

# *ERJ 145*

## **FULL AUTHORITY DIGITAL ELECTRONIC CONTROL (FADEC)**

**NOT FOR REAL WORLD USE!**



Each engine is controlled by two FADECs which are designated as FADEC A and B. Each FADEC receives signals from the Control Pedestal and from the Powerplant Control Panel and sends a signal to the FPMU torque motor which meters the fuel flow to the engines to reach the fan spool speed calculated by the FADEC.

### **ENGINE START**

Engine start is initiated by turning the Start/Stop button to the START position (remember right clicking on the cover to open that allowing access to the knob)

The FADEC is responsible for the automatic engine startup and completing the startup cycle.

### **ENGINE SHUTDOWN**

Engine shutdown is initiated by using the Engine Start/Stop knob with the Thrust Lever positioned at IDLE (users with throttle control, make sure the throttle is calibrated otherwise hit F1 to bring the engines to complete idle)

### **THRUST MANAGEMENT**

#### **Engine Thrust Rating Mode Selection**

The thrust management logic includes five thrust rating modes:

T/O-1: Maximum Takeoff

CON: Maximum Continuous

CLB: Maximum Climb

CRZ: Maximum Cruise (the pilot is always responsible of managing the cruise setting as the CRZ mode can allow the plane to overspeed)

Alternate takeoff mode is selected through Takeoff Data Setting procedure.

If the Thrust Levers are positioned at THRUST SET (F4 or move your throttle to it's maximum position), FADEC will command the maximum N1 associated with the selected mode.



## Takeoff Data Setting

This function is provided in order to enable the pilot to input reference data into the FADEC prior to takeoff. This data will be used to calculate N1TARGET during takeoff.

The following data has to be input:

Takeoff mode: T/O-1 or ALT T/O 1

Reference takeoff temperature: which corresponds to SAT

Reference takeoff Anti-Ice: which will allow the FADEC to consider this condition to calculate N1TARGET

The takeoff data setting is performed by the Takeoff Data Setting controls (SET and STORE) on the overhead.

The procedure is the following (engine must be running):

After pressing the STORE button on the MFD an arrow will point to T/O MOED line. By using the SET control the takeoff mode can be changed to ALT T/O 1 mode

By pressing the STORE button again the arrow will point to the REF TO TEMP line which can be adjusted by the SET knob.

By the third pressing of the STORE button will allow the pilot to select the REF-A-ICE line and adjust it by using the SET knob.

The fourth pressing of the STORE will allow the FADEC to calculate the N1TARGET value.



### **Automatic Takeoff Thrust Control System (ATTCS)**

During a takeoff if an engine fails the ATTCS automatically resets thrust on the remaining engine from alternate takeoff thrust to maximum takeoff thrust.