

About the 747-8 Autopilot and Autothrottle for FlightGear

by John Williams

Autopilot

- The Automatic Pilot is activated by pressing any of the CMD buttons.
- When the AP is on, "AP ON" will appear on the PFD. Pressing any CMD button will turn off the AP
- The AP DISENGAGE switch will disconnect both the AP and the AT and a striped pattern will appear on the panel behind the switch. Neither system will function until the switch is closed again (and the striped pattern is hidden).

Pitch Modes

- ALT knob - adjusts the target altitude (but does not change the current altitude)
- ALT HOLD - AP holds the current indicated altitude (rounded to the nearest 100 ft)
- V/S scroll wheel - adjusts the rate of climb or descent in increments of 100 ft/min
- V/S hold - climb or descend at the rate shown on the V/S display in ft/min; holds the current vertical speed when activated; automatically switches to ALT hold upon reaching the target altitude shown in the ALT display
- FLCH - Climb or descend to target altitude shown in ALT display
- VNAV - hold and change altitudes as specified in FMS route manager (note: VNAV only looks ahead to the next waypoint. It will not plan a climb or descent.)
- APP - Arms and activates LOC lateral mode, and arms and activates G/S mode to follow ILS glideslope path

Notes:

- When VNAV activates FLCH mode, target altitude cannot be changed until system returns to VNAV mode.
- VNAV is designed to make minor altitude adjustments during the cruise phase of the flight. It does not control vertical speed or pitch angle, and therefore is not equipped to properly manage the climb and descent phases of the flight.
- If your speed is not sufficient to maintain the requested altitude or climb/descent rate, vertical mode may deactivate.
- If your speed falls below the stall speed for your current weight and altitude, the AP will disengage automatically.

Lateral Modes

- HDG knob - adjusts target magnetic heading (using mouse scroll wheel)
- SEL - turn to and hold target magnetic heading (push the knob)
- HDG HOLD - hold current magnetic heading
- BANK LIMIT knob - AP bank angle limiter (Auto, 5, 10, 15, 20, 25, 30 deg)
- LOC - Arms and activates LOC lateral mode to follow VOR radials or localizer approach paths
- LNAV - Follow flightplan specified in FMS route manager

Notes:

- LNAV will *not* work unless the flightplan specified in the route manager contains 2 or more points. The starting and ending airport are sufficient.
- If BANK LIMIT is set to "Auto," the aircraft will not turn at speeds greater than 0.86 mach.
- At low speeds, AP may overshoot turns if BANK LIMIT is set to "Auto."
- When using LNAV mode with closely spaced waypoints and frequent turns (such as the end phase of RNAV STAR), monitor your speed closely. Flying too fast will cause you to miss

waypoints and leads to unpredictable AP behavior. 747s don't turn on a dime, especially when the AP is engaged.

Autothrottle

- AT knob - adjust target IAS or mach
- IAS/MACH selector - switch between IAS and mach hold modes
- SPD button - turns AT on and off
- ARM switch - must be turned to ARM in order to activate AT