GNS 530
GNS 530A

Pilot's Guide
& Reference

This manual reflects the operation of Main System Software version 4.0 or above. Some differences in operation may be observed when comparing the information in this manual to earlier software versions.

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Visit the Garmin website for the latest updates and supplemental information concerning the operation of this and other Garmin products.

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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 GNS 530 is a precision electronic NAVigation AID (NAVAID), any NAVAID can be misused or misinterpreted and therefore become unsafe.

CAUTION: Use the GNS 530 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 GNS 530 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 GNS 530 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 GNS 530 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 GNS 530 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 GNS 530 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/communication system! The GNS 530 represents Garmin's continued commitment to providing you with the most advanced technology available today — in an accurate, easy-to-use design suitable for all of your flying needs.

Unless otherwise specified within this manual, the term "GNS 530" applies to both the GNS 530 and the GNS 530A models. Please, note that the difference between these two models is indicated under "VHF COM Performance" in the Specifications section of this manual (see Appendix B).

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

Standard Package:
- GNS 530 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 Simulator Interactive Training CD-ROM
- Database Subscription Packet
- Warranty Registration Card

Your Garmin dealer will perform the installation and configuration of your new GNS 530. After installation, the NavData® card will already be installed into the correct slot on the front of the unit (see Appendix A). The GNS 530 will be secured in the installation rack with the proper wiring connections. Have your dealer answer any questions you may have about the installation — such as location of antennas or any connections to other equipment in the panel.

To obtain accessories for your GNS 530, please contact your Garmin dealer.

*Help us better support you by completing our on-line registration form today! Registration ensures that you will be notified of product updates and new products and provides lost or stolen unit tracking. Please, have the serial number of your GNS 530 handy, connect to our website (**www.garmin.com**) and look for our Product Registration link on the home page.*

The GNS 530 display lens is coated with a special anti-reflective coating which is very sensitive to skin oils, waxes and abrasive cleaners. It is very important to clean the lens using an eyeglass lens cleaner which is specified as safe for anti-reflective coatings (one suitable product is Wal-Mart® Lens Cleaner) and a clean, lint-free cloth.

Garmin is fully committed to your satisfaction as a customer. If you have any questions regarding the GNS 530, please contact our customer service department at:

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1200 East 151st Street
Olathe, KS 66062-3426 U.S.A.
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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.

For information or help on a specific topic, please use the Index section.

To quickly and easily locate information on specific tasks, please refer to the Index on page 184.

The GNS 530 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 GNS 530. Experiment with the unit and refer to the reference sections for more information.

Left-hand Keys and Knobs

The **COM power/volume knob** controls unit power and communications radio volume. Press momentarily to disable automatic squelch control.

The **VLOC volume knob** controls audio volume for the selected VOR/ Localizer frequency. Press momentarily to enable/disable the ident tone.

The **large left knob** (COM/VLOC) is used to tune the megahertz (MHz) value of the standby frequency for the communications transceiver (COM) or the VOR/Localizer receiver, whichever is currently selected by the tuning cursor.

The **small left knob** (PUSH C/V) is used to tune the kilohertz (kHz) value of the standby frequency for the communications transceiver (COM) or the VLOC receiver, whichever is currently selected by the tuning cursor. Press this knob momentarily to toggle the tuning cursor between the COM and VLOC frequency fields.

The **COM flip-flop key** is used the swap the active and standby COM frequencies. Press and hold to select emergency channel (121.500 MHz).

The **VLOC flip-flop key** is used to swap the active and standby VLOC frequencies (i.e., make the selected standby frequency active).

*The **large** and **small left knobs** allow you to tune the desired COM or VLOC frequency.*

1

*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 GNS 530 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 into a smaller area.

The **direct-to key** provides access to the direct-to function, which allows you to enter a destination waypoint and establishes a direct course to the selected destination. See Section 3.

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 28), regardless of the page that is 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** (GPS) 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.

Bottom Row Keys

CDI

The **CDI key** is used to toggle the navigation source (GPS or VLOC) which provides output to an external HSI or CDI.

OBS

The **OBS key** is used to select manual or automatic sequencing of waypoints. Pressing this key selects OBS mode, which 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 way-point 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 12 and 9 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 4 for more information on flight plans.

VNAV

The **vertical navigation key** allows you to create a three-dimensional profile which guides you to a final (target) altitude at a specified location. See Section 10.

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 GNS 530 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.*

The Welcome Page appears when the GNS 530 is powered on. During the time this screen is displayed, the GNS 530 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.

4

The Garmin GNS 530 offers you accurate navigational data and communication 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 GNS 530 — including powering up the unit, changing frequencies, entering data, performing a simple direct-to, selecting IFR procedures and provides 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 you have not changed any of the GNS 530's default settings. If 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 GNS 530. Prior to using your GNS 530 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 GNS 530

The GNS 530's power and COM volume are controlled using the **COM power/volume knob** at the top left corner of the unit. Rotating it clockwise turns unit power on and increases the COM radio volume. After turning the unit 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 GNS 530 package.

To acknowledge the database information, press the ENT key.

Check CDI/HSI, RMI and other instruments to verify these indications.

Should match current OBS course selection

Fuel Capacity is entered manually

Fuel on board and fuel flow are provided by sensors, if installed

Select to Set Fuel Level to Full Capacity

Select to display Checklists Page

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.

    Once the database has been acknowledged, the Instrument Panel Self-Test Page appears. To ensure that your GNS 530 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
- • Glideslope - half up / no flag
- • Time to destination - 4 minutes
- • Desired track - 149.5°
- • Ground speed - 150 knots
- • All external annunciators (if installed) - on

    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**.

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

Select "Go To Checklists?" to display the Checklist Page and any available checklists. The GNS 530 can hold up to nine checklists with up to 30 entries in each checklist.

6

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 Checklists?" and press **ENT**.
2. Rotate the **large right knob** to select the desired checklist, then follow the steps on page 140 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, rotate the large right knob to highlight "OK?" and press the ENT key.

The Satellite Status Page appears as the GNS 530 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 determined. Following the first-time use of your GNS 530, 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 GNS 530 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, which 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'.

To view a system message, press MSG.

MESSAGE PAGE

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.

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). '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.
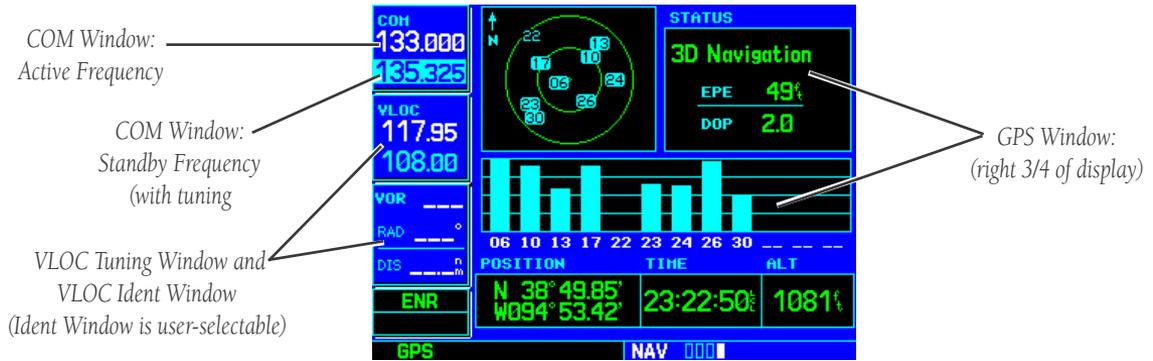
Satellite Status Page with cursor active in COM window.

To switch the active and standby frequencies, press the COM *flip-flop key. Switching the active and standby frequencies does not remove the cursor from the COM window.*

While the GNS 530 is acquiring a position, let's take a minute to dial in the active and standby frequencies you'll be using for the first phase of your flight. The GNS 530's display is divided into separate 'windows' (or screen areas), including a COM window, VLOC window (by default with VOR ident/radial, but selectable for other data — including a traffic display) and a GPS window which occupies the right 3/4 of the display.

COM Window:
Active Frequency

COM Window:
Standby Frequency
(with tuning

GPS Window:
(right 3/4 of display)

VLOC Tuning Window and
VLOC Ident Window
(Ident Window is user-selectable)

Pushing the **small left knob** moves the tuning cursor back-and-forth between the COM and VLOC frequency windows. To select the active frequency, you must first enter the frequency in the standby field, and use the **COM** (or **VLOC**) **flip-flop** key to move it to the active field.

To change the standby communication frequency:

1. Press the **small left knob**, if needed, to move the tuning cursor to the COM window.
2. Rotate the **large left knob** to select the MHz, and the **small left knob** to select the kHz of the desired frequency.

To place the standby communication frequency in the active field, press the COM flip-flop key.

Once you've entered the active frequency, simply repeat steps 1 and 2, above, to enter the standby frequency. After both communication frequencies have been entered, you may elect to keep the COM window 'hot' by leaving the cursor on the standby frequency, or move the cursor to the VLOC window by pressing the **small left knob**. NOTE: When selecting VLOC frequencies, the tuning cursor automatically returns to the COM window after 30 seconds of inactivity.

To change the standby VLOC frequency:

1. Press the **small left knob**, if needed, to activate the tuning cursor in the VLOC window.

2. Rotate the **large left knob** to select the MHz, and the **small left knob** to select the kHz of the desired frequency.

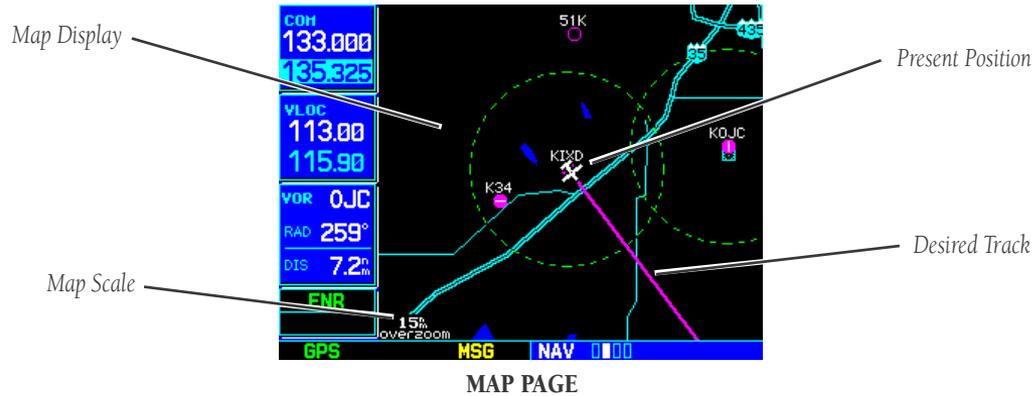**To place the standby frequency in the active field, press the VLOC flip-flop key.**

After the GNS 530 acquires satellites and computes a position, the Map Page appears automatically.

Map Display

Present Position

Map Scale

Desired Track

MAP PAGE

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.

By adding data fields along the right-hand side, 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.*

*The bottom right corner of the screen indicates the page group that is 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 GNS 530 installation includes connection to traffic and/or weather information sources. See 400/500 Series Display Interfaces Pilot's Guide Addendum.

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

- Default NAV Page
- Map Page
- NAVCOM 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 group of NAV 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	WPT	AUX	NRST
4 available pages*	10 available pages	3 available pages	8 available pages
(see pg. 27)	(see list pg. 88)	(see list pg. 131)	(see list pg. 113)

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.

The following page 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** or **VNAV**). Selecting one of these stand-alone page groups, in effect, exits the main page groups and displays a page for the desired function. When pressing the same function key a second time, the GNS 530 returns to the main page group and the previously displayed page.

To select a stand-alone page group, press the corresponding key (FPL, PROC or VNAV).

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.
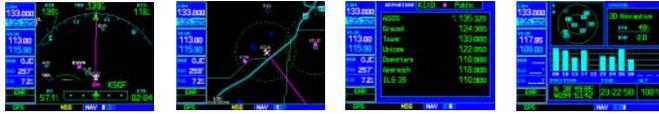
(**Small right knob** to select pages within the group)

NAV Group

NOTE: Five NAV pages are available when the GNS 530 installation includes connection to traffic and/or weather information sources. See 400/500 Series Display Interfaces Pilot's Guide Addendum.

Default NAV   *Map*   *NAVCOM*   *Satellite Status*

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 Default NAV page, Press and hold **CLR**.
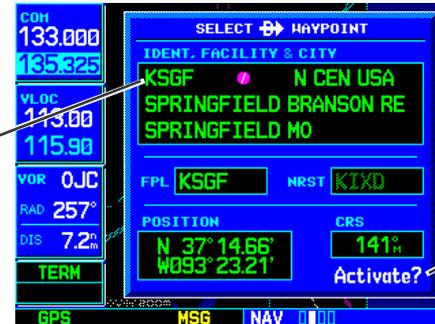
Confirm the selected direct-to destination by high-lighting "Activate?" and pressing ENT.

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 GNS 530 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.

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 12 for definitions of these navigation terms. The Default NAV Page is selected using the steps described on page 10.

*User-selectable Data Fields
(all four corners)*

*Active Leg of Flight Plan,
or Direct-to Destination*

*Course Deviation
Indicator (CDI)*

DEFAULT NAV PAGE

From the Default NAV Page, simply rotate the **small right knob** to display the Map Page (see page 9) 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.

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.*

13

*The Navigation/Communications (NAVCOM) Page provides a complete list of airport frequencies at your departure, en-route and arrival airports. To place a frequency from this list on standby, highlight the desired frequency and press **ENT**.*

*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. Continue rotating the **small right knob** to select the desired airport and press **ENT**.*

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.

Arrival, Enroute or Departure Airport

Frequency List

NAVCOM PAGE

A frequency listed on the NAVCOM Page can be quickly transferred to the standby field of the COM or VLOC windows. This time saving process prevents having to "re-key" a frequency already displayed elsewhere on the screen.

To select 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 select the desired frequency from the list.

3. Press **ENT** to transfer the selected frequency to the standby field in the COM or VLOC window. COM frequencies automatically go to the standby field of the COM window and navigation frequencies automatically go to the standby field of the VLOC window, regardless of the window currently highlighted by the cursor.

4. To activate the selected frequency, press the **COM** or **VLOC flip-flop key**.

Once the direct-to or flight plan is confirmed, the whole range of instrument procedures is available to you. Departures (SIDs), arrivals (STARs), non-precision and precision approaches are stored within the Nav-Data 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'll 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 SIDs) 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 56 and 62 for additional information.

*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.*

*To display a list of nearby airports, rotate the **large right knob** to select the NRST page group and (if needed) the **small right knob** to select the Nearest Airport Page.*

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

From page 10 you may recall that 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:

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 10).

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

You may examine both the communication frequencies and runway information directly from the Nearest Airport Page. As discussed earlier for the NAVCOM Page (see page 14), you may also place any displayed frequency into the standby COM or VLOC field by highlighting the frequency with the cursor and pressing **ENT**.

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 still have the option of returning to your flight plan by cancelling the direct-to. See page 48.)

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.

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).*

17

*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**.*

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 takes 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 is such that it will take you inside that airspace, the message "Airspace near and ahead" appears.
- If you are within two nautical miles of an airspace and your current course is such that it will not take you inside that airspace, the message "Near airspace less than 2nm" 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 147 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 121 and illustrations shown at left).

The GNS 530 lets you create up to 20 flight plans, with up to thirty-one 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 arguably one of the more complex features of the GNS 530, we'll only discuss it 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 you may have about flight plans can be found in the reference section, starting on page 49.

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.

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.

19

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.

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 still resides in the original catalog location) and replaces any flight plan which currently exists in "flight plan 00."

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**.

This Takeoff Tour is intended to provide a brief introduction of the GNS 530's major features. 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 (see page 184) 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 49

• Waypoint information pages (database information) - see page 88

• IFR procedures - see page 61

• Unit settings (configuring the unit to your preferences) - see page 144

If you're unable to locate the information you need, we're here to help! 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 at our web site address: www.garmin.com.

Section 1: Communicating with the GNS 530

The GNS 530 features a digitally-tuned VHF COM radio that provides a seamless transition from communication to navigation, bringing the two most important functions in flying together in one panel-mounted unit. The GNS 530's COM radio operates in the aviation voice band, from 118.000 to 136.975 MHz, in 25 kHz steps (default). For European operations, a COM radio configuration to allow for 8.33 kHz steps is also provided (see page 154).

Volume

COM radio volume is adjusted using the **COM power/volume knob**. Rotate the **COM power/volume knob** clockwise to increase volume, or counterclockwise to decrease volume.

Squelch

The COM radio features an automatic squelch, providing maximum sensitivity to weaker signals while rejecting many localized noise sources. You may wish to override this automatic squelch function when listening to a distant station or when setting the desired volume level. The **COM power/volume knob** allows you to disable the automatic squelch and keep the COM audio open continuously.

To override the automatic squelch, press the COM power/volume knob momentarily. Press COM power/volume knob again to return to automatic squelch operation.

*Press the **COM power/volume knob** momentarily to override the automatic squelch. Note the "RX" receive indication when receiving a station.*

"TX" appears at the upper right corner of the COM window while transmitting.

21

*Tuning cursor in the COM window. Use the **small** and **large left knobs** to dial in the desired standby frequency.*

*Once the standby frequency is selected, use the **COM flip-flop** key to make the frequency active for transmit and receive operations.*

COM Window and Tuning

Communication frequencies are selected with the tuning cursor in the *standby* COM frequency field, and using the **small** and **large left knobs** to dial in the desired frequency. The standby frequency always appears below the active frequency. The active frequency is the frequency currently in use for transmit and receive operations.

A frequency may also be quickly selected from the database by simply highlighting the desired frequency on any of the main pages and pressing **ENT**. This process is referred to as "auto-tuning". Once a frequency is selected in the standby field, it may be transferred to the active frequency by pressing the **COM flip-flop** key.

While receiving a station, an "RX" indication appears in the upper right corner of the COM window — to the immediate right of "COM". A "TX" indication appears at this location while you are transmitting.

NOTE: The tuning cursor normally appears in the COM window, unless placed in the VLOC window by pressing the small left knob. When the tuning cursor is in the VLOC window, it automatically returns to the COM window after 30 seconds of inactivity. The active frequency in either window cannot be accessed directly — only the standby frequency is highlighted by the tuning cursor.

To select a COM frequency:

1. If the tuning cursor is not currently in the COM window, press the **small left knob** momentarily.

2. Rotate the **large left knob** to select the desired megahertz (MHz) value. For example, the "118" portion of the frequency "118.300".

3. Rotate the **small left knob** to select the desired kilohertz (kHz) value. For example, the ".300" portion of the frequency "118.300".

To make the standby frequency the active frequency, press the COM flip-flop key.

The tuning cursor remains in the COM window. If you wish to select a VOR/localizer/ILS frequency, press the **small left knob** momentarily to place the cursor in the VLOC window. Additional instructions for VOR/localizer/ILS operations are available in Sections 5 and 8 (beginning on pages 61 and 125).

Auto-Tuning

The GNS 530's auto-tune feature allows you to quickly select any database frequency in the GPS window as your standby frequency. Any COM frequency displayed in the GPS window can be transferred to the standby COM frequency field, with a minimum of keystrokes required. The following are some examples of selecting COM frequencies from some of the main GPS pages.

To select a COM frequency for a nearby airport:

1. Select the Nearest Airport Page from the NRST page group. (See page 113, or press and hold **CLR**, then rotate the **large right knob** until the nearest pages appear. Finally, if necessary, rotate the **small right knob** to display the Nearest Airport Page.)

2. Press the **small right knob** momentarily to place the cursor on the airport identifier field of the first airport in the list. If you wish to select another airport, rotate the **large right knob** to highlight the desired airport.

3. The Nearest Airport Page displays the common traffic advisory frequency (CTAF) for each listed airport. To select this frequency, rotate the **large right knob** to highlight the desired airport's CTAF frequency and press **ENT** to place the frequency in the standby field of the COM window.

Cursor in VLOC window allows for VOR and ILS operations. See Section 8, starting on page 125.

Nearest Airport Page with common traffic advisory frequency (CTAF) for the closest airport highlighted.

From the Nearest Airport Page, select the desired airport to show a more detailed listing of frequencies for that airport.

Use the nearest ARTCC Page to quickly retrieve the frequency(s) for the nearest center (ARTCC) facility.

To display the entire list of frequencies for a nearby airport and select from that list:

1. Start with the desired airport highlighted on the Nearest Airport Page (as described on the previous page), then press **ENT**.
2. Press the **small right knob** momentarily to remove the cursor and rotate the **small right knob** to display the frequency list.
3. Press the **small right knob** momentarily to reactivate the cursor and rotate the **large right knob** to highlight the desired frequency.
4. Press **ENT** to place the highlighted frequency in the standby COM window field.

To select a COM frequency for a nearby flight service station (FSS) or center (ARTCC):

1. Select the Nearest Center or Flight Service Page from the NRST page group. (See page 113, or rotate the **large right knob** until the NRST pages appear. Then, if necessary, rotate the **small right knob** to display the desired NRST page.)
2. Press the **small right knob** momentarily to place the cursor on the page.
3. Rotate the **large right knob** to highlight the FSS/ARTCC frequency and press **ENT** to place the frequency in the standby field of the COM window.

To select a COM frequency for any airport in your flight plan:

1. Select the NAVCOM Page from the NAV page group. (See page 27, or press and hold **CLR**, then rotate the **small right knob** until the NAVCOM Page appears.)

2. Press the **small right knob** to place the cursor on the airport identifier field. To the left of this field appears Departure, Enroute or Arrival — depending on the placement of the displayed airport within your flight plan.

3. Rotate the **small right knob** to display a window listing the airports in your flight plan. Continue rotating the **small right knob** to select the desired airport.

4. Press **ENT** to return to the NAVCOM Page with the frequencies for the selected airport.

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

6. Press **ENT** to place the highlighted frequency in the standby COM window field.

To select a COM frequency for any airport in the database:

1. Select the Airport Frequencies Page from the WPT page group. (See page 88, or rotate the **large right knob** to select the WPT page group. Then rotate the **small right knob** until the Airport Frequencies Page appears.)

2. Press the **small right knob** to place the cursor on the airport identifier field.

3. Use the **small** and **large right knobs** to enter the identifier of the desired airport. Press **ENT** when finished.

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

5. Press **ENT** to place the highlighted frequency in the standby COM window field.

The NAVCOM Page provides a frequency list for all the airports (departure, en route and arrival) along your active flight plan.

Use the Airport Frequencies Page to retrieve a frequency list for ANY airport in the Jeppesen NavData database.

*Press and hold the **COM flip-flop** key for two seconds to activate the 121.500 MHz emergency frequency.*

A "COM push-to-talk key stuck" message appears to warn you of a stuck microphone. Transmitting is disabled after 35 seconds of continuous broadcasting.

26

Emergency Channel

The GNS 530's emergency channel select provides a quick method of selecting 121.500 MHz as the active frequency in the event of an in-flight emergency. The emergency channel select is available whenever the unit is on, regardless of GPS or cursor status, or loss of the display.

To quickly tune and activate 121.500, press and hold the COM flip-flop key for approximately two seconds.

Stuck Microphone

As mentioned earlier, whenever the GNS 530 is transmitting, a "TX" indication appears in the COM window. If the microphone is stuck or accidentally left in the keyed position, or continues to transmit after the key is released, the COM transmitter automatically times out (or ceases to transmit) after 35 seconds of continuous broadcasting. You will also receive a "COM push-to-talk key stuck" message as long as the stuck condition exists.

Section 2: NAV Pages

Main Page Groups

The GNS 530's main pages are divided into groups: NAV, WPT, AUX and NRST. While viewing any of these pages, selection of another page is a simple selection process using the **small** and **large right knobs**.

NAV	WPT	AUX	NRST
4 available pages* (see below)	10 available pages (see list pg. 88)	3 available pages (see list pg. 131)	8 available pages (see list pg. 113)

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.

NAV Page Group

Default NAV   Map   NAVCOM   Satellite Status

The NAV page group includes four pages*. While viewing any NAV page, rotate the **small right knob** to select a different NAV page. You may find this selection process convenient to cycle between the Default NAV and Map Pages — two of the most frequently used pages. Other pages are provided to list frequencies for your flight plan, show your current position and display current satellite reception.

*The bottom right corner of the screen indicates the page group that is 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**.*

This part of the screen is also used to display the GNS 530's turn advisories (e.g., "TURN TO 355°") and waypoint alerts (e.g., "NEXT DTK 355°") during flight plan and approach operations. See Section 5 for more information.

* Five NAV pages are available when the GNS 530 installation includes connection to traffic and/or weather information sources. See 400/500 Series Display Interfaces Pilot's Guide Addendum.

The following symbols are used — on the Default NAV Page directly above the graphic CDI — to depict the "active leg" of a flight plan or direct-to.

⊖→ *Direct-To a Waypoint*

→ *Course to a Waypoint, or Desired Course between Two Waypoints*

Left Procedure Turn

Right Procedure Turn

Ⴎ_F *Vectors-To-Final*

↶ *DME Arc to the left*

↷ *DME Arc to the right*

Left-Hand Holding Pattern

Right-Hand Holding Pattern

Default NAV Page

User-selectable Data Fields (all four corners)

Active Leg of Flight Plan, or Direct-to Destination

Course Deviation Indicator (CDI)

First Page in NAV Group

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 148.

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 simply steer toward the needle. The TO/FROM arrow in the center of the scale indicates whether you are heading to the waypoint (an up arrow) or if you have passed the waypoint (a down arrow).

NOTE: The GNS 530 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 are four user-definable fields which 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 custom-tailored to your preferences by selecting a different data item. Available data items include:

- Bearing to destination (BRG)
- Distance to destination (DIS)
- En-route safe altitude (ESA)
- Estimated time en route (ETE)
- Ground speed (GS)
- Track angle error (TKE)
- Vertical speed required (VSR)

- Course to steer (CTS)
- Desired track (DTK)
- Estimated time of arrival (ETA)
- Total Fuel Flow (FLOW)
- Minimum safe altitude (MSA)
- Ground track (TRK)
- Cross track error (XTK)

*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.*

*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 53 for additional details on using the "Crossfill?" option.

Auto Zoom

An autozoom feature is available for the Default NAV Page, which 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

Map Display

Present Position

Desired Track

Map Scale

Second Page in NAV Group

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

> NOTE: If the GNS 530 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.*

Examples of several symbols used to depict airports and navaids 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 navaids on the Map Page:

- Airport with hard surface runway(s); Primary runway shown
- Airport with soft surface runway(s) only

ⓡ Private Airfield	▲ Intersection
VOR	VORTAC
VOR/DME	TACAN
DME	NDB
Localizer	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 35.

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).

The "Setup Map?" option (described on page 35) 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 37-38.

Map Panning

Another Map Page function is panning, which 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, plus 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 wasn't originally displayed on the map). This feature applies to airports, navaids, user-created waypoints, roads, lakes, rivers — just about everything displayed on the map except route lines.

When an airport, navaid, 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 "-1", "-2" or "-3".*
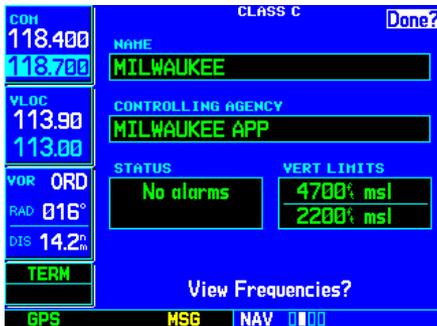

*Panning the map lets you look beyond the boundaries of the current map area without changing the scale. Start by pressing the **small right knob**.*

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(s) 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.

Many of the GNS 530's functions 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/Lon 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 GNS 530 installation includes connection to traffic and/or weather information sources. See 400/500 Series Display Interfaces Pilot's Guide Addendum.

*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 GNS 530 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 GNS 530 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.

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 appear as detected and relayed by a connected weather data source. Weather data and the "Clear Storm Data?" option are only available when the GNS 530 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.

*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 172 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 GNS 530 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, Enroute or Arrival Airport

Frequency Type

Assigned Frequency and Usage Information (when applicable)

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 GNS 530 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**.

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

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

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.

3. To place a frequency in the standby field of the COM or VLOC window, highlight the desired frequency (using the **large right knob**) and press **ENT**.

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

"TX" - transmit only   "RX" - receive only

"PT" - part time frequency

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.

Location of Satellites in view

Receiver Status

Current Time

"INTEG" Annunciator (flagged when position not valid)

Fourth Page in NAV Group (fifth with traffic/weather; see 400/500 Series Display Interfaces Pilot's Guide Addendum)

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.

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.
5. Press **ENT** to select the desired data item and return to the position page.
6. 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**.

*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.)*

41

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.

Estimated Position Error / Dilution of Precision

Satellite Signal Strength Bar

Present Position

GPS-calculated Altitude

When the GNS 530 is first powered on, an "Acquiring" status appears at the top of the page and no signal strength bars are displayed.

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 as well as their respective positions. The outer circle of the sky view represents the horizon (with north at the top of the circle); the inner circle represents 45° above the horizon and the center point shows the position directly overhead.

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.

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 position, the GNS 530 indicates your position, altitude, track and ground speed. The GPS receiver status field (see page 41) 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 GNS 530 is searching for any available satellite to collect orbital (almanac) data.

"AutoLocate" appears when the GNS 530 has orbital data, but last known position and/or time information are significantly different from current conditions.

43

*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 3: Direct-To Navigation

The GNS 530's direct-to function provides a quick method of setting a course to a destination waypoint. Once a direct-to is activated, the GNS 530 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: When 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.

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 90 for more information on duplicate waypoints).

Identifier, Symbol and Region

Facility Name

City

Flight Plan Field

Nearest Airport Field

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 GNS 530's 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. If you scroll past the desired waypoint, you can also scroll backwards with the **small right knob**.

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.*

45

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're 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 4, beginning on page 49, 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 115).

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.

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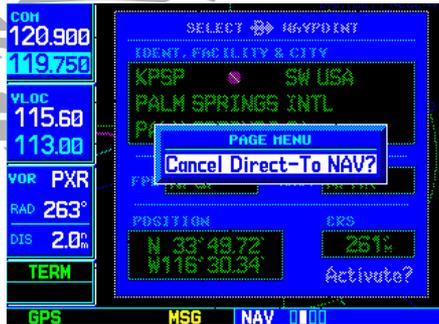
To cancel a direct-to, select a new direct-to destination, activate a flight plan or select the "Cancel Direct-To NAV?" option.

*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 GNS 530 provides navigation guidance to the selected destination until the direct-to is either replaced with a new direct-to or flight plan, or cancelled, or if 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 GNS 530 resumes navigating the flight plan along the closest leg.

Specifying a Course to a Waypoint

When you perform a direct-to, the GNS 530 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**, followed by **ENT** twice.

Section 4: Flight Plans

The GNS 530 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.*

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.

*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 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.

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.

51

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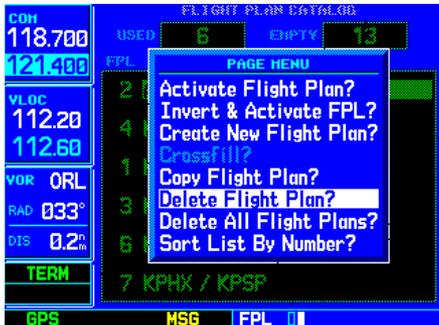
Select "Delete Flight Plan?" to remove the designated flight plan from memory.

Copying Flight Plans

If you wish to save a flight plan currently located in "flight plan 0", 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 the 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.

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 51.

Invert & Activate FPL? allows you to reverse the highlighted flight plan and select it for navigation guidance, as described on page 51.

Create New Flight Plan? allows you to create a new flight plan, as described on page 49.

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 136.)
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.

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 52. 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 52. 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 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).

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 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 GNS 530s in a dual unit installation. See page 53 for additional information on this feature.

Copy Flight Plan? copies the active flight plan to a Flight Plan Catalog location, as described on page 52. 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 51.

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).
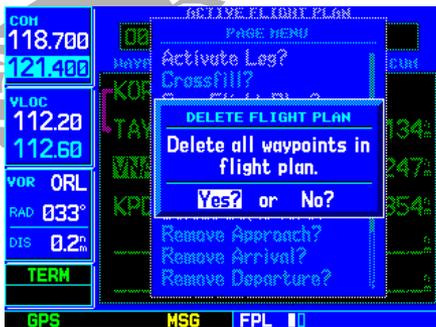
"Delete Flight Plan?" cancels navigation and removes the active flight plan from memory.

*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 54. (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, you'll find it more convenient to select approaches using the **PROC** key — as described on page 61.)

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 will provide 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**.

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 61 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 standard instrument departure (SID) for the departure airport, or replace the current departure with a new selection. When using a direct-to, the GNS 530 uses the nearest airport as a reference when displaying available departures. (See page 61 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 instrument departures (SIDs).

Once the arrival or departure is selected, a window appears to select the desired transition waypoint.
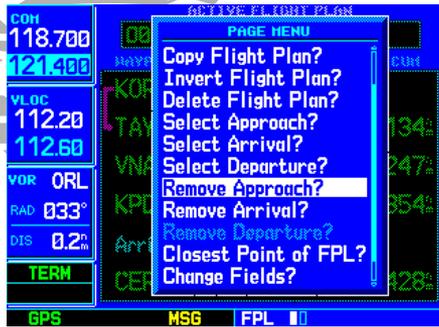
Approaches, arrivals and departures can all be removed from the active flight plan by selecting the corresponding "Remove..." option.

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 SID 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 and closest distance at which a flight plan passes from a reference waypoint. 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 GNS 530 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 55.

Restore Defaults? returns all data fields to the factory default settings. See page 55.

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**.*

From the Active Flight Plan Page, use the direct-to key (press twice) to activate a highlighted route leg...

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

On page 55 the "Activate Leg?" option is discussed, which allows you to specify which leg of the flight plan is currently 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**.

When using 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 page 88.

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. Rotage the **large right knob** to highlight the procedure header and press **ENT** to select the WPT page group.

Section 5: Approaches, Departures & Arrivals

The GNS 530 allows you to fly non-precision and 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 GNS 530 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 will provide 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 60.)

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 VLOC receiver and external CDI (or HSI) for primary navigation. To confirm this reminder, highlight "Yes?" and press **ENT**.

*Press the **PROC** key to display the Procedures Page. Options are available to select published approaches, arrivals (STARs) and departures (DPs or SIDs).*
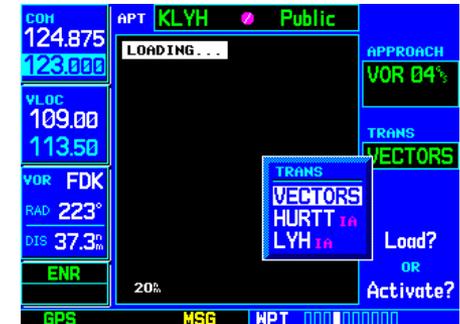
You can select a transition waypoint for an approach, or choose "VECTORS" to provide navigation guidance to the final approach course.

61

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. *Some procedures do not have this designation, meaning that the GPS receiver may be used for supplemental navigation guidance only.* ILS approaches, for example, must be flown by tuning the VLOC receiver to the proper frequency and coupling the VLOC receiver to the external CDI (or HSI).

Once an approach is selected, it may be activated for navigation from the Procedures Page. Activating the approach overrides the "enroute" 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 GNS 530 proceeds to the transition waypoint without a restart confirmation.

Basic Approach Operations

The GNS 530 provides non-precision approach guidance using its built-in GPS receiver. The GPS receiver can also be used as a supplemental aid for precision approaches (and non-precision localizer-based approaches), but the localizer and glideslope receivers MUST be used for primary approach course guidance.

Approaches designed specifically for GPS are often very simple and don't require overflying a VOR or NDB. Currently, many non-precision approaches have "GPS overlays" to let you fly an existing procedure (VOR, VOR/DME, NDB, RNAV, etc.) more accurately using GPS. To date, there are over 2,400 GPS-only approaches and over 2,900 GPS overlay approaches worldwide.

Many overlay approaches are more complex (in comparison to GPS-only approaches). The GNS 530 displays and guides you through each leg of the approach — automatically sequencing through each of these legs, up to the missed approach point (MAP). Approaches may be flown "as published" with the full transition — using any published feeder route or initial approach fix (IAF) — or may be flown with a vectors-to-final transition.

Approach operations on the GNS 530 typically begin with the same basic steps:

1. Select the destination airport using the **direct-to** key, or as the last waypoint in the active flight plan.
2. Choose the "Select Approach?" option from the Procedures Page (see page 61) or from the Active Flight Plan Options (see page 56).
3. "Load" the approach (often while en route) in anticipation of its future use. This places the approach in the active flight plan, but retains course guidance in the en-route section until the approach is "Activated".
4. "Activate" the full approach or vectors-to-final, as appropriate. In some scenarios, you may find it more convenient to immediately activate the approach and skip the "Load" process outlined above in step #3. The GNS 530 provides both options.
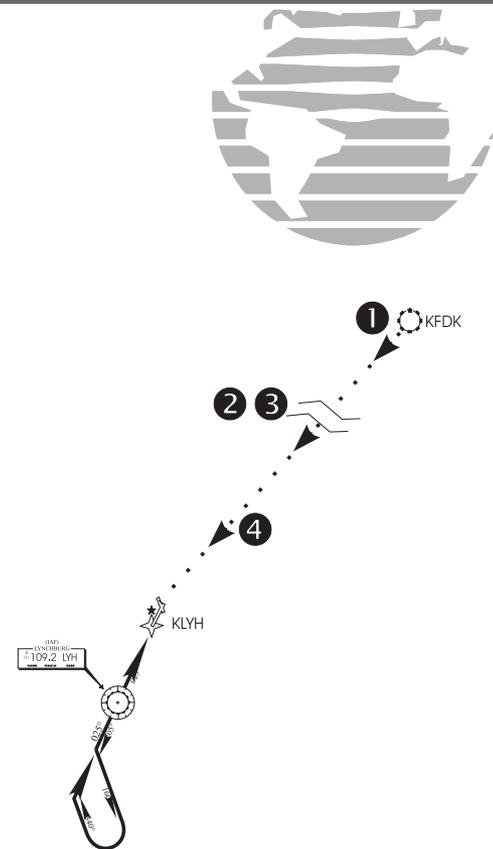
Basic Steps for Using Approaches

*STEP 3: Press **PROC**, highlight "Select Approach?" and press **ENT**. From the pop-up window, select the "VOR 04" approach into KLYH.*

*STEP 3: A second pop-up window displays available transitions. Highlight LYH VOR and press **ENT**. Finally, select "Load?" to add the approach to the active flight plan.*

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 GNS 530 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, some 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 39) and selecting the ATIS frequency from the list. This places the frequency on standby. Use the **COM flip-flop key** to make the ATIS frequency active.

3. From ATIS you learn 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 61. 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**.

Lynchburg (VA) Regional
VOR or GPS Rwy 04

DO NOT USE FOR
NAVIGATION

Enroute Mode
Terminal Mode

❶

❷

30nm

RWØ4

❸

LYH

025°

❹

025°
205°

❺

❻

160°

❼

340°

*DO NOT
USE FOR
NAVIGATION*
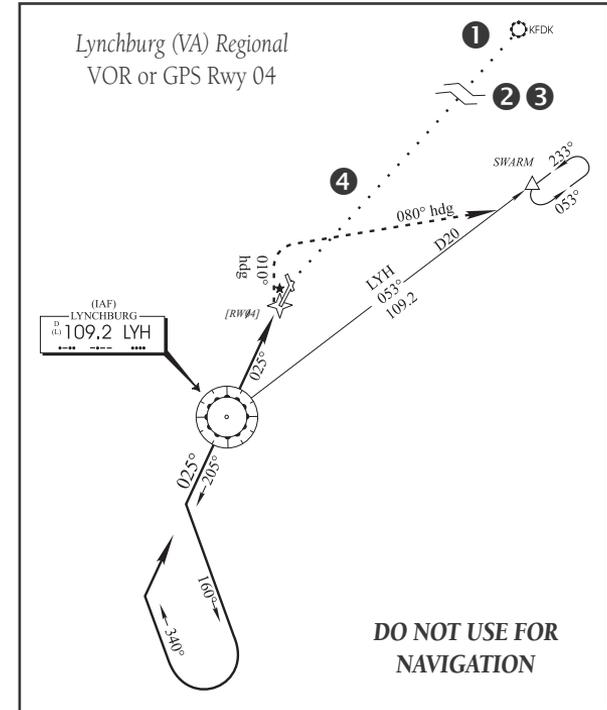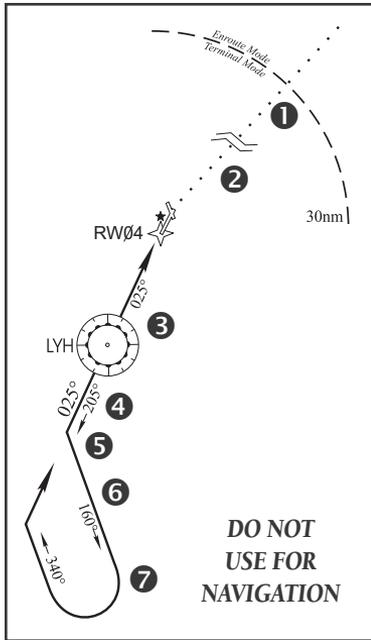
Flying the Procedure Turn

1. Within 30 nautical miles of the destination airport, the GNS 530 switches from "enroute" 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.

7. After approximately one minute, make a 180° right turn to a heading of 340° to intercept the inbound course. The GNS 530 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.

{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") reminds you to begin the procedure turn.

STEP 7 & 8: Procedure turn, inbound. The CDI needle swings 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 GNS 530 automatically sequences to the final course segment, which appears in magenta on the Map Page.

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 GNS 530 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 dictated 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. Please, follow the published missed approach procedures.

DO NOT USE FOR NAVIGATION
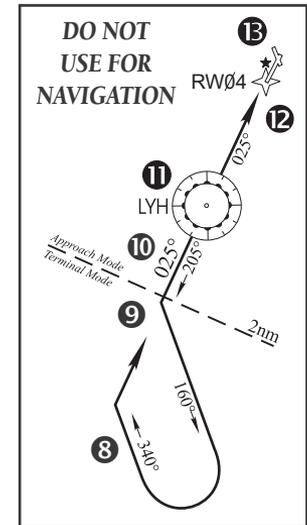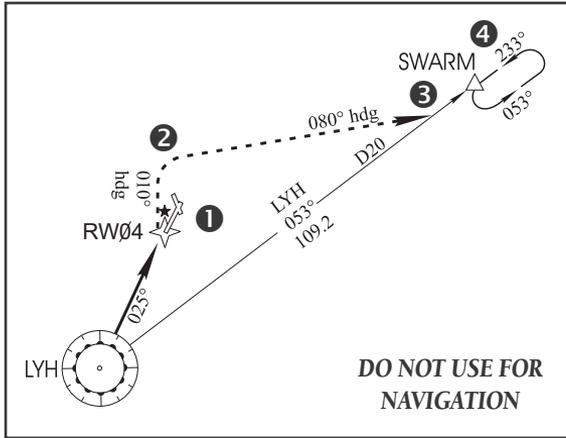
Flying the Missed Approach

After you pass the MAP, if the runway isn't in sight you must execute a missed approach. The GNS 530 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 GNS 530 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 GNS 530 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" appears 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 recommends entry procedures for the holding pattern (e.g, "HOLD TEARDROP").

*STEP 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.

68

Flying an Approach with a Hold

Starting where the previous example left off, we'll assume weather conditions resulted in a missed approach at Lynchburg Regional. Now, you've decided to divert to Farmville Regional (KFVX) instead.

1. Press **direct-to**.

2. Use the **small** and **large right knobs** to enter the destination airport's identifier (KFVX).

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.

*Farmville (VA) Regional
GPS Rwy 21*

***DO NOT USE FOR
NAVIGATION***

4. Press **PROC** and select the "GPS 21" approach. (See page 61 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 GNS 530 switches from enroute 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.

30nm (from airport)

DO NOT USE FOR NAVIGATION
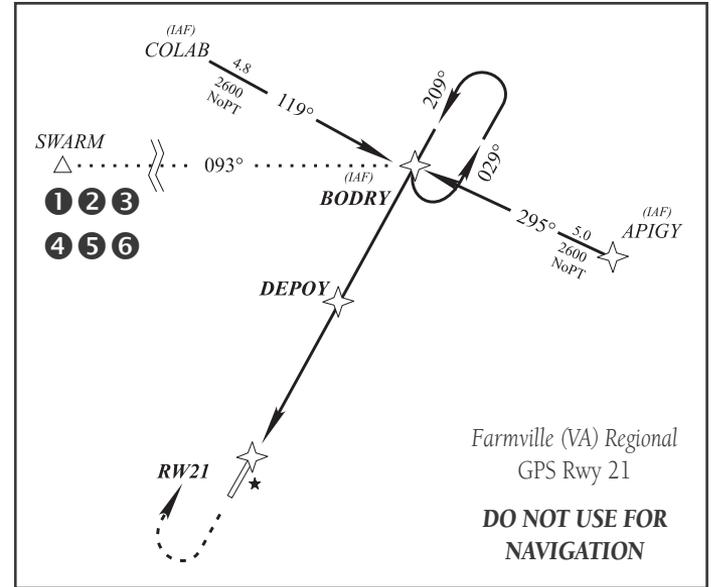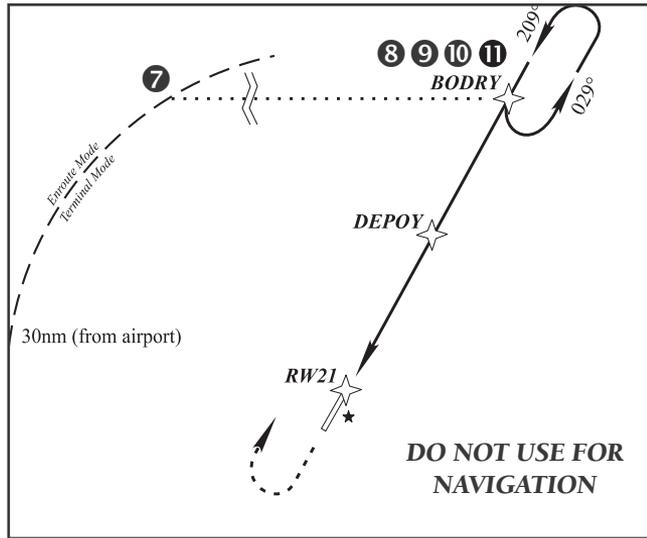
8. Just prior to crossing BODRY intersection, an alert — "HOLD TEARDROP" — appears in the lower right corner of the screen to suggest the proper holding pattern entry. ("HOLD DIRECT" or "HOLD PARALLEL" may be offered on other similar approaches.)

9. As mentioned 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.)

10. When crossing the IAF, "SUSP" appears above the **OBS** key, indicating

that automatic sequencing of approach waypoints is temporarily suspended. As you make the turn inbound, "SUSP" is cancelled and the GNS 530 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 60.

11. 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.*

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 "AP-PROACHING WPT" waypoint alert appears in the lower right corner of the screen.

12. At 2.0 nautical miles from the FAF (DEPOY intersection), the GNS 530 switches from terminal mode to approach mode. CDI scaling is tightened from 1.0 to 0.3 nautical mile, full scale deflection.

13. 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).

14. 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, you'll 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.
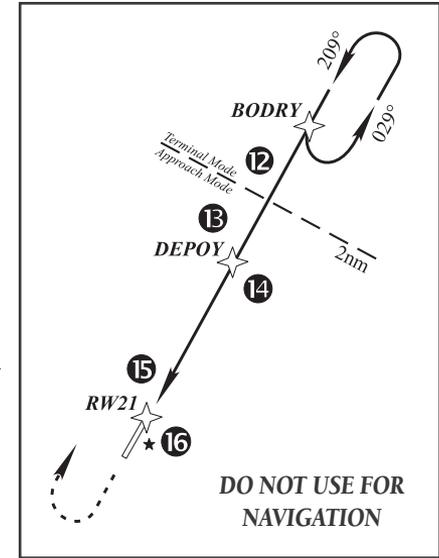
15. As you approach the MAP, a waypoint alert ("APPROACHING WPT") appears in the lower right corner.

16. 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 page 67.

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

Billard Muni (Topeka, KS)
VOR or GPS Rwy 22

DO NOT USE FOR NAVIGATION

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/DME runway 22 approach is selected, along with "D258G" as the IAF.

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 61. From the transitions window, select "D258G" as the IAF. Also, select "Load?" (or "Activate?", if already cleared for the approach).

*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 "D258G" transition (using the **large right knob** and **ENT**).*

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 GNS 530 switches from enroute mode to terminal mode and the CDI scale transitions from 5.0 to 1.0 nautical miles, full scale deflection.

4. If you haven't already activated the approach (in step #2), be sure to do so when cleared for the approach. See page 61, step #5 for a description of this operation.

5. As you approach the IAF (D258G), a waypoint alert ("NEXT DTK 352°") 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 353°").

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 GNS 530 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.
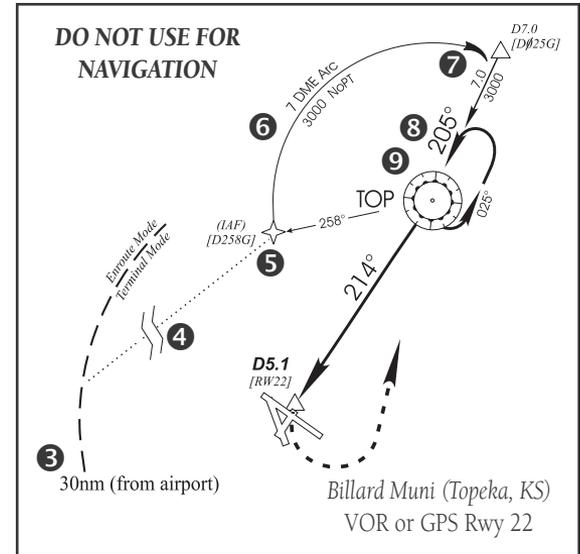
{continued}

DO NOT USE FOR NAVIGATION

Billard Muni (Topeka, KS)
VOR or GPS Rwy 22

DO NOT USE FOR NAVIGATION

Terminal Mode
Approach Mode

D7.0
[DØ25G]

7.0
3000

205°

025°

2nm

TOP ❿

214°

⓫
D5.1
[RW22]

⓬
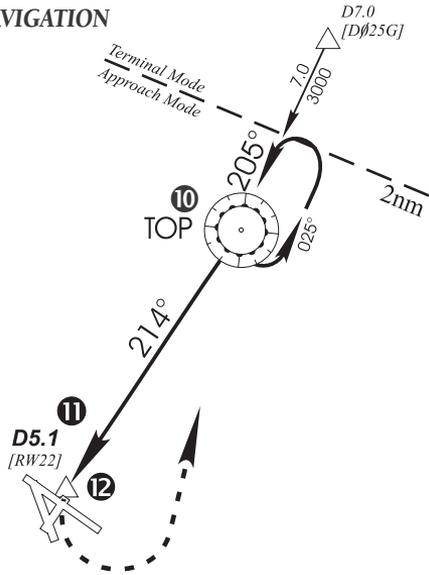
10. As you cross the FAF, the destination sequences to the MAP ("RW22", the runway threshold). With the needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate. When viewing the Map Page, you'll note that the final course segment is displayed in magenta (the active leg of the flight plan always appears in magenta) and a dashed line extends the course beyond the MAP.

11. As you approach the MAP, a waypoint alert ("AP-PROACHING WPT") appears in the lower right corner of the screen.

12. 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 67.

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

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

STEP 3 (top): Select "VECTORS" from the transitions window to activate only the final approach course.
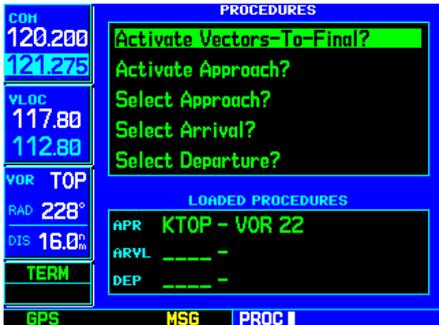
*STEP 4 (bottom): Press **PROC** and select "Activate Vectors-To-Final?" to activate only the final course segment of a loaded approach.*

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 GNS 530. 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 61. When cleared, press **PROC** and select "Activate Vectors-To-Final?". (See page 62.)
- Load the full approach as described on page 61. 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 60.)

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 61.
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 61.
3. From the transitions window, select "D258G" as the IAF. Also, select "Load?".
4. When cleared, press the **PROC** key and select "Activate Vectors-To-Final?".

DO NOT USE FOR NAVIGATION

Flying the Vectors Approach

With "Vectors-To-Final" selected, the CDI needle remains off center until you're established on the final approach course. With the approach activated, the Map Page displays an extension of the final approach course in magenta (remember, magenta is used to depict the active leg of the flight plan) and "VTF" appears as part of the active leg on the Default NAV Page (as a reminder that the approach was activated with vectors-to-final). In this example, we'll assume ATC vectors result in a rectangular course to intercept final, as follows:

1. Within 30 nautical miles of KTOP, the GNS 530 switches from enroute mode to terminal mode and the CDI scale transitions from 5.0 to 1.0 nautical miles, full scale deflection.

2. If you haven't already done so, activate the approach (with vectors-to-final). This allows the GNS 530 to guide you to the final approach course. (See page 74.)

3. ATC instructs you to turn left to a heading of 025°. This places you parallel to the final approach course in the opposite direction. CDI needle deflection is to the left.

4. ATC instructs you to turn right to a heading of 115°.

5. ATC instructs you to turn right to a heading of 175° to intercept the final approach course. As you converge with the final approach course the needle moves toward the center. (In the illustration at right, the needle has returned to the on-screen CDI and your current position is less than 0.5 nm right of the final approach course.)

{continued}

Vectors-To-Final Approach
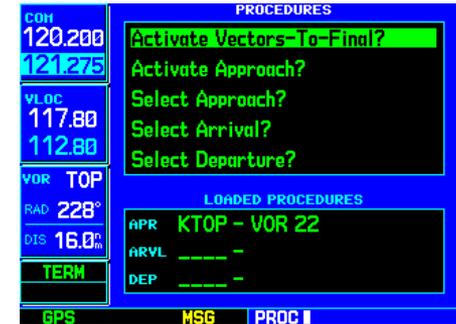
STEP 2: If the approach is loaded, but not yet activated, press PROC and select "Activate Vectors-To-Final?".

STEP 5: As you converge with the final approach course, the CDI needle (on the Default NAV Page and the external CDI) moves toward the center.

STEP 6: At 2.0 nautical miles from the FAF, the GNS 530 switches from terminal ("TERM") to approach ("APR") mode. The CDI scale transitions from 1.0 to 0.3 nautical mile, full scale.

*STEP 10: As you cross the MAP, "SUSP" appears above the **OBS** key, indicating that the automatic waypoint sequencing is suspended.*

6. 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 GNS 530 switches from terminal mode to approach mode. CDI scaling is tightened from 1.0 to 0.3 nautical mile, full scale deflection.

7. 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).

8. As you cross the FAF, the destination sequences to the MAP ("RW22"). With the needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.

9. As you approach the MAP, a waypoint alert ("AP-PROACHING WPT") appears in the lower right corner.

10. 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 67.

Palmdale (CA) AF Plant 42
VOR/DME or GPS Rwy 25

DO NOT USE FOR NAVIGATION
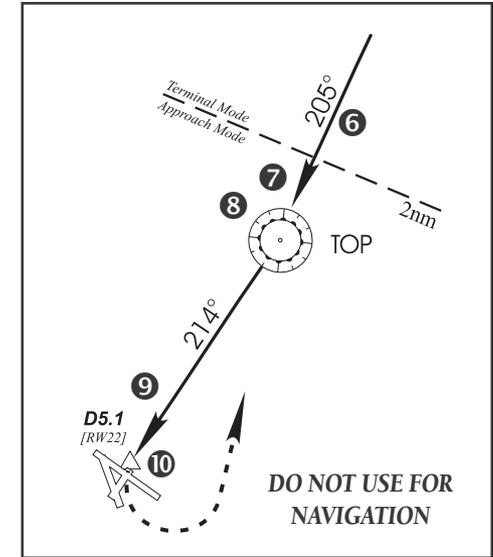
Course From Fix Flight Plan Legs

Certain approach, departure, and arrival procedures in the Jeppesen database contain *course from fix* flight plan legs. The GNS 530 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 above 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.

STEP 1: As the distance to the IAF approaches zero, the waypoint alert is replaced by a turn advisory ("TURN TO 070°"). Initiate a standard rate turn to this course heading.

STEP 3: At 13.0 nautical miles from the IAF, a waypoint alert appears ("NEXT DTK 265°"). Make a standard rate turn to intercept the approach course.

*STEP 9: As you cross the MAP, "SUSP" appears 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" re-appears above the **OBS** key.*

4. As you approach the intermediate fix (CF25), a waypoint alert ("NEXT DTK 265°") appears. Make any necessary course adjustments.

5. Within 2.0 nautical miles of the FAF (THERO), the GNS 530 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.

6. As you approach the FAF, "NEXT DTK 265°" appears in the lower right corner of the screen.

7. 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.

8. As you approach the MAP, a waypoint alert ("APPROACHING WPT") appears in the lower right corner of the screen.

9. 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".

1. 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.

2. 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 GNS 530 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}

MISSED APPROACH:
Palmdale (CA) AF Plant 42
VOR/DME or GPS Rwy 25

DO NOT USE FOR NAVIGATION

MISSED APPROACH

Climb to **5000'** outbound via **PMD**
VOR R-282, then climbing **RIGHT**
turn to **7000'** direct **PMD VOR** and hold.
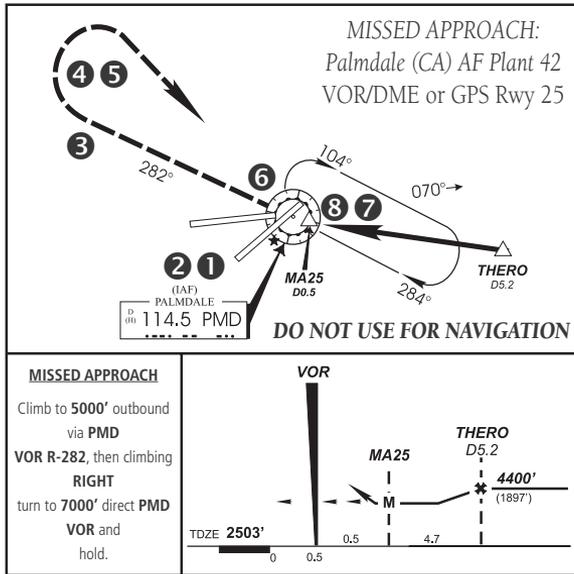
3. Fly the outbound course keeping the CDI needle centered. The Map Page depicts the flight path extending indefinitely from PMD VOR. The distance (DIS) on the Default NAV, Map and Active Flight Plan pages increases — and indicates the distance back to PMD VOR.

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 133°") 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 GNS 530 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.

*STEP 4 & 5: Upon reaching the desired altitude, press **OBS** to return to automatic leg sequencing. An alert message ("NEXT DTK 133°") appears guiding you to the inbound course.*

STEP 6: An alert message recommends the holding pattern entry procedure (e.g., "HOLD PARALLEL").

*STEP 2: As you depart the airfield, "NEXT DTK 026°" appears in the lower right corner and "SUSP" appears above the **OBS** key. Indicated distance increases and is FROM the waypoint fix.*

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

TYPE 3: Course from fix to manual sequence

Course from fix to manual sequence legs appears on the Active Flight Plan and Map Pages with "man seq" in place of a waypoint identifier. An example of this type of course leg appears in the COASTAL TWO DEPARTURE from Westfield, Massachusetts (Barnes Muni). The example leg corresponds to the departure leg from Barnes Municipal and appears as follows on the Active Flight Plan and Default NAV Pages:

1. Select the departure (CSTL2) from the Procedures Page. Then select the departure runway (RW02, in this example) and transition (GEDIC). Refer to page 61 for instructions on selecting departures.

2. As you depart the airfield, "NEXT DTK 026°" appears in the lower right corner of the screen and "SUSP" appears directly above the **OBS** key. You are now on the 'course from fix to manual sequence' leg. The distance displayed on the Active Flight Plan, Default NAV and Map pages is FROM the waypoint fix (the departure runway, in this example).

3. Fly the outbound course keeping the CDI needle centered. Once you are cleared to sequence to the next leg, press the **OBS** key. Confirm that "SUSP" no longer appears directly above the **OBS** key. An alert ("NEXT DTK 185°") appears in the lower right corner of the screen to guide you to the next waypoint (HFD VOR). The actual desired track (DTK) depends on your ground speed and distance from HFD VOR.

4. Once the **OBS** key is pressed, the GNS 530 automatically sequences to each waypoint along the remainder of the departure route, including the selected transition.

COASTAL TWO DEPARTURE

DEPARTING BARNES MUNI,

Fly assigned heading and altitude for radar vectors to HFD VOR. Expect clearance to requested flight level 10 minutes after departure. From over HFD VOR, proceed via the HFD R-143 to Thumb Int, then via the HTO R-010 to Yoder Int, then via the CCC R-057 to CCC VOR. Then via transition or assigned route.

DO NOT USE FOR NAVIGATION
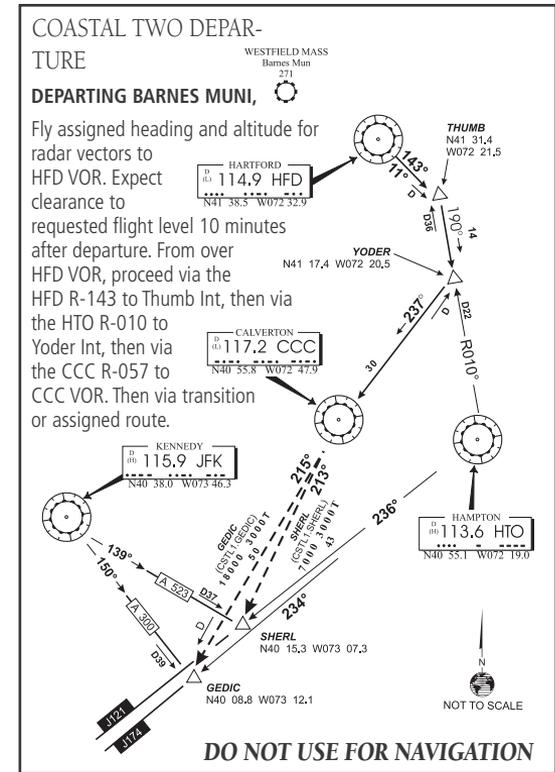
ILS Approaches

Precision approaches can be performed with the GNS 530's built-in VLOC (VOR/localizer/glideslope) receivers. The GPS receiver can be used for guidance prior to reaching the final approach fix, but once there, the proper frequency must be selected on the VLOC window (left side of screen) and the CDI output set to "VLOC".

The GNS 530 can be set to automatically switch the external CDI output from GPS to VLOC as you intercept the final approach course. When the ILS approach is activated (and the correct ILS frequency is active in the VLOC window), the GNS 530 automatically switches within 1.2 nautical miles left or right of the final approach course. This switch can take place anywhere from 2.0 to 15.0 nautical miles from the FAF.

The illustration at left shows both multiple locations along the approach path and the CDI selection that you can expect: GPS or VLOC. Within the area of the shaded box, the automatic switch from GPS to VLOC should occur.

NOTE: If you attempt to intercept the approach course at a distance less than 2.0 nautical miles from the FAF, the GNS 530 does not automatically switch the CDI to VLOC. In this case, press the CDI key to manually switch from GPS to VLOC.
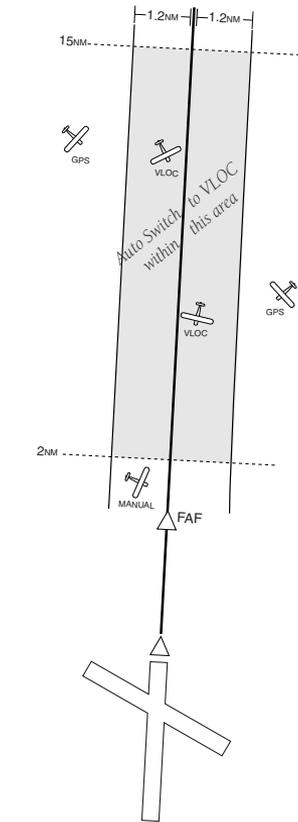
The automatic switch from GPS to VLOC is not immediate, but instead occurs gradually to prevent abrupt CDI changes when coupled to an autopilot. The CDI selection can also be changed manually by pressing the **CDI** key. Once the switch from GPS to VLOC has occured, either automatically or manually, it does not automatically switch again until the approach is reactivated or another approach is selected. To prevent automatic ILS CDI selection, choose the "Manual" ILS CDI setting, as described on page 148 (the factory default setting is "Auto", which enables the automatic switch to VLOC).

*The GNS 530 can use its internal GPS receiver to guide you on the initial portion of an ILS approach. At this stage "GPS" is indicated above the **CDI** key.*

*Within the shaded area of the illustration at left, the GNS 530 automatically switches the external CDI to the GNS 530's internal VLOC receiver. "VLOC" appears above the **CDI** key.*
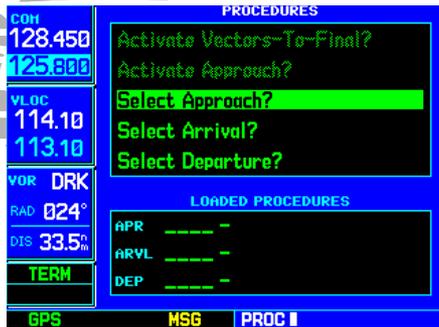
STEP 2: Once the destination airport is selected (using direct-to or an active flight plan), press **PROC** *and choose the "Select Approach" option.*

STEP 3: Once the approach is selected (by name), a pop-up window asks you to select the appropriate transition ("SHUTR" intersection, in this example).

Selecting an ILS Approach

For this example, we'll use a flight from Laughlin Bullhead (Arizona) International to Flagstaff Pulliam (KFLG) and select the ILS runway 21 approach. "SHUTR" intersection is selected as the IAF, which includes an outbound leg and a procedure turn. Of course, vectors-to-final could also be selected, as previously described for the non-precision approach examples.

1. Select Flagstaff Pulliam (KFLG) 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 "ILS 21" approach using the steps outlined on page 61.

3. From the transitions window, select "SHUTR" as the IAF. Also, select "Load?" (or "Activate?", if already cleared for the approach).

4. A reminder message appears, indicating that GPS can only be used for approach monitoring. As mentioned previously, you need to use the VLOC receiver for this approach. Press **ENT** to acknowledge the message.

When you "Load?" (or "Activate?") an ILS approach, *the ILS frequency is automatically placed in the standby field of the VLOC window.* To use this frequency, simply press the **VLOC flip-flop** key to place it in the active frequency field.

Flagstaff (AZ) Pulliam
ILS DME Rwy 21

DO NOT USE FOR NAVIGATION

DO NOT USE FOR NAVIGATION
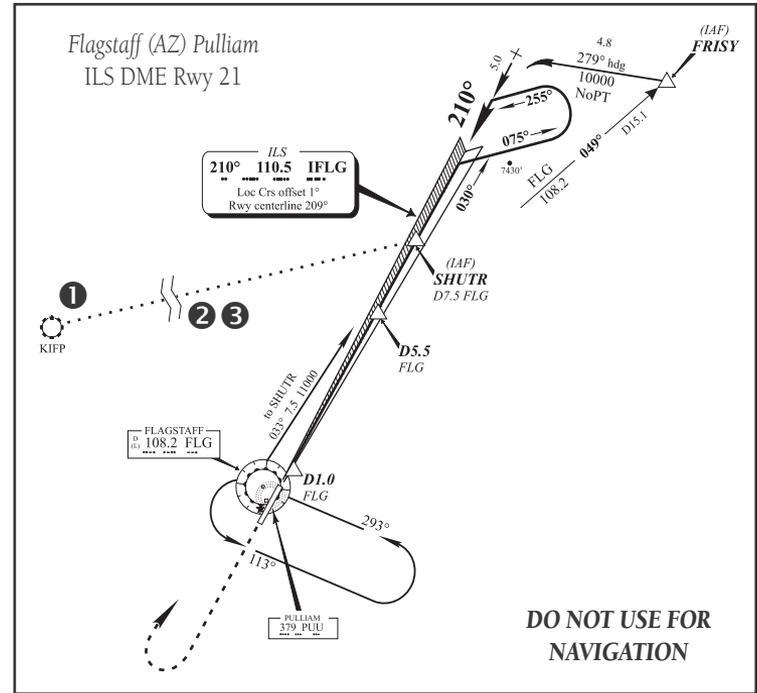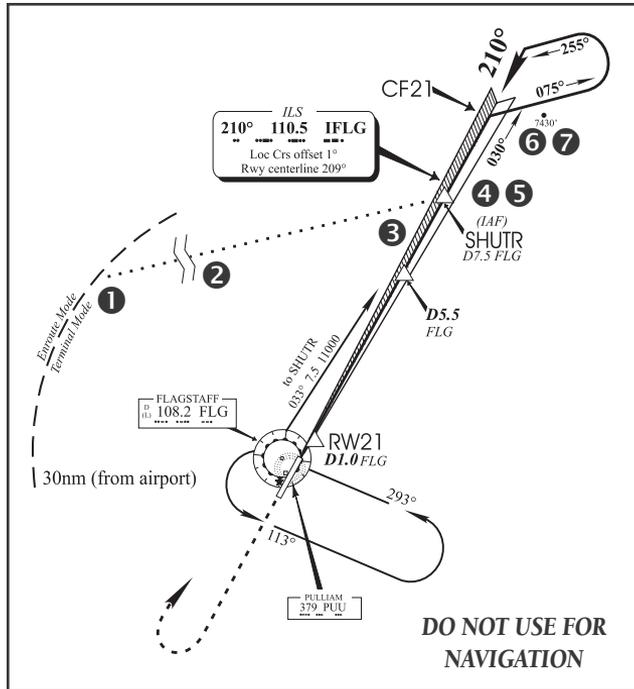
Flying the ILS Approach

When you "Activate?" an ILS approach, automatic switching of the external CDI is enabled (unless turned off from the CDI/Alarms Page). When you are established on the inbound course to the FAF, the external CDI guidance automatically switches from "GPS" (shown in green text) to "VLOC" (shown in white text). *If you have forgotten to activate the ILS frequency* (step #4 below), *automatic selection of "VLOC" does not occur.*

1. Within 30 nautical miles of KFLG, the GNS 530 switches from enroute mode to terminal mode and the CDI scale transitions from 5.0 to 1.0 nautical miles, full scale deflection.

2. If you haven't already activated the approach (in the steps on the previous page), be sure to do so when cleared for the approach. See page 64, step #4 for a description of this operation.

3. As you approach the IAF (SHUTR), a waypoint alert ("NEXT DTK 030°") appears in the lower right corner of the screen.

4. If you haven't already done so, press the **VLOC flip-flop** key to activate the ILS frequency. If you forget this step, the GNS 530 displays a reminder message (within 3 nm of the FAF) to activate the ILS frequency.

5. As the distance (DIS) to the IAF approaches zero, the alert is replaced by a turn advisory ("TURN TO 030°").

6. Fly the outbound course (030°), keeping the needle centered on the external CDI (or HSI).

7. Once you have flown approximately one minute past SHUTR intersection, the alert message "START PROC TRN" appears in the lower right corner of the screen (if you haven't already begun the procedure turn).

{continued}

STEP 3: As you approach the IAF, "NEXT DTK 030°" appears, followed by "TURN TO 030°" when it's time to begin the turn to the outbound course.

STEP 7: "START PROC TRN" appears in the lower right corner of the screen to remind you to initiate the procedure turn.

83

*STEP 9: The GNS 530 automatically switches from the GPS receiver to the VLOC receiver as you complete the turn inbound. The annunciator above the **CDI** key switches from "GPS" to "VLOC".*

STEP 11: As you approach the FAF, "0.30" appears in the lower left corner. This indicates the CDI scale of the Default NAV Page, not the external CDI.

84

8. Turn right to a heading of 075° to initiate the procedure turn. The GNS 530 does not guide you through the turn. (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 external CDI needle starts moving to the left.

9. After approximately one minute, make a 180° left turn to a heading of 255° to intercept the ILS. The GNS 530 sequences to the inbound leg and "NEXT DTK 210°" appears in the lower right corner of the screen. CDI coupling automatically switches from the "GPS" receiver to the "VLOC" receiver as you complete the inbound turn. (If the ILS frequency has not been activated, per step #4, this automatic CDI switch does not occur.)

> NOTE: From this point on, primary navigation is provided by the VLOC receiver. You may continue to use the GPS receiver for supplemental navigation guidance only. If automatic CDI switching is disabled ("Manual" selected), the reminder message "Select VLOC on CDI for approach" appears at 2.0 nautical miles prior to the FAF. In this instance, you must press CDI to manually switch CDI output to the VLOC receiver and continue the approach.
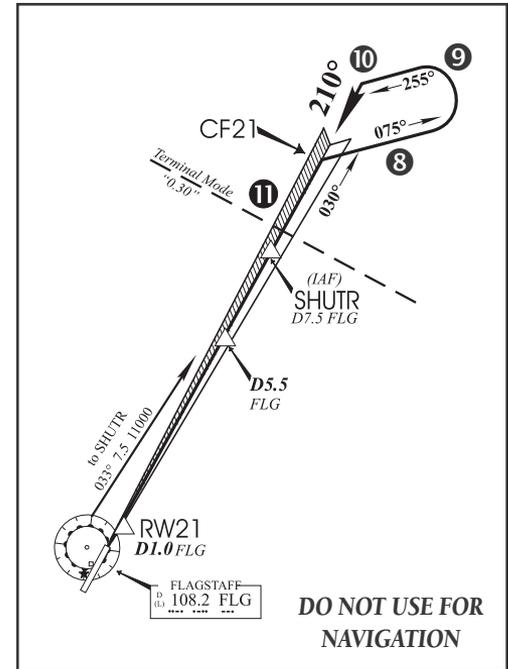
10. As the CDI needle starts to center, make a left turn to 210° to track the ILS approach course.

11. As you approach the FAF (SHUTR), "0.30nm" appears in the lower left corner of the screen — indicating a CDI scale transition from 1.0 to 0.3 nautical miles, full scale deflection. (This scale transition applies only to the Default NAV Page's on-screen CDI, since the external CDI or HSI is now coupled to the VLOC receiver. GPS approach mode is NOT activated for precision approaches, since the VLOC receiver MUST be used for primary navigation.)

DO NOT USE FOR NAVIGATION

{continued}

DO NOT USE FOR NAVIGATION
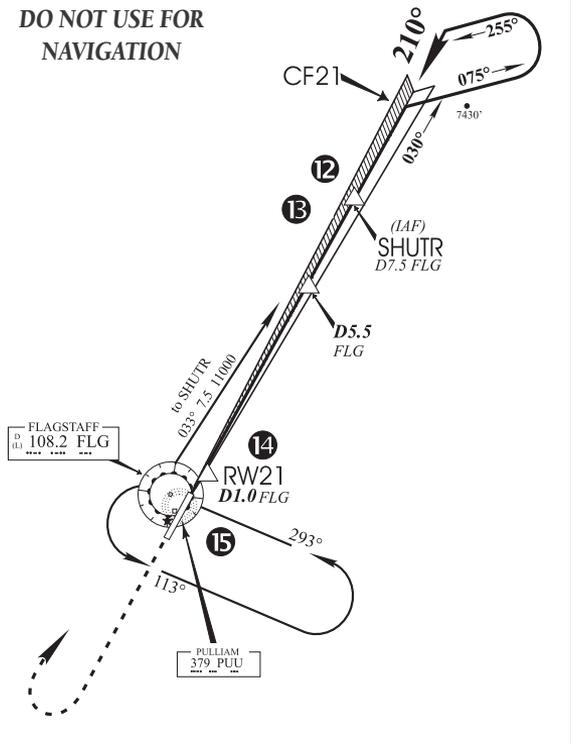
12. Also as you approach SHUTR, a waypoint alert ("NEXT DTK 210°") appears in the lower right corner of the screen.

13. As you cross SHUTR, the destination sequences to the MAP ("RW21", the runway threshold). With the needle on the external CDI (or HSI) centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.

> When viewing the Map Page, you'll 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.

14. As you approach the MAP, a waypoint alert ("AP-PROACHING WPT") appears in the lower right corner.

15. 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 67.

> NOTE: In addition to using the OBS key to initiate the missed approach sequence, you may wish to press the CDI key to manually switch external CDI output to the GPS receiver. "GPS" is indicated above the CDI key. If you leave the external CDI output on "VLOC" and are using an external CDI (not an HSI), expect reverse sensing on the back course of the ILS.

STEP 14: As you approach the MAP, "AP-PROACHING WPT" appears in the lower right corner of the screen.

*STEP 15: As you cross the MAP, "SUSP" appears above the **OBS** key. To execute the missed approach, press **OBS** and follow the published missed approach procedures.*

*"SUSP" indicates that automatic sequencing of approach waypoints is suspended. In some instances "SUSP" automatically cancels (holding pattern entry). In other cases, press **OBS** to manually cancel*
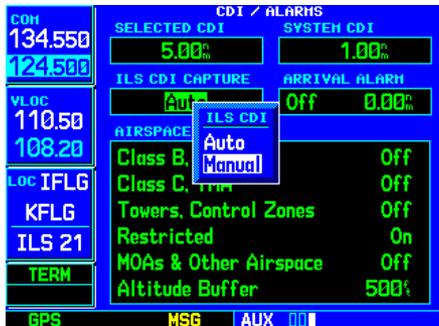
*If the ILS CDI Capture setting is changed to "Manual", you must select VLOC guidance manually by pressing the **CDI** key.*

Points to Remember for ALL Approaches

- The GNS 530 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 GNS 530 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).

Points to Remember for Localizer-based Approaches

- The default factory setting allows the CDI output to automatically switch from the GPS receiver to the VLOC receiver as illustrated on page 81. If the "ILS CDI Capture" setting is changed to "Manual", *you must determine when to select "GPS" or "VLOC" guidance during the approach*. Remember, "VLOC" is required for the final course segment from final approach fix (FAF) to MAP.
- If the CDI output has not automatically switched from GPS to ILS by 2.0 nautical miles prior to the FAF, you must manually switch to the VLOC receiver by pressing the **CDI** key. Verify that "VLOC" is displayed directly above the **CDI** key.
- Automatic switching of CDI output is available for ILS, localizer, SDF and LDA approaches. Automatic CDI switching is *not* available for backcourse approaches.
- When flying an approach with the autopilot coupled, you must monitor system functions at all times and verify that the autopilot and external CDI (or HSI) switch to the VLOC receiver with sufficient time to capture and track the approach course. Switching to "VLOC" late in the approach may not provide the autopilot enough time to respond and intercept the approach course prior to the FAF (depending upon the performance characteristics of your autopilot and aircraft). In such instances, you should manually fly the approach or refer to the documentation provided with your autopilot.

- When an ILS approach is first selected and "loaded" (or "activated"), the ILS frequency is automatically placed in the standby field. *In order to fly the final course segment of the ILS approach, you must place the ILS frequency in the active frequency field by pressing the* **VLOC flip-flop key**. If you forget to do this, a "Select appropriate frequency for approach" message appears within 3.0 nautical miles of the FAF.

- When flying a localizer-based approach (other than backcourse) with automatic CDI switching enabled:

  1. "GPS" guidance may be used while flying outbound and on the initial portion of the procedure turn.

  2. "VLOC" guidance is used on the remainder of the approach from the time you turn inbound on the procedure turn.

  3. The localizer frequency must be active to use "VLOC" guidance.

- When flying a localizer-based approach with automatic CDI switching disabled:

  1. You may select "VLOC" guidance at any point on the approach prior to reaching the FAF.

  2. The localizer frequency must be active to use "VLOC" guidance.

When an ILS approach is first selected, the ILS frequency is automatically placed in the standby VLOC frequency field. Press the **VLOC flip-flop key** *to use this frequency.*

"VLOC" must appear in the lower right corner (above the **CDI** *key) in order to use the VLOC receiver with your external CDI and autopilot.*

87

Section 6: WPT Pages

WPT Page Group

Section 2 introduced the GNS 530'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 should 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	WPT	AUX	NRST
4 available pages (see pg. 27)	10 available pages (see list below)	3 available pages (see list pg. 131)	8 available pages (see list pg. 113)

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

To quickly select a WPT 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 27.)

2. Rotate the **large right knob** to select the WPT page group. "WPT" appears in the lower right corner of the screen.

3. Rotate the **small right knob** to select the desired WPT page.

The WPT page group includes ten pages. While viewing any WPT page, rotate the **small right knob** to select a different WPT page. The first six pages provide detailed information for the selected airport: location, runways, frequencies, approaches, arrivals, and departures. The last four pages provide information for inter-sections, NDBs, VORs and user-created waypoints.

After a WPT page is selected, information for a waypoint may be viewed by entering the identifier (or name) of the desired waypoint.

To enter a waypoint identifier:

1. Select the desired WPT page and press the **small right knob** to activate the cursor.

2. Rotate the **small right knob** to select the first character of the waypoint's identifier.

3. Rotate the **large right knob** to select the next character field.

4. Rotate the **small right knob** to select the desired character.

5. Repeat steps 3 and 4 until the identifier is selected, then press **ENT**.

6. To remove the flashing cursor, press the **small right knob**.

Airports, NDBs and VORs may be selected by identifier, facility name or city location.

To enter a waypoint facility name or city location:

1. Select the Airport Location Page, NDB Page or VOR Page from the WPT page group. (See page 88.)

2. Press the **small right knob** to activate the cursor.

3. Rotate the **large right knob** to select the facility name or location (city) field.

4. Rotate the **small right knob** to select the desired character.

*Enter a waypoint identifier on the top line of any WPT page (using the **small** and **large right knobs**). Once entered, the database information for the selected waypoint is displayed.*

Enter a waypoint's facility name or city location on the top or middle line of the "Facility, City & Region" data field (this option applies to airports, VORs and NDBs only).

89

*When selecting a waypoint by facility name or city, you can scroll through duplicate entries by continuing to rotate the **small right knob**.*
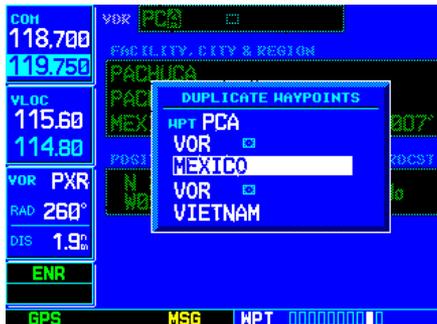
When selecting a waypoint by identifier, a Duplicate Waypoints window may appear, allowing you to select desired waypoint by type and region.

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 GNS 530'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 89). 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 89.

2. As you spell the facility name or location, using the **small** and **large right knobs**, the GNS 530'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 89.

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

Identifier, Symbol and Type

Latitude/Longitude Position

Best Available Approach and Radar Coverage

Facility Name and Location (City)

Field Elevation, Available Fuels and Airspace Type

First Page in WPT Group

Airport Location Page indicating radar coverage and airspace type.

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 ("RNV"), 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 is used as the default airport on the WPT pages. Manual selection of the destination airport is available from the page menu.

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 96).

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

*STEP 5: Press **ENT** to display information for the selected runway.*

Finding the Desired Airport

Your GNS 530 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 89.

Airport Runway Page

Identifier, Symbol and Type

Runway Designations

Map Image

Runway Length and Width

Runway Surface and Lighting

Second Page in WPT Group

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.

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 to quickly select and tune a COM or VLOC frequency.

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 that you are currently viewing (the shaded area) and the overall length of the list (indicated by the height of shaded and unshaded areas).

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

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

Frequency Type

Third Page in WPT Group

To scroll through the frequency list and tune to 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. Press **ENT** to place the selected frequency in the standby field of the COM or VLOC window.
4. To remove the flashing cursor, press the **small right knob**.

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

"TX" - transmit only   "RX" - receive only

"PT" - part time frequency

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**.

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

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.

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

95

*STEP 3 & 4: With the cursor on the "APPROACH" name field, rotate the **small right knob** to select the desired procedure and press **ENT**.*

*STEP 5: With the cursor on the "TRANS" field, rotate the **small right knob** to select the desired transition. Select "VECTORS" for guidance only along the final course segment of the approach.*

Airport Approach Page

Identifier, Symbol and Type

Approach Procedure Name

Transitions: IAFs, Feeder Routes and Vectors-to-Final

Map Image

Fourth Page in WPT Group

The Airport Approach Page shows the available approach procedures for the selected airport. Where multiple initial approach fixes (IAFs) and feeder routes are available, that information may also be displayed. A map image provides a layout diagram for each approach and transition.

To scroll through the available approaches and transitions:

1. Press the **small right knob** to activate the cursor.

2. Rotate the **large right knob** to place the cursor on the APPROACH procedure name field.

3. Rotate the **small right knob** to display a window of available approaches for the selected airport. Continue rotating the **small right knob** to select the desired approach.

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 or select "VECTORS" for guidance only along the final course segment of the approach.

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

NOTE: Not all approaches in the database are approved for GPS use. As you select an approach, a "$^{G}P_{S}$" 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 VLOC receiver to the proper frequency and coupling the VLOC receiver to the external CDI (or HSI).

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 61.

To load an approach from the Airport Approach Page:

1. Select the desired approach and transition using the steps outlined on page 96.
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 63.

To load and activate an approach from the Airport Approach Page, follow the steps above, but select "Load and Activate?" in step #3.

*STEP 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.

*STEP 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

Identifier, Symbol and Type

Map Image

Arrival Procedure Name

Transitions

Runways Associated with Arrival

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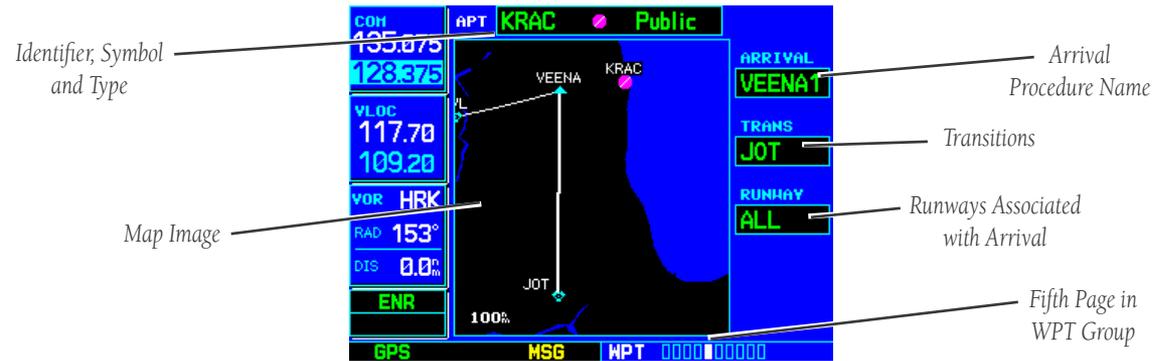
The Airport Arrival Page shows the available Airport Standard Terminal Arrival (STAR) procedures for the selected airport. Where multiple transitions or runways are associated with the arrival procedure, that information may also be displayed. A map image provides a layout diagram for each arrival, transition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

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 61.

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".*

*STEP 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.*

99

*STEP 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

Identifier, Symbol and Type

Map Image

Departure Procedure Name

Runways Associated with Departure

Transitions

Sixth Page in WPT Group

The Airport Departure Page shows the available Airport Departure Procedures (DPs; also referred to as SIDs) 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 61.

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.

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

*STEP 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.*

*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

Identifier and Symbol

Region/Country

Latitude/Longitude Position

Nearest VOR and Symbol

Radial and Distance from Nearest VOR

Seventh Page in WPT Group

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 89.

NDB Page

Identifier and Symbol

Latitude/Longitude Position

Facility Name, City and Region/Country

Frequency and Weather Broadcast Indication

Eighth Page in WPT Group

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 32 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

As mentioned on page 89, NDBs may be selected by identifier, facility name or location (city).

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

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

VOR Page

Identifier and Symbol

Facility Name, City and Region/Country

Latitude/Longitude Position

Magnetic Variation

Frequency and Weather Broadcast Indication

Ninth Page in WPT Group

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

- Symbol — See page 32 for a graphic illustration of available VOR symbols
- VAR — Magnetic variation in degrees
- Position — Latitude/Longitude (degrees/minutes or degrees/minutes/seconds), MGRS or UTM/UPS
- FREQ — Frequency in megahertz (MHz)
- Wx Brdcst — Weather information is broadcast on the selected facility's frequency

As mentioned on page 89, VORs may be selected by identifier, facility name or location (city). The VOR Page may also be used to quickly tune the VLOC receiver to the selected VOR's frequency.

To select a VOR frequency from the VOR Page:

1. Select the VOR Page from the WPT page group, as described on page 88.

2. Press the **small right knob** momentarily to place the cursor on the VOR identifier field. If you wish to select another VOR, use the **small** and **large right knobs** and press **ENT** when finished.

3. Rotate the **large right knob** to highlight the frequency field and press **ENT** to place the frequency in the standby field of the VLOC window.

4. To activate the standby VLOC frequency, press the **VLOC flip-flop key**.

User Waypoint Page

*STEP 3: Using the **large right knob**, highlight the VOR's frequency and press **ENT** to place the frequency in the standby VLOC frequency field.*

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

User Waypoint Name

Latitude/Longitude Position

Reference Waypoint Information

Create/Modify Action Field

Tenth Page in WPT Group

In addition to the airport, VOR, NDB and intersection information contained in your Jeppesen NavData® card, the GNS 530 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.

*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.*

*STEP 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.*

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 89.

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.

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 GNS 530 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 GNS 530 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 this) automatically transfer to your GNS 530.

*STEP 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.*

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

*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 33) 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. 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 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.

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 GNS 530 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).
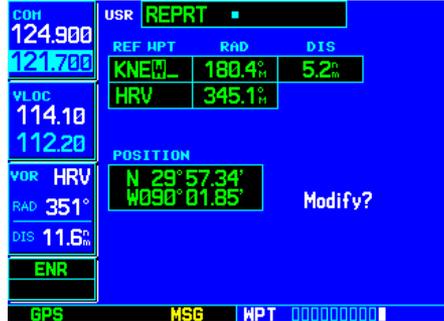
STEP 3: You can modify the location of an existing waypoint by changing the reference waypoint and/or by changing the radial and distance.

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

109

STEP 2 (top): Select "View User Waypoint List?" to display a list of all user waypoints currently stored in memory.
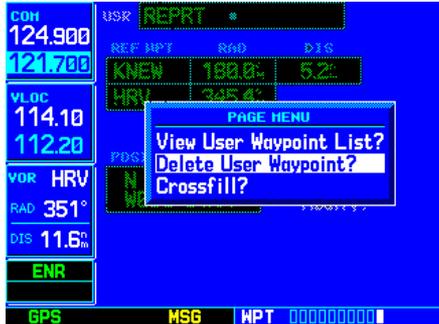
STEP 2 (bottom): Select "Delete User Waypoint?" to delete the selected waypoint from memory.

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 user waypoints between two 400/500-series units in a dual unit installation. See page 136 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 110.

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 108 and 109. (Keep in mind that you've 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 108 or 109.)

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 110.

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.

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

111

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

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

112

To delete a user waypoint from the User Waypoint List:

1. Select the User Waypoint List, as described on page 110.

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 110.

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.

NRST Page Group

Section 2 introduced the GNS 530's main page groups — NAV, WPT, AUX, NRST — and described each page in the NAV group. This fourth 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 and alert you to any Special Use (SUA) or Controlled Airspace you may be in or near.

NAV	WPT	AUX	NRST
4 available pages (see pg. 27)	10 available pages (see list pg. 88)	3 available pages (see list pg. 131)	8 available pages (see below)

Nearest Airport

Nearest Intersection

Nearest NDB

Nearest VOR

Nearest User

Nearest ARTCC

Nearest Flight Service

Nearest Airspace

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

*STEP 2 (top): Rotate the **large right knob** to select the NRST page group. "NRST" appears at the bottom of the screen.*

*Step 3 (bottom): Rotate the **large right knob** to scroll through a 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:

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 28.)
2. Rotate the **large right knob** to select the NRST page group. "NRST" appears at the bottom of the screen.
3. 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 that is 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.

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 114.
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 GNS 530's direct-to function 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 114.
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.

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 which would be difficult or impossible to land upon. See page 152 for additional details.

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

*STEP 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.*

*STEP 3 & 4: To quickly tune to a frequency on the Nearest Airport Page, highlight the desired frequency and press **ENT**.*

*STEP 5: Press the **COM flip-flop** key to activate the selected frequency.*

Airport Identifier, Symbol, Bearing To and Distance To

Scroll Bar

Best Available Approach

Tower or CTAF Frequency and Longest Runway

First Page in NRST Group

The Nearest Airport Page may be used to quickly tune the COM transceiver to a nearby airport. The selected frequency is placed in the standby field of the COM window and activated using the **COM flip-flop** key.

To quickly tune the common traffic advisory frequency (CTAF) from the Nearest Airport Page:

1. Select the Nearest Airport Page, using the steps outlined on page 114.

2. Press the **small right knob** to activate the cursor.

3. Rotate the **large right knob** to scroll through the list, highlighting the COM frequency associated with the desired airport.

4. Press **ENT** to place the selected frequency in the standby field of the COM window.

5. Press the **COM flip-flop** key to activate the selected frequency.

6. Press the **small right knob** to remove the flashing cursor.

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**.

To view additional information for a nearby airport:

1. Select the Nearest Airport Page, using the steps outlined on page 114.

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.

Nearest VOR Page

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 and may be used to quickly tune the VLOC receiver to the nearby VOR. The selected frequency is placed in the standby field of the VLOC window and activated using the **VLOC flip-flop** key.

*STEP 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.*

117

Nearest VORs

STEP 4 & 5: To quickly tune a VOR's frequency from the Nearest VOR Page, highlight the desired frequency and press ENT. Press the VLOC flip-flop key to activate the frequency.

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

VOR Identifier and Symbol

Bearing To and Distance To

Scroll Bar

VOR Frequency

Fourth Page in NRST Group

To quickly tune a VOR's frequency from the Nearest VOR Page:

1. Select the Nearest VOR Page, using the steps outlined on page 114.
2. Press the **small right knob** to activate the cursor.
3. Rotate the **large right knob** to scroll through the list, highlighting the frequency associated with the desired VOR.
4. Press **ENT** to place the selected frequency in the standby field of the VLOC window.
5. Press the **VLOC flip-flop** key to activate the selected frequency.
6. Press the **small right knob** to remove the flashing cursor.

To view additional information for a nearby VOR:

1. Select the Nearest VOR Page, using the steps outlined on page 114.
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).

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) and may be used to quickly tune the COM transceiver to the center's frequency. The selected frequency is placed in the standby field of the COM window and activated using the **COM flip-flop** key.

ARTCC Name

Bearing To and Distance To

Frequency(s)

Sixth Page in NRST Group

*STEP 3 & 4: Rotate the **small right knob** to select the desired center, then rotate the **large right knob** to highlight the desired frequency.*

*STEP 5 & 6: Press **ENT** to place the frequency on standby. Press the **COM flip-flop** key to activate the selected frequency.*

To quickly tune an ARTCC's frequency from the Nearest Center Page:

1. Select the Nearest Center Page, using the steps outlined on page 114.
2. Press the **small right knob** to activate the cursor.
3. Rotate the **small right knob** to scroll through the list, selecting the desired ARTCC.
4. Rotate the **large right knob** to scroll down the page, highlighting the desired frequency.
5. Press **ENT** to place the selected frequency in the standby field of the COM window.
6. Press the **COM flip-flop** key to activate the selected frequency.
7. Press the **small right knob** to remove the flashing cursor.

119

*STEP 3 & 4: Rotate the **small right knob** to select the desired FSS, then rotate the **large right knob** to highlight the desired frequency.*

*STEP 5 & 6 (next page): Press **ENT** to place the frequency on standby. Press the **COM** or **VLOC flip-flop** key to activate the selected frequency. Navigation frequencies for ILS and localizer (LOC) also appear on the 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 indicates the frequency(s) and may be used to quickly tune the COM transceiver to the FSS's frequency. The selected frequency is placed in the standby field of the COM window and activated using the **COM flip-flop** key.

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.

FSS Name

Frequency(s)

VOR Identifier (for duplex operation)

Bearing To and Distance To

Seventh Page in NRST Group

To quickly tune an FSS's frequency from the Nearest Flight Service Station Page:

1. Select the Nearest Flight Service Station Page, using the steps outlined on page 114.

2. Press the **small right knob** to activate the cursor.

3. Rotate the **small right knob** to scroll through the list, selecting the desired FSS.

4. Rotate the **large right knob** to scroll down the page, highlighting the desired frequency (COM frequency[s] or VOR frequency for duplex operation).

{continued}

5. Press **ENT** to place the selected frequency in the standby field of the COM or VLOC window.

6. Press **COM** or **VLOC flip-flop** key, as appropriate, to activate the selected frequency.

7. Press the **small right knob** to remove the flashing cursor.

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 147).

"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.

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

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

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.

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). By 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 114.

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.

Airspace Name

"Done?" Field (return to previous page)

Floor/Ceiling Limits

Status and Time to Entry

"View Frequencies?" Field (display Frequency Page)

To view and quickly tune the frequency for a controlling agency:

1. Follow steps #1 through #4 on the previous page to display the Airspace Information Page for the desired controlled or special use airspace.

2. Rotate the **large right knob** to highlight "View Frequencies?" and press **ENT**.

3. Rotate the **large right knob** to scroll through the list, highlighting the desired frequency.

4. Press **ENT** to place the selected frequency in the standby field of the COM window.

5. Press the **COM flip-flop** key to activate the selected frequency.

6. To return to the Airspace Information Page, rotate the **large right knob** to highlight "Done?" and press **ENT** (or press **CLR**).

7. To return to the Nearest Airspace Page, rotate the **large right knob** to highlight "Done?" and press **ENT** (or press **CLR**).

8. Press the **small right knob** to remove the flashing cursor.

*STEP 2: Highlight "View Frequencies?" and press **ENT** to display the communication frequency(s) for the controlling agency.*
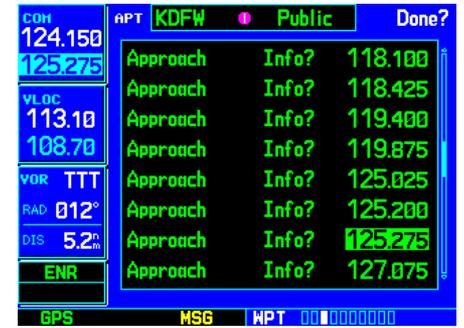
*STEP 3 & 4: Rotate the **large right knob** to select the desired frequency. Press **ENT** to place the frequency on standby.*

Airspace alert for a military operations area (MOA).
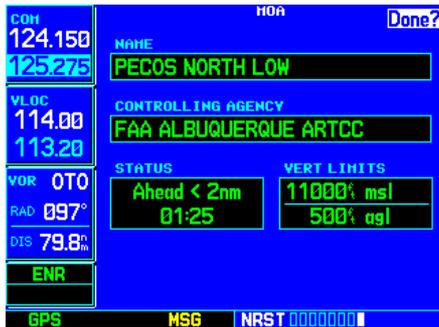
Airspace Information Page for the same military operations area.

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

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

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
- Unlimited
- See Chart
- 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 147 for additional details.

Section 8: VLOC (VOR/Localizer/Glideslope) Receiver Operations

The GNS 530 includes digitally-tuned VOR/localizer and glideslope receivers with the desired frequency selected on a *VLOC window*, along the left-hand side of the display. Frequency selection is performed by pressing the **small left knob** and rotating the **small** and **large left knobs** to select the desired frequency.

Standby Frequency

Ident Audio and Volume

VLOC ident is enabled by pressing the **VLOC volume knob**. When VLOC ident is enabled, an "ID" indication appears in the upper right corner of the VLOC window — to the immediate right of "VLOC".

VLOC audio volume is adjusted using the **VLOC volume knob**. Rotate the **VLOC volume knob** clockwise to increase volume, or counterclockwise to decrease volume.

VLOC Tuning Window

VLOC frequencies are selected with the tuning cursor in the standby VLOC frequency field, and using the **small** and **large left knobs** to dial in the desired frequency. The standby frequency always appears below the active frequency. The active frequency is the frequency currently in use.

NOTE: The tuning cursor normally appears in the COM window, unless placed in the VLOC window by pressing the small left knob. When the tuning cursor is in the VLOC window, it automatically returns to the COM window after 30 seconds of inactivity.

The active frequency in either window cannot be accessed directly — only the standby frequency is highlighted by the tuning cursor.

Push for ident audio. Rotate to adjust audio volume

Push to toggle tuning cursor between COM and VLOC windows. Rotate to adjust the kHz value (the portion after the decimal point) of the standby VLOC frequency.

Rotate to adjust the MHz value (the portion before the decimal point) of the standby VLOC frequency

*Press the **small left knob** to move the tuning cursor to the VLOC window. Rotate the **small left knob** to select the kilohertz portion of the frequency and the **large left knob** to select the megahertz portion.*

*Step 3: To activate the standby frequency, press the **VLOC flip-flop** key.*

126

To select a VOR/localizer/ILS frequency:

1. If the tuning cursor is not currently in the VLOC window, press the **small left knob** momentarily.
2. Rotate the **large left knob** to select the desired megahertz (MHz) value. For example, the "117" portion of the frequency "117.80".
3. Rotate the **small left knob** to select the desired kilohertz (kHz) value. For example, the ".80" portion of the frequency "117.80".

To make the standby frequency the active frequency, press the VLOC flip-flop key.

VLOC Ident Window

Directly below the VLOC Tuning Window is a VLOC Ident Window (default setting). When the GNS 530 is tuned to a nearby VOR, the VLOC Ident Window displays the Morse code identifier of the selected station, the radial from the VOR and the distance from the VOR. When tuned to a nearby localizer, the VLOC Ident window displays the identifier, associated airport and runway. The VLOC Ident Window can be replaced with traffic information or configurable data fields, as outlined on page 153.

Auto-Tuning

A frequency may also be quickly selected from the database by simply highlighting the desired frequency on the VOR Page (see page 104) or the Nearest VOR Page (see page 118) and pressing **ENT**. This process is referred to as auto-tuning. Once a frequency is selected in the standby field, it may be transferred to the active frequency by pressing the **VLOC flip-flop** key. (Auto-tuning can also be performed from VLOC frequencies listed on the NAVCOM, Airport Frequency, and Nearest Flight Service Station pages.)

VOR Page

Nearest VOR Page

To select a VLOC frequency from the VOR or Nearest VOR Pages:

1. Select the desired page from the main pages. (See the page references on the preceding page.)

2. Press the **small right knob** momentarily to activate the flashing cursor

3. Rotate the **large right knob** to highlight the frequency for the desired VOR.

4. Press **ENT** to place the frequency in the standby field of the VLOC window.

5. Press the **VLOC flip-flop** key to activate the selected frequency.

6. Press the **small right knob** to remove the flashing cursor.

NOTE: For duplex COM operations, the VLOC receiver may be auto-tuned from the Nearest Flight Service Station Page. See page 120 for more information.

When selecting a VOR or ILS approach, manual tuning of the VLOC receiver is not required. Once the approach procedure is "Loaded" or "Activated", the GNS 530 automatically places the proper frequency in the standby field of the VLOC window. If you wish to use this frequency, simply press the VLOC flip-flop key to activate the frequency. Additional information on approach procedures is provided in Section 5, beginning on page 61.

To select an approach and automatically tune the proper VLOC frequency:

1. Select the destination airport using the **direct-to** key or as the last waypoint in the active flight plan.

2. Press the **PROC** key to display the Procedures Page.

3. Rotate the **large right knob** to highlight "Select Approach?" and press **ENT**.

4. A window appears listing the available procedures. Rotate the **small right knob** to highlight the desired procedure and press **ENT**.

5. A second window appears listing available transitions. Rotate the **small right knob** to highlight the desired transition waypoint and press **ENT** (the approach "Vectors" option assumes that you will receive vectors to the final course segment of the approach and thus provides navigation guidance to intercept this final course).

{continued}

*STEP 3 & 4 (top): To automatically tune a VLOC frequency, highlight the desired frequency on the VOR or Nearest VOR Pages, and press **ENT**.*

STEP 2 & 3 (bottom): When a VOR or localizer-based approach is "Loaded" or "Activated", the frequency is automatically placed in the standby field of the VLOC window.

127

*STEP 6 & 7: Select "Load?" or "Activate?" and press **ENT**. Verify that the navigation frequency is automatically placed on standby. To activate the frequency, press the **VLOC flip-flop** key.*

*Press the **CDI** key to connect the external CDI (or HSI) to the VLOC receiver. Verify that "VLOC" appears directly above the **CDI** key.*

6. Rotate the **large right knob** to highlight "Load?" or "Activate?" 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.)

7. For VOR and ILS approaches, the standby field of the VLOC window is automatically tuned to the proper frequency. To activate the frequency press the **VLOC flip-flop** key. To display VLOC course information on the external CDI (or HSI) press **CDI** and verify that "VLOC" is displayed at the bottom left corner of the screen, directly above the **CDI** key.

8. 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 VLOC receivers and external CDI (or HSI) for primary navigation. To confirm this reminder, highlight "Yes?" and press **ENT**.

CDI Key

The GNS 530's **CDI** key is used to couple the GPS or VLOC receiver to the external CDI (or HSI). When the external CDI (or HSI) is connected to the GPS receiver, "GPS" appears at the bottom left corner of the page, directly above the **CDI** key. When the external CDI (or HSI) is being driven by the VLOC receiver, "VLOC" appears instead.

To couple the external CDI (or HSI) to the GPS receiver or VLOC receiver, press the CDI key to display "GPS" or "VLOC", as desired.

NOTE: The external CDI (or HSI) must be coupled to the VLOC receiver for approaches which are not approved for GPS. See ILS example on page 81 for more information.

Section 9: AUX Pages

AUX Page Group

Section 2 introduced the GNS 530's main page groups — 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.

NAV	WPT	AUX	NRST
4 available pages (see list on pg. 27)	10 available pages (see list on pg. 88)	3 available pages (see below)	8 available pages (see list on pg. 113)

Flight Planning   Utility   Setup
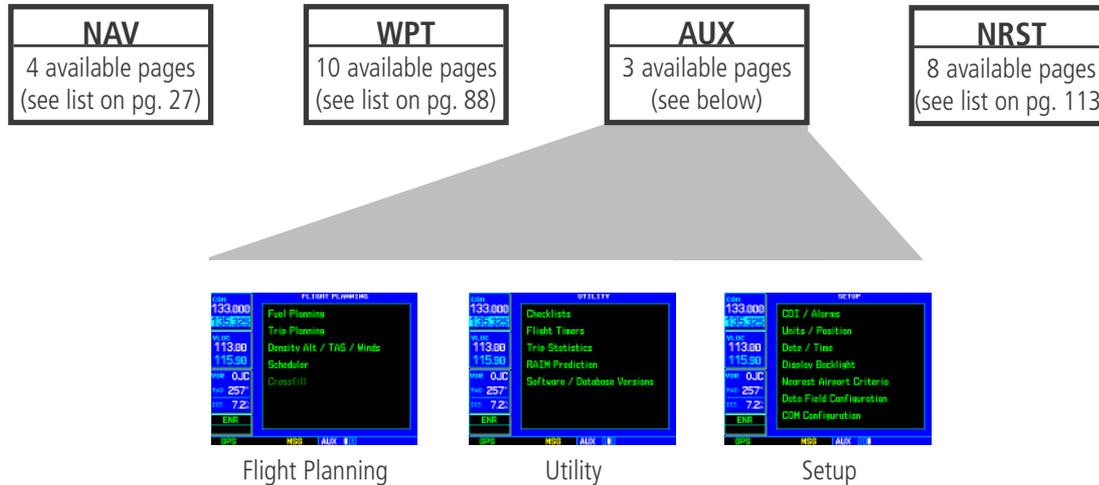
To quickly select an AUX page:

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 28.)

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.

*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.*

*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 GNS 530. 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).

- 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 GNS 530 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.

131

*STEP 3a: For direct-to fuel planning, press **CLR** (with the "from" waypoint field highlighted) to display "P.POS" (which represents your present position).*
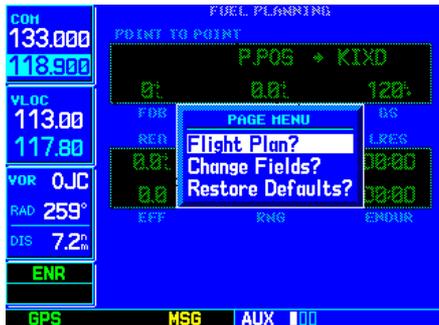
*STEP 2 & 3c: For "flight plan leg" fuel planning, select "Flight Plan?" from the options window. Use the **small right knob** to select the desired flight plan and the desired leg of the flight plan.*

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 130.

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 override the current ground speed (and enter a planning figure). Press **ENT** when finished. (To return ground speed reading to current conditions, highlight the ground speed [GS] field, press **CLR**, then press **ENT**.)

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 GNS 530 installation includes connection to fuel sensors, additional information items is 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 130.

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 151.)

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 override the current ground speed (and enter a planning figure). Press **ENT** when finished. (To return ground speed reading to current conditions, highlight the ground speed [GS] field, press **CLR**, then press **ENT**.)

8. With all variables entered, the following information is provided:
   - DTK — Desired track, or desired course
   - ETE — Estimated time en route
   - ETA — Estimated time of arrival
   - DIS — Desired track, or desired course
   - ESA — En-route safe altitude
   - Sunrise/Sunset times at the destination

*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 depature time and date. To accept either automatic selection, simply press **ENT** when the selection is highlighted.*

133

*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.*

134

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 130.

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

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 defaults to the values provided by these components.

To enter a scheduled message:

1. Select "Scheduler" from the Flight Planning Page, using the steps described on page 130.

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 GNS 530 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 (hhh: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 130.

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 130.

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.

*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.*

135

You can select the "Crossfill?" option from the Default NAV Page or the Flight Plan Catalog, as well as from the Flight Planning Page.

Crossfill method can be set to "Auto" or "Manual". "Auto" automatically transfers direct-to or active flight plan selections between units.

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 in 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 130.

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.

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 53.

  • **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.

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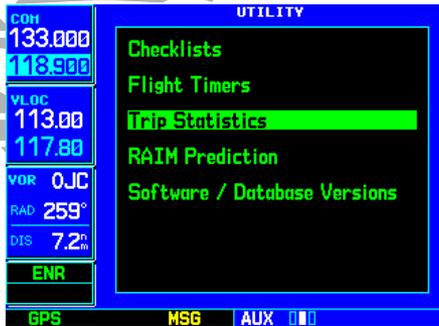
*STEP 2: From the Utility Page, highlight the desired menu option and press **ENT**...*

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

Utility Page

*Menu Option: to select, highlight with cursor and press **ENT**.*
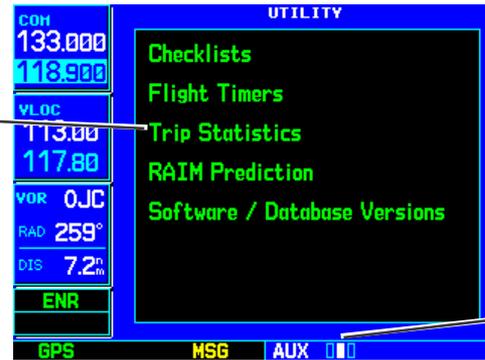
Second Page in AUX Group

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.

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 GNS 530 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 are resettable (individually or all at once) by pressing **MENU** to display an options window.

RAIM Prediction — predicts if GPS coverage is available for your current location or at a specified way-point at any time and date. Receiver Autonomous Integrity Monitoring performs checks to ensure that the GNS 530 has adequate satellite geometry during your flight. RAIM availability is near 100% in Oceanic, En-route and Terminal phases of flight. Because the FAA's TSO requirements for non-precision approaches specify significantly better satellite coverage than other flight phases, RAIM may not be available when flying some approaches. The GNS 530 automatically monitors RAIM during approach operations and warn you if RAIM is not available. In such cases, use the GNS 530's VLOC receiver instead for many of the non-precision and precision approaches stored on your Jeppesen NavData® card. RAIM prediction helps you plan for a pending flight to confirm GPS operation during an approach.

Software / Database Versions — provides software version information for the operating software within the GPS receiver, COM transceiver, VOR/localizer receiver, glideslope receiver and main processor board. The Software / Database Versions Page also displays the current Jeppesen database type and expiration date, along with the version and type of built-in land database.

An "INTEG" annunciation at the bottom left corner of the screen indicates that satellite coverage is insufficient to pass built-in receiver autonomous integrity monitoring (RAIM) tests. When this occurs, the GPS receiver continues to provide navigation information, but should not be used for primary navigation guidance. Use the GNS 530's VLOC receiver or another suitable navigation source.

If a "WARN" annunciation appears at the bottom left corner, GPS satellite coverage may be sufficient, but the GNS 530 has detected a position error which exceeds protection limits. In this condition, all GPS navigation data on the GNS 530 is disabled. Use the GNS 530's VLOC receiver or an alternate navigation source.

Utility Page: Checklists

To create a checklist:

1. Select "Checklist" from the Utility Page, using the steps described on page 138. Press **ENT** to display a list of checklists.
2. Press MENU to display an options menu. Rotate the **large right knob** to select "Create New Checklist?" and press **ENT**.
3. Use the **small** and **large right knobs** to enter the name of a checklist. Press **ENT** when finished. (Up to nine different checklists can be created and stored in the GNS 530.)
4. Use the **small** and **large right knobs** to enter each checklist item followed each time by ENT. (Each checklist may contain up to 30 line items up to sixteen characters in length.)

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 <u>follows</u> 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 138.

2. The flashing cursor highlights "Start?". To start the generic timer, press **ENT.** (You typically begin with this step for count up timers. However, for count down 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 138.

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 GNS 530 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**.

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

STEP 3 (bottom): The GNS 530 can be configured to record the departure time when the unit is powered on or when your ground speed exceeds 30 knots.

141

*STEP 3 (top): Rotate the **small right knob** to select when the trip timer resets: each time the GNS 530 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 138.

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 GNS 530 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 138.

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**.

Utility Page: RAIM Prediction

To predict RAIM availability:

1. Select "RAIM Prediction" from the utility page, using the steps described on page 138.

2. The flashing cursor highlights the waypoint field. Use the **small** and **large right knobs** to enter the identifier of the waypoint at which you wish to determine RAIM availability. Press **ENT** when finished. (To determine RAIM availability for your present position, press **CLR**, followed by **ENT**.)

3. The flashing cursor moves to the arrival date field. Use the **small** and **large right knobs** to enter the date for which you wish to determine RAIM availability. Press **ENT** when finished.

4. The flashing cursor moves to the arrival time field. Use the **small** and **large right knobs** to enter the time for which you wish to determine RAIM availability. Press **ENT** when finished.

5. The flashing cursor moves to "Compute RAIM?". Press **ENT** to begin RAIM prediction. Once calculations are complete, the GNS 530 displays one of the following in the RAIM status field:

- **RAIM Not Available** — Satellite coverage is predicted to NOT be sufficient for reliable operation during non-precision approaches

- **RAIM Available** — Satellite coverage is predicted to be sufficient for reliable operation during all flight phases, including non-precision approaches

> NOTE: RAIM computations predict satellite coverage within +/- 15 minutes of the specified arrival date and time. Refer to page 145 for more information regarding RAIM protection limits.

Utility Page: Software / Database Versions

The Software / Database Versions Page displays software version information for each of the various subsystems contained within the GNS 530, as well as database versions for the Jeppesen NavData® card and built-in land data. This page is for information purposes only — no user functions are available from this page.

STEP 5: Once the destination, date and time are entered, select "Compute RAIM?" to determine if satellite coverage is adequate for the flight.

The Software / Database Versions Page displays the internal software versions for the GNS 530's various subsystems as well as the Jeppesen database and built-in land data.

*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).

144

Setup Page

*Menu Option: to select, highlight with cursor and press **ENT**.*
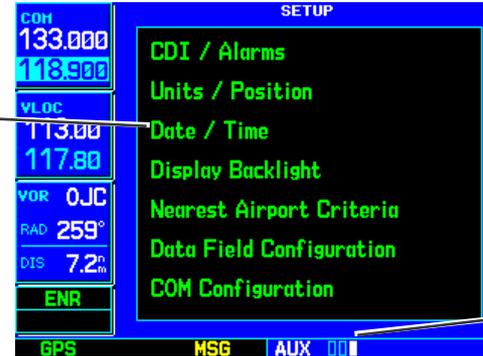
Third Page in AUX Group

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, data field configurations and COM transceiver channel spacing. 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 GNS 530'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 selected during ANY phase of flight. For example, if 1.0 nm is selected, the GNS 530 uses this for en-route and terminal phases and ramp down to 0.3 nm during an 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 "auto" ILS CDI selection allows the GNS 530 to automatically switch the external CDI from the GPS receiver to the VLOC receiver, when intercepting the final approach course (see page 81). Or, select "manual" to manually switch the external CDI connection, as needed (using the **CDI** key).

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.

CDI scales and corresponding flight phases:

Enroute

Terminal

Approach

(for each scale/phase to be available, "Selected CDI" must be set to "5.00nm")

145

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 an 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 GNS 530 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 GNS 530 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 GNS 530's display to your needs.

> NOTE: Display backlighting changes are not saved when the GNS 530 is turned off. Backlighting reverts to the "Auto" setting the next time the unit is turned on.

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 that is displayed in the user-selectable data field directly below the VLOC window. Available data options are: VOR radial, a navigation data field (to display information such as ground speed, track or distance to destination), or a traffic watch screen (when connected to a traffic sensor). The selected data option appears on EVERY page.

COM Configuration — allows you to select 8.33 kHz or 25.0 kHz COM frequency channel spacing.

> NOTE: 8.33 kHz VHF communication frequency channel spacing is not approved for use in the United States. Select the 25.0 kHz channel spacing option for use in the United States.

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 144.
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.

*STEP 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.*

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 3 (middle): "Auto" ILS CDI Capture switches the CDI output from GPS to the VLOC receiver as you intercept the final approach course.

148

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 144.

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 145.

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 145 for more information.

To change the ILS CDI selection:

1. Select "CDI / Alarms" from the Setup Page, using the steps described on page 144.

2. Rotate the **large right knob** to highlight the "ILS CDI Capture" field.

3. Rotate the **small right knob** to select "Auto" or "Manual", as desired. Press **ENT** to accept the selection.

To set the arrival alarm and alarm distance:

1. Select "CDI / Alarms" from the Setup Page, using the steps described on page 144.

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 144.

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 page 146.)

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 144.

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.

*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.*

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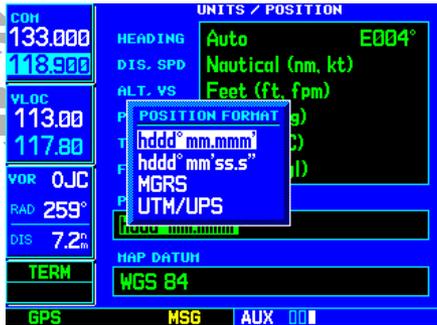
*STEP 3 (top): Rotate the **small right knob** to select the desired position format.*

*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 144.

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 144.

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 144.

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 144.

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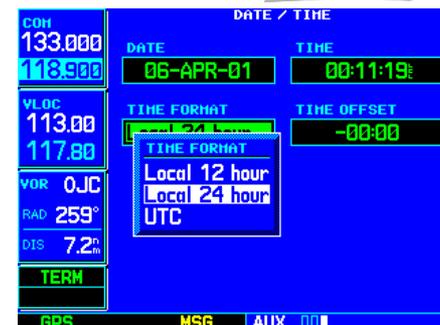
*STEP 2 & 3 (top): Rotate the **small right knob** to select the desired time format.*

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

151

*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 144.

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 144.

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 / Soft** surfaces
   - **Hard** surfaces **Only**
   - **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 data field below the VLOC window:

1. Select "Data Field Configuration" from the Setup Page, using the steps described on page 144.

2. Rotate the **small right knob** to select the desired data field option. The following options are available:

    - **VOR Ident and Radial** — displays the identifier, distance and radial FROM the tuned VOR station active in the VLOC window. When tuned to a nearby localizer, the localizer identifier, associated airport and runway are displayed instead.
    - **Configurable Data Fields** — displays a user-selectable data field of navigation data (e.g., ground speed, track, distance to destination, etc.)
    - **Traffic Watch** — if your GNS 530 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. If "Configurable Data Fields" is selected, a second selection field appears to allow you to select the desired data type. Rotate the **large right knob** to highlight this second field, 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.
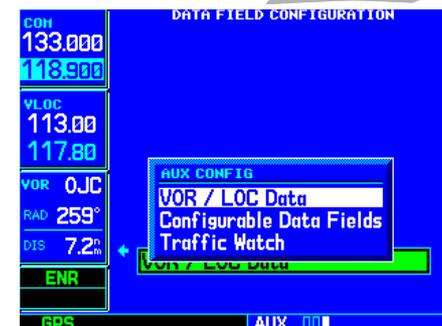
*STEP 2: Rotate the **small right knob** to select the desired data field option.*

*STEP 4: If "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.*

8.33 kHz and 25.0 kHz channel spacing are available for the GNS 530's COM transceiver. Use the 25.0 kHz setting in the United States.
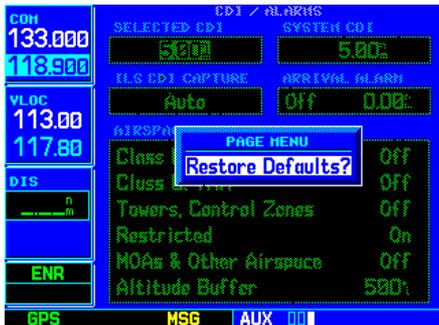
STEP 2 & 3: To restore any Setup Page option to the factory settings, select the "Restore Defaults?" menu option.

Setup Page: COM Configuration

To set the COM channel spacing:

1. Select "COM Configuration" from the Setup Page, using the steps described on page 144.

2. The flashing cursor highlights the channel spacing field. Rotate the **small right knob** to select the desired channel spacing: 8.33 kHz or 25.0 kHz. Press **ENT** when finished.

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 144.

2. Press **MENU** to display a page options window.

3. With "Restore Defaults?" highlighted, press **ENT**.

Section 10: Vertical Navigation (VNAV)

The GNS 530's Vertical Navigation Page 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'd like 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.

Target Altitude ———

Target Distance (from reference) ———

Vertical Speed Desired ———

——— *Altitude Reference (AGL or MSL)*

——— *Target Reference*

——— *Vertical Speed Required*

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.

A message alert lets you know when to begin a VNAV descent...

...as well as when you're approaching your new target altitude.

*STEP 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.*
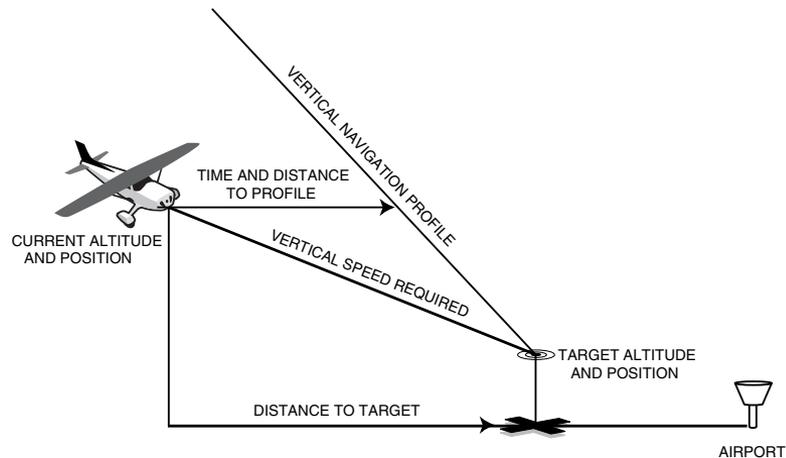
To create a vertical navigation profile:

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. 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:

- At 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've entered previously, without having them generate messages when the feature isn't needed.

To disable/enable the vertical navigation (VNAV) messages:
1. Press **MENU** to display the Vertical Navigation Page Options menu.
2. 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:
1. Press **MENU** to display the Vertical Navigation Page Options menu.
2. 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.

GARMIN
GNS 530

Main SW Version 4.00
GPS SW Version 3.00

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Self Test in Progress...

Section 11: Fault Detection and Exclusion (FDE) Interface

NOTE: The following section is aimed at users who have experience operating the GNS 530 unit and are familiar with the operation of RAIM.

Fault Detection and Exclusion (FDE)

The Garmin GNS 530 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 (and presumably, position error) for a given mode of flight. 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 GNS 530 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 Simulator Interactive Training CD 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 GNS 530 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 GNS 530 uses this for the en-route and terminal phases, and decreases its scale to 0.3 nm during approach.
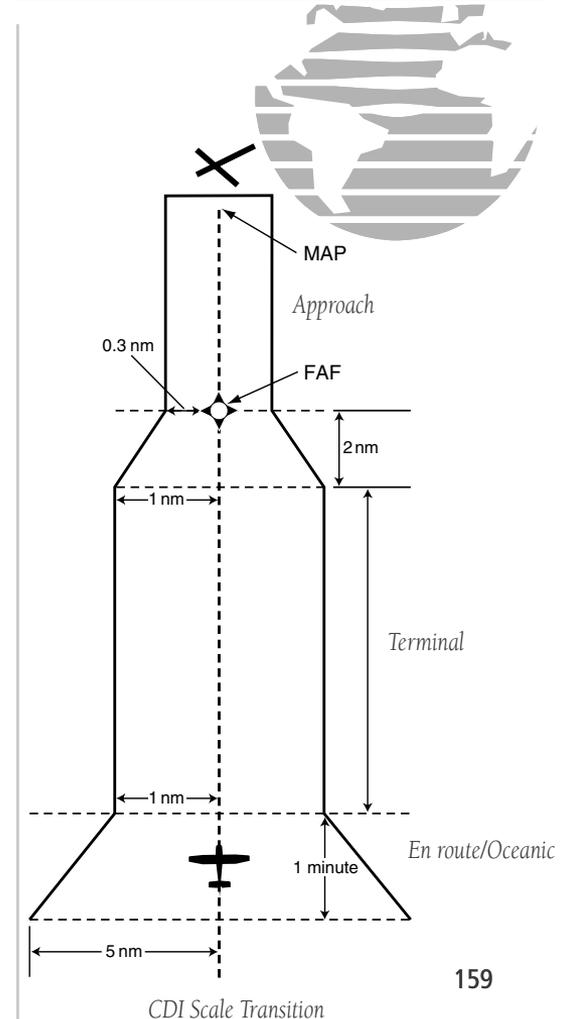
CDI Scale Transition

159

An "Auto" ILS CDI selection allows the GNS 530 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.

CDI Enroute/Oceanic (OCN) Scale

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.

Horizontal Uncertainty Level

Oceanic Mode Annunciation (OCN)

Excluded Satellite (checked pattern)

Messages

The GNS 530 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 GNS 530 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 is 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.

Can't change an active waypoint — An attempt has been made to modify the position of the active "to" or "from" waypoint. The GNS 530 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 GNS 530 does not allow you to delete user waypoints currently being utilized for navigation guidance.

CDI key stuck — The **CDI** key is stuck in the enabled (or "pressed") state. Try pressing the **CDI** key again to cycle its operation. If the message persists, contact your Garmin dealer for assistance.

Check unit cooling — The GNS 530 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.

COM has failed — The GNS 530 has detected a failure in its communications transceiver. The COM transceiver is not available and the unit should be returned to your Garmin dealer for service.

COM is not responding — Internal system-to-system communication between the main processor and the COM transceiver has failed.
Operational status of the COM transceiver is unknown and the unit should be returned to your Garmin dealer for service.

COM needs service — The GNS 530 has detected a failure in its communications transceiver. The COM transceiver may still be usable, but the unit should be returned (at your earliest convenience) to your Garmin dealer for service.

COM push-to-talk key stuck — The external push-to-talk (PTT) switch is stuck in the enabled (or "pressed") state. Try pressing the PTT switch again to cycle its operation. If the message persists, contact your Garmin dealer for assistance.

COM remote transfer key is stuck — The remote COM transfer switch is stuck in the enabled (or "pressed") state. Try pressing the switch again to cycle its operation. If the message persists, contact your Garmin dealer for assistance.

COM transfer key stuck — The **COM flip-flop** key is stuck in the enabled (or "pressed") state. Try pressing the **COM flip-flop** key again to cycle its operation. If the message persists, contact your Garmin dealer for assistance.

COM transmitter power has been reduced — The GNS 530 has detected excessive unit temperature and/or an insufficient voltage level. The COM transceiver transmit power has been automatically reduced to compensate for the condition. For excessive temperatures, check for adequate ventilation or check cooling air flow. If the message persists, contact your Garmin dealer for assistance.

Data card failure — The GNS 530 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 GNS 530s 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 GNS 530 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 GNS 530 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 GNS 530 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).

G/S has failed — The GNS 530 has detected a failure in its glideslope receiver. The glideslope receiver is not available and the unit should be returned to your Garmin dealer for service.

G/S is not responding — Internal system-to-system communication between the main processor and the glideslope receiver has failed. Operational status of the glideslope receiver is unknown and the unit should be returned to your Garmin dealer for service.

G/S needs service — The GNS 530 has detected a failure in its glideslope receiver. The glideslope receiver may still be usable, but the unit should be returned (at your earliest convenience) to your Garmin dealer for service.

GAD configuration required — The GAD 42 Interface Adapter has lost the configuration information stored in its internal memory. Any mechanical indicators connected to your GNS 530 are unusable and the GAD 42 should be returned to your Garmin dealer for service.

GAD needs service — The GNS 530 has detected a failure in the GAD 42 interface adapter. Any mechanical indicators connected to your GNS 530 are unusable and the GAD 42 should be returned to your Garmin dealer for service.

GPS has failed — The GNS 530 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.

GPS needs service — The GNS 530 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 GNS 530 does not allow the modifications.

Invalid waypoint ident — An attempt was made to create a user waypoint with an invalid name. The GNS 530 does not allow spaces between characters in the waypoint name.

MAIN processor requires service — The GNS 530 has detected a failure in the main system processor. The GNS 530 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 GNS 530 has detected a failure in the built-in basemap (land data) memory. Land data does not appear on the Map Page. Other unit functions continue to work normally, however the GNS 530 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 one (or more) of the RS-232 channel connections 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 GNS 530 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 the GNS 530's VLOC receiver.

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 the GNS 530's VLOC 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 GNS 530 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 appropriate frequency for approach — You are inbound and within 3 nautical miles of the FAF; and the active VLOC frequency does not match the published frequency for the approach. Tune the standby VLOC frequency to the proper frequency and press the **VLOC flip-flop** key to "activate" the frequency.

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.

Select VLOC on CDI for approach — You are inbound and within 3 nautical miles of the FAF; and the active approach is not a GPS-approved approach. Verify that the VLOC receiver is tuned to the proper frequency and press the **CDI** key to display "VLOC" (directly above the **CDI** key).

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 GNS 530 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 GNS 500 cannot communicate with the SKY497 or TCAD and/or the SKY497 or TCAD is reporting a system failure.

Unit configuration has changed — The GNS 530 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.

User card invalid — A data card has been inserted, but the card has failed the checksum error test.

User Magnetic Variation in effect — Will appear at power up if "User Magnetic Variation" was selected during last use. When "User Magnetic Variation" is selected, heading references are based on a user-entered setting and WILL NOT change as you travel large distances.

VLOC has failed — The GNS 530 has detected a failure in its VLOC receiver. The VLOC receiver is not available and the unit should be returned to your Garmin dealer for service.

VLOC is not responding — Internal system-to-system communication between the main processor and the VLOC receiver has failed. Operational status of the VLOC receiver is unknown and the unit should be returned to your Garmin dealer for service.

VLOC needs service — The GNS 530 has detected a failure in its VLOC receiver. The VLOC receiver may still be usable, but the unit should be returned (at your earliest convenience) to your Garmin dealer for service.

VLOC remote transfer key is stuck — The remote VLOC transfer switch is stuck in the enabled (or "pressed") state. Try pressing the switch again to cycle its operation. If the message persists, contact your Garmin dealer for assistance.

VLOC transfer key stuck — The **VLOC flip-flop** key is stuck in the enabled (or "pressed") state. Try pressing the **VLOC flip-flop** key again to cycle its operation. If the message persists, contact your Garmin dealer for assistance.

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 GNS 530'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 GNS 530'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.

Abbreviations

The following is a list of abbreviations and acronyms used on the GNS 530 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

BRG — Bearing To

°C — Degree Celsius

C/V — COM/VLOC

CAS — Calibrated Airspeed

CDI — Course Deviation Indicator

CLR — Clear

COM — Communications Transceiver

CRSR — Cursor

CTA — ICAO Control Area

CTAF — Common Traffic Advisory Frequency

CTR — Center (see ARTCC)

CTS — Course To Steer

CUM — Cumulative

DB — Database

DEN — Density

DEP — Departure

DIS — Distance

DME — Distance Measuring Equipment

DOP — Dilution of Precision

DTK — Desired Track

EFF — Efficiency

ELEV — Elevation

ENDUR — Endurance

ENR — En Route

ENT — Enter

EPE — Estimated Position Error

ESA — En-Route Safe Altitude

ETA — Estimated Time of Arrival

ETE — Estimated Time En Route

°F — Degrees Fahrenheit

FAF — Final Approach Fix

FDE — Fault Detection and Exclusion

FF — Fuel Flow

FOB — Fuel On Board

FPL — Flight Plan

fpm — Feet Per Minute

FREQ — Frequency

FSS — Flight Service Station

ft — Feet

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 — Left-over Fuel On Board
LOC — Localizer
LRES — Left-over 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

P.POS — Present Position
PROC — Procedure(s)
PROV — Province
PWR — Power

RAD — Radial
RAIM — Receiver Autonomous Integrity Monitoring

REF — Reference

REQ — Required / Requirements

RESTRICTD — Restricted

RNG — Range

RX — Receive

SID — Standard Instrument Departure

Sml — Small

SPD — Speed

SQ — Squelch

SRFC — Surface

STAR — Standard Terminal Arrival Route

SUA — Special Use Airspace

SUSP — Waypoint Sequencing Suspended

°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

TX — Transmit

uni — Unicom

UTC — Coordinated Universal Time (also GMT or "zulu")

VAR — Variation

VER — Version

VFR — Visual Flight Rules

VLOC — VOR/Localizer Receiver

VNAV — Vertical Navigation

VOL — Volume

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 GNS 530:
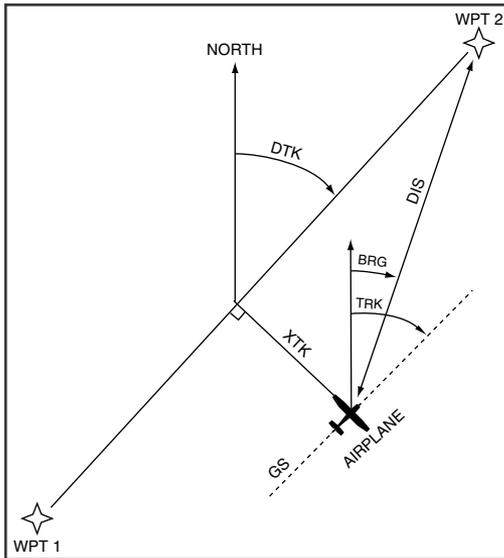
ALT (altitude) — Height above mean sea level (MSL).

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.

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 travelling 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.
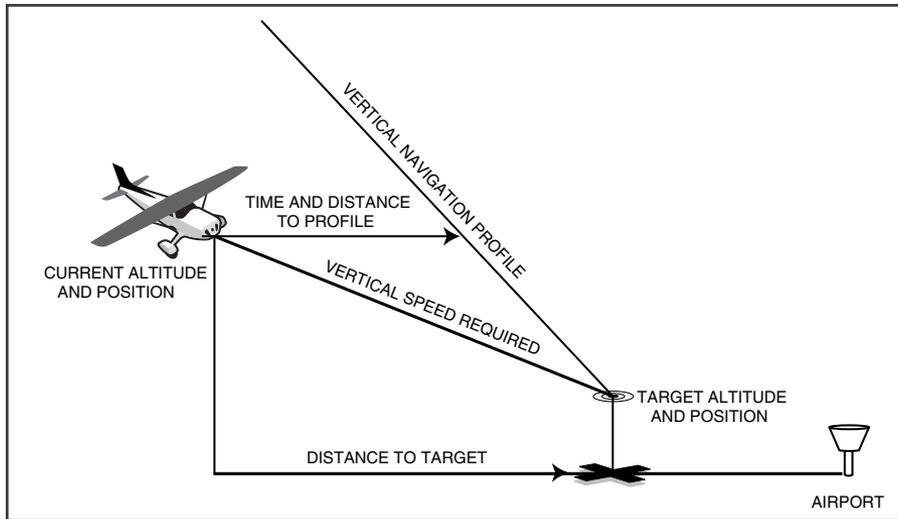
IND (indicated) — Information provided by properly calibrated and set instrumentation in the aircraft panel (e.g., "indicated altitude").

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) — Used 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 Grid MORA clears the highest reference point by 2000 feet.

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.

Press here to deploy handle

Appendix A: NavData Card Use

The Jeppesen NavData® card supplied with your GNS 530 can be installed or removed when the GNS 530 is on or off. Insert the card with the swing arm handle on the left and the label facing up (see illustration 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 GNS 530 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 GNS 530. 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 seats on the internal connector and the front of the card is flush with the face of the GNS 530 unit.
3. If the swing arm handle is up, gently lower the handle and push it into place — flush with the face of the GNS 530 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 partially deploys the swing arm handle.
2. Rotate the swing arm handle outward until it locks into place, perpendicular to the face of the GNS 530 unit.
3. Grasp the swing arm handle between your thumb and forefinger, and pull directly away from the face of the GNS 530 unit to unseat the connector and remove the NavData card.

Appendix B: Specifications

PHYSICAL

Unit Size:	6.25"W x 11.00"D x 4.60"H
	(159mm x 279mm x 117mm)
Unit Weight:	8.5 pounds installed (3.9 kg)

POWER

Input:	27.5 Volts DC (-0x version)
	13.8/27.5 Volts DC (-1x version)

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 meters (49 ft) RMS*
	Velocity — 0.1 knot RMS steady state
Dynamics:	999 kt maximum velocity
	6g maximum acceleration

VHF COM PERFORMANCE

Channels:	760 (25 kHz spacing) or
	2280 (8.33 kHz spacing)
Frequency Range:	118.000 MHz to 136.992 MHz
Transmit Power:	10 watts minimum (GNS 530)
	16 watts minimum (GNS 530A)

VOR PERFORMANCE

Frequency Range:	108.00 MHz to 117.95 MHz

LOCALIZER PERFORMANCE

Frequency Range:	108.10 MHz to 111.95 MHz

GLIDESLOPE PERFORMANCE

Frequency Range:	329.15 MHz to 335.00 MHz

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 meters 2DRMS when under the U.S. DOD-imposed Selective Availability Program.

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)	Efate and Erromango Islands
Bermuda 1957	Bermuda Islands
Bogota Observatory	Colombia
BUKIT RIMPAH	Indonesia

CAMP AREA ASTRO	Antarctica
Campo Inchauspe	Argentina
Canton Astro 1966	Phoenix Islands
Cape	South Africa
Cape Canaveral	Florida, Bahama Islands
Carthage	Tunisia
CH-1903	Switzerland
Chatham 1971	Chatham Island (New Zealand)
Chua Astro	Paraguay
Corrego Alegre	Brazil
DANISH GI 1934	Denmark
Djakarta (BATAVIA)	Sumatra Island (Indonesia)
Dos 1968	Gizo Island (New Georgia Islands)
Easter Island 1967	Easter Island
European 1950	Austria, Belgium, Denmark, Finland, France, Germany, Gibraltar, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland
European 1979	Austria, Finland, Netherlands, Norway, Spain, Sweden, Switzerland
Finland Hayford 1910	Finland
G. SEGARA	Borneo
Gandajika Base	Republic of Maldives
Geodetic Datum 1949	New Zealand
GGRS 87	Greece
Guam 1963	Guam Island
Gux 1 Astro	Guadalcanal Island

Herat North	Afghanistan
Hjorsey 1955	Iceland
Hong Kong 1963	Hong Kong
HU-TZU-SHAN	Taiwan
Indian Bngldsh NEPAL	Bangladesh, India, Nepal
INDIAN MEAN VALUE	India
Indian Thailand Vietn	Thailand, Vietnam
INDONESIA 74	Indonesia
Ireland 1965	Ireland
ISTS 073 Astro 1969	Diego Garcia
Johnston Island 1961	Johnston Island
KANDAWALA	Sri Lanka
Kerguelen Island	Kerguelen Island
Kertau 1948	West Malaysia, Singapore
L.C. 5 Astro	Cayman Brac Island
Liberia 1964	Liberia
LUZON MEAN VALUE	Philippines
Luzon Mindanao Is	Mindanao Island
Luzon Philippines	Philippines (excluding Mindanao Isl.)
Mahe 1971	Mahe Island
Marco Astro	Salvage Islands
Massawa	Eritrea (Ethiopia)
Merchich	Morocco
Midway Astro 1961	Midway Island
Minna	Nigeria
NAD27 Alaska	North American 1927-Alaska
NAD27 Bahamas	Bahamas (excluding San Salvador Island)

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
NAD27 CONUS	Mean Value (Continental U.S.)	**Prov SO Chilean 1963**	South Chile
NAD27 Cuba	Cuba	**Puerto Rico**	Puerto Rico & Virgin Isl.
NAD27 Greenland	Greenland (Hayes Peninsula)	**Qatar National**	Qatar
NAD27 Mexico	Mexico	**Qornoq**	South Greenland
NAD27 San Salvadr Is	San Salvador Island	**Reunion**	Mascarene Island
NAD83	North American 1983- Alaska, Canada, Central America, CONUS, Mexico	**Rome 1940**	Sardinia Island
		RT 90	Sweden
		Santo (Dos)	Espirito Santo Island
Nahrwan Masirah Is	Masirah Island (Oman)	**Sao Braz**	Sao Miguel, Santa Maria Islands (Azores)
Nahrwan Saudi Arabia	Saudi Arabia		
Nahrwan Unitd Arab E	United Arab Emirates	**Sapper Hill 1943**	East Falkland Island
Naparima BWI	Trinidad and Tobago	**Schwarzeck**	Namibia
Netherland TRIAG '21	Netherlands	**South American 1969**	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Venezuela, Trinidad/Tobago
NOU TRIAG France	France		
NOU TRIAG Luxembourg	Luxembourg		
Observatorio 1966	Corvo and Flores Islands (Azores)		
		South Asia	Singapore
Old Egyptian	Egypt	**SouthEast Base**	Porto Santo and Madeira Islands
Old Hawaiian Kauai	Kauai		
Old Hawaiian Maui	Maui	**SouthWest Base**	Faial, Graciosa, Pico, Sao Jorge and Terceira Islands (Azores)
Old Hawaiian MEAN	Mean Value		
Old Hawaiian Oahu	Oahu	**Tananarive obsv 1925**	Madagascar

Timbalai 1948	Brunei and East Malaysia (Sarawak and Sabah)
Tokyo	Japan, Korea, Okinawa
Tristan Astro 1968	Tristan da Cunha
Viti Levu 1916	Viti LevuIsland/Fiji Islands
Wake-Eniwetok 1960	Marshall Islands
WGS 72	World Geodetic System 1972
WGS 84	World Geodetic System 1984
YACARE	Uruguay
Zanderij	Surinam

177

Appendix D: Troubleshooting Q & A

This Appendix is designed to answer some of the common questions regarding the GNS 530's capabilities and operation. 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 will allow 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 GNS 530 automatically monitors RAIM and warns you with an alert message (see Section 12) 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 GNS 530's RAIM prediction function (see page 139) 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 GNS 530 indicates "NONE" for the available procedures — as listed on the Airport Approach Page. For more information on selecting an approach, see page 61.

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 GNS 530 uses the waypoint information from the current database to define the waypoints. If the database is changed or updated, the GNS 530 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 the correct database is installed. For information on loading an approach, departure or arrival, see page 61. See page 55 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 GNS 530 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.

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 GNS 530 automatically selects the next waypoint in the flight plan once the aircraft has crossed the present active-to waypoint.

NORMAL (no "OBS" annunciator)	OBS
Automatic sequencing of waypoints	*Manual sequencing- 'holds' on selected waypoint*
Change in HSI does not affect CDI deflection	*Manually select course to next waypoint from HSI*
Always navigates 'TO' the active waypoint	*Will indicate 'TO' or 'FROM' waypoint*
Must be in this mode for final approach course	*Cannot be set for final approach course or published holding patterns*

Whenever OBS mode is active, the GNS 530 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've crossed the active waypoint (provided the active waypoint is not the last waypoint). Refer to page 69 for an example 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 right) to indicate that automatic waypoint sequencing is temporarily suspended and 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 68 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 GNS 530 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 GNS 530 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 67 for more information on missed approaches.

Why won't my unit automatically sequence to the next waypoint?

The GNS 530 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 GNS 530 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 left). The GPS then provides navigation along the selected flight plan leg, so ensure that you have clearance to that position. See page 60 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.

When does turn anticipation begin, and what bank angle is expected?

The GNS 530 smoothes adjacent leg transitions based upon a nominal 15º bank angle (with the ability to roll up to 25º) and provide 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 5.

When does the CDI scale change and what does it change to?

The GNS 530 begins a smooth CDI scale transition from the 5.0 nm (en-route mode) to the 1.0 nm (terminal mode) scale 30 nm 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 would like to return the CDI to the 1.0 nm scale, activate the missed approach sequence by pressing the **OBS** key, as described on page 67. 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 145.
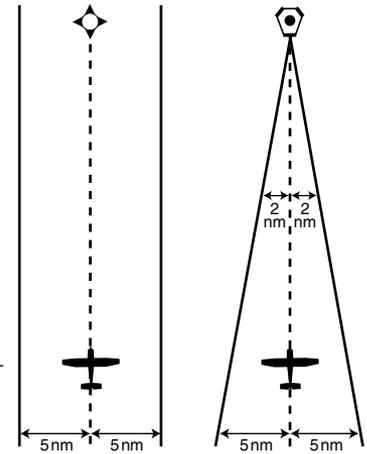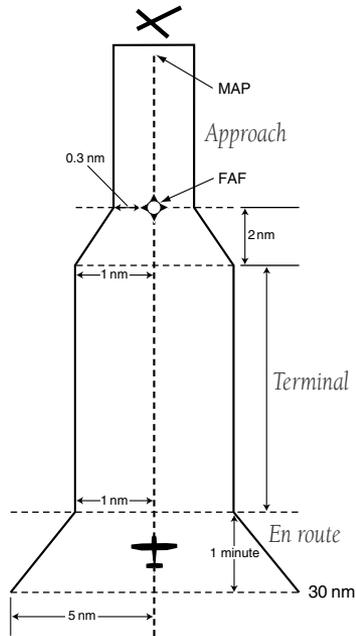
CDI Comparison: GPS vs. VOR

What is the correct missed approach procedure? How do I select the missed approach holding point?

To comply with TSO specifications, the GNS 530 does not automatically sequence past the MAP. The active-to waypoint sequence 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 60.

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 GNS 530 provides navigation along the desired course to the waypoint and rejoins the approach in sequence from that point on. See page 60 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 5 for more information on selecting and activating approaches.

⚠ Do not attempt to reactivate the same approach you're 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 GNS 530 directs you back to the transition waypoint and does NOT take into consideration any missed approach procedures.

187

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