Question block created by wizard

1. A FADEC consists of an electronic control unit, a hydromechanical unit and what other part(s)?

- o (a) Fuel control unit
- o (b) Throttle
- • (c) Sensors

If choice c is selected set score to 1.

2. What is controlling the fuel flow inside the hydromechanical unit?

- o (a) Fuel pump assembly.
- o (b) Servo valve indicator.
- • (c) Fuel metering unit.

If choice c is selected set score to 1.

3. Which type of fuel control is used on most of today's turbine engines?

- o (a) Mechanical.
- o (b) Pneumatic.
- • (c) Hydromechanical or electronic.

If choice c is selected set score to 1.

4. What is the purpose of the fuel flow regulator device?

- • (a) Maintain the correct air/fuel mixture ratio.
- o (b) Controls the amount of fuel delivered to the fuel pump.
- o (c) Maintain the engine speed and thrust.

If choice a is selected set score to 1.

5. What are the most used extinguishing agent(s) approved for aircraft?

- o (a) CO_2 (carbon oxide) and water.
- • (b) Halon 1211 and Halon 1301.
- o (c) N (nitrogen).

If choice b is selected set score to 1.

6. The fuel control is driven by....

- • (a) the engine gear box.

- o (b) the fan.
- o (c) a hydraulic motor.

If choice a is selected set score to 1.

7. The main function of the fuel control unit is to....

- o (a) make sure the engine will always start easily.
- • (b) always have a good air-fuel ratio in the engine.
- o (c) stop the engine in an emergency.

If choice b is selected set score to 1.

8. The fuel boost pump mostly is....

- • (a) a centrifugal pump.
- o (b) a gear pump.
- o (c) an axial pump.

If choice a is selected set score to 1.

9. The high pressure fuel pump mostly is....

- o (a) a centrifugal pump.
- • (b) a gear pump.
- o (c) an axial pump.

If choice b is selected set score to 1.

10. On a modern jet aircraft, power lever input to the EEC is given by....

- o (a) cables or push-pull rods.
- • (b) TLA resolvers.
- o (c) micro switches.

If choice b is selected set score to 1.

11. The heart of the Fadec system is the....

- o (a) fuel metering unit.
- o (b) main fuel pump assembly.
- • (c) EEC.

If choice c is selected set score to 1.

12. If an aircraft has two engines, it....

- o (a) will have one dual channel Fadec system.
- • (b) will have two Fadec systems.
- o (c) depends on the manufacturer how many fader's it has.

If choice b is selected set score to 1.

13. The primary control mode of the EEC is....

- o (a) N1.
- o (b) N2.
- • (c) EPR.

If choice c is selected set score to 1.

14. Which energy source is used to drive the engine Low Pressure Fuel Pump?

- o (a) Hydraulic
- o (b) Air Pressure from the HP-turbine
- • (c) Mechanically from the Accessory Gearbox

If choice c is selected set score to 1.

15. Where are the fuel nozzles located?

- o (a) Middle of the combustion chamber.
- o (b) Aft of the combustion chamber.
- • (c) In front of the combustion chamber.

If choice c is selected set score to 1.

16. What can cause liquid fuel to be collected in the combustor?

- o (a) A faulty fuel shut-off valve.
- • (b) A faulty combustor drain valve.
- o (c) A faulty fuel control unit.

If choice b is selected set score to 1.

17. The EEC alternator powers the....

- o (a) fuel pump.
- • (b) EEC and provides N2 signal.
- o (c) aircraft electrical bus.

If choice b is selected set score to 1.

18. The fuel pump is driven by....

- o (a) the fan gearbox.
- • (b) the main gearbox.
- o (c) a hydraulic motor.

If choice b is selected set score to 1.

19. The fuel pump filter has a differential pressure switch to....

- o (a) stop the fuel pump if needed.
- • (b) sent info to EICAS when the filter starts to clog.
- o (c) start the fuel boost pump if needed.

If choice b is selected set score to 1.

20. The fuel control is an engine driven accessory. It can operate by mechanical, hydraulic, electrical, or pneumatic forces in various combinations.

What is the purpose of the fuel control?

- o (a) Control the fuel flow from the aircraft fuel booster pumps.
- o (b) Limit the amount of fuel to the combustion chamber.
- • (c) Maintain a correct combustion air-to fuel mixture.

If choice c is selected set score to 1.

21. When the pilot moves the fuel control power lever forward, fuel flow is increased. This increase in fuel flow creates increased gas expansion in the combustor chamber.

What is the effect of this gas expansion?

- o (a) It raises the level of air flow being metered to the engine by the fuel control unit.
- • (b) It raises the level of power in the engine, producing more thrust.

- (c) It lowers the level of temperature in the combustion chamber of the engine. This increases the thrust.

If choice b is selected set score to 1.

22. What is the purpose of the fuel control?

To maintain a correct....

- (a) burning cycle in the combustion chamber.
- (b) combustion air to fuel mixture ratio.
- (c) temperature in the combustion chamber.

If choice b is selected set score to 1.

23. The electronic control unit on a gas turbine is a...

- (a) single channel processor.
- (b) dual channel processor.
- (c) 4-channel processor.

If choice b is selected set score to 1.

24. The thrust level request on a FADEC engine is transmitted through a....

- (a) push/pull control rod system.
- (b) mechanical cable system.
- (c) TLA resolver.

If choice c is selected set score to 1.

25. What is the central component in a FADEC system?

- (a) Engine oil control system.
- (b) Fuel control unit.
- (c) Electronic engine control.

If choice c is selected set score to 1.

26. When on the EICAS the fuel bypass message is indicated, where does the signal come from?

- (a) Low pressure fuel pump bypass valve.
- (b) Differential pressure switch.

o (c) Main pressure fuel pump bypass valve.

If choice b is selected set score to 1.

27. The fuel flow transmitter (FFT) uses electromagnetic pulses...

o (a) generated by the fuel booster pumps.
o (b) to control the amount of fuel sent to the fuel control unit.

• (c) to measure the rate of fuel flow.

If choice c is selected set score to 1.

28. The full authority digital electronic control (FADEC) system is a computer-based engine control system. Each aircraft engine has its own control system.

What is the main component of the FADEC system?

o (a) The engine driven fuel pumps.
o (b) The fuel control unit.

• (c) The electronic engine control (EEC).

If choice c is selected set score to 1.

29. What is the purpose of the fuel flow transmitter?

The purpose of the fuel low transmitter is...

• (a) to sent a data signal of fuel flow to the indication system.

o (b) to limit fuel flow to the combustion.
o (c) to control fuel / air mixture in the combustion chamber.

If choice a is selected set score to 1.

30. When the fuel flow transmitter is not installed within 24 hours on the system...

o (a) fill the transmitter with fuel and drain afterwards.

• (b) fill the transmitter with engine oil and drain afterwards.

o (c) it must be covered in a plastic bag.

If choice b is selected set score to 1.

31. What is the purpose of the L.P. pump?

• (a) To prevent cavitation of the H.P. fuel pump.

o (b) To ensure the engine will continue to run if the H.P. fuel pump fails.

o (c) To ensure rapid acceleration when the throttle is opened.

If choice a is selected set score to 1.

32. What is the purpose of the L.P. pump?

To ensure...

o (a) that the fuel nozzles get the correct fuel pressure.

• (b) that enough fuel flow is delivered to the high pressure pump.

o (c) rapid acceleration when the trottle is opened.

If choice b is selected set score to 1.

33. The low pressure fuel pump is a....

• (a) centrifugal pump.

o (b) gear pump.
o (c) vane pump.

If choice a is selected set score to 1.

34. The fuel pump boost stage is a....

• (a) centrifugal type pump.

o (b) gear type pump.
o (c) vane type pump.

If choice a is selected set score to 1.

35. The fuel pump main stage mostly is a....

o (a) centrifugal type.

• (b) gear type.

o (c) vane type.

If choice b is selected set score to 1.

36. The fuel manifold carries fuel to spray nozzles.

The spray nozzles spray fuel into the...

o (a) diffuser case.

• (b) combustion chamber.

- (c) first stage of the turbine vanes.

If choice b is selected set score to 1.

37. The fuel cooled oil cooler provides...

- (a) cooling of the oil only.
- (b) warming of the oil and cooling of the fuel.
- (c) warming the fuel and cooling the oil.

If choice c is selected set score to 1.

38. What is the function of linear variable differential transformers (LVDT)?

- (a) Control signals.
- (b) Feedback signals.
- (c) Warning signals.

If choice b is selected set score to 1.

39. The HP fuel pump receives its flow from the...

- (a) fuel nozzles.
- (b) fuel tank booster pumps however only in takeoff.
- (c) low pressure system (low pressure pump).

If choice c is selected set score to 1.

40. Depending on the engine design, the low pressure fuel pump develops pressure to feed the flow to the...

- (a) high pressure pump which sends fuel at high pressure to the fuel injectors.
- (b) high pressure pump which sends fuel at high pressure back to the aircraft fuel tank for cooling of the aircraft fuel tanks.
- (c) fuel nozzles only.

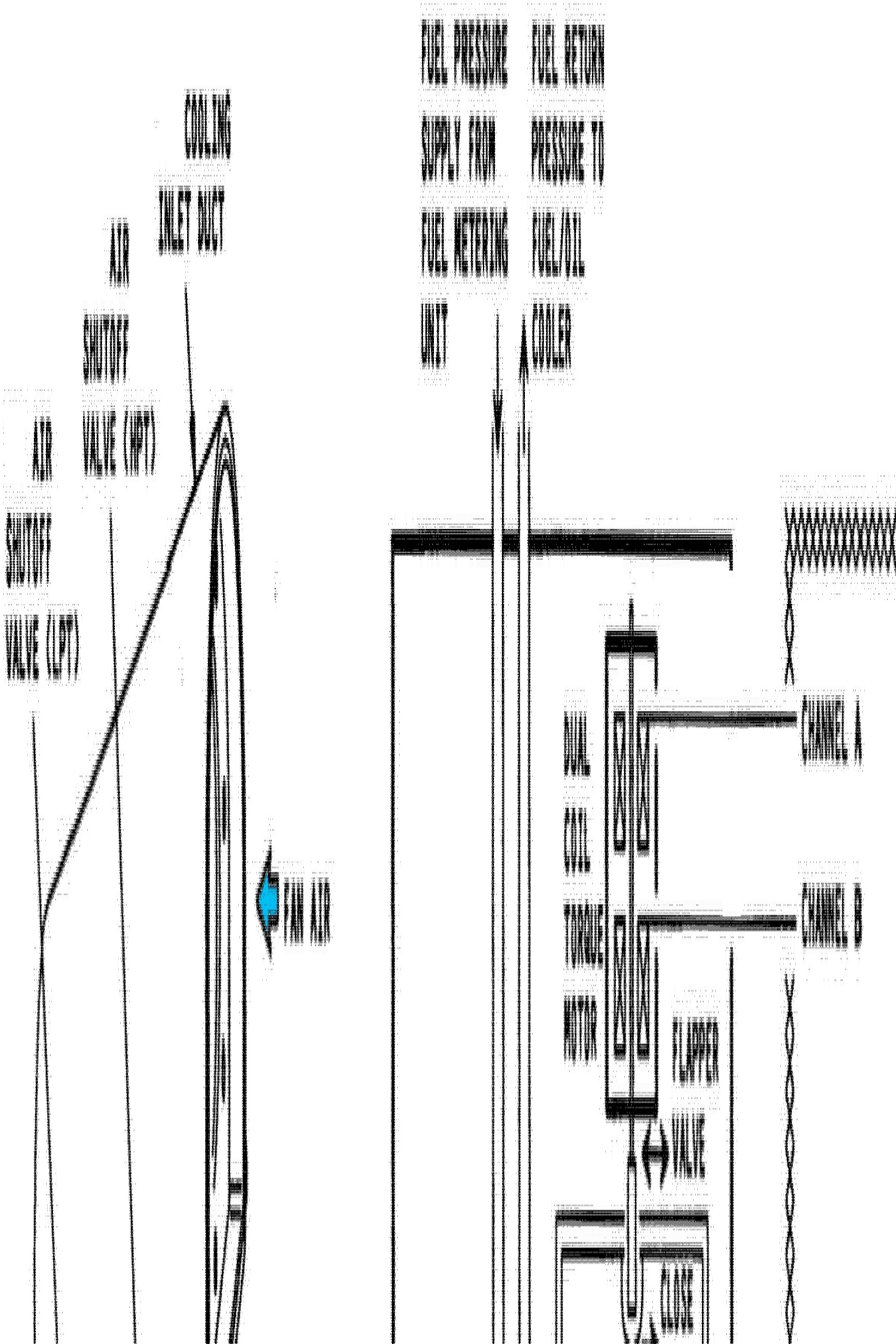
If choice a is selected set score to 1.

41. Thrust lever position is transmitted to the EEC via a thrust lever resolver, as Thrust Lever....

- (a) solenoid energized in a series.
- (b) cables.
- (c) angle.

If choice c is selected set score to 1.

42. Which cooling system is shown in the Figure below?


FUEL PRESSURE
SUPPLY FROM
FUEL RETURNING
UNIT
FUEL RETURN
PRESSURE TO
FUEL/OIL
COOLER
COOLING
INLET WAT
AIR
SHUTOFF
VALVE (UPT)
AIR
SHUTOFF
VALVE (UPT)
FAN AIR
CHANNEL A
CHANNEL B
FLAPPER
VALVE
CLOSE

- (a) Turbine case cooling

o (b) Nacelle zone ventilation
o (c) Accessory cooling

If choice a is selected set score to 1.

43. The turbine cooling system is controlled by?

o (a) The fuel control unit.
o (b) The hydromechanical unit.

- (c) The electronic engine control.

If choice c is selected set score to 1.

44. The turbine case cooling system cools...

o (a) high pressure turbine case only.

- (b) high and low pressure turbine cases.

o (c) low pressure compressor case only.

If choice b is selected set score to 1.

45. Turbine case cooling is meant to....

o (a) lower turbine blade temperatures.
o (b) improve fuel efficiency during take-off.

- (c) optimize turbine blade to case clearances.

If choice c is selected set score to 1.

46. What is the fail-safe position of the 2.5 bleed valve, during engine start?

- (a) Fully open.

o (b) Fully closed.
o (c) Half open.

If choice a is selected set score to 1.

47. What powers the 2.5 bleed valve actuator?

- (a) Fuel pressure.

o (b) Air pressure.
o (c) Electrical power.

If choice a is selected set score to 1.

48. Which air source is used for accessory cooling?

- o (a) High pressure turbine air.
- o (b) Low pressure compressor air.
- • (c) Fan air.

If choice c is selected set score to 1.

49. What is the benefit of accessory cooling?

- o (a) Improved engine response time (faster acceleration).
- o (b) Improved intake efficiency.
- • (c) Improved engine efficiency.

If choice c is selected set score to 1.

50. What are the two subsystems of the engine air system?

- o (a) Bleed air system and compressor control.
- • (b) Accessory cooling and compressor control.
- o (c) Engine compartment cooling and compressor control.

If choice b is selected set score to 1.

51. Generally spoken, the engine air system consists of two subsystems accessory cooling and....

- o (a) airconditioning.
- • (b) compressor control.
- o (c) buffer air.

If choice b is selected set score to 1.

52. Generally spoken, compressor control is done to improve....

- • (a) starting and surge protection.
- o (b) efficiency of the LP compressor.
- o (c) compression ratios.

If choice a is selected set score to 1.

53. What is the function of the compressor control system?

- (a) Prevent engine surge.

o (b) Supplies the aircraft pneumatic system.
o (c) Ensure enough air is available for combustion.

If choice a is selected set score to 1.

54. The EGT Harness connects to a terminal block.

From the terminal block, the EGT signal is sent to a...

o (a) voltage generator, to increase the temperature.
o (b) resistor to decrease the actual temperature otherwise it can be too high.

- (c) display.

If choice c is selected set score to 1.

55. Each jet axial flow engine has thermocouple probes evenly spaced around the...

o (a) combustion outlet assembly. Each probe has 17 alumel-chromel thermocouple junctions.
o (b) high pressure compressor assembly. Each probe has two alumel-chromel thermocouple junctions.

- (c) turbine assembly. Each probe has two alumel-chromel thermocouple junctions.

If choice c is selected set score to 1.

56. Why is the EGT indication very important?

o (a) It is the only engine condition monitoring parameter.
o (b) It gives a direct relationship to engine power.

- (c) It gives information about the heaviest loaded part, the turbine.

If choice c is selected set score to 1.

57. On a modern turbofan engine, the engine pressure ratio (EPR) indicating system measures the pressure ratio across the...

o (a) compressor including low pressure.

- (b) fan.

o (c) only pressure outlet (exhaust).

If choice b is selected set score to 1.

58. Advancing the power levers causes...

- (a) engine thrust and EPR indicator to rise.

o (b) engine thrust and EPR indicator to stabilize then decrease.
o (c) actual engine thrust to decrease and EPR indicator to rise.

If choice a is selected set score to 1.

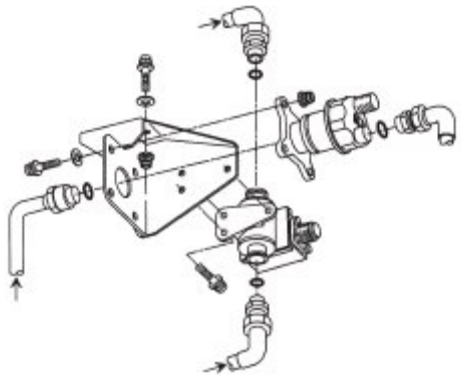
59. What does engine pressure ratio on a modern turbofan engine indicate?

- (a) The pressure ratio across the fan.

o (b) The air pressure at the exhaust.
o (c) The air pressure produced by the compressor.

If choice a is selected set score to 1.

60. The oil pressure transmitter senses the difference between pressure pump delivery pressure and...



- (a) the gear box pressure.

o (b) the FCOC (Fuel Cooled Oil Cooler).
o (c) the ISA parameters.

If choice a is selected set score to 1.

61. The engine tachometer N2 system senses engine speed.

It displays the speed on EICAS in....

- (a) percent.

o (b) engine pounds of thrust.
o (c) rpm (revolutions per minute).

If choice a is selected set score to 1.

62. The sensors are induction-type tachometers. The tip on each sensor has a permanent magnet with three coil assemblies.

This best describes?

- (a) Engine tachometer system.

o (b) AVM (airborn vibration system).
o (c) Fuel pump pressure indication system.

If choice a is selected set score to 1.

63. Engine torque is used to indicate...

- (a) the power that is developed by a turbo-propeller engine.

o (b) lateral twist on the engine mouths.
o (c) the power that is developed by a turbo fan engine.

If choice a is selected set score to 1.

64. The torque meter on a turboprop measures...

o (a) simply the pressure load to the drive shaft.

- (b) the required pressure to resist the axial oil thrust produced by the helical gear.

o (c) torque effect of the propeller system through the use of a speed sensor.

If choice b is selected set score to 1.

65. Which indication component is using a permanent magnet with three coil assemblies?

- (a) The engine tachometer system.

o (b) The airborn vibration system signal conditioner pick up points.
o (c) The fuel pump pressure indication system.

If choice a is selected set score to 1.

66. The greatest advantage of the water injection system is...

- (a) the cooling of the turbine.

o (b) the heating.
o (c) cooling inlet air.

If choice a is selected set score to 1.

67. How do you compensate the low mass flow rate of air through the engine if there is a low air density?

- (a) Use the water injection system.

o (b) Take off at a lower altitude.
o (c) Use a shorter runway.

If choice a is selected set score to 1.

68. Adverse conditions, as far as the engine is concerned, is operation in high ambient temperature and/or high altitude. These are adverse conditions.

Which two systems are available to overcome these conditions?

o (a) Turbine case cooling and bleed air control.
o (b) Remove the throttle stops for more thrust.

- (c) Water injection and water / methanol injection

If choice c is selected set score to 1.

69. The mass flow rate of air through the engine is depending on the density of the air.

A higher mass flow rate results in...

o (a) a higher engine temperature.

- (b) a greater thrust of the engine.

o (c) a lower thrust output.

If choice b is selected set score to 1.

70. Injection of water into the engine inlet will cool the inlet air and hence its density will...

o (a) get thinner.

- (b) increase.

o (c) decrease.

If choice b is selected set score to 1.

71. Which system is normally used on turbo-jet engines to augment the thrust of the engine for short periods?

- (a) Afterburner.

o (b) Pre-ignition.

o (c) In cruise.

If choice a is selected set score to 1.

72. This system is normally only used on turbo-jet to augment the thrust of the engine for short periods.

What is this system?

o (a) 100 % methanol.

• (b) Afterburner.

o (c) Rocket burner fuel.

If choice b is selected set score to 1.

73. The increased thrust is obtained by injecting and burning large quantities of fuel in the specially shaped engine exhaust system. This is referred to as....

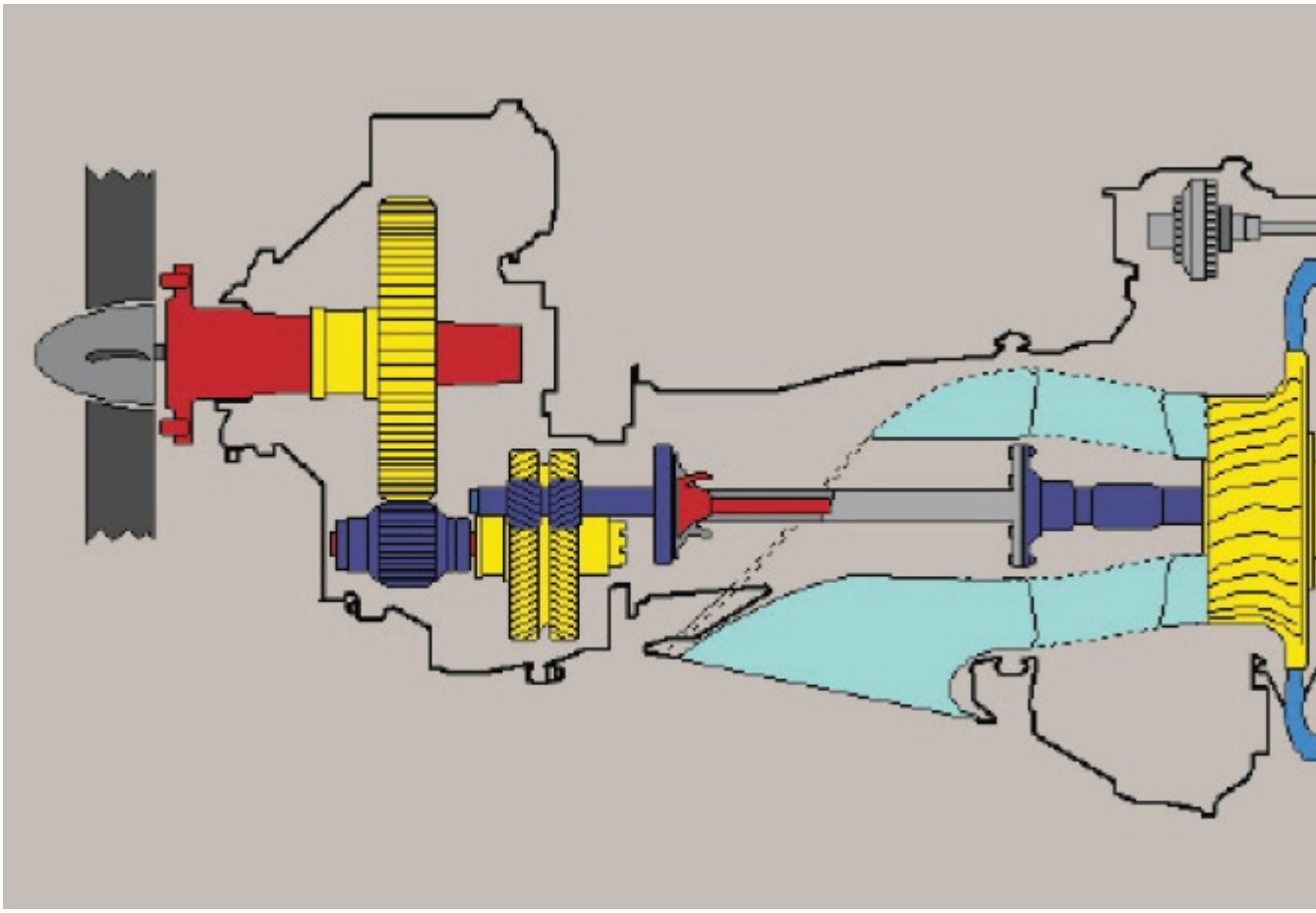
o (a) hot shot ignition

• (b) after burner

o (c) rocket pressure outlet nozzle

If choice b is selected set score to 1.

74. What type of engine is shown?



- o (a) Single shaft turbo prop
- • (b) Free power turbine turbo prop
- o (c) Geared turbo fan

If choice b is selected set score to 1.

75. How do you call a helicopter turbine engine with an aerodynamically coupled output shaft?

- o (a) A twin spool fan engine.
- • (b) A free power turbine engine.
- o (c) A triple spool fan engine.

If choice b is selected set score to 1.

76. What are the biggest advantages of parallel spur gear reduction gears?

- • (a) Simple and cheap.

- o (b) Compact and light.
- o (c) Simple and strong.

If choice a is selected set score to 1.

77. What are the engine controls and propeller controls on a turbo prop?

They are...

- o (a) not connected together and operate independently.
- o (b) connected to each other and operate independently.
- • (c) connected to each other and operate in coordination.

If choice c is selected set score to 1.

78. When is a turboprop in overspeed condition?

- o (a) When the desired engine speed is higher than the actual engine speed.
- o (b) When the propeller speed is higher than the free turbine speed.
- • (c) When the actual engine speed is higher than the desired engine speed.

If choice c is selected set score to 1.

79. The propeller is allowed to go to its feather position when the engine is shut down. What type of turbine is this?

- o (a) Axial flow turbine.
- • (b) Free turbine.
- o (c) Coupled turbine.

If choice b is selected set score to 1.

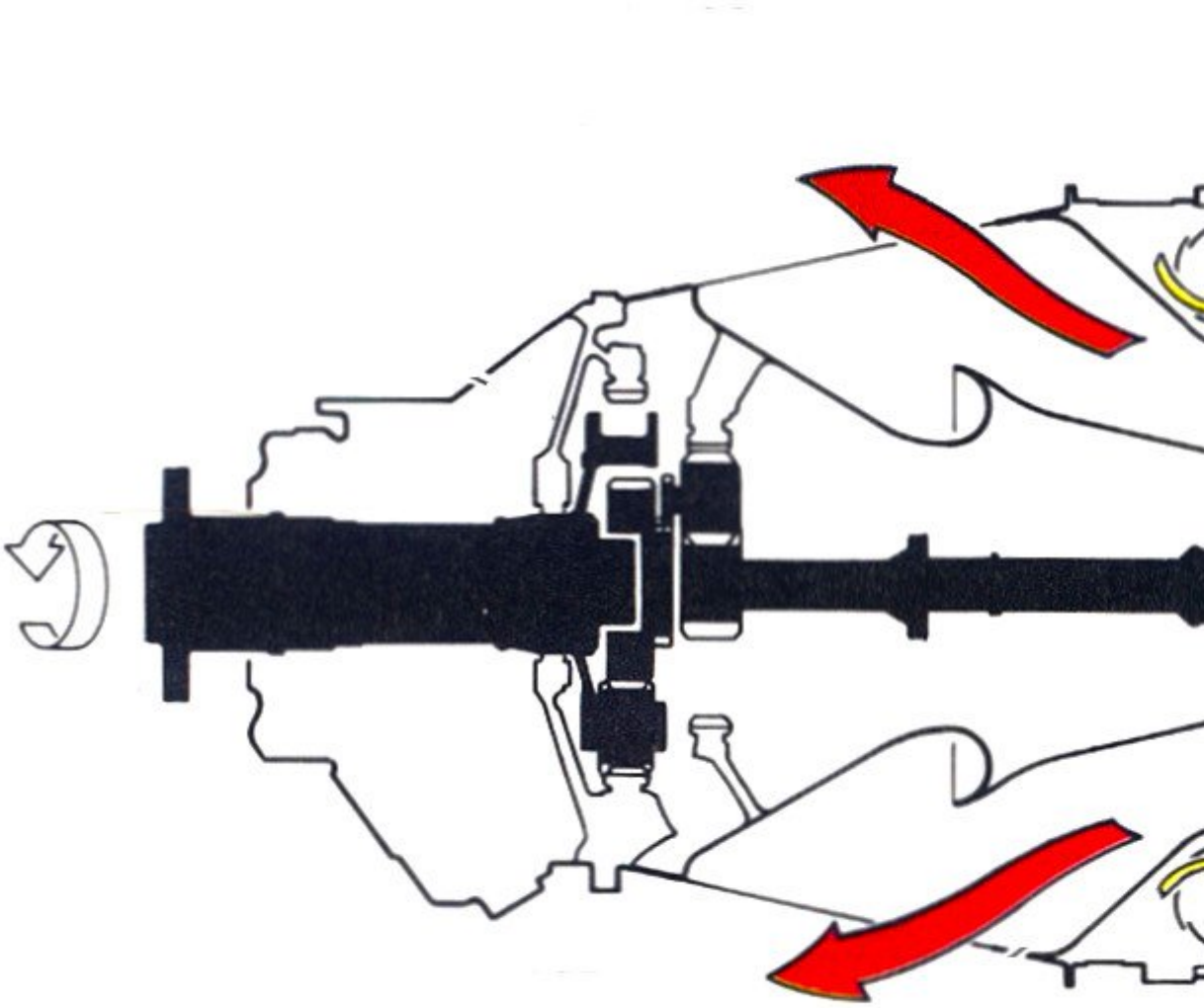
80. "A turboprop engine in which the propeller reduction gears are driven by the same shaft which drives the compressor for the gas generator."

What type turbine is this?

- • (a) Direct coupled turbine.
- o (b) Spliced shaft turbine.
- o (c) Dual shaft turbine.

If choice a is selected set score to 1.

81. What kind of engine is shown in the next picture?



- (a) Free turbine type.

o (b) Fixed turbine type.
o (c) Triple shaft type.

If choice a is selected set score to 1.

82. What is the advantage of a parallel spur gear train?

It is...

- o (a) mechanically simple but relatively expensive to manufacture.
- o (b) mechanically complex but relatively cheap to manufacture.
- • (c) mechanically simple and therefore relatively cheap to manufacture.

If choice c is selected set score to 1.

83. Which description is the best for: "Epicyclic Planetary Gear Type Reduction Gear"?

- o (a) Reduction gear with a rack and pinion.
- • (b) Gear is composed of a central input (sun) gear driving two or more spider mounted planet gears.
- o (c) Mechanically simple and therefore relatively cheap to manufacture.

If choice b is selected set score to 1.

84. On a typical free turbine turboprop engine the propeller control lever is connected to the...

- • (a) propeller governor.
- o (b) constant speed fuel mixing unit.
- o (c) fuel control unit.

If choice a is selected set score to 1.

85. Overspeed is the condition in which the actual engine speed is higher than the desired engine speed set.

How is this prevented?

- • (a) By overspeed governor.
- o (b) Only by throttle being retarded.
- o (c) Centrifugal forces of the fan.

If choice a is selected set score to 1.

86. An turboprop overspeed governor is a backup for the...

- o (a) radial governor.
- o (b) fly weights.
- • (c) propeller governor.

If choice c is selected set score to 1.

87. Turbo-shaft engines are used in many applications, but in the aviation industry they are mostly used in?

- (a) helicopters.

o (b) commercial airlines.
o (c) ultra light aircraft

If choice a is selected set score to 1.

88. Drive shaft and flexible coupling, turbine helicopters make use of a short shaft system to deliver power to a:

o (a) compressor.
o (b) turbine.

- (c) transmission.

If choice c is selected set score to 1.

89. What is a turbo-shaft engine?

o (a) Axial flow compressor with a propeller drive system, used in large commercial aircraft
o (b) A turbine that drives a high speed ultra high bypass compressor.

- (c) A gas turbine engine that delivers power through a rotating shaft.

If choice c is selected set score to 1.

90. The drive systems are equipped with over running clutches that allow the pilot to perform auto-rotation descent in case of total power loss.

This is true for a...

- (a) turbo-shaft engine on a helicopter.

o (b) hydro shaft system.
o (c) reduction gear system from an axial flow bypass engine.

If choice a is selected set score to 1.

91. A short flexible shaft drive system to deliver power to the transmission.

This system is typically installed in a...

o (a) commercial aircraft fan jet drive system.
o (b) fighter turbojet aircraft.

- (c) turbine helicopter drive system.

If choice c is selected set score to 1.

92. The drive shaft and flexible coupling system for a helicopter consist of...

- (a) a shaft with two flexible couplings attached at each end.

o (b) a direct chain drive with coupling, that can only withstand heavy loads at low RPM.
o (c) a direct shaft that can only withstand heavy loads at low RPM.

If choice a is selected set score to 1.

93. The most commonly used freewheeling unit on helicopters is the...

o (a) centrifugal clutch.
o (b) wet sink clutch assembly.

- (c) sprague clutch.

If choice c is selected set score to 1.

94. The parallel spur gear type and the epicyclic type describe...

- (a) reduction gear systems.

o (b) eccentric gear systems.
o (c) excitation gear systems.

If choice a is selected set score to 1.

95. The most commonly used turbo-shaft engines today are from the...

- (a) free-turbine type.

o (b) fixed-turbine type.
o (c) single shaft type.

If choice a is selected set score to 1.

96. The auxilliary power unit or APU is a small gas turbine engine fitted to aircraft.

They can provide...

o (a) electrical power for the inflight entertainment system.

- (b) electric power and pneumatic duct pressure.

o (c) hydraulic pressure.

If choice b is selected set score to 1.

97. Of what three sections is the APU engine in general composed?

o (a) compressor, turbine and idle gearbox.

- (b) power section, load compressor and gearbox.

o (c) compressor, air section and the combustion chamber.

If choice b is selected set score to 1.

98. The APU gearbox is driven by the...

- (a) power section.

o (b) external source.
o (c) compressor section.

If choice a is selected set score to 1.

99. What type of APU load compressor supplies compressed air for the airplane pneumatic system?

o (a) Flow counter rotating fan.

- (b) Centrifugal type.

o (c) High speed fan with a pressure relief valve.

If choice b is selected set score to 1.

100. What type of compressor and combustion chamber is used in the power section of an APU?

o (a) Axial flow compressor to save space and can combustion chamber.
o (b) Axial flow compressor to save space and annular combustion chamber.

- (c) Centrifugal compressor with a reverse flow annular combustion chamber.

If choice c is selected set score to 1.

101. The igniter provides the spark to the...

o (a) fuel nozzle injector during all phases of APU operation.
o (b) turbine on APU with a reverse flow combustion chamber.

- (c) combustor chamber.

If choice c is selected set score to 1.

102. The APU control unit (ECU) completely controls...

o (a) start and acceleration including automatic selection of air.

- (b) start and acceleration.

o (c) automatic selection of air source, no pilot interface needed, including start.

If choice b is selected set score to 1.

103. The APU fuel system receives fuel from...

o (a) external fuel source during operation.

• (b) the airplane wing tanks through a shrouded line.

o (c) ground support system.

If choice b is selected set score to 1.

104. A small turbine engine, known as the power section, driving a load compressor to produce pneumatic power.

What does the load compressor also drive?

o (a) A single shaft to a DC generator.
o (b) An accessory gearbox providing an attach point for an air compressor.

• (c) An accessory gearbox providing an attach point for a generator.

If choice c is selected set score to 1.

105. There are two separate APU protective shutdown systems in the ECU.

They are...

o (a) discrete and digital.

• (b) analog and digital.

o (c) analog and discrete.

If choice b is selected set score to 1.

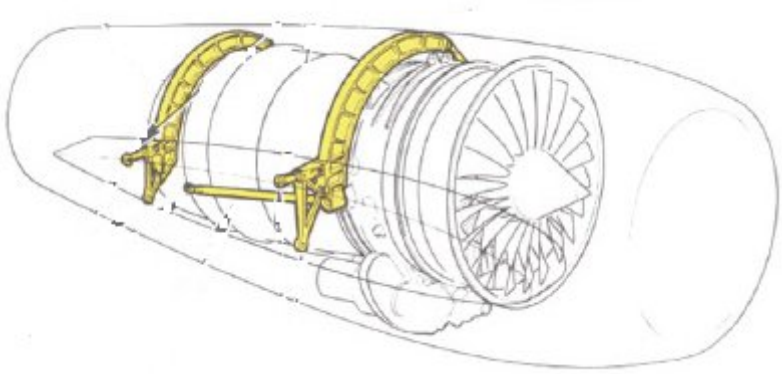
106. Reverse flow in an APU will...

o (a) be automatically corrected by the ECU.
o (b) not cause a shutdown.

• (c) cause a protective shutdown.

If choice c is selected set score to 1.

107. What type of engine mount is shown?



- o (a) Pylon engine mount
- • (b) Side engine mount
- o (c) Integral engine mount

If choice b is selected set score to 1.

108. What is the largest source of external noise on a modern turbofan engine?

- o (a) Core engine
- • (b) Exhaust
- o (c) Thrust reverser

If choice b is selected set score to 1.

109. In which area would flexible fluidlines be used?

- o (a) Areas where long runs are possible.
- • (b) High vibration area
- o (c) High temperature area

If choice b is selected set score to 1.

110. What is a negative point of a multi-strand cable system?

- • (a) Frequent maintenance.
- o (b) Requires lots of force to move.
- o (c) Break easily.

If choice a is selected set score to 1.

111. What is another name for teleflex cable?

- (a) Push-pull cable

o (b) Multi-strand cable
o (c) Data cable

If choice a is selected set score to 1.

112. What are the main functions of a drain mast on a jet engine?

- (a) Groups the drain fluids to one point and allows for identifying the individual leak.

o (b) It collects all the drain fluids and dumps them in flight.
o (c) Collects all the drain fluids and dumps them when the aircraft lands.

If choice a is selected set score to 1.

113. What happens after a wet start?

The unburnt fuel is....

- (a) drained via the combustor section drain.

o (b) blown out of the fuel manifold.
o (c) used during the next start.

If choice a is selected set score to 1.

114. In order to give a powerplant a good aerodynamic profile which blends smoothly with the aircraft, it must be...

- (a) enclosed within a cowling.

o (b) seperate of the wing to ensure aerodynamic efficiency.
o (c) enclosed within the wing fairing.

If choice a is selected set score to 1.

115. Powerplants are often divided into zones by fireproof bulkheads.

Bulkheads are usually made of...

o (a) aluminum alloy.

- (b) stainless steel, titanium.

o (c) harden steel.

If choice b is selected set score to 1.

116. The pylon transmits engine loads to the wing through the...

o (a) wing spars, front and rear.
o (b) lower wing surface.

• (c) forward bulkhead and aft mount bulkhead.

If choice c is selected set score to 1.

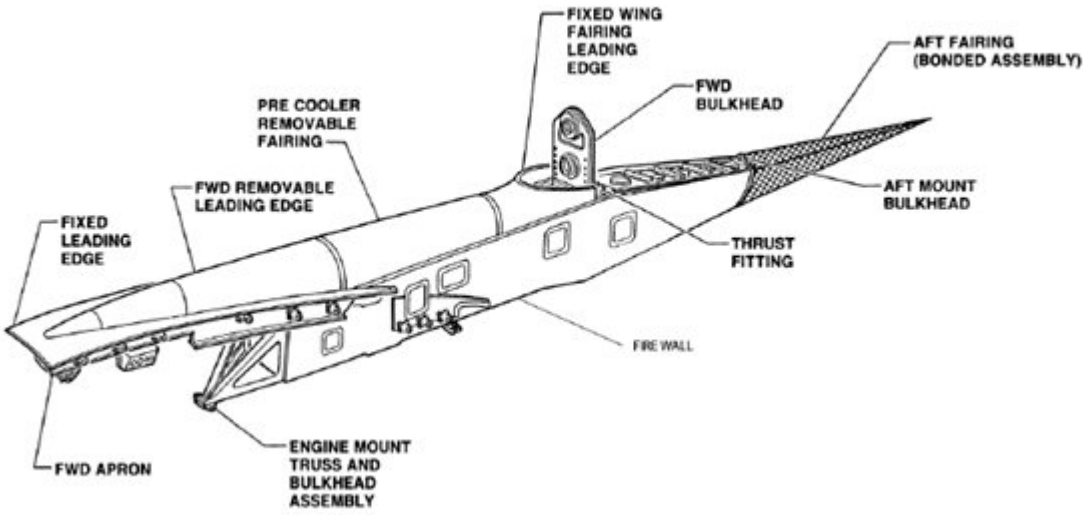
117. The aft engine mount transfers...

o (a) thrust loads to the wing
o (b) side loads only however it allows for engine growth.

• (c) torsional, vertical and side loads to the pylon.

If choice c is selected set score to 1.

118. The forward bulkhead is attached to the wing front spar pylon support fitting.



The forward bulkhead fitting transmits...

o (a) only vertical load.

• (b) vertical, side, and torque loads on the pylons to the wing.

o (c) thrust and provides for engine to grow in length while in operation.

If choice b is selected set score to 1.

119. On very large engines the cowlings and access panels can be so heavy that it will require assistance to open.

How is this performed?

- (a) Hydraulic or mechanical assistance.

o (b) It is not required to have access because designers took this into consideration.
o (c) Simply by the use of more people to raise or lower the section.

If choice a is selected set score to 1.

120. The fan cowl panels open to provide access to components on the...

o (a) engine combustion chamber

- (b) engine fan case

o (c) inlet cowling

If choice b is selected set score to 1.

121. What causes the majority of outside noise in a high-bypass engine?

o (a) HP fan.

- (b) LP fan.

o (c) Core Engine.

If choice b is selected set score to 1.

122. When you need no overhead crane or other external hoist devices to change an engine.

This is a...

o (a) Chain hoist equipment.
o (b) Single hoist equipment.

- (c) Bootstrap equipment.

If choice c is selected set score to 1.

123. Which types of compressors are mostly used in turbofan and turbojet engines?

- (a) Axial flow compressors.

o (b) Combination of both axial flow and centrifugal compressors.
o (c) Centrifugal compressors.

If choice a is selected set score to 1.

124. What is the disadvantage of a centrifugal compressor?

- o (a) Weight.
- • (b) Large frontal areas for a given mass flow.
- o (c) Low overall compression ratio.

If choice b is selected set score to 1.

125. In the axial compressor the flow of air is maintained parallel to...

- o (a) the compressor centers around the impeller, diffuser and air intake system.
- • (b) the compressor shaft.
- o (c) the vertical rotation of the compressor blades.

If choice b is selected set score to 1.

126. What are the three main parts of a centrifugal compressor?

- o (a) Intake, impeller and casing.
- • (b) Impeller, diffuser and casing manifold.
- o (c) Stationary impeller, diffuser and casing manifold.

If choice b is selected set score to 1.

127. What kind of engines do normally make use of an axial flow compressor?

- o (a) Turbo jet and turbo prop engines.
- o (b) Turbo prop and turbo fan engines.
- • (c) Turbo jet and turbo fan engines.

If choice c is selected set score to 1.

128. Air enters the compressor at the centre, eye or hub. The high rotational velocities accelerate the air radially outwards between the vanes, imparting high velocity.

This best describes:

- o (a) Axial flow compressors.
- o (b) Axial flow combustion chamber inlet.
- • (c) Centrifugal compressors.

If choice c is selected set score to 1.

129. Many aircraft APU's use a centrifugal hardware configuration because of its...

- o (a) high overall compression ratio.
- o (b) high power development and ability to support varies support system.
- (c) compact size.

If choice c is selected set score to 1.

130. What kind of fixing method do you see in the picture?

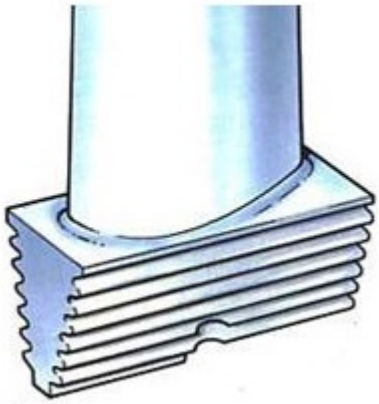
- (a) Dove tail type
- o (b) Fir tree root type.
- o (c) Pinned type.

If choice a is selected set score to 1.

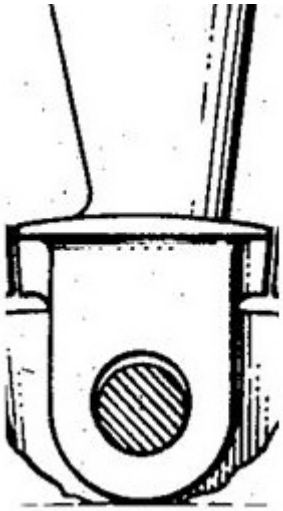
131. Which drawing shows the fir tree fixing type?

o (a)

- (b)



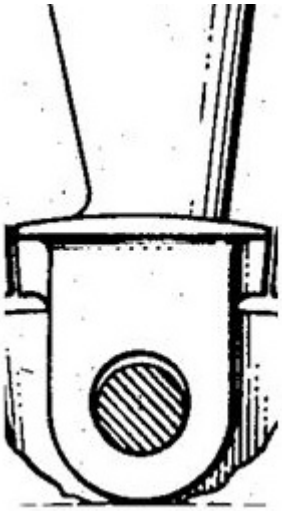
o (c)

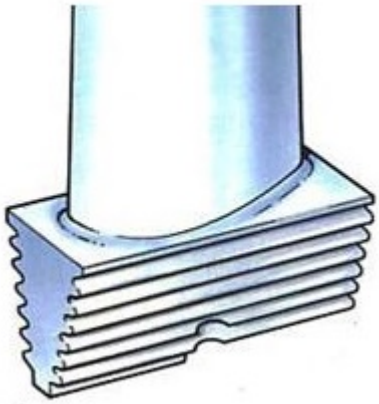


If choice b is selected set score to 1.

132. Which drawing shows the dove tail fixing type?

o (a)





o (b)

• (c)

If choice c is selected set score to 1.

133. Why were swept fan blades developed?

o (a) To decrease the aerodynamic efficiency.
o (b) To increase the dynamic efficiency.

• (c) To increase the aerodynamic efficiency.

If choice c is selected set score to 1.

134. Fan blades can be removed and replaced, however the replaced blade must be of the....

- o (a) production batch.
- o (b) same color code.
- • (c) same moment and weight class.

If choice c is selected set score to 1.

135. The fan blades can be removed/installed individually (provided the same moment weight blade is available).

Why is this required?

- • (a) Fan balancing benefit.
- o (b) Can be number in sequence.
- o (c) To maintain very close balancing of the high speed shaft.

If choice a is selected set score to 1.

136. Fan blades are normally...

- • (a) replaceable in moment weighted pairs.
- o (b) not replaced on installed engine.
- o (c) cleaned after each flight to maintain efficiency.

If choice a is selected set score to 1.

137. The relative angle of attack of the compressor blade is a result of...

- • (a) inlet air velocity and compressor rpm.
- o (b) inlet air velocity and compressor temperature.
- o (c) compressor rpm and temperature.

If choice a is selected set score to 1.

138. What is an advantage of titanium Wide Chord Fan Blade Technology?

- o (a) The longer life of operation.
- • (b) The process generates an internal stiffening structure that greatly increases the strength of the blade.
- o (c) The appearance is impressive.

If choice b is selected set score to 1.

139. What is the overall effect of the compressor?

To increase...

- o (a) volume and temperature and to decrease pressure.
- • (b) pressure and temperature and to reduce volume.
- o (c) pressure and volume and to reduce the temperature.

If choice b is selected set score to 1.

140. What is an advantage of the Wide Chord Fan Blade Technology?

- • (a) The number of blades can be reduced.
- o (b) Much longer life of operation.
- o (c) Increase weight.

If choice a is selected set score to 1.

141. A compressor stall is best explained as...

- o (a) trust reverser.
- o (b) air stops flowing smoothly rearwards on engine shutdown.
- • (c) the smooth rearwards flow of air comes to a stop.

If choice c is selected set score to 1.

142. What are the audible indications of Stall/Surge ?

- • (a) Abnormal noises, rumbles.
- o (b) slow to accelerate from idle.
- o (c) Vibration.

If choice a is selected set score to 1.

143. What is the correct description of a complete compressor stall?

- • (a) Surge.
- o (b) Slow start.
- o (c) Flame out compressor.

If choice a is selected set score to 1.

144. What can cause a compressor stall or surge?

- • (a) A rapid throttle movement.

- o (b) A high speed landing.
- o (c) A low take off speed.

If choice a is selected set score to 1.

145. The purpose of the variable inlet guide vanes is to direct the incoming air into the...

- o (a) combustion chamber at the correct angle so as to achieve the optimum angle of attack.
- • (b) compressor at the correct angle so as to achieve the optimum angle of attack of the first stage rotor blades.
- o (c) turbine at the correct angle so as to achieve the optimum angle of flow to the first stage.

If choice b is selected set score to 1.

146. Compressor bleed valves are normally...

- o (a) open at high power.
- • (b) closed at high power.
- o (c) moving from closed to open during acceleration.

If choice b is selected set score to 1.

147. For maximum efficiency, the angle of the stator blade should give optimum angle of attack throughout the whole RPM range.

How are the vanes actuated? The vanes are ...

- o (a) pneumatically actuated.
- • (b) hydraulically actuated.
- o (c) electrically actuated.

If choice b is selected set score to 1.

148. Compressor bleed control valves are normally spring loaded to the...

- o (a) closed position.
- • (b) open position.
- o (c) mid-range position.

If choice b is selected set score to 1.

149. The term "overall pressure ratio" is defined as the ratio of the...

- o (a) stagnation pressure at the combustion chamber.
- o (b) stagnation pressure due to the rotoring speed of the shafts against the compressor inner wall.
- • (c) pressure at the front and rear of the compressor of a gas turbine engine.

If choice c is selected set score to 1.

150. CPR compressor pressure ratio is defined as the ratio of the...

- o (a) pressure as measured at the front and rear turbine.
- • (b) pressure as measured at the front and rear of the engine compressor.
- o (c) temperature as measured at the front and rear of the engine compressor.

If choice b is selected set score to 1.

151. One of the primary limiting factors on pressure ratio in modern designs is that the:

- o (a) location that the temperature is taken.
- o (b) air cools down as it is compressed.
- • (c) air heats up as it it compressed.

If choice c is selected set score to 1.

152. Where is the compressor-diffuser located?

- o (a) Between combustor and turbine.
- o (b) Between the low pressure and high pressure compressor.
- • (c) Between compressor and combustor.

If choice c is selected set score to 1.

153. What is the function of the diffuser?

- o (a) Speed up the air and increase the air pressure.
- o (b) Decrease the air pressure.
- • (c) Slow down the air and increase the air pressure.

If choice c is selected set score to 1.

154. How do you call the area where air is burned with fuel and temperature is 2000 ^{o}C?

- o (a) Combuster.

- o (b) Diffuser.

- (c) Primary combustion zone.

If choice c is selected set score to 1.

155. Only part of the total airflow is used for burning fuel in the combustion chamber.

What is the rest mainly used for?

- (a) Cooling the combustion section walls and diluting the hot gasses.

- o (b) Accelerating the hot gasses towards the turbine.
- o (c) Bleed air for compressor control.

If choice a is selected set score to 1.

156. Where is the point of highest pressure?

- (a) Diffuser

- o (b) Exit of the high pressure compressor.
- o (c) Combustor.

If choice a is selected set score to 1.

157. What happens to the air entering the diffuser?

- o (a) It is diffused to raise the airspeed and lower the dynamic pressure.
- o (b) It is compressed to increase the air speed.

- (c) It is diffused to raise the static pressure and lower the airspeed.

If choice c is selected set score to 1.

158. Why must there be a region of low axial velocity of the air inside the combustion chamber?

- o (a) To allow the combustion chamber to be cooled sufficiently.
- o (b) To ensure the burned gasses do not get too hot.

- (c) To ensure the flame remains alight.

If choice c is selected set score to 1.

159. How does the secondary air enter the combustion chamber?

- o (a) Via injectors in the flame tube.
- o (b) Through slots between the flame tube and fuel nozzles.

- (c) Through holes in the wall of the flame tube.

If choice c is selected set score to 1.

160. What is the function of the exhaust inner cone?

- o (a) They only serve as supports for the inner cone.
- o (b) Increase the speed of the exhaust gases.
- • (c) Smoothes the exhaust gases and shields the turbine disc..

If choice c is selected set score to 1.

161. What is the function of a jet pipe?

- o (a) Increase the speed of exhaust gas airflow to give the engine more thrust.
- o (b) Slow down the exhaust gas airflow to increase the engine thrust.
- • (c) To keep the exhaust gases clear of the aircraft.

If choice c is selected set score to 1.

162. Which part of the exhaust will streamline the fan airflow?

- o (a) Exhaust plug
- o (b) Jetpipe
- • (c) Exhaust nozzle

If choice c is selected set score to 1.

163. Where are the exhaust inner cone and support struts located?

- o (a) Diffuser.
- • (b) Exhaust casing.
- o (c) Fan casing.

If choice b is selected set score to 1.

164. What shape does a jet pipe have?

- • (a) Parallel
- o (b) Convergent
- o (c) Divergent

If choice a is selected set score to 1.

165. What is needed to get optimum thrust?

- • (a) Completely expanded gases.

- o (b) Turbulent gases.
- o (c) High altitude.

If choice a is selected set score to 1.

166. When will the gas exit airflow be subsonic, in a convergent exhaust nozzle?

- o (a) Always.
- • (b) At low thrust levels.
- o (c) At subsonic airspeeds.

If choice b is selected set score to 1.

167. What is the meaning of a "choked nozzle"?

The gas velocity is...

- o (a) below mach speed and speed increase is possible.
- • (b) at mach speed and no speed increase is possible.
- o (c) at its maximum (maximum thrust).

If choice b is selected set score to 1.

168. When is an exhaust nozzle said to be choked?

When exhaust gas velocity is ....

- o (a) lower than Mach 1.
- • (b) Mach 1.
- o (c) greater than Mach 1.

If choice b is selected set score to 1.

169. What exhaust nozzle style is described?

"This duct converts much of the heat and pressure energy in the gases into kinetic energy. The gases thus leave the nozzle at high velocity."

- o (a) Bellmouth nozzle.
- o (b) Subsonic divergent nozzle.
- • (c) Convergent nozzle.

If choice c is selected set score to 1.

170. The main purpose of the exhaust nozzle is to....

- o (a) reduce noise.
- • (b) control exhaust gas expansion.
- o (c) provide containment of the hot exhaust gases and streamline the fan airflow.

If choice b is selected set score to 1.

171. What is the function of the inner exhaust cone at the rear face of the turbine disc?

The cone....

- o (a) decreases the exhaust area to the rear and maximizes the gas velocity.
- o (b) decreases the exhaust area to the rear and lowers the gas velocity.
- • (c) increases the exhaust area to the rear and lowers the gas velocity.

If choice c is selected set score to 1.

172. The nozzle is fitted at the final end of the exhaust duct and for subsonic aircraft it will be convergent in shape.

That is why the velocity of the turbine discharge gases is relatively...

- o (a) cool but it is decreased before they are discharged.
- • (b) low but it is increased before they are discharged.
- o (c) high but it is decreased before they are discharged.

If choice b is selected set score to 1.

173. The nozzle is fitted at the final end of the exhaust duct.

For subsonic aircraft it will be...

- • (a) convergent in shape.
- o (b) restrictive in shape.
- o (c) straight oval pipe in design.

If choice a is selected set score to 1.

174. On commercial gas turbine engines the exhaust duct is....

- • (a) convergent.
- o (b) convergent / divergent.
- o (c) divergent.

If choice a is selected set score to 1.

175. Blocker door type (cold stream) are mostly used on....

- o (a) supersonic aircraft.
- o (b) thrust vectoring nozzles systems.
- • (c) high by-pass engines.

If choice c is selected set score to 1.

176. In a low bypass engine the bypass flow is mixed after the...

- o (a) lower pressure turbine to reduce noise.
- • (b) last stage of the turbine.
- o (c) last stage of compression to reduce noise inside the compressor.

If choice b is selected set score to 1.

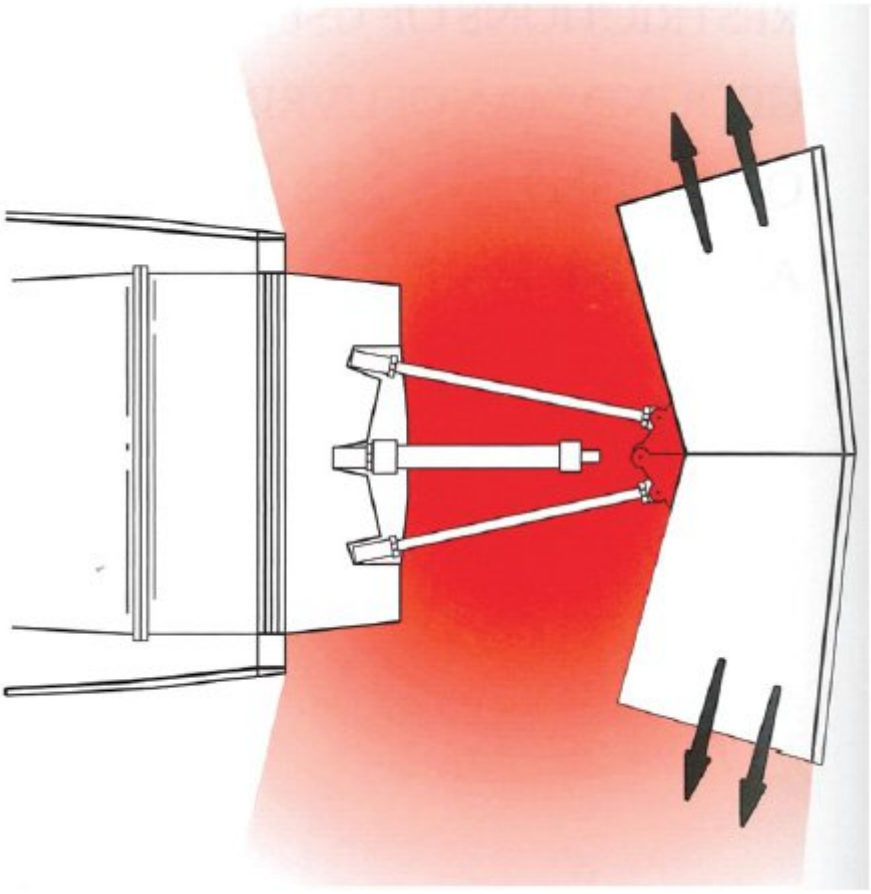
177. A translating cowl moves backwards on either side of the engine thrust reverser.

This exposes...

- o (a) only compressed air from the high pressure compressor.
- • (b) cascades.
- o (c) turbine blades.

If choice b is selected set score to 1.

178. What type of thrust reverser is shown in the picture?



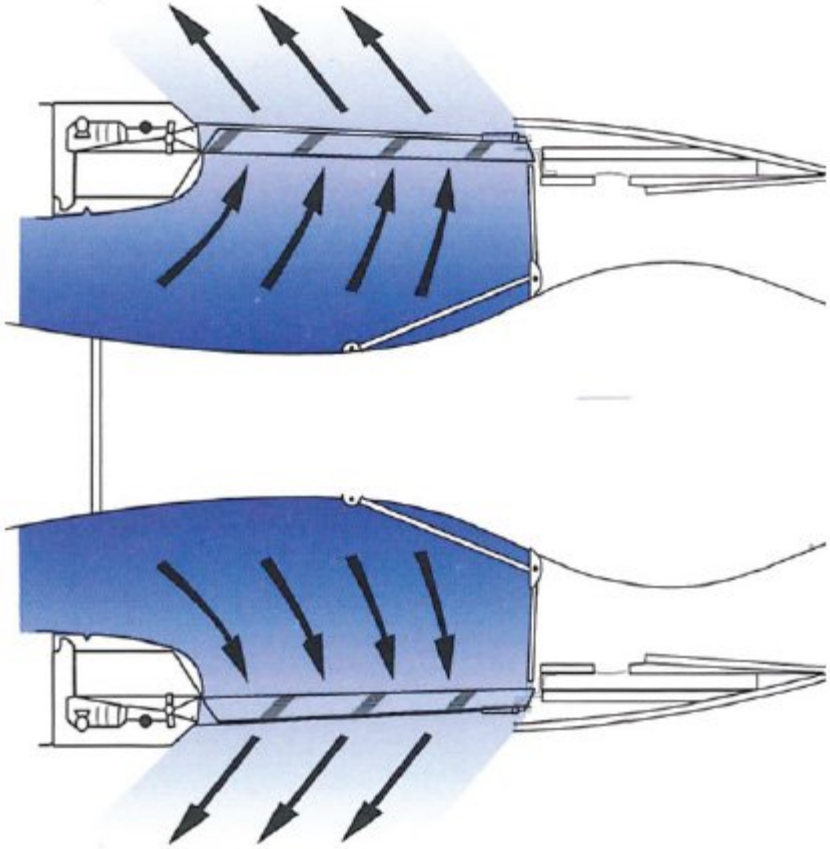
o (a) Clamshell door reverser.

• (b) Bucket door reverser.

o (c) Cold stream reverser.

If choice b is selected set score to 1.

179. What type of thrust reverser is shown in the picture?

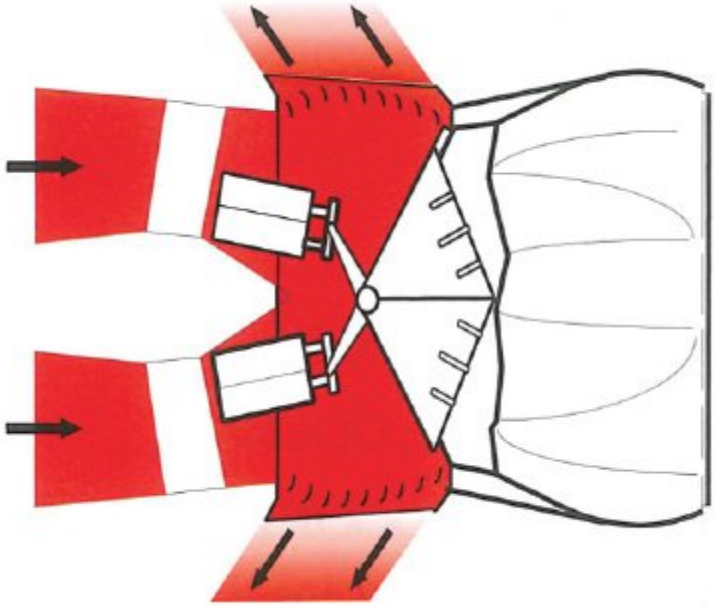


- (a) Cold stream reverser.

o (b) Clamshell door reverser.
o (c) Bucket door reverser.

If choice a is selected set score to 1.

180. What type of thrust reverser is shown in the picture?



- o (a) Cold stream reverser.
- o (b) Bucket door reverser.

- • (c) Clamshell door reverser.

If choice c is selected set score to 1.

181. By what is thrust reverse achieved on a high by-pass engine?

- • (a) Blocker doors and cascade vanes.

- o (b) Clamshell door.
- o (c) Bucket door.

If choice a is selected set score to 1.

182. Which fuel property has the biggest effect on engine starting?

- • (a) Fuel viscosity.

- o (b) Fuel gravity.
- o (c) Fuel temperature.

If choice a is selected set score to 1.

183. What is a clear indication of an imperfect combustion?

- o (a) Decrease in engine power.
- o (b) Increase in fuel consumption.

- (c) Carbon deposits.

If choice c is selected set score to 1.

184. What are the most widely used fuels for jet engines

- (a) Jet-A and jet-A1.

o (b) Jet-B and JP4.
o (c) Jet-A and jet-B.

If choice a is selected set score to 1.

185. What are biocide additives used for in fuel?

- (a) Reduces the risk of microbiological growths.

o (b) Reduces the toxicity of the fuel.
o (c) Prevents the formation of gu deposits.

If choice a is selected set score to 1.

186. Why are fuel additives used?

- (a) To improve the properties of the fuel.

o (b) To make the fuel cheaper.
o (c) To improve the performance of the engine.

If choice a is selected set score to 1.

187. What are corrosion inhibitors used for in fuel?

o (a) Protects the fuel from some metals in the fuel system.

- (b) Protects the metals in the fuel system.

o (c) Suppresses the catalytic effect of some metals.

If choice b is selected set score to 1.

188. What is the effect of microbiological contamination?

o (a) Loss of engine performance.

- (b) Inaccurate fuel tank contents indication.

o (c) Blockage of the fuel nozzles.

If choice b is selected set score to 1.

189. Is the use of radio equipment allowed during refueling or defueling?

- o (a) Yes, always.
- • (b) No, never.
- o (c) Only during refueling.

If choice b is selected set score to 1.

190. Can you use any power tools while working inside a fuel tank?

- • (a) Yes, if they are spark free and the tank has been ventilated..
- o (b) Yes, if the fuel tank has been ventilated and the tool is calibrated.
- o (c) No

If choice a is selected set score to 1.

If assessment score is 0% to 100% Feedback