

BOEING 737-800

TECHNICAL REVIEW - CHAPTER 7

ENGINES & APU

ENGINE OVERVIEW

CFM 56-7B produces a maximum of 26k lbs of thrust, can be derated to 24k and 22k

2 independent rotors: - The N1 rotor connects the Fan, LP compressor and LP turbine
- The N2 rotor connects the HP compressor, the HP turbine and the accessory gearbox

Fitted to the gearbox are the IDG, Air Starter, Engine Hydraulic pump, Engine Fuel pump, EEC, HMU...

Two ignitions system per engine: Left and Right, Right ignition system is connected to the AC standby bus.

EGT limits: - 950° T/O (5 minutes maximum)
- 925° Maximum continuous
- 725° Engine start

EEC

EEC have two modes of operations: Normal and Alternate

Normal protects provides ground start protection: - Hot start (rapid rise in EGT)
- Wet start (no rise in EGT in 15s)
- Engine stalls and EGT exceedances of 725°

Should a failure occur the EEC reverts to Soft Alternate mode and Master Caution ENG illuminates.

Soft Alternate mode uses the last sensed environmental condition to calculate engine limit values.

The Hard Alternate mode is engaged when the thrust levers are retarded to idle or by pushing the EEC switches.

ENGINE START SWITCHES

- GRD : opens start valve, closes engine bleed air valve, arms igniter to provide ignition when start lever is moved to idle detent (both igniters for inflight starts), releases to OFF at start valve cutout.
- OFF : Normally off, automatic ignition if a rapid decrease in N2 occurs or if inflight N2 is lower than normal idle.
- CONT : provides ignition to the selected igniters (both igniters in case of auto ignition)
- FLT : provides ignition to both igniters

ENGINE START LIMITATIONS

Observe initial EGT rise + EGT within limits.

Abort start :

- if EGT fails to rise within 10 sec. of selecting IDLE or EGT rising quickly or approaching limits
- if no N1 rotation before the engine start lever is raised to IDLE
- if no oil pressure by the time the engine is stabilized at idle.
- If no increase in, a very slow increase in N1 or N2 after EGT indication.

APU

APU altitude limits : - 10'000 ft supply of both electrical power & bleed air
- 17'000 ft supply of bleed air
- 41'000 ft supply of electrical power