

FLYING THE ILS APPROACH

The flying of a NAV-to-NAV ILS approach requires advanced avionics to include EFIS, flight director, and autopilot. There are both procedures and techniques to flying the NAV-to-NAV ILS approach.

The FMS will not fly the ILS approach; in other words, it cannot process both the localizer and glideslope, create the three dimensional path, and then send the navigation to the aircraft flight guidance system. In cooperation with some EFIS and autopilots, the FMS will allow for the automatic transfer of navigation control to the aircraft flight guidance for the flying of the ILS final approach segment. To do this requires an advanced autopilot, flight director, and one of the following Electronic Flight Instrument Systems (EFIS):

Universal Avionics EFI 890R
Collins Proline 4 4000
Collins EFIS 86

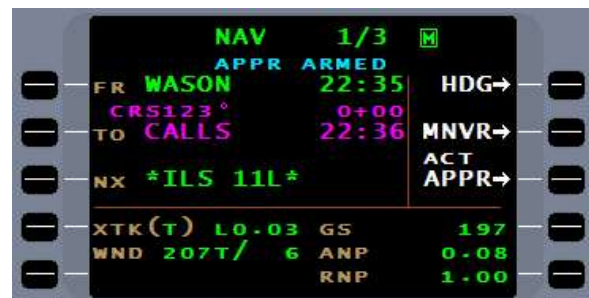
From a pilot's perspective, the flying of an ILS NAV-to-NAV approach is the same as any other FMS approach with one exception. The exception is the required signal the EFIS gives to the FMS that indicates it's ready to receive the NAV-to-NAV transfer. The signal occurs when the pilot selects approach mode on the flight director. The EFIS will then send communication to the FMS that it is ready for the transfer. When the FMS detects the ILS localizer and has received the transfer ready notification from the EFIS, it will notify the EFIS to assume navigation control of the aircraft. The EFIS will now present navigation commands to the flight director and autopilot.

Following the arming of the approach, the FMS will require that the ILS frequency be tuned and will prompt with the TUNE APPR line select key. If this is not accomplished, further prompting by FMS message will occur.



For automatic activation when flying an approach transition, arm the aircraft flight director approach mode prior to the capture fix.

As the FMS becomes approach active, it will transfer navigation control to the EFIS.



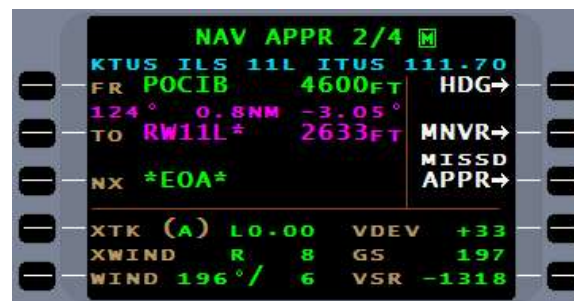
NOTE: Follow automatic approach activation, if the FMS has a slight position error that causes the aircraft to fly parallel to the ILS inbound course without VHF LOC capture, the FMS will advise the pilot with the message "FMS-FLOC DIFF WARN". The pilot should use FMS HDG mode to steer the aircraft to intercept the ILS.

When on vectors to the final approach course, manual activation of the approach is required. Follow the rule that first requires using the FMS heading mode to place the aircraft on the assigned heading, and then activate the approach. Follow ATC vectors to the intercept leg. When the FMS presents a heading intercept line select key, first arm the aircraft flight director approach mode, then press the FMS intercept line select key.



NOTE: It is extremely important that flight director approach mode be armed before pressing the FMS intercept line select key. The navigation transfer may not take place if this sequence is not followed and the aircraft will fly through the ILS final approach course.

The ILS missed approach will operate the same as any other FMS approach. Selecting the FMS MISSD APPR line select key either directly or remotely through the aircraft go-around system will result in the FMS regaining navigational control of the aircraft and following the missed approach procedure.



As with all missed approaches, if the pilot uses the aircraft go-around system, the aircraft pitch up, wings level command will come from the aircraft flight director. The FMS will not provide any vertical guidance during missed approach. To reconnect the flight director to the FMS, flight director NAV mode must be selected.

At some airports ATC guidance will direct the aircraft to intercept and proceed inbound on the localizer without clearance to fly the approach. Retaining the aircraft flight director approach mode will result in capture of the glideslope when clearance to do so was not given. A technique to accomplish this is as follows. Select the aircraft flight director approach mode to transfer navigational control to the EFIS. Once the transfer is complete, reselect NAV mode on the aircraft flight director. Once transfer to the EFIS is made, the FMS will not retake navigational control until a missed approach is executed. The aircraft will now follow the localizer without capturing the glideslope. When cleared for the approach, select aircraft flight director approach mode to capture the glideslope upon intercept.