

	POWER PLANT FADEC		1.70.20	P 1
			SEQ 150	REV 15

GENERAL

Each powerplant has a FADEC (Full Authority Digital Engine Control) system.

FADEC, also called the electronic engine control (EEC), is a digital control system that performs complete engine management.

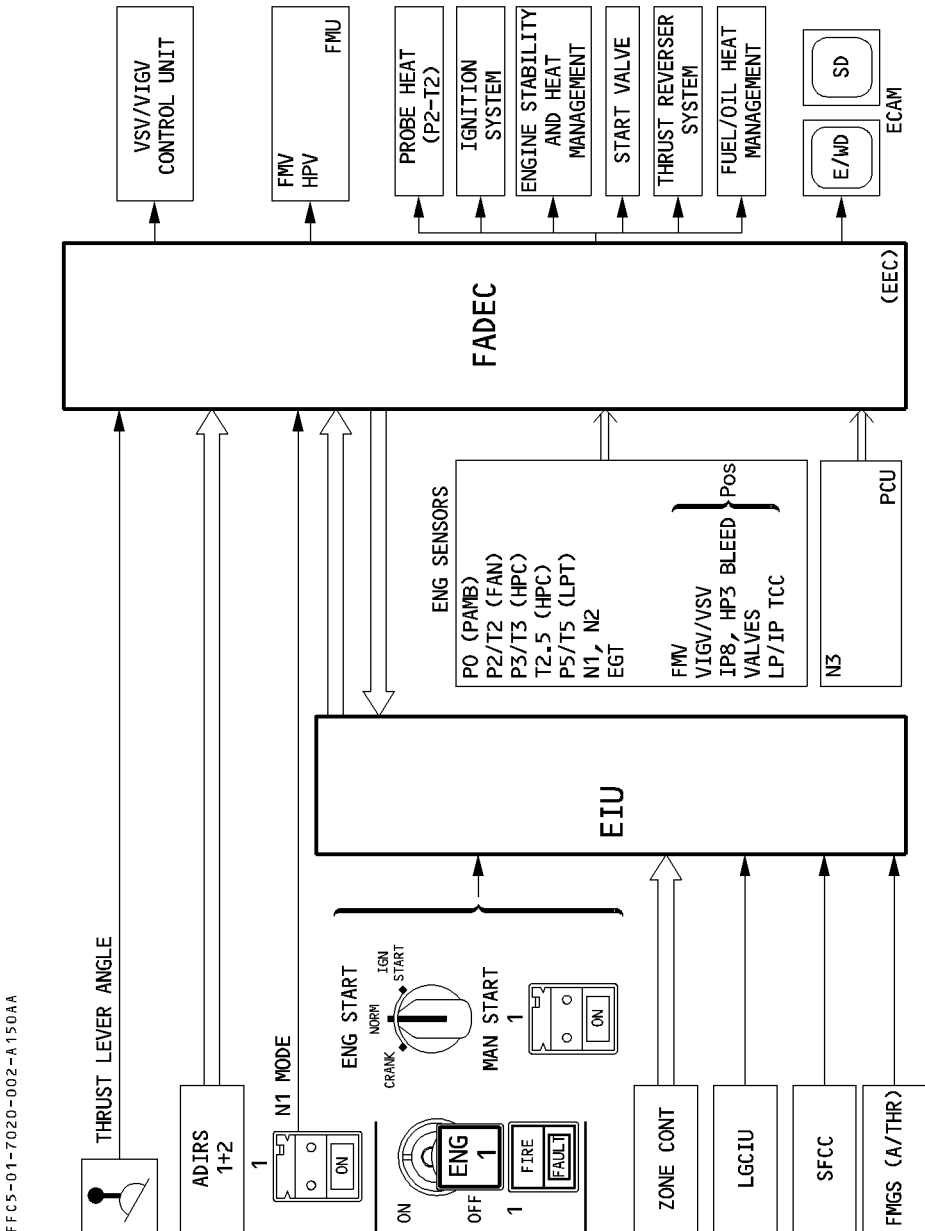
FADEC has two-channel redundancy, with one channel active and one on standby.

If one channel fails, the other automatically takes control.

The system has a magnetic alternator for an internal power source.

FADEC is mounted on the fan case.

The engine interface unit (EIU) transmits the data it uses for engine management to the FADEC.



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FUNCTIONS

The FADEC system performs the following functions:

Control of gas generation

- Control of fuel flow
- Acceleration and deceleration schedules
- Variable stator vanes variable inlet guide vanes, and IP/HP bleed valve schedules.
- Control of turbine clearance
- Idle setting

Protections against :

- N1, N2 overspeed (controlled by the overspeed protection unit)
- Turbine overspeed
- Excessive EGT during engine autostart on ground.
- FADEC overheat
- Engine overthrust

Power management

- Automatic control of engine thrust rating
- Automatic reversion to N1 mode
- Computation of thrust parameter limits
- Manual management of power, based on thrust lever position
- Automatic power management (A/THR demand).

Automatic engine starting sequence

- Control of the :
 - Start valve
 - HP fuel valve
 - Fuel flow
 - Ignition
- Monitoring of N1, N3, FF and EGT
- Initiation of abort and recycle (on the ground only)
- Auto relight and quick relight functions.

Manual engine starting sequence

- Passive monitoring of the engine
- Control of the :
 - Start valve
 - HP fuel valve
 - Ignition

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Thrust reverser control

- Actuation of the blocker cowl
- Engine setting during reverser operation

Transmission of engine parameters and engine monitoring information to cockpit indicators

- The primary engine parameters
- The starting system status
- The thrust reverser system status
- The FADEC system status
- Secondary engine parameters (oil temperature, nacelle temperature, oil filter clog and fuel filter clogging)

Fuel used Computation

- Fuel flow integration

Engine heat Management

- Control of turbine case, bearing and gearbox cooling

FADEC Cooling

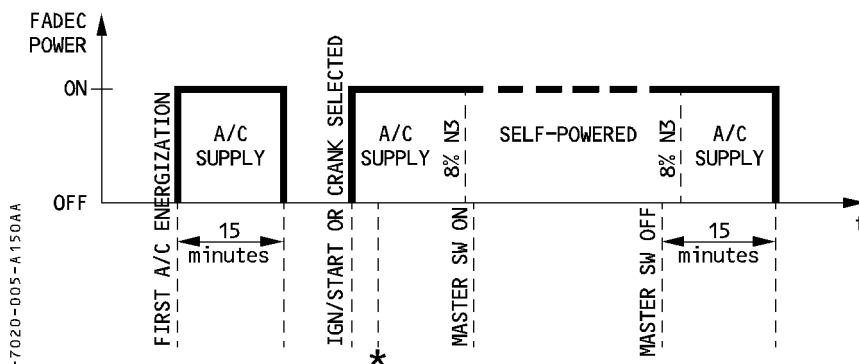
Failure detection, isolation and recording

POWER SUPPLY

The FADEC system is :

- Powered by the aircraft's electrical circuit below 8 % N3, via the Power Control Unit (PCU) which converts 115 VAC into 22 VDC.
- Self-powered above 8 % N3.

FADEC ELECTRICAL SUPPLY LOGIC



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- * : If the ENG START selector is set to the NORM position before engine start, FADEC supply is cut off.

FOR INFO

