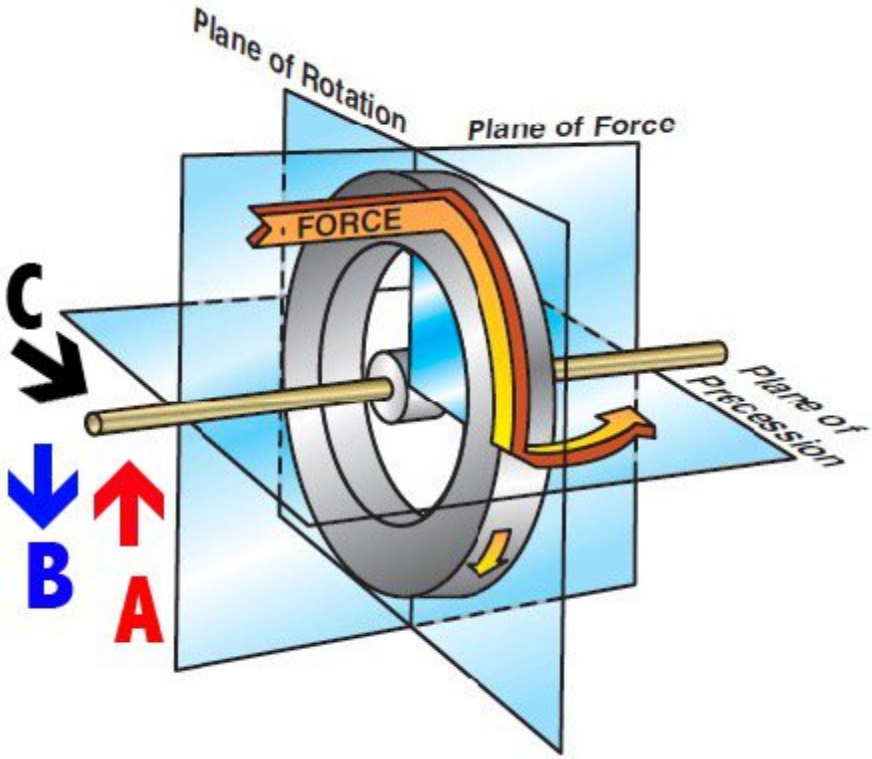
Question block created by wizard

1. A gain in lift when hovering near the ground is known as:

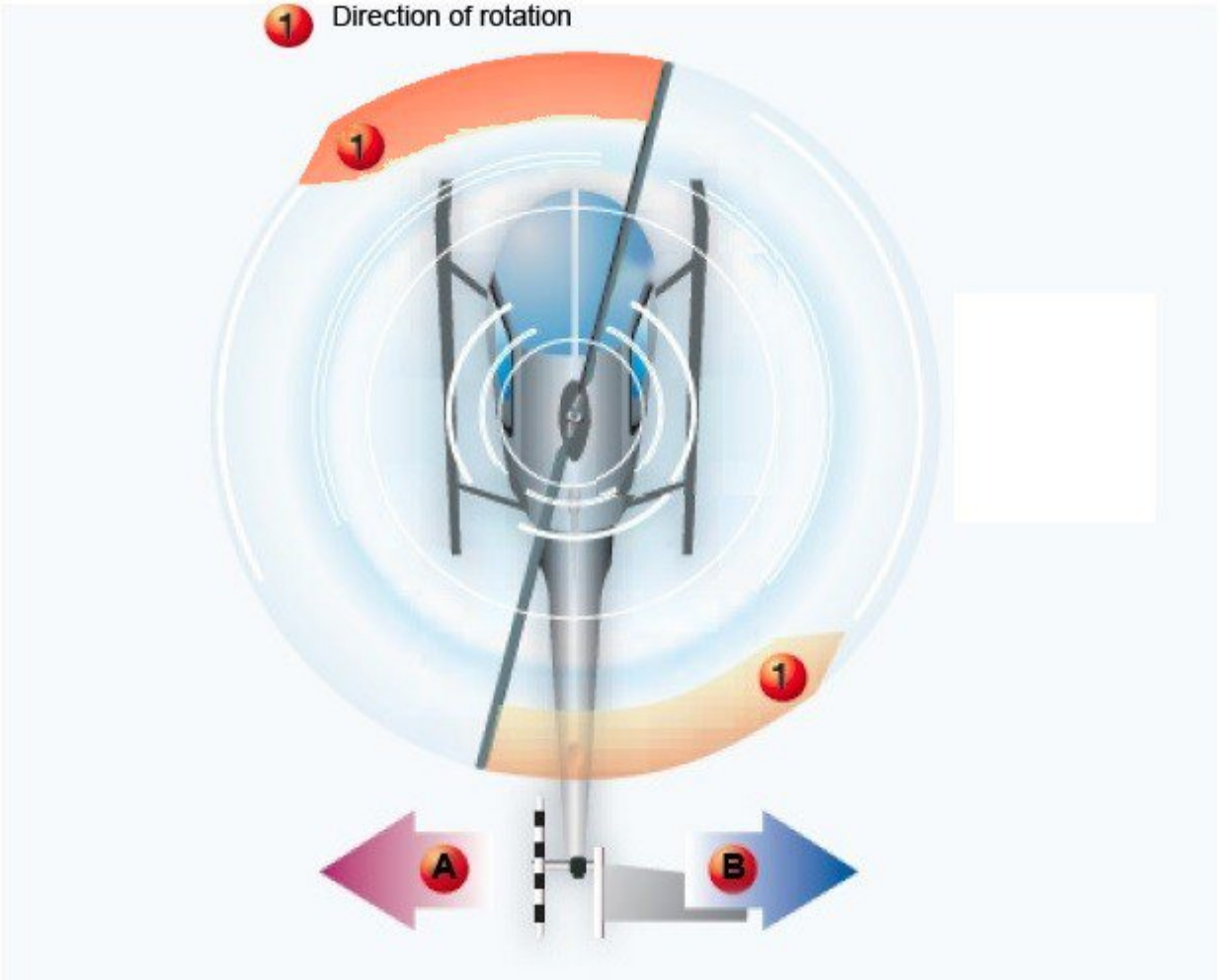
a. Ground effect
b. Translational lift
c. Corriolis effect

2. In the figure a spinning gyroscope is shown. In which direction must you push to achieve the illustrated reaction in the plane of procession of the gyroscope?



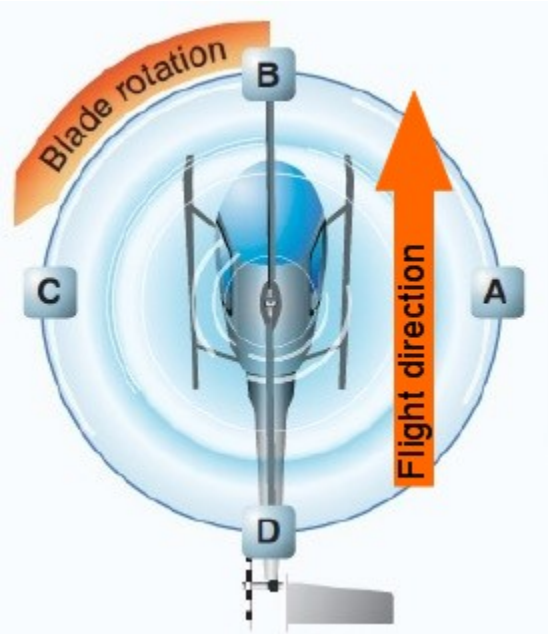
a. Up (Force A)
b. Down (Force B)
c. Right (Force C)

3. On a helictopter in a hover flight as seen in the figure, with the main rotor rotating counter-clockwise, the tail rotor thrust will react:



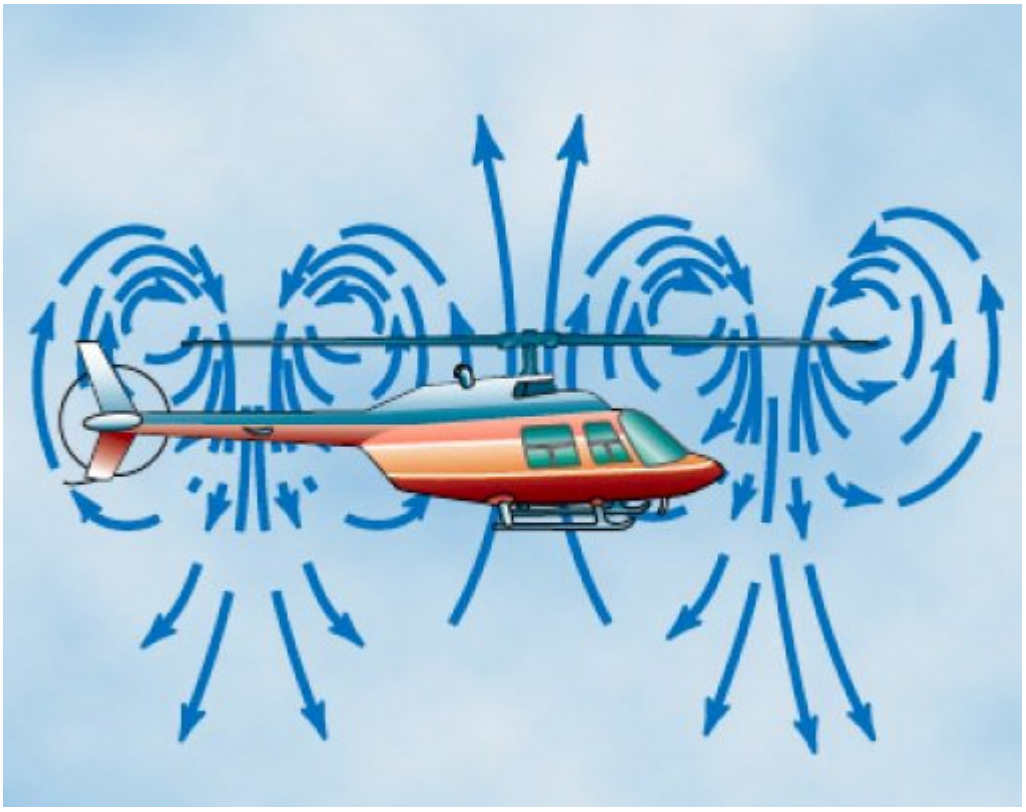
a. Tail to the left (A)
b. Tail to the right (B)
c. No tail reaction in hover flight.

4. In the figure, in which positions will the rotor blade have the largest angle of attack due to dissymetry of lift?



a. Position B and D
b. Position A
c. Position C

5. Which condition is illustated?



a. Hover flight.
b. Flying in ground effect.
c. Vortex ring state (settling with power).

6. What is the pilots first reaction when the engine fails?

a. Increase the collective pitch to increase the rotor RPM.
b. Pitch the aircraft forward to maintain airspeed.
c. Decrease the collective pitch to maintain rotor RPM.

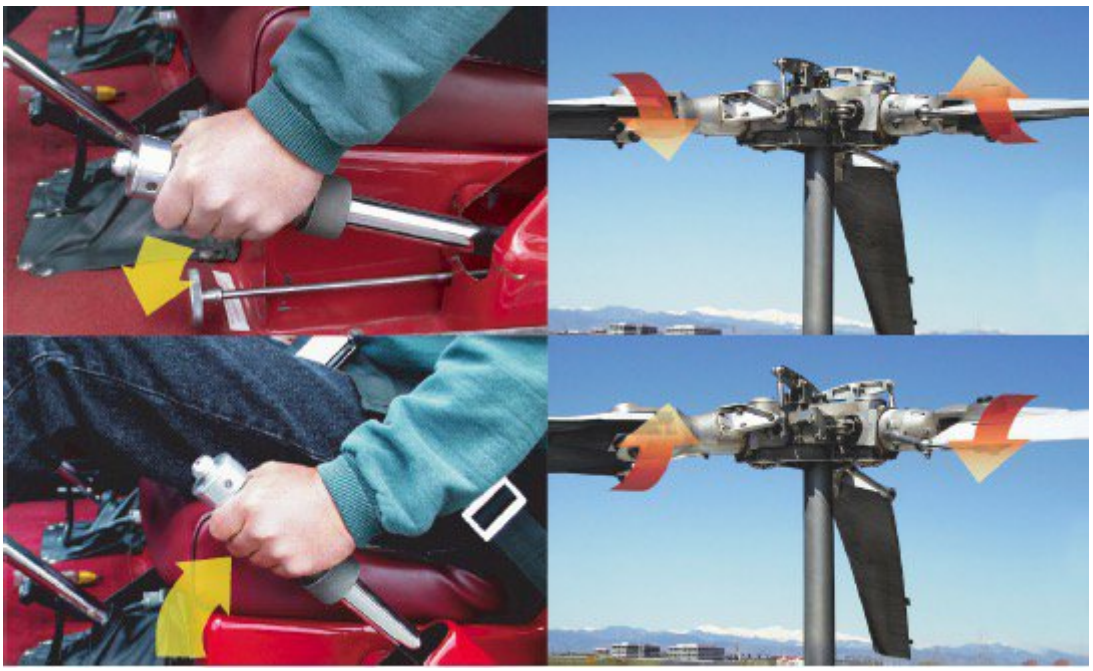
7. A helicopter hovering in ground effect will have?

a. More drag and needs more engine power.
b. More lift and needs less engine power.
c. A higher rotor speed and needs less engine power.

8. Cyclic control inputs are sent to the main rotor:

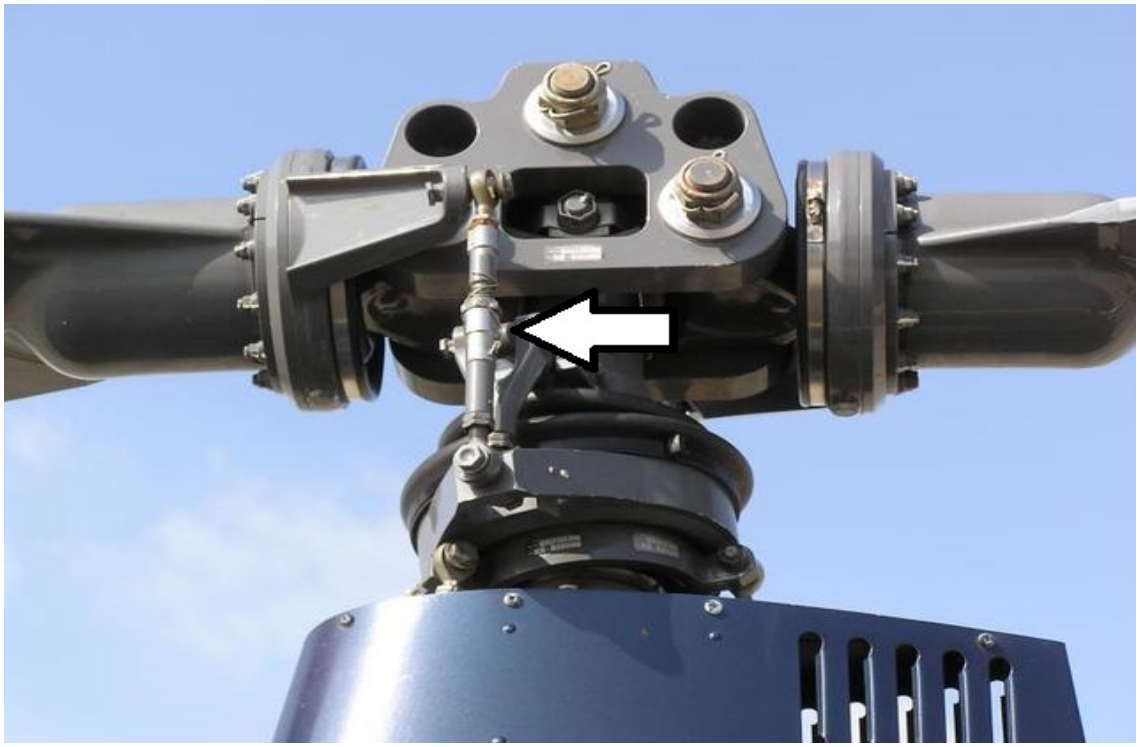
a. at the point of the desired reaction
b. 90 degrees after the desired reaction
c. 90 degrees before the desired reaction

9. Which flight control system is illustrated in the figure?



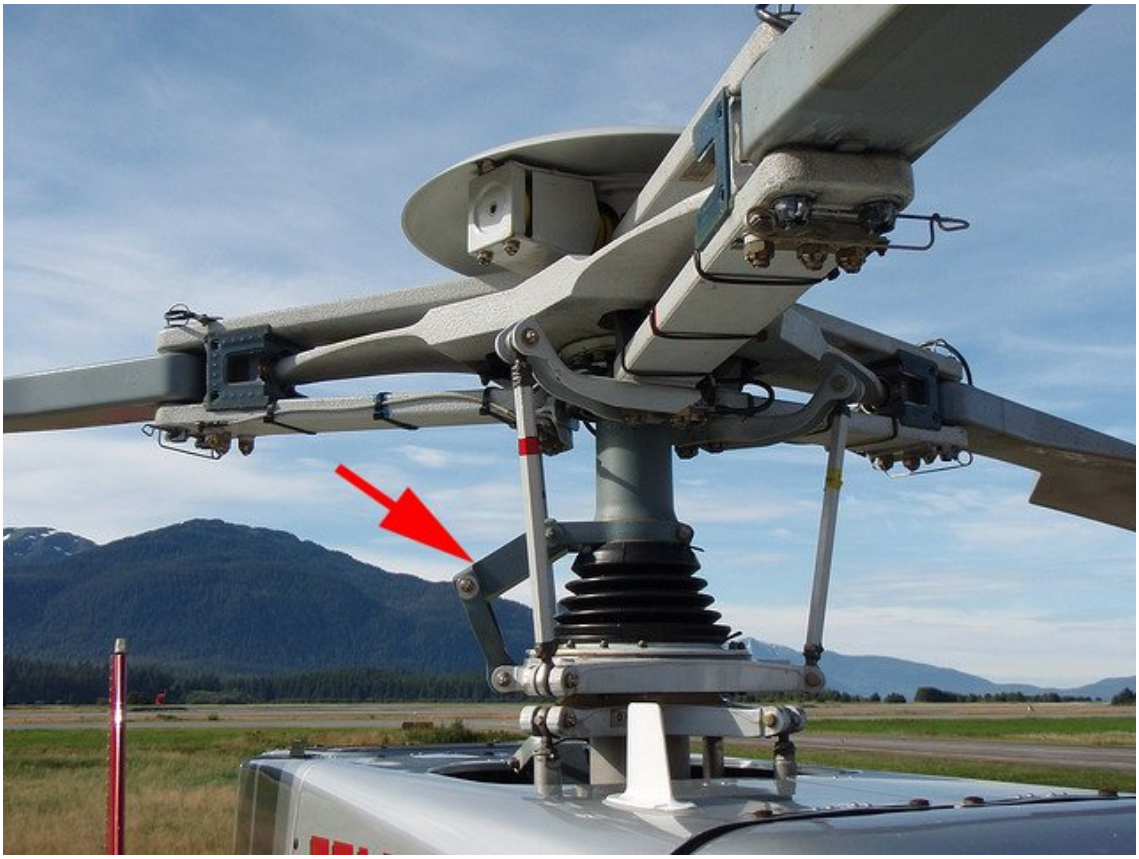
a. Cyclic
b. Collective
c. Yaw

10. To what part is pointed in the picture?



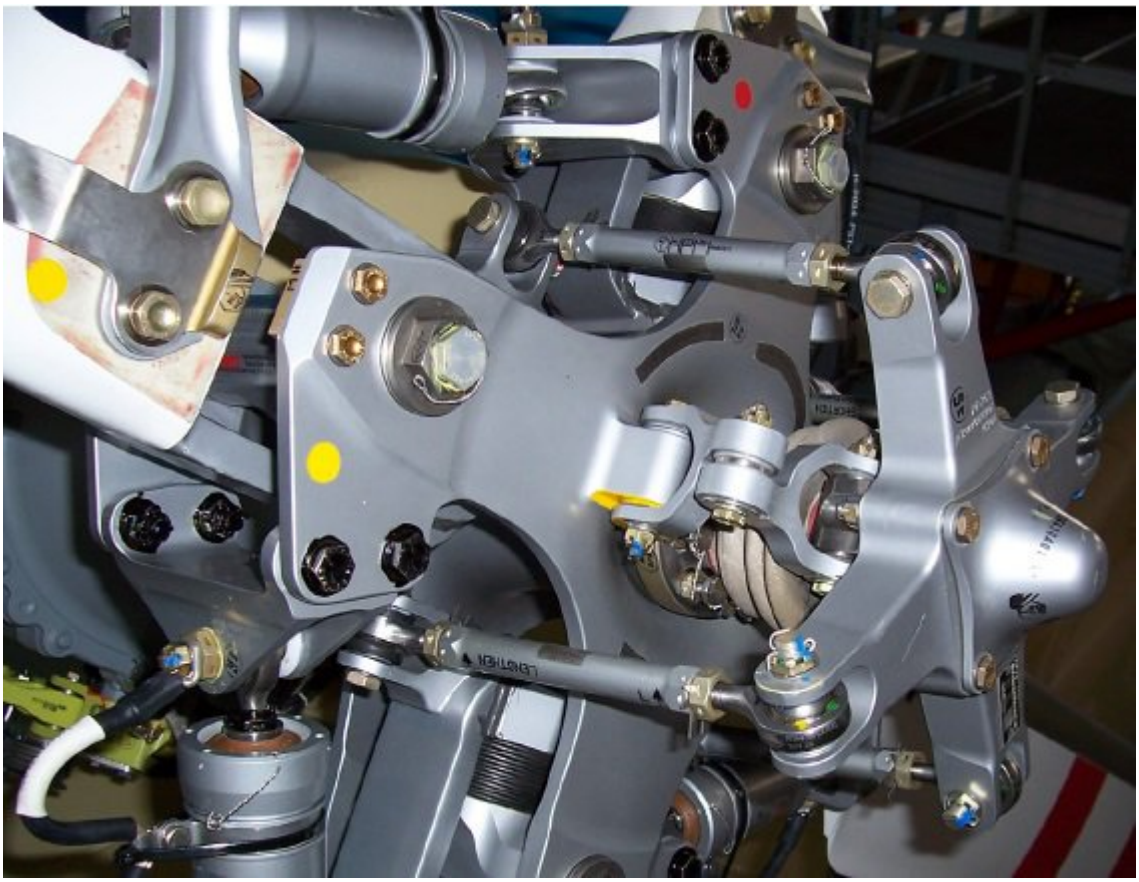
a. Swash plate.
b. Blade horn.
c. Pitch link.

11. What is the purpose of the indicated component?



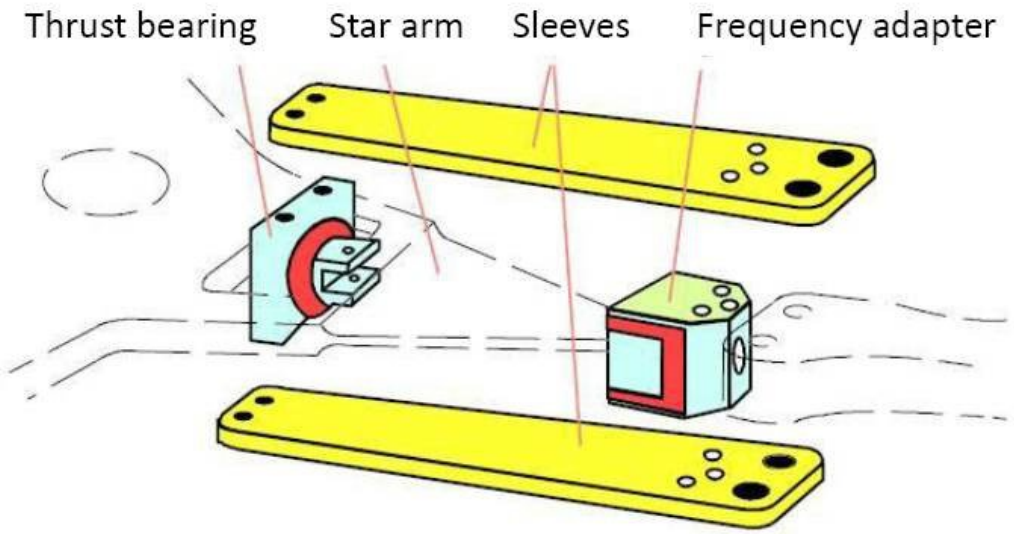
a. Guide the swashplate up and down the swashplate guide.
b. Prevent the stationary swashplate from turning with the rotor.
c. Drive the rotating swashplate with the main rotor.

12. What type of tail rotor is shown?



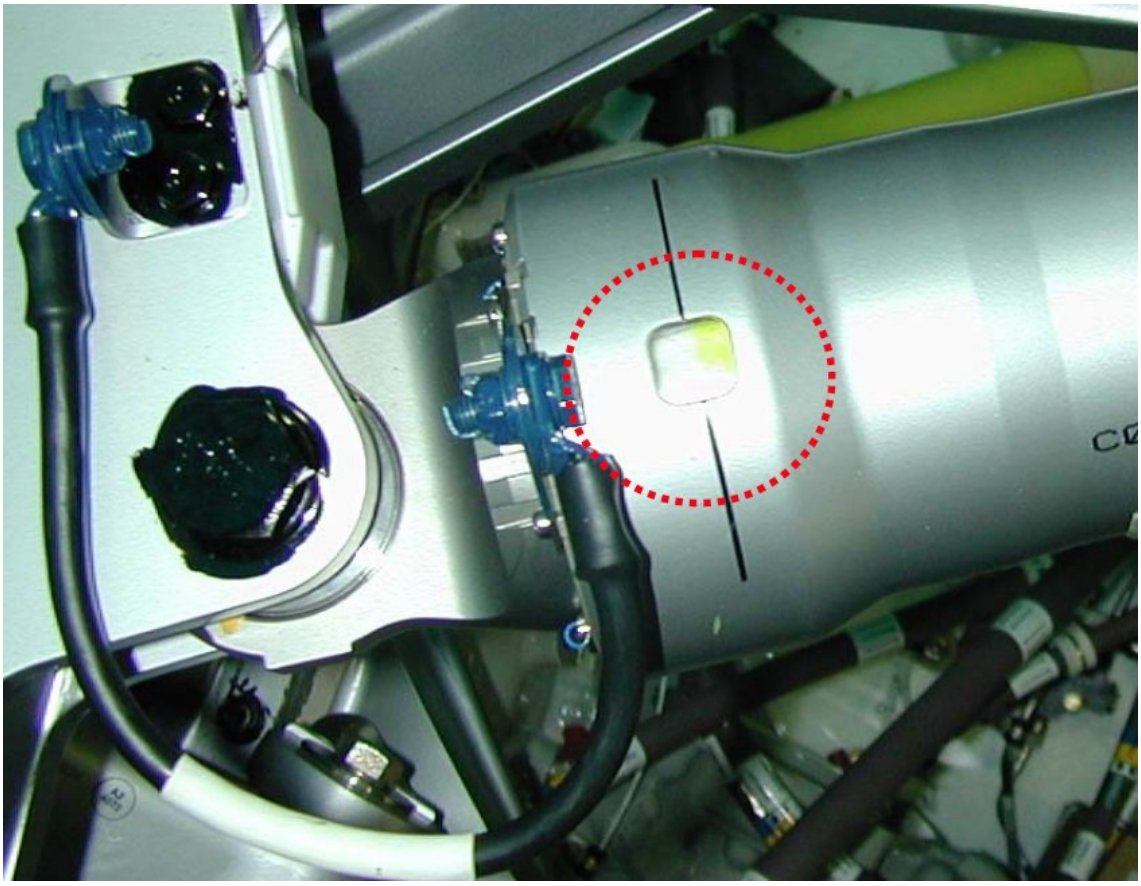
a. Fenestron
b. Flexbeam
c. Fully articulated

13. Which movement is made possible by the elastomeric frequency adapters in a hybrid rotor system?



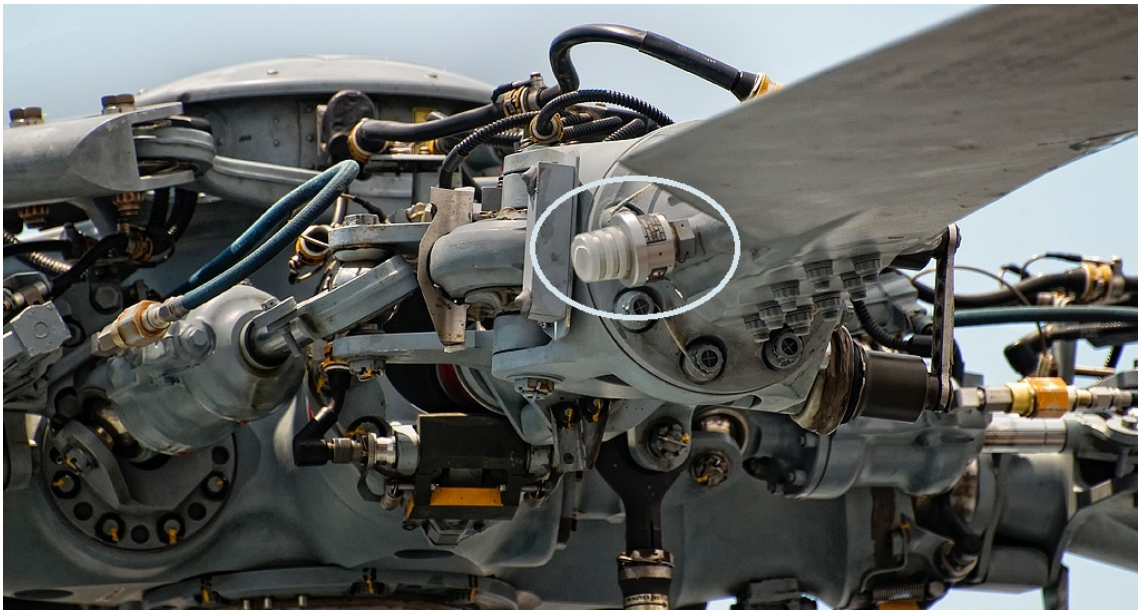
a. Lead-lag
b. Flapping
c. Feathering

14. What is the function of the indicated item?



a. It is an indicator used for rigging the damper.
b. It is an indicator that shows the fluid level inside the damper.
c. It is an indication that becomes visible when the damper had been exposed to forces beyond its limits.

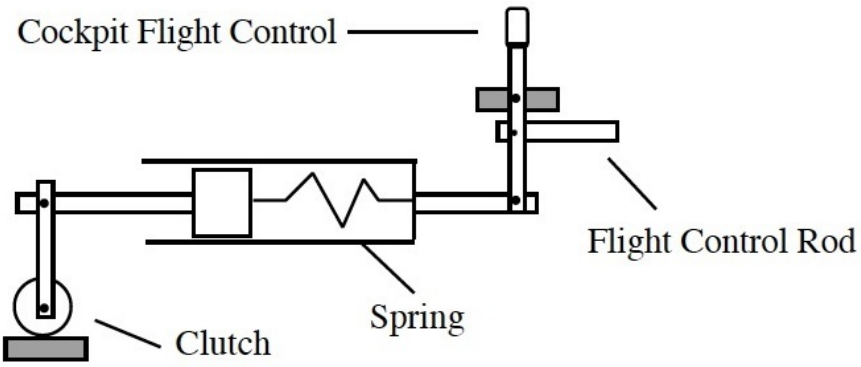
15. What is the indicated component on the blade?



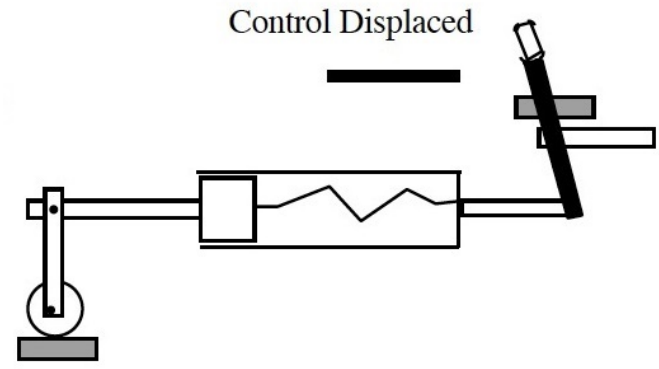
a. An indicator for the blade crack detection system.
b. An indicator for the blade damper fluid level.
c. A blade vibration sensor.

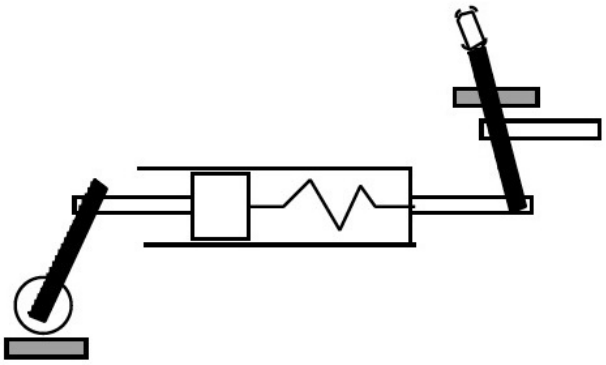
16. Which of the 3 illustrations shows the condition where the trim force release switch is activated, clutch disengaged and there is no force in the cockpit control?

a.



b.

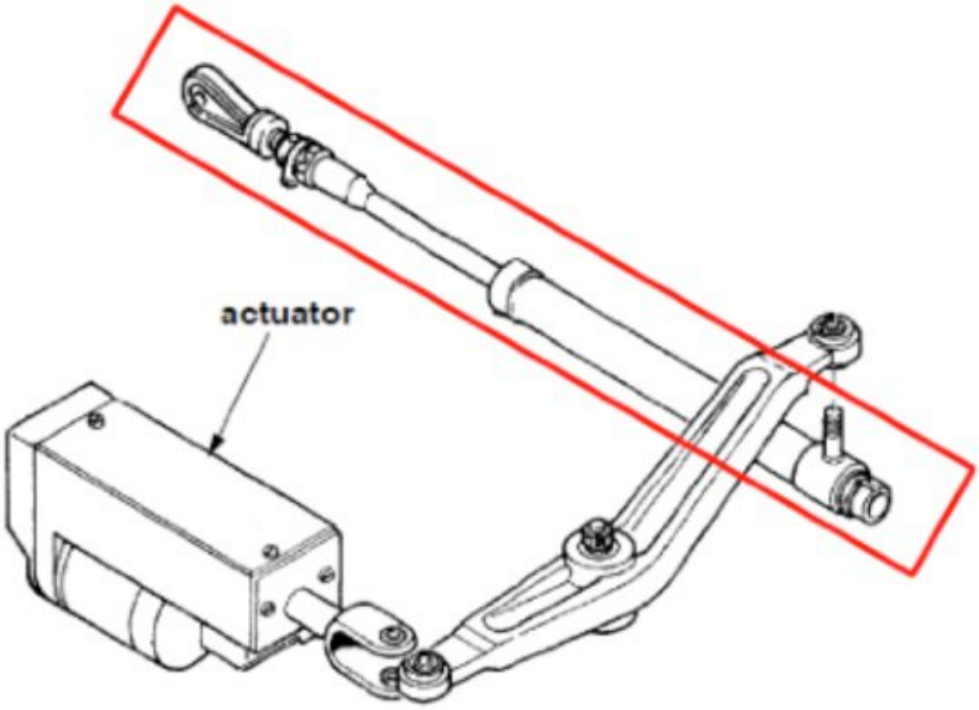


c. 

17. Which flight control system requires the least maintenance time?

a. hydraulic
b. control rods
c. fly-by-wire

18. What is indicated in the figure?



a. Spring rod
b. Control rod
c. Alternate hydraulic actuator

19. How can the blade track be adjusted?

a. adding tracking weights to the blade tip
b. adjusting the mass chordwise balance weight
c. adding tracking weights to the blade pitch links

20. The blade sweeping of main rotor blades is applicable to:

a. Semi rigid main rotors.
b. All types of main rotor.
c. Fully articulated main rotors.

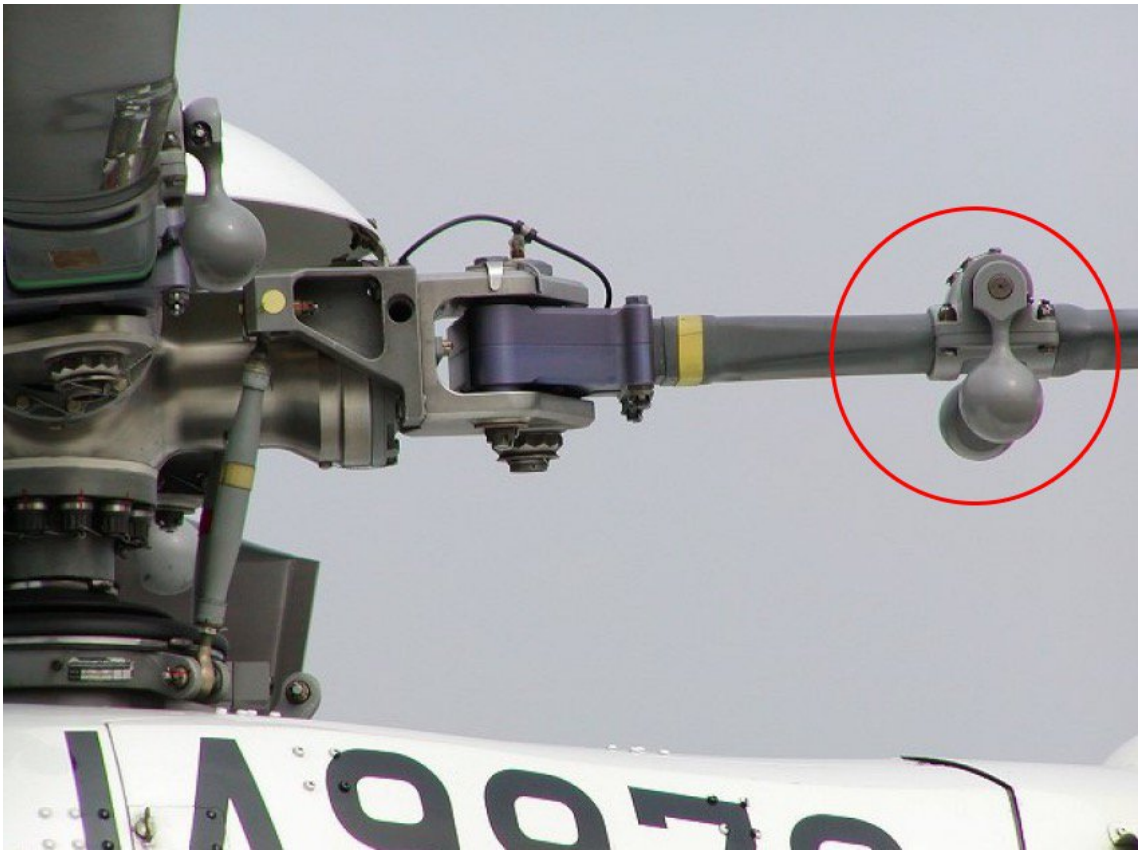
21. A main rotor with pitch links attached to the leading edge has to be adjusted so that the blades fly higher. Which adjustment must be made?

a. The weight of the blades must be increased by adding extra balance weights to the tips.
b. The pitch links must be shortened.
c. The pitch links must be lengthened.

22. Identify the two items?

a. (1) Photo-optical pick-up, (2) Accelerometer
b. (1) Photo-optical pick-up, (2) IR-sensor.
c. (1) Accelerometer, (2) Magnetic pick-up.

23. In the figure, what is the marked item?



a. Active vibration reduction device.
b. Main rotor blade track adjustment
c. Passive vibration reduction device.

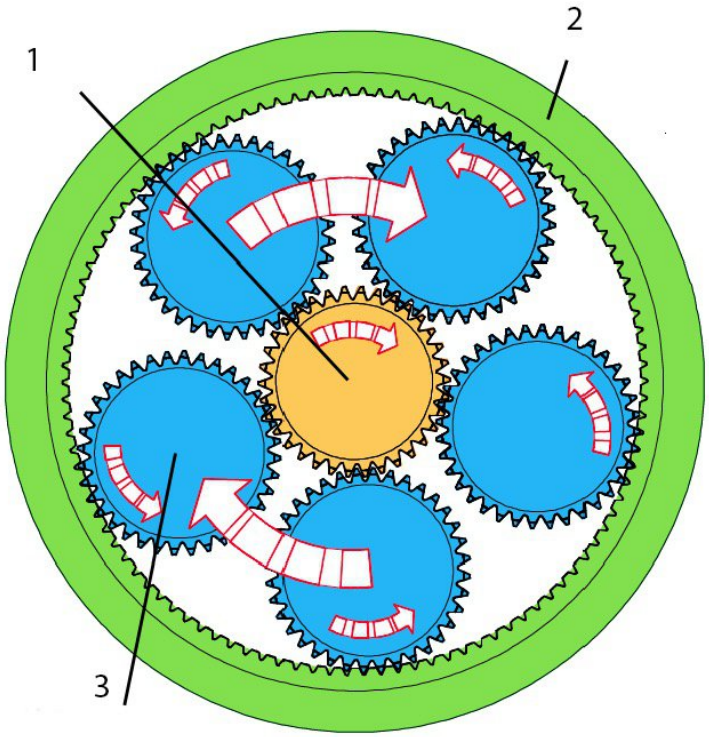
24. What is the main difference between higher harmonic control (HHC) and individual blade control (IBC)?

a. HHC uses actuators on the non-rotation part of the rotor system while IBC inputs on the rotating part of the main rotor.
b. HHC controls all blades at the same time while IBC controls the blades individually.
c. HHC is a passive vibration reduction system while IBC is an active system.

25. Why is ground resonance most likely to occur on an articulated rotor system?

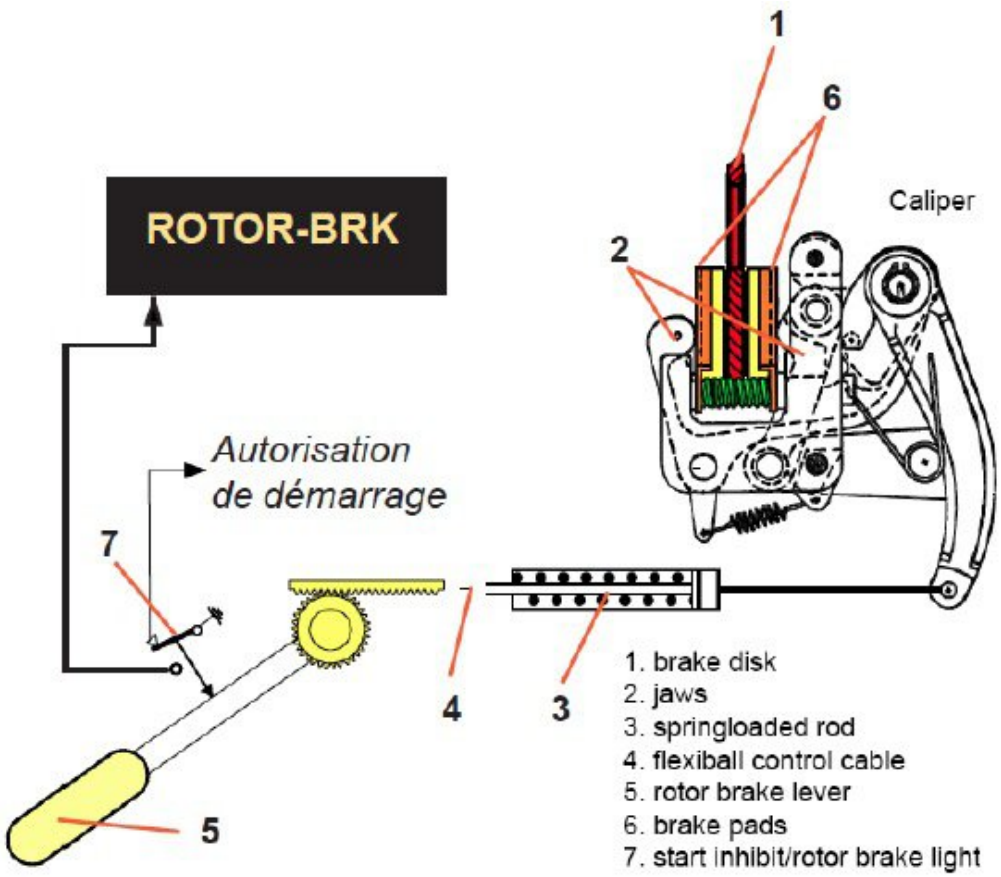
a. Due to the damping devices.
b. Due to the flapping hinges.
c. Due to the lead-lag hinges.

26. Name the components in the figure.



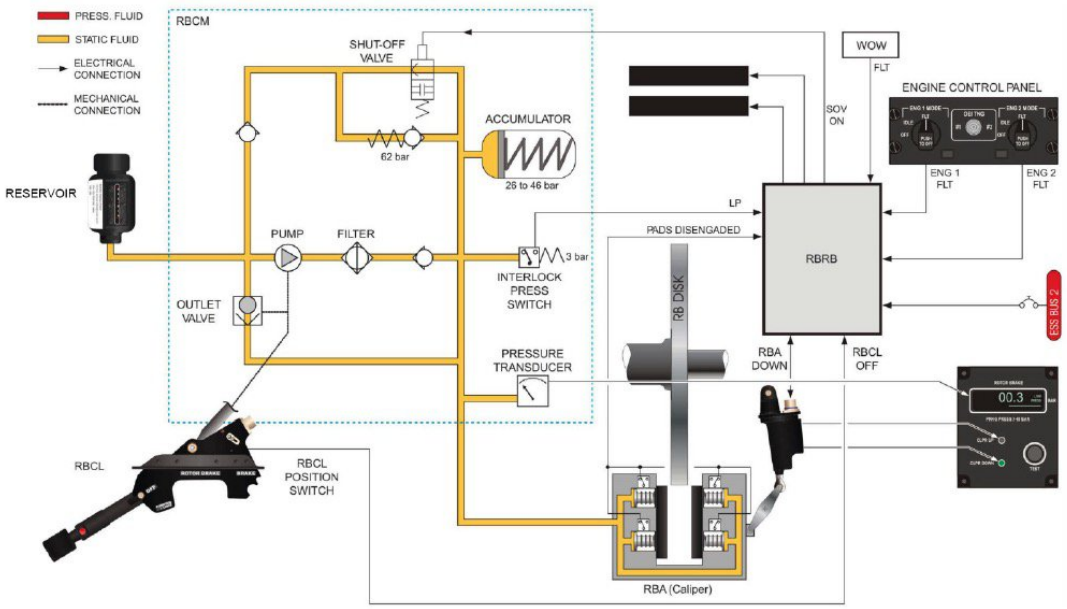
a. 1= Sun gear,
   2= Ring gear,
   3= Planet gear
b. 1= Center gear,
   2= Perimeter gear,
   3= Orbital gear
c. 1= Ring gear,
   2= Sun gear,
   3= Planet gear

27. In the figure, what is the purpose of the spring rod (3)?



a. Adjusts for thermal expension of the control cable
b. Adjusts for rotor brakepad wear.
c. Maintains the rotor brake ON in case of control cable failure.

28. In which condition would the helicopter be in to have the rotor brake system as shown in the figure.



a. Aircraft on the ground - rotor brake ON
b. Aircraft on the ground - rotor brake OFF
c. Aircraft in flight

29. What is used, to allow for slight misalignment of the tail rotor drive shaft sections?

a. Flexible couplings.
b. Self aligning bearings.
c. Bearings mounted in elastomer bushings.

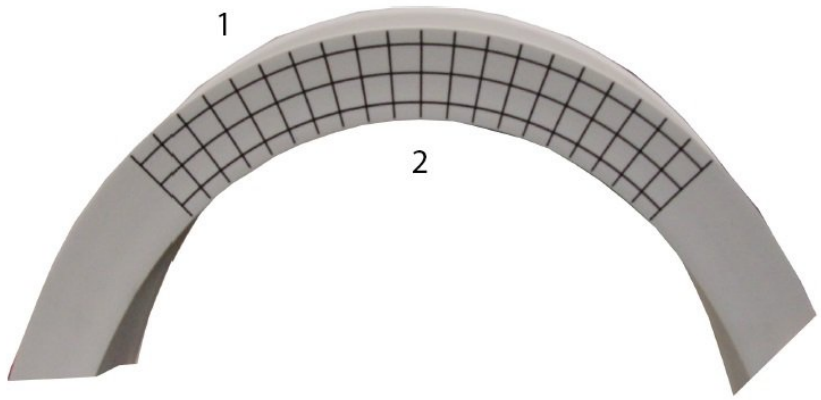
30. The primary structure consists of:

a. Lateral and vertical elements
b. Lateral and diagonal elements
c. Longitudinal and vertical elements

31. In the zonal system, 700 would be the number for:

a. Fuselage
b. Doors
c. Landing gear

32. The object is being subjected to a bending force. The stresses in area 1 and 2 will be?



a. (1) Compression, (2) Hoop
b. (1) Shear, (2) Compression
c. (1) Tension, (2) Compression

33. What is the main reason of having drains in the aircraft structure?

a. The humidity caused by the fluid can influence the air-conditioning system.
b. Collecting fluids without draining could cause fire, corrosion or causing short cuts in the electrical system.
c. To avoid the extra weight. This can overload the structure.

34. What is the function of the Static dischargers?

a. In case of a static charge they lead the electrical energy off the aircraft.
b. They function as a communication antenna.
c. They will protect the communication systems against a lightning strike.

35. What type of construction is show in the figure?

a. Semi-Monocoque construction
b. Monocoque construction
c. Welded steel fuselage construction

36. How is the tailboom attached to the main fuselage on most civilian helicopters?

a. Hinged
b. Rivetted
c. Bolted

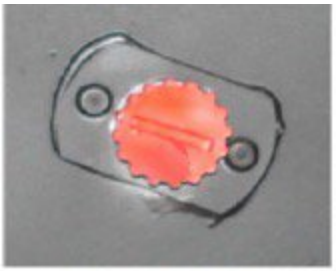
37. What is one of the biggest drawback of windshields compared to windscreens?

a. Windshields are only useful when operating in cold climates because of the increased greenhouse effect heating up to cockpit too much in hot climates.
b. Windshields are heavy
c. Windshields are not as impact resistant (bird strike) as windscreens.

38. In addition to keeping the windshield ice and fog free, what other purpose does heating of the windshield have?

a. Increases the strength of the windshield
b. Helps warm up the cockpit
c. Increases the flexibility of the windshield

39. What is the purpose of the drain plug shown in the figure?



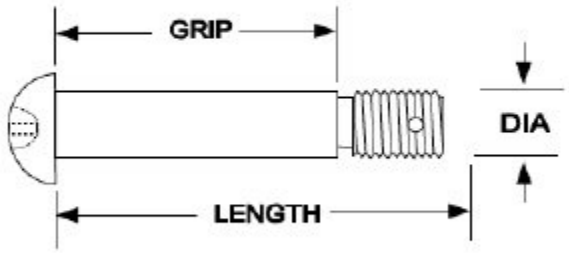
Drain plug

a. To drain out any water which has collected in the compartment where the fuel tank is located.
b. To drain out any fuel which has collected the compartment where the fuel tank is located.
c. To allow the compartment to be inspected internally without removing the fuel tank.

40. What is commonly used in the engine mounting system to allow for misalignment of the main gear box and engine?

a. Elastomeric couplings.
b. Gimbal joint
c. Adjustable engine supports.

41. What does the number 14 indicate in the bolt partnumber AN24-14A?



a. The diameter of the bolt (14/64 inch diameter).
b. The material specification (14 = steel).
c. The bolt length (14/16 inch diameter.

42. Is it permissable to de-grease a landing gear with a steam cleaner?

a. No, damage to the bearing and seals may occure.

b. Yes, but all the components must be re-lubricated.
c. Yes

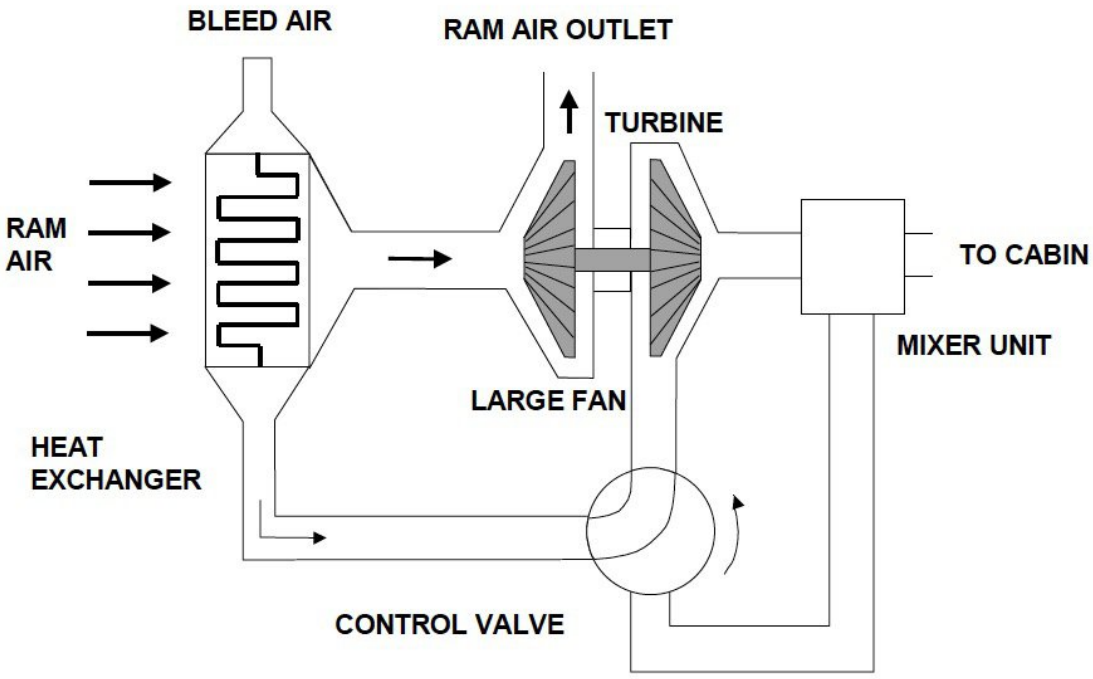
43. Which type of helicopters would use a compressor to power the air conditioning system?

a. Helicopters which have insufficient engine bleed
b. Helicopters which have limited space
c. Helicopters which have powerful engines

44. Which of the following air conditioning systems is considered to be the most simple system?

a. Compressor
b. Engine bleed air
c. RAM air

45. What type of airconditioning system is shown in the figure?



a. Turbofan system
b. Vapor cycle system
c. Turbo compressoor system

46. Why is the air intake for the ventilation system usually on or near the nose of the helicopter?

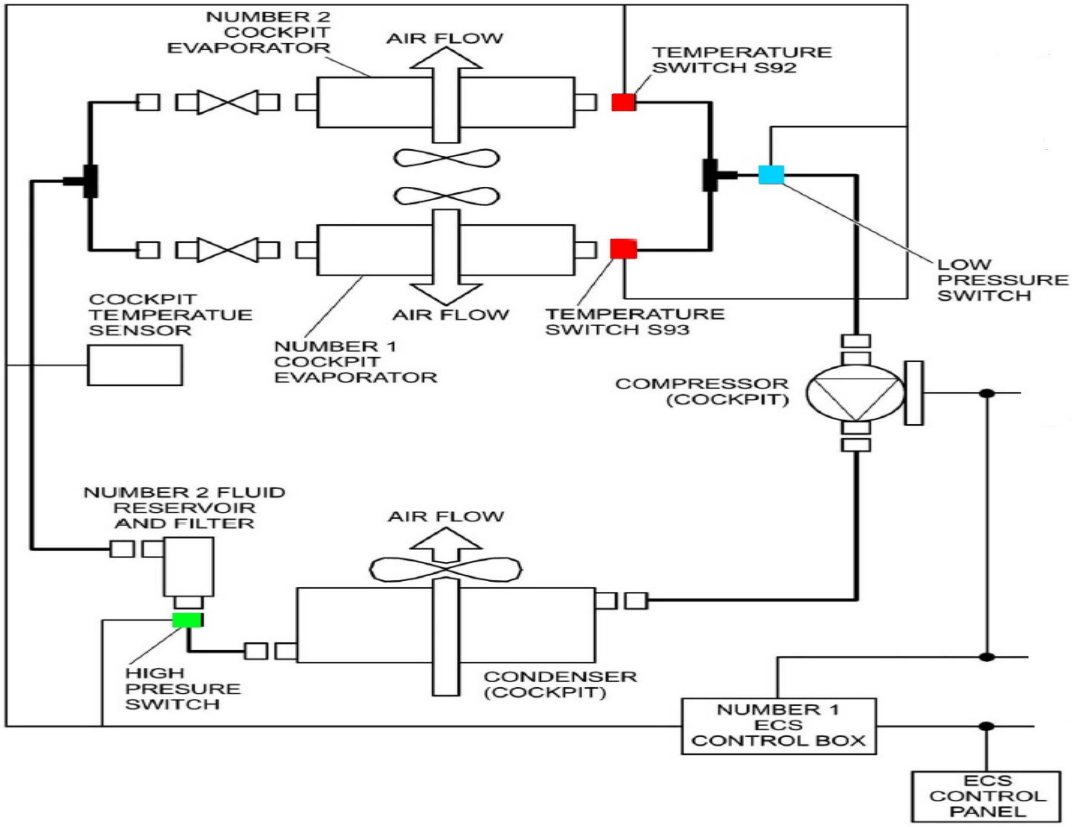
a. It is the best location to ensure foreign objects are not sucked into the air intake.

b. It prevents exhaust gases getting into the ventilation system.
c. So that the airflow around the engine inlet is not disturbed.

47. What are electrical heaters used for?

a. Not used on helicopters
b. Demisting the windscreens
c. Heating up the cabin ventilation air

48. The vapor cycle system shown in the figure has a temperature switch S93. When will this switch cause a shut-down of the system?



a. When the cockpit evaporator number 1 gets too hot
b. When the cockpit evaporator number 1 freezes
c. When the fluid coming out of the evaporator is too hot

49. The figure shows a pressure reverting servo altimeter. What is the benefit of this type of altimeter?

a. It switches to an internal servo system in case of a failure of the external master altimeter
b. In case of a failure of the servo part of the altimeter, it switches to mechanical operation automatically
c. It allows for automatic barometric pressure compensation

50. What type of gyro would you find in an gyro horizon unit (artificial horizon)?

a. Displacement gyro
b. Free gyro
c. Vertical gyro

51. In which system would you generally find a flux valve?

a. Remote reading magnetic compass
b. Direct reading magnetic compass
c. Horizontal situation indicator

52. The flight data from HUMS is analysed by?

a. By anybody using the Multifunctional Digital Acquisition Unit (MFDAU).
b. By the operator in a ground station.
c. By the helicopter constructor.

53. Which instruments are combined in an integrated standby instrument system?

a. Electronic attitude director indicator (EADI), Electronic horizontal situation indicator (EHSI) and Altimeter.
b. Electronic attitude director indicator (EADI) and Electronic horizontal situation indicator (EHSI).
c. Electronic attitude director indicator (EADI), Electronic horizontal situation indicator (EHSI) and Vertical speed indicator (VSI)

54. Which of the following main gear box indications is generally not displayed in the cockpit?

a. Oil temperature
b. Oil level
c. Oil pressure

55. To provide the correct amount of rudder deflection to cancel the Dutch Roll is also called;

a. yaw damping
b. glide slope
c. pitch trim

56. What is pitot pressure?

a. It is the outside air pressure at the instant of measuring.
b. It is the dynamic pressure of the air due to the forward motion of the aircraft.
c. It is the total pressure inside the aircraft.

57. What system is used to transmit or receive automatically or manually generated reports or messages to or from a ground station?

a. The Aircraft Communication Addressing and Reporting System (ACARS).
b. The Multichannel Aviation Satellite Communication System (MCS SATCOM).
c. The SELCAL (Selective Calling) system.

58. The system that allows long distance voice communication is called:

a. Selcal communication.
b. High Frequency communication (HF).
c. Very High Frequency communication (VHF).

59. The system that determines the distance between the aircraft and the runway threshold is called:

a. VHF-navigation system.

b. Marker Beacon system.
c. ADF-system.

60. On an aircraft flying above 2500 feet, the radio alimeter will show?

a. Blank
b. 0
c. 2500

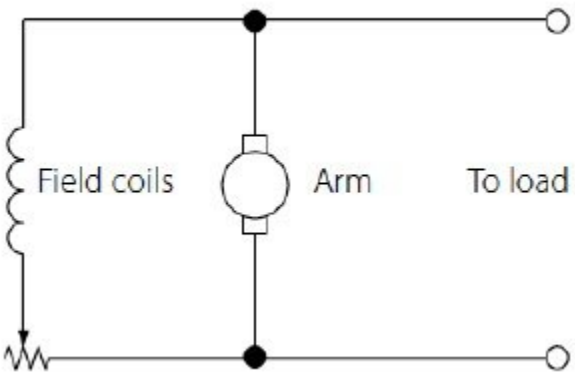
61. A lead-acid battery will be replaced by a NiCd battery. What must be done before the battery is installed?

a. A battery temperature sensor must be installed
b. A battery vent system must be installed
c. The battery compartment must be neutralized and flushed with water

62. Why is "trickle charging" a NiCd battery not recommended?

a. The battery life will be shortened
b. The battery may go into thermal runaway
c. The battery cells may run dry due to the consumption of water

63. The schematic of which type of generator is shown in the figure?



a. Shunt wound DC generator
b. Shunt wound DC alternator
c. Compound wound AC alternator

64. Why is it that a helicopter doesn't need a constant speed drive to run an AC alternator?

a. Helicopter engines run at a fairly contant speed so a constand speed drive is not required

b. Helicopters use a special design AC alternator which produces a constant output no matter what speed it is driven by.
c. AC generators on a helicopter are driven by the main gear box which runs at a constant speed

65. Which is the most commonly used emergency power generation system used on helicopters?

a. Hydraulic motor generator
b. Ram air turbine
c. Emergency battery power

66. When will the generator control unit (GCU) of an AC generation system allow the generator breaker to close?

a. When current and frequency output of the alternator are correct
b. When voltage and current output of the alternator are correct
c. When voltage and frequency output of the alternator are correct

67. The bus which powers components required for continued safe operation of the aircraft is called?

a. Essential bus
b. Main bus
c. Emergency bus

68. What does a transformer rectifier unit (TRU) do?

a. Convert AC into DC
b. Convert 3 phase AC into single phase AC
c. Convert DC into AC

69. What is the purpose of the DC interlock?

a. Prevents reverse polarity from being applied.
b. Ensures the correct voltage is supplied before allowing it to enter the aircrafts electrical system.
c. Ensures that the connector is fully seated in the socket before allowing the electrical system to be energized by the external power.

70. The number of emergency exits in a helicopter depend on:

a. The number of passengers it can carry
b. The size of the helicopter
c. The operation it was designed for (over water or land or both)

71. Which of the following statements in NOT true?

a. The CPI is a replacement for the Emergency locator transmitter (ELT)
b. The CPI is mandatory for helicopters operating in the oil and gas industry
c. The Crash Position Indicator (CPI) system has a deployable beacon that floats

72. The operating mechanisms for emergency exits are:

a. Standardized on large civilian helicopters only
b. Standardized and the same for all helicopters
c. Not standardized and different on most helicopters

73. What type of restrain system is shown in the figure?

a. A 4 point seat harness
b. A 5 point seat harness
c. A standard seat belt

74. Operation of the rescue hoist is normally performed by....

a. the hoist operator using the control pendant.
b. the hoist operator using the control switch in the cabin.
c. the pilot using the control pendant.

75. Which of the following would NOT be part of cabin layout?

a. Sun visors
b. Fire extinguisher
c. Personal service units

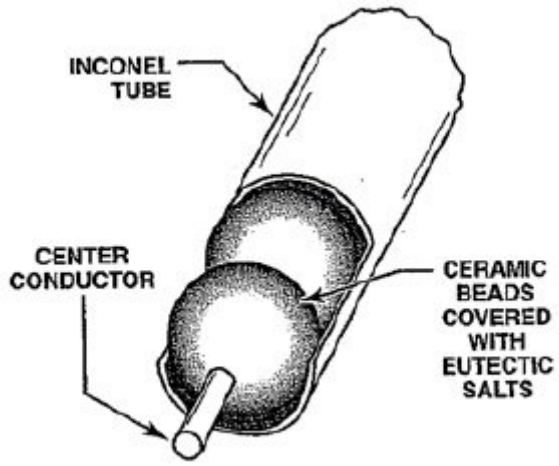
76. How many G is the typical cabin floor designed to withstand?

a. 1G
b. 100G
c. 20G

77. In a systron donner sensing loop, what causes the alarm to trigger due to a fire?

a. Heating of the helium gas makes it expand and activate a switch when the pressure builds up high enough
b. Heating of the center titanium wire causes hydrogen to be released, building up the pressure inside the stainless steel tube until it is sufficient to activate a switch
c. Heating of the sensor causes the ceramic core to become conductive, closing the circuit and triggering the alarm.

78. Which sensing system is shown in the figure?



a. Systron donner
b. Lindberg
c. Fenwall

79. Concerning fire extinguishing, what does a red disk on the side of the fuselage indicate?

a. Indicates that the bottle nitrogen pressure is low and needs to be serviced
b. When the disk is missing, it indicates that the bottle has had a thermal discharge
c. When the disk is missing, it Indicates that the firebottle has been fired

80. Which of the follwing statements is correct concerning fire bottle squibs?

a. A squib has a limited life. As long as it passes the continuity test it may be left in service.
b. The serviceability of a squib can be checked with any Ohm meter
c. The filaments in the squib test circuit are a special kind and must not be interchanged with other types.

81. Where does a helicopter generally store its fuel?

a. Fuel tanks under the floor
b. In external fuel tanks
c. Fuel tanks in the aft section

82. In a fuel tank system with a feeder tank, what is the purpose of the jet pump.

a. Pump fuel from the other fuel cells to the feeder tank
b. Pump fuel out of the feeder tank to the fuel cells

c. Supply fuel to the engine from the feeder tank

83. Which of the following statements about the fuel pumps is NOT correct?

a. Fuel pumps are installed in such a way that they can supply fuel to the engines under any flight condition
b. Fuel pumps on helicopters are AC or DC powered
c. The engine cannot operate when the fuel pumps are not running.

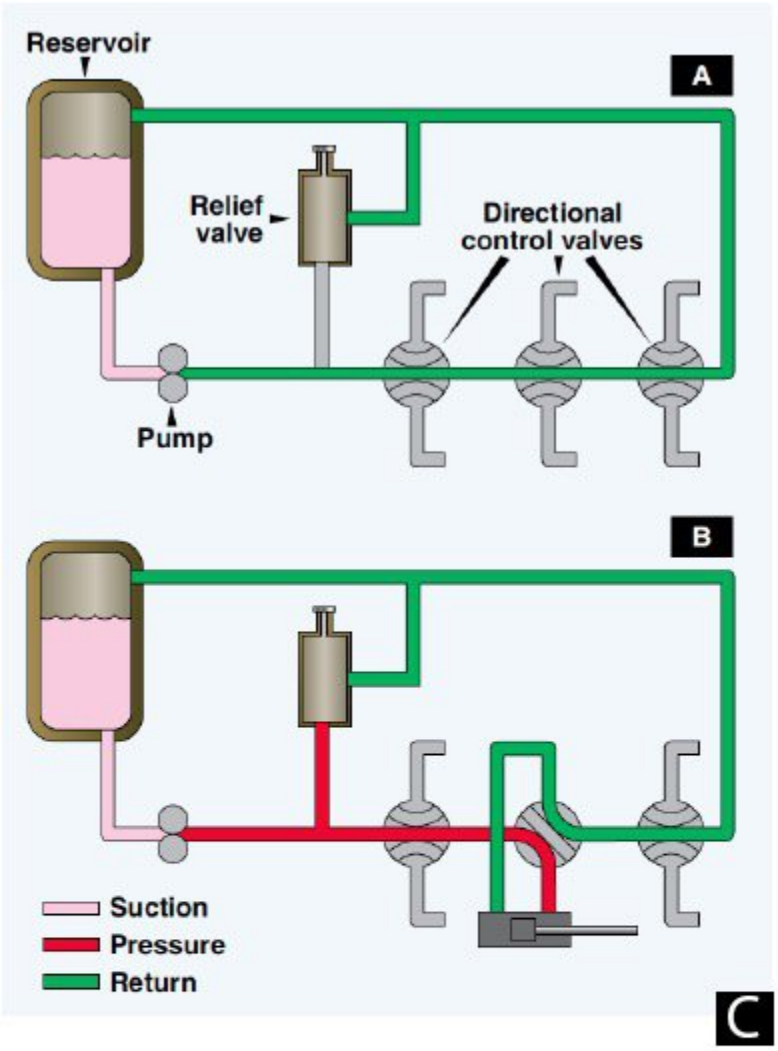
84. To completely empty a fuel tank, what is used?

a. Tank defueling
b. Tank drain valve
c. Water drain valve

85. Before any refueling operation is started, the aircraft and fuel truck needs to be bonded. What is the correct sequence?

a. (1) Aircraft to fuel truck, (2) fuel nozzle to aircraft, (3) fuel truck to ground
b. (1) Fuel truck to ground, (2) aircraft to fuel truck, (3) fuel nozzle to aircraft
c. (1) Aircraft to ground, (2) fuel truck to aircraft, (3) fuel nozzle to aircraft

86. In the figure, which diagram shows a closed center hydraulic system?



a. A
b. B
c. C

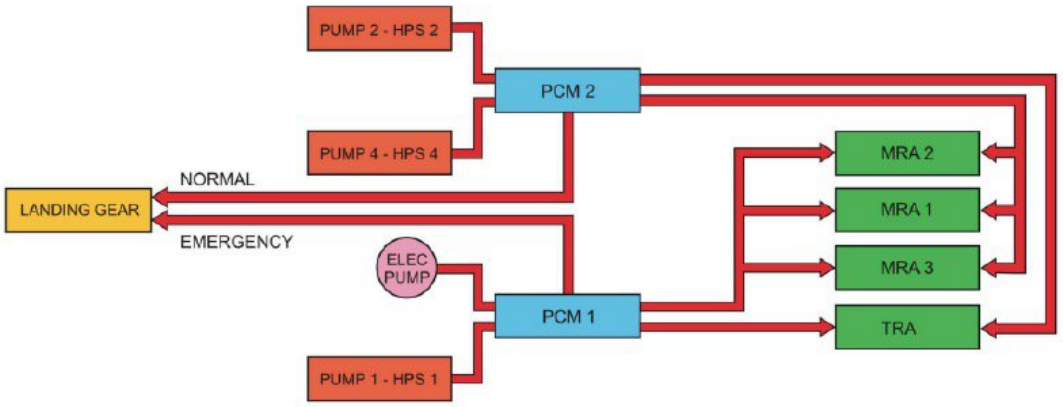
87. A hydraulic fluid with a high viscosity will have a resistance to heat which is:

a. lower that a fluid with a low viscosity
b. greater than a fluid with a low viscosity
c. equal to that of a fluid with a low viscosity

88. In a hydraulic system with a vented reservoir, what is done to ensure positive head of pressure?

a. The reservoir is pressurized
b. A small priming pump provides the head of pressure for the main pump
c. The reservoir is placed at a higher level than the pump

89. In the figure, what systems does the electrical pump (ELEC PUMP) power when switched on with the aircraft on the ground?

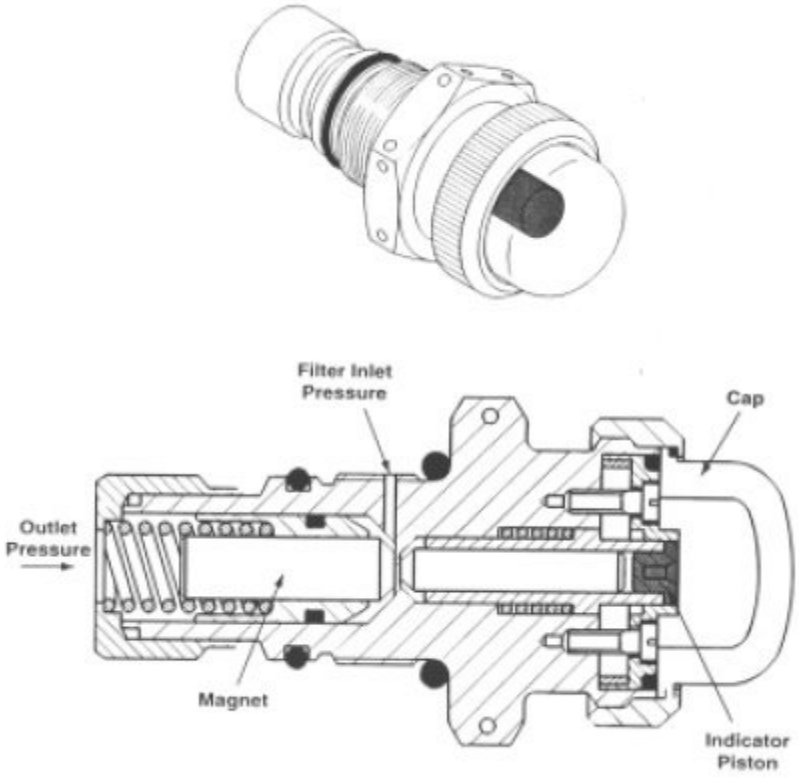


a. Landing gear
b. Landing gear, main and tail rotor controls
c. Main and tail rotor controls

90. Which of the following is NOT a function of the emergency hydraulic system powered by an electric pump?

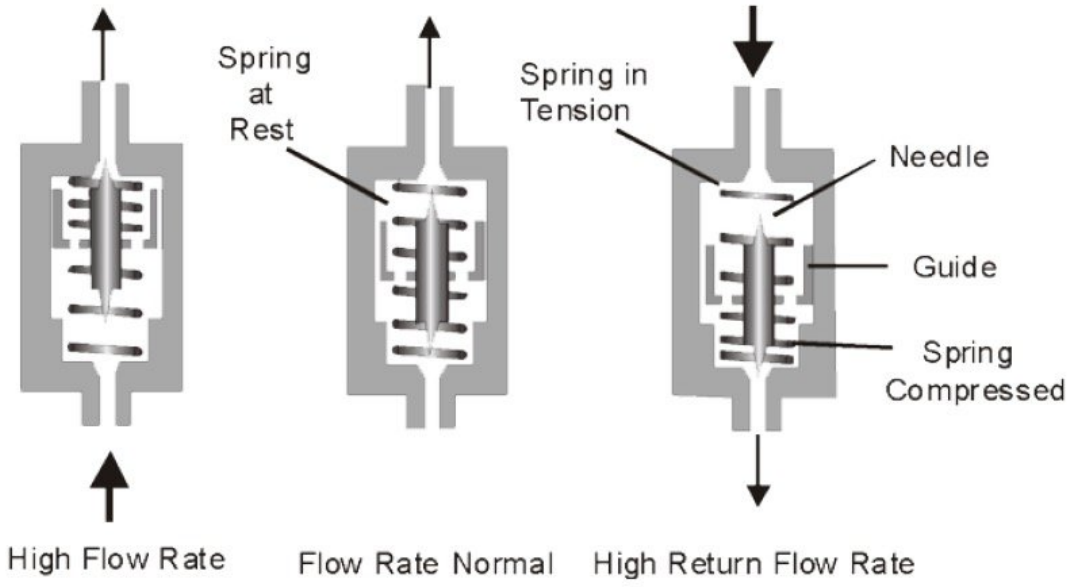
a. Pressurizing the parking brake
b. Retracting the landing gear.
c. Pressurizing the main and tail rotor flight control actuators for testing on ground

91. What would cause the devce shown in the figure to activate?



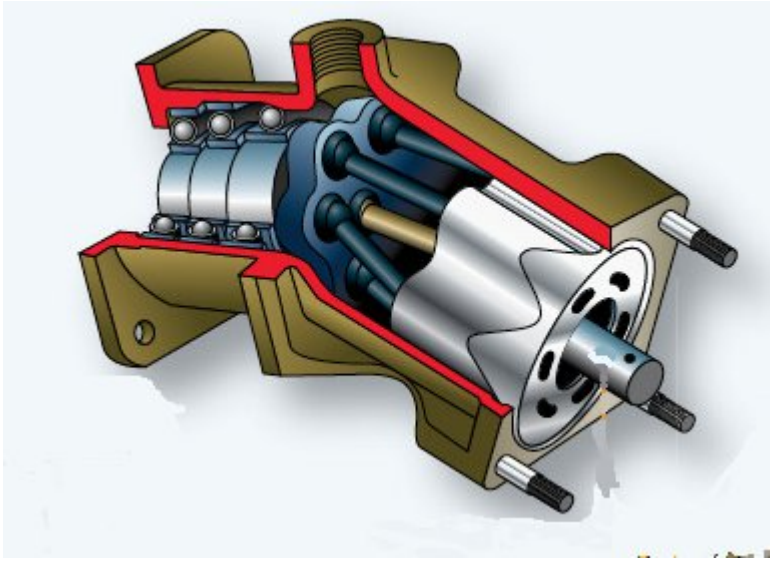
a. A blocked filter would cause the outlet pressure to increase until the magnet is pushed back and breaks contact with the indicator allowing it to be pushed out by a spring.
b. A blocked filter would cause the outlet pressure to increase until the magnet is pushed outwards, pushing the indicator out.
c. A blocked filter would cause the inlet pressure to increase until the magnet is pushed back and breaks contact with the indicator allowing it to be pushed out by a spring.

92. The valve shown in the figure is a throttling valve. Which other type of valve has basically the same function?



a. Check valve
b. Restrictor
c. Pressure relief valve

93. Which type of actuator operates on the principle shown in the figure?



a. Vane type motor
b. bent-axis rotary actuator
c. double acting balanced actuator

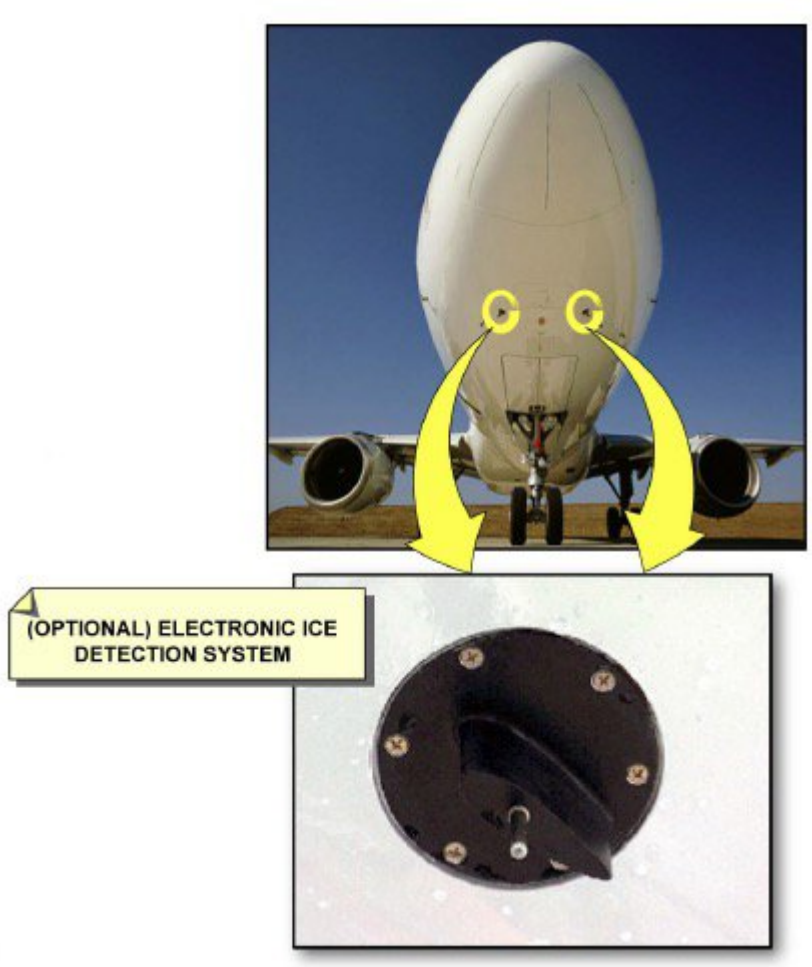
94. What is the hydraulic oil temperature limit that most manufacturers employ?

a. 50 degrees Celsius
b. 100 degrees Celsius
c. 250 degrees Celsius

95. What triggers the ice detection warning on a serrated rotor ice detector?

a. A decrease in temperature of the rotor caused by the ice buildup, triggering a temperature sensitive switch which activates the ice warning
b. An imbalance in the rotor, causing it the wobble slightly while rotating, triggering a switch, that then activates the ice warning
c. An increase in torque to drive the rotor when it is covered with ice while the knife-edge shaves the ice off the surface. This torque increase triggers the ice warning.

96. The figure shows an electronic ice detector. What principle does it use to trigger an ice warning?



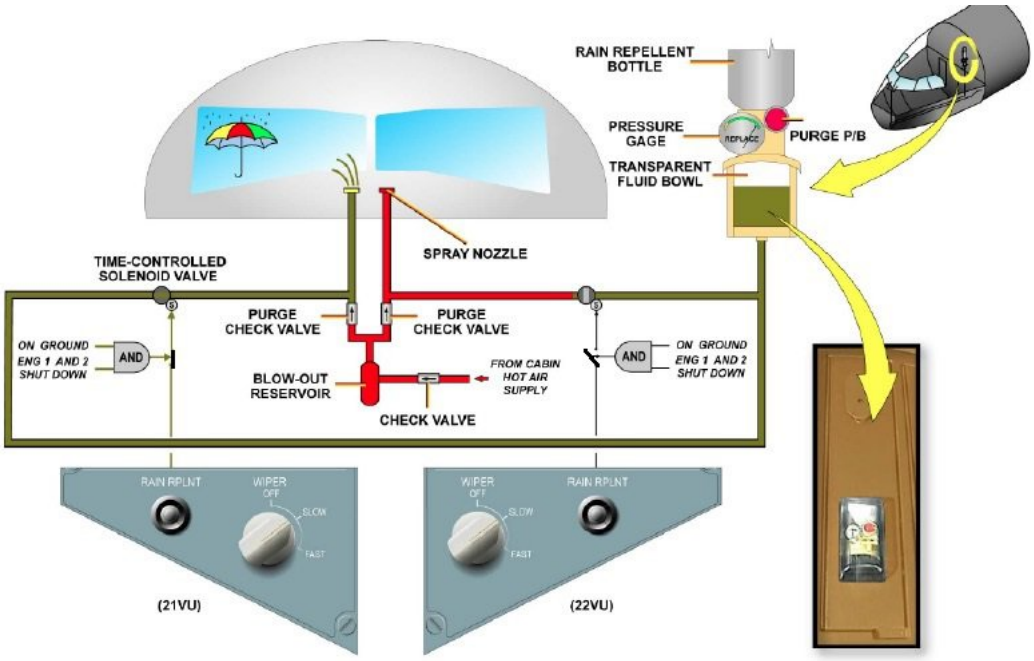
a. Change in electrical resistance of the protruding probe
b. Change in vibration frequency of the protruding probe

c. Change in temperature of the protruding probe

97. When switching on the engine anti-ice, the FAULT light comes on for a few seconds and then goes off. What does this indicate?

a. The anti-ice valve has moved to the commanded position. This is the normal condition
b. The anti-ice valve has had a intermittend fault, but has eventually moved to the commanded position. This is an abnormal condition.
c. The anti-ice valve has failed to move to the commanded position. This is an abnormal condition

98. Using the figure, which conditions must be fullfilled to make it possible to operate the rain repellant system?



a. Both engines running or aircraft in flight
b. Both engines off and aircraft on the ground
c. Both engines running and aircraft in flight

99. What precautions must be made before jacking up an aircraft with regards to drain mast heating?

a. The drain masts must not be used
b. The heating circuit breakers must be pulled
c. The heating must be switched off

100. Why must you always wet the windscreen before opening the wipers?

a. To prevent damage to the windscreen.
b. To prevent unnecessary wear of the wiper blades.
c. To prevent wear on the drive mechanism of the wipers.

101. What type of landing gear is shown in the figure?

a. Direct acting suspension
b. Levered suspension
c. Semi-levered suspension

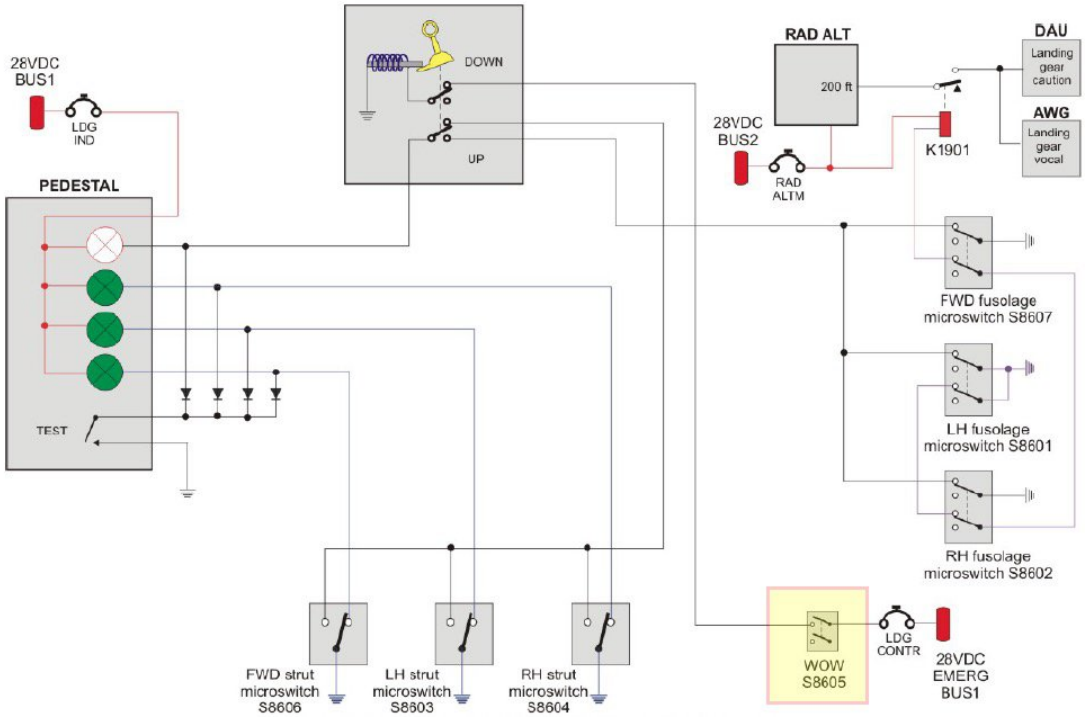
102. A full strut servicing must be performed on a gas/oil oleo. Must the aircraft be placed on jacks.?

a. Yes, with the wheels touching the ground
b. Yes, with the wheels clear off the ground
c. No, the servicing can be done with the aircaft resting on its wheels

103. Some extension/retraction systems have restricters fitted. Why is this?

a. To prevent the gear locking up or down to violently.
b. To reduce the speed at which the gear retracts
c. To prevent the airflow pushing the gear down faster during extension

104. What is the function of the highlighted switch S8605 in the figure?



a. It is a switch that will allow the movement of the gear selector when the gear is down and the aircraft is on the ground
b. It is a switch that will de-energize a lock solenoid in the gear selector and prevent the movement of the gear selector when the aircraft is on the ground
c. It is a switch that will energize a lock solenoid in the gear selector and prevent the movement of the gear selector when the aircraft is on the ground

105. To set the parking brake on a helicopter with unpowered brake system, you must first:

a. Depress the brake pedals
b. Pull the parking brake handle to set the brakes
c. Ensure there is hydraulic pressure in the main hydraulic system

106. What is the purpose of the white paint mark on the tyre and rim as can be seen in the figure?

a. serves as an alignment mark to ensure the tyre is fitted in the same position when the wheel is re-assembled
b. serves as an indicator to show if the tyre has slipped on the rim
c. Serves as an overheat indicaton. The paint is heat sensitive and changes color if it gets too hot.

107. Which of the following statements is true?

a. Tail skids are designed to protect the tail boom and tail rotors from impact with the ground during a flare maneuvre.
b. Some helicopters have a movable tail skid.
c. All helicopters are fitted with a tail skid.

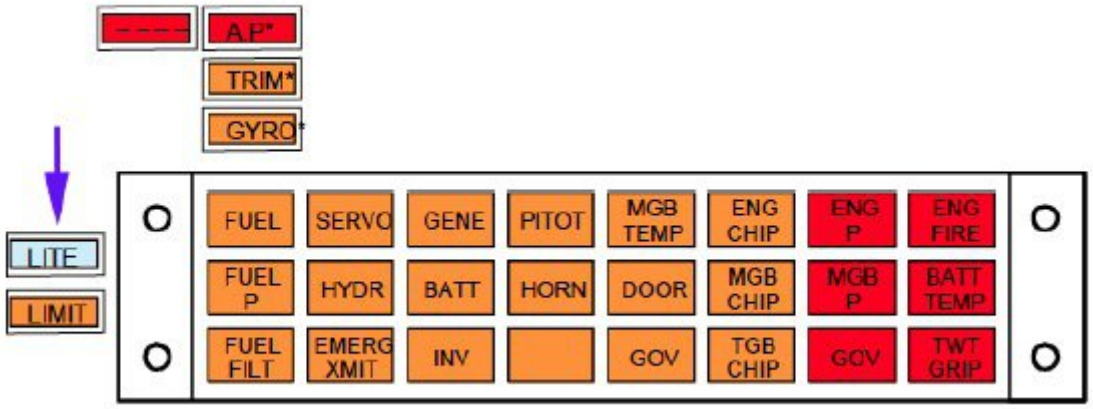
108. What is shown in the figure?

a. A proximity sensor
b. A weight on wheel microswitch
c. A squat switch

109. What is the purpose of a "Bear paw" (See the figure)?

a. Serves as a mounting base for maneuvering wheels
b. Prevents the skis from sinking in soft ground
c. Stabilizes the helicopter in flight

110. Some helicopters have a "LITE" annunciator in the cockpit. What is the purpose of this annunciator (See the figure).

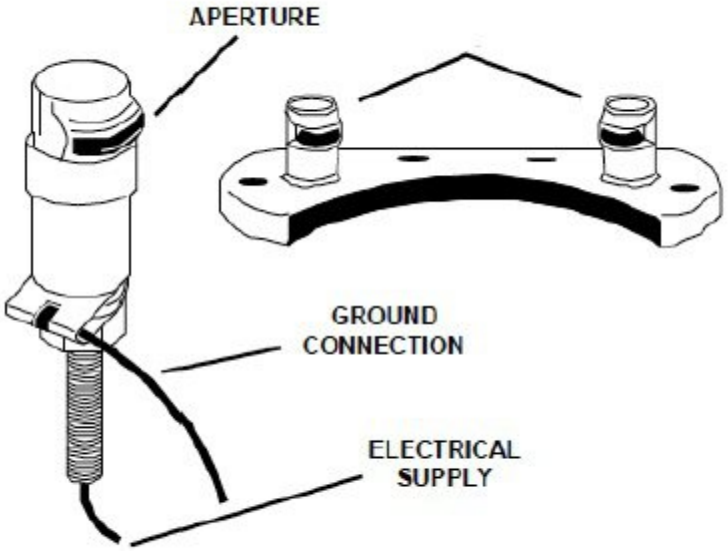


a. It warns the pilot that the landing light is extended
b. It warns the pilot that the landing light has failed
c. It warns the pilot that the landing light is switched on

111. What are the differences between LED position lights compared to incandescent position lights

a. LED's are only alowed for daylight (VFR) flights.
b. LED's are cheaper, lighter and produce a brighter light.
c. LED's are less power hungry but don't last so long.

112. What is the name of the lighting shown in the figure?



a. Switch lights
b. Wedge lighting
c. Pillar and bridge lights

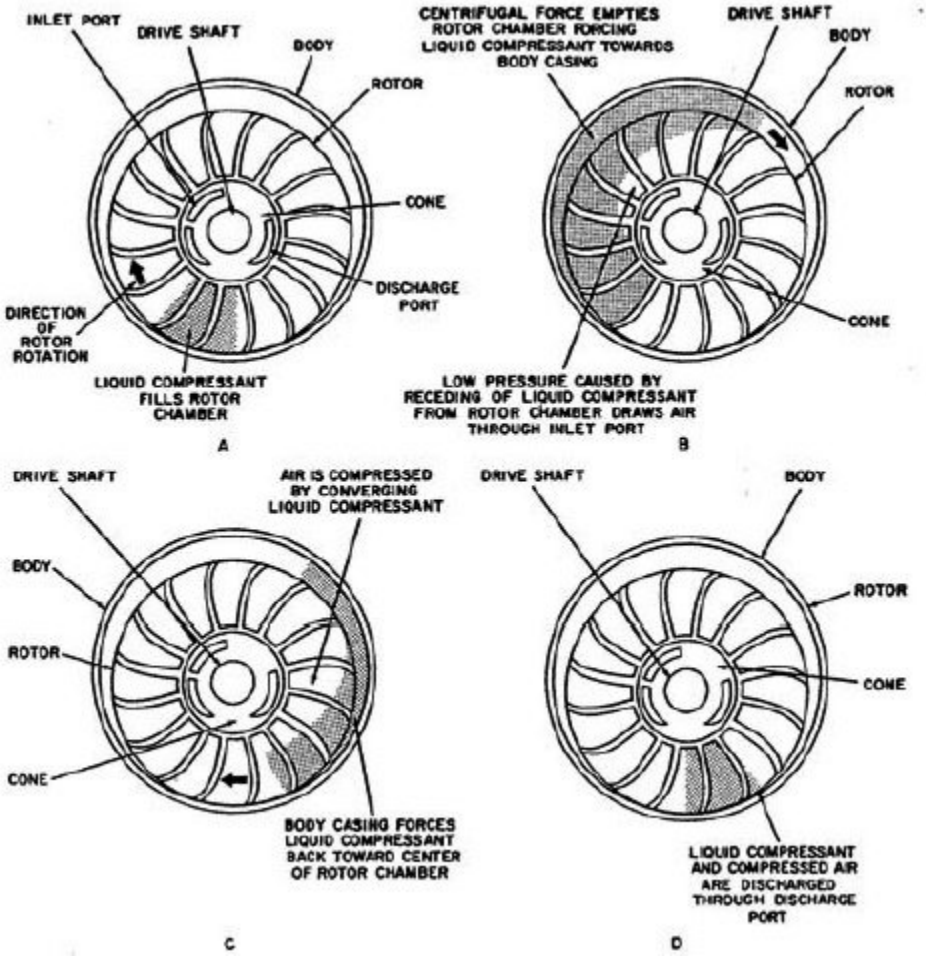
113. Some helicopters have an immersion sensor located on the lower and upper fuselage. What is the function of these sensors?

a. To turn on the Emergency lights in case the helicopter rolls over
b. To turn on the Emergency lights in case the helicopter sinks
c. To turn on the Emergency distress beacon in case the helicopter sinks

114. What makes a pneumatic system more light weight compared to a hydraulic system

a. The tubes are thinner and therefor lighter
b. The components are made of lighter material
c. No need for return lines

115. What is the unit shown in the figure?



a. Vacuum pump
b. Turbo compressor
c. Vane type pump

116. What is important about the air entering a piston air pump?

a. It must be filtered.
b. It must be pressure controlled.
c. It must be temperature controlled.

117. In a helicopter, what is bleed air mostly used for?

a. Engine starting
b. Windscreen anti-icing
c. Cabin heating

118. A HELIONIX aircraft management Computer consists of:

a. 2 identical channels with 4 major elements
b. 3 independent channels with 2 major elements
c. 2 identical channels with 3 major elements

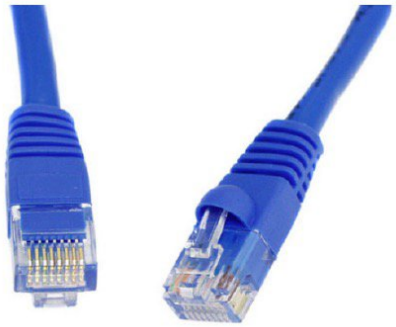
119. How are software uploads to the aircraft management computer (AMC) performed?

a. Via a data transfer device (DTD) to both AMCs
b. Via an optic fiber port in the AMC and a laptop
c. Directly into the computer via a card reader slot

120. Integrated modular avionics (IMA) software is:

a. Universal to all helicopters fitted with the same type of IMA
b. Specific to type and model of helicopter
c. Always specific to each individual helicopter

121. In what type of databus are the connectors in the figure used?



a. Fibre-optic
b. Ethernet
c. ARINC 429

122. Which page in the Central maintenance system shows the actual flight control trim motor positions and the current condition of the control system?

a. System diagnostics menu
b. Test status and results page
c. Synoptics page

123. When data loading is performed to the FMS, what happens to the software that was uploaded?

a. Updates the applicable unit
b. Is transferred to the applicable unit, updates it and is stored in the unit as a backup
c. Is transferred to the applicable unit, updates it and the old data are stored as back-up.

124. What type of printer is generally used for the on board maintenance system?

a. Thermal printer
b. Matrix printer
c. Ink jet printer

125. Where is HUMS data stored?

a. In the digital acquisition unit
b. In the Data transfer device (DTD)
c. In the central maintenance computer

126. The Open Data Network (ODN) is displayed with dark blue arrows. Which component belongs to this system?

a. PES (Passenger Entertainment System).
b. EFBEU (Electronic Flight Bag Electronic Unit).
c. IMA (Integrated Modular Avionics).

127. A Class 3 electronic flight bag is:

a. Fitted to the aircraft with independent displays
b. Integrated into the aircrafts avionics systems using the main multifunction displays
c. Portable unit

128. On a helicopter, which network can be accessed wireles?

a. Isolated date network
b. Both open and isolated data networks
c. Open data network