GARMIN

G1000™

multi function display

pilot's guide for Cessna Nav III

Record of Revisions			
Revision	**Date of Revision**	**Revision Page Range**	**Description**
A	12/15/04	8-1 – 8-163	Initial release.

8A.1 INTRODUCTION

This G1000 Pilot's Guide describes and explains the operation of the Multi Function Display (MFD) as installed in Cessna Nav III aircraft.

DESCRIPTION

The display portion of the G1000 Integrated Cockpit System installed in Cessna Nav III aircraft consists of two 10.4-inch liquid crystal displays (LCDs). During normal operation, the right display is configured as the Multi Function Display (MFD).

OPTIONAL INTERFACES

The following optional interfaces are described in the G1000 Multi Function Display Optional Interface Addendum, P/N 190-00470-00:

- L-3 STORMSCOPE® WX-500 Series II Weather Mapping Sensor
- L-3 SKYWATCH® Traffic Advisory System (Model SKY497)
- L-3 SKYWATCH® HP Traffic Advisory System (Model SKY899)
- Honeywell® KTA870 TAS/KMH880 Multi-Hazard Awareness System
- Ryan TCAD 9900B and 9900BX
- GDL 69/69A XM® Radio System

NOTE: *All visual depictions contained within this MFD Pilot's Guide, including screen images of the G1000 panel and displays, are subject to change and may not reflect the most current G1000 system software. Depictions of equipment may differ slightly from the actual equipment.*

MFD POWER-UP

See the G1000 System Overview Pilot's Guide for system power-up information.

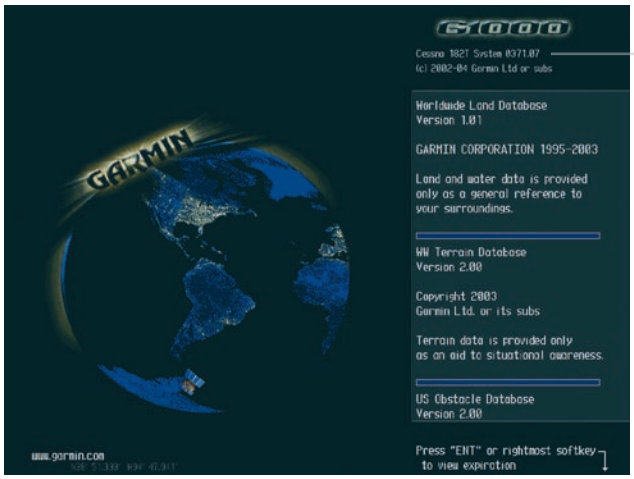

Figure 8A.1.1 MFD Power-up Page

Power-up Page Information

The Power-up Page displays general system information such as software version and database versions to the pilot upon power-up of the G1000 system. The Power-up Page displays the following data:

- Product name
- System software version number
- Copyright string
- Company name
- Company web page
- Company latitude and longitude location
- Checklist filename and copyright information or text indicating that no checklist file is present
- Land database name, version, copyright information, and warning information if land database is present; otherwise, if no land database is present, text indicating that no land database is present
- Terrain database name, version, copyright information, and warning information if terrain database is present; otherwise, if no terrain database is present, text indicating that no terrain database is present
- Aviation database name, version, effective dates, and copyright information if aviation database is present; otherwise, if no aviation database is present, text indicating that no aviation database is present
- If the aviation database is out of date, text that states the aviation database is out of date
- If the airframe allows pilot created pilot profiles then the active profile is displayed
- Obstacle database name, version, copyright information, and warning information if obstacle database is present; otherwise, if no obstacle database is present, text indicating that no obstacle database is present.

Power-up Page Operations

The pilot can change the active profile (see System Setup Section). To acknowledge the Power up Page information and proceed to the Navigation Map Page press the **ENT** key or the rightmost softkey twice.

MFD BACKLIGHTING

See the Primary Flight Display Pilot's Guide for instructions on adjusting MFD backlighting.

MFD SOFTKEYS

The MFD softkeys are located below the display screen and provide control over flight management functions including GPS and NAV management, engine and airframe monitoring, terrain, and traffic. Figure 8.1.3 shows an MFD flowchart identifying what functions are available via the softkey labels.

The MFD softkeys perform the following functions:

ENGINE – Pressing the **ENGINE** softkey makes available the **LEAN** and **SYSTEM** softkeys which in turn access the Lean Page and the System Page, respectively.

MAP – pressing the **MAP** softkey enables the following softkeys:

TRAFFIC – pressing the **TRAFFIC** softkey displays/removes Mode S Traffic on the Navigation Map.

TOPO – pressing the **TOPO** softkey displays or removes topographic information on the Navigation Map.

TERRAIN – pressing the **TERRAIN** softkey displays/removes terrain information on the Navigation Map.

BACK – pressing the **BACK** softkey displays the ENGINE and MAP top level softkeys.

DCLTR (declutter) – pressing the **DCLTR** softkey removes map information in three levels.

CHKLIST (checklist) – pressing the **CHKLIST** softkey displays the Checklist Page.

ELECTRONIC CHECKLISTS

The G1000 Multi Function Display installed in the Cessna Nav III provides checklists which allow a pilot to quickly find the proper procedure on the ground and during each phase of flight.

NOTE: *The checklist information described in this section is not intended to replace the checklist information described in the Nav III Information Manual and the Pilot Safety and Warning Supplements document.*

NOTE: *Garmin is not responsible for the content of the checklists. User-defined checlists are created by the aircraft manuafacturer. Additionally, modifications or updates to the checklists are corrdinated through the aircraft manaufacturer. The user cannot edit the checklists.*

Displaying the Checklist Page

The Power-up Page displays the current checklist file that is installed for the NAV III aircraft. If no checklist is present, then the Power Up Page displays the text "CHECKLIST FILE NOT PRESENT" and the **CHKLIST** softkey is greyed out.

To select the Checklist Page:

1. From any page, press the **CHKLIST** softkey.

Selecting a Procedure Group

Depending on the specific airframe, there are a certian number of groups of procedures with their respective checklists available to the pilot.

To select a procedure group:

1. Press the **CHKLIST** softkey.
2. Turn the **large FMS** knob to select the 'GROUP' field.
3. Turn the **small FMS** knob to select the desired procedure and press the **ENT** key.

Selecting a Checklist within the Procedure Group

1. Turn the **large FMS** knob to select the 'Checklist' field.
2. Turn the **large or small FMS** knob to select the desired checklist and press the **ENT** key.

Selecting a Checklist Item

Two methods are available to select a checklist item: (1) pressing the **ENT** key; or (2) pressing the **DONE** softkey. (1) Pressing the **ENT** key:

With the desired checklist displayed, turn the **large or small FMS** knob to move up and down the checklist and highlight an item with a hollow white rectangle. The default color for non-selected checklist items is blue and once the item is highlighted, the color turns white. To select a checklist item that is highlighted, press the **ENT** key. The selected item turns green in color again for ease of identification, and then a checkmark is placed in the box next to the item. As an item is selected, the next item is automatically highlighted for selection. (2) Pressing the **DONE** Softkey: Pressing the **DONE** softkey produces the same results as pressing the **ENT** key.

NOTE: All warnings are displayed in yellow for ease of identification.

Removing the Checkmark from a Checklist Item

Press the **CLR** key to remove a checkmark from an item.

Advancing to the Next Checklist

Once the last item in a checklist is selected, the 'GO TO THE NEXT CHECKLIST?' text is highlighted. Press the **ENT** key to advance to the next checklist displayed.

One-Button Access to Emergency Procedures

The **EMERGENCY** softkey is available at all times when the checklist page is displayed. Press the **EMERGENCY** softkey at any time to immediately access the emergency procedures.

Exiting the Checklist Page

The **EXIT** softkey is available as long as the Checklist Page is displayed. Press the **EXIT** softkey or momentarily hold down the **CLR** key at anytime to exit the Checklist Page and return to the last page that was displayed before the Checklist Page was selected.

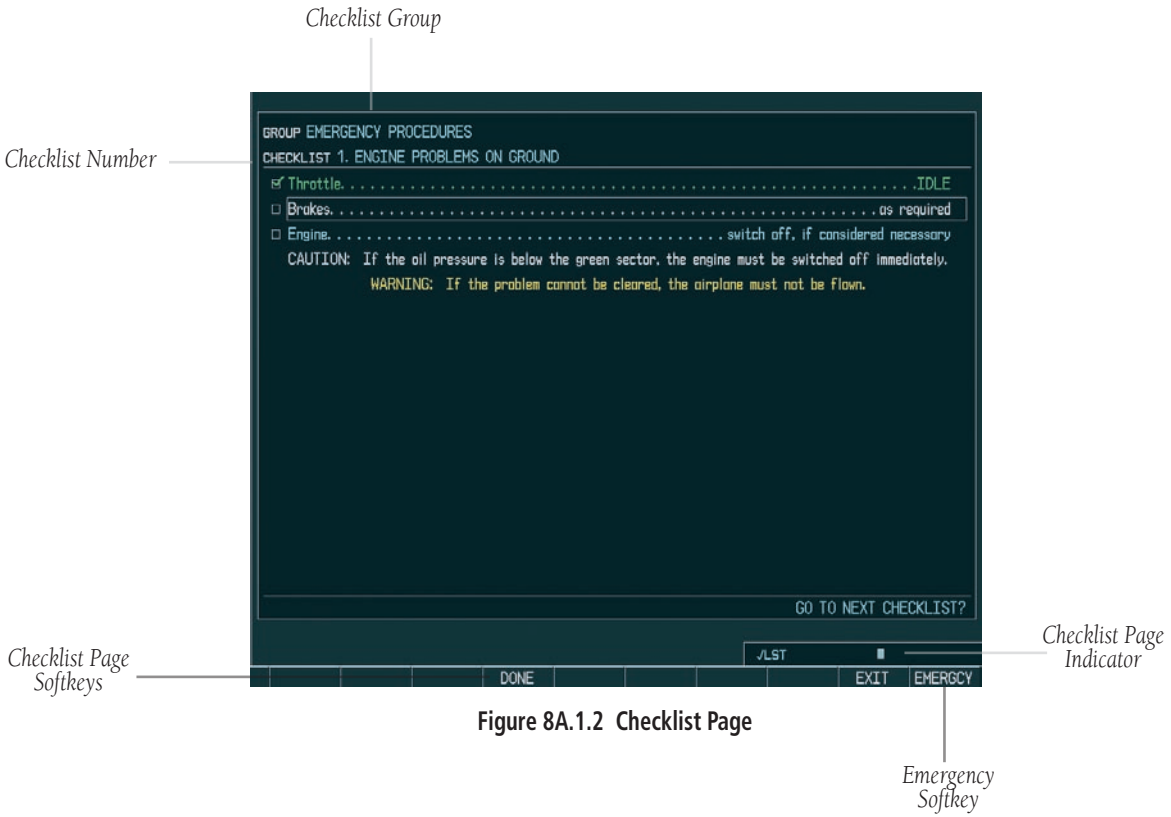

Figure 8A.1.2 Checklist Page

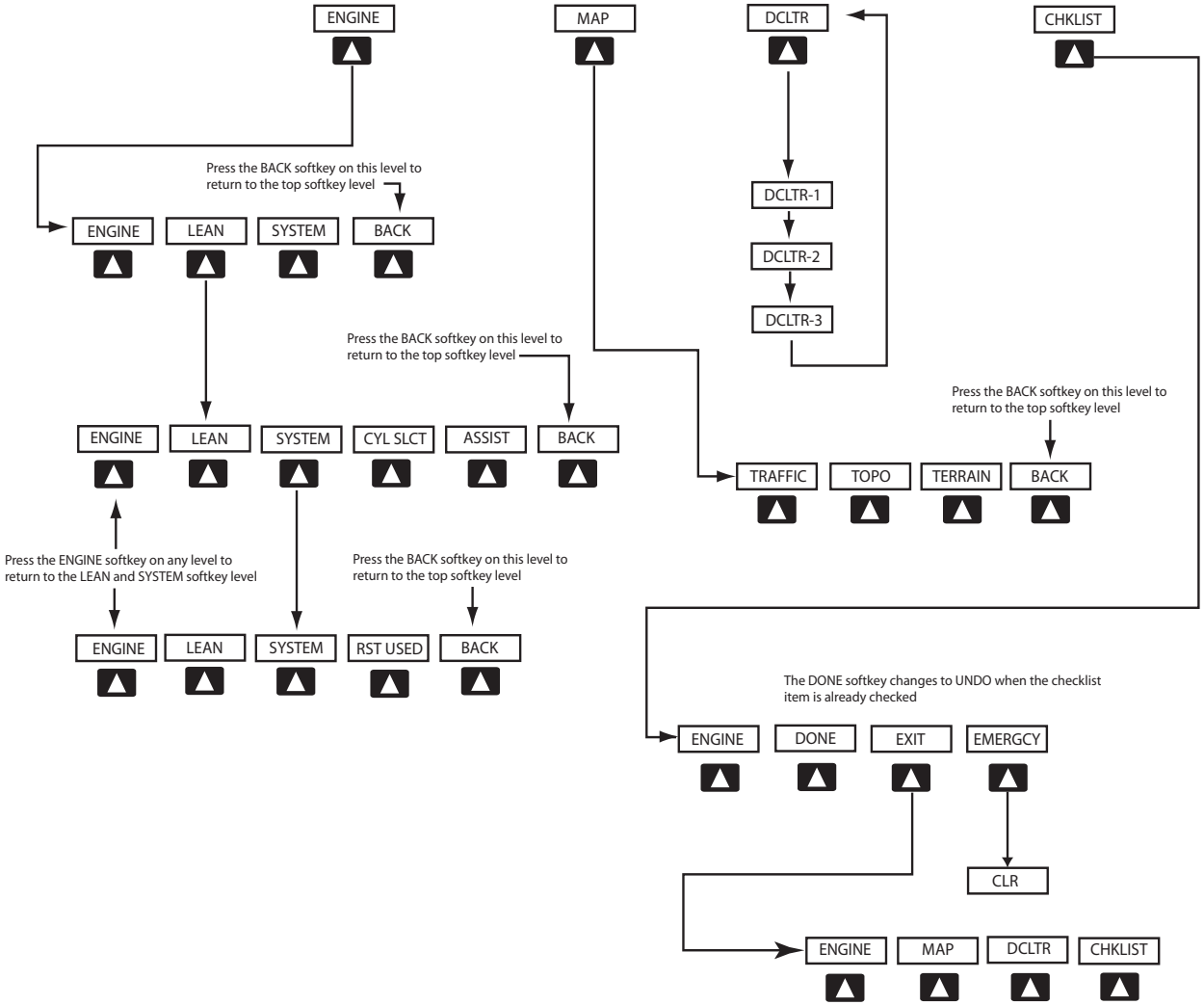

Figure 8A.1.3 MFD Softkeys

MFD PAGE GROUPS

The MFD displays GPS/Navigation flight information in four main page groups:

- **Map** (MAP):
  Navigation Map Page
  Traffic Map Page
  Terrain Proximity Page
- **Waypoint** (WPT) :
  Airport Information Page
  Intersection Information Page
  NDB Information Page
  VOR Information Page
  User Waypoint Information Page
- **Auxiliary** (AUX):
  Trip Planning Page
  Utility Page
  GPS Status Page
  System Setup Page
  System Status Page
- **Nearest** (NRST):
  Nearest Airports Page
  Nearest Intersections Page
  Nearest NDB Page
  Nearest VOR Page
  Nearest User Waypoints Page
  Nearest Frequencies Page
  Neatest Airspaces Page

To select a specific page group:

1. Turn the **large FMS** knob until the desired page group is selected.

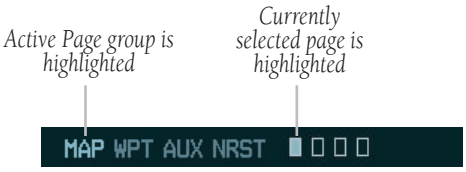

Figure 8A.1.4 Page Group Window

To select a different page within the group:

1. Turn the **small right FMS** knob. As the knob is turned, the bottom right corner of each page indicates the page group that is currently being displayed (e.g., MAP or NRST, etc.), the number of pages available within that group (indicated by rectangle icons) and the placement of the current page within that group (indicated by a solid cyan rectangle icon). The page group and active page title window are displayed below the status bar.

Figure 8A.1.5 Page Title Window

WORKING WITH MENUS

Much of the operation of the G1000 MFD is accomplished using a menu interface. The G1000 has a bezel-mounted dedicated menu key (**MENU**) when pressed, displays a context-sensitive list of options. This options list allows the pilot to access additional features or make settings changes which specifically relate to the currently displayed page. Some menus provide access to additional submenus that are used to view, edit, select, and review options. Some menus display 'NO OPTIONS' when there are no options for the page selected.

The main keys which are used in association with all page group operations are listed below:

- **CLR –** erases information or cancels an entry. Press and hold **CLR** to immediately display the Navigation Map Page, regardless of the page currently displayed.
- **ENT –** accepts a menu selection or data entry. Approves an operation or completes data entry. Also confirms information.
- **BACK –** resets the MFD softkeys to their default settings (ENGINE, MAP, DCLTR, MODE, VIEW, etc).
- **DCLTR –** removes information from the moving map in a progressive manner with each key-press.
- **MENU –** displays a context-sensitive list of options that allows access to additional features or that allows the pilot to change the settings which relate to the currently displayed page.

NOTE: *Data is entered using the large and small FMS knob. Practice with them to become efficient at entering data. This will greatly reduce the amount time spent operating the MFD in flight.*

If there are more options than can be displayed turn the **small or large FMS** knob to scroll through the list to identify them. In all cases, once the menu is displayed the **small or large FMS** knob is turned to highlight an item and the **ENT** key is pressed to select that item or the **CLR** key removes the menu and cancels the operation. ***Pressing the softkeys does not display a menu or submenu.***

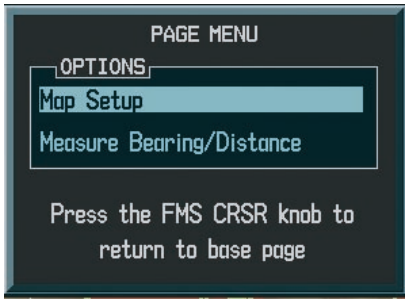

Figure 8A.1.6 Menu with Options

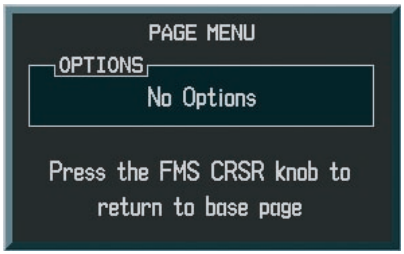

Figure 8A.1.7 Menu with No Options

This page intentionally left blank.

8A.2 NAVIGATION MAP PAGE

***WARNING**: Use of the Navigation Map Page for pilotage navigation is prohibited. The Navigation Map is intended only to enhance situational awareness. Navigation is to be conducted using only current charts, data, and authorized navigation facilities.*

The Navigation Map Page is the first page in the map page group and provides the pilot with the following GPS/Navigation display capability:

- Map display showing airports, navaids, airspaces, land data (highways, cities, lakes, rivers, borders, etc.) with names (labels)
- Map pointer information (distance and bearing to pointer, location of pointer, name and other pertinent information)
- TIS Traffic Display
- Obstacle Display
- Map Zoom Range Legend
- Wind Direction and Speed
- Heading Indication
- Aircraft icon representing present position
- Icons for enabled map features
- Track Vector
- Topography Scale
- Fuel Range Ring
- Topography Data
- Terrain Proximity Data

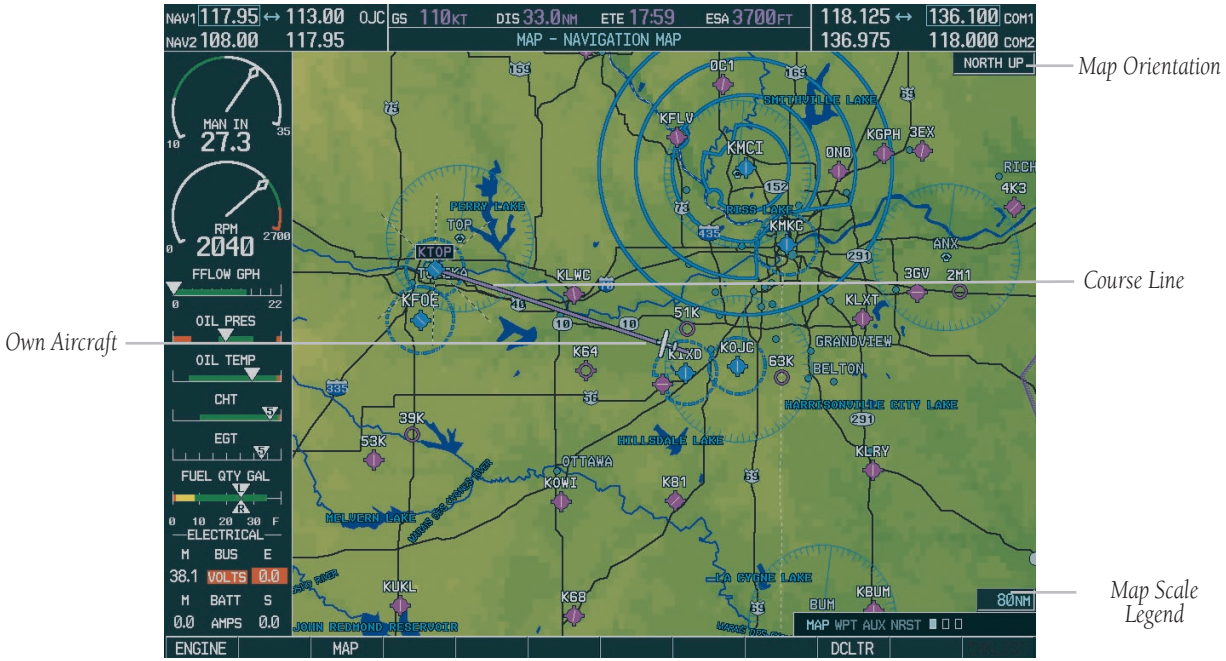

Figure 8A.2.1 Basic Navigation Map Page

To select the Navigation Map Page:

1. Turn the **large FMS** knob to select the Map Page group.
2. Turn the **small FMS** knob to select the Navigation Map Page. The page group name and page title is displayed below the navigation status bar; MAP – NAVIGATION MAP. In addition to turning the **large and small FMS** knobs, the Navigation Map Page can be selected from any page by pressing and momentarily holding the **CLR** (DFLT MAP) key.

NAVIGATION MAP PAGE OPERATIONS

The following Navigation Map Page operations can be performed:

- Changing the Map Orientation
- Selecting a Map Range
- Using the Auto Zoom Feature
- Identifying Aviation Map Data
- Decluttering the Map
- Panning the Map
- Displaying Topographic Information on the Navigation Map Page
- Displaying Terrain Information on the Navigation Map Page
- Displaying Traffic on the Navigation Map Page
- MFD Navigation Status Window
- Navigation Map Page Options Menu

Changing the Map Orientation

See the map setup section of this MFD Pilot's Guide for instructions on how to change the map orientation.

Selecting a Map Range

The Navigation Map Page can be set to 23 different range settings from 500 feet to 2000 nautical miles. The current range is indicated in the lower right corner of the Navigation Map Page and represents the **top-to-bottom distance covered by the map**. To change the map range turn the joystick counter-clockwise to zoom in, turn it clockwise to zoom out.

Using the Auto Zoom Feature

The autozoom feature automatically adjusts the map from an enroute range of 2000 nm through each lower range, stopping at a range of 1.5 nm as the aircraft approaches the destination waypoint. See the Map Setup section in this MFD Pilot's Guide for instructions on enabling/disabling the autozoom feature.

Figure 8A.2.2 Map Range

Identifying Aviation Map Data

The following aviation data is displayed on the Navigation Map Page:

Airport Symbols:

- Non-towered airports (purple in color).
- Towered airports (blue in color).
- Non-serviced airports (displayed as solid circle icons). See Appendix F for symbology definitions.
- Serviced airports (displayed as circles with protruding tick marks pointing to the top, bottom, left, and right portions of the screen).

Classification:

- Unclassified airports (displayed with a question mark "?" character centered within the airport symbol).
- Restricted airports (displayed with the letter "R" centered within the airport symbol).
- Hard surface public airports (displayed with the airports longest runway oriented according to the direction in which it runs centered within the airport symbol).
- Heliports (displayed with the letter "H" centered within the heliport symbol).
- Soft surface public airports (displayed with a hollow circle in the center of the airport symbol).

Airspace:

The Navigation Map Page displays airspace as one of the following colors:

- **Blue**:
  ICAO control area
  Class B, Alert area
  Caution area, Danger area, Prohibited area
  Restricted area, Training area
  Unknown area, Warning area
  Terminal Zone Airspace (ATZ), Class D
- **Purple**:
  Class C
  ICAO terminal control area
  Terminal radar service area (TRSA)
  Mode C area
  Military operations area (MOA)
  Mode C
  Class A
  Class E

Line Style:

The Navigation Map Page displays airspace as one of the following line styles:

- **Solid line**:
  Class C
  ICAO control area
  ICAO terminal control area
  Class B, Terminal radar service area
  Mode C, Class A
- **Dashed line**:
  Mode C tower area
  Class D, Class E
- **Consecutive parallel lines forming a boundary defining the airspace**:
  Military operations area (MOA)
  Warning area, Alert area, Caution area
  Danger area, Prohibited area
  Restricted area, Training area
  Unknown area, Terminal Zone Airspace (ATZ)

NOTE: *See Appendix F for a complete description of the aviation map symbology used on the Navigation Map Page.*

Decluttering the Map

The Navigation Map Page can be quickly decluttered by repeatedly pressing the **DCLTR** softkey until the desired detail is displayed. The declutter level label is displayed above the **DCLTR** softkey. Note that during an instrument approach, automatic decluttering takes place. Table 8.2.1 lists the features that are turned off at each declutter level.

***NOTE**: Some of the map features are automatically removed at certain zoom ranges due to the map setup configuration for each map item.*

***NOTE**: "SUA" listed in the table below stands for Special Use Airspace. These are controlled airspaces, military zones, etc.*

Map Features always displayed	No Declutter	Declutter (–1)	Declutter (-2)	Declutter (-3)
Flight plan route lines	All Map features are visible	River/Lakes Names Only	User waypoints	Large Airports
Flight plan route waypoints		Land/Country Text	Latitude/Longitude Grid	Medium Airports
Rivers/Lakes		Large City	VORs	Small Airports
Topography data		Medium City	NDBs	SUA Group 3
Terrain Proximity data		Small City	Intersections	SUA Group 4
Map Borders		----------	SUA Group 0	Runway Labels
Bearing Line		Freeways	SUA Group 1	
Lightning Strike data (when Stormscope installed)		National Highways	SUA Group 2	
Nexrad data		Local Highways	SUA Group 5	
Traffic Symbols		Local Roads	SUA Group 6	
Traffic Labels		Local Road Labels	SUA Group 7	
		Railroads	Obstacles	
		Major Political Boundaries		

Table 8A.2.1 Map Declutter Levels

Map Panning

Map panning moves the map beyond its current limits without adjusting the map range. When the panning function is selected by pushing in the joystick, a panning arrow flashes on the map display. A window also appears at the top of the map display showing the latitude/longitude position of the pointer, the bearing and distance to the pointer from the aircraft's present position, and the elevation of the land at the position of the pointer. When the panning arrow crosses an airspace boundary, the boundary is highlighted and airspace information is displayed at the top of the display. The information includes the name and class of airspace, the ceiling in feet expressed in Mean Seal Level (MSL), and the floor in feet MSL.

***NOTE:** The airspace boundary stays highlighted for approximately four seconds before returning to normal shading.*

To pan the map:

1. Push in the **joystick** to display the panning arrow.
2. Push in and move the **joystick** in the general direction of the desired destination to place the panning arrow at the destination location. When the panning arrow is placed on an object, the name of the object is highlighted (even if the name wasn't originally displayed on the map). This feature applies to everything displayed on the map except route lines. When any map feature or object is selected on the map display, features or objects are displayed in the box located at the top of the display. From here, the pilot can designate the waypoint as the Direct-to destination. When the panning arrow crosses an airspace boundary, the boundary is highlighted and airspace information is displayed at the top of the display.
3. To remove the panning arrow and return to the present position, push in the **joystick**.

Figure 8A.2.3 Map Panning

Displaying Topographic Data on the Navigation Map Page

The Navigation Map Page displays various shades of topography land colors representing the rise and fall of land elevation similar to aviation sectional charts. The Navigation Map Page can display a topographic scale representing various key points of terrain elevation colors with their associated elevation value labeled.

To display topographic data on the Navigation Map Page:

1. Press the **MAP** softkey.
2. Press the **TOPO** softkey. Topo data can also be displayed on the Navigation Map Page by using the 'On/Off' topo data map setup feature. See the Navigation Map Page setup menu section.

***NOTE**: Press the* **TOPO** *softkey again to remove topo data from the Navigation Map Page. When topo data is removed from the page, the Jeppesen Nav data is presented on a black background.*

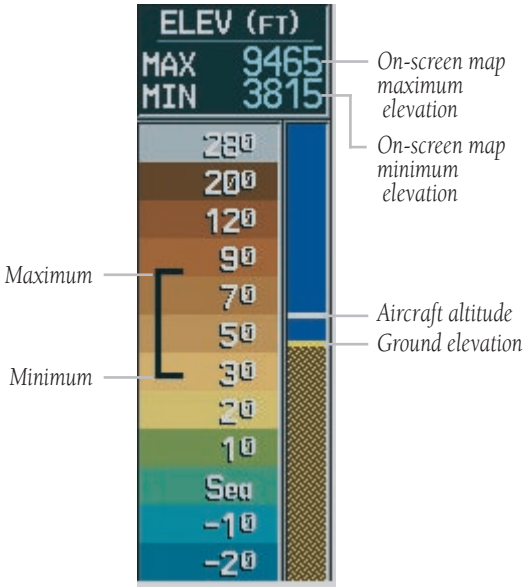

Figure 8A.2.4 Topography Range

Displaying Terrain Information on the Navigation Map Page

Terrain data can be displayed on the Navigation Map Page by pressing the **TERRAIN** softkey. Terrain symbology (mountain icons) appear next to the map range in the bottom right corner of the page indicating the presence of terrain data on the map. See the Terrain Proximity Page section for a terrain color interpretation chart.

To display terrain data on the Navigation Map Page:

1. Press the **MAP** softkey.
2. Press the **TERRAIN** softkey. Press the **TERRAIN** softkey again to remove terrain data from the Navigation Map Page.

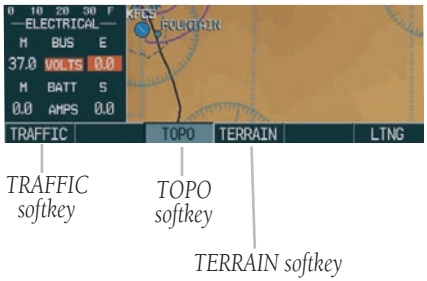

Figure 8A.2.5 TRAFFIC, TOPO, TERRAIN and LTNG Softkeys

Displaying Traffic on the Navigation Map Page

Pressing the **TRAFFIC** softkey displays Traffic Information Service (TIS) traffic on the Navigation Map Page. TIS is a ground-based service providing relative location of all ATCRBS Mode-A and Mode-C transponder equipped aircraft within a specified service volume.

The TIS ground sensor uses real time track reports to generate traffic notification. Surveillance data includes all transponder-equipped aircraft within the coverage volume. The G1000 displays up to eight traffic targets within a 7.5 nautical mile radius, from 3,000 feet below to 3,500 feet above the requesting aircraft. See Appendix E for a full description of TIS. A traffic symbol appears next to the map range in the bottom right corner of the display indicating the presence of traffic data on the map.

To display traffic on the Navigation Map Page:

1. Press the **MAP** softkey.
2. Press the **TRAFFIC** softkey. Press the **TRAFFIC** softkey again to remove traffic from the Navigation Map Page.

***NOTE**: Traffic and terrain data can also be displayed by using the 'On/Off' Navigation Map Page option. See the Navigation Map Page setup section for details.*

MFD Navigation Status Window

The MFD Navigation Status Window displays four, user-configurable fields which can display the following data:

- Bearing to next waypoint (BRG)
- Distance to next waypoint (DIS)
- Desired track to next waypoint (DTK)
- En-route safe altitude (ESA)
- Estimated Time of Arrival (ETA)
- Estimated Time Enroute (ETE)
- Ground Speed (GS)
- Maximum Safe Altitude (MSA)
- Track angle error (TKE)
- Track angle (TRK)
- Vertical speed required (VSR)
- Cross track error (XTK)
- Currently selected MFD page title

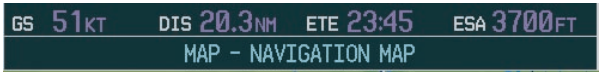

Figure 8A.2.6 MFD Navigation Status Window

***NOTE**: Instructions on changing a data field on the MFD Navigation Status Window is given in the System Setup Section.*

Navigation Map Page Options Menu

The Navigation Map Page can be customized using options listed in the Navigation Map Page menu. To display the menu, press the **MENU** key (with the Navigation Map Page displayed). Two options are available: Map Setup, and Measure Bearing/Distance.

Map Setup

The first option is 'Map Setup' which is used to configure the Navigation Map Page including map orientation, land data enable/disable, Jeppesen data enable/disable, automatic zoom, airspace boundaries, and text size.

Map Group Options

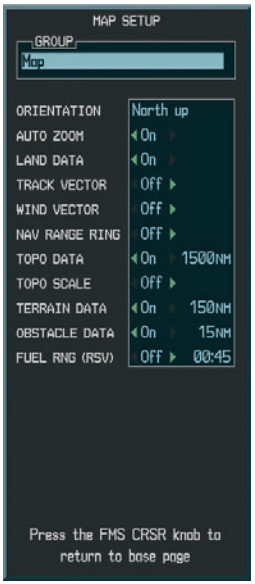

Figure 8A.2.7 Map Group Setup Options

Orientation

There are four map orientation selections: North up, Track up, DTK up, and HDG up.

- North up fixes the top of the map to a north heading.
- Track up adjusts the top of the map display to the current ground track.
- Desired Track Up (DTK up) fixes the top of the map display to the desired course.
- Heading Up (HDG up) fixes the top of the map display to the current aircraft heading.

***NOTE**: The Navigation Map Page orientation default setting is 'North Up'.*

To change the map orientation:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'ORIENTATION' field.
5. Turn the **small FMS** knob to select the desired orientation and press the **ENT** key.
6. Press the **FMS** knob to return to the Navigation Map Page.

Auto Zoom

The automatic zoom feature automatically adjusts the map range from 2000 nm through each lower range, stopping at 1.5 nm as the aircraft approaches the destination waypoint.

To enable/disable automatic zoom:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'AUTO ZOOM' field.
5. Turn the **small FMS** knob to select 'On' or 'Off' and press the **ENT** key.
6. Press the **FMS** knob to return to the Navigation Map Page.

Land Data

The Navigation Map Page can display background land data (roads, lakes, borders, etc). The background land data can also be removed from the display (turned off).

To enable/disable land data:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'LAND DATA' field.
5. Turn the **small FMS** knob to select 'On' or 'Off.' and press the **ENT** key.
6. Press the **FMS** knob to return to the Navigation Map Page.

Track Vector

The Navigation Map Page can display a track vector as a dashed cyan line segment with an arrowhead attached to the end, extended to a predicted location in 60 seconds along the current aircraft track. The track vector is useful in minimizing track angle error.

To enable/disable the track vector:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'TRACK VECTOR' field.
5. Turn the **small FMS** knob to select 'On' or 'Off'. Press the **ENT** key to accept the selected option.
6. Press the **FMS** knob to return to the Navigation Map Page.

Wind Vector

The wind vector box is displayed in the upper right corner of the Navigation Map Page and displays wind direction and speed (in knots). Wind direction is indicated by a 360 degree pointing arrow.

To enable/disable the wind vector box:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'WIND VECTOR' field.
5. Turn the **small FMS** knob to select 'On' or 'Off'. Press the **ENT** key to accept the selected option.
6. Press the **FMS** knob to return to the Navigation Map Page.

Nav Range Ring

The Nav range ring shows the direction of travel (ground track) on a rotating compass card. The range of the Nav compass is determined by the map range, 125 feet (500 feet map range) to 500 nm (2000 nm map range).

To enable/disable the Nav range ring:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'NAV RANGE RING' field.
5. Turn the **small FMS** knob to select 'On' or 'Off'. Press the **ENT** key to accept the selected option.
6. Press the **FMS** knob to return to the Navigation Map Page.

Topo Data

Topographic data can be enabled or disabled on the Navigation Map Page using the 'TOPO DATA' setting. The topo data range is the maximum map range that topo data is displayed.

To enable/disable topo data and to select a topo data range:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'TOPO DATA' field.
5. Turn the **small FMS** knob to select 'On' or 'Off'.
6. Press the **ENT** key to accept the selected option. The flashing cursor highlights the range field. TOPO ranges are from Off to 2000 nm.
7. To change the TOPO range setting, turn the **small FMS** knob to display the range list.
8. Turn the **small FMS** knob to select the desired range and press the **ENT** key.
9. Press the **FMS** knob to return to the Navigation Map Page.

***NOTE:** When topographic data is removed from the Navigation Map Page, all cartographic data is automatically removed and the Jeppesen Nav data is presented on a black background.*

Topo Range

The topo range setting enables or disables the topography range box located in the lower right corner of the Navigation Map Page.

To enable/disable the topo range box:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'TOPO Range' field.
5. Turn the **small FMS** knob to select 'On' or 'Off'.
6. Press the **ENT** key to accept the selected option.
7. Press the **FMS** knob to return to the Navigation Map Page.

Terrain Data

Terrain data can be enabled or disabled on the Navigation Map Page using the 'TERRAIN DATA' setting. A data range can also be selected. The data range is the maximum map range that terrain data is displayed.

To enable/disable terrain data and to select a terrain data range:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'TERRAIN DATA' field.
5. Turn the **small FMS** knob to select 'On' or 'Off'.
6. Press the **ENT** key to accept the selected option. The flashing cursor highlights the range field. TERRAIN ranges are from Off to 2000 nm.
7. To change the TERRAIN range setting, turn the **small FMS** knob to display the range list.
8. Turn the **small FMS** knob to select the desired range and press the **ENT** key.
9. Press the **FMS** knob to return to the Navigation Map Page.

Obstacle Data

Obstacle data can be enabled or disabled on the Navigation Map Page using the 'OBSTACLE DATA' setting. A data range can also be selected. The data range is the maximum map range that terrain data is displayed.

To enable/disable obstacle data and to select a terrain data range:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'OBSTACLE DATA' field.
5. Turn the **small FMS** knob to select 'On' or 'Off'.
6. Press the **ENT** key to accept the selected option. The flashing cursor highlights the range field. OBSTACLE ranges are from Off to 50 nm.
7. To change the OBSTACLE range setting, turn the **small FMS** knob to display the range list.
8. Turn the **small FMS** knob to select the desired range and press the **ENT** key.
9. Press the **FMS** knob to return to the Navigation Map Page

Fuel Range Ring (Fuel RNG) (RSV)

The Navigation Map Page can display a fuel range ring which shows the flight distance that the aircraft has remaining. A dashed green circle indicates the transition range to reserve fuel. A solid green circle indicates the range of all fuel, including the reserve fuel. If only reserve fuel remains, the range is indicated by a solid yellow circle.

To enable/disable the fuel range ring and to select a fuel range time:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Map' group and press the **ENT** key.
4. Turn the **large FMS** knob to highlight the 'FUEL RNG (RSV)' field.
5. Turn the **small FMS** knob to select 'On' or 'Off'.
6. Press the **ENT** key to accept the selected option. The flashing cursor highlights the fuel reserve time field. The time indicated is the time the aircraft can fly with remaining fuel on board.
7. To change the reserve fuel time, turn either the **large or small FMS** knob to enter a time (00:00 to 23:59; hours:minutes). The default setting is 00:45 minutes. Press the **ENT** key.
8. Press the **FMS** knob to return to the Navigation Map Page.

Traffic Group

The display of traffic information on the Navigation Map Page closely resembles TCAS display symbology. Traffic is only displayed on the Navigation Map Page if aircraft heading data is available. If heading is not available, traffic advisories are displayed as non-bearing banners on the Navigation Map Page.

Figure 8A.2.8 Traffic Group Options

To enable/disable traffic data on the Navigation Map Page:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed
3. Turn the **small FMS** knob to select the 'Traffic' group. Press the **ENT** key. The cursor flashes on the 'TRAFFIC' field.
4. Turn the **small FMS** knob to select 'On' or 'Off'.
5. Press the **ENT** key to accept the selected option.
6. Press the **FMS** knob to return to the Navigation Map Page.

The 'Traffic' mode selects which traffic is displayed (all traffic, traffic and proximity advisories, or traffic advisories only). The traffic symbol is the symbol used to depict the type of traffic:

- Traffic Advisories (TA) – Yellow
- Proximity Advisories (PA) – White
- Other – White

Proximity Advisories (PAs) are displayed as solid white diamonds. PAs are defined as traffic within the 4.0 nm range, within ± 1200 ft. of altitude separation, and are not traffic advisories (TAs).

To select a traffic mode:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Traffic' group Press the **ENT** key. The cursor flashes on the 'TRAFFIC' field.
4. Turn the **large FMS** knob to highlight the 'TRAFFIC MODE' field.
5. Turn the **small FMS** knob to select the desired option.
6. Press the **ENT** key to accept the selected option.
7. Press the **FMS** knob to return to the Navigation Map Page.

To select a traffic symbol zoom range:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed
3. Turn the **small FMS** knob to select the 'Traffic' group. Press the **ENT** key. The cursor flashes on the 'TRAFFIC' field.
4. Turn the **large FMS** knob to highlight the 'TRAFFIC SMBL' field. Traffic symbol zoom ranges are from Off to 300 nm.
5. Turn the **small FMS** knob to select the desired option.
6. Press the **ENT** key to accept the selected option.
7. Press the **FMS** knob to return to the Navigation Map Page.

The traffic label displays the altitude separation above or below the symbol and the vertical speed sense arrow to the right of the symbol.

To select a traffic label zoom range:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed
3. Turn the **small FMS** knob to select the 'Traffic' group. Press the **ENT** key. The cursor flashes on the 'TRAFFIC' field.
4. Turn the **large FMS** knob to highlight the 'TRAFFIC LBL' field. Traffic label zoom ranges are from Off to 300 nm.
5. Turn the **small FMS** knob to select the desired option.
6. Press the **ENT** key to accept the selected option.
7. Press the **FMS** knob to return to the Navigation Map Page.

Aviation Group Options

• Active Flight Plan (ACTIVE FPL)- the active flight plan zoom range sets the maximum range at which the active flight plan magenta line is displayed on the display (off - 2000 nm).

• Active Flight Plan Waypoint (ACTIVE FPL WPT)- the active flight plan waypoint label size sets the size at which the active flight plan names appear on the display (none, small, medium, and large). The zoom range sets the maximum range at which active flight plan waypoints appear on the display (off - 2000 nm).

• Large, Medium, and Small Airports (LARGE APT, MEDIUM APT, SMALL APT) - The airport label size sets the size at which the large, medium, or small airport names size appear on the display. The zoom range sets the maximum range at which the airports appear on the display:

- Large: off - 500 nm
- Medium: off - 300 nm
- Small: off - 100 nm

• Intersection, Non-Directional Beacon, and VOR Waypoints (INT WAYPOINT, NDB WAYPOINT, VOR WAYPOINT) - The INT, NDB, and VOR label size sets the maximum range at which the navaids names appear on the display. The zoom range sets the maximum range at which the navaids appear on the display:

- INT: off - 30 nm
- NDB: off - 30 nm
- VOR: off - 300 nm

• Airspace Boundaries (CLASS B/TMA, CLASS C/TCA, and CLASS D) - The airspace zoom range sets the maximum range at which the three classes of airspace appear on the display. The zoom range sets the maximum range at which the airspace boundaries appear on the display:

- CLASS B: off - 500 nm
- CLASS C: off - 500 nm
- CLASS D: off - 300 nm

• "Other" Airspace Boundaries (RESTRICTED, MOA (Military), OTHER AIRSPACE, nad TFR (temporary flight restrictions)- the other airspace boundary zoom range sets the maximum range at which restricted, MOA, and other (training, caution, danger, warning and alert areas) airspace boundaries are displayed

- RESTRICTED: off - 500 nm
- MOA (MILITARY): off - 500 nm
- OTHER AIRSPACE: off - 500 nm
- TFR; (only present when GDL 69 is installed): off - 2000 nm

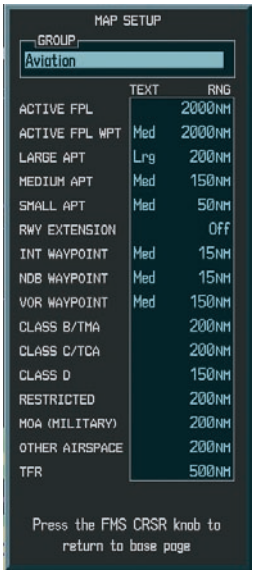

Figure 8A.2.9 Aviation Group Options

To select an aviation group item range:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Aviation' group. Press the **ENT** key. The cursor flashes on the 'ACTIVE FPL' field.
4. Turn the **large FMS** knob to select the desired option.
5. Turn the **small FMS** knob to select the desired range.
6. Press the **ENT** key to accept the selected option.
7. Press the **FMS** knob to return to the Navigation Map Page.

To select an aviation group item text size:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Aviation' group. Press the **ENT** key. The cursor flashes on the 'ACTIVE FPL' field.
4. Turn the **large FMS** knob to select the desired option.
5. Turn the **small FMS** knob to select the desired text size.
6. Press the **ENT** key to accept the selected text size.
7. Press the **FMS** knob to return to the Navigation Map Page.

Land Group Options

• Latitude/Longitude (LAT/LON) - the LAT/LON label size sets the size at which latitude/longitude labels appear on the display (none, small, medium, and large). The zoom range sets the maximum range at which LAT/LON waypoints appear on the display (off - 2000 nm).

• Highways, Roads, and Railroads (FREEWAY, LOCAL HWY, LOCAL ROAD, RAILROAD) - The highway and road zoom range sets the maximum range at which highways, roads, and railroads appear on the display:

- FREEWAY: off - 800 nm
- NATIONAL HWY: off - 80 nm
- LOCAL HWY: off - 30 nm
- LOCAL ROAD: off - 15 nm
- RAILROAD: off - 30 nm

• Cities and Towns (LARGE CITY, MEDIUM CITY, SMALL CITY) - The cities and town label size sets the maximum range at which city and town names appear on the display. The zoom range sets the maximum range at which cities and towns appear on the display:

- LARGE CITY (approximate populations greater than 200,000): off - 1500 nm
- MEDIUM CITY (approximate populations greater than 50,000): off - 200 nm
- SMALL CITY (approximate populations greater than 5,000): off - 50 nm

• States and Provinces, Rivers and Lakes, and User Waypoints (STATE/PROV, RIVER/LAKE, USER WAYPOINT) - the label range sets the maximum range at which the three categories appear on the display. The zoom range sets the maximum range at which the three categories appear on the display:

- STATE/PROV: off - 1500 nm
- RIVER/LAKE off - 500 nm
- USER WAYPOINT: off - 300 nm

Figure 8A.2.10 Land Group Options

To select a land group item range:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Land' group. Press the **ENT** key. The cursor flashes on the 'LAT/LON' field.
4. Turn the **large FMS** knob to select the desired option.
5. Turn the **small FMS** knob to select the desired range. Press the **ENT** key to accept the selected option.
6. Press the **FMS** knob to return to the Navigation Map Page.

To select a land group item text size:

1. With the Navigation Map Page displayed, press the **MENU** key to display the Navigation Map Page Menu. The cursor flashes on the 'Map Setup' option.
2. Press the **ENT** key. The Map Setup Menu is displayed.
3. Turn the **small FMS** knob to select the 'Land' group. Press the **ENT** key. The cursor flashes on the 'LAT/LON' field.
4. Turn the **large FMS** knob to select the desired option.
5. Turn the **small FMS** knob to select the desired text size. Press the **ENT** key to accept the selected option
6. Press the **FMS** knob to return to the Navigation Map Page.

Second Option: MEASURE BEARING/DISTANCE

The second map setup option is 'Measure Bearing/Distance' which provides a quick and easy method for determining the bearing and distance between any two points on the Navigation Map Page.

***NOTE:** Pressing the **ENT** key at any location with the 'Measure' option enabled allows bearing and distance from the newly selected position to be acquired.*

To measure bearing and distance between two points:

1. Press the **MENU** key (with the Navigation Map Page displayed).
2. Turn the **small FMS** knob to highlight the 'Measure Bearing/Distance' field and press the **ENT** key. An on-screen reference pointer is displayed on the map display at the aircraft's present position.
3. Move the **joystick** to place the reference pointer at the desired location. The bearing and distance is displayed at the top of the map display. Elevation at the current position is also displayed.
4. To exit the Measure Bearing/Distance option, push in the **joystick** or select 'Stop Measuring' from the page menu options.

Figure 8A.2.11 Measuring Bearing and Distance

8A.3 TRAFFIC MAP PAGE

The Traffic Map Page is the second page in the Map Group and displays the following information:

- Current aircraft location, surrounding Traffic Information System (TIS) traffic, and range marking rings.
- The current traffic mode (OPERATE, STANDBY).
- A traffic alert message (FAILED, DATA FAILED, NO DATA, UNAVAILABLE)
- Traffic display banner (AGE 00:, TRFC COAST, TA OFF Range, TRFC RMVD, TRFC FAIL, NO TRFC DATA, TRFC UNAVAIL, TRAFFIC)

***CAUTION**: Use of the Traffic Map to maneuver the airplane to avoid traffic is prohibited. The Traffic Information System (TIS) is intended for advisory use only. TIS is intended only to help the pilot to visually locate traffic. It is the responsibility of the pilot to see and maneuver to avoid traffic.*

To select the Traffic Map Page:

1. Select the MAP group of pages. Turn the **small FMS** knob to the right to select the Traffic Map Page.

Figure 8A.3.1 Traffic Map Page

TIS SYMBOLOGY

TIS traffic is displayed on the Traffic Map Page according to TCAS symbology. A Traffic Advisory (TA) symbol is displayed as a solid yellow circle (or half circle on the outer range ring if the traffic is outside the range of the dedicated traffic page). All other traffic is displayed as a hollow white diamond. Altitude deviation from the user's aircraft altitude is displayed above the target symbol if they are above own aircraft altitude, and below the symbol if they are below own aircraft altitude. Altitude trend is displayed as an up arrow (+500 ft/min), down arrow (-500 ft/min), or no symbol if less than 500 ft/min rate in either direction. Other symbols:

- Other Traffic – this symbol represents traffic detected within the selected display range that does not generate a TA.
- Traffic Advisory (TA) – this symbol is generated when traffic meets the advisory criteria described previously.
- Traffic Ground Track is indicated on the Traffic Map Page by a "target track vector". The track vector line is projected from the traffic advisory symbol and is drawn at any angle necessary to represent the current track of the traffic advisory data.

***NOTE**: Traffic Information Service (TIS) is not available in all areas.*

***NOTE**: See Appendix F for traffic symbol descriptions.*

TRAFFIC MAP PAGE OPERATIONS

Power-Up Test

The TIS interface performs an automatic test during power-up. If the system passes the power-up test, the standby screen is displayed on the Traffic Map Page. If the system passes the power-up test, and the aircraft is airborne, traffic is displayed on the Traffic Page in the operating mode.

If the system fails the power up test, the 'NO DATA', 'DATA FAILED', or 'FAILED' message is displayed. Contact your Cessna service center or Garmin dealer for corrective action if the 'DATA FAILED', or 'FAILED' message is displayed. The 'FAILED' message indicates the GTX 33 transponder has failed. The 'DATA FAILED' message indicates data is being received from the GTX 33 but a failure was detected in the data stream. The 'NO DATA' message indicates that data is not being received from the GTX 33.

Changing the Map Range

To change the map range:

1. Turn the joystick clockwise to zoom out, or turn the joystick counter-clockwise to zoom in. Map ranges are 2 nm, 6 nm, and 12 nm.

Operating Mode

Once the aircraft is airborne (determined by system configuration at the time of installation) the system switches from standby mode to operating mode. The G1000 displays 'OPERATE' in the upper left hand corner of the display and begins to display traffic on the Traffic or Map Page. ***The TIS Traffic Advisory (TA) should alert the crew to use additional vigilance to identify the intruding aircraft. Any time the traffic symbol becomes a yellow circle or a voice warning is announced, conduct a visual search for the intruder. Maintain visual contact to ensure safe operation.***

Once the aircraft is on the ground (determined by system configuration at the time of installation) the system switches from operating mode to standby mode. The Traffic Map Page displays 'STANDBY'.

- STANDBY – when the Traffic Map Page displays 'STANDBY' in the status box located in the upper left corner of the Traffic Map Page, the TIS system is in standby mode and cannot display traffic data.
- OPERATE – when the Traffic Map Page displays 'OPERATE' in the status box located in the left corner of the Traffic Map Page, the TIS system is in operational mode and available to display traffic on the Traffic or Map Page.

The pilot can switch between the standby (STBY) and operate (ON) modes of operation to manually override automatic operation using the page menu or softkeys.

To switch between operating modes:

1. Press the **MODE** softkey.
2. Press the **STBY** or **ON** softkey to switch between modes. 'STANDBY' or 'OPERATE' is displayed in the status box located in the upper left corner of the Traffic Map Page OR:
3. Press the **MENU** key. The page menu is displayed with 'Standby Mode' or 'Operate Mode' highlighted. Press the **ENT** key on the desired selection.

TIS Audio Alert

A TIS audio alert is generated whenever the number of TAs on the Traffic Map Page display increases from one scan to the next. The limiting to TAs only reduces the amount of "nuisance" alerting due to proximate aircraft. For example, when the first TA is displayed, the pilot is alerted audibly. So long as a single TA aircraft remains on the TIS display, no further audio alert is generated. If a second (or more) TA aircraft appear on the display, a new audio alert is sounded. If the number of TAs on the TIS display decreases and then increases, a new audio alert is sounded. The TIS audio alert is also generated whenever TIS service becomes unavailable. The volume of the audio alert (including the choice between a male or female voice) is configured during installation. The following TIS audio alerts are available:

- "Traffic" - TIS traffic alert is received.
- "Traffic Not Available" - TIS service is not available or out of range.

TIS Traffic Status

The MFD indicates the following TIS traffic status to the pilot.

Traffic Banner

- AGE - if traffic data is not refreshed within 6 seconds, an age indicator (i.e., 'AGE 00:06') is displayed in the lower left corner of the display (when displaying traffic). After another 6 seconds, if data is still not received, the traffic is removed from the display. The pilot should be aware that the quality of displayed traffic is reduced in this condition.
- TRFC COAST - the 'TRFC COAST' (traffic coasting) banner located above the AGE timer indicates that displayed traffic is held even though the data is stale. The pilot should be aware that the quality of displayed traffic is reduced in this condition.
- TRFC RMVD - the 'TRFC RMVD' banner indicates that traffic has been removed from the display due to the age of the data being too old to "coast" (for the time period of 12-60 seconds from the last receipt of a TIS message). The pilot should be aware that traffic may be present but not shown.
- TA OFF - the 'TA OFF' scale banner displayed in the lower left corner of the display indicates that a traffic advisory is outside the selected display range. The traffic advisory off range banner is removed when the traffic advisory is within the selected display range.
- TRAFFIC - on the PFD, when the system receives a traffic advisory a flashing 'TRAFFIC' alert is displayed in the upper left hand portion of the display. The PFD inset map also automatically displays traffic data.

8A.4 TERRAIN PROXIMITY PAGE

CAUTION: *Use of Terrain Proximity information for primary terrain avoidance is prohibited. The Terrain Proximity Map is intended only to enhance situational awareness. It is the pilot's responsibility to provide terrain avoidance at all times.*

The Terrain Proximity Page displays the following:

- Current aircraft location
- Range marking rings (25 nm, 25/50 nm, 50/100 nm, and 100/200 nm)
- Heading Box (North Up, Track Up, DTK Up, HDG Up). Heading on the Terrain Proximity Page displays 'HDG Up' map data unless there is no valid heading
- Terrain
- Terrain Range - Indicates the terrain elevation in colors relative to the aircraft altitude (Figure 8.4.2)
- Obstacles

NOTE*: Terrain data is not displayed when the aircraft latitude is greater than 75 degrees north or 60 degrees south.*

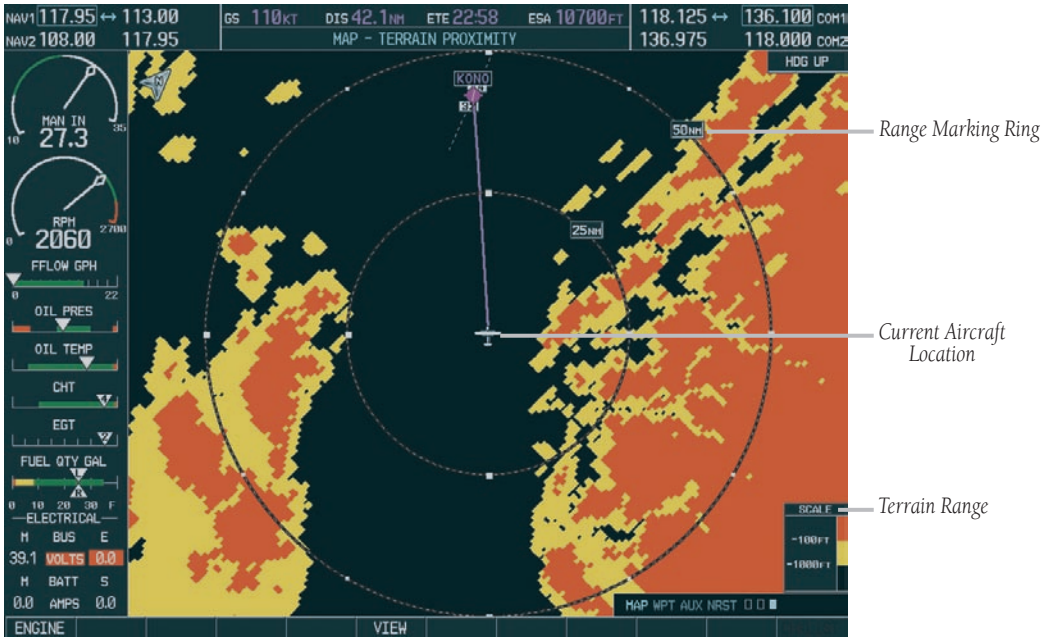

Figure 8A.4.1 Terrain Proximity Page

TERRAIN PROXIMITY PAGE OPERATIONS

There are two terrain/obstacle viewing options available (relative to the position of the aircraft), a radar-like ARC (120°) display and a 360° default display.

To change the viewing mode between 360° and ARC:

1. Select the Terrain Proximity Page
2. Press the **VIEW** softkey. Press the **ARC** softkey.
3. To return to the 360 degree viewing display press the **360** softkey OR:
4. Press the **MENU** key. The page menu is displayed with 'View Arc' or 'View 360°' highlighted. Press the **ENT** key on the desired selection.

To change the map range on the Terrain Proximity Page:

1. Turn the **joystick** clockwise zoom out or turn the **joystick** counter-clockwise zoom in. Map ranges are 25 nm, 25/50 nm, 50/100 nm, and 100/200 nm.

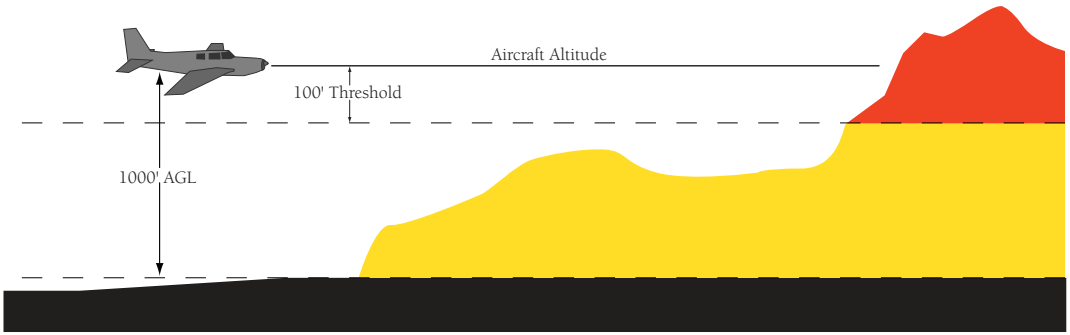

Figure 8A.4.2 Terrain Scale

DISPLAYING OBSTACLE DATA

The Terrain Proximity Page displays obstacle data with heights greater than 200 feet Above Ground Level (AGL) located at their geographical position location throughout the world. Obstacles are displayed in three levels. The G1000 will adjust colors on the Terrain Proximity Page automatically as the aircraft altitude changes. The display color patterns are as follows:

- SAFE
- CAUTION
- WARNING

GRAY-Safe

Obstacle data is displayed in gray when the obstacle height (MSL) is greater than 1000 feet below the current aircraft altitude.

YELLOW-Caution

Obstacle data is displayed in yellow when the obstacle height is 100 feet below MSL the current aircraft altitude to 1000 feet below the current aircraft altitude.

RED-Critical

Obstacle data is displayed in red when the obstacle height is at or above 100 feet Mean Sea Level (MSL) below the current aircraft altitude.

Obstacle Shapes

Obstacle shapes and defining criteria are found in Appendix F.

Navigation Map Display Conditions

The Map Setup Page Menu has 'OBSTACLE' and 'TERRAIN feature On/Off options. The Terrain Proximity Page displays or does not display obstacles on the Navigation Map Page based on the selection of each as summarized in the table below:

TERRAIN FEATURE	OBSTACLE FEATURE	TERRAIN PROXIMITY PAGE
OFF	OFF	NO OBSTACLES DISPLAYED
OFF	ON	SAFE, CAUTION, AND WARNING OBSTACLES DISPLAYED
ON	OFF	CAUTION AND WARNING OBSTACLES DISPLAYED
ON	ON	SAFE, CAUTION, AND WARNING OBSTACLES DISPLAYED

Note: Obstacles are only displayed at certain map zoom ranges, on certain map fields, and will only be displayed if an obstacle database is loaded on the SD card.

Note: The table above is only for the Navigation Map Page. The Terrain Proximity Page always shows ONLY caution and warning obtacles.

This page intentionally left blank.

8A.5 DIRECT-TO NAVIGATION

The "Direct-to" function provides a quick method of setting a course to a destination waypoint. Once a Direct-to is activated, the G1000 establishes a point-to-point course line from the present position to the selected Direct-to destination. If the course change is greater than 30 degrees, a course extension is offset from the present position to allow a standard rate turn to intercept the Direct-to course line. Note that the CDI (HSI) needle will not be immediately centered in this case. Direct-to course guidance is provided until the Direct-to is cancelled or replaced by a new destination, and the navigation data is displayed on the Navigation Map Page

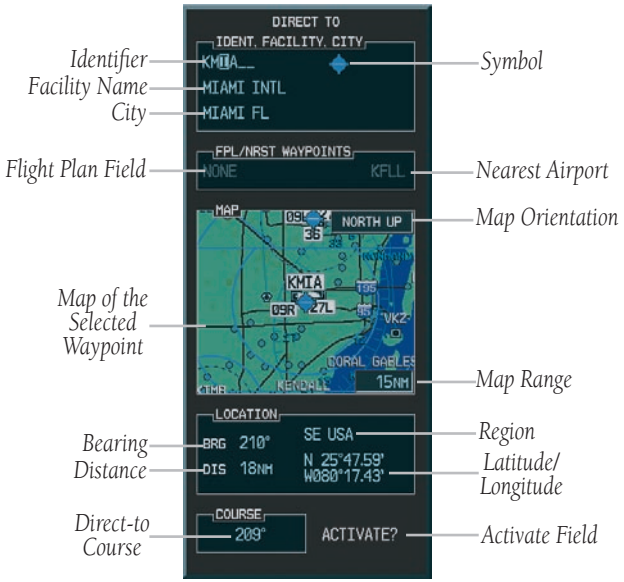

Figure 8A.5.1 Direct-to Page

To select a Direct-to destination:

1. Press the **Direct-to** key. The Direct-to page is displayed with the destination field highlighted.
2. Turn the **small FMS** 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. Turn the **large FMS** knob to the right to move the cursor to the next character position.
3. Repeat steps 2 and 3 to spell out the rest of the waypoint identifier.
4. Press the **ENT** key to confirm the identifier. The 'Activate?' field is highlighted.
5. Press the **ENT** key to activate a Direct-to course to the selected destination.

If navigating to a waypoint and the aircraft moves off course, the Direct-to feature can 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 pressing the **ENT** key twice. NOTE: If 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.

DIRECT-TO NAVIGATION OPERATIONS

Selecting a Direct-to Waypoint

In addition to selecting a Direct-to waypoint using an identifier, a Direct-to waypoint can be selected in the following ways:

- by facility or city name
- from the active flight plan
- from the nearest airports list
- from a waypoint field, waypoint page, or map highlight shortcut

Selecting a Direct-to Destination by Facility or City Name

In addition to selecting a destination by identifier, the Direct-to Page also allows the selection of airports, VORs and NDBs by facility or city name. If duplicate entries exist for the entered facility or city name, additional entries can be viewed by continuing to turn the **small FMS** knob during the selection process.

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

1. Press the **Direct-to** key. The Direct-to Page is displayed with the waypoint identifier field highlighted.
2. Turn the **large FMS** knob to highlight the facility or city name field.
3. Turn the **small and large FMS** knob to enter the facility or city location of the desired waypoint.

***NOTE**: the "Spell N Find" feature selects the first entry in the database based on the characters that have been entered to that point.*

4. Continue turning the **small FMS** knob to scroll through any additional database listings for the selected facility name or city. The **small FMS** knob can be used to scroll backwards if the desired waypoint was passed up.
5. Press the **ENT** key to confirm the selected waypoint, and **ENT** again to activate a Direct-to.

Selecting a Direct-to Destination from the Active Flight Plan

Any waypoint contained in the flight plan may be selected as a Direct-to destination from the Direct-to Waypoint Page when navigating an active flight plan.

Figure 8A.5.2 Flight Plan Waypoint Direct-to

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

1. Press the **Direct-to** key. The Direct-to Waypoint Page is displayed with the waypoint identifier field highlighted.
2. Turn the **large FMS** knob to highlight the flight plan 'FPL' field.
3. Turn the **small FMS** knob to display a window showing all waypoints in the active flight plan.
4. Continue turning the **small FMS** knob to scroll through the list and highlight the desired waypoint.
5. Press the **ENT** key to confirm the selected waypoint, and **ENT** again to activate a Direct-to.

Selecting the Nearest Airport as a Direct-to Destination

The Direct-to Page always displays the nearest airports (from the present position) on the NRST field.

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

1. Press the **Direct-to** key. The Direct-to Page is displayed with the destination field highlighted.
2. Turn the **large FMS** knob to highlight the nearest airport field.
3. Turn the **small FMS** knob to display a window showing up to nine nearby airports.
4. Continue turning the **small FMS** knob to scroll through the list and highlight the desired airport.
5. Press the **ENT** key to confirm the selected waypoint, and **ENT** again to activate a Direct-to.

Shortcuts

Shortcuts are available when using the **Direct-to** key, allowing the pilot to bypass the use of the **small** and **large FMS** knobs. Any time a waypoint field is highlighted and then the **Direct-to** key is pressed, the highlighted waypoint will be the direct-to waypoint.

The following are "candidates" for Direct-to waypoints:

- The highlighted waypoint when map panning with the MFD map panning pointer.
- The highlighted waypoint identifier field on any page.
- The airport waypoint page airport when on the airport information, arrival, departure, or approach pages.
- The waypoint displayed on the VOR waypoint page.
- The waypoint displayed on the NDB waypoint page.
- The waypoint displayed on the intersection waypoint page.
- The waypoint displayed on the user waypoint page.

Figure 8A.5.3 Nearest Airport Direct-to

Canceling Direct-to Navigation

Once a Direct-to is activated, the G1000 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 Direct-to Page.
2. Press the **MENU** key to display the Direct-to options menu.
3. With 'Cancel Direct-To NAV' highlighted, press the **ENT** key. If a flight plan is still active, the G1000 resumes navigating the flight plan along the closest leg.

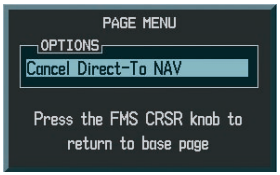

Figure 8A.5.4 Canceling Direct-to Navigation

Specifying a Course to a Waypoint

During a Direct-to, the G1000 sets a direct great circle course to the selected destination. The course to the destination, using the course field on the Direct-to Page can be manually defined.

To manually define the Direct-to course:

1. Press the **Direct-to** key.
2. Turn the **small and large FMS** knobs to select the destination waypoint.
3. Press the **ENT** key to confirm the selected waypoint, then turn the **large FMS** knob to highlight the course field.
4. Turn the **small and large FMS** knobs to select the desired course and press the **ENT** key.
5. Press the **ENT** key again to begin navigation using the selected destination and course.

Figure 8A.5.5 Manual Course Direct-to

This page intentionally left blank.

8A.6 FLIGHT PLANS

The G1000 can create up to 99 different flight plans with up to 31 waypoints in each flight plan. The flight plan (FPL) page group consists of three pages:

- Active Flight Plan
- Flight Plan Catalog
- Vertical Navigation

The Flight Plan Pages are used to create, edit and copy flight plans. The Vertical Navigation Page is used to create a three-dimensional profile which guides the aircraft to a final (target) altitude at a specified location.

ACTIVE FLIGHT PLAN PAGE

The Active Flight Plan Page provides information and editing functions for the flight plan currently in use for navigation. Once a Direct-to or flight plan has been activated, the Active Flight Plan Page shows the following:

- Each waypoint for the flight plan (or a single waypoint for a Direct-to), along with the desired track (DTK) and distance of each leg (DIS).
- Active leg information with enroute safe altitude (ESA) for the specified leg.
- Active FPL information with enroute safe altitude (ESA)
- Flight plan information showing remaining leg and remaining total distance, and enroute safe altitude for the entire route.

The data fields are user-selectable and can be changed to display the following:

- Cumulative Distance (CUM)
- Distance (DIS)
- Desired Track (DTK)
- Enroute Safe Altitude (ESA)
- Estimated Time of Arrival (ETA)
- Estimated Time Enroute (ETE)

ACTIVE FLIGHT PLAN PAGE OPTIONS

The following options are available for the Flight Plan Page:

- Activate Leg
- Store Flight Plan
- Invert Flight Plan
- Delete Flight Plan
- Load Departure
- Load Arrival
- Load Approach
- Remove Arrival
- Remove Departure
- Remove Approach
- Closest Point of FPL
- Change Fields
- Restore Defaults

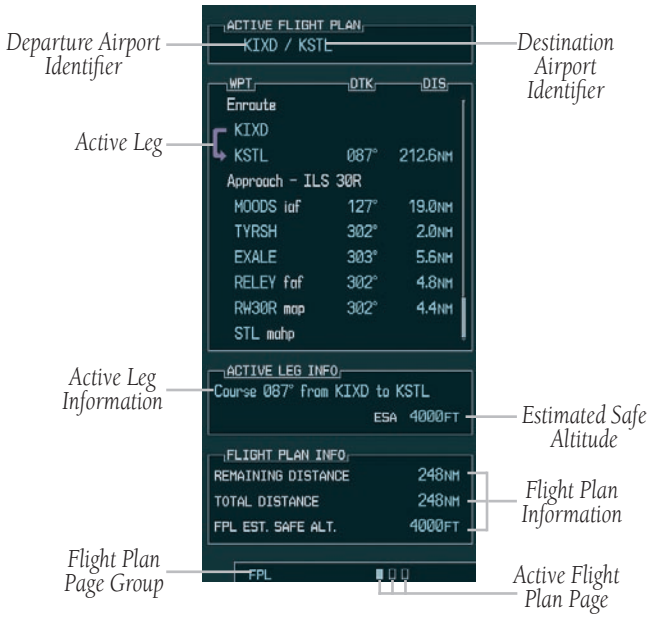

Figure 8A.6.1 Active Flight Plan Page

Create a New Flight Plan

'Create New Flight Plan' creates a new flight plan.

To create a new flight plan:

1. Press the **FPL** key and turn the **small FMS** knob to display the Flight Plan Catalog Page.
2. Press the **MENU** key to display the Flight Plan Catalog Page options.
3. Turn the **large FMS** 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. Turn the small and **large FMS** knobs to enter the identifier of the departure waypoint and press the **ENT** key.
5. Repeat step number 4 to enter the identifier for each additional flight plan waypoint.
6. Once all waypoints have been entered, press the **FMS** knob to return to the Flight Plan Catalog Page.

Figure 8A.6.2 New Flight Plan

To edit a flight plan:

1. Press the **FPL** key and turn the **small FMS** knob to display the Flight Plan Catalog Page.
2. Press the **FMS** knob to activate the cursor.
3. Turn the **large FMS** knob to highlight the desired flight plan and press the **ENT** key.
4. To add a waypoint to the flight plan: Turn the **large FMS** knob to select the point where the new waypoint is to be added. (If an existing waypoint is highlighted, the new waypoint is placed directly in front of this waypoint.) Turn the **small and large FMS** 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 FMS** knob to select the waypoint to delete and press the **CLR** key to display a remove waypoint confirmation window. With 'OK' highlighted, press the **ENT** key to remove the waypoint. To cancel, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.
6. Once all changes have been made, press the **FMS** knob to return to the Flight Plan Catalog Page.

Activate Leg

Activate Leg selects the highlighted leg as the "active leg" (the flight plan 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 **FMS** knob to activate the cursor and turn the **large FMS** knob to highlight the desired destination waypoint.
2. Press the **MENU** key, select the 'Activate Leg' option from the page menu and press the **ENT** key.
3. A confirmation window is displayed. With 'Activate' highlighted, press the **ENT** key.

NOTE: The leg can also be activated by pressing the **ACT LEG** *softkey.*

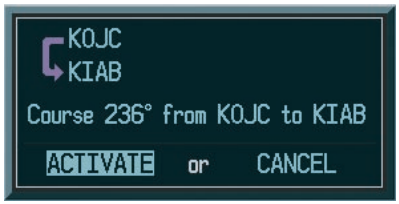

Figure 8A.6.3 Activate Flight Plan Leg Confirmation

Store Flight Plan

Whenever an approach, departure or arrival is loaded 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 the pilot selected. The original enroute portion of the flight plan remains active (unless an instrument procedure is activated) 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. The active flight plan is erased when the system is turned off and overwritten when another flight plan is activated.

When storing flight plans with an approach, departure or arrival, the G1000 uses the waypoint information from the current database to define the waypoints. If the database is changed or updated, the G1000 automatically updates the information if the procedure has not been modified. If an approach, departure or arrival procedure is no longer available, the procedure is deleted from the flight plan and an alert is displayed.

To store an existing flight plan:

1. From the Flight Plan Page, press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knob to highlight the desired flight plan and press the **MENU** key to display the Flight Plan Page options.
3. Turn the **large FMS** knob to highlight 'Store Flight Plan' and press the **ENT** key. The flight plan is stored in the next available position in the flight plan list on the Flight Plan Catalog Page.
4. With 'OK' highlighted, press the **ENT** key to store the flight plan.

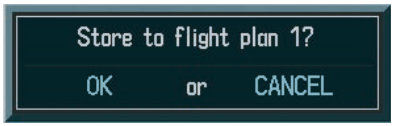

Figure 8A.6.3 Store Flight Plan Confirmation

Invert Flight Plan

'Invert Fight Plan' reverses the active flight plan. After traveling along a flight plan, the route can be reversed for navigation guidance back to the original departure point.

To invert and (activate) an existing flight plan:

1. From the Flight Plan Page, press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knob to highlight the desired flight plan and press the **MENU** key to display the Flight Plan Page options.
3. Turn the **large FMS** knob to highlight 'Invert Flight Plan' and press the **ENT** key. The original flight plan remains intact in its flight plan catalog storage location.
4. With 'OK' highlighted, press the **ENT** key to invert the flight plan.

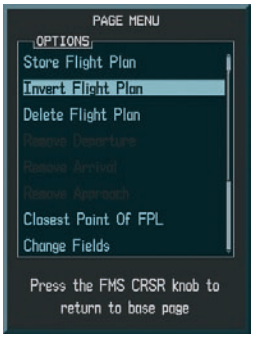

Figure 8A.6.4 Invert Flight Plan

Figure 8A.6.5 Invert Flight Plan Confirmation

Delete a Waypoint

To delete a waypoint from an existing flight plan:

1. Press the **FPL** key and turn the **small FMS** knob to display the Flight Plan Catalog Page.
2. Press the **FMS** knob to activate the cursor.
3. Turn the **large FMS** knob to highlight the desired flight plan and press the **ENT** key.
4. Turn the **large FMS** knob to select the waypoint to delete and press the **CLR** key to display a 'REMOVE WAYPOINT' confirmation window.
5. With 'OK' highlighted, press the **ENT** key to remove the waypoint. To cancel the delete request, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.
6. Once all changes have been made, press the **FMS** knob to return to the Flight Plan Page.

Figure 8A.6.6 Remove Waypoint Confirmation

Load a Departure

'Load Departure' allows a published departure procedure for the departure airport to be loaded into a flight plan. It also replaces the current departure with a new selection. When using a Direct-to, the G1000 uses the nearest airport as a reference when displaying available departures. A departure can also loaded using the **PROC** key or by pressing the **LD DP** softkey.

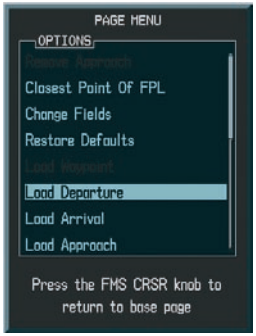

Figure 8A.6.7 Loading Departure Options

To select a departure procedure for the departure airport:

1. From the Active Flight Plan Page, press the **MENU** key to display the Active Flight Plan Page options.
2. Highlight 'Load Departure' from the list and press the **ENT** key.
3. A window is displayed listing the available departures for the departure airport. Turn either the **small or large FMS** knob to select the desired departure and press the **ENT** key.
4. A window may appear listing runways for the departure. Turn the **small or large FMS** knob to select the desired runway and press the **ENT** key. This window is not displayed for every departure.
5. A second window is displayed listing available transitions for the departure. Turn either the **small or large FMS** knob to highlight the desired transition waypoint and press the **ENT** key.
6. With 'LOAD' highlighted, press the **ENT** key. The departure flight plan is displayed as part of the overall flight plan and is placed in front of the enroute flight plan.

Load an Arrival

'Load Arrival' allows a published standard terminal arrival route (STAR) for the destination airport to be loaded into a flight plan. It also replaces the current arrival with a new selection. An arrival can also be loaded using the **PROC** key or by pressing the **LD STAR** softkey.

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

1. From the Active Flight Plan Page, press the **MENU** key to display the Active Flight Plan Page options.
2. Highlight the 'Load Arrival' option and press the **ENT** key.
3. A window is displayed listing the available arrivals for the destination airport. Turn either the **small or large FMS** knob to select the desired arrival and press the **ENT** key.
4. A second window is displayed listing available transitions for the arrival. Turn either the **small or large FMS** knob to highlight the desired transition waypoint and press the **ENT** key.
5. A third window is displayed listing available arrival runways. Turn either the **small or large FMS** knob to highlight the desired runway and press the **ENT** key.
6. With 'LOAD' highlighted, press the **ENT** key. The arrival flight plan is displayed as part of the overall flight plan and is placed after the enroute flight plan.

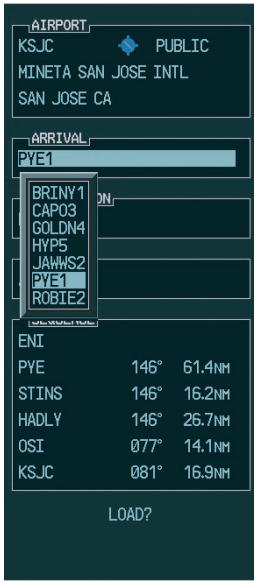

Figure 8A.6.8 Selecting an Arrival

Load an Approach

'Load Approach' allows for the selection of a published instrument approach for the destination airport. It also replaces the current approach with a new selection. In many cases, it is more convenient to select approaches using the **PROC** key, or by pressing the **LD APR** softkey.

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

1. From the Active Flight Plan Page, press the **MENU** key to display the Active Flight Plan Page options.
2. Highlight the 'Load Approach' option and press the **ENT** key.
3. A window is displayed listing the available approaches for the destination airport. Turn either the **small or large FMS** knob to highlight the desired approach and press the **ENT** key.
4. A second window is displayed listing available transitions for the approach. Turn either the **small or large FMS** knob to highlight the desired transition waypoint and press the **ENT** key. (The vectors option assumes the pilot will receive vectors to the final course segment of the approach and will provide navigation guidance to intercept this final course.)
5. Turn the **large FMS** knob to highlight 'Load? or Activate?' and press the **ENT** key. 'Load' adds the approach to the flight plan without immediately using the approach for navigation guidance.

This allows for the original flight plan to continue navigating 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.

Figure 8A.6.9 Flight Plan with Loaded Approach

Remove a Departure, Arrival, or Approach

- 'Remove Departure' deletes the current DP from the active flight plan.
- 'Remove Arrival' deletes the current STAR from the active flight plan.
- 'Remove Approach' deletes the currently selected approach 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 the **MENU** key to display the Active Flight Plan Page options.
2. Select the 'Remove Approach', 'Remove Arrival' or 'Remove Departure' option and press the **ENT** key.
3. A confirmation window is displayed listing the procedure the pilot is about to remove. With 'OK' highlighted, press the **ENT** key. To cancel the remove request, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.

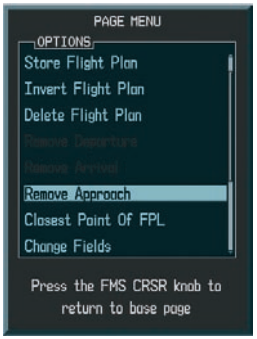

Figure 8A.6.10 Removing an Approach

Closest Point of Flight Plan Feature

'Closest Point of FPL' calculates the bearing and closest distance at which a flight plan passes from a reference waypoint. It can 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 the **MENU** key 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 the **ENT** key.
3. A window is displayed with the reference waypoint field highlighted. Turn the **small and large FMS** knobs to enter the identifier of the reference waypoint and press the **ENT** key.
4. The G1000 displays the location, lat/lon, 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 the **ENT** key. The name for the new user waypoint is derived from the identifier of the reference waypoint.

Change Fields

'Change Fields' allows for the default fields of DTK (distance) and DIS (distance) to be changed to one of the following:

- CUM (cumulative distance)
- DIS (distance)
- DTK (desired track)
- ESA (estimated safe altitude)
- ETA (estimated time of arrival)
- ETE (estimated time enroute)

To change either the DTK or the DIS field:

1. With the Active Flight Plan Page displayed, press the **MENU** key to display the Active Flight Plan Page options window.
2. Turn the **large FMS** knob to highlight 'Change Fields' and press the **ENT** key.
3. Turn the **large FMS** knob to highlight the 'DIS' or the 'DTK' field.
4. Turn either the **small or large FMS** knob to display a list of options.
5. Turn either the **small or large FMS** knob to select the desired item and press the **ENT** key. Press the **FMS** knob to remove the cursor.

Restore Defaults

Restore Defaults returns the 'DTK' and 'DIS' fields to 'DTK' and 'DIS'.

To restore the DTK and DIS fields on the Active Flight Plan Page:

1. With the Active Flight Plan Page displayed, press the **MENU** key to display the Active Flight Plan Page options window.
2. Turn the **large FMS** knob to highlight 'Restore Defaults' and press the **ENT** key.

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.

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

1. With the Active Flight Plan Page displayed, press the **small FMS** knob to activate the cursor.
2. Turn the **large FMS** knob to highlight the title for the approach, departure or arrival you wish to delete. Titles appear in white directly above the procedure's waypoints.
3. Press the **CLR** key to display a confirmation window. With 'OK' highlighted, press the **ENT** key 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 FMS** knob to activate the cursor.
2. Turn the **large FMS** knob to highlight the identifier for the waypoint you wish to delete.
3. Press the **CLR** key to display a confirmation window.
4. With "OK" highlighted, press ENT to remove the selected waypoint.

FLIGHT PLAN CATALOG PAGE

The Flight Plan Catalog Page is the second flight planning page and provides flight planning information and editing capability. Once a Direct-to or flight plan has been activated, the Active Flight Plan catalog Page displays the following:

- Number of flight plans in memory.
- Flight Plan List.
- Flight Plan information box containing departure, destination, total distance, and estimated safe altitude information.

To display the Flight Plan Catalog Page:

1. Press the **FPL** key and turn the **small FMS** knob to display the Flight Plan Catalog Page.

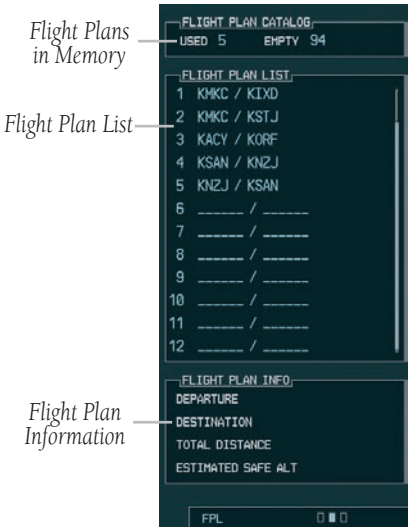

Figure 8A.6.12 Flight Plan Catalog Page

FLIGHT PLAN CATALOG PAGE OPERATIONS

The following operations can be performed from the Flight Plan Catalog Page:

- Activate a Flight Plan
- Stop Navigating a Flight Plan
- Invert and Activate a FPL
- Create a New Flight Plan
- Copy a Flight Plan
- Delete a Flight Plan
- Delete All Flight Plans
- Sort Flight Plans by Comment
- Flight Plan Catalog Page Options
- Edit a Flight Plan

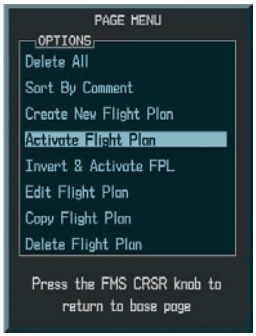

Figure 8A.6.13 Flight Plan Catalog Page Options

Activate a Flight Plan

Once a flight plan is defined using the Flight Plan Catalog Page it can be activated for navigation. Activating the flight plan overwrites any previous information at that location.

To activate (begin to navigate) an existing flight plan:

1. Press the **FPL** key and turn the **small FMS** knob to display the Flight Plan Catalog Page.
2. Press the **FMS** knob to activate the cursor.
3. Turn the **large FMS** knob to highlight the desired flight plan and press the **MENU** key to display the Flight Plan Catalog Page options.
4. Turn the **large FMS** knob to highlight 'Activate Flight Plan' and press the **ENT** key.
5. An 'Activate stored flight plan?' confirmation window is displayed. With OK highlighted, press the **ENT** key to activate the flight plan. To cancel the flight plan activation, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.

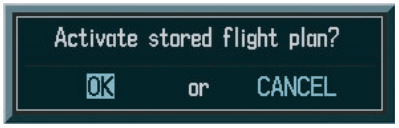

Figure 8A.6.14 Activate Stored Flight Plan Confirmation

Stop Navigating a Flight Plan

To stop navigating a flight plan:

1. Press the **FPL** key and turn the **small FMS** knob to display the Flight Plan Catalog Page.
2. Press the **FMS** knob to activate the cursor.
3. Turn the **large FMS** knob to highlight the desired flight plan and press the **MENU** key to display the Flight Plan Catalog Page options.
4. Turn either the **small or large FMS** knob to highlight 'Delete Flight Plan' and press the **ENT** key. A 'Delete Flight Plan' confirmation window is displayed. With 'OK' highlighted, press the **ENT** key to delete the flight plan. To cancel the flight plan deletion, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.

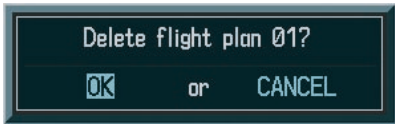

Figure 8A.6.15 Delete Flight Plan Confirmation

Invert and Activate a Flight Plan

'Invert & Activate FPL' allows the active flight plan to be inverted and activated for navigation.

To invert and activate a flight plan:

1. Press the **FPL** key and turn the **small FMS** knob to display the Flight Plan Catalog Page.
2. Press the **FMS** knob to activate the cursor.
3. Turn the **large FMS** knob to highlight the desired flight plan and press the **MENU** key to display the Flight Plan Catalog Page options.
4. Turn either the **small or large FMS** knob to highlight 'Invert & Activate FPL' and press the **ENT** key.
5. An 'Invert and activate stored flight plan?' confirmation window is displayed. With 'OK' highlighted, press the **ENT** key to inverts and activate the flight plan. To cancel the operation, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.

Create a New Flight Plan

'Create New Flight Plan' creates a new flight plan.

To create a new flight plan:

1. Press the **FPL** key and turn the **small FMS** knob to display the Flight Plan Catalog Page.
2. Press the **MENU** key to display the Flight Plan Catalog Page options.
3. Turn the **large FMS** knob to highlight 'Create New Flight Plan' and press the **ENT** key.
4. A blank flight plan page is displayed for the first empty storage location. Turn the **small and large FMS** knobs to enter the identifier of the departure waypoint and press the **ENT** key.
5. Repeat step number 4 to enter the identifier for each additional flight plan waypoint.
6. Once all waypoints have been entered, press the **FMS** knob to return to the Flight Plan Catalog Page.

Figure 8A.6.16 New Flight Plan

Copy a Flight Plan

'Copy Flight Plan' copies the active flight plan to a Flight Plan Catalog location. The copy function is useful for duplicating the active flight plan before making changes.

To copy a flight plan to another flight plan catalog location:

1. From the Flight Plan Catalog press the **FMS** knob to activate the cursor, turn the **large FMS** knob to highlight the flight plan the pilot wishes to copy, then press the **MENU** key to display the Flight Plan Catalog Options.
2. Turn the **large FMS** knob to highlight 'Copy Flight Plan' and press the **ENT** key.
3. A 'Copy to flight plan?' confirmation window is displayed. With 'OK' highlighted, press the **ENT** key to copy the flight plan. To cancel, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key

Delete a Flight Plan

'Delete Flight Plan' removes all waypoints from the active flight plan. (Deleting a flight plan does not delete the waypoints contained in the flight plan from the database or user waypoint memory.) Once the pilot is finished with a flight plan, it can easily be deleted from the Flight Plan Catalog Page or the Active Flight Plan Page.

To delete a flight plan from the Active Flight Plan Page:

1. From the Active Flight Plan Page, press the **MENU** key to display the Active Flight Plan options window.
2. Turn the **large FMS** knob to highlight 'Delete Flight Plan' and press the **ENT** key.
3. A 'Delete all waypoints in flight plan?' confirmation window is displayed. With 'OK' highlighted, press the **ENT** key to delete the active flight plan. To cancel, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.

To delete a flight plan from the Flight Plan Catalog Page:

1. From the Flight Plan Catalog Page, press the **FMS** knob to activate the cursor, turn the **large FMS** knob to highlight the flight plan to delete.
2. Press the **MENU** key to display the Flight Plan Catalog options.
3. Turn the **large FMS** knob to highlight 'Delete Flight Plan' and press the **ENT** key.
4. A 'Delete flight plan?' confirmation window is displayed. With 'OK' highlighted, press the **ENT** key to delete the flight plan. To cancel, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.

Delete All Flight Plans

'Delete All' removes all flight plans from memory at one time.

To delete all flight plans:

1. From the Flight Plan Catalog Page, press the **MENU** key to display the Flight Plan Catalog Page options.
2. Turn the **large FMS** knob to highlight 'Delete All' and press the **ENT** key. A 'Delete all flight plans?' confirmation window is displayed. With 'OK' highlighted, press the **ENT** key to delete all flight plans. To cancel, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.

Sort By Comment/Number

'Sort List By Number/Sort List by Comment' selects between a Flight Plan Catalog Page sorted numerically by the flight plan number or sorted alphanumerically based upon the comment assigned to each flight plan. When one option is selected, the other option is displayed on the Flight Plan Catalog options window.

To sort the catalog listing by number or comment:

1. From the Flight Plan Catalog Page, press the **MENU** key to display the Flight Plan Catalog Page options.
2. Turn the **large FMS** knob to highlight 'Sort List By Number' or 'Sort List By Comment' and press the **ENT** key. This will change flight plan ordering.
3. A 'Proceed?' confirmation window is displayed. With OK highlighted, press the **ENT** key to change flight plan ordering. To cancel, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.

To edit a flight plan:

1. Press the **FPL** key and turn the **small FMS** knob to display the Flight Plan Catalog Page.
2. Press the **FMS** knob to activate the cursor.
3. Turn the **large FMS** knob to highlight the desired flight plan and press the **ENT** key.
4. To add a waypoint to the flight plan: Turn the **large FMS** knob to select the point where the new waypoint is to be added. (If an existing waypoint is highlighted, the new waypoint is placed directly in front of this waypoint.) Turn the **small and large FMS** 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 FMS** knob to select the waypoint to delete and press the **CLR** key to display a remove waypoint confirmation window. With 'OK' highlighted, press the **ENT** key to remove the waypoint. To cancel, turn the **large FMS** knob to highlight 'CANCEL' and press the **ENT** key.
6. Once all changes have been made, press the **FMS** knob to return to the Flight Plan Catalog Page.

Point-n-Shoot Flight Plan Creation Feature

The "Point-n-Shoot" flight plan creation feature is activated using the Navigation Map Page and the Active Flight Plan Page.

To create a Point-n-Shoot flight plan:

1. Push the **Joystick** to turn the map cursor on.
2. Select the Active Flight Plan Page and press the **FMS** knob to highlight the list of waypoints. Waypoints are inserted ABOVE the highlighted row if the cursor is on. Waypoints are inserted at the END of the flight plan if the cursor is off.
3. To insert waypoints, use the map cursor to point at the desired waypoint (it will become visually enhanced when it is properly pointed to), and press the **LD WPT** softkey. Existing user waypoints are inserted in the same manner.
4. If the selected waypoint is not a Jeppesen waypoint (Airport or Navaid) or user waypoint, the G1000 creates a user waypoint (beginning with 'USR000') at the point and inserts it into the flight plan.
5. The pilot can also create and insert a user waypoint by pointing at a blank spot on the nav map and pressing 'LD WPT'. This creates a user waypoint at the map cursor and inserts it into the flight plan.

VERTICAL NAVIGATION (VNAV) PAGE

The Vertical Navigation Page allows the creation of a three-dimensional profile which guides the aircraft from it's present position and altitude to a final (target) altitude at a specified location. This is helpful when you 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 Navigation Map Page keep the pilot informed of progress.

NOTE: *VNAV has no effect on KAP140 Autopilot operation.*

NOTE: *An active flight plan or Direct-to must be entered in order to utilize VNAV.*

NOTE: *To display terrain or topo data on the Vertical Navigation Map Page, press the* **MAP** *softkey. Press the* **TOPO, TERRAIN, or LTNG** *softkey. Press the* same *softkey to remove the displayed data from the Vertical Navigation Page.*

To create a vertical navigation profile:

1. Select the Vertical Navigation Page.
2. Press the **FMS** knob to activate the cursor.

Figure 8A.6.17 Vertical Navigation (VNAV) Page

3. With the 'TARGET ALTITUDE' field highlighted, turn the **small and large FMS** knobs to select the target altitude and press the **ENT** key.
4. Turn the **small FMS** knob to select 'Above Wpt' (AGL) or 'MSL', and press the **ENT** key. 'Above Wpt' uses the altitude of a destination airport. 'MSL' lets you set a specific target altitude for any waypoint category: airport, VOR, NDB, intersection or user waypoint.
5. Turn the **small and large FMS** knobs to select a distance from the target reference waypoint and press the **ENT** key. If the target altitude should occur at the target reference waypoint, enter a distance of zero.
6. Turn the **small FMS** knob to select 'Before' or 'After', and press the **ENT** key. 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, turn the **small FMS** knob to select the desired waypoint and press the **ENT** key.
8. The default profile utilizes a 400 foot-per-minute descent rate. To change the rate, turn the **large FMS** knob to highlight the 'Target Vertical Speed' field and use the small and **large FMS** knobs to enter a new rate. Press the **ENT** key when finished.

With the profile set, the vertical speed required (VSR) is displayed. Expect the following to occur when using the vertical navigation feature:

At one minute prior to reaching the initial descent point, the message 'APPR VPROF - Appoaching VNAV Profile' is displayed as a PFD alert. 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 'APPR TRG ALT' - Approaching Target Altitude" message is provided. The VSR readout on the Navigation Map Page is blanked out at this point.

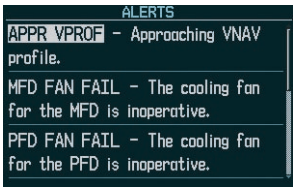

Figure 8A.6.18 Approaching VNAV Profile Message (PFD)

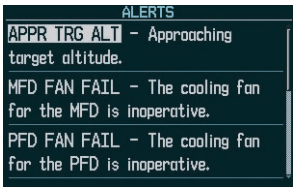

Figure 8A.6.19 Approaching Target Altitude Message (PFD)

VNAV Page Menu Options

The VNAV messages are not enabled until the 'VNAV Messages On?' option is enabled from the VNAV Page Menu Options. To display the page menu, press the **MENU** key (with the VNAV Page displayed). The VNAV Page Options Menu also allows the pilot to restore VNAV page defaults.

8A.7 PROCEDURES

ARRIVALS AND DEPARTURES

Based upon the active flight plan or Direct-to destination, the Procedures Page provides direct access to approaches, departures and arrivals. In either case, the departure and destination airports must have associated published procedures. The Procedures Page is displayed by pressing the **PROC** key.

Figure 8A.7.1 Procedures Page

NOTE: *Pilots should be familiar with section 1-1-20 of the Aeronautical Information Manual (AIM) regarding the use of GPS.*

To select a departure:

1. Press the **PROC** key to display the Procedures Page. Turn the **large FMS** knob to highlight 'Select Departure' and press the **ENT** key.
2. The 'Departure Loading' page is displayed with the list of departure options for the departure airport. Turn either the **small or large FMS** knobs to enter the desired departure. Press the **ENT** key.
3. 'Load?' is highlighted. Press the **ENT** key. The departure becomes part of the flight plan.

To select an arrival:

1. Press the **PROC** key to display the Procedures Page. Turn the **large FMS** knob to highlight 'Select Arrival' and press the **ENT** key.
2. The procedures page is displayed. Turn the **small and large FMS** knobs to enter the desired arrival.
3. The cursor moves to the 'TRANSITION' field. Turn the **large FMS** knob to highlight the desired transition waypoint and press the **ENT** key. 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.

NOTE: *Vector departures are not part of the avation database.*

NOTE: *The approach vectors option assumes the pilot will receive vectors to the final course segment of the approach and will provide navigation guidance on the final approach segment and extension only.*

APPROACHES

The G1000 allows you to fly non-precision and precision approaches to airports with published instrument approach procedures. All available approaches are part of the Jeppesen database stored internally in each PFD and MFD.

The G1000 provides both lateral and vertical guidance for ILS precision approaches on the PFD, and lateral guidance for non-precision Localizer, GPS, and VOR and ADF overlay approaches. GPS position information is also provided on the mapping portion of the MFD and the inset map window on the PFD for pilot reference only.

G1000 NAVIGATIONAL GUIDANCE FOR APPROACHES

The G1000 supports all ARINC 424 leg types that have associated waypoint fixes. The G1000 uses the following leg types as part of the Jeppesen database:

- AF - DME arc to a fix
- CF – Course to a fix
- DF – Direct to a fix
- FA – Course from fix to an altitude
- FC – Course from fix to distance
- FD – Course from fix to DME distance
- FM – Course from fix to manual termination
- HA – Hold terminating at altitude
- HF – Hold terminating at a fix
- HM – Hold with manual termination
- IF – Initial fix
- PI – Procedure turn to course intercept
- RF – Constant radius turn to fix
- TF – Track between two fixes

Each of these legs is displayed on the active flight plan. The G1000 does not support the following legs:

- CA – Course to an altitude
- CD – Course to a DME distance
- CI – Course to an intercept
- CR – Course to a radial
- VA – Heading vector to an altitude
- VD – Heading vector to DME distance
- VI – Heading vector to an intercept
- VM – Heading vector to manual termination
- VR – Heading vector to a radial

NOTE: *The G1000 does not provide steering guidance for hold legs and procedure turns (HA, HF, HM and PI leg types). However, these legs are drawn on the map and are shown in the flight plan.*

NOTE: *The pilot is responsible for determining database currency for approaches.*

NOTE: *The approach charts shown in this section are not drawn to range and are not to be used for navigation.*

SELECTING APPROACHES

In order to select an approach, there must be an active flight plan or direct-to which terminates at an airport with a published approach.

To select an approach:

1. Press the **PROC** key to display the Procedures Page. Turn the **large FMS** knob to highlight 'Select Approach' and press the **ENT** key. The approach procedure window appears.
2. Turn the **FMS** knob to select the desired approach and press the **ENT** key. The transition window appears.

NOTE: *The approach vectors option assumes the pilot will receive vectors to the final course segment of the approach and will provide navigation guidance on the final approach segment and extension only.*

3. Turn the **FMS** knob to select the desired transition and press the **ENT** key. 'LOAD?' is now highlighted. Press the **ENT** key. Activate the approach once the approach clearance is received.

NOTE: *'LOAD?' will add 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. 'Activate?' overrides the enroute portion of the active flight plan, proceeding directly to the approach portion.*

NOTE: *You can also load an approach by pressing the* **APR** *softkey.*

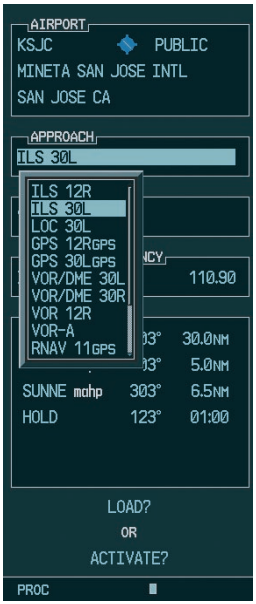

Figure 8A.7.2 Selecting an Approach Procedure

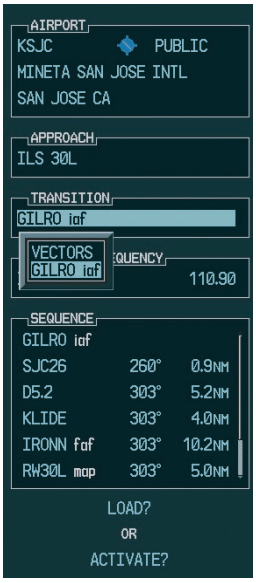

Figure 8A.7.3 Selecting an Approach Transition

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 will not have this designation, meaning the GPS receiver can be used for supplemental navigation guidance only. If the GPS receiver cannot be used for primary guidance, you must use the appropriate receiver for the selected approach (e.g., VOR or ILS). The final course segment of ILS approaches, for example, must be flown by tuning the Nav receiver to the proper frequency and selecting that Nav receiver on the CDI.

A selected approach can be activated or loaded. Activating the approach also initiates automatic CDI scaling transition as the approach progresses. In many cases, it can 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 FAF waypoint active. Otherwise, activate the full approach using the 'Activate Approach?' option.

To activate an approach procedure:

1. With an approach loaded in the active flight plan, press the **PROC** key to display the Procedures Page.
2. Turn the **large FMS** knob to highlight 'Activate Approach'.
3. Press the **ENT** key.

***CAUTION**: The G1000 is designed to only complement printed approach plates and vastly improve situational awareness throughout the approach. The approach must be flown as it appears on the approach chart.*

Figure 8A.7.4 Activating an Approach Procedure

***NOTE**: The GPS approach examples given in the next section are not to be used for navigation. They are to be used in conjunction with the G1000 PC training simulator software for practice in learning what types of approaches the G1000 supports.*

GPS APPROACH EXAMPLES

No Procedure Turn

An approach where there is typically no procedure turn required to get established on the inbound course to the FAF is the first example. We use GPS RWY 12 at KPRC to show how the G1000 sequences through an approach and what type of annunciation and range factor changes can be expected. This example is based upon and active flight plan from KFLG (Flagstaff, AZ Pulliam Airport) to KPRC (Prescott, AZ Love Airport).

1. Select KPRC as the destination, via the **Direct-To** key or as the last waypoint in a flight plan.
2. Press the **PROC** key and select the GPS RWY 12 approach. From the transitions window, select IRODY as the IAF (select 'LOAD?' or 'ACTIVATE?').
3. Within 30 nm of the destination, the G1000 switches from enroute mode to terminal mode. The switch to terminal mode is accompanied by a gradual CDI range transition from 5.0 to 1.0 nm full range deflection.
4. Several miles prior to reaching the IAF (IRODY), you may wish to review the approach sequence. Press the **FPL** key to display the Active Flight Plan Page. Press the **FMS** knob and turn the **large FMS** knob to review each segment of the approach. When finished press the **FPL** key again to return to the previous page.
5. As you approach the IAF (IRODY), the waypoint message 'NEXT DTK 204°' is displayed in the navigation status bar on the PFD. As the distance to the IAF approaches zero, the message is replaced by a turn advisory 'TURN TO 204°'.
6. As you approach the IAP (OKAPY), the waypoint message 'NEXT DTK 124°' is displayed. As the distance approaches zero the message is replaced by a turn advisory 'TURN TO 124°'.
7. At 2.0 nm from the FAF (MULHU), the G1000 switches from terminal mode to approach mode. CDI scaling is tightened from 1.0 to 0.3 nm full range deflection.
8. As you cross the FAF 'NEXT DTK 124°' is displayed and the destination sequences to the MAP (RW12map, the runway threshold). Keeping the needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.
9. As you approach the MAP, the waypoint message 'ARRIVING AT WAYPOINT' is displayed.
10. As you cross the MAP, 'SUSP' is displayed in the HSI and directly above the **SUSP** softkey, indicating that automatic sequencing of approach waypoints is suspended at the MAP. A 'FROM' indication is displayed on the CDI, but course guidance along the final approach course continues. If a missed approach is required, use the **SUSP** softkey to initiate the missed approach sequence.

***NOTE**: When the message 'RAIM is not available' is displayed in the Alerts Window on the PFD a missed approach must be executed.*

***NOTE**: You must intercept the final approach course 2 nm outside of the FAF for the approach to be active.*

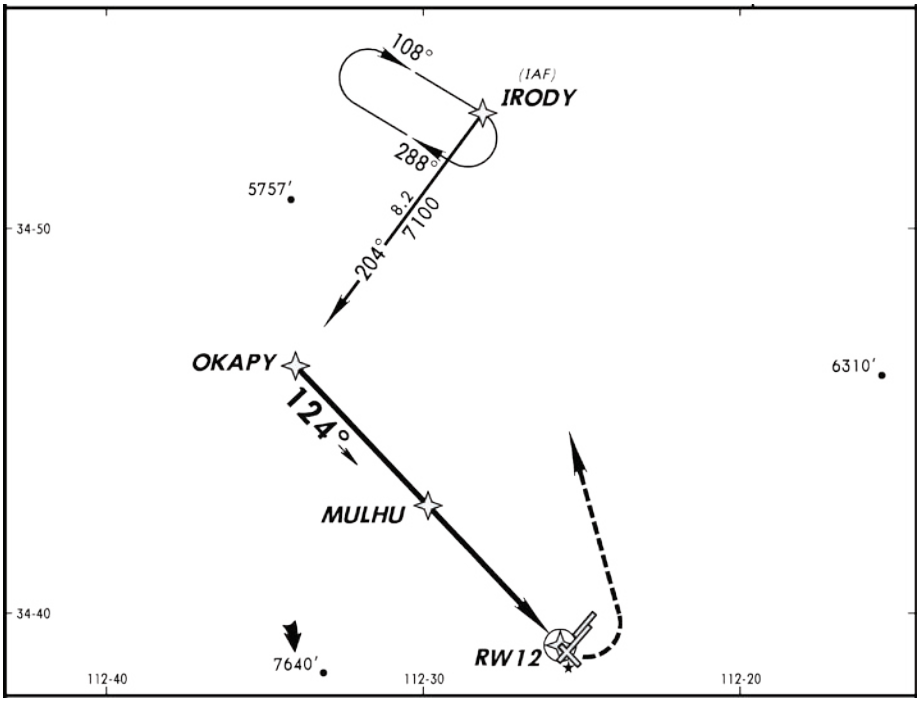

Figure 8A.7.5 Approach with No Procedure Turn

Flying the Missed Approach

As you pass the MAP, if the runway isn't in view, a missed approach must be performed. The G1000 continues to give guidance along an extension of the final course segment (FAF to MAP) until you manually initiate the missed approach procedure.

1. As you cross the MAP, the waypoint message 'ARRIVING AT WAYPOINT' is displayed in the navigation status bar on the PFD. 'SUSP' is displayed in the HSI and directly above the **SUSP** softkey, indicating that automatic sequencing of approach waypoints is suspended. A 'FROM' indication is displayed on the CDI, but course guidance along the final approach course continues. Use the **SUSP** softkey to initiate the missed approach sequence. Press the **CDI** softkey to resume GPS navigation.
2. Press the **SUSP** softkey. The missed approach holding point (IRODY) is automatically offered as the destination waypoint.
3. Follow the missed approach procedures, as dictated by the approach plate. The G1000 gives guidance to the holding pattern.
4. A message is displayed in the navigation status bar on the PFD recommending entry procedures for the holding pattern (HOLD PARALLEL).
5. The G1000 provides course guidance only on the inbound side of the holding pattern. When leaving the holding pattern to re-fly the approach, press the **PROC** key to 'Select Approach?' or 'Activate Approach?' (or use the **Direct-To** key to select another destination).

***NOTE**: When the message 'RAIM is not available' is displayed in the Alerts Window on the PFD a missed approach must be executed.*

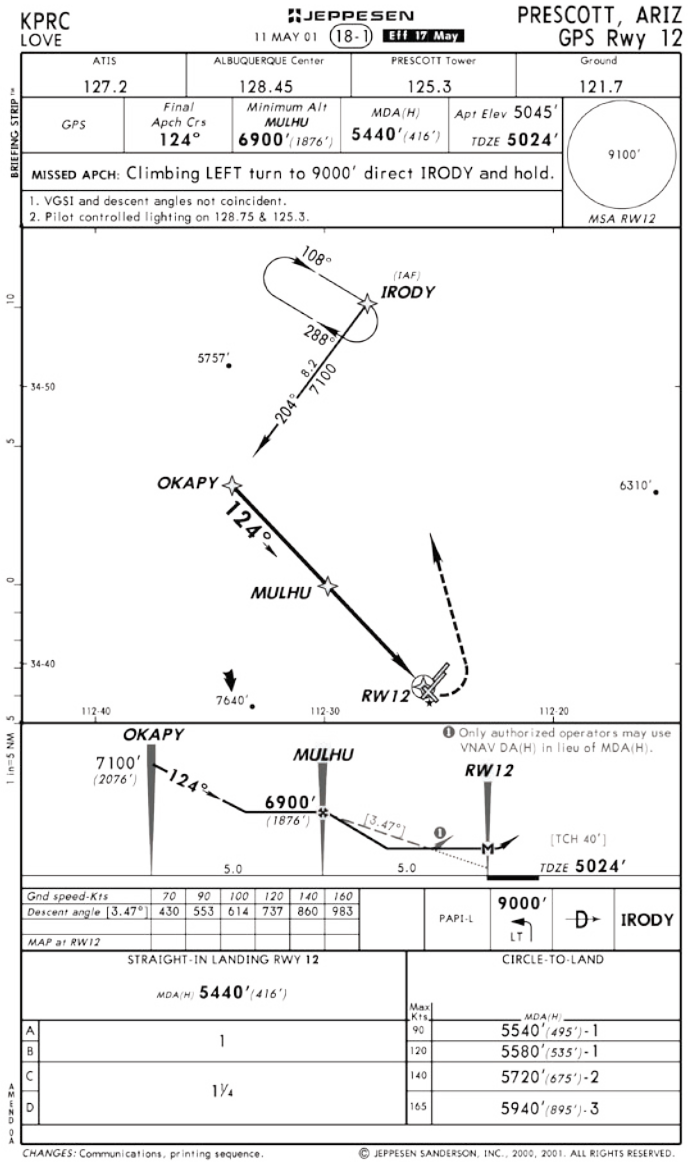

Figure 8A.7.6 Flying the Missed Approach

Flying the Procedure Turn

The procedure turn portion of the approach is stored as one of the legs of the approach. For this reason the G1000 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 is based upon a flight from KILG (Wilmington, DE New Castle County) to KMIV (Millville, NJ Municipal). The approach into KMIV will be NDB or GPS RWY 14 with the RNB transition.

1. Select KMIV 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 NDB or GPS RWY 14 approach. From the transitions window select RNB as the IAF. Choose 'LOAD?' or 'ACTIVATE?'
3. Once you are cleared for the approach, press the **PROC** key and select 'ACTIVATE APPROACH?'
4. Within 30 nm of the destination, the G1000 switches from enroute mode to terminal mode. The switch to terminal mode is accompanied by a gradual range transition from 5.0 to 1.0 nm, full range deflection.
5. Several miles prior to reaching the IAF (RNB), you may wish to review the approach sequence. Press the FPL key to display the Active Flight Plan Page. Press the **FMS** knob and turn the **large FMS** knob to review each segment of the approach. When finished, press the **FPL** key again to return to the previous page.
6. As you approach the IAF (RNB), the waypoint message (NEXT DTK 327°) is displayed in the navigation status bar on the PFD. As the distance approaches zero the message is replaced by a turn advisory (TURN TO 327°).
7. Fly the outbound course keeping the CDI needle centered.
8. Once you have flown approximately one minute past the IAF, the message 'START PROC TURN' is displayed.
9. Turn left to a heading of 282° to initiate the procedure turn. No guidance through the procedure turn is given. The procedure turn is displayed in magenta indicating the active leg. The CDI needle starts moving to the right.
10. After approximately one minute, make a 180° right turn to a heading of 102° to intercept the inbound course. The G1000 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 147°' is displayed in the navigation status bar on the PFD.
11. As the CDI needle starts to center, make a right turn to 147° to intercept the final approach course.
12. At 2.0 nm from the FAF (RNB), the G1000 switches from terminal mode to approach mode. CDI scaling is tightened from 1.0 to 0.3 nm, full range deflection.
13. As you cross the FAF, the message 'NEXT DTK 147°' is displayed and the destination sequences to the MAP (RW14map, the runway threshold). Keeping the CDI needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.

14. As you approach the MAP, the waypoint message 'ARRIVING AT WAYPOINT' is displayed.
15. As you cross the MAP, 'SUSP' is displayed in the HSI and directly above the **SUSP** softkey, indicating that automatic sequencing of approach waypoints is suspended. A 'FROM' indication is displayed in the CDI, but course guidance along the final approach course continues. If a missed approach is required, use the **SUSP** softkey to initiate the missed approach sequence.

***NOTE**: Once the FAF is crossed, the final course segment is displayed in magenta and a dashed line extends the course beyond the missed approach point. The dashed line is provided for situational awareness only and should NOT be used for navigation. Please follow the published missed approach procedures.*

***NOTE**: When the message 'RAIM is not available' is displayed in the Alerts Window on the PFD a missed approach must be executed.*

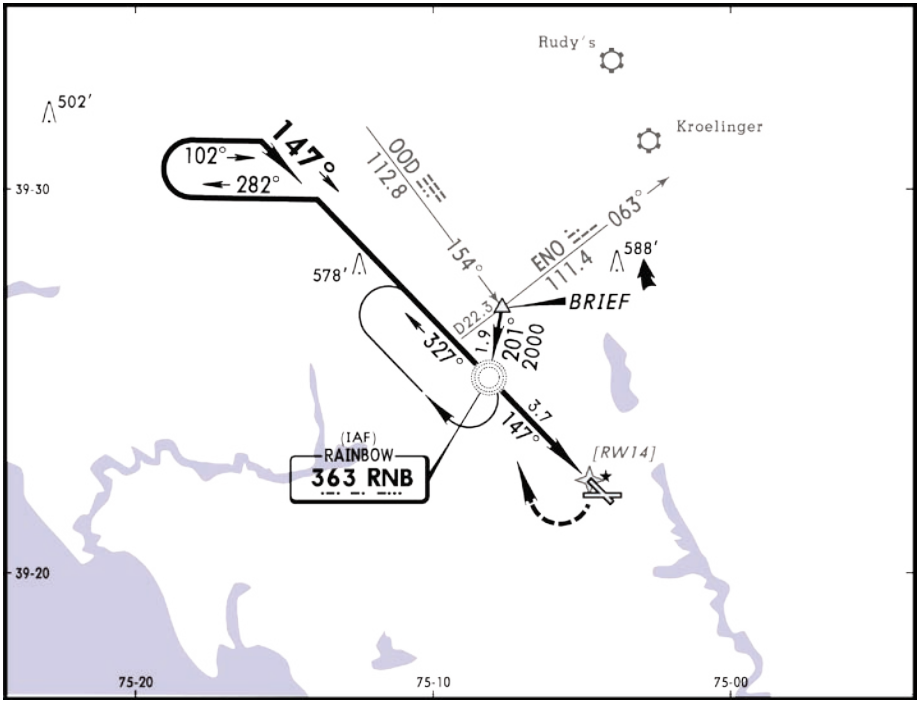

Figure 8A.7.7 Flying the Procedure Turn

Flying the DME ARC

The GPS overlay for a DME arc approach uses additional Jeppesen provided waypoints to define the arc. 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 KSAF (Santa Fe, NM Municipal) to KFMN (Farmington, NM Four Corners Regional). The VOR DME RWY 7 approach is selected along with "HIDOX" as the IAF.

1. Select KFMN 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 DMW RWY 7 approach. From the transitions window, select "HIDOX" as the IAF. Choose 'LOAD?' or 'ACTIVATE?'
3. Within 30 nm of KFMN, the G1000 switches from enroute mode to terminal mode. The CDI range gradually transitions from 5.0 to 1.0 nm, full range deflection.
4. If you haven't already activated the approach, be sure to do so when cleared for the approach.
5. As you approach the IAF (HIDOX), the waypoint message 'NEXT DTK 206°' is displayed in the navigation status bar on the PFD. As the distance to the IAF approaches zero, the message is replaced by a turn advisory 'TURN TO 206°'.
6. Follow the arc, keeping the CDI needle centered.
7. The next point in the approach is an intermediate fix "WILDE". As you approach "WILDE" the waypoint message 'NEXT DTK 072°' is displayed. As the distance to this fix approaches zero the message is replaced by a turn advisory 'TURN TO 072°'. Initiate a standard rate turn to this course heading.
8. At 2.0 nm from the FAF (PINTO), the G1000 switches from terminal mode to approach mode. CDI scaling is tightened from 1.0 to 0.3 nm, full range deflection.
9. As you approach the FAF, the waypoint message 'NEXT DTK 072°' is displayed. Make any adjustments necessary for the final course segment (FAF to MAP).
10. As you cross the FAF, the destination sequences to the MAP (RW07map, the runway threshold). Keeping the CDI needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.
11. As you approach the MAP, the waypoint message 'ARRIVING AT WAYPOINT' is displayed.
12. As you cross the MAP, 'SUSP' is displayed in the HSI and directly above the **SUSP** softkey, indicating that automatic sequencing of approach waypoints is suspended. A 'FROM' indication is displayed on the CDI, but course guidance along the final approach course continues. If a missed approach is required, use the **SUSP** softkey to initiate the missed approach.

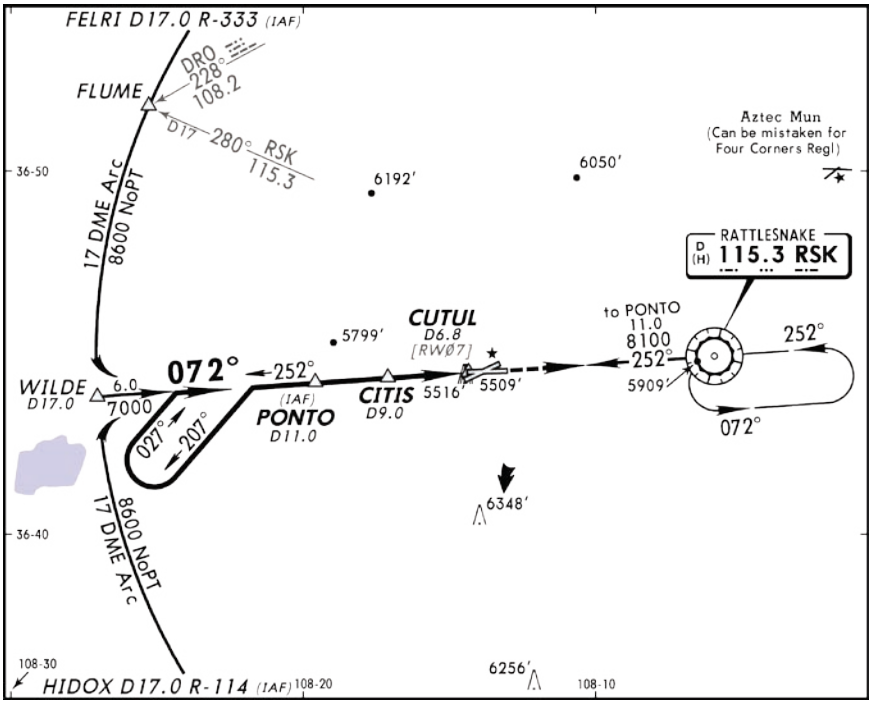

Figure 8A.7.8 Flying the DME Arc and Vectors to the DME Arc

Vectors to the DME ARC

In this example you are enroute from KSAF to KFMN on a heading of 294°, 25 miles out and ATC is giving you vectors to intercept the arc outbound from HIDOX.

1. If you haven't already activated the approach, be sure to do so when cleared for the approach.
2. ATC instructs you to turn left to a heading of 270° to intercept the arc.
3. Prior to intercepting the arc you must activate that leg since you did not intercept the arc at the IAF.
4. With the Active Flight Plan page displayed, press the **FMS** knob to activate the cursor.
5. Turn the **large FMS** knob to highlight DME ARC and press the **MENU** key to display a list of options.
6. 'Activate Leg' is now highlighted, press the **ENT** key. A confirmation window is displayed with 'ACTIVATE' highlighted, press the **ENT** key. This activates the arc leg as well as the approach.
7. Follow the arc, keeping the CDI needle centered.
8. The next point in the approach is an intermediate fix WILDE. As you approach WILDE the waypoint message 'NEXT DTK 072°' is displayed. As the distance to this fix approaches zero the message is replaced by a turn advisory 'TURN TO 072°'. Initiate a standard rate turn to this course heading.
9. At 2.0 nm from the FAF (PINTO), the G1000 switches from terminal mode to 0.3 nm. CDI scaling is tightened from 1.0 to 0.3 nm, full range deflection.
10. As you approach the FAF, the waypoint message 'NEXT DTK 072°' is displayed. Make any adjustments necessary for the final course segment (FAF to MAP).
11. As you cross the FAF, the destination sequences to the MAP (RW07map, the runway threshold). Keeping the CDI needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.
12. As you approach the MAP, the waypoint message 'ARRIVING AT WAYPOINT' is displayed.
13. As you cross the MAP, 'SUSP' is displayed in the HSI and directly above the **SUSP** softkey, indicating that automatic sequencing of approach waypoints is suspended. A FROM indication is displayed on the CDI, but course guidance along the final approach course continues. Do NOT follow this extended course. Follow the published missed approach procedures using the **SUSP** softkey to initiate the missed approach sequence.

Accomplishing a Holding Pattern

This example is based upon a missed approach from KSOP (Moore County, NC). Now you've decided to divert to KIGX (Chapel Hill, NC) instead. You select the RNAV (GPS) RWY 9 approach into KIGX. The RNAV (GPS) RWY 9 approach begins with a holding pattern at the IAF, FIKKA.

1. Press the **Direct-to** key.
2. Turn the **small and large FMS** knobs to enter the destination airports identifier (KIGX).
3. Press the **ENT** key twice. This time you select the RNAV (GPS) RWY 9 approach into KIGX. The approach begins with a holding pattern at the IAF (FIKKA).
4. Press the **PROC** key and select the RNAV (GPS) RWY 9 approach.
5. From the transitions window, select FIKKA as the IAF, then you will be asked 'Hold at FIKKA?' Select Yes or No and press the **ENT** key. Choose 'ACTIVATE?', this will load and activate the approach.
6. Once you activate the approach, the Active Flight Plan Page is displayed. You may review the approach sequence by pressing the **small FMS** knob and turning the **large FMS** knob to review each segment of the approach.
7. Within 30 nm of the airport, the G1000 switches from enroute mode to terminal mode. The CDI range transitions from 5.0 to 1.0 nm, full range deflection.
8. Prior to crossing FIKKA, the message 'HOLD DIRECT' is displayed in the navigation status bar on the PFD to suggest the proper holding pattern entry.
9. Fly the holding pattern (the holding pattern is displayed in magenta, indicating the active leg).
10. As you cross the IAF, 'SUSP' is displayed in the HSI and directly above the **SUSP** softkey indicating that automatic sequencing of approach waypoints is suspended. As you make the turn inbound, 'SUSP' is cancelled and the G1000 returns to automatic sequencing.
11. As you approach FIKKA from within the holding pattern, the waypoint message 'NEXT DTK 090°' is displayed.
12. At 2.0 nm from the FAF, the G1000 switches from terminal mode to approach mode. CDI scaling is tightened from 1.0 to 0.3 nm, full range deflection.
13. As you approach the FAF, the waypoint message 'NEXT DTK 090°' is displayed. 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 (RW09map, the runway threshold). Keeping the needle centered fly toward the MAP, observing the altitude minimums dictated by the approach plate.

***NOTE**: When viewing the Navigation Map Page, the final course segment is displayed in magenta (the active leg of the flight plan always is displayed in magenta) and a dashed line extends the course beyond the MAP. Do NOT follow this extended course. Instead, follow the published missed approach procedures.*

15. As you approach the MAP, the waypoint message 'ARRIVING AT WAYPOINT' is displayed.

16. As you cross the MAP, 'SUSP' is displayed in the HSI and directly above the **SUSP** softkey, indicating that automatic sequencing of approach waypoints is suspended at the MAP. A 'FROM' indication is displayed on the CDI, but course guidance along the final approach course continues. If a missed approach is required, use the **SUSP** softkey to initiate the missed approach sequence.

***NOTE**: Do not press the OBS softkey until you are ready to make the turn.*

***NOTE**: When the message 'RAIM is not available' is displayed in the Alerts Window on the PFD a missed approach must be executed.*

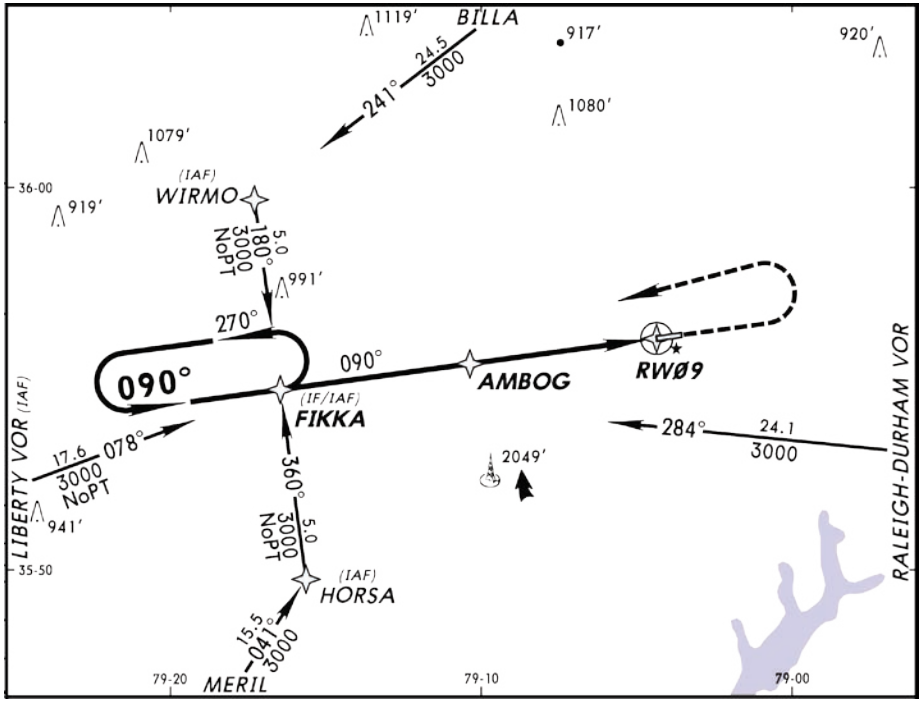

Figure 8A.7.9 Accomplishing a Holding Pattern

Flying a Course from Fix to Distance, or Course from Fix to DME Distance

Certain approach, departure and arrival procedures in the Jeppesen database contain course from fix flight plan legs. The G1000 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 four different types of course from fix legs:

- Course from fix to distance
- Course from fix to DME distance
- Course from fix to an altitude
- Course from fix to manual termination

Course from fix to distance or DME distance legs appear 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 is based on an active flight plan from KBFI (Boeing Field Seattle, WA) to KUAO (Aurora State, OR) using the LOC RWY 17 approach with BTG as the IAF.

1. Select KUAO as you destination, via the **Direct-To** key or as the last waypoint in a flight plan.
2. Press the **PROC** key and select the LOC RWY 17 approach. From the transitions window, select 'BTG' as the IAF.
3. As you reach the IAF (BTG), the waypoint message 'NEXT DTK 176°' is displayed in the navigation status bar on the PFD. As the distance approaches zero, the message is replaced by a turn advisory 'TURN TO 176°'. You are now on the course from fix to distance leg as shown on the active flight plan. The distance displayed in the flight plan is "D21.5". The flight plan automatically sequences to the next leg upon reaching "D21.5".
4. Within 30 nm of KUAO, the G1000 switches from enroute mode to terminal mode and the CDI range transitions from 5.0 to 1.0 nm, full range deflection.
5. As you reach MOKIY intersection, the waypoint message 'NEXT DTK 169°' is displayed. As the distance to MOKIY approaches zero, the message is replaced by a turn advisory 'TURN TO 169°'. Fly this inbound course, keeping the CDI needle centered. CDI coupling automatically switches from GPS receiver to the Nav receiver.
6. Within 2.0 nm of the FAF (LUTZZ), the G1000 switches from terminal mode to 0.3. CDI scaling is tightened from 1.0 to 0.3 nm, full range deflection.
7. As you approach the FAF (LUTZZ), 'NEXT DTK 169°' is displayed. Continue to keep the CDI needle centered.
8. As you cross the FAF, the destination sequences to 29LOC ("D2.9").
9. As you approach 29LOC ("D2.9"), 'NEXT DTK 169°' is displayed. Make any adjustments necessary for the final course segment.
10. As you cross the 29LOC ("D2.9"), the destination sequences to the MAP (RW17map, the runway threshold).
11. As you approach the MAP, the waypoint message 'ARRIVING AT WAYPOINT' is displayed.

12. As you cross the MAP, 'SUSP' is displayed above the **SUSP** softkey, indicating that automatic sequencing of approach waypoints is suspended at the MAP. Course guidance along the final approach course continues. Do NOT follow this extended course. Follow the published missed approach procedure using the **SUSP** softkey to initiate the missed approach sequence.

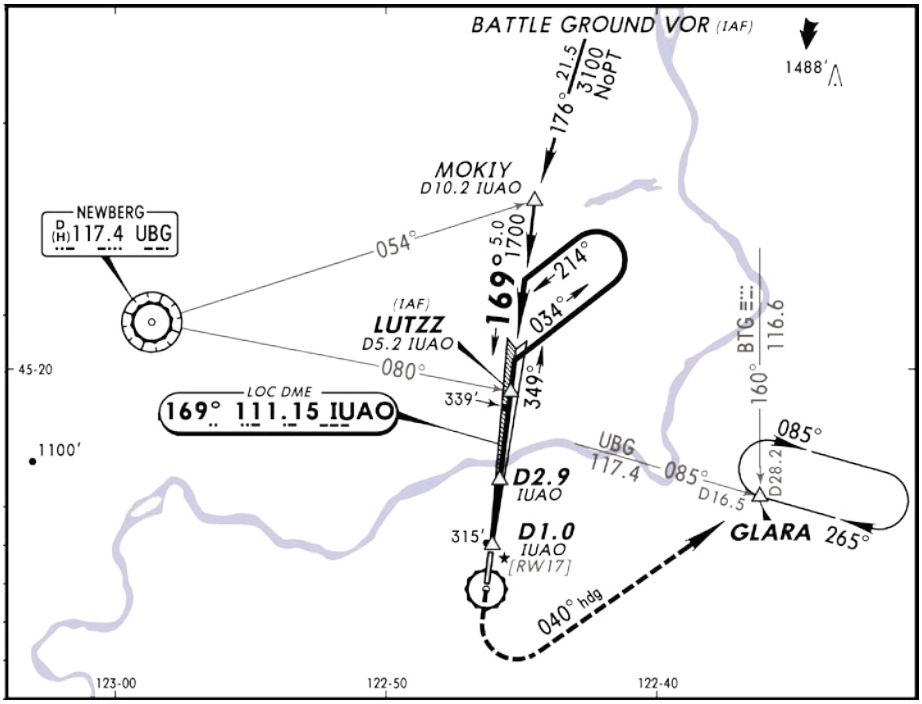

Figure 8A.7.10 Course from Fix to Distance or Course from Fix to DME Distance

Flying a Course from Fix to Altitude

'Course from fix to altitude' legs shows the specific target altitude on the active flight plan. This example is based upon a flight from KSMO (Santa Monica Municipal) to KPMD (Palmdale, CA) with VOR/DME RWY 25 approach selected, which 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 **SUSP** softkey. The missed approach sequence is automatically offered, starting with the course from fix to altitude leg. The 'NEXT DTK 282°' waypoint message is displayed in the navigation status bar on the PFD. 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 the **SUSP** softkey to release suspend mode and start the missed approach sequence, 'SUSP' re-is displayed above the **SUSP** softkey as the G1000 returns to suspend mode. This is normal when flying a course from a fix to altitude leg and indicates that automatic leg sequencing is suspended.
3. Fly the outbound course keeping the CDI needle centered. The Navigation Map Page depicts the flight path extending indefinitely from the PMD VOR. The distance increases and indicates the distance back to the PMD VOR.
4. Upon reaching the desired altitude (5000), press **SUSP** to return to automatic leg sequencing. Confirm that 'SUSP' no longer is displayed directly above the **SUSP** softkey.
5. The message 'NEXT DTK 133°' is displayed, 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), a message in the navigation status bar recommends the holding pattern entry 'HOLD PARALLEL'.
7. Note that the G1000 again displays 'SUSP' above the **SUSP** softkey. Automatic waypoint sequencing is suspended at the missed approach holding point. The waypoint message (ARRIVING AT WAYPOINT) is displayed each time you approach the 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 the **Direct-To** key to select another destination.

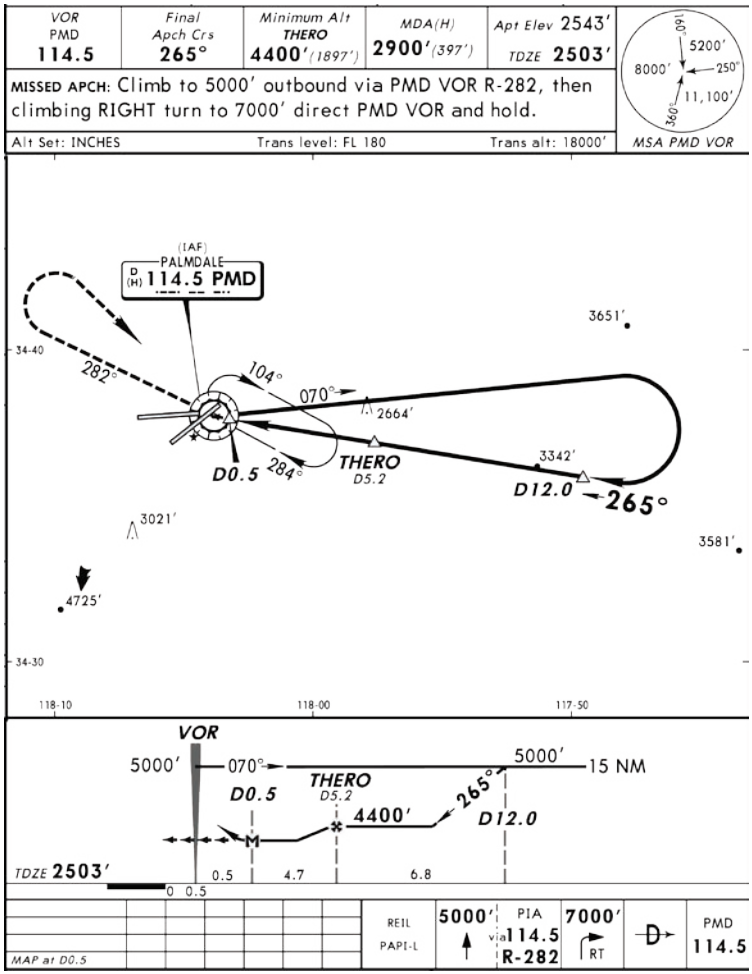

Figure 8A.7.11 Flying a Course from Fix to Altitude

Flying a Course from Fix to Manual Sequence

'Course from fix to manual sequence' legs are displayed on the Active Flight Plan Page and the Navigation Map Page 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 Municipal). The example leg corresponds to the departure leg from Barnes Municipal and appears as follows on the Active Flight Plan, Navigation Map Page and Navigation Status Bar:

1. Press the **PROC** key to select the 'CSTL2' departure. Then select the departure runway 'RW02'. From the transitions window select 'GEDIC'.
2. As you depart the airport, 'NEXT DTK 025°' is displayed in the navigation status bar on the PFD and 'SUSP' is displayed directly above the **SUSP** softkey. You are now on the course from fix to manual sequence leg. The distance displayed is from the waypoint fix (the departure runway RWY 02).
3. Fly the outbound course keeping the CDI needle centered. Once you are cleared to sequence to the next leg, press the **SUSP** softkey. Confirm that 'SUSP' no longer is displayed directly above the **SUSP** softkey. The message 'NEXT DTK 185°' is displayed to guide you to the next waypoint (HFD VOR). The actual desired track (DTK) depends on your ground speed and distance from the HFD VOR.
4. Once the **SUSP** softkey is pressed, the G1000 automatically sequences to each waypoint along the remainder of the departure route, including the selected transition.

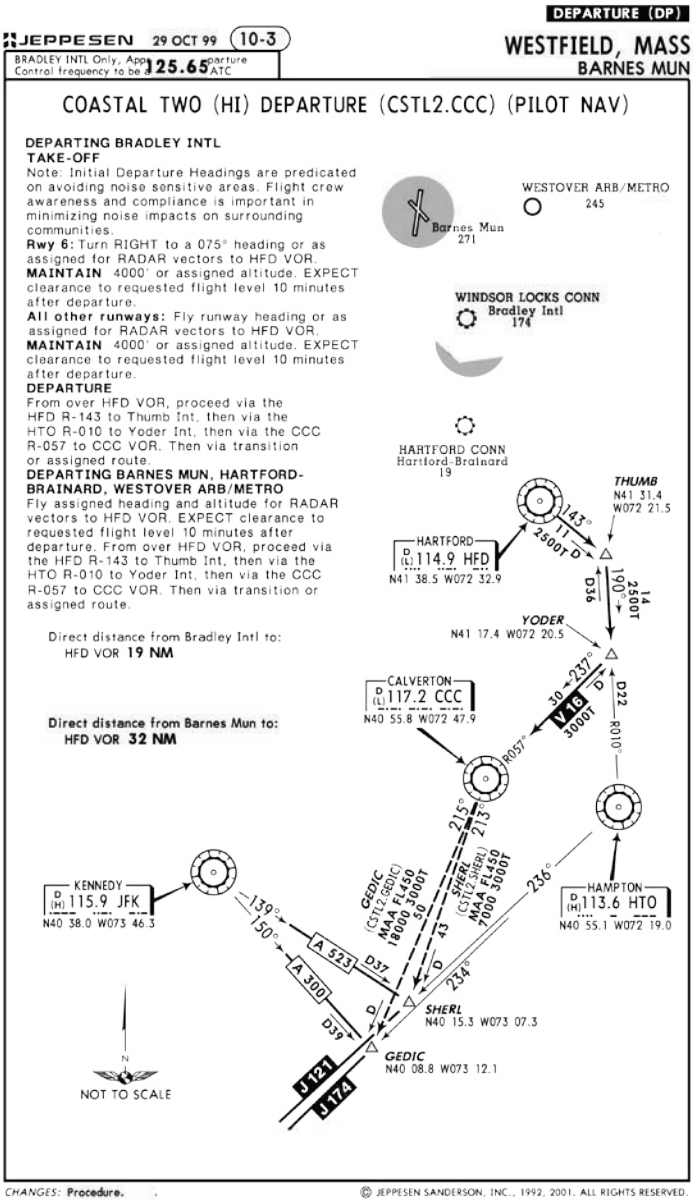

Figure 8A.7.12 Flying a Course from Fix to Manual Sequence

Flying the ILS Approach

***NOTE:** When an ILS approach is loaded, the ILS frequency is automatically placed in the NAV Frequency window. Please, see VHF NAV/COM Pilot's Guide for details.*

Precision approaches can be performed with the built in Nav (VOR/localizer/glideslope) receivers. The GPS receiver can be used for guidance prior to reaching the final approach fix (FAF). Prior to reaching the FAF the CDI should be set to NAV1 or NAV2. The G1000 automatically switches the external CDI output from GPS to NAV1 or NAV2 as you intercept the final approach course. When the ILS approach is activated, the G1000 automatically switches within 1.2 nautical miles left or right of the final approach course. This switch will take place within 15.0 nautical miles prior the FAF.

***NOTE:** If an attempt is made to intercept the approach course beyond the FAF, the CDI must be manually switched from GPS to NAV1 or NAV2 by pressing the **CDI** softkey.*

The CDI selection can also be changed manually by pressing the **CDI** softkey. Once the switch from GPS to Nav has occurred, 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, select the 'Manual' ILS CDI Capture, in the AUX – System Setup Page (the factory default setting is 'Auto', which enables the automatic switch to Nav).

This example is based upon on an active flight plan from KSNA (Santa Ana, CA) to KSAN (San Diego, CA Lindbergh Field) with the ILS RWY 9 approach and "GATTO" as the IAF, which includes an outbound leg and a procedure turn.

1. Select KSNA as your destination, via the **Direct-To** key or as the last waypoint in a flight plan.
2. Press the **PROC** key and select ILS RWY 9 approach. From the transition window, select 'GATTO' as the IAF. Choose 'LOAD?' or 'ACTIVATE?'. A reminder message is displayed, indicating that GPS can only be used for approach monitoring. 'LOAD' will maintain Direct-to navigation, while activate takes you direct to the first fix. Activate the approach once you have been cleared by ATC.
3. Within 30 nm of KSAN, the G1000 switches from enroute mode to terminal mode and the CDI range transitions from 5.0 to 1.0 nm, full-range deflection.
4. If you haven't already activated the approach, be sure to do so when cleared for the approach.

5. As you approach the IAF (GATTO), the waypoint message 'NEXT DTK 272°' is displayed in the navigation status bar on the PFD. As the distance to the IAF approaches zero, the message is replaced by a turn advisory 'TURN TO 272°'.
6. Fly the outbound course (272°), keeping the CDI needle centered.
7. Once you have flown approximately one minute past the IAF (GATTO), the message 'START PROC TURN' is displayed.
8. Turn left to a heading of 227° to initiate the procedure turn. The G1000 does not guide you through the turn (the procedure turn is displayed in magenta indicating the active leg). The CDI needle starts moving to the right.
9. After approximately one minute, make a 180° right turn to a heading of 047° to intercept the ILS. The G1000 sequences to the inbound leg and 'NEXT DTK 092°' is displayed. CDI coupling automatically switches from the GPS receiver to the Nav receiver as you complete the inbound turn.
10. As the CDI needle starts to center, make a right turn to 092° to track the ILS approach course.
11. At 2.0 nm from the FAF (GATTO), the G1000 switches from terminal mode to approach mode. The CDI scaling is tightened from 1.0 to 0.3 nm, full range deflection.
12. As you approach the FAF (GATTO), the waypoint message 'NEXT DTK 092°' is displayed.
13. As you cross the FAF, the destination sequences to the RW09map (RW09, the runway threshold). Keeping the CDI needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.
14. As you approach the MAP, the waypoint message 'ARRIVING AT WAYPOINT' is displayed.
15. As you cross the MAP, 'SUSP' is displayed above the **SUSP** softkey, indicating that automatic sequencing of approach waypoints is suspended at the MAP. A 'FROM' indication is displayed on the CDI, but course guidance along the final approach course continues. Follow the published missed approach procedures using the **SUSP** softkey to initiate the missed approach.

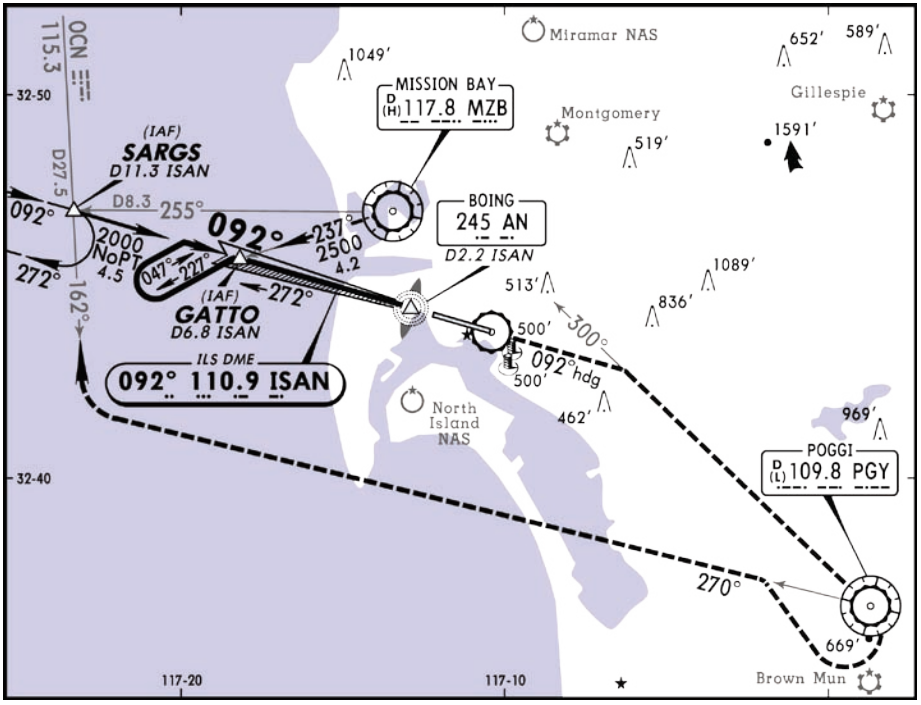

Figure 8A.7.13 Flying the ILS Approach

Flying the Vectors Approach

In some cases ATC tells you to expect vectors onto the final approach course instead of flying the full approach. The two options below can be used to select "vectors to final":

- When the approach is first selected choose 'VECTORS' from the transitions window.
- Load a full approach including the IAF from the transition window. When cleared, press the PROC key and select 'ACTIVATE VECTORS TO FINAL'.

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 Navigation 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). This example is based upon an active flight plan from KPAN (Payson, AZ) to KSDL (Scottsdale, AZ), with "Vectors" for the "VOR or GPS-A" approach.

1. Select KSDL 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 or GPS-A approach. From the transitions window choose VECTORS.
3. Within 30 nm of KSDL, the G1000 switches from enroute mode to terminal mode and the CDI range transitions from 5.0 to 1.0 nm, full range deflection.
4. If you haven't already done so, activate the approach (with vectors to final). This allows the G1000 to guide you to the final approach course.
5. ATC instructs you to turn left to a heading of 170°. This places you parallel to the final approach course in the opposite direction. The CDI needle deflection is to the right.
6. ATC instructs you to turn right to a heading of 185°.
7. ATC instructs you to turn right to a heading of 230°.
8. ATC instructs you to turn right to a heading of 325° to intercept the final approach course. As you converge with the final approach course the CDI needle moves toward the center.
9. As the CDI needle centers, make any remaining course corrections to establish yourself on the final approach course.
10. At 2.0 nm from the FAF (GELTS), the G1000 switches from terminal mode to approach mode. The CDI scaling is tightened from 1.0 to 0.3 nm, full range deflection.
11. As you approach the FAF, the waypoint message 'NEXT DTK 002°' is displayed in the navigation status bar on the PFD. Make any course adjustments necessary for the final approach course segment (FAF to MAP).
12. As you cross the FAF, the destination sequences to the MAP (MABAW). Keeping the needle centered, fly toward the MAP, observing altitude minimums dictated by the approach plate.

13. As you approach the MAP, a waypoint message 'ARRIVING AT WAYPOINT' appears.
14. As you cross the MAP, 'SUSP' appears above the **SUSP** softkey, indicating that automatic sequencing of approach waypoints is suspended at the MAP. A 'FROM' indication is present on the 'TO/FROM' arrow, but course guidance along the final approach course continues. Do NOT follow this extended course. Follow the published missed approach procedure using the **SUSP** softkey to initiate the missed approach sequence.

***NOTE**: When the message 'RAIM is not available' appears in the Alerts Window on the PFD a missed approach must be executed.*

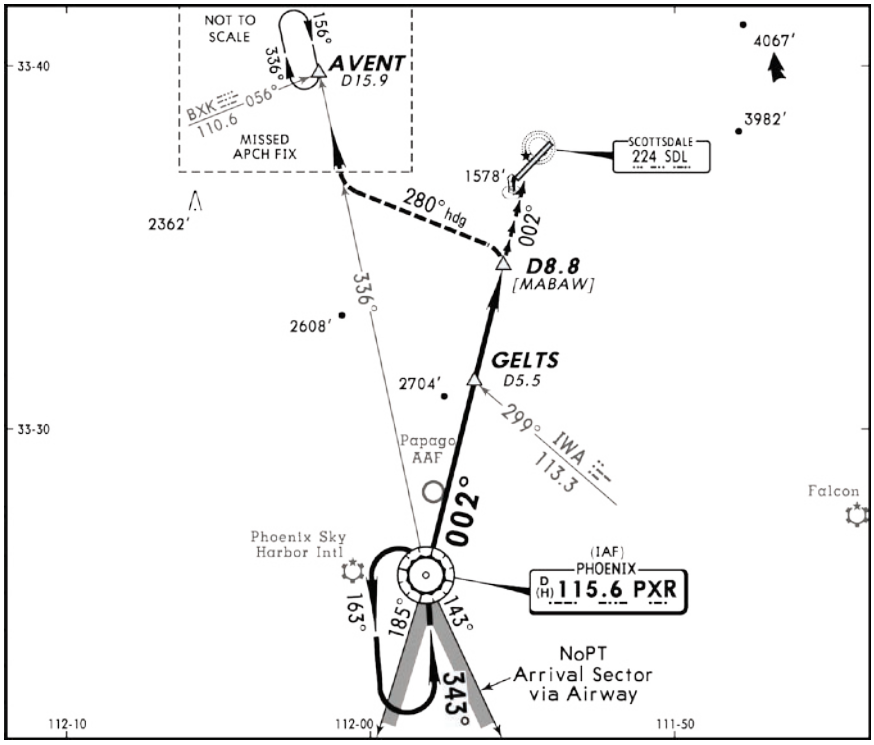

Figure 8A.7.14 Flying the Vectors Approach

8A.8 WAYPOINT PAGE GROUP

The Waypoint Page Group (WPT) provides information for the thousands of airports, VORs, NDBs, intersections, runways, frequencies and procedures stored on the SD card. In addition, a user waypoint information page displays information for up to 1,000 user-created waypoints. The Waypoint Group consists of the following pages:

- Airport Information Page (INFO)
- Departure Information Page (DP)
- Arrival Information Page (STAR)
- Approach Information Page (APR)
- Intersection Information Page
- NDB Information Page
- VOR Information Page
- User Waypoint Information Page

Page Selection

The Airport Information Page can be selected by pressing the **INFO** softkey or by the procedure given below. The Departure, Arrival, and Approach pages must be selected from the Airport Information Page using their corresponding softkeys (DP, STAR, APR). To select any remaining page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the 'WPT' page group. 'WPT' appears in the page group icon located in the lower right corner of the display. Turn the **small FMS** knob to select the desired 'WPT' page.

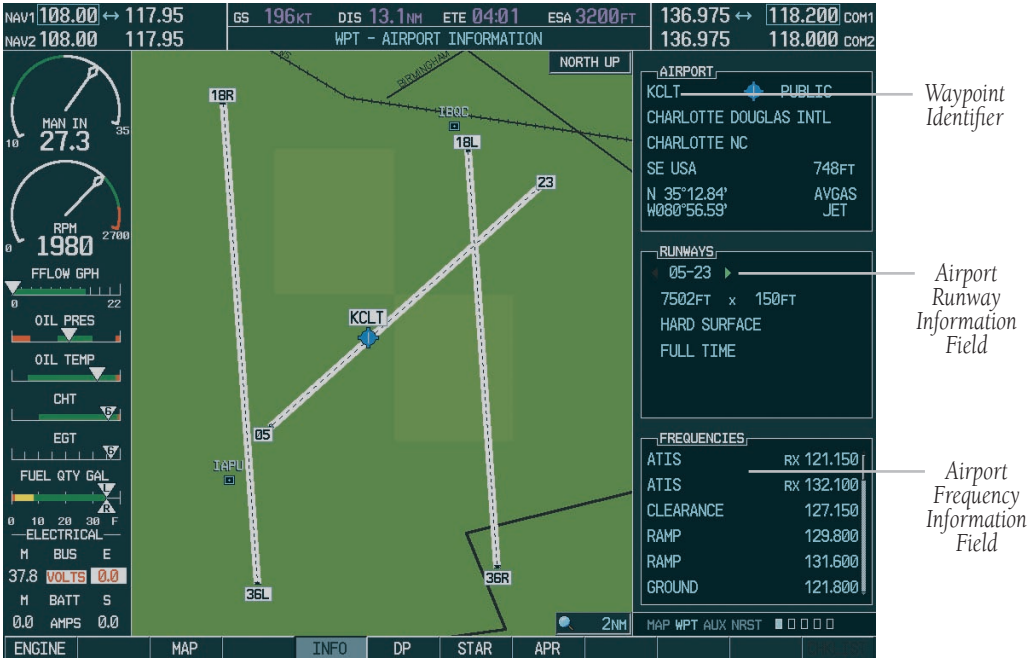

Figure 8A.8.1 Airport Information Page

AIRPORT INFORMATION PAGE (INFO)

The Airport Information page shows the following detailed information for the selected airport:

- Airport Information
- Runways
- Frequencies

Airport Information Page Operations

To enter a waypoint identifier:

1. Select the desired 'WPT' page and press the **FMS** knob to activate the cursor.
2. Turn the **small FMS** knob to select the first character of the waypoint's identifier.
3. Turn the **large FMS** knob to select the next character field.
4. Turn the **small FMS** knob to select the desired character.
5. Repeat steps 3 and 4 until the identifier is selected, then press the **ENT** key.
6. To remove the flashing cursor, press the **FMS** knob.

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

To enter a waypoint facility name or city location:

1. Select the Airport Information Page.
2. Press the **FMS** knob to activate the cursor.
3. Turn the **large FMS** knob to select the facility name or location (city) field.
4. Turn the **small FMS** knob to select the desired character.
5. Turn the **large FMS** knob to select the next character field.
6. Repeat steps 4 and 5 until the facility name or location is selected, then press the **ENT** key.
7. To remove the flashing cursor, press the **FMS** knob.

Once the identifier, facility name or location is entered, the airport information page displays information for the selected airport. As you enter an identifier, facility name or location, the "SpellNFind"™ 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 turn the **small FMS** knob during the selection process. If duplicate entries exist for an entered identifier, a duplicate waypoint page is displayed once you select the identifier (by pressing the **ENT** key).

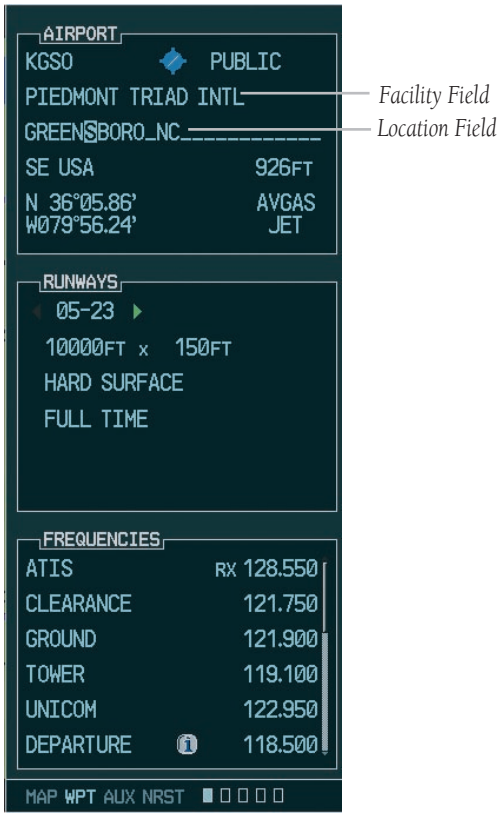

Figure 8A.8.2 Waypoint Facility or City Location

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

1. Select the desired facility name or location.
2. As you spell the facility name or location, using the **small and large FMS** knobs, the SpellNFind feature selects the first entry in the database based upon the characters you have entered up to that point.
3. Continue turning the **small FMS** knob to scroll through any additional database listings for the selected facility name or location. You can scroll backwards with the **small FMS** knob if you scroll past the desired facility name or location.
4. Press the **ENT** key to select the desired facility name or location.
5. To remove the flashing cursor, press the **FMS** knob.

To select a waypoint identifier from a list of duplicates:

1. Select the desired airport or navaid identifier.
2. A duplicate waypoints window is displayed. Turn the **large FMS** knob to select the desired waypoint and press the **ENT** key.
3. To remove the flashing cursor, press the **FMS** knob.

Airport Runway Information Field

The Airport Runway Information field 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 Information Page. The map image range is displayed in the lower left corner and is adjustable using the joystick. For airports with multiple runways, information for each runway is available.

To display information for each additional runway:

1. Press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knob to place the cursor on the Runway designation field.
3. Turn the **small FMS** knob to display the next runways for the selected airport.
4. Continue turning the **small FMS** knob to select the desired runway.
5. To remove the flashing cursor, press the **FMS** knob.

Rotate the joystick counterclockwise to select a lower range and rotate it clockwise to select a higher range.

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

- 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)

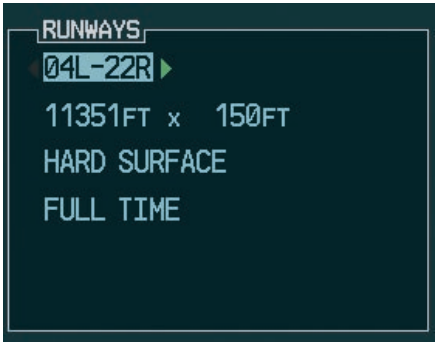

Figure 8A.8.3 Runway Information Field

AIRPORT FREQUENCY INFORMATION FIELD

The Airport Frequency Information Field 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 is also listed on the Airport Frequency Information Field. The Airport Frequency Information Field may be used to quickly select and tune a COM or NAV frequency.

To scroll through the frequency list and tune to a desired frequency on the list:

1. Press the **FMS** knob to activate the cursor.
2. Turn the **small or large FMS** 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 the **ENT** key to place the selected frequency in the standby field of the 'COM' or 'NAV' window.
4. To remove the flashing cursor, press the **FMS** knob.

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

- 'TX' – transmit only RX - receive only
- 'PT' – part time frequency
- 'i' – additional information exists, press the **ENT** key

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. Turn the **small or large FMS** knob to place the cursor on the info designated frequency.
2. Press the **ENT** key to display the restriction information.
3. To return to the Airport Frequency field, press the **ENT** key.

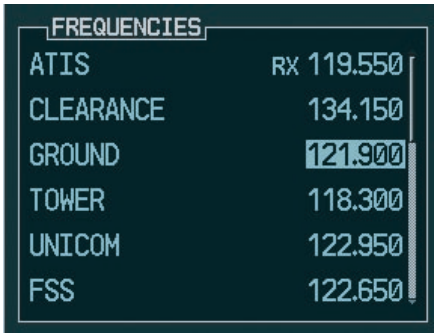

Figure 8A.8.4 Frequency Information Field

Airport Frequency Descriptions

The Airport Frequency Information field uses the following descriptions and abbreviations:

- Frequency — Communication frequencies which may include restrictions:
- Approach
- Arrival
- Class B
- Class C
- CAT
- 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

AIRPORT INFORMATION PAGE OPTIONS

The following Airport Information Page options are available by pressing the **MENU** key (with the Airport Information Page displayed):

- Load Approach
- View Departure Airport
- View Destination Airport
- View Recent Airport List
- View Info
- View Departure
- View Arrival
- View Approach

To select an option:

1. Press the **MENU** key while on the Airport Information Page.
2. Turn the **FMS** knob to select the desired option.
3. Press the **ENT** key to perform the selected option operation.

Figure 8A.8.5 Airport Information Page Menu

DEPARTURE INFORMATION PAGE (DP)

The Departure Information Page shows the available 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 can also be displayed. A map image provides a layout diagram for each departure, runway and transition. To display the Departure Information Page press the **DP** softkey.

To scroll through the available departures:

1. Press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knob to place the cursor on the Departure procedure name field.
3. Turn the **small or large FMS** knob to display a window of available departures for the selected airport. Continue turning the **small FMS** knob to select the desired departure.
4. Press the **ENT** key. The cursor moves to the runway field.
5. Turn the **small FMS** knob to display a window of available runways. Continue turning the **small FMS** knob to select the desired runway.
6. Press the **ENT** key. The cursor moves to the Transitions field.
7. Turn the **small FMS** knob to display a window of available transitions. Continue turning the **small or large FMS** knob to select the desired transition.
8. Press the **ENT** key. To remove the flashing cursor, press the **FMS** knob.

***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.*

A departure can be loaded from the Departure Information Page.

To load a departure procedure from the Departure Information Page:

1. Select the desired departure, runway and transition using the steps described previously.
2. Press **MENU** to display the Airport Departure Page Options.
3. Turn the **small or large FMS** knob to highlight 'LOAD DEPARTURE' and press the **ENT** key.
4. The Active Flight Plan Page is displayed. Press the **FPL** key to return to the Airport Departure Information Page.

Figure 8A.8.6 Departure Page Menu

ARRIVAL INFORMATION PAGE (STAR)

The Arrival Information Page shows the available 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 display the Airport Arrival Information Page press the **STAR** softkey.

To scroll through the available arrivals:

1. Press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knob to place the cursor on the 'ARRIVAL' procedure name field.
3. Turn the **small FMS** knob to display a window of available arrivals for the selected airport. Continue turning the **small or large FMS** knob to select the desired arrival.
4. Press the **ENT** key. The cursor moves to the 'TRANSITION' field.
5. Turn the **small FMS** knob to display a window of available transitions. Continue turning the **small or large FMS** knob to select the desired transition.
6. Press the **ENT** key. The cursor moves to the runway field.
7. Turn the **small FMS** knob to display a window of available runways. Continue turning the **small or large** knob to select the desired runway.
8. Press the **ENT** key. To remove the flashing cursor, press the **FMS** knob.

***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.*

Figure 8A.8.7 Arrival Page Menu

An arrival can be loaded from the Arrival Information Page.

To load an arrival procedure from the Arrival Information Page:

1. Select the desired arrival, transition and runway using the steps described previously.
2. Press **MENU** to display the Arrival Information Page Options.
3. Turn the **large FMS** knob to highlight 'LOAD ARRIVAL' and press the **ENT** key.
4. The Active Flight Plan Page is displayed. Press **FPL** to return to the Airport Arrival information 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, 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 **FMS** 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 activat

APPROACH INFORMATION PAGE

The Approach Information page shows the available approach procedures for a 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 display the Airport Approach Information Page press the **APR** softkey.

To scroll through the available approaches and transitions:

1. Press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knob to place the cursor on the 'APPROACH' procedure name field.
3. Turn the **small FMS** knob to display a window of available approaches for the selected airport. Continue turning the **small or large FMS** knob to select the desired approach.
4. Press the **ENT** key. The cursor moves to the transitions (TRANS) field.
5. Turn the **small FMS** knob to display a window of available transitions. Continue turning the **small or large FMS** knob to select the desired transition or select 'VECTORS' for guidance only along the final course segment of the approach. Press the **ENT** key. NOTE: the cursor moves through the remaining fields but they are not selectable.
6. To remove the flashing cursor, press the **FMS** knob.

***NOTE**: 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 the GPS receiver may be used for supplemental navigation guidance only. VOR approaches, for example, must be flown by tuning the NAV receiver to the proper frequency and coupling the NAV receiver to the HSI located on the PFD.*

An approach can be loaded from the Airport Information Page.

To load an approach from the Airport Approach Information Page:

1. Select the desired approach and transition.
2. Press **MENU** to display the Approach Information Page Options.
3. Turn the **large FMS** knob to highlight 'LOAD APPROACH' and press the **ENT** key.
4. The Active Flight Plan Page is displayed. Press the **FPL** key to return to the Airport Information Approach Page.
5. 'Load and Activate' allows you to load the selected approach into the active flight plan and activate navigation guidance to the approach transition.

***NOTE**: To load and activate an approach from the Approach Information page, follow the steps above, but select 'Load and Activate' in step #3.*

Figure 8A.8.4 Approach Page Menu

INTERSECTION INFORMATION PAGE

The Intersection Information Page displays the following information for a selected intersection:

- Map of surrounding area
- Intersection Identifier and Symbol
- Name
- General location
- Latitude/longitude (degrees/minutes or degrees/minutes/seconds), MGRS or UTM/UPS
- Nearest VOR/VORTAC/VOR/DME (identifier, symbol, bearing, distance)

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

Figure 8A.8.9 Intersection Information Page

Intersection Information Page Operations

To change the map range, turn the joystick to the left to select a lower range, turn it to the right to select a higher range. NOTE: Intersections can only be selected by identifier.

To select the Intersection Information Page:

1. From any page, press and momentarily hold **CLR** to select the Navigation Map Page. You may skip this step if you are already viewing any of the Map Group pages.
2. Turn the **large FMS** knob to select the 'WPT' page group. 'WPT' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the Intersection Information Page.

To select an Intersection by using an Identifier:

1. With the Intersection Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **small and large FMS** knobs to enter a name for the identifier and press the **ENT** key.
3. Press the **FMS** knob to remove the flashing cursor.

NDB INFORMATION PAGE

The NDB Information Page displays the following information for a selected Non-directional beacon:

- Map of surrounding area
- NDB Identifier and Symbol
- Name
- Closest city
- General location
- Latitude/longitude (degrees/minutes or degrees/minutes/seconds), MGRS or UTM/UPS
- Magnetic Variation in degrees
- Frequency in kilohertz (kHz)
- Nearest airport (identifier, symbol, bearing, distance)

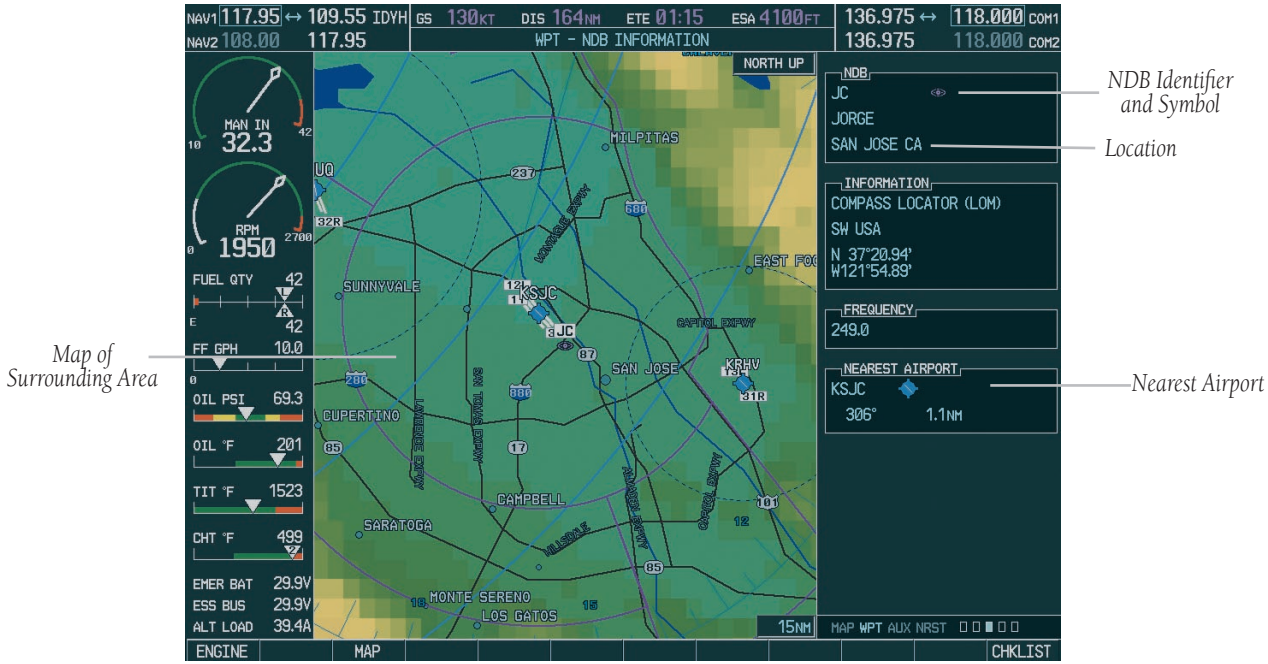

Figure 8A.8.10 NDB Information Page

NDB Information Page Operations

The NDB Information Page allows the following operations:

- NDB selection by identifier
- NDB selection by name
- NDB selection by closest city

To change the map range, turn the joystick to the left to select a lower range, turn it to the right to select a higher range.

To select the NDB Information Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page. You may skip this step if you are already viewing any of the Map Group pages.
2. Turn the **large FMS** knob to select the 'WPT' page group. 'WPT' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the NDB Information Page.

To select a NDB by using an Identifier:

1. With the NDB Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **small and large FMS** knobs to enter a name for the identifier and press the **ENT** key.
3. Press the **FMS** knob to remove the flashing cursor.

To select a NDB by using a Name:

1. With the NDB Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knobs to highlight the name field
3. Turn the **large and small FMS** knobs to enter a name and press the **ENT** key.
4. Press the **FMS** knob to remove the flashing cursor.

To select a NDB by using the closest city:

1. With the NDB Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knobs to highlight the closest city field
3. Turn the **large and small FMS** knobs to enter a city and press the **ENT** key.
4. Press the **FMS** knob to remove the flashing cursor.

NDB Information Page Options

The following NDB Information Page Options are available by pressing the **MENU** key (with the NDB Information Page displayed):

- 'View Recent NDB List' which allows you to view the most recent NDB list.

To view the most recent NDB list:

1. Select the NDB Information Page and press **MENU** to display the NDB Information Page Options. 'View Recent NDB List' is highlighted.
2. Press the **ENT** key. Turn the **small FMS** knob to select an NDB from the list and press the **ENTER** key. The selected NDB is now the active user NDB.

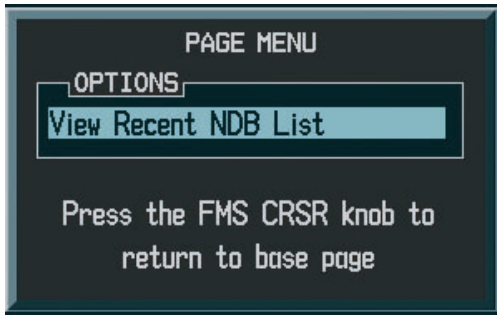

Figure 8A.8.11 NDB Page Menu

VOR INFORMATION PAGE

The VOR Information Page displays the following information for a selected VOR:

- Map of surrounding area
- Identifier and Symbol
- Name
- Closest city
- General location
- Latitude/longitude (degrees/minutes or degrees/minutes/seconds), MGRS or UTM/UPS
- Magnetic Variation in degrees
- Frequency in megahertz (MHz)
- Nearest airport (identifier, symbol, bearing, distance)

Figure 8A.8.12 VOR Information Page

VOR Information Page Operations

The VOR information page allows the following operations:

- VOR selection by identifier
- VOR selection by name
- VOR selection by closest city

The map range is adjustable by rotating the joystick. To change the map range, rotate the joystick counter-clockwise to select a lower range and rotate it clockwise to select a higher range.

To select the VOR Information Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page. You may skip this step if you are already viewing any of the Map Group pages.
2. Turn the **large FMS** knob to select the 'WPT' page group. 'WPT' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the VOR Information Page.

To select a VOR by using an Identifier:

1. With the VOR Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **small and large FMS** knobs to enter a name for the identifier and press the **ENT** key.
3. Press the **FMS** knob to remove the flashing cursor.

To select a VOR by using a Name:

1. With the VOR Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knobs to highlight the name field
3. Turn the **large and small FMS** knobs to enter a name and press the **ENT** key.
4. Press the **FMS** knob to remove the flashing cursor.

To select a VOR by using the closest city:

1. With the VOR Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **large FMS** knobs to highlight the closest city field
3. Turn the **large and small FMS** knobs to enter a city and press the **ENT** key.
4. Press the **FMS** knob to remove the flashing cursor.

VOR Information Page Options

The following VOR Information Page Options are available by pressing the **MENU** key (with the VOR Information Page displayed):

- 'View Recent VOR List' which allows you to view the most recent VOR list.

To view the most recent VOR list:

1. Select the VOR Information Page and press **MENU** to display the VOR Information Page Options. 'View Recent VOR List is highlighted'.
2. Press the **ENT** key. Turn the **small FMS** knob to select a VOR from the list and press the **ENT** key. The selected VOR is now the active user VOR.

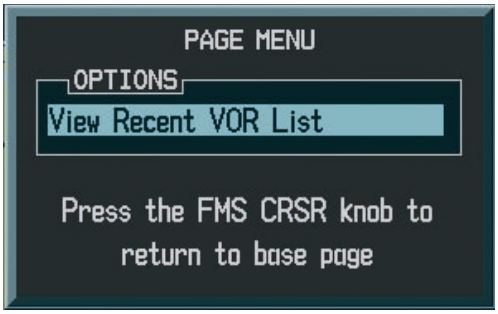

Figure 8A.8.13 VOR Page Menu

USER WAYPOINT INFORMATION PAGE

The G1000 allows the storage of up to 1,000 user-defined waypoints. The User Waypoint Information Page displays the waypoint name (up to six characters long), identifier and radial from two reference waypoints, distance from one reference waypoint, along with the user waypoints latitude/longitude position.

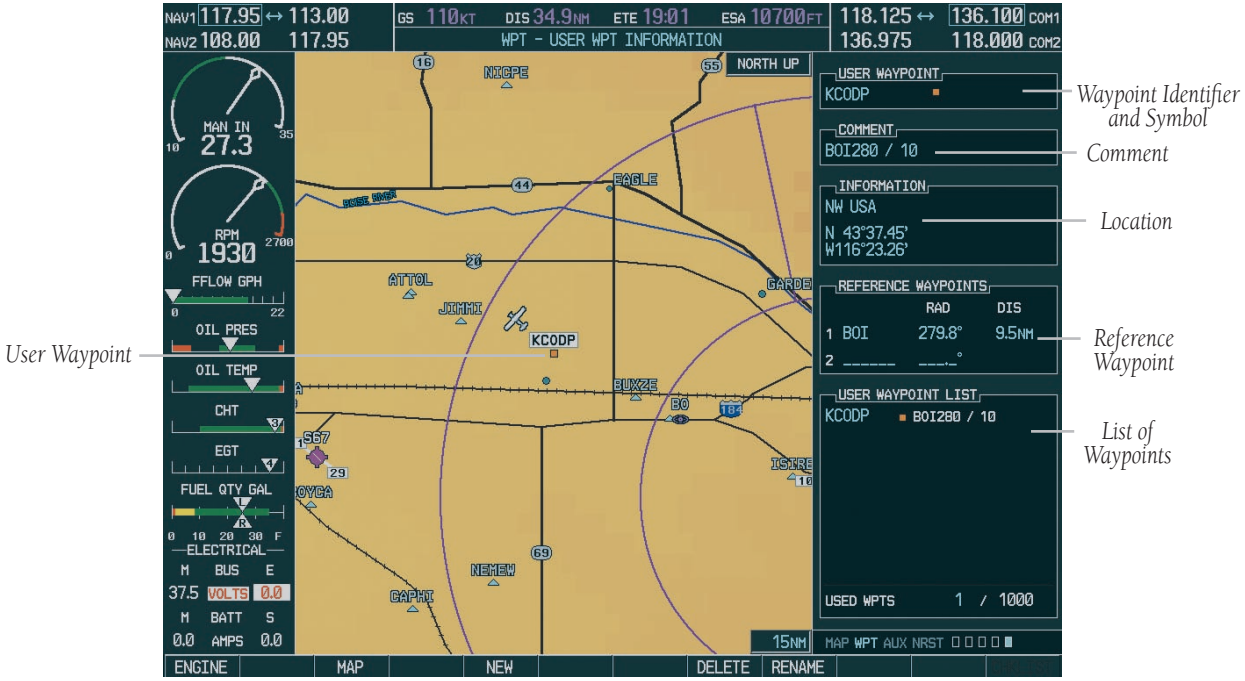

Figure 8A.8.14 User WPT Information Page

The following data is displayed on the User Waypoint Information Page:

- Map of surrounding area
- Identifier
- Comment
- General location
- Latitude/longitude
- A reference waypoint with identifier, radial, and distance
- A second reference waypoint with identifier and radial
- A list of all user waypoints
- Statistics of the number of user waypoint slots used and available

To select the User Waypoint Information Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the 'WPT' page group. 'WPT' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the User Waypoint Information Page.

User Waypoint Information Page Operations

The following operations can be performed from the User Waypoint Information Page:

- Creating user waypoints (by current location, entered latitude/longitude position, reference waypoint specifications, or map pointer location).
- Modifying user waypoint information (by comment, latitude/longitude position, or reference waypoint information)
- Renaming user waypoints
- Deleting user waypoints

CREATING USER WAYPOINTS

User waypoints may be created from the User Waypoint Information Page or the Navigation Map Page. To create a new user waypoint from the User Waypoint Information Page, 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 Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **small and large FMS** knobs to enter a name for the new waypoint and press the **ENT** key. The message 'Are you sure you want to create the new user waypoint' is displayed. Press 'YES' to create the new waypoint. The present position is displayed in the information box. The comment in the comment box is auto-generated based on the reference waypoint usage. If the waypoint was defined with two reference waypoints, then this comment would be generated based on the radials (i.e. OJC354 / ICT057).
3. Turn the **large FMS** knob to highlight the position field in the information box.
4. Turn the **small and large FMS** knobs to enter the position coordinates for the new waypoint.
5. Press the **ENT** key to accept the selected position.
6. Press the **FMS** knob to remove the flashing cursor.

***NOTE**: The number of waypoints that are stored in memory (USED WPTS) is shown at the bottom of the User Waypoint Information Page.*

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

1. With the User Waypoint Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **small and large FMS** knobs to enter a name for the new waypoint and press the **ENT** key. The message 'Are you sure you want to create the new user waypoint' is displayed. Press 'YES' to create the new waypoint. The first reference waypoint (REFERENCE WAYPOINT) field is highlighted.
3. Turn the **small and large FMS** 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.
4. The cursor moves to the radial (RAD) field. Turn the **small and large FMS** knobs to enter the radial from the reference waypoint to the new user waypoint. Press the **ENT** key to accept the selected radial.
5. The cursor moves to the distance (DIS) field. Turn the **small and large FMS** knobs to enter the distance from the reference waypoint to the new user waypoint. Press the **ENT** key to accept the selected distance.
6. Press the **FMS** knob to remove the flashing cursor.

Creating User Waypoints from the Navigation Map Page

The Navigation Map Page and panning target pointer 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 Navigation Map Page displayed, push the **joystick** to activate the panning function. The target pointer is displayed at your present position.
2. Press the **ENT** key to capture the pointers position and display the User Waypoint Information Page (only true when the pointer is not currently highlighting a waypoint).
3. Turn the **small and large FMS** knobs to select a waypoint name.
4. Press the **ENT** key to accept the selected name. The first reference waypoint field is highlighted.
5. Turn the **small and large FMS** knobs to enter the identifier of the reference waypoint. The reference waypoint can be an airport, VOR, NDB, intersection or another user waypoint. Press the **ENT** key to accept the selected identifier.
6. The cursor moves to the radial (RAD) field. Turn the **small and large FMS** knobs to enter the radial from the reference waypoint to the new user waypoint. Press the **ENT** key to accept the selected radial.
7. The cursor moves to the distance (DIS) field. Turn the **small and large FMS** knobs to enter the distance from the reference waypoint to the new user waypoint. Press the **ENT** key to accept the selected distance.
8. Press the **FMS** knob to remove the flashing cursor.

MODIFYING USER WAYPOINTS

To modify an existing waypoint, select that waypoint on the User Waypoint Information 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 Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **small and large FMS** knobs to enter a name for the new waypoint and press the **ENT** key. The message 'Are you sure you want to create the new user waypoint' is displayed. Press 'YES' to create the new waypoint. The first reference waypoint (REFERENCE WAYPOINT) field is highlighted.
3. Turn the **large FMS** knob to highlight the position field in the Information Box.
4. Turn the **small and large FMS** knobs to enter the new position coordinates and press the **ENT** key to accept the selected position.
5. Press the **FMS** knob to remove the flashing cursor.

To modify a user waypoint by changing reference waypoint information:

1. With the User Waypoint Information Page displayed, press the **FMS** knob to activate the cursor.
2. Turn the **small and large FMS** knobs to enter a name for the new waypoint and press the **ENT** key. The message 'Are you sure you want to create the new user waypoint' is displayed. Press 'YES' to create the new waypoint. The first reference waypoint (REFERENCE WAYPOINT) field is highlighted if you want to change the reference waypoint. Otherwise, continue turning the **large FMS** knob to highlight the radial (RAD) or distance (DIS) field, as desired.
3. Turn the **small and large FMS** 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 the **ENT** key to accept the selected identifier.
4. The cursor moves to the radial (RAD) field. Use the **small and large FMS** knobs to change the radial from the reference waypoint, if desired. Press **ENT** to accept the selected radial.
5. The cursor moves to the distance (DIS) field. Turn the **small and large FMS** knobs to change the distance from the reference waypoint to the new user waypoint, if desired. Press the **ENT** key to accept the selected distance.
6. Press the **FMS** knob to remove the flashing cursor.

USER WAYPOINT INFORMATION PAGE OPTIONS

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

- Delete All User Waypoints
- View Recent User WPT List
- Use Present Position
- Auto Comment
- Create New user Waypoint
- Delete User Waypoint
- Rename User Waypoint

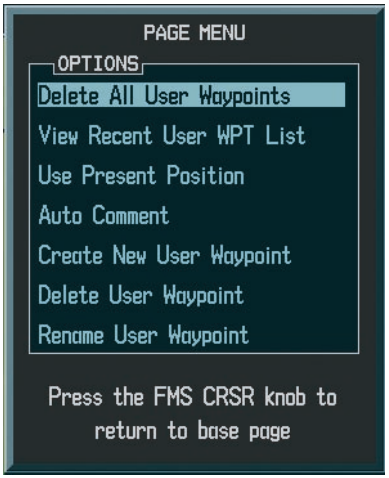

Figure 8A.8.15 User WPT Page Menu

'Delete All User Waypoints' allows you to delete all user waypoints from memory.

To delete all user waypoints:

1. Select the User Waypoint Information Page and press **MENU** to display the User Waypoint Information Page Options.
2. Turn the **large FMS** knob to select 'Delete All User Waypoints' and press the **ENT** key. A confirmation windows is displayed. Press the **ENT** key to accept 'YES' or turn the **large FMS** knob to highlight 'NO' and press the **ENT** key.

'View Recent User WPT List' allows you to view the most recent user waypoint list.

To view the most recent user waypoint list:

1. Select the User Waypoint Information Page and press **MENU** to display the User Waypoint Information Page Options.
2. Turn the **large FMS** knob to select 'View Recent User WPT List' and press the **ENT** key. Turn the **small FMS** knob to select a waypoint from the list and press the **ENT** key. The selected waypoint is now the active user waypoint.

Use 'Present Position' when selected will move the currently selected user waypoint to the present position of the aircraft.

***NOTE:** The user waypoint is set to the airplane's position at the time when this option was selected.*

To move the currently selected user waypoint to the present position of the aircraft:

1. Select the User Waypoint Information Page and press the **MENU** key to display the User Waypoint Information Page options.
2. Turn the **large FMS** knob to select 'Use Present Position' and press the **ENT** key.
3. Highlight the position and press the **ENT** key.

'Auto Comment' when selected will overwrite the currently selected user waypoints comment with an automatically generated comment. The auto comment is in the same format as comments that are generated for user waypoints that have not specified a unique user waypoint comment. The auto comment can be one of three styles:

- REF1BRG1 / DIS1 - if the user waypoint position is defined by a reference 1 waypoint radial and distance (this is generally the default case, but the default case could also be the BLANK (c) case if there are no reference waypoints near the user waypoints position)
- REF1BRG1 / REF2BRG2 - if the user waypoint position is defined by a reference 1 waypoint radial and a reference 2 waypoint radial
- BLANK - if no reference waypoints are near the user waypoints position

To overwrite the currently selected user waypoints comment with an automatically generated comment:

1. Select the desired waypoint on the User Waypoint Information Page and press **MENU** to display the User Waypoint Information Page options.
2. Turn the **large FMS** knob to select 'Auto Comment' and press the **ENT** key.

Create New Waypoint allows the pilot to create a new user waypoint.

To create a new waypoint:

1. From the User Waypoint Information Page, press the **MENU** key to display the User Waypoint Information Page Options or press the **NEW** softkey.
2. Turn the **large FMS** knob to highlight Create New Waypoint and press the **ENT** key.
3. Turn the **small and large FMS** knobs to enter a name for the new waypoint and press the **ENT** key. The message 'Are you sure you want to create the new user waypoint' is displayed. Press 'YES' to create the new waypoint. The present position is displayed in the information box. The first reference waypoint field is highlighted
4. Turn the **small and large FMS** knobs to enter the identifier of the reference waypoint. The reference waypoint can be an airport, VOR, NDB, intersection or another user waypoint. Press the **ENT** key to accept the selected identifier.
5. The cursor moves to the radial (RAD) field. Turn the **small and large FMS** knobs to enter the radial from the reference waypoint to the new user waypoint. Press the **ENT** key to accept the selected radial.
6. Press the **FMS** knob to remove the flashing cursor.

Delete User Waypoint allows the pilot to delete a user waypoint.

To delete a user waypoint:

1. Select the User Waypoint Information Page and press **MENU** to display the User Waypoint Information Page Options or press the **DELETE** softkey.
2. Turn the **large FMS** knob to select 'Delete User Waypoint' and press the **ENT** key. The message 'Would you like to delete the user waypoint' is displayed. Press 'YES' to delete the waypoint.

Rename User Waypoint allows the pilot to rename a user waypoint.

To rename a user waypoint:

1. Select the User Waypoint Information Page and press **MENU** to display the User Waypoint Information Page Options or press the **RENAME** softkey.
2. Turn the **large FMS** knob to select 'Rename User Waypoint' and press the **ENT** key. The user waypoint field is highlighted. Turn the **small and large FMS** knobs to rename the user waypoint. Press the **ENT** key.
3. The message 'Would you like to rename the user waypoint' is displayed. Press 'YES' to rename the new user waypoint.

This page intentionally left blank.

8A.9 AUXILIARY PAGE GROUP

The Auxiliary Page Group (AUX) provides detailed trip planning information, satellite status, RAIM prediction, system settings, LRU status and database information.

The AUX Group page names are as follows:

- Trip Planning
- Utility
- GPS Status
- System Setup
- System Status

To quickly select an Aux page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the 'AUX' page group.
3. Turn the **small FMS** knob to select the desired AUX Page.

TRIP PLANNING PAGE

The Trip Planning Page calculates trip statistics, fuel statistics, and other statistics for a specified Direct-to, point-to-point, or flight plan based on automatic or manual input of data.

Figure 8A.9.1 Trip Planning Page

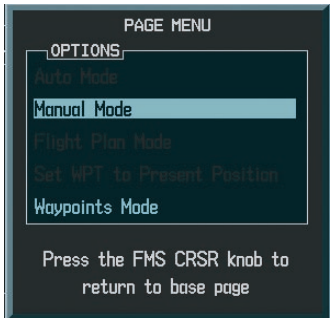

Figure 8A.9.2 Trip Planning Page Menu

Trip Planning

Trip planning allows you to view desired track (DTK), distance (DIS), estimated time enroute (ETE), estimated time of arrival (ETA), and enroute safe altitude (ESA) 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).

To perform trip planning operations:

1. Select the AUX-TRIP PLANNING page.
2. The current page mode is displayed at the top of the page: 'AUTOMATIC' or 'MANUAL'. To change the page mode, press the **AUTO** or **MANUAL** softkey.
3. For Direct-to planning, press the **WPTS** softkey and verify that the from waypoint field indicates P.POS (present position). If necessary, go to the Page Menu and select 'Set WPT to Present Position' to display P.POS. Press the **ENT** key and the flashing cursor moves to the 'to' waypoint field. Turn the **small and large FMS** knobs to enter the identifier of the 'to' waypoint and press the **ENT** key to accept the waypoint. OR,
4. For point-to-point planning, turn the **small and large FMS** knobs to enter the identifier of the from waypoint. Once the waypoints identifier is entered, press the **ENT** key to accept the waypoint. The flashing cursor moves to the 'to' waypoint. Again, turn the **small and large FMS** knobs to enter the identifier of the 'to' waypoint and press the **ENT** key to accept the waypoint. OR,
5. For flight plan leg planning, press the **FPL** softkey and turn the **small FMS** knob to select the desired flight plan (already stored in memory), by number. Turn the **large FMS** knob to highlight the 'LEG' field and turn the **small FMS** knob to select the desired leg of the flight plan, or select 'CUM' to apply trip planning calculations to the entire flight plan.
6. Turn the **large FMS** knob to highlight the departure time (DEP TIME) field.
7. Turn the **small and large FMS** knobs to enter the departure time. Press the **ENT** key when finished. (Departure time may be entered in local or UTC time, depending upon unit settings).

With all variables entered, the following information is provided (not available at all times):

- DTK — Desired track, or desired course
- DIS — Distancee
- ETE — Estimated time en route
- ESA — En-route safe altitude
- ETA — Estimated time of arrival
- Sunrise/Sunset times at the destination

Fuel Planning

Using fuel flow (FF) and/or fuel totalizer data, the AUX trip planning page displays current fuel conditions along the active Direct-to or flight plan. You may also manually enter fuel flow, ground speed (GS) and fuel on board figures for planning purposes. Fuel planning figures can be displayed for the currently active flight plan and Direct-to, or point-to-point navigation between two specified waypoints and for any stored flight plan.

To perform fuel planning operations:

1. Select the AUX-TRIP PLANNING page.
2. The current page mode is displayed at the top of the page: 'AUTOMATIC' or 'MANUAL'. To change the page mode, press the **AUTO** or **MANUAL** softkey.
3. For Direct-to planning, press the **WPTS** softkey and verify that the from waypoint field indicates P.POS (present position). Press the **ENT** key and the flashing cursor moves to the 'to' waypoint field. Turn the **small and large FMS** knobs to enter the identifier of the 'to' waypoint and press the **ENT** key to accept the waypoint. OR,
4. For point-to-point fuel planning, turn the **small and large FMS** knobs to enter the identifier of the 'from' waypoint. Once the waypoints identifier is entered, press the **ENT** key to accept the waypoint. The flashing cursor moves to the to waypoint. Again, turn the **small and large FMS** knobs to enter the identifier of the 'to' waypoint and press the **ENT** key to accept the waypoint. OR,
5. For flight plan leg fuel planning, press the **FPL** softkey and turn the **small FMS** knob to select the desired flight plan (already stored in memory), by number. Turn the **large FMS** knob to highlight the 'LEG' field and turn the **small FMS** knob to select the desired leg of the flight plan, or select 'CUM' to apply fuel planning calculations to the entire flight plan.
6. Turn the **small and large FMS** knobs to enter the fuel flow. Press the **ENT** key when finished. Note that in automatic page mode, fuel flow is provided by the system.
7. The flashing cursor moves to the fuel on board field. Turn the **small and large FMS** knobs to modify the fuel on board. Press the **ENT** key when finished. Note that in automatic mode this is provided by the system.
8. The flashing cursor moves to the calibrated airspeed field. Turn the **small and large FMS** knobs to enter an calibrated airspeed. Press the **ENT** key when finished.

With all variables entered, the following information is provided (all of the items are not available at all times):

- Efficiency
- Total Endurance
- Remaining Fuel
- Remaining Endurance
- Fuel Required
- Total Range

Other Statistics

To calculate Density Altitude and True Airspeed

1. Select 'MANUAL' page mode by pressing the **Manual** softkey.
2. Turn the **large FMS** knob to select the 'IND ALTITUDE' field. Turn the **small and large FMS** knobs to enter the altitude indicated on your altimeter. Press the **ENT** key when finished.
3. The flashing cursor moves to the 'PRESSURE' field. Turn the **small and large FMS** knobs to enter the barometric pressure (altimeter setting). Press the **ENT** key when finished.
4. The flashing cursor moves to the total air temperature ('TAT') field. 'TAT' is the temperature, including the compressibility error heating of speed, read on the outside air temperature gauge located in the lower left corner of the PFD. Turn the **small and large FMS** knobs to enter the temperature. Press the **ENT** key when finished.

Utility Page

The Utility Page displays timers, trip statistics, and scheduler information for flight planning purposes.

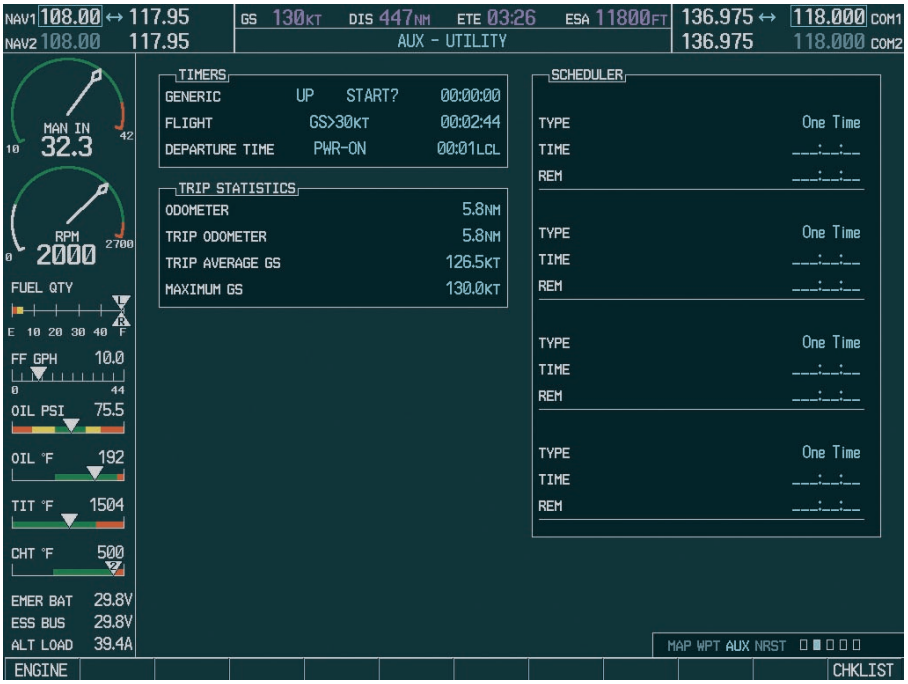

Figure 8A.9.3 Utility Page

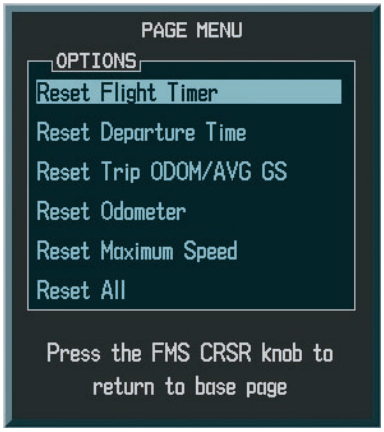

Figure 8A.9.4 Utility Page Menu

Utility Page Operations

To set the generic timer direction (up, down):

1. Select the AUX UTILITY Page.
2. Press the **FMS** knob. The 'GENERIC' timer field is highlighted.
3. Turn the **small FMS** knob to display the 'UP/DOWN' window.
4. Turn the **small or large FMS** knob to select 'UP' or 'DOWN' and press the **ENT** key.

To start, stop, or reset the generic timer:

1. Select the AUX UTILITY Page.
2. Press the **FMS** knob. Turn the **large FMS** knob to select the 'START?' Field.
3. Press the **ENT** key to start, stop, or reset the timer.

To set the generic timer value:

1. Select the AUX UTILITY Page.
2. Press the **FMS** knob. Turn the **large FMS** knob to select the time field (hh/mm/ss).
3. Turn the **small and large FMS** knobs to set the desired time and press the **ENT** key.

To set the flight timer starting criteria (ground speed more then 30 knots, power on):

1. Select the AUX UTILITY Page.
2. Press the **FMS** knob. Turn the **large FMS** knob to select the 'FLIGHT' field.
3. Turn the **small FMS** knob to display the selection window.
4. Turn the **small or large FMS** knob to select either PWR-ON or GS>30KT and press the **ENT** key.

To set the departure timer starting criteria (ground speed more then 30 knots, power on):

1. Select the AUX UTILITY Page.
2. Press the **FMS** knob. Turn the **large FMS** knob to select the 'DEPARTURE TIME' field.
3. Turn the **small FMS** knob to display the selection window.
4. Turn the **small or large FMS** knob to select either PWR-ON or GS>30KT and press the **ENT** key.

To reset the flight timer:

1. Select the AUX UTILITY Page.
2. Press the **MENU** key. Turn either the **small or large FMS** knob to select 'Reset Flight Timer'.
3. Press the **ENT** key.

To reset the departure timer:

1. Select the AUX UTILITY Page.
2. Press the **MENU** key. Turn either the **small or large FMS** knob to select 'Reset Departure Time'.
3. Press the **ENT** key.

Trip Statistics

To reset trip statistics readouts:

1. Press the **MENU** key to display an options window with the following reset options:
   - Reset Trip ODOM/AVG GS – Resets trip average ground speed readout and odometer
   - Reset Odometer – Resets odometer readout only
   - Reset Maximum Speed – Resets maximum speed readout only
   - Reset All – Resets all trip statistics readouts
2. Turn either the **small or large FMS** knob to select the desired reset option and press the **ENT** key.

Scheduler

The scheduler feature 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 G1000 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.

- Name
- Type (event, one time, periodic)
- Date
- Time
- REM (remainder)

To enter a name:

1. Select the AUX UTILITY Page.
2. Press the **FMS** knob. Turn the **large FMS** knob to select the flight scheduler name field.
3. Turn the **small or large FMS** knobs to enter the desired name and press the **ENT** key.

To enter a type (event, one time, periodic)

1. Select the AUX UTILITY Page.
2. Press the **FMS** knob. Turn the **large FMS** knob to select the scheduler type field.
3. Turn the **small FMS** knob to display the options list. Turn the **small or large FMS** knobs to select the desired type and press the **ENT** key.

To enter a time:

1. Select the AUX Utility Page.
2. Press the **FMS** knob. Turn the **large FMS** knob to select the scheduler time field.
3. Turn the **small and large FMS** knobs to enter the desired time and press the **ENT** key.

To enter a date:

1. Select the AUX Utility Page.
2. Press the **FMS** knob. Turn the **large FMS** knob to select the scheduler date field.
3. Turn the **small and large FMS** knobs to enter the desired date and press the **ENT** key.

GPS STATUS PAGE

The GPS Status Page provides a visual reference of GPS receiver functions:

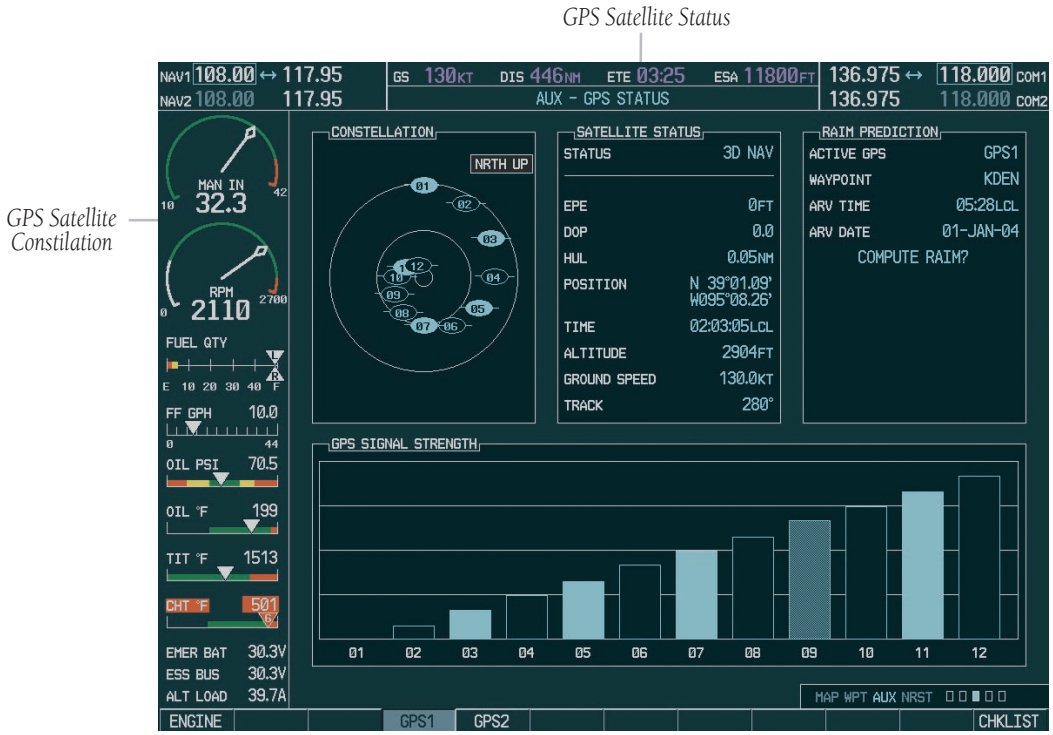

Figure 8A.9.5 GPS Status Page

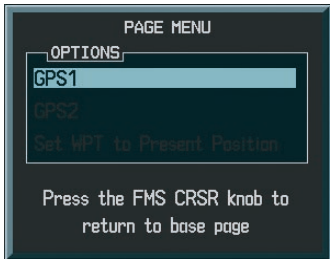

Figure 8A.9.6 GPS Status Page Menu

Satellite Status Page

- Satellite constellation displaying the following for each satellite being tracked:
  - Azimuth
  - Elevation
  - PRN number
  - Tracking status
- A receiver tracking status display that displays the following GPS sub-system status situations:
  - '2D NAV', when only 2-dimensional position is available
  - '3D NAV', when 3-dimensional position is available
- Estimated position error
- Dilution of precision
- Horizontal uncertainty level
- GPS calculated position
- GPS calculated time of day
- GPS calculated altitude
- Ground Speed
- Track

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. 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 G1000 indicates your position, altitude, track and ground speed. The GPS receiver status field also displays the following messages under the appropriate conditions:

- 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.
- 3D Navigation - The GPS receiver is in 3D navigation mode and computes altitude using satellite data.

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 range from 0.0 to 9.9. 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.

RAIM Prediction

"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 G1000 automatically monitors RAIM and warns you with an alert message when it is not available. If RAIM is not available when crossing the FAF, the pilot must fly the missed approach procedure.

The RAIM prediction function also indicates 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, and a "RAIM not available from FAF to MAP" message.

To predict RAIM availability:

1. Select the GPS Status Page.
2. Press the **FMS** knob. Turn the **small and large FMS** knobs to select the 'WAYPOINT' field.
3. Turn the **small FMS** knob to display the Waypoint Information Page.
4. Turn the **small and large FMS** knobs to enter the desired waypoint. Press the **ENT** key to accept.
5. Turn the **small and large FMS** knobs to enter an arrival time and press the **ENT** key.
6. Turn the **small and large FMS** knob to enter an arrival date.
7. The cursor highlights the 'COMPUTE RAIM' field. Press the **ENT** key to compute RAIM. The following options are displayed:
   - 'COMPUTE RAIM?' if RAIM has not been computed for the current waypoint, time, and date combination
   - 'COMPUTING AVAILABILITY' if the RAIM calculation is in progress
   - 'RAIM AVAILABLE' if RAIM is predicted to be available for the given combination of waypoint, time, and date
   - 'RAIM NOT AVAILABLE' if RAIM is predicted to be unavailable for the given combination of waypoint, time, and date

***NOTE**: RAIM computations predict satellite coverage within +/- 15 minutes of the specified arrival date and time.*

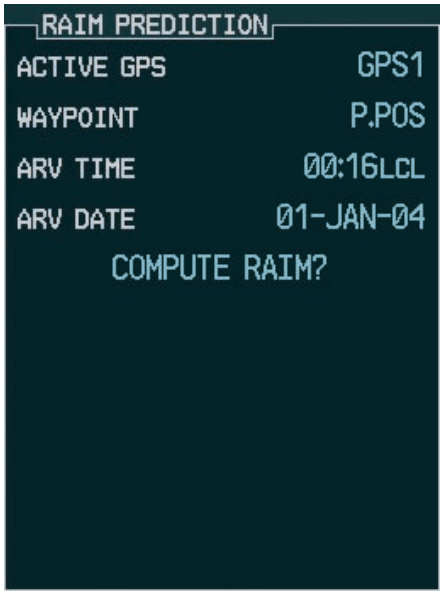

Figure 8A.9.7 RAIM

GPS Signal Strength

The Satellite Status Page can be helpful in troubleshooting weak (or missing) signal levels due to poor satellite coverage or installation problems. 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, it may be helpful to have an established baseline from which to compare.

As the GPS receiver locks onto satellites, a signal strength bar is displayed 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 satellites and is collecting data.
- Solid signal strength bars - the receiver has collected the necessary data and the satellites are ready for use.
- Checkered signal strength bars - the receiver has excluded the satellite (FDE).

To select the GPS receiver for which data is displayed:

1. Select the GPS Status Page.
2. Press the **GPS1** softkey for the display of information pertaining to GPS1 or press the **GPS2** softkey for the display of information pertaining to GPS2.

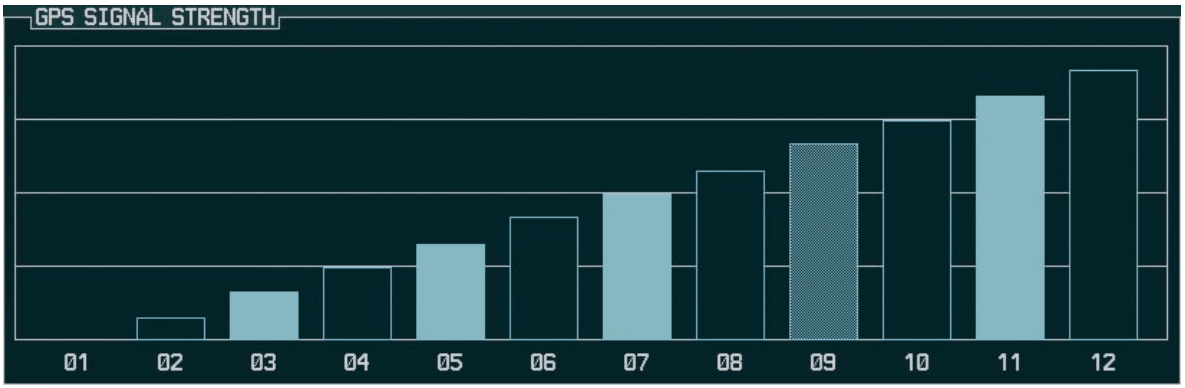

Figure 8A.9.8 GPS Signal Strength

SYSTEM SETUP PAGE

The System Setup Page is the fourth AUX Page and provides access (via a list of menu options) to manage the following system parameters:

- Local or UTC time display
- Units of measure settings (display units)
- Position Formats
- Map Datums
- Airspace Alerts
- Arrival Alert
- Audio Alerts
- MFD Data Bar Fields
- GPS CDI Range Adjustments
- COM Transceiver Channel Spacing.
- Nearest Airport Parameters

Figure 8A.9.9 System Setup Page

Pilot Profiles

The Pilot Profile section of the System Setup Page allows the pilot to select, create, delete, and rename up to a total of 25 profiles. Profiles can be created based on Garmin Factory Defaults, Default Profile Settings, Current System Settings, and Custom Profile Settings.

The Pilot Profile section of the system setup page displays the following data:

- The current active profile
- Number of profiles slots used
- Number of profile slots available

Selecting the Active Profile

To select an active profile:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the ACTIVE field in the Pilot Profile box.
4. Turn the **small FMS** knob to display the pilot profile list.
5. Turn the **small or large FMS** knobs to highlight the desired pilot profile.
6. Press the **ENT** key. The G1000 loads and displays the system settings for the selected profile.

***NOTE**: Pilot profile names cannot start with a blank as the first letter in the name*

Creating a Profile

To create a Profile:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the CREATE field in the Pilot Profile box.
4. Press the **ENT** key.
5. Turn the **small and large FMS** knobs to enter a profile name. Up to 16 letters and numbers can be used.
6. Once the profile name is entered, press the **ENT** key.
7. The cursor moves to the CURRENT SETTINGS field. If you want the new pilot profile based on the current system settings press the **ENT** key.
8. If you want the new pilot profile to be based on other settings, turn the **small FMS** knob to display the settings list.
9. Turn the **small or large FMS** knobs to highlight the desired settings and press the **ENT** key.
10. The cursor moves to the CREATE field. Press the **ENT** key to create a profile. To cancel the profile, turn the **large FMS** knob to highlight the CANCEL field and press the **ENT** key. To create and activate the profile turn the **large FMS** knob to highlight the CREATE & ACTIVATE field and press the **ENT** key.

Deleting a Profile

To delete a profile:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the DELETE field in the Pilot Profile box.
4. Press the **ENT** key.
5. Turn the **small or large FMS** knobs to select the profile you want to delete and press the **ENT** key.
6. Turn the **large FMS** knob to select DELETE and press the **ENT** key. You also have the option of canceling the delete request by highlighting CANCEL and pressing the **ENT** key.

Renaming a Profile

To rename a profile:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the RENAME field in the Pilot Profile box. Press the **ENT** key.
4. Turn the **small or large FMS** knobs to select the profile you want to rename. Press the **ENT** key.
5. Turn the **small and large FMS** knobs to enter the new profile name. Press the **ENT** key.
6. Turn the **large FMS** knob to select RENAME and press the **ENT** key. You also have the option of canceling the renaming request by highlighting CANCEL and pressing the **ENT** key.

Date/Time

The Date/Time box 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.

The Date/Time section of the System Setup page displays the following data:

- The current date
- The current time
- The current time format (local 12hr, local 24hr, UTC)
- The current time offset

To set the system time format:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the 'TIME FORMAT' field in the Date/Time box.
4. Turn the **small or large FMS** knob to select the desired system time format (local 12hr, local 24hr, UTC). Press the **ENT** key.

To set the current time offset:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the 'TIME OFFSET' field in the Date/Time box.
4. Turn the **small and large FMS** knobs to select the time offset. Press the **ENT** key.

Display Units

The Display Units section of the System Setup Page allows you to configure the displayed data to standard or metric units of measure. The Display Units section also provides two magnetic variation (heading) options: True and Auto. If 'Auto' is selected, all track, course and heading information is corrected to the computed magnetic variation. The "True" setting references all information to true north.

The Display Units section of the System Setup Page displays the following data:

- Nav Angle
- Magnetic variation
- Distance and speed units
- Altitude and vertical speed units
- Barometric pressure units
- Temperature units
- Fuel and fuel flow units

The aviation database 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 G1000 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 G1000 still provides correct navigation guidance to the waypoints contained in the database, regardless of the datum selected.

The Display Units section of the System Setup Page allows the following operations:

- To select a Nav Angle (auto, true)
- To select Distance and speed units (metric or nautical)
- To select Altitude and vertical speed units (feet, meters)
- To select Barometric pressure units (inches of mercury, hectopascals)
- To select Temperature units (Celsius, Fahrenheit)
- To select Fuel and fuel flow units (gallons, imperial gallons, kilograms, liters, pounds)

To change a Display Units setting:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the desired 'DISPLAY UNITS' field.
4. Turn the **small FMS** knob to display the options list for the selected item.
5. Turn the **small or large FMS** knob to highlight the new selection.
6. Press the **ENT** key.

Map Datums

The Map Datum section of the System Setup Page allows selection of map datums to be used by the G1000 from a list of datums available in the current aviation database (See Appendix D for a list of available map datums). 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.

To select a Map Datum:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the desired 'MAP DATUM' field.
4. Turn the **small FMS** knob to display the Map Datum list.
5. Turn the **small or large FMS** knob to highlight the new datum.
6. Press the **ENT** key.

Airspace Alerts

The Airspace Alerts fields allow the pilot to turn the controlled/special-use airspace message alerts on or off. This does not affect the alerts listed on the Nearest Airspaces Page or the airspace boundaries depicted on the Navigation Map Page. It simply turns on/off the warning provided when the aircraft is 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.

The Airspace Alerts section of the System Setup Page displays the following information:

- Class B TMA airspace alert setting
- Class C TCA airspace alert setting
- Class D
- Restricted airspace alert setting
- MOA
- Other airspace alert settings
- Altitude buffer distance setting

The Airspace Alerts section of the System Setup Page allows for the following operations:

- Selecting class B TMA airspace alert setting (on, off)
- Selecting class C TCA airspace alert setting (on, off)
- Class D (on, off)
- Selecting restricted airspace alert setting (on, off)
- Selecting MOA (on, off)
- Other airspace alert settings (on, off)
- Selecting altitude buffer distance setting

To turn an Airspace Alert on or off:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the desired 'AIRSPACE ALERTS' field.
4. Turn the **small FMS** knob to display the options list.
5. Turn the **small or large FMS** knob to select 'YES' or 'NO' and press the **ENT** key.

To change the altitude buffer distance setting:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the 'ALTITUDE BUFFER' field.
4. Turn the **small and large FMS** knobs to select an altitude buffer value and press the **ENT** key.

Arrival Alerts

An arrival alert, provided on the System Setup Page, can 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 on the PFD Navigation Status Bar.

The Arrival Alert section of the System Setup Page displays the following information:

- Arrival alert setting
- Trigger distance for arrival alerts

The Arrival Alerts section of the System Setup Page allows the following operations:

- Enabling and disabling of arrival alert
- Setting trigger distance for arrival alerts

To enable/disable an Arrival Alert:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to select the ARRIVAL ALERT On/Off field.
4. Turn the **small FMS** knob to display the options list.
5. Turn the **small or large FMS** knob to select the desired option and press the **ENT** key.

To change the Arrival Alert trigger distance setting:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the desired ARRIVAL ALERT distance field.
4. Turn the **small and large FMS** knobs to enter a trigger distance and press the **ENT** key.

Audio Alerts

The Audio Alert section of the System Setup Page gives you the option of selecting a male or female voice for audio alerts.

To change the audio alert voice:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the desired 'VOICE' field in the 'AUDIO ALERT' box.
4. Turn the **small FMS** knob to display the options list for the voice.
5. Turn the **small or large FMS** knob to highlight male or female.
6. Press the **ENT** key.

MFD Data Bar Fields

The MFD Nav Data Bar Fields section of the System Setup Page displays the current configuration of the Nav data (MFD) bar fields. The Nav Data Bar Fields section of the System Setup Page allows you to configure the four Nav data bar fields to the following values:

- Bearing (BRG)
- Distance (DIS)
- Desired Track (DTK)
- En Route Safe Altitude (ESA)
- Estimated Time of Arrival (ETA)
- Estimated Time En Route (ETE)
- Ground Speed (GS)
- Minimum Safe Altitude (MSA)
- Track Angle Error (TKE)
- Track (TRK)
- Vertical Speed Required (VSR)
- Crosstrack Error (XTK)

The default settings are:

- Field 1: Ground speed (GS)
- Field 2: Distance to next waypoint (DIS)
- Field 3: Estimated Time enroute (ETE)
- Field 4: Enroute Safe Altitude (ESA)

To change an MFD Data Bar Field:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the desired MFD data bar field.
4. Turn the **small FMS** knob to display the options list.
5. Turn the **small or large FMS** knobs to highlight the new selection.
6. Press the **ENT** key.

GPS CDI

The CDI section of the System Setup Page allows you to define the range for the on-screen course deviation indicator. The range values represent full range deflection for the CDI to either side. The default setting is 'AUTO'. At this setting, the CDI range is set to 5.0 nautical miles during the "en-route" phase of flight. Within 30 nm of your destination airport, the CDI range gradually ramps down to 1.0 nm (terminal area). Likewise, leaving your departure airport the CDI range 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 range 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 range setting is selected (i.e., 1.0 or 0.3 nm), the higher range settings are not selected during ANY phase of flight. For example, if 1.0 nm is selected, the G1000 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 range, and corresponding flight phases.

The CDI Section of the System Setup page displays the following data:

- Selected CDI range (auto, 5 nm, 1 nm, 0.3 nm)
- The current system CDI range (5 nm, 1 nm, 0.3 nm)
- The ILS CDI capture mode setting (auto, manual)

The CDI Section of the System Setup page allows the following operations:

- Setting the selected CDI range (auto, 5 nm, 1 nm, 0.3 nm)
- Setting the ILS CDI capture mode (auto, manual)

To change the CDI range:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the 'SELECTED' field in the GPS CDI box.
4. Turn the **small FMS** knob to display the options list.
5. Turn the **small or large FMS** knob to select the desired value and press the **ENT** key.

To change the ILS CDI capture setting:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the 'ILS CDI CAPTURE' field in the GPS CDI box.
4. Turn the **small or large FMS** knob to select the desired value and press the **ENT** key.

COM Configuration

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.*

To change COM channel spacing:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight the 'CHANNEL SPACING' field.
4. Turn the **small or large FMS** knob to select the desired spacing and press the **ENT** key.

Nearest APT

Nearest Airport 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 can 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. The Nearest Airport section of the System Setup page displays the following data:

- Nearest airport surface matching criteria (any, hard only, hard/soft, water)
- Nearest airport minimum length matching criteria

To select Nearest airport surface matching criteria (any, hard only, hard/soft, water):

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight 'RNWY SURFACE' field in the 'NEAREST APT' box.
4. Turn the **small FMS** knob to display the options list for the selected item.
5. Turn the **small or large FMS** knob to highlight the new selection (any, hard only, hard/soft, water). Press the **ENT** key.

To select Nearest airport minimum runway length matching criteria:

1. Select the System Setup Page.
2. Press the **FMS** knob momentarily, to activate the flashing cursor.
3. Turn the **large FMS** knob to highlight 'MIN LENGTH' field in the 'NEAREST APT' box.
4. Turn the **small FMS** knob to display the length field.
5. Turn the **small and large FMS** knobs to enter a runway length (zero to 99,999 feet).
6. Press the **ENT** key.

SYSTEM STATUS PAGE

The System Status Page displays the status and software version numbers for all detected system LRUs. Pertinent information of all databases in the system is also displayed. Active LRUs are indicated by a green check mark and failed LRUs are indicated by a red X. The Pilot should note the failed LRU and inform a Cessna service center or Garmin dealer.

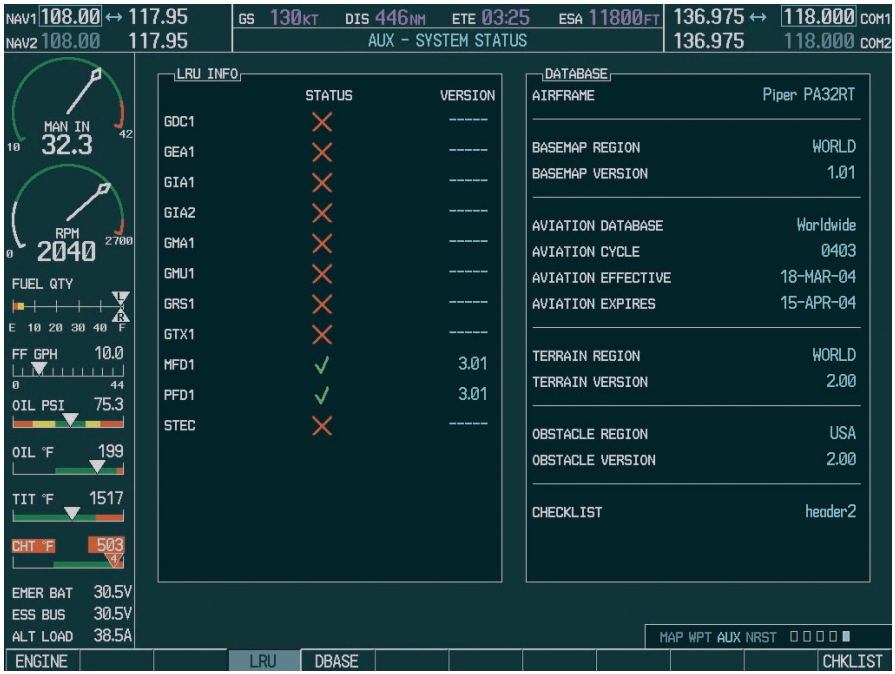

Figure 8A.9.10 System Status Page

8A.10 NEAREST PAGE GROUP

The nearest (NRST) page group is the fourth page group which consists of the following pages:

- Nearest Airports
- Nearest Intersections
- Nearest NDB
- Nearest VOR
- Nearest User WPTS
- Nearest Frequencies
- Nearest Airspaces

To quickly select a NRST page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the NRST page group. 'NRST' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the desired NRST Page.

Not all 25 nearest airports, VORs, NDBs, intersections or user waypoints can be displayed on the corresponding NRST page at one time. The Nearest Airports Page displays detailed information for five 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 Airspaces Page displays detailed information for up to three special use or controlled airspace alerts. The NRST pages for VORs, NDBs, intersections, and user waypoints display nine waypoints at a time. The flashing cursor and **large FMS** 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 **FMS** knob to activate the cursor.
3. Turn the **large FMS** 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 **FMS** knob to remove the flashing cursor.

NAVIGATING TO A NEAREST WAYPOINT

The NRST pages can be used in conjunction with the 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.
2. Press the **Direct-to** key to display the Direct-to Page.
3. Press the **ENT** key to accept the selected waypoints identifier and press the **ENT** key a second time (with 'Activate?' highlighted) to begin navigating to the selected waypoint.

Figure 8A.10.1 Nearest Airports Page

Figure 8A.10.2 Direct-to from Nearest Airports Page

Nearest Airports Page

The Nearest Airports Page displays the following information for a selected airport:

- Map of surrounding area
- Airport Identifier, Symbol, Bearing, Distance (up to 25 airports within 200 nm of current position)
- Name
- Closest city
- Elevation
- Runway information
- Airport COM frequencies
- Approaches

To select the Nearest Airports Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the NRST page group. 'NRST' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the Nearest Airports Page.

To select a nearest airport from the Nearest Airports Page:

1. Press the **APT** softkey located at the bottom of the display. The first airport in the nearest airports list is highlighted.
2. Turn the **large FMS** knob to highlight the desired airport. The remaining information on the Nearest Airports Page pertains to the selected airport.

To select a runway from the Nearest Airports Page:

1. Press the **RNWY** softkey located at the bottom of the display.
2. Turn the **small FMS** knob to select the desired runway.

Figure 8A.10.3 APT, RNWY, FREQ, and APR Softkeys

The Nearest Airports Page can 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 Frequency Toggle Key.

To quickly tune the COM transceiver to a nearby airport frequency:

1. Press the **FREQ** softkey located at the bottom of the display.
2. Turn either the **small or large FMS** knob to select the desired frequency.
3. Press the **ENT** key. The selected frequency is placed in the standby frequency tuning box.
4. Press the **Com Frequency Toggle** key to place the frequency in the active field.

To select and load an approach from the Nearest Airports Page:

1. Select the desired nearest airport.
2. Press the **APR** softkey located at the bottom of the display. The 'LD APR' (load approach) softkey becomes available.
3. Turn either the **small or large FMS** knob to select the desired approach. Press the **LD APR** softkey.
4. The Approach Loading Page is displayed with the transitions field highlighted. Turn either the **small or large FMS** knob to select the desired transition.
5. Press the **ENT** key. The 'LOAD?' field is highlighted. Press the **ENT** key to load the approach.
6. Turn the **large FMS** knob to highlight the 'ACTIVATE' field. Press the **ENT** key to activate the approach. 'Load' adds the approach to the flight plan without immediately using the approach for navigation guidance. This allows for the original flight plan to continue navigating 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.

***NOTE**: If the approach is not approved for GPS, a 'NOT APPROVED FOR GPS' messages is displayed with 'YES' highlighted. Press the* **ENT** *key to acknowledge the message. Turn the* **large FMS** *knob to select 'NO' and press the* **ENT** *key to return to the Approach Loading Page*

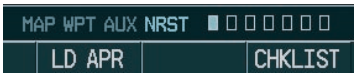

Figure 8A.10.4 LD APR Softkey

Figure 8A.10.5 Nearest Airports Page

Nearest Intersections Page

The Nearest Intersections Page displays the following information for a selected intersection:

- Map of surrounding area
- Intersection identifier, Symbol, Bearing, Distance (within 200 nm of current position)
- Lat/Lon (latitiude/longitude)
- Reference VOR Information consisting of:
  - VOR Name
  - Symbol
  - Frequency
  - Bearing
  - Distance

Figure 8A.10.6 Nearest Intersections Page

To select the Nearest Intersections Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the NRST page group. 'NRST' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the Nearest Intersections Page.

To select a nearest intersection from the Nearest Intersections Page:

1. Press the **FMS** knob to activate the cursor.
2. Turn either the **small or large FMS** knob and press the **ENT** key to select the desired intersection. The remaining information on the Nearest intersection Page pertains to the selected intersection

NEAREST NDB PAGE

The Nearest NDB Page displays the following information for a selected NDB:

- Map of surrounding area
- NDB Identifier, Symbol, Bearing, Distance (within 200 nm of current position)
- NDB Name
- Latitude/longitude (degrees/minutes or degrees/minutes/seconds)
- Frequency

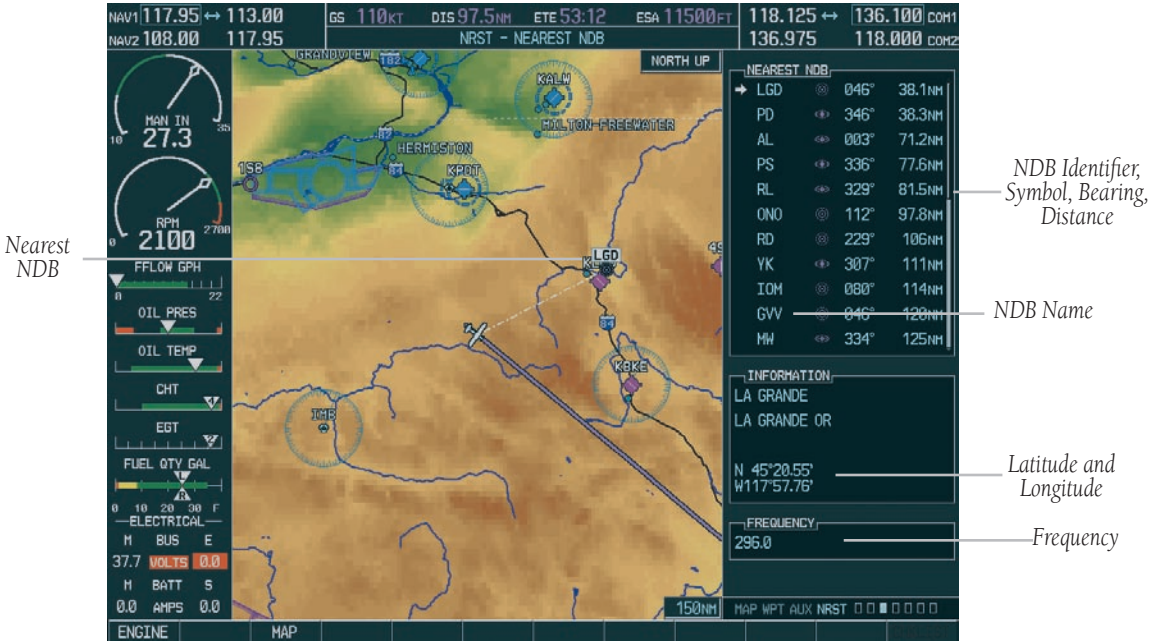

Figure 8A.10.7 Nearest NDB Page

To select the Nearest NDB Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the NRST page group. 'NRST' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the Nearest NDB Page.

To select an NDB from the Nearest NDB Page:

1. Press the **FMS** knob to activate the cursor.
2. Turn either the **small or large FMS** knob and press the **ENT** key to select the desired NDB. The remaining information on the Nearest NDB Page pertains to the selected NDB.

NEAREST VOR PAGE

The VOR Information Page displays the following information for a selected VOR:

- Map of surrounding area
- Identifier, Symbol, Bearing, Distance
- Name
- Closest city
- VOR Type
- Latitude/longitude (degrees/minutes or degrees/minutes/seconds)
- Magnetic Variation in degrees
- Frequency in megahertz (MHz)

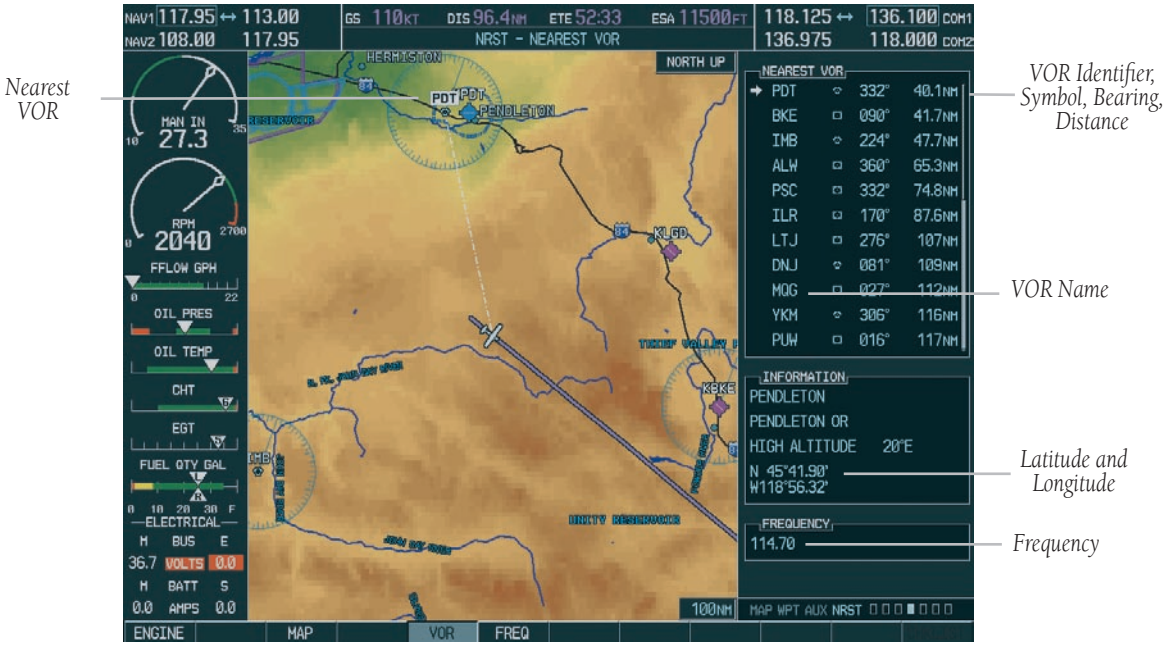

Figure 8A.10.8 Nearest VOR Page

To select the Nearest VOR Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the NRST page group. 'NRST' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the Nearest VOR Page.

To select a nearest VOR from the Nearest VOR Page:

1. Select the Nearest VOR Page. There are two methods that can be used to select a VOR:

- Method 1: Press the **VOR** softkey and turn either the **small or large FMS** knob, or press the **ENT** key to select a VOR.
- Method 2: Press the **MENU** key. Select the Select VOR Window option and press the **ENT** key. Turn either the **small or large FMS** knob to select a VOR.

The remaining information on the Nearest VOR Page pertains to the selected VOR.

To select and load a VOR frequency from the Nearest VOR Page:

1. Select the Nearest VOR Page. There are two methods that can be used to select and load a VOR frequency:

- Method 1: Press the **FREQ** softkey to highlight the VOR frequency for the selected VOR. Press the **ENT** key. The selected VOR frequency is placed in the NAV standby frequency field.
- Method 2: Press the **MENU** key. Select the Select Frequency Window option and press the **ENT** key. Press the **ENT** key again when the frequency field is highlighted to place the selected VOR frequency in the NAV standby field.

NEAREST USER WAYPOINT PAGE

The Nearest User Waypoint Page displays the following information for a selected User Waypoint:

- Map of surrounding area
- Identifier
- Symbol
- Bearing and Distance
- Latitude/longitude
- A reference waypoint with identifier, bearing, and distance
- Waypoint Comment
- A second reference waypoint with identifier and bearing

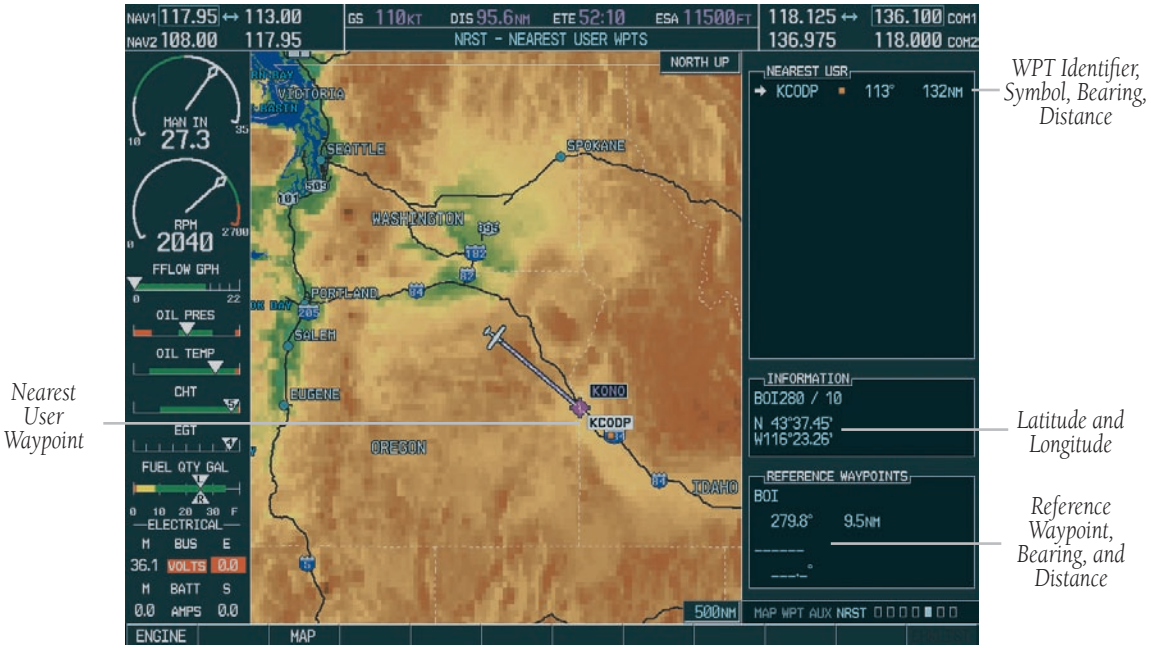

Figure 8A.10.9 Nearest User Waypoints Page

To select the Nearest User Waypoint Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the NRST page group. 'NRST' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the Nearest User Waypoint Page.

To select a Nearest User Waypoint from the Nearest User Waypoint Page:

1. Select the Nearest User Waypoint Page.
2. Press the FMS knob and turn either the **small or large FMS** knob and press the **ENT** key to select a Nearest User Waypoint.
3. The remaining information on the Nearest User Waypoint Page pertains to the selected Nearest User Waypoint.

NEAREST FREQUENCIES PAGE

The Nearest Frequencies Page displays the facility name, bearing to and distance to the five nearest ARTCC and FSS points of communication (within 200 nautical miles of the present position). For each ARTCC and FSS listed, the Nearest Frequencies Page also indicates the frequency and may be used to quickly tune the COM transceiver to the facility frequency. The selected frequency is placed in the standby field of the COM window and activated using the COM Frequency Toggle key. In addition to the ARTCC and FSS information, the Nearest Frequencies Page includes the weather frequencies for the selected ARTCC or FSS.

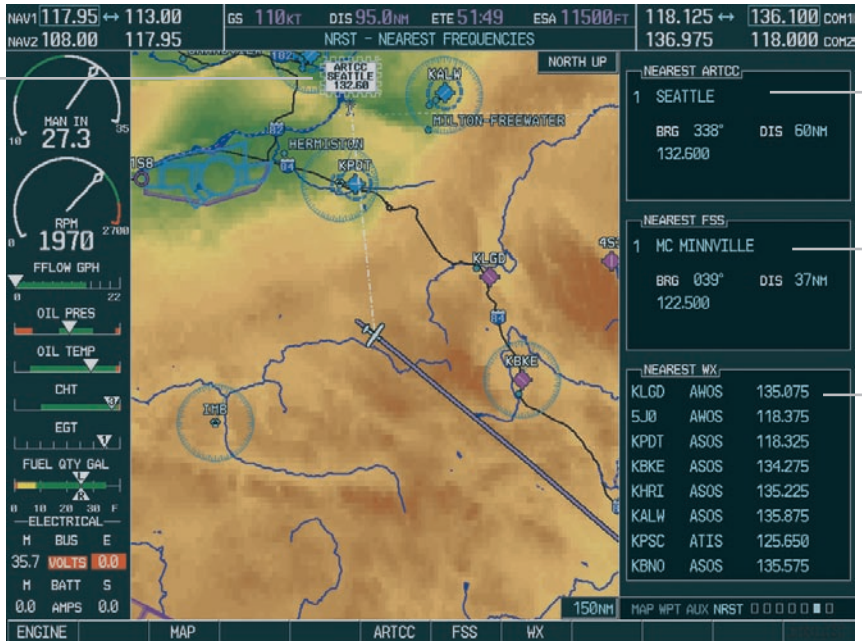

Figure 8A.10.10 Nearest Frequencies Page

To select the Nearest Frequencies Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the NRST page group. NRST is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the Nearest Frequencies Page.

To select a Nearest ARTCC from the Nearest Frequencies Page:

1. Select the Nearest Frequencies Page.
2. Press the **ARTCC** softkey and turn the **small FMS** knob to select a Nearest ARTCC.

To select and load the Nearest ARTCC Frequency from the Nearest Frequencies Page:

1. Select the Nearest Frequencies Page.
2. Press the **ARTCC** softkey and turn the **large FMS** knob to select the center frequency. Press the **ENT** key to load the center frequency into the COM frequency standby field.

To select a Nearest FSS from the Nearest Frequencies Page:

1. Select the Nearest Frequencies Page.
2. Press the **FSS** softkey and turn the **small FMS** knob to select a Nearest FSS.

To select and load the Nearest FSS Frequency from the Nearest Frequencies Page:

1. Select the Nearest Frequencies Page.
2. Press the **FSS** softkey and turn the **large FMS** knob to select the 'FSS' frequency field. Press the **ENT** key to load the 'FSS' frequency into the 'COM' frequency standby field.

To select and load the Nearest Weather Frequency from the Nearest Frequencies Page:

1. Select the Nearest Frequencies Page.
2. Press the **WX** softkey and turn either the **large or small FMS** knob to select a Weather Frequency. Press the **ENT** key to load the weather frequency into the 'COM' frequency standby field.

NEAREST AIRSPACES PAGE

The Nearest Airspaces Page displays the following information for a maximum of 20 controlled or special use airspaces:

- Map of surrounding area
- Airspace Alerts Box displaying Airspace Name, Status, and Time to Entry
- Airspace and Agency
- Vertical Limits (floor/ceiling)
- Airspace Frequencies

To select the Nearest Airspaces Page:

1. From any page, press and hold the **CLR** key to select the Navigation Map Page.
2. Turn the **large FMS** knob to select the 'NRST' page group. 'NRST' is displayed in the page group icon located in the lower right corner of the display.
3. Turn the **small FMS** knob to select the Nearest Airspaces Page.

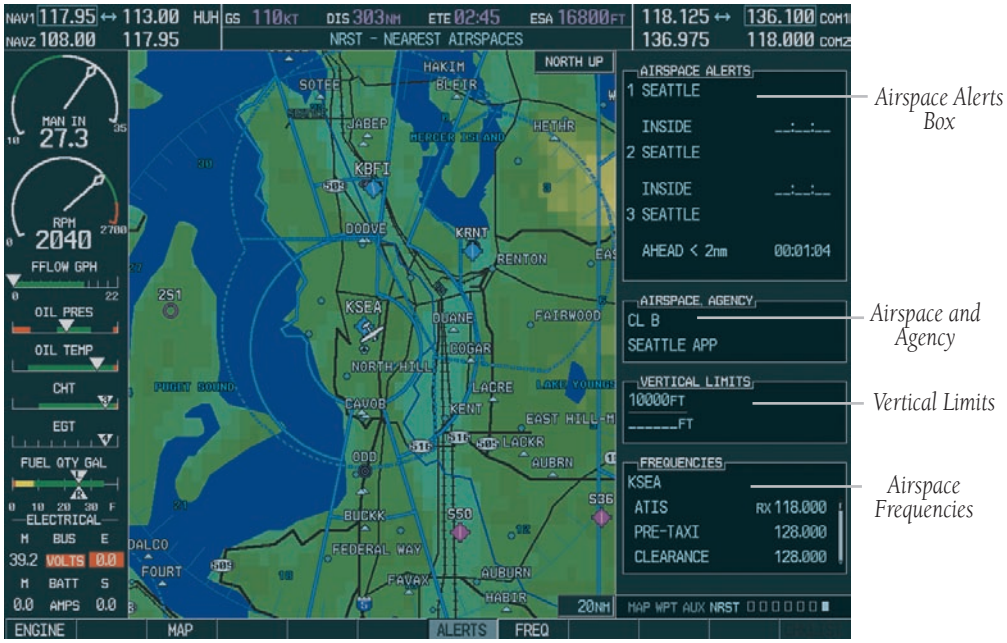

Figure 8A.10.11 Nearest Airspaces Page

Airspace Alerts Box

The Airspace Alerts Box displays the Airspace Name, Status, and Time to Entry. The status and time to entry (if applicable) is based on the following conditions:

- If the projected course will take the aircraft inside an airspace within the next ten minutes, the status field shows the airspace as 'Ahead'.
- If the aircraft is within two nautical miles of an airspace and the current course will take the aircraft inside, the status field shows the airspace as 'Ahead < 2 nm'.
- If the aircraft is within two nautical miles of an airspace and the current course will not take the aircraft inside, the status field shows 'Within 2 nm'.
- If the aircraft has entered an airspace, the status field shows 'Inside'.

***NOTE** 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 sectored to provide complete information on any nearby airspace. Once the described conditions exists, the status and time of entry is shown if the airspace alert messages are enabled on the System Setup Page (Auxiliary Page Group).*

By selecting any airspace name listed on the Nearest Airspaces 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 Airspaces Page:

1. Select the Nearest Airspace Page.
2. Press the **FMS** knob to activate the cursor.
3. Turn the **large FMS** knob to scroll through the list, highlighting the desired airspace.
4. Press the **ALERTS** softkey and turn either the **small or large FMS** knob to select the desired airspace.
5. The remaining information on the Nearest Airspaces Page pertains to the selected airspace name.
6. Press the **FMS** knob to remove the flashing cursor.

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

1. Select the Nearest Airspaces Page.
2. Press the **FREQ** softkey and turn either the **small or large FMS** knob to select the desired frequency. Press the **ENT** key to load the frequency into the 'COM' frequency standby field

Airspaces

The Nearest Airspaces Page displays – and airspace messages are provided for the following airspace types:

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

The Nearest Airspaces Page also displays the floor and ceiling limits of the airspace. The following are examples of what may appear as vertical limits for an airspace:

- 5,000 ft. msl (5,000 feet mean sea level)
- 5,000 ft. agl (5,000 feet above ground level)
- MSL (at mean sea level)
- Notam (see Notice to Airmen)
- Unknown
- Unlimited
- See Chart
- Surface

All airspace messages, except for prohibited areas, may be turned on or off from the System Setup Page in the Auxiliary Page Group. An altitude buffer is also provided on the System Setup Page to provide an extra margin of safety above/below the published limits.

Garmin International, Inc.
1200 East 151st Street
Olathe, KS 66062, U.S.A.
p: 913.397.8200 f: 913.397.8282

Garmin AT, Inc.
2345 Turner Road SE
Salem, OR 97302, U.S.A.
p: 503.391.3411 f: 503.364.2138

Garmin (Europe) Ltd.
Unit 5, The Quadrangle
Abbey Park Industrial Estate
Romsey, SO51 9DL, U.K.
p: 44/0870.8501241 f: 44/0870.8501251

Garmin Corporation
No. 68, Jangshu 2nd Road
Shijr, Taipei County, Taiwan
p: 886/2.2642.9199 f: 886/2.2642.9099

www.garmin.com

190-00392-02 Rev. A