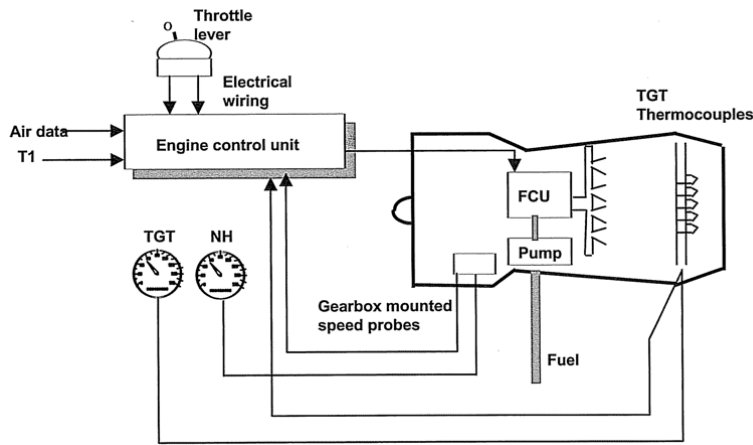


QUESTION NO. ()	SOLUTION	MARKS
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(a)



A full authority control system with electrically control signaling
 FCU- fuel control unit
 TGT- turbine gas temperature
 NH- speed of rotation of engine
 T1- intake total temperature
 Comments: sophisticated; more electrical; control engine through motor or actuator; no “feel” for engine

The pilot does not need to monitor the TGT and NH to decide on how much opening for the FCU.

Functions of the fuel System

(b)

- Fuel pressurization – to pressurize the fuel so that it can transfer from one tank to another. In some aircrafts, inert gas is pumped by an electric motor into the tank to pressurize the tanks. This is especially important when the aircraft is flying at high altitude with low air pressure.

- Engine feed – to feed fuel to the engine at a constant rate, no matter what the external condition is. Fuel is fed into the engine through an electric pump, and the rate is constantly monitored by fuel flow probes.

- Fuel transfer – the main task is to transfer the fuel from the main wing and the fuselage tanks to the collector tanks. May also be used to change the Center of Gravity (CG) of the plane.

- Refuel/defuel – for refueling, the system has to determine the refueling of which tank, when this tank is full, and when should the next tanks be filled. Defuelling is used for maintenance purpose. The fuel management system will systemically drain the fuel from each tank one by one.

- Vent system – a method of sucking air out from the tank when the tank’s air volume is being displaced by fuel.

- Advanced functions (e.g. mid-air refuel, fuel jettison/disposal, external fuel tank, etc.)

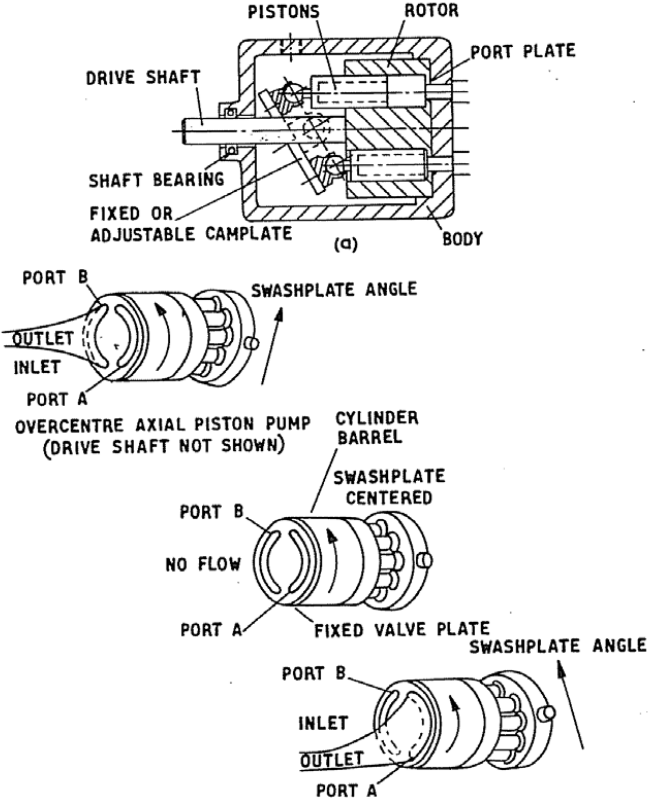
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QUESTION NO. ()	SOLUTION	MARKS
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5. In most aircraft, a swash type pump is installed. It has a flexibility of directing the flow of fluid by setting the angle of the swash plate.

(a) It is also highly reliable and robust.



Add some explanations to the diagram

(b)

