GNS 430/430A

Quick Reference
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 is used to tune the megahertz (MHz) value of the standby frequency for the COM transceiver or the VLOC receiver, whichever is currently selected by the tuning cursor.

The **COM Flip-flop** Key is used to 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 small **left** knob is used to tune the kilohertz (kHz) value of the standby frequency for the COM transceiver 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.
RIGHT-HAND KEYS AND KNOBS

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

The **Direct-to** Key provides access to the direct-to function, which allows the pilot to enter a destination waypoint and establishes a direct course to the selected destination.

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

The **CLR** Key is used to erase information, remove map detail, or to cancel an entry. Press and hold the **CLR** key to immediately display the Default NAV Page.

The **ENT** Key is used to approve an operation or complete data entry. It is also used to confirm information, such as during power on.

The large **right** knob is used to select between the various page groups: NAV, WPT, AUX, or NRST. With the on-screen cursor enabled, the large **right** knob allows the pilot to move the cursor about the page. The large **right** knob is also used to move the target pointer right (turn clockwise) or left (counterclockwise) when the map panning function is active.

The small **right** knob 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 the pilot to enter data and/or make a selection from a list of options. The small **right** knob is also used to move the target pointer up (turn clockwise) or down (counterclockwise) when the map panning function is active.

BOTTOM ROW KEYS

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

The **OBS** Key is used to select manual or automatic sequencing of waypoints. Pressing the **OBS** Key selects OBS mode, which retains the current ‘active to’ waypoint as the navigation reference even after passing the waypoint (i.e., prevents sequencing to the next waypoint). Pressing the **OBS** Key again returns the unit to normal operation, with automatic sequencing of waypoints. When OBS mode is selected, the pilot may set the desired course to/from a waypoint using the ‘Select OBS Course’ pop-up window, or an external OBS selector on the HSI or CDI.

The **MSG** Key is used to view system messages and to alert the pilot to important warnings and requirements.

The **FPL** Key allows the pilot 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 **FPL** Key.

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

TO POWER ON THE GNS 430

1) Turn the **COM Power/Volume** Knob clockwise to turn the unit power on and set the desired radio volume.

2) A welcome page appears briefly while the unit performs a self test, followed sequentially by the Unit Type Page and the Software Versions Page. Then (depending on configuration) the Weather Page, the Traffic Page, the Aviation Data Page, the Land/Terrain/Obstacles Database Page, and the Situational Awareness Page are sequentially displayed.
3) Once the self-test concludes, the Database Confirmation Page is displayed, showing the effective and expiration dates of the Jeppesen database on the NavData® card. Press the ENT Key to acknowledge the Database Page and proceed to the Instrument Panel Self-test Page.

4) The Instrument Panel Self-test Page allows the pilot to verify that the GNS 430 is communicating properly with in-panel instruments. Compare on-screen indications with the information depicted on connected instruments, such as the CDI, HSI, RMI, and/or external annunciators. After verifying proper operation, press the ENT Key to display the Satellite Status Page.

**SCREEN LAYOUT (WINDOWS)**

The GNS 430’s display is divided into three separate ‘windows’ (or screen areas). The left 1/4 of the display provides a COM window (top two lines) and a VLOC window (bottom two lines). The right 3/4 of the display consists of a GPS window, which shows the various navigation, waypoint information and settings ‘pages’.

Each unique screen of information is referred to as a page. Pages are typically selected using the small and large right knobs, with the cursor removed from the GPS Window. See pages 6 and 7 for details on arrangement of the GNS 430’s main pages.

**CURSORS**

There are two separate cursors: a tuning cursor and a GPS window cursor. The tuning cursor is used to select the standby COM or VLOC frequency. If desired, press the small left knob to move the tuning cursor to VLOC Window. Then, use the small and large left knobs to select the desired frequency. The COM Flip-flop and VLOC Flip-flop keys are used to activate the selected frequency.
FREQUENCY SELECTION

1) If the tuning cursor is not currently in the desired window (COM or VLOC), press the small left knob momentarily.

2) Turn the large left knob to select the desired megahertz (MHz) value. For example, the ‘117’ portion of the frequency ‘117.80’.

3) Turn the small left knob to select the desired kilohertz (kHz) value. For example, the ‘.80’ portion of the frequency ‘117.80’.

4) To activate the selected frequency, press the COM Flip-flop Key for COM frequencies, or the VLOC Flip-flop Key for VLOC frequencies.

TO QUICKLY TUNE AND ACTIVATE THE 121.500 EMERGENCY CHANNEL

Press and hold the COM Flip-flop Key for approximately two seconds.

DATA ENTRY

Data is entered in the GPS Window using the large and small right knobs. The large right knob is used to move the cursor about the page. The small right knob is used to select individual characters for the highlighted cursor location.
The GNS 430’s main pages are divided into 4 separate page groups: NAV, WPT, AUX, and NRST. Each page group is comprised of multiple pages. The page groups are selected using the large right knob. The individual pages are selected using the small right knob.

**Main Page Groups**

<table>
<thead>
<tr>
<th>Page Groups</th>
<th>NAV Group</th>
<th>WPT Group</th>
<th>AUX Group</th>
<th>NRST Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAV Pages</td>
<td>7</td>
<td>10</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>WPT Pages</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUX Pages</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRST Pages</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The bottom right corner of the screen indicates which page group is currently being displayed (e.g., NAV, WPT, AUX, or NRST), the number of screens available within that group (indicated by the square icons), and the placement of the current screen within that group (indicated by a highlighted square icon).

**To Select the Desired Page Group**

Press and hold the CLR Key to select the Default NAV Page. Turn the large right knob to select the desired Page Group.

**To Select the Desired Page**

Turn the small right knob to select the desired page.

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**NAV Page Group**

The NAV Page Group includes seven pages.

- Default NAV
- Map
- TERRAIN (if configured)
- NAV/COM
- Position
- Satellite Status
- VNAV

**WPT Page Group**

The WPT Page Group includes ten pages.

- Airport Location
- Airport Runway
- Airport Frequency
- Airport Approach
- Airport Arrival
- Airport Departure
- Intersection
- NDB
- VOR
- User Waypoint
**AUX PAGE GROUP**

The AUX Page Group includes four pages.

- Flight Planning
- Utility
- Setup 1
- Setup 2

**NRST PAGE GROUP**

The NRST Page Group includes eight pages.

- NRST Airport
- NRST Intersection
- NRST NDB
- NRST VOR
- NRST User
- NRST Center
- NRST Flight Service
- NRST Airspace

**NOTE:** The flight plan pages are selected by pressing the FPL Key and using the small **right** knob to select the desired page.

**DIRECT-TO NAVIGATION**

**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 the **ENT** Key to confirm the selected waypoint, and press the **ENT** Key again to activate the direct-to function.
DIRECT-TO NAVIGATION

TO SELECT A DIRECT-TO DESTINATION FROM THE MAP PAGE

1) Select the Map Page from the NAV Page Group.

2) Press the small right knob to display a panning pointer.

3) Turn the small and large right knobs to place the panning pointer at the desired destination location.

4) If the panning pointer is placed on an existing airport, navaid, or user waypoint, the waypoint name is highlighted. Press the Direct-to Key and the ENT Key twice to navigate to the waypoint.

5) If the panning pointer is placed on an open location, press the Direct-to Key then press the ENT Key twice to create a ‘+MAP’ waypoint and navigate to it.

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) Turn the large right knob to highlight the facility name (second line) or the city (third line) field.

3) Use the small and large right knobs to enter the facility name or city location of the desired destination waypoint. When spelling the facility name or city, the GNS 430’s Spell’N’Find feature selects the first entry in the database based upon the characters the pilot has entered up to that point.

4) Continue turning the small right knob to scroll through any additional database listings for the selected facility name or city. If needed, use the small right knob to scroll backwards.

5) Press the ENT Key to confirm the selected waypoint, and press the ENT Key again to activate the direct-to function.
TO SELECT A NEARBY AIRPORT OR A FLIGHT PLAN WAYPOINT AS A DIRECT-TO DESTINATION

1) Press the Direct-to Key.
2) Turn the large right knob to highlight the nearest airport (NRST) or flight plan (FPL) field.
3) Turn the small right knob to display a window listing nearby airports or all waypoints in the active flight plan.
4) Continue turning the small right knob to scroll through the list and highlight the desired airport.
5) Press the ENT Key to confirm the selected waypoint, and press the ENT Key again to activate the direct-to function.

TO VIEW AIRPORT INFORMATION

1) Turn the large right knob to select the WPT Page Group. ‘WPT’ appears in the lower right corner of the screen.
2) Turn the small right knob to select the desired WPT page. Airport information is displayed on the first six WPT pages: airport location, airport runway, airport frequency, airport approach, airport arrival, and airport departure.
3) Press the small right knob to activate the cursor.
4) Use the small and large right knobs to enter the identifier of the desired airport.
5) Once the identifier is entered, the information for that airport appears on the page. Press the ENT Key to accept the selected identifier.
6) To view the other airport information pages, press the small right knob to remove the flashing cursor and turn the small right knob to select the desired page.
**TO VIEW AIRPORT INFORMATION BY FACILITY NAME OR CITY**

1) Select the Airport Location Page (see page 6).
2) Press the small right knob to activate the cursor.
3) Turn the large right knob to highlight the facility name (second line) or the city (third line) field.
4) Turn the small and large right knob to enter the facility name or city location of the desired destination waypoint. When spelling the facility name or city, the GNS 430’s spell’N’Find feature will select the first entry in the database based upon the characters that have been entered up to that point.

5) Once the identifier is entered, the information for that airport appears on the page. Press the **ENT** Key to accept the selected identifier.
6) To view the other airport information pages, press the small right knob to remove the flashing cursor and turn the small right knob to select the desired page.

**TO AUTO-TUNE A FREQUENCY FROM A LIST**

The GNS 430’s auto-tune feature allows the pilot to quickly select any database frequency in the GPS Window as the standby frequency. With a minimum of keystrokes, any frequency listed in the GPS Window can be transferred to the standby field of the COM or VLOC window.

1) Select the Airport Frequencies Page from the WPT Page Group (see page 6).
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 the **ENT** Key when finished.
4) Turn the large right knob to highlight the desired frequency.
5) Press the **ENT** Key to place the highlighted frequency in the standby COM or VLOC Window field (as appropriate).
6) To activate the selected frequency, press the COM Flip-flop or VLOC Flip-flop Key (as appropriate).
DEFAULT NAV PAGE

The following symbols are used on the Default NAV Page (directly below the CDI), to depict the ‘active leg’ of a flight plan or direct to:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄</td>
<td>Direct-to a Waypoint</td>
</tr>
<tr>
<td>➞</td>
<td>Course to a Waypoint, or Desired Course between Two Waypoints</td>
</tr>
<tr>
<td>⚪️</td>
<td>Procedure Turn</td>
</tr>
<tr>
<td>⚪️</td>
<td>Procedure Turn</td>
</tr>
<tr>
<td>⚪️</td>
<td>Vectors-to-Final</td>
</tr>
<tr>
<td>⚪️</td>
<td>DME Arc to the Left</td>
</tr>
<tr>
<td>⚪️</td>
<td>DME Arc to the Right</td>
</tr>
<tr>
<td>⚪️</td>
<td>Left-hand Holding Pattern</td>
</tr>
<tr>
<td>⚪️</td>
<td>Right-hand Holding Pattern</td>
</tr>
</tbody>
</table>

TO QUICKLY DISPLAY THE DEFAULT NAV PAGE

From any page, press and hold the CLR Key for approximately two seconds.

TO SELECT A DIFFERENT DATA ITEM FOR ANY DATA FIELD

1) With the Default NAV Page displayed, press the MENU Key to display the Default NAV Page Menu.

2) The ‘Change Fields?’ option is already highlighted, so press the ENT Key to select this option.

3) Use the large right knob to highlight the data field to be changed.
4) Turn the small **right** knob to display the list of available data items. Continue turning the small **right** knob to select the desired data item from the list.

5) Press the **ENT** Key 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.

**MAP PAGE**

The following symbols are used to depict the various airports and navaids on the Map Page:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="symbol" alt="Airport" /></td>
<td>Airport with hard surface runway(s); (primary runway shown)</td>
</tr>
<tr>
<td><img src="symbol" alt="Airport" /></td>
<td>Airport with soft surface runway(s) only</td>
</tr>
<tr>
<td><img src="symbol" alt="Private Airfield" /></td>
<td>Private Airfield</td>
</tr>
<tr>
<td><img src="symbol" alt="Heliport" /></td>
<td>Heliport</td>
</tr>
<tr>
<td><img src="symbol" alt="VOR" /></td>
<td>VOR</td>
</tr>
<tr>
<td><img src="symbol" alt="VOR/DME" /></td>
<td>VOR/DME</td>
</tr>
<tr>
<td><img src="symbol" alt="DME" /></td>
<td>DME</td>
</tr>
<tr>
<td><img src="symbol" alt="Localizer" /></td>
<td>Localizer</td>
</tr>
<tr>
<td><img src="symbol" alt="Intersection" /></td>
<td>Intersection</td>
</tr>
<tr>
<td><img src="symbol" alt="VORTAC" /></td>
<td>VORTAC</td>
</tr>
<tr>
<td><img src="symbol" alt="TACAN" /></td>
<td>TACAN</td>
</tr>
<tr>
<td><img src="symbol" alt="NDB" /></td>
<td>NDB</td>
</tr>
<tr>
<td><img src="symbol" alt="Locator Outer Marker" /></td>
<td>Locator Outer Marker</td>
</tr>
</tbody>
</table>

**TO SELECT A MAP RANGE**

1) Press the up arrow of the **RNG** Key to zoom out to a larger map area.

2) Press the down arrow of the **RNG** Key to zoom in to a smaller map area and more detail.
TO SELECT A DIFFERENT DATA ITEM FOR ANY DATA FIELD

1) With Map Page displayed, press the MENU Key to display an options menu.
2) Turn the large right knob to highlight ‘Change Fields?’ and press the ENT Key.
3) Turn the large right knob to highlight the data field to be changed.
4) Turn the small right knob to select the desired type of data for this field and press the ENT Key.
5) Press the small right knob to remove the cursor.

TO TURN THE DATA FIELDS OFF AND DISPLAY A FULL SCREEN MAP

1) With the Map Page displayed, press the MENU Key to display an options menu.
2) Turn the large right knob to highlight ‘Data Fields Off?’ and press the ENT Key.

3) To re-display the data fields, follow steps 1 and 2, but instead select ‘Data Fields On?’ from the options menu.

TO QUICKLY DECLUTTER THE MAP DISPLAY

Press the CLR Key momentarily (as often as needed) to select the desired amount of map detail.

Map Detail Level
TO INHIBIT TERRAIN:

1) Select the TERRAIN Page and press the MENU Key. ‘Inhibit Terrain?’ is selected by default.

2) Press the ENT Key. The ‘TER INHB’ annunciation is displayed in the TERRAIN annunciator field when TERRAIN is inhibited.

NOTE: Inhibit mode deactivates TERRAIN alerting when deemed unnecessary by the pilot. Flying VFR into an area where unique terrain exists could cause the system to annunciate nuisance alerts. Pilots should use discretion when inhibiting the TERRAIN system and always remember to enable the system when appropriate.

NAVCOM PAGE

The NAVCOM Page provides a list of the airport communication and navigation frequencies at the departure, enroute, and arrival airports.

TO SELECT A FREQUENCY LIST FOR A DEPARTURE, ENROUTE, OR ARRIVAL AIRPORT

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

2) Turn the large right knob to place the cursor on the airport identifier field (top line on the NAVCOM Page).

3) Turn the small right knob to select the desired airport and press the ENT Key.
TO SCROLL THROUGH THE LIST OF FREQUENCIES

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

TO AUTO-TUNE A FREQUENCY FROM THE NAVCOM PAGE

1) Highlight the desired frequency by scrolling through the list of frequencies, as described in the preceding procedure.
2) To place a frequency in the standby field of the COM or VLOC Window, highlight the desired frequency and press the ENT Key.

BOTTOM ROW ANNUNCIATORS AND MESSAGES

- **TERRAIN Annunciator:** TERRAIN, TERRAIN (Flashing), TER FAIL, TER INHB, or TER N/A (see Pilot’s Guide for detailed information)
- **CDI/RAIM Mode:** Approach, Enroute, Oceanic Terminal, or ‘0.30’ (for VLOC approaches)
- **Message Annunciator:** On, Flashing (new message), or blank (no message)
- **Navigation Source:** GPS or VLOC
- **Integrity Failure or Position Warning (‘WARN’) Annunciator:** RAIM protection limit failure
- **Page Indicator:** NAV/ WPT/AUX/NRST/FPL/ DRCT/PROC/MSG, Waypoint Alert (‘NEXT DTK’), or Turn Advisory (‘TURN TO’), etc.

TO VIEW A LIST OF NEAREST AIRPORTS

1) Turn the large right knob to select the NRST Page Group. ‘NRST’ will appear in the lower right corner of the screen.
2) If necessary, turn the small right knob to select the Nearest Airport Page.

TO SCROLL THROUGH THE LIST OF NEAREST AIRPORTS

1) Press the small right knob to activate the cursor.
2) Turn the large right knob to scroll through the list. The scroll bar along the right-hand side of the page will indicate which part of the list is currently being viewed.
3) To remove the flashing cursor, press the small right knob.
TO VIEW ADDITIONAL INFORMATION FOR A NEARBY AIRPORT

1) Highlight the identifier of the desired airport by scrolling through the list, as described in the preceding procedure.
2) Press the ENT Key to display the Airport Location Page for the selected airport.
3) 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. Turn 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.
4) To return to the Nearest Airport Page, verify that ‘Done?’ is highlighted by the flashing cursor and press the ENT (or CLR) Key.

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) Turn the large right knob to highlight the nearest airport (NRST) field.
3) Turn the small right knob to display a window showing up to nine nearby airports.
4) Continue turning the small right knob to scroll through the list and highlight the desired airport.
5) Press the ENT Key to confirm the selected airport. Press the ENT Key again (with ‘Activate?’ highlighted) to activate the direct-to function.
TO CREATE A NEW FLIGHT PLAN

1) Press the FPL Key and turn the small right knob to display the Flight Plan Catalog Page.
2) Press the MENU Key to display the Flight Plan Catalog Page Menu.
3) Turn the large right knob to highlight ‘Create New Flight Plan?’ and press the ENT Key.
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 the ENT Key.
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 Page.

TO NAVIGATE A FLIGHT PLAN

1) Press the FPL Key and turn the small right knob to display the Flight Plan Catalog Page.
2) Press the small right knob to activate the cursor.
3) Turn the large right knob to highlight the desired flight plan and press the MENU Key to display the Flight Plan Catalog Page Menu.
4) Turn the large right knob to highlight ‘Activate Flight Plan?’ and press the ENT Key.

TO STOP NAVIGATING A FLIGHT PLAN

1) Press the FPL Key
2) Press the MENU Key to display the Flight Plan Catalog Page Menu.
3) Turn the large right knob to highlight ‘Delete Flight Plan?’ and press the ENT Key.
4) With ‘Yes?’ highlighted, press the ENT Key to delete the flight plan.
TO EDIT A FLIGHT PLAN

1) Press the FPL Key and turn the small right knob to display the Flight Plan Catalog Page.

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

3) Turn the large right knob to highlight the desired flight plan and press the ENT Key.

4) To add a waypoint to the flight plan: Turn the large right knob to select the point to add the new waypoint. (If an existing waypoint is highlighted, the new waypoint is placed directly in front of this waypoint.)

   a) Use the small and large right knobs to enter the identifier of the new waypoint and press the ENT Key.

5) To delete a waypoint from the flight plan: Turn the large right knob to select the waypoint to be deleted and press the CLR Key to display a ‘remove waypoint’ confirmation window.

   a) With ‘Yes’ highlighted, press the ENT key to remove the waypoint.

6) Once all changes have been made, press the small right knob to return to the Flight Plan Catalog Page.

TO SELECT AN APPROACH

1) Press the PROC Key to display the Procedures Page.

2) Turn the large right knob to highlight ‘Select Approach?’ and press the ENT Key.

   3) A window appears listing the available procedures. Turn the large right knob to highlight the desired procedure and press the ENT Key.

   4) A second window appears listing the available transitions. Turn the large right knob to highlight the desired transition waypoint and press the ENT Key. (The approach ‘Vectors’ option assumes the pilot will receive vectors to the final course segment of the approach and will provide navigation guidance relative to the final approach course.)
5) Turn the large **right** knob to highlight ‘Load?’ or ‘Activate?’ and press the **ENT** Key. (‘Load?’ adds the procedure to the flight plan without immediately using it for navigation guidance. This allows the pilot to continue navigating the original flight plan, but keeps the procedure available on the Active Flight Plan Page for quick activation when needed.)

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 receivers and external CDI (or HSI) for primary navigation. To confirm this reminder, highlight ‘Yes?’ and press the **ENT** Key.

Not all approaches in the database are approved for GPS use. As the pilot selects 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 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).

A selected approach may be **activated** or **loaded**. 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.

In many cases, it may be easiest to ‘Load’ the full approach while still some distance away, enroute to the destination airport. Later, if vectored to final, use the following steps to select ‘Activate Vector-To-Final’—which makes the inbound course to the final approach fix (FAF) waypoint active. Otherwise, activate the full approach using the ‘Activate Approach?’ option.

**TO ACTIVATE AN APPROACH**

1) With an approach loaded in the active flight plan, press the **PROC** Key to display the Procedures Page.

2) Turn the large **right** knob to highlight ‘Activate Approach?’ and press the **ENT** Key.

The ‘Activate Vector-To-Final?’ option allows the pilot to activate the final course segment of the approach. This option assumes the pilot will receive vectors to the FAF and provides guidance to intercept the final course, before reaching the FAF.
FLYING AN APPROACH

TO ACTIVATE THE APPROACH WITH VECTORS TO FINAL

1) With an approach loaded in the active flight plan, press the PROC Key to display the Procedures Page.

2) Turn the large right knob to highlight ‘Activate Vector-To-Final?’ and press the ENT Key.

GUIDELINES FOR FLYING AN APPROACH

Due to the variety of available approach procedures, the specific steps required will vary according to the approach selected. Keep the following general guidelines in mind while flying the approach:

- The pilot will typically select the destination airport as the last waypoint in the active flight plan or using the Direct-to Key. Doing so ensures that the desired waypoint will automatically appear when choosing the ‘Select Approach?’ option from the Procedures Page. (Otherwise, first choose the airport, then the approach procedure.)

- When a localizer-based approach (such as an ILS) is loaded, the desired frequency is automatically placed in standby on the VLOC window. To activate the frequency, press the VLOC Flip-flop Key.

- If the VLOC receiver will be used for the approach, be sure to switch the external CDI (or HSI) to ‘VLOC’ by pressing the CDI Key (‘VLOC’ will appear directly above the CDI Key; see page 15).

- An ‘Auto ILS CDI’ setting provides automatic switching to ‘VLOC’ once established inbound on the final course segment of an approach.

- As the aircraft progresses to each approach waypoint, a waypoint alert message (‘NEXT DTK # # #º’) will appear in the lower right corner of the display (see page 15).

- When the pilot should begin a course change (via a standard rate turn), turn advisories (‘TURN TO # # #º’) will appear in the lower right corner of the display (see page 15).

- For GPS-based approaches, receiver autonomous integrity monitoring (RAIM) will monitor satellite conditions and alert the pilot using an ‘INTEG’ or ‘WARN’ annunciation at the bottom left corner of the display (see page 15) if protection limits cannot be maintained. If this occurs, the GPS receiver should not be used for primary navigation guidance. Revert to an alternate navigation source, or select an alternate destination airport.

- Within 30 nautical miles of the destination airport, CDI scaling will transition from 5.0 nautical miles (enroute mode, ‘ENR’) to 1.0 nautical mile (terminal mode, ‘TERM’) or when leaving the departure airport, from 1.0 nm to 5.0 nm. Within 2.0 nautical miles of the final approach fix, GPS-based approaches will see a second transition from 1.0 nautical mile to 0.3 nautical mile (approach mode, ‘APR’).
• A ‘START PROC TRN’ prompt will appear in the lower right corner of the display to advise the pilot when the aircraft is at a safe distance to initiate a procedure turn. The procedure turn is displayed on the Map Page, but guidance through the turn itself is not provided.

• Alerts for proper holding pattern entry (e.g., ‘HOLD DIRECT’) are displayed in the lower right corner of the display. Waypoint sequencing is automatically suspended (indicated by ‘SUSP directly above the OBS Key) at the holding waypoint. Press the OBS Key again to return to automatic waypoint sequencing. For course reversals, waypoint sequencing is suspended for one trip around the holding pattern only (after which it will return to automatic waypoint sequencing).

• The CDI will guide the pilot through a DME arc. Just keep the needle centered to fly along the arc. When using an autopilot, the course select on the CDI (or HSI) must be periodically updated with the desired track (DTK).

• When crossing the missed approach point, ‘SUSP’ will appear above the OBS Key, indicating that automatic sequencing of waypoint is suspended at the missed approach point, and a ‘from’ indication will appear on the CDI (or HSI).

TO FLY A MISSED APPROACH

1) Press the OBS Key. The next waypoint in the approach (MAHP; in this case ‘SWARM’ intersection) is automatically offered as the destination waypoint.

2) Follow the missed approach procedures, as published on the approach plate, for proper climb and heading instructions.

3) An alert message in the lower right-hand corner of the screen recommends entry procedures for the holding pattern (e.g., ‘HOLD TEARDROP’). When flying the holding pattern, a timer appears on the Default NAV Page. The timer automatically resets on the outbound side of the hold when the aircraft turns abeam the hold waypoint. The timer again resets as the pilot turns inbound (within approximately 30° of the inbound course). This allows use of standard timing (typically one minute) to fly the inbound and outbound legs of the hold.

4) The GNS 430 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.)