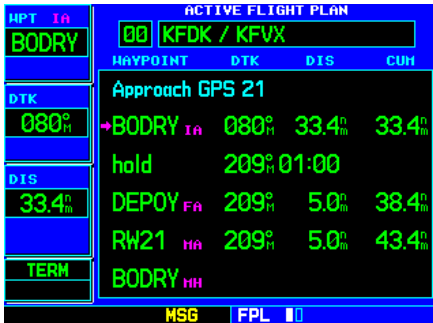


If RAIM is not predicted to be available for the final approach course, the approach does not become active—as indicated by an “Approach is not active” message, a “RAIM not available from FAF to MAP” message and the INTEG annunciator.



Why aren't there any approaches available for my flight plan?

Approaches are available for the final destination airport in a flight plan or as a direct-to (keep in mind that some VOR/VORTAC identifiers are similar to airport identifiers). If a destination airport does not have a published approach, the GPS 500 indicates “NONE” for the available procedures—as listed on the Airport Approach page. For more information on selecting an approach, see page 55.



What happens when I select an approach? Can I store a flight plan with an approach, departure or arrival?

Whenever you load an approach, departure or arrival into the active flight plan, a set of approach, departure or arrival waypoints is inserted into the flight plan—along with a header line describing the instrument procedure you selected. The original en-route portion of the flight plan remains active, unless you “Activate” the instrument procedure; which may be done when the procedure is loaded or at a later time.

Flight plans can also be stored with an approach, departure or arrival. Keep in mind that the active flight plan is erased when the unit is turned off and overwritten when another flight plan is activated. When storing flight plans with an approach, departure or arrival, the GPS 500 uses the waypoint information from

the current database to define the waypoints. If the database is changed or updated, the GPS 500 automatically updates the information if the procedure has not been modified. If an approach, departure or arrival procedure is no longer available, the flight plan becomes locked until the procedure is deleted from the flight plan or until the correct database is installed. For information on loading an approach, departure or arrival, see page 55. See page 49 for instructions on saving and copying flight plans.

Can I file slant Golf (“/G”) using my GPS?

Yes, you may file your flight plan as “/G” if your GPS 500 is a certified A1 or A2 installation. If you are flying en route, you may fly “/G” with an expired database only after you have verified all route waypoints. Non-precision approaches may not be flown with an expired database. See your approved Airplane Flight Manual Supplement for more information.

Appendix D

Troubleshooting Q & A



What does the OBS key do and when do I use it?

The **OBS** key is used to select manual (OBS mode) or automatic sequencing of waypoints. Activating OBS mode (as indicated by an **OBS** annunciation directly above the **OBS** key) holds your current ‘active to’ waypoint as your navigation reference and prevents the GPS from sequencing to the next waypoint. When OBS mode is cancelled, automatic waypoint sequencing is selected, and the GPS 500 automatically selects the next waypoint in the flight plan once the aircraft has crossed the present active-to waypoint.

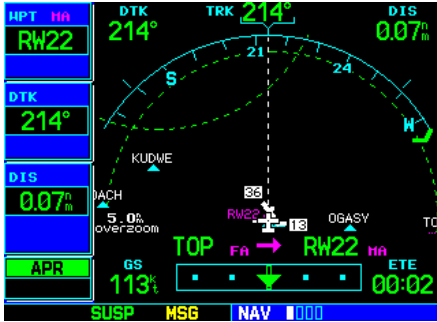
NORMAL (no “OBS” annunciator)
*Automatic sequencing of waypoints
 Change in HSI does not affect CDI deflection
 Always navigates ‘TO’ the active waypoint
 Must be in this mode for final approach course*

OBS
*Manual sequencing- ‘holds’ on selected waypoint
 Manually select course to next waypoint from HSI
 Indicates ‘TO’ or ‘FROM’ waypoint
 Cannot be set for final approach course or published holding patterns*

Whenever OBS mode is active, the GPS 500 allows you to select the desired course to/from a waypoint using the HSI (much like a VOR) and display a “TO/FROM” flag for the active-to waypoint. If an external course input is not available, you may select the OBS course on-screen, via a “Select OBS Course” pop-up window. With OBS mode cancelled, the CDI always displays a ‘TO’ indication for the next waypoint once you have crossed the active waypoint (provided the active waypoint is not the last waypoint). Refer to page 60 for an example on using the **OBS** key.

One application for the **OBS** key is holding patterns. The **OBS** key is used to suspend waypoint sequencing and select the desired course along the waypoint side of the hold. For many approach operations, setting and resetting of waypoint sequencing is automatic. Holding patterns that are part of an approach automatically disable waypoint sequencing, then re-enable waypoint sequencing after one time around the holding pattern. A “SUSP” annunciation appears directly above the **OBS** key (see illustration at right) to indicate that automatic waypoint sequencing is temporarily suspended and that course selection is not available. If more than one trip around the holding pattern is desired, press the **OBS** key to again suspend waypoint sequencing. An example of this operation is an approach which begins with a holding pattern at the initial approach fix (IAF). See page 61 for more information on the “SUSP” annunciation and approaches with holding patterns.





When should I use the OBS key to return to auto sequencing, and what happens when I do?

The most common application for using the **OBS** key is the missed approach. The GPS 500 suspends automatic waypoint sequencing (indicated by a “SUSP” annunciation directly above the **OBS** key; see left) when you cross the missed approach point (MAP). This prevents the GPS 500 from automatically sequencing to the missed approach holding point (MAHP). If a missed approach is required, press the **OBS**

key to return to automatic waypoint sequencing and sequence the approach to the MAHP. See page 61 for more information on missed approaches.

Why won't my unit automatically sequence to the next waypoint?

The GPS 500 only sequences flight plan waypoints when automatic sequencing is enabled (i.e., no “OBS” or “SUSP” annunciation directly above the **OBS** key). For automatic sequencing to occur, you must also cross the “bisector” of the turn you are navigating. The bisector is a perpendicular line between two flight plan legs which crosses through the waypoint common to both legs.



How do I skip a waypoint in an approach, departure or arrival?

The GPS 500 allows you to manually select any approach, departure or arrival leg as the active leg of your flight plan. This procedure is performed from the Active Flight Plan page by highlighting the desired waypoint and pressing the **direct-to** key twice, then **ENT** to approve the selection (see illustration at left). The GPS then provides navigation along the selected flight plan leg, so ensure that you have clearance to that position. See page 54 for more information.

How do I fly the GPS with an autopilot and DG heading bug?

If you do not have an HSI, you should make your course selections on the external CDI's OBS knob and the DG heading bug.

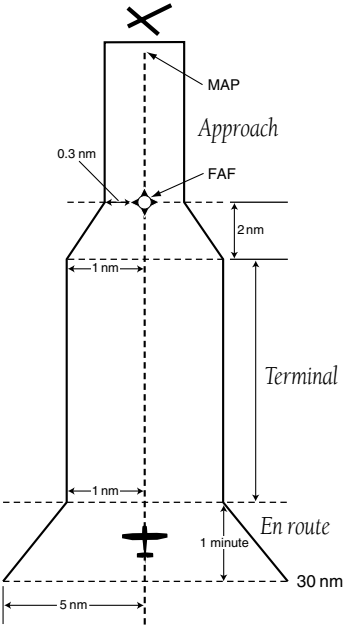
Appendix D Troubleshooting Q & A



When does turn anticipation begin, and what bank angle is expected?

The GPS 500 smoothes adjacent leg transitions based upon a nominal 15° bank angle (with the ability to roll up to 25°) and provides three pilot cues for turn anticipation: 1) A waypoint alert (“NEXT DTK ###°”) flashes in the lower right corner of the screen 10 seconds before the turn point. 2) A flashing turn advisory (“TURN TO ###°”) appears in the lower right corner of the screen when you are to begin the turn. Set the HSI to the next DTK value and begin the turn.

3) The “To/From” indicator on the HSI (or CDI) flips momentarily to indicate that you have crossed the midpoint of the turn. For more information on waypoint alerts and turn advisories, see Section 4.

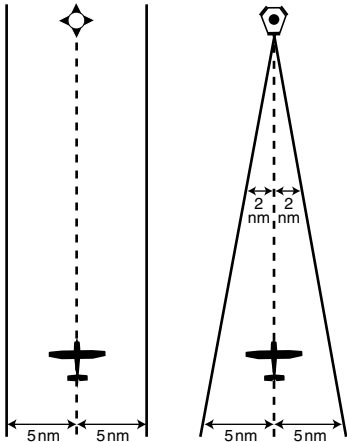


When does the CDI scale change, and what does it change to?

The GPS 500 begins a smooth CDI scale transition from the 5.0-nm (en route mode) to the 1.0-nm (terminal mode) scale, 30 nm away from the destination airport (see left). The CDI scale further transitions to 0.3 nm (approach mode) at 2 nm prior to the FAF during an active approach. If you are in a missed approach situation and wish to return the CDI to the 1.0-nm scale, activate the missed approach sequence by pressing the **OBS** key, as described on page 61. The CDI scale is also 1.0 nm (terminal mode) within 30 nm of the departure airport.

Why does my CDI not respond like a VOR when OBS mode is active?

Unlike a VOR, the CDI scale used on GPS equipment is based on the cross-track distance to the desired course, not an angular relationship to the destination (see right). Therefore, the CDI deflection on the GPS is constant regardless of the distance to the destination and does not become less sensitive when you are further away from the destination. For more information on the CDI scale, see page 129.



CDI Comparison: GPS vs. VOR



What is the correct missed approach procedure? How do I select the missed approach holding point?

To comply with TSO specifications, the GPS 500 does not automatically sequence past the MAP. The active-to waypoint sequences to the first waypoint in the missed approach procedure, whenever the **OBS** key is pressed AFTER crossing the MAP. All published missed approach procedures must be followed, as indicated on the approach plate.

To execute the missed approach procedure prior to the MAP (not recommended), select the Active Flight Plan page and use the **direct-to** key (by pressing it twice) to activate the missed approach portion of the procedure, as described on page 54.

How do I re-select the same approach or activate a new approach after a missed approach?

After flying all missed approach procedures, you may reactivate the same approach for another attempt from the Procedures page. Once you have been given clearance for another attempt, activate the approach from the Procedures page by highlighting “Activate Approach?” and then pressing **ENT**. The GPS 500 provides navigation along the desired course to the waypoint and rejoins the approach in sequence from that point on. See page 54 for information on activating a specific flight plan leg.

To activate a new approach for the same airport, select the new procedure from the Procedures page. To view the Procedures page, press **PROC** and rotate the **large right knob** to highlight “Select Approach?”. Press **ENT** and rotate the **large right knob** to highlight the new approach you want to fly. Press **ENT** to select the approach, then select the desired transition. Finally, highlight “Activate?” at the bottom right corner of the screen and press **ENT** to activate the new approach.

To activate a new approach to a different airport, press **direct-to** and select the desired airport using the **small** and **large right knobs**. Press **ENT** to accept the selected airport, then follow the steps in the preceding paragraph to select an approach for the new airport. See section 4 for more information on selecting and activating approaches.



Do not attempt to reactivate the same approach you are currently on, prior to crossing the missed approach point (MAP). If you attempt to do so, an alert message (“Are you sure you want to discontinue the current approach?”) appears. If you still proceed with reactivating the approach, the GPS 500 directs you back to the transition waypoint and does NOT take into consideration any missed approach procedures.

Appendix E

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