FS Approaches Vol.3 Worldwide Airports

For Microsoft Flight Simulator 2004

User Guide

Introduction

Thank for purchasing FS Approaches!, a major enhancement product designed to work exclusively with Microsoft Flight Simulator 2004.

Getting Started

Please be sure to read the installation section before installing and using FS Approaches.

Also check the Perfect Flight 2000 Project website at http://www.fs2000.org frequently for product updates and information. Technical support is provide on Pf2k website. Questions may also be sent via e-mail to: support@fs2000.org

To obtain technical support do not forget to include:
1) Order Number
2) Product title
3) Flight Simulation Version
4) Problem in detail

Product Registration

Purchasing this software you are automatically joined to **The Week In Flight** Mailing list, so you will be always informed about product upgrades Make sure to save your Order Number, it's will be required for future software enquires.

Special Thanks and Credits

FS Approaches! was developed by:

- ✓ Marco Martini (adventures programming)
- ✓ Luis Cerutti(documentation)
- ✓ Osvaldo Braca (maps and charts)
- ✓ Chip Barber and Jeff Hayes (voice files)
- ✓ Leonidas Theofilopoulos (Textures artwork)

INSTALLATION

To install this add-on in your Personal Computer simply Run the executable files below

- FSApp3_Setup

Select your **MAIN Flight Simulator FOLDER**. Make sure that the path is correct. For example if You have installed FS2004 with the default options, you should install FS Approaches into

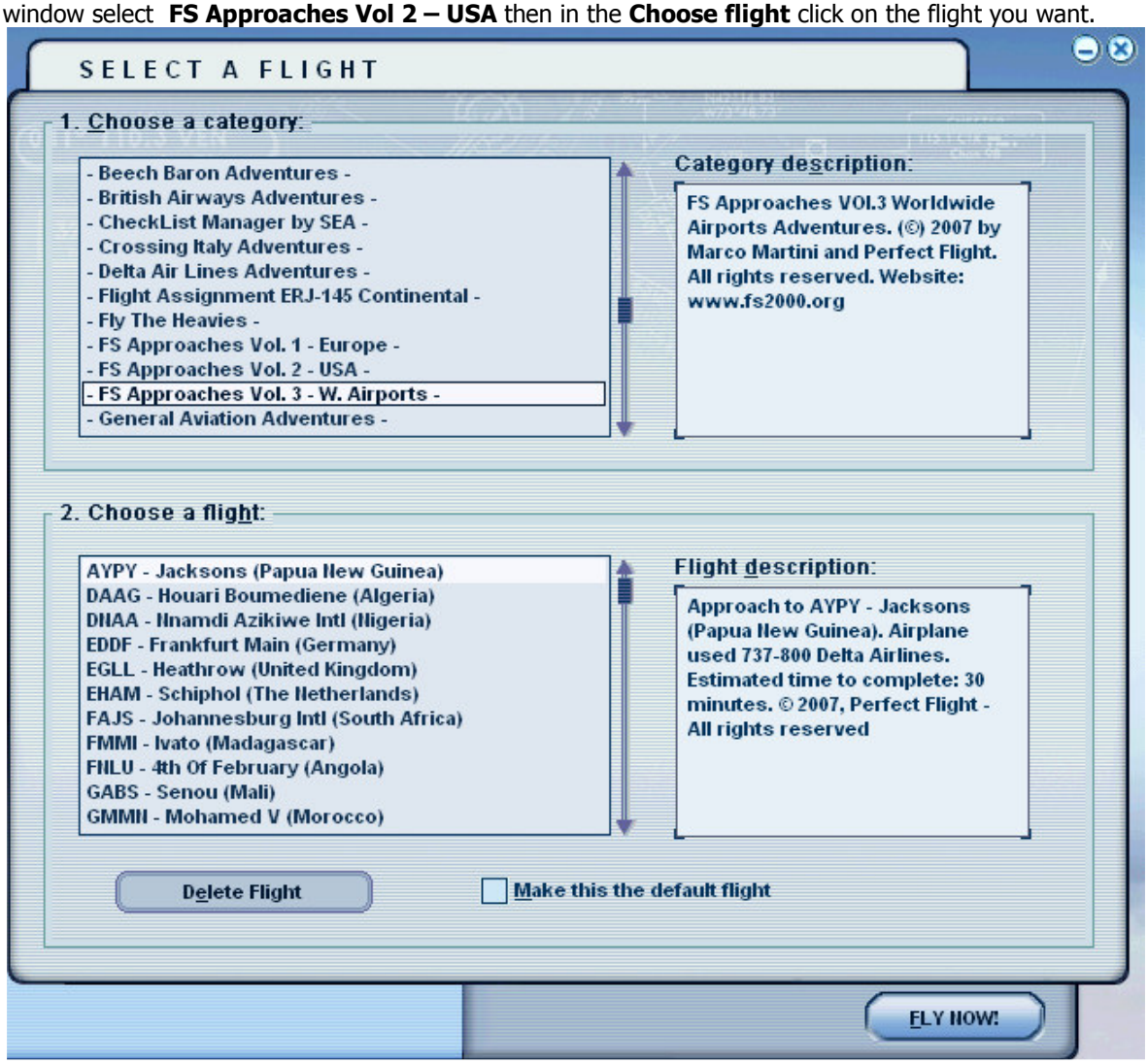
C:\PROGRAM FILES\MICROSOFT GAMES\Flight Simulator 9

In this manner all files will be copied into the appropriate subfolder. In brief. You must select the folder where is located FS9.EXE

How to use the Flights Adventures

You can use FS Approaches directly inside your Flight Simulator 2004.

Start Flight Simulator and form the main screen click on **SELECT FLIGHT.** In the **Choose a Category** window select **FS Approaches Vol 2 – USA** then in the **Choose flight** click on the flight you want.



Now click on **FLY NOW** and the **FLIGH BRIEFING** will be displayed

The Flight Briefing gives you information about the selected flight:

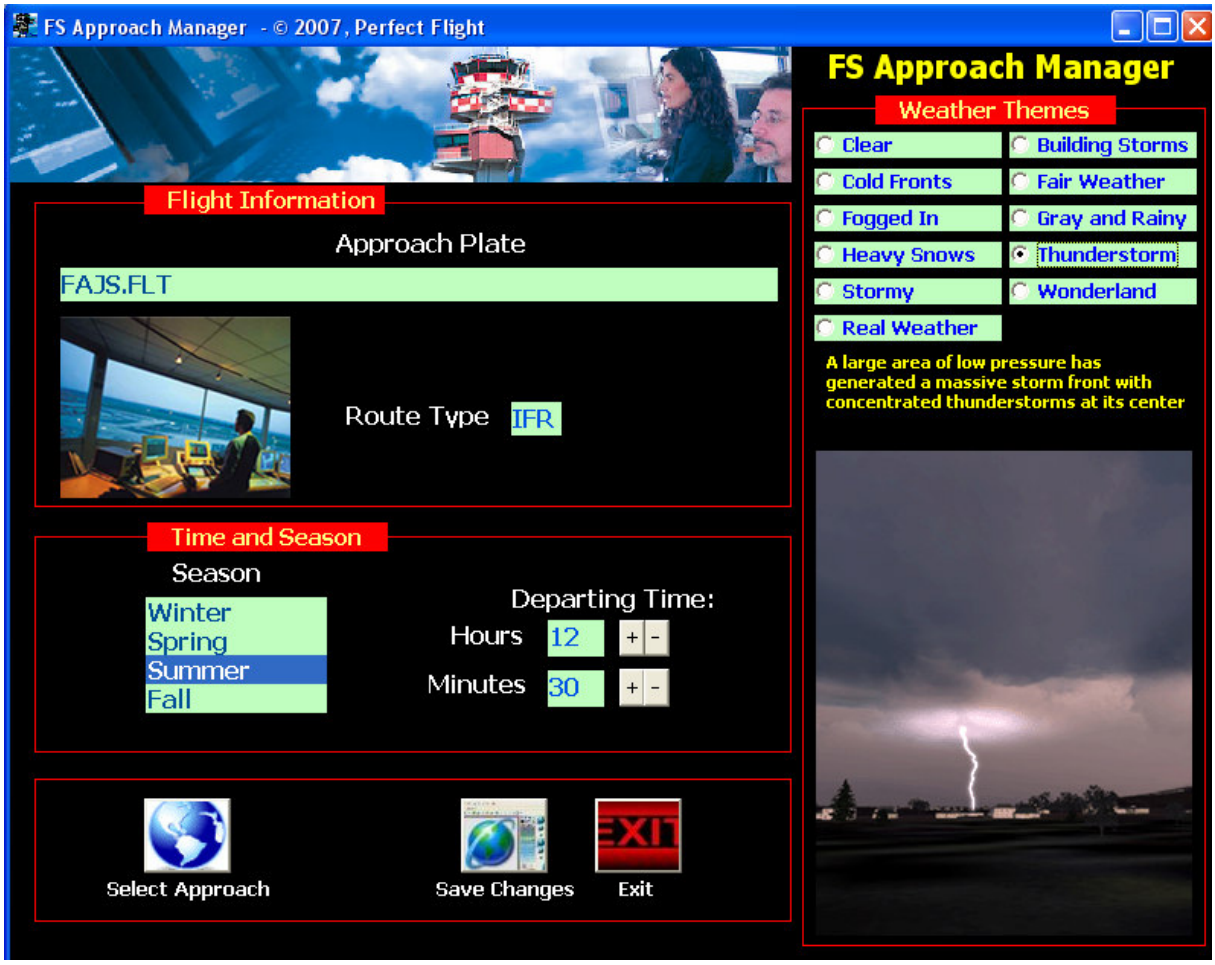
1) Estimated time to complete
2) Airport Facility includes: Airport Diagram or Map, All Frequencies available in the area, Runway length, Surface, ILS Id, Ils Frequency, Ils Heading
3) Terminal Procedures Publication (if availables)

To recall the Flight Briefing during the flight, simply press **F10** key or use the icon  on your main panel

Once the flight is loaded, Flight Simulator is in pause. You can now setting up your flight.

1) Chose an aricraft you want use with the approach adventure
2) Select Time and Season
3) Choose Weather

Also, you can use the **FS Approach Manager** in order to set Time, Season and weather for an approach plate. You can run it from the **Start Menu** or from the **icon** on your Desktop.



Simply click on **Select Approach** to choice the appropriate approach, then modify Season and time at your discretion. Click on Weather theme and click on Save Change to confirm.

For Maximum realism we suggest you to choose Real Weather. The adventure will give you approach clearance according with the weather condition. For variety, you can re-fly an adventure using different aircraft, at the different time or in a different season or with different weather condition. There are no limits to skill your approaches!

Ok, when you are ready to begin the flight, Start FS, select the approach and after the flight is loaded press "p" key to stop pause and the adventure will start. You will hear a "welcome" message.

Now, you can activate the ATC window using the icon  on your Panel and follow the instruction on the screen.

The adventure start about 90 NM from the destination Airport, so, you have all the time to plan your approach as well.

You must interact with the ATC correctly or you will lost you clearance.

During the flight all feature of the FS2004 ATC are available, so you can ask for a different approach or use the GPS to load and fly an approach plate.

At the destination airport taxi to gate and **set parking brakes on**: the shutdown check list will be played.

Now, **release the brakes** and your score will be announced!

How to use the GPS to execute an Approach

Tha default GPS allows you to fly an approach procedure, as in real life.

First of all you must activate the GPS on the screen by clicking the  icon on your panel.

Then, click on **PROC** buttion, located at the rjght down corner. The following screen will appear

To slect an approach click on **ENTER** button, as displayed above. Refer to the default Flight Simulator User Guide to learn how to use the GPS in detail

To select an approach

1. Press the **PROC** button to display the **Procedures** page.
2. Rotate the **large knob** to highlight **Select Approach?** and press the **ENT** button.
   A window will appear listing the available procedures.

3. Rotate the **large knob** to highlight the desired approach and press the **ENT** button.
   A second window will appear listing the available transitions.
4. Rotate the **large knob** to highlight the desired transition waypoint and press the **ENT** button.
   (The **Approach Vectors** option assumes you will receive vectors to the final course segment of the approach and will provide navigation guidance relative to the final approach course.)
5. Rotate the **large knob** to highlight **Load?** or **Activate?** and press the **ENT** button.
   Load? will add the approach to the flight plan without immediately using it for navigation guidance. This allows you to continue navigating the original flight plan, but keeps the procedure available on the **Active Flight Plan** page for quick activation when needed.

To activate a departure or arrival, follow the steps later in this section.

Selecting an approach on the Procedures page

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 will not have this designation, meaning the GPS receiver may be used for supplemental navigation guidance only. ILS approaches, for example, must be flown by tuning the external VOR/ILS receiver to the proper frequency and using the external CDI (or HSI) for guidance.

If you're flying a GPS approach, or a nonprecision approach approved for GPS, and you plan on using the aircraft's VOR 1 indicator to fly the approach, make sure the **Nav/GPS** switch on the aircraft instrument panel is set to **GPS**. If, however, you want to fly the approach using data from the Nav 1 radio, and plan to use the GPS only for situational awareness, then make sure the **Nav/GPS** switch is set to **NAV**.

Once you select an approach, you may activate it for navigation from the **Procedures** page. Activating the approach overrides the en route portion of the active flight plan, proceeding directly to the approach portion (for a full approach, directly to the initial approach fix). Activating the approach also initiates automatic CDI scaling transition as the approach progresses.

Activating an approach on the Procedures page

To activate a previously loaded approach

1. Press the **PROC** button to display the **Procedures** page.
2. Rotate the **large knob** to highlight **Activate Approach?**
3. Press the **ENT** button.

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

To activate the previously loaded approach, with vectors to final

1. Press the **PROC** button to display the **Procedures** page.
2. Rotate the large right knob to highlight **Activate Vectors-To-Final?**
3. Press the **ENT** button.

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

Basic Approach Operations

The Flight Simulator GPS units provide nonprecision approach guidance. The GPS receiver can also be used as a supplemental aid for precision approaches and nonprecision localizer-based approaches, but external localizer and glide slope receivers **must** be used for primary approach course guidance.

Approaches designed specifically for GPS are often very simple and don't require overflying a VOR or NDB. Currently, many nonprecision approaches have GPS overlays to let you fly an existing procedure (VOR, VOR/DME, NDB, RNAV, and so forth.) more accurately using GPS.

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

To fly a typical approach using the GPS

1. Prior to departing, select the destination using the **Direct-to** button
   -or-
   Create a flight plan using the Flight Planner.
2. While en route, ATC will inform you which approach to expect.
   (You can choose another if you'd like).
3. Press the **PROC** button and choose the **Select Approach?** option.
4. Load the expected approach (often while en route) in anticipation of its future use.
   This places the approach in the active flight plan, but retains course guidance in the en route section until the approach is activated.
5. Activate the full approach or vectors-to-final approach, as appropriate.
   In some scenarios, you may find it more convenient to immediately activate the approach and skip the load process.

Points to Remember for All Approaches

1. The GPS is designed to complement your printed approach plates and vastly improve situational awareness throughout the approach. However, *you must always fly an approach as it appears on the approach plate*.
2. The active leg (or the portion of the approach currently in use) is depicted in magenta on the Map page. As you fly the approach, the GPS will automatically sequence through each leg of the approach.
3. The published missed-approach course is shown as a dotted white line extending beyond the missed approach point (MAP). As you pass the MAP, the GPS will sequence to the first missed approach waypoint. Land, or fly the published missed approach procedure.

Approaches with Procedure Turns

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

To fly the procedure turn

1. Within 30 nm of the destination airport, the GPS will switch from **en route** mode to **terminal** mode (as indicated in the lower left corner of the screen), and the course deviation indicator (CDI) scale will transition from a 5.0 to 1.0 nm full scale deflection.
2. Several miles prior to reaching the initial approach fix (IAF), you may wish to review the approach sequence.
   - Press the **FPL** button to display the **Active Flight Plan** page.
   - Press the **CRSR** button and Rotate the **large knob** to review each segment of the approach.
   - When finished, press the **FPL** button again to return to the previous page.
3. As you approach the IAF, dial the outbound course into the aircraft's CDI (or HSI) using the OBS knob and initiate a standard rate turn to this course heading.
4. Fly the outbound course, keeping the CDI needle centered.
5. After approximately 90 seconds, turn 45 degrees left or right (as indicated on chart or GPS) to initiate the procedure turn.
   The Flight Simulator GPS receivers will provide course guidance relative to the outbound leg from the FAF, and through the procedure turn itself. (The GPS will display the procedure turn on the **Map** page, and will indicate the procedure turn as the active leg on the **Default NAV** and **Active Flight Plan** pages.) The CDI needle will start moving to the right.
6. After approximately one minute, make a 180-degree right turn to intercept the inbound course.
   The GPS will sequence to the inbound leg to the FAF, and the CDI needle will swing to the opposite side to provide proper sensing along the final course segment.
7. As the CDI needle starts to center, make a right turn to the final approach course.
8. Within 10 nm of the airport, the GPS will switch from **terminal** mode to **approach** mode.
   CDI scaling will be tightened from 1.0 to 0.3 nautical mile, full scale deflection.

9. As you approach the FAF, make any course adjustments necessary for the final course segment (FAF to MAP).
10. As you cross the FAF, the destination sequences to the MAP (for example, **RW04**, the runway threshold).
11. With the needle centered, fly toward the MAP, observing the altitude minimums indicated by the approach plate.
12. As you pass the MAP, the GPS will sequence to the first missed approach waypoint.
13. Land, or fly the published missed approach procedure.

Missed Approaches

After you pass the MAP, you must execute a missed approach if the runway isn't in sight. As you pass the MAP, the GPS will sequence to the first waypoint in the published missed approach, and then to each missed approach waypoint in sequence, including taking you through the hold.

Flying a missed approach

To initiate and fly the missed approach procedure

1. Follow the missed approach procedures, as published on your approach plate, for proper climb and heading instructions.
   The GPS will guide you through the published procedure to the holding pattern, and will provide course guidance through the holding pattern, including a modified entry.
2. When leaving the holding pattern to refly the approach (or another approach), press the **PROC** button to **Select Approach?** or **Activate Approach?** as previously described.
   -or-
   Use the **Direct-to** button to select another destination.

Approaches with a Hold

If an approach begins with a holding pattern, the GPS can make simple work of it.

Flying an approach with a hold

To fly an approach with a hold

1. Within 30 nm of the airport, the GPS will switch from **en route** mode to **terminal** mode, and the CDI scale will transition from 5.0 to 1.0 nm, full scale deflection.
2. The GPS will display the holding pattern on the **Map** page, and indicate the holding pattern as the active leg on the **Default NAV** and **Active Flight Plan** pages.
3. The GPS will provide course guidance through the holding pattern, including a modified entry. **Note:** If you need to lose extra altitude or speed by going around the holding pattern again, press the **OBS** button to manually suspend waypoint sequencing before crossing the holding waypoint the second time. If you've already passed this waypoint, reactivate the holding pattern on the **Active Flight Plan** page.
4. Within 10 nm of the airport, the GPS will switch from **terminal** mode to **approach** mode. CDI scaling will be tightened from 1.0 to 0.3 nautical mile, full scale deflection.
5. Make any course adjustments necessary for the final course segment (FAF to MAP).
6. As you cross the FAF, the GPS will sequence the destination to the MAP (for example, **RW21**, the runway threshold). With the needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.
7. As you pass the MAP, the GPS will sequence to the first missed approach waypoint.
8. Land, or fly the published missed approach procedure.

DME Arc Approaches

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

Flying a DME Arc approach

To fly a DME arc approach

1. Within 30 nm of the destination, the GPS will switch from **en route** mode to **terminal** mode and the CDI scale will transition from 5.0 to 1.0 nm, full scale deflection.
2. If you haven't already activated the approach, be sure to do so when cleared for the approach.
3. If you plan on using the aircraft's VOR 1 indicator to fly the approach, make sure the **Nav/GPS** switch on the aircraft instrument panel is set to **GPS**.
   -or-
   If you want to fly the approach using data from the Nav 1 radio, and use the GPS just for situational awareness, then make sure the **Nav/GPS** switch is set to **Nav**.
4. Follow the arc, keeping the CDI needle centered.
5. The next point in the approach is probably an intermediate fix. When the fix becomes the active waypoint, initiate a standard rate turn toward it.
6. Within 10 nm of the airport, the GPS will switch from **terminal** mode to **approach** mode. CDI scaling will be tightened from 1.0 to 0.3 nautical mile, full scale deflection.
7. Turn to the final course segment (FAF to MAP) heading.
8. As you cross the FAF, the destination sequences to the MAP (for example, **RW22**, the runway threshold). With the needle centered, fly toward the MAP, observing the altitude minimums dictated by the approach plate.
9. As you pass the MAP, the GPS will sequence to the first missed approach waypoint.
10. Land, or fly the published missed approach procedure.

Vectors-to-Final Approaches

If ATC tells you to "expect vectors" onto the final approach course, there are several ways to select "vectors to final." The first two options below normally require the least effort.

Flying a Vectors-to-Final approach

To select vectors to final

- When the approach is first selected, choose **VECTORS** from the transitions (**TRANS**) window.

  -or-

1. Load a full approach, including the IAF from the transitions window.
2. When cleared, press the **PROC** button and select **Activate Vectors-To-Final?**

  -or-

1. Load the full approach.
2. On the **Active Flight Plan** page, highlight the desired leg of the approach, then press the **MENU** button.
3. Press the **ENT** button to activate the leg.

The GPS has no way of knowing how ATC will vector you, just that you will intercept the final approach course somewhere outside the FAF. Thus, with a vectors-to-final approach activated, the **Map** page will display an extension of the final approach course in magenta (remember, magenta is used to depict the active leg of the flight plan) and **VTF** will appear as part of the active leg on the **Default NAV** page (as a reminder that the approach was activated with vectors to final). The CDI needle will remain off center until you're established on the final approach course, and the GPS will sequence to the next leg (FAF to MAP) as you cross the FAF.

Note that during the vectoring phase of a vectors-to-final approach, all of the information displayed in the GPS data blocks (**DTK**, **DIS**, **CTS**, and so forth) references the FAF. The GPS doesn't know where you will intercept the final approach course, just that you will eventually reach the FAF.

Vectors to Final Using an Autopilot

To fly a vectors-to-final approach using an autopilot, be sure to use **Heading** mode, not **Nav** mode. ATC will vector you to the final approach course and you can follow these vectors by moving the heading bug. Once you intercept the final approach course, you can switch to **Nav** or **Approach** mode as appropriate. Set the **Nav/GPS** switch to GPS to have the **GPS** course displayed on the Nav 1 indicator (or HSI). Set the switch to **Nav** to manually follow a VOR, Localizer, or ILS course tuned on the Nav 1 radio.

To fly a vectors-to-final approach

1. Within 30 nm of the destination, the GPS will switch from **en route** mode to **terminal** mode and the CDI scale will transition from 5.0 to 1.0 nm, full scale deflection.
2. If you haven't already done so, activate the approach (with vectors to final).
   This allows the GPS to guide you to the final approach course.
3. ATC will give you multiple vectors.
4. ATC will instruct you to turn to intercept the final approach course.
   As you converge with the final approach course the CDI needle moves toward the center.
5. As the CDI needle centers, make any remaining course corrections to establish yourself on the final approach course.
6. Within 10 nm of the airport, the GPS will switch from **terminal** mode to **approach** mode.
   CDI scaling will be tightened from 1.0 to 0.3 nautical mile, full scale deflection.
7. As you cross the FAF, the destination sequences to the MAP (for example, **RW22**). With the needle centered, fly toward the MAP, observing the altitude minimums depicted on the approach plate.
8. As you pass the MAP, the GPS will sequence to the first missed approach waypoint.
9. Land, or fly the published missed approach procedure.