# AUTOPILOT PRESENTATION

**GENERAL**

The AP is engaged from the Flight Control Unit (FCU) by the related pushbuttons. AP engagement is indicated by the illumination of the AP 1 P/BSW or/and the AP 2 P/BSW (Three green bars) and by the white "AP1", "AP2" or "AP1+ 2" indication on the top right corner of each PFD. The AP guidance modes are selected from the FCU or the Flight Management and Guidance Computers (FMGCs). The AP function is a loop where, after a comparison between real and reference parameters, the FMGC computes orders, which are sent to the flight controls. The loop is closed by real values coming from sensors and given by other systems (e.g. ADIRS) to the FMGCs. When the AP is engaged, the load thresholds on the rudder pedals and the side sticks are increased. If a pedal or side stick load threshold is overridden, the AP disengages.

**MODES**

There are lateral modes and vertical modes. Basically, one of each is chosen by the pilot or by the system. The AP being engaged, one lateral mode and one vertical mode are simultaneously active. According to flight phases, the lateral mode controls:

- the ailerons via the Elevator Aileron Computers (ELACs),

- the spoilers via the ELACs and the Spoiler Elevator Computers (SECs),

- the rudder via the Flight Augmentation Computers (FACs),

- the nose wheel via the ELACs and the Braking/Steering Control Unit (BSCU).

The vertical mode controls the elevators and the THS via the ELACs.

**GROUND**

For maintenance purposes, the AP can be engaged on ground with both engines shut down. Hydraulic power is not required. When an engine is started, the AP disengages.

**TAKE-OFF**

The AP can be engaged in flight, provided the aircraft has been airborne for at least 5 seconds.

**CRUISE**

In cruise, only one AP can be engaged at a time, priority given to the last engaged. Engaging the second AP disengages the first one. The ailerons and the spoilers execute the orders of lateral modes; the elevators and the THS execute the orders of vertical modes. NOTE: The rudder is controlled not by the AP but directly by the FACs.

**LANDING**

If the airfield is equipped with ILS installations, the AP can perform a complete landing with approach, flare and roll out. A second AP can be engaged (AP 1 active, AP 2 in standby). NOTE: The rudder is controlled by the AP via the FACs. During roll out, the AP gives steering orders to the rudder and the nose wheel. These orders depend on the aircraft speed. Aileron and spoiler AP orders are null. The THS is reset to 0.5 nose up. NOTE: The spoilers are directly controlled by the SECs as airbrakes. During roll out, at low speed (about 60 knots), the pilot normally disengages the AP by pressing a takeover pushbutton located on the side stick.