

U.S.C.G. Merchant Marine Exam

DDE-Unlimited HP

Q624 General Subjects

(Sample Examination)

Choose the best answer to the following Multiple Choice Questions

1. When one belt of a multiple V-belt drive requires replacing, what will be required?

- (A) ensure the proper belt dressing is applied
- (B) replace the entire belt set
- (C) season the new belt prior to installation
- (D) ensure the seasoned belts are reinstalled in their proper sequence

If choice B is selected set score to 1.

2. Hydraulically, servo-operated, automatic, change over valves, utilized in a two ram hydraulic steering gear, serve to _____.

- (A) allow an alternate main pump to start in the fully loaded condition thus developing immediate full torque
- (B) prevent both units from operating simultaneously which could result in doubling the flow of oil and pressure leading to over pressurization of the system
- (C) prevent either main pump from being hydraulically motored when idle by cross pressure flow
- (D) all of the above

If choice C is selected set score to 1.

3. Constant superheat is maintained at the evaporator coil outlet of a refrigeration system or unit by the action of what device?

- (A) thermal expansion valve
- (B) king valve
- (C) low-pressure cutout switch
- (D) solenoid valve

If choice A is selected set score to 1.

4. As shown in figure "A" of the illustrated block diagram of a central operating system configured for direct digital control, what does the output system block "DIGITAL OUTPUT" represent? Illustration EL-0095

- (A) It receives digital outputs from the CPU and conditions these to digital signals for transmission to the digital actuators.
- (B) It receives analog outputs from the CPU and converts these to digital signals for transmission to the digital actuators.
- (C) It receives digital outputs from the CPU and converts these to analog signals for transmission to the analog actuators.
- (D) It receives analog outputs from the CPU and conditions these to analog signals for transmission to the analog actuators.

If choice A is selected set score to 1.

- 5.** When shifting heat exchangers such as main engine lube oil coolers, what statement represents the recommended operating procedure if the shift is to occur during engine operation?
- (A) First, secure cooling water to the off-going cooler, and then secure lube oil to the off-going cooler. Next, introduce lube oil to the on-coming cooler, and then introduce cooling water to the on-coming cooler.
 - (B) First, introduce lube oil to the on-coming cooler, and then introduce cooling water to the on-coming cooler. Next, secure cooling water to the off-going cooler, and then secure lube oil to the off-going cooler.
 - (C) First, introduce cooling water to the on-coming cooler, and then introduce lube oil to the on-coming cooler. Next, secure lube oil to the off-going cooler, and then secure cooling water to the off-going cooler.
 - (D) First, secure lube oil to the off-going cooler, and then secure cooling water to the off-going cooler. Next, introduce cooling water to the on-coming cooler, and then introduce lube oil to the on-coming cooler.

If choice C is selected set score to 1.

- 6.** Which of the fluids listed is suitable for use as a secondary refrigerant?
- (A) Carbon dioxide
 - (B) Methyl alcohol
 - (C) Brine
 - (D) Cuprous chloride

If choice C is selected set score to 1.

- 7.** On a bearing using an oiling ring as a means of static oil feed, how often should the bottom of the bearing sump be drained of impurities?
- (A) Every round
 - (B) Daily
 - (C) Bimonthly
 - (D) Annually

If choice C is selected set score to 1.

8. What statement is true concerning the ability of a line shaft bearing to adapt to shaft misalignment as the ship's hull flexes?

- (A) Some line shaft bearings may have only a bottom half bearing shell, which allows for deflection upwards only. Other line shaft bearings may be spherically-seated self-aligning bearings or conventional non-aligning type bearings.
- (B) All line shaft bearings have only a top half bearing shell, which allows for deflection downwards only. As such no provision is made for allowing for deflection in other directions.
- (C) All line shaft bearings have only a bottom half bearing shell, which allows for deflection upwards only. As such no provision is made for allowing for deflection in other directions.
- (D) Some line shaft bearings may have only a top half bearing shell, which allows for deflection downwards only. Other line shaft bearings may be spherically-seated self-aligning bearings or conventional non-aligning type bearings.

If choice A is selected set score to 1.

9. The function of the section labeled "C" in the device illustrated is to provide a/an _____. Illustration GS-0075

- (A) passage for sealing liquid to enter the pump
- (B) bearing surface for the rotor shaft
- (C) area for pump packing
- (D) passage for gas to be discharged

If choice D is selected set score to 1.

10. Even though bilge keels do provide some improvement in longitudinal strength at the bilge radius, what is the primary purpose of the bilge keels?

- (A) Dampen the tendency the ship has to heave.
- (B) Dampen the tendency the ship has to yaw.
- (C) Dampen the tendency the ship has to roll.
- (D) Dampen the tendency the ship has to pitch.

If choice C is selected set score to 1.

11. The working depth of the gear illustrated is represented by _____. Illustration GS-0111

- (A) A
- (B) B
- (C) C
- (D) I

If choice A is selected set score to 1.

12. (2.2.25.4-6) With regards to the American National Screw Thread nomenclature, 'pitch' is the _____.

- (A) number of threads divided by the length of the threaded portion of the screw
- (B) angle of taper formed by the centerline of the screw and the crests of the thread
- (C) angle formed by adjacent flanks of a thread
- (D) distance between corresponding points on adjacent threads

If choice D is selected set score to 1.

13. The components indicated as "7" and "8" as shown in the illustration, are known as the _____.
Illustration GS-0153

- (A) first stage oil separator and drip pan
- (B) inlet weir and inlet baffle
- (C) second stage oil separator and drip pan
- (D) outlet weir and outlet baffle

If choice B is selected set score to 1.

14. What is the wet bulb temperature of air if the dry bulb temperature of the air is 90 degrees and the relative humidity is 65%? Illustration GS-RA-22

- (A) 62 degrees F
- (B) 63 degrees F
- (C) 77 degrees F
- (D) 80 degrees F

If choice D is selected set score to 1.

15. Which of the listed pressure-control valves would be used in a hydraulic system to temporarily divert some, or all of the pump discharge until the additional flow was required?

- (A) compound, pressure-relief valve
- (B) unloading valve
- (C) counterbalance valve
- (D) sequence valve

If choice B is selected set score to 1.

16. In the illustrated refrigeration system, what is the proper name for the component labeled "A"?
Illustration GS-RA-12

- (A) accumulator
- (B) compressor
- (C) condenser
- (D) filter drier

If choice B is selected set score to 1.

17. In which lubrication application is lubricating oil with an alkaline reserve most likely to be used?

- (A) Trunk type diesel engine lubricating oil.
- (B) Stern tube bearing lubricating oil.
- (C) Steam turbine lubricating oil.
- (D) Crosshead diesel engine bearing lubricating oil.

If choice A is selected set score to 1.

18. A horizontal electro-mechanical anchor windlass is equipped with two warping heads, two wildcats, two manual brake hand wheels, two clutch control levers, and a multipoint lever-operated, pedestal-mounted controller. What statement is true as it pertains to the operation of the warping heads and wildcats?

- (A) The warping heads can be rotated in either direction of rotation without rotating the wildcats by disengaging the wildcat clutches. As long as electric power is applied to the electric drive motor, the wildcats will rotate.
- (B) The wildcats can be rotated in either direction of rotation without rotating the warping heads by disengaging the warping head clutches. As long as electric power is applied to the electric drive motor, the wildcats will rotate.
- (C) The warping heads can be rotated in either direction of rotation without rotating the wildcats by disengaging the wildcat clutches. As long as electric power is applied to the electric drive motor, the warping heads will rotate.
- (D) The wildcats can be rotated in either direction of rotation without rotating the warping heads by disengaging the warping head clutches. As long as electric power is applied to the electric drive motor, the warping heads will rotate.

If choice C is selected set score to 1.

19. A typical oily-water separator has three stages of separation. Which statement represents the correct sequential order of the stages?

- (A) First stage: polishing filter coalescer. Second stage: inclined plate coalescer. Third stage: gravimetric.
- (B) First stage: gravimetric. Second stage: polishing filter coalescer. Third stage: inclined plate coalescer.
- (C) First stage: inclined plate coalescer. Second stage: polishing filter coalescer. Third stage: gravimetric.
- (D) First stage: gravimetric. Second stage: inclined plate coalescer. Third stage: polishing filter coalescer.

If choice D is selected set score to 1.

20. Antifriction bearings can be removed undamaged from a shaft by using an arbor press, or wheel puller with a _____.

- (A) split die
- (B) split washer or backup ring
- (C) jack screw
- (D) ring gage

If choice B is selected set score to 1.

21. Referring to the illustration, what would be the result if the lower oil/water interface detection probe became faulty? Illustration GS-0175

- (A) The unit would not be able to transition from ending the oil discharge mode to initiating the separation processing mode.
- (B) The unit would not be able to transition from the overboard discharge mode to the recirculation mode while in the separation processing mode.
- (C) The unit would not be able to transition from ending the separation processing mode to initiating the oil discharge mode.
- (D) The unit would not be able to come out of the oily-water separator idle mode and begin processing bilge water.

If choice C is selected set score to 1.

22. The hydraulic tubing installation shown as figure "D" is INCORRECT and will probably leak when in operation because the tubing _____. Illustration GS-0065

- (A) will contract in diameter and expand in length under pressure
- (B) will stretch and overstress the male threads on the fitting
- (C) and its fittings cannot be properly installed and tightened
- (D) cannot flex at right angles to the pressure applied by the fluid because it is not properly twisted

If choice C is selected set score to 1.

23. How would you prevent the rudder from moving while a repair is made on the steering system using the illustrated actuator? Illustration GS-0116

- (A) secure the valves in the supply and return lines
- (B) tighten the locking screws in item "S"
- (C) screw in the locking pin, item "J"
- (D) tighten the locking pins, item "H" at each position of item "I" to keep the rudder from swinging

If choice A is selected set score to 1.

24. What is an example of an epicyclical gear?

- (A) Planetary gear
- (B) Articulated gear
- (C) Nested gear
- (D) Locked train gear

If choice A is selected set score to 1.

25. Suppose a prime mover rotates at a steady speed of 900 rpm at rated full load and rotates at a steady speed of 1000 rpm at no load. Assuming that no adjustments have been made to the governor speed control setting, what is the speed regulation of the prime mover expressed in percent?

- (A) 10.0%
- (B) 11.1%
- (C) 88.9%
- (D) 90.0%

If choice B is selected set score to 1.

26. Which of the following is NOT a function of the water supply through item "P" shown in the illustration? Illustration MO-0110

- (A) It supplies feed water to evaporator.
- (B) It supplies the operating medium used in the removal of the brine.
- (C) It supplies the operating medium used in the removal of the distillate.
- (D) It supplies the operating medium used in the removal of air and non-condensable gases.

If choice C is selected set score to 1.

27. Regarding the high-pressure pump of a reverse osmosis fresh water generator, what statement is true?

- (A) The high-pressure pump is typically a two-stage centrifugal pump, but may be a two-stage rotary pump.
- (B) The high-pressure pump is typically a single-cylinder reciprocating pump, but may be a single-stage centrifugal pump.
- (C) The high-pressure pump is typically a multiple-cylinder reciprocating pump, but may be a multi-stage centrifugal pump.
- (D) The high-pressure pump is typically a two-stage rotary pump, but may be a two-stage centrifugal pump.

If choice C is selected set score to 1.

28. A hydraulic system flow control circuit is shown in the illustration and is known as a _____.
Illustration GS-0105

- (A) bleed-off circuit
- (B) metered-in circuit
- (C) bleed-in circuit
- (D) metered-out circuit

If choice B is selected set score to 1.

29. If a heat exchanger is designed to condense refrigerant vapor using central cooling fresh water as a condensing medium, what statement is true?

- (A) The refrigerant vapor loses latent heat; the central cooling fresh water loses latent heat.
- (B) The refrigerant vapor loses latent heat, the central cooling fresh water gains sensible heat.
- (C) The refrigerant vapor loses sensible heat, the central cooling fresh water gains latent heat.
- (D) The refrigerant vapor gains latent heat, the central cooling fresh water loses sensible heat.

If choice B is selected set score to 1.

30. A spur gear pump should be operated with the discharge valves _____.

- (A) slightly opened
- (B) halfway opened
- (C) throttled
- (D) fully opened

If choice D is selected set score to 1.

31. In the illustration shown, what is the proper description of the hole represented by "C"? Illustration GS-0015

- (A) Counter bored
- (B) Countersunk
- (C) Counter drilled
- (D) Spot-faced

If choice A is selected set score to 1.

32. Which of the listed metals can usually be drilled without lubrication?

- (A) Tungsten
- (B) Steel
- (C) Brass
- (D) Monel

If choice C is selected set score to 1.

33. What is the operating principle of a variable area flow meter, such as a rotameter?

- (A) The float or rotor is less dense than the fluid being measured and is positioned so that the gravitational force down is balanced by the upward motion of the fluid flow.
- (B) The float or rotor is less dense than the fluid being measured and is positioned so that the gravitational force up is balanced by the downward motion of the fluid flow.
- (C) The float or rotor is more dense than the fluid being measured and is positioned so that the gravitational force up is balanced by the downward motion of the fluid flow.
- (D) The float or rotor is more dense than the fluid being measured and is positioned so that the gravitational force down is balanced by the upward motion of the fluid flow.

If choice D is selected set score to 1.

34. How can the chance of contaminating hydraulic fluid be decreased when working on hydraulic systems?

- (A) Place drip pans under leaky fittings.
- (B) Coat all threads with graphite oil.
- (C) Clean the fittings before they are disconnected.
- (D) Seal any cracks in lines with Permatex.

If choice C is selected set score to 1.

35. What type of primary element for a pressure transmitter would be most suitable for measuring oil-fired boiler furnace and forced-draft pressures?

- (A) Bellows pressure sensor
- (B) Diaphragm pressure sensor
- (C) Bourdon tube pressure sensor
- (D) Strain gage pressure sensor

If choice B is selected set score to 1.

36. Which of the following statements is correct relative to distillation plant operation?

- (A) Distillation is the process of boiling sea water to produce vapor which is condensed into fresh water.
- (B) Brine is the result of condensed sea water vapor.
- (C) Distillate is the product resulting from the evaporation of fresh water vapor.
- (D) Evaporation is the second part of the distillation process where brine is removed.

If choice A is selected set score to 1.

37. To check the thickness of a piece of thin shim stock before using it to make a bearing shim, you should use a _____.

- (A) micrometer
- (B) feeler gage
- (C) depth gage
- (D) machinist's rule

If choice A is selected set score to 1.

38. What is the pressure and condition of the refrigerant entering the receiver of a refrigeration system?

- (A) superheated low-pressure vapor
- (B) superheated high-pressure vapor
- (C) sub cooled low-pressure liquid
- (D) sub cooled high-pressure liquid

If choice D is selected set score to 1.

39. When the helm angle position is changed, the series of corresponding events of the steering gear will include _____.

- I. rate of steering gear ram movement will be proportional to amount of helm angle input
- II. degree of tilting plate (box) angle will be proportional to the amount of helm angle input

- (A) I only
- (B) II only
- (C) Both I and II
- (D) Neither I nor II

If choice B is selected set score to 1.

40. Energy losses occurring in a hydraulic system are ultimately absorbed by the _____.

- (A) reservoir expansion chamber
- (B) atmosphere as heat
- (C) hydraulic piping flexibility
- (D) fluid as friction

If choice B is selected set score to 1.

41. What is meant by the term emergency bilge suction?

- (A) The means by which the machinery space bilge is pumped out by a pump not normally used as a bilge pump and drawing a suction on the bilge through either bilge manifolds or automatic bilge suction valves.
- (B) The means by which the machinery space bilge is pumped out by a pump not normally used as a bilge pump and drawing suction directly on the bilge independent of any bilge manifolds or automatic bilge suction valves.
- (C) The means by which the machinery space bilge is pumped out by a pump normally used as a bilge pump and drawing suction directly on the bilge independent of any bilge manifolds or automatic bilge suction valves.
- (D) The means by which the machinery space bilge is pumped out by a pump normally used as a bilge pump and drawing a suction on the bilge through either bilge manifolds or automatic bilge suction valves.

If choice B is selected set score to 1.

42. A room humidistat initiates the lowering of the humidity of the conditioned supply air to a space, while the actual process is accomplished by what means?

- (A) raising the cooling coil temperature and lowering the reheater temperature
- (B) raising both the cooling coil temperature and the reheater temperature
- (C) lowering the cooling coil temperature and raising the reheater temperature
- (D) lowering both the cooling coil temperature and the reheater temperature

If choice C is selected set score to 1.

43. Which of the following statements is true concerning the illustrated gauge manifold set? Illustration GS-RA-01

- (A) The valves labeled "G" and "C" must both be open to read system pressures on the respective gages labeled "A" and "B".
- (B) Closing the valve labeled "G" isolates the hose labeled "H" from the gauge labeled "A".
- (C) Opening fully and back seating the valve labeled "G" isolates the gauge labeled "A" from the hose labeled "H".
- (D) Closing the valve labeled "G" isolates the hose labeled "H" from the hose labeled "J".

If choice D is selected set score to 1.

44. Pitting in the suction areas of a centrifugal pump bronze impeller is usually caused by _____.

- (A) cavitation
- (B) abrasion
- (C) corrosion
- (D) electrolysis

If choice A is selected set score to 1.

45. Which of the following methods applies to how a vacuum is created by a jet pump or an eductor?

- (A) A propeller drawing a fluid through a Venturi nozzle.
- (B) A reciprocating plunger directly applying force to a fluid.
- (C) A rapidly moving stream of fluid passing through a nozzle.
- (D) Centrifugal force converted into potential energy.

If choice C is selected set score to 1.

46. Which of the following types of lubricating oil filters is not fitted with a replaceable filter element and is serviced by cleaning?

- (A) Cartridge filter
- (B) Centrifugal filter
- (C) Spin-on filter
- (D) Canister filter

If choice B is selected set score to 1.

47. In the illustrated pneumatically operated, diaphragm actuated control valve, what statement is true concerning the opening and closing forces acting upon the control diaphragm? Illustration GS-0051

- (A) The spring force acting on the control diaphragm is a valve opening force, and the pilot pressure acting on the bottom of the control diaphragm is a valve closing force.
- (B) The spring force acting on the control diaphragm is a valve closing force, and the pilot pressure acting on the top of the control diaphragm is a valve opening force.
- (C) The spring force acting on the control diaphragm is a valve opening force, and the pilot pressure acting on the top of the control diaphragm is a valve closing force.
- (D) The spring force acting on the control diaphragm is a valve closing force, and the pilot pressure acting on the bottom of the control diaphragm is a valve opening force.

If choice C is selected set score to 1.

48. A pump shaft that is bent or distorted should normally be _____.

- (A) replaced with a satisfactory spare
- (B) straightened by applying heat and torsion
- (C) repaired by a suitable welding process
- (D) reconditioned by metalizing and machining

If choice A is selected set score to 1.

49. In the illustrated self-contained, internal-pilot, piston-operated steam pressure-reducing valve, what statement is true concerning the opening and closing forces acting upon the control diaphragm?
Illustration GS-0044

- (A) The spring (F) force acting on the control diaphragm is a pilot valve opening force, and the downstream pressure (J) acting on the control diaphragm is a pilot valve closing force.
- (B) The spring (F) force acting on the control diaphragm is a pilot valve opening force, and the upstream pressure (C) acting on the control diaphragm is a pilot valve closing force.
- (C) The spring (F) force acting on the control diaphragm is a pilot valve closing force, and the upstream pressure (C) acting on the control diaphragm is a pilot valve opening force.
- (D) The spring (F) force acting on the control diaphragm is a pilot valve closing force, and the downstream pressure (J) acting on the control diaphragm is a pilot valve opening force.

If choice A is selected set score to 1.

50. Concerning the charging of refrigerant into a vapor compression refrigerating system, which of the following is true?

- (A) when charging as a liquid it should be to the high side only
- (B) when charging as a liquid it should be to the low side only
- (C) when charging as a vapor it should be directly to the receiver only
- (D) when charging as a liquid it may be to the low or high side

If choice A is selected set score to 1.

51. To add refrigerant to the high side of an air conditioning system, you should close the king valve and introduce the refrigerant through what valve in what state?

- (A) condenser purge valve as a vapor
- (B) suction service valve as a liquid
- (C) discharge service valve as a vapor
- (D) charging valve as a liquid

If choice D is selected set score to 1.

52. What mode of heat transfer is associated with the transport of thermal energy through a transparent medium by means of electromagnetic energy in the infrared spectrum?

- (A) Conduction
- (B) Sublimation
- (C) Radiation
- (D) Convection

If choice C is selected set score to 1.

53. Which of the listed statements describes the reason why oil foaming occurs when starting a refrigeration compressor?

- (A) This phenomenon is inherent only in hermetically sealed units and is always provisional.
- (B) This condition is the result of the sudden low-pressure created in the crankcase at start up causing the release of refrigerant absorbed within the oil.
- (C) If the oil level is not initially high, this condition is the result of agitation created by the movement of the mechanical components.
- (D) This will occur only if crankcase heaters are used.

If choice B is selected set score to 1.

54. As it pertains to the automatic electric brake of a capstan, what statement is true?

- (A) The brake is electrically set and spring released, and the brake automatically releases when electric power is removed from the electric drive motor.
- (B) The brake is spring set and electrically released, and the brake automatically releases when electric power is removed from the electric drive motor.
- (C) The brake is spring set and electrically released, and the brake automatically sets when electric power is removed from the electric drive motor.
- (D) The brake is electrically set and spring released, and the brake automatically sets when electric power is removed from the electric drive motor.

If choice C is selected set score to 1.

55. What term is defined as the quantity of heat necessary to raise the temperature of a unit mass of a substance one degree?

- (A) Specific volume
- (B) Specific gravity
- (C) Latent heat
- (D) Specific heat

If choice D is selected set score to 1.

56. What is the BEST indication that the membrane modules of a reverse osmosis fresh water generator must be serviced by flushing or cleaning?

- (A) A lower than normal feed pressure.
- (B) An insufficient pressure drop across the membrane modules.
- (C) An excessive pressure drop across the membrane modules.
- (D) An excessive pressure drop across the pre-treatment filter.

If choice C is selected set score to 1.

57. Monel metal is an alloy composed mainly of _____.

- (A) nickel and copper
- (B) zinc and copper
- (C) bronze and tin
- (D) copper and tin

If choice A is selected set score to 1.

58. Which of the following statements represents the proper procedural sequence for adjusting the metering rate of an in-line lubricator as used in a ship's service air system hose station? Assume that the pressure regulator has been properly set.

- (A) Establish normal air flow. Determine drip rate. Further open needle valve to increase drip rate or further close needle valve to decrease drip rate, as appropriate.
- (B) Establish normal air flow. Determine drip rate. Further open needle valve to decrease drip rate or further close needle valve to increase drip rate, as appropriate.
- (C) Temporarily shut-off air flow. Determine drip rate. Further open needle valve to increase drip rate or further close needle valve to decrease drip rate, as appropriate. Re-establish normal air flow.
- (D) Temporarily shut-off air flow. Determine drip rate. Further open needle valve to decrease drip rate or further close needle valve to increase drip rate, as appropriate. Re-establish normal air flow.

If choice A is selected set score to 1.

59. How is access to the double bottom tanks usually provided for inspection, cleaning, maintenance, and repairs of tank interiors?

- (A) Gasketed and bolted manholes associated with vertical tank boundaries.
- (B) Gasketed and bolted manholes associated with the inner plating (tank tops).
- (C) Hinged hatches associated with the inner plating (tank tops).
- (D) Gasketed and bolted manholes associated with the outer plating.

If choice B is selected set score to 1.

60. Referring to illustrated diagram, what type of HVAC system is shown? Illustration GS-RA-42

- (A) A single zone system
- (B) A terminal reheat system
- (C) A dual duct system
- (D) A variable air volume system

If choice B is selected set score to 1.

61. Which of the following bearing types would be an example of a rolling-element bearing which substitutes fluid friction for rolling contact friction?

- (A) a sleeve bearing
- (B) a plain bearing
- (C) a ball bearing
- (D) a journal bearing

If choice C is selected set score to 1.

62. In accordance with international MARPOL Annex I regulations and federal regulations under 33 CFR Subchapter O (Pollution), for vessels of 400 gross tons and above which are all required to carry an oily-water separator to process bilge slops, what is the design criteria in terms of maximum oil content of the overboard discharge?

- (A) 3 parts per million
- (B) 15 parts per million
- (C) 100 parts per million
- (D) 150 parts per million

If choice B is selected set score to 1.

63. What statement is true concerning watertight doors fitted below the waterline of a vessel?

- (A) Watertight doors below the waterline may be of the vertical or horizontal sliding type or the swinging hinged type.
- (B) Watertight doors below the waterline may be either of the vertical or horizontal sliding type.
- (C) Watertight doors below the waterline may be either of the vertical sliding type or the swinging hinged type.
- (D) Watertight doors below the waterline may be either of the horizontal sliding type or the swinging hinged type.

If choice B is selected set score to 1.

64. Expansion valve maintenance should include which of the following procedures?

- (A) Ensuring that the thermal bulb is in good contact with the suction line and insulated.
- (B) Cleaning of in-line strainers as necessary.
- (C) Checking that the thermal bulb is in the proper location.
- (D) All of the above.

If choice D is selected set score to 1.

- 65.** A high-pressure centrifugal chiller currently charged with R-134a is being evaluated for the need for leak testing. Using the leak test procedures decision tree illustrated and the R-134a pressure-temperature chart illustrated, with the machine idle and the pressures equalized at 10 psig with an ambient temperature of 60°F, what statement is true? Illustration GS-RA-47
- (A) The machine has a suspected leak; therefore nitrogen should be added to bring the pressure to 70 psig prior to checking for leaks.
 - (B) The machine has a suspected leak; therefore the refrigerant pressure should be raised to 35 psig by adding refrigerant prior to checking for leaks.
 - (C) The machine definitely does not have a leak; therefore no attempt at leak detection is necessary.
 - (D) The machine may or may not have a leak; therefore the machine should be checked for leaks without any adjustments in pressure.

If choice B is selected set score to 1.

- 66.** A vessel is in compliance with federal regulations regarding the discharge of sewage by _____.
- (A) pumping the sewage ashore to an approved container
 - (B) holding all sewage onboard
 - (C) treating sewage in an approved system
 - (D) all of the above

If choice D is selected set score to 1.

- 67.** Which of the listed valve types is typically used for the low-pressure stage of a reciprocating air compressor?
- (A) Rotary
 - (B) Ring-plate
 - (C) Strip-type
 - (D) Sliding

If choice C is selected set score to 1.

- 68.** On most commercial cargo vessels with a relatively small crew size and few users of the potable water system, how is the potable water system pressure maintained?
- (A) Cycling the potable water pump on and off by the action of the potable water storage tank level switches in response to system demand changes.
 - (B) Allowing the potable water pump to run continuously while recirculating during periods of zero demand for potable water.
 - (C) Allowing the potable water pump to run continuously against a shut-off head during periods of zero demand for potable water.
 - (D) Cycling the potable water pump on and off by the action of the potable water hydro-pneumatic tank pressure switch in response to system demand changes.

If choice D is selected set score to 1.

69. Which of the listed temperature sensors is made of heat-treated metallic oxides and generally has a negative coefficient of resistance?

- (A) Bimetallic device
- (B) Resistance temperature detector
- (C) Thermocouple
- (D) Thermistor

If choice D is selected set score to 1.

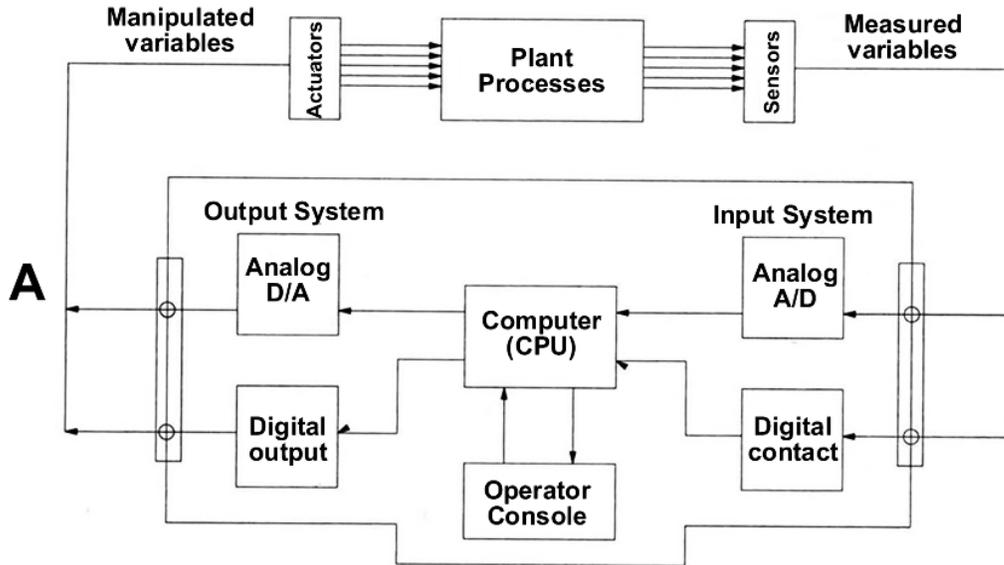
70. What statement is true concerning a one-pipe hydronic heating system?

- (A) Each heating coil inlet temperature is different, as the hot water inlet temperature to each heating coil progressively rises as the water passes through each successive series connected coil.
- (B) Each heating coil inlet temperature is identical, as the hot water inlet temperature to each heating coil progressively rises as the water passes through each successive series connected coil.
- (C) Each heating coil inlet temperature is identical, as the hot water inlet temperature to each heating coil progressively drops as the water passes through each successive series connected coil.
- (D) Each heating coil inlet temperature is different, as the hot water inlet temperature to each heating coil progressively drops as the water passes through each successive series connected coil.

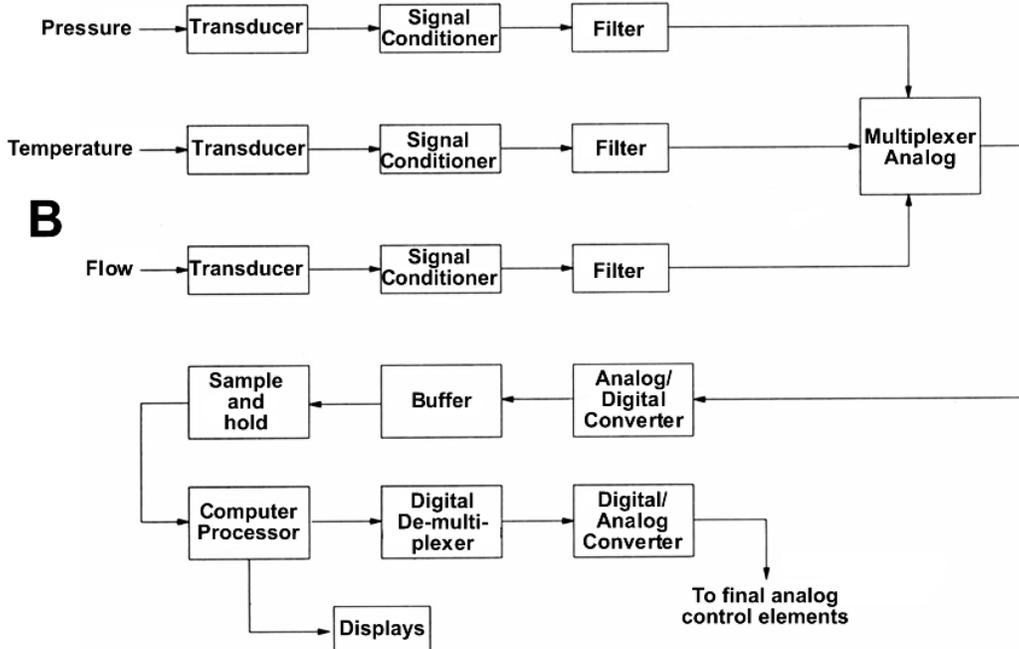
If choice D is selected set score to 1.

EL-0095

Direct Digital Control



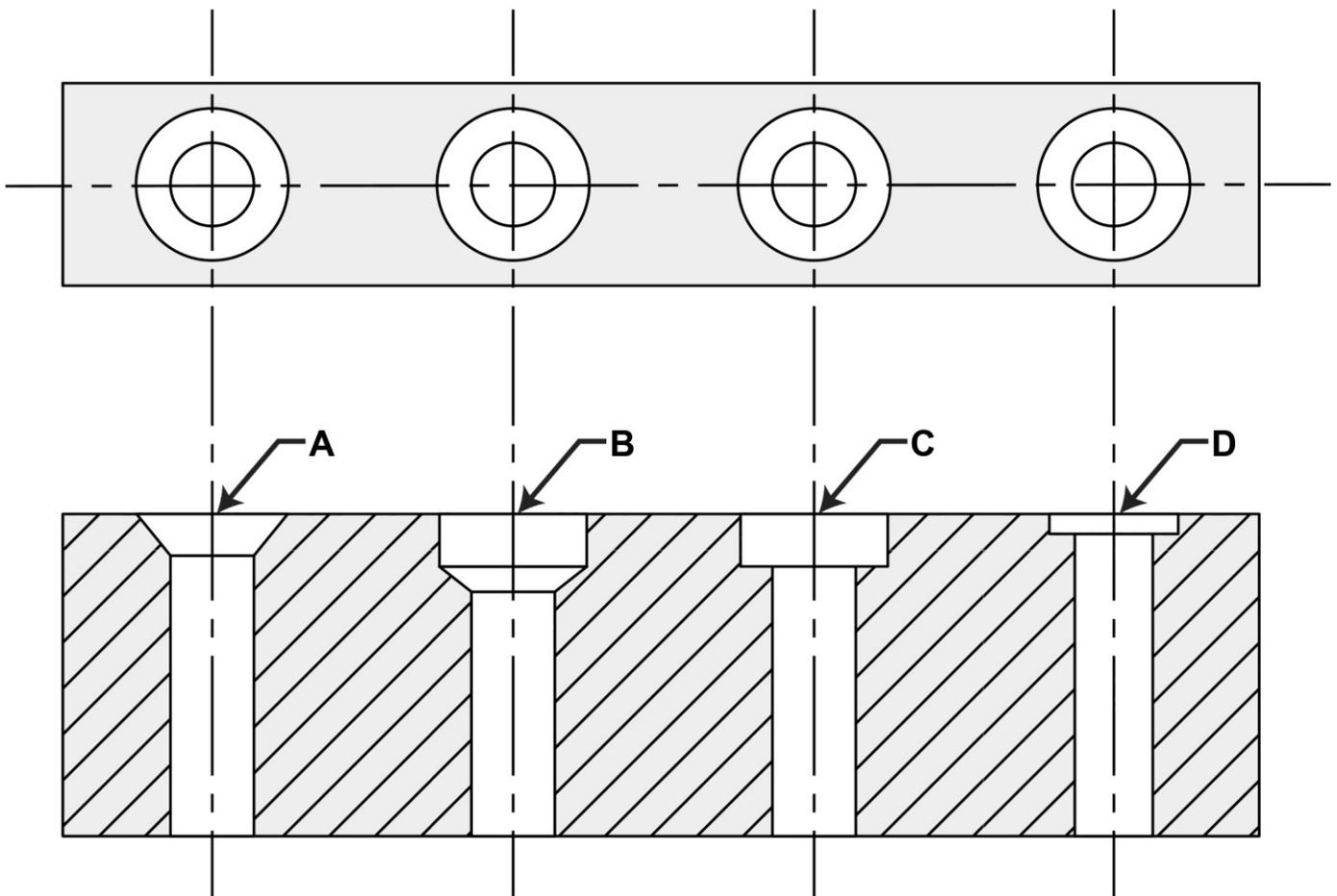
Signal Processing Flowpath



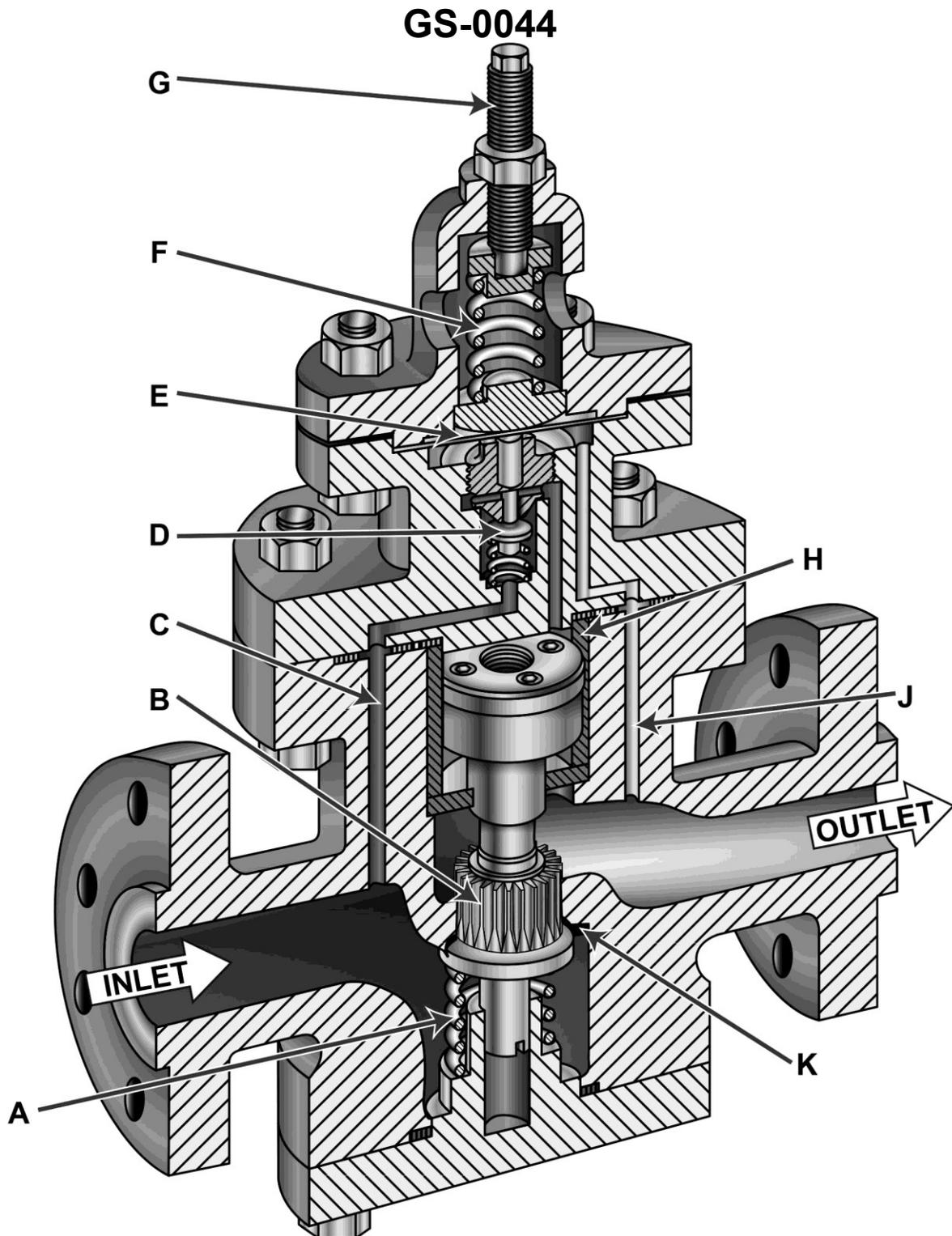
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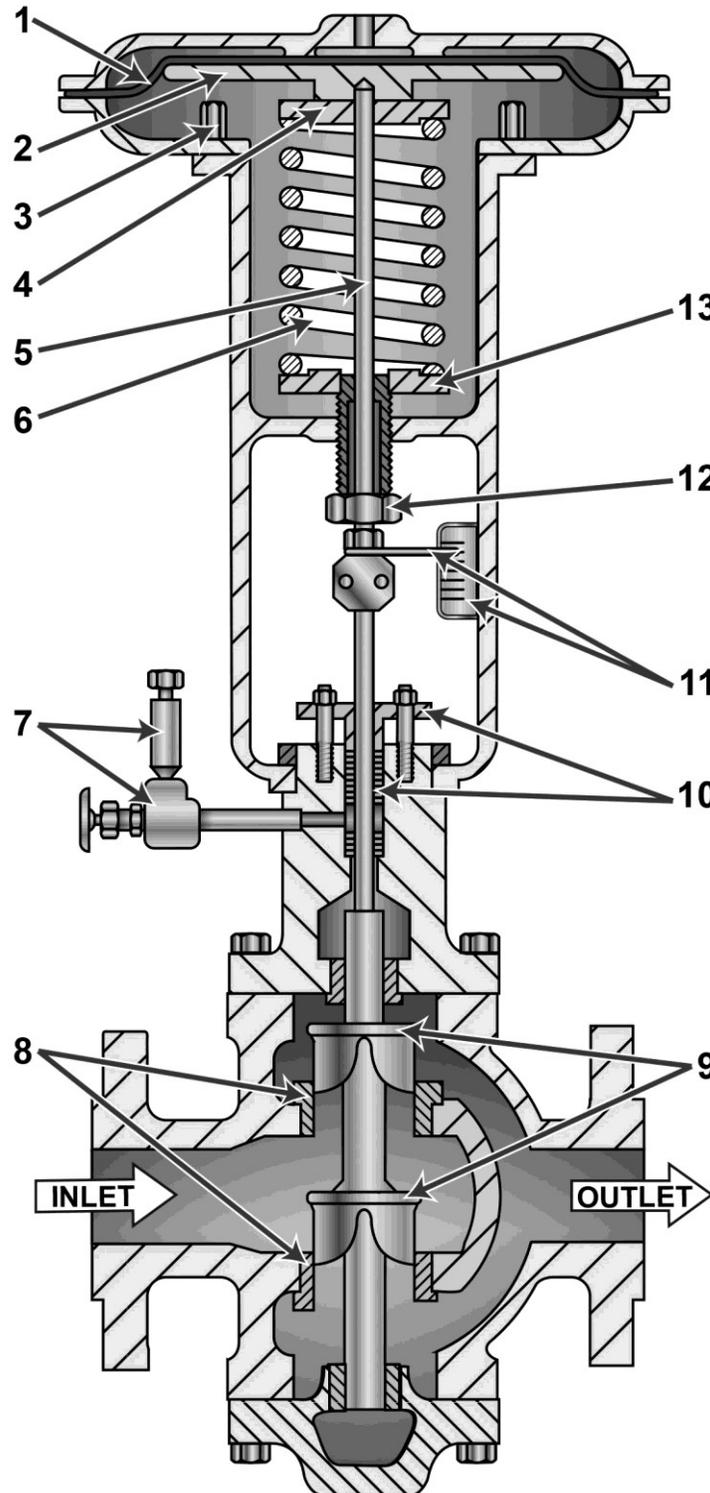


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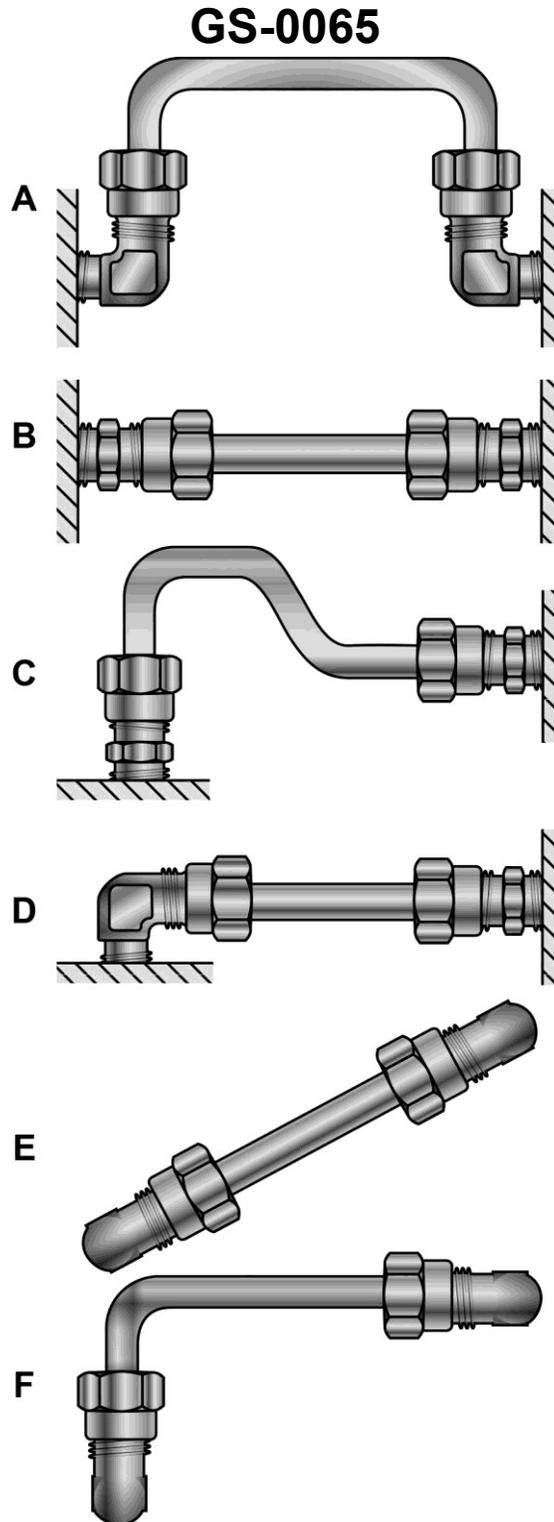


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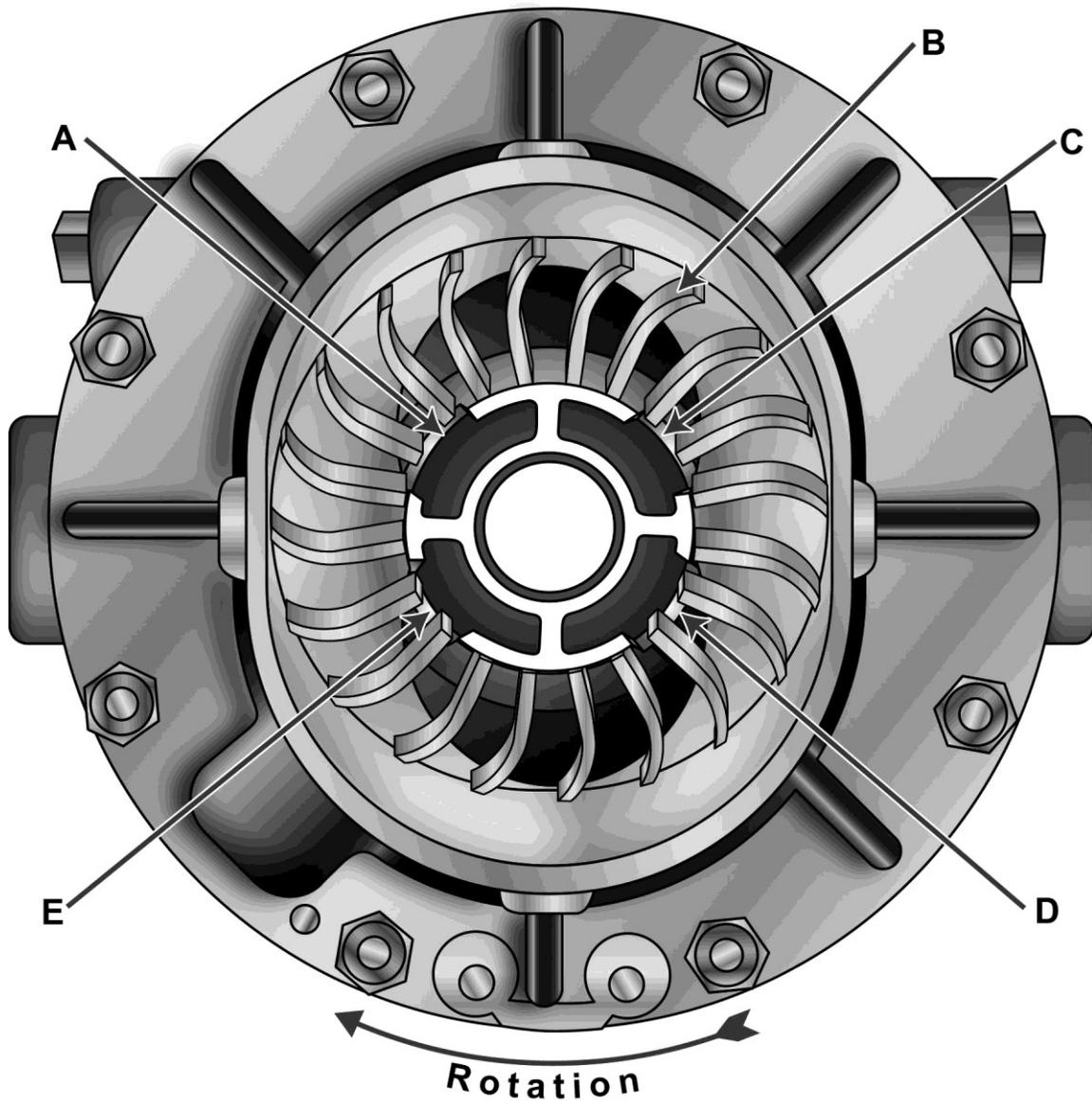


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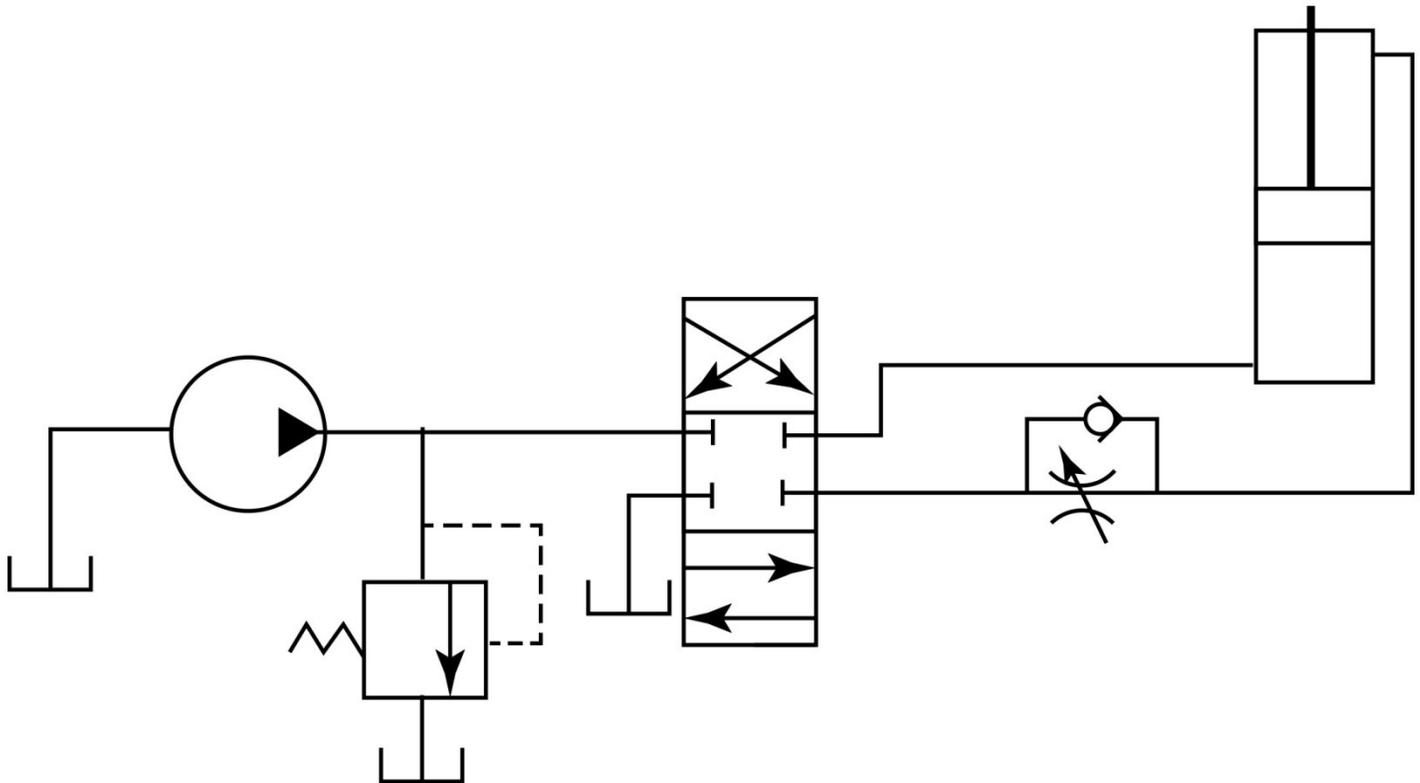
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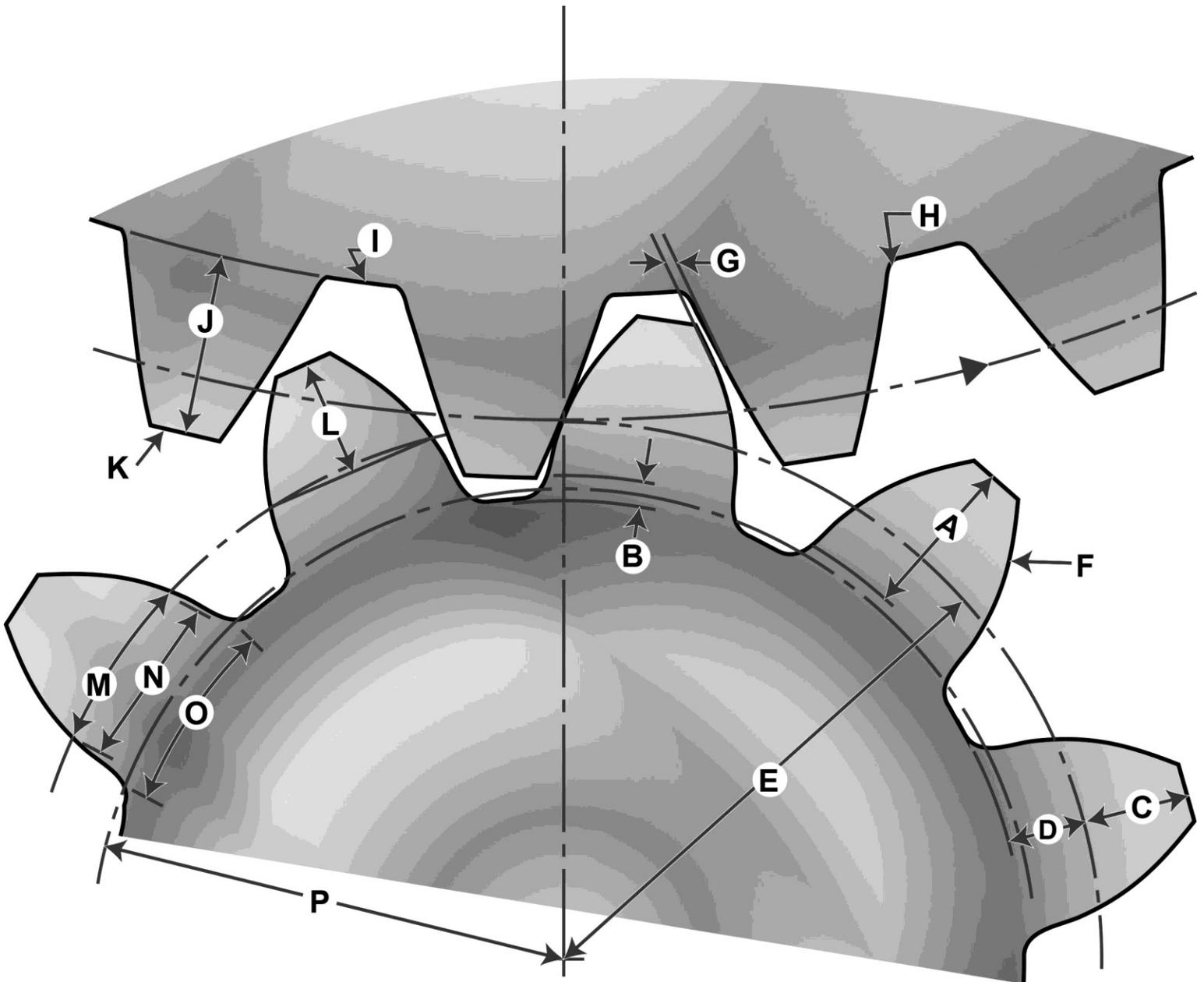


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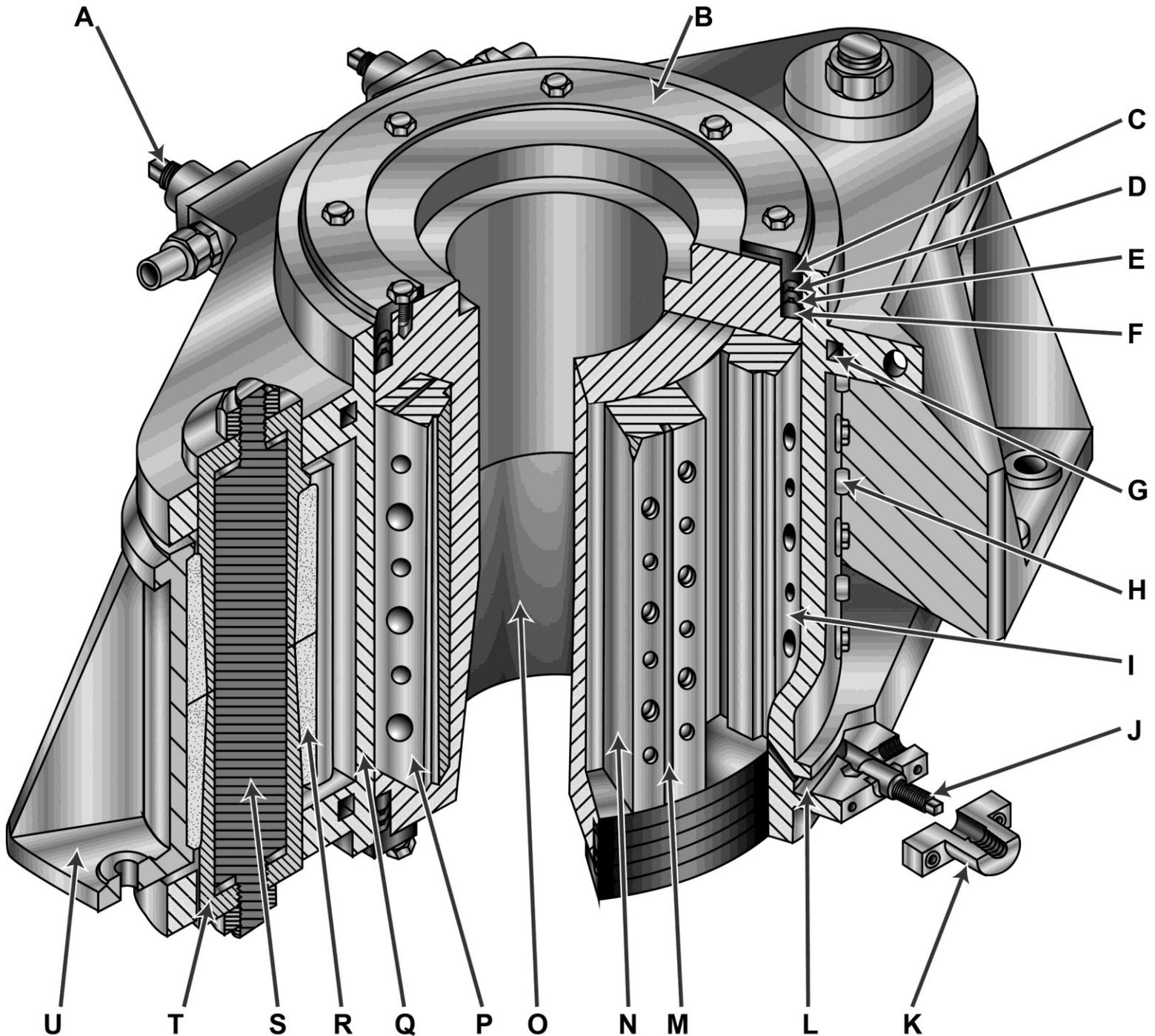


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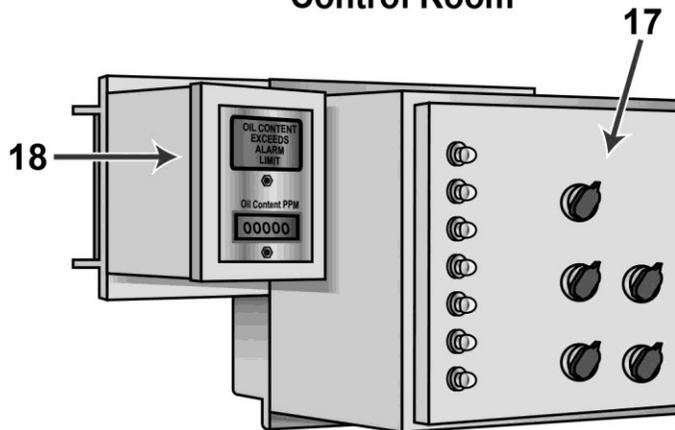
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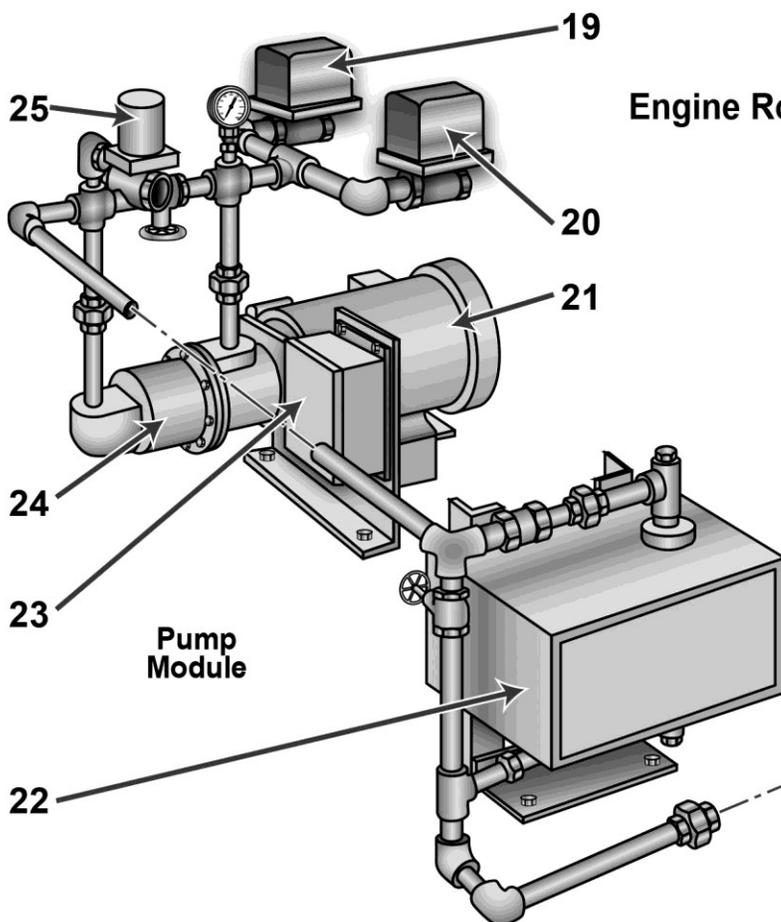
GS-0153

Control Room

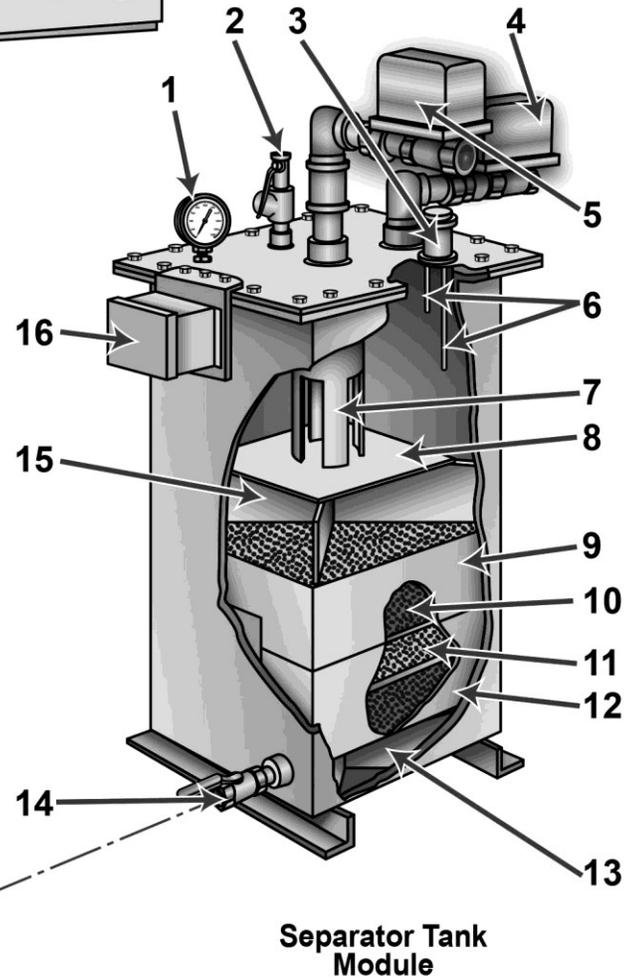


Control Panel Assembly

Engine Room



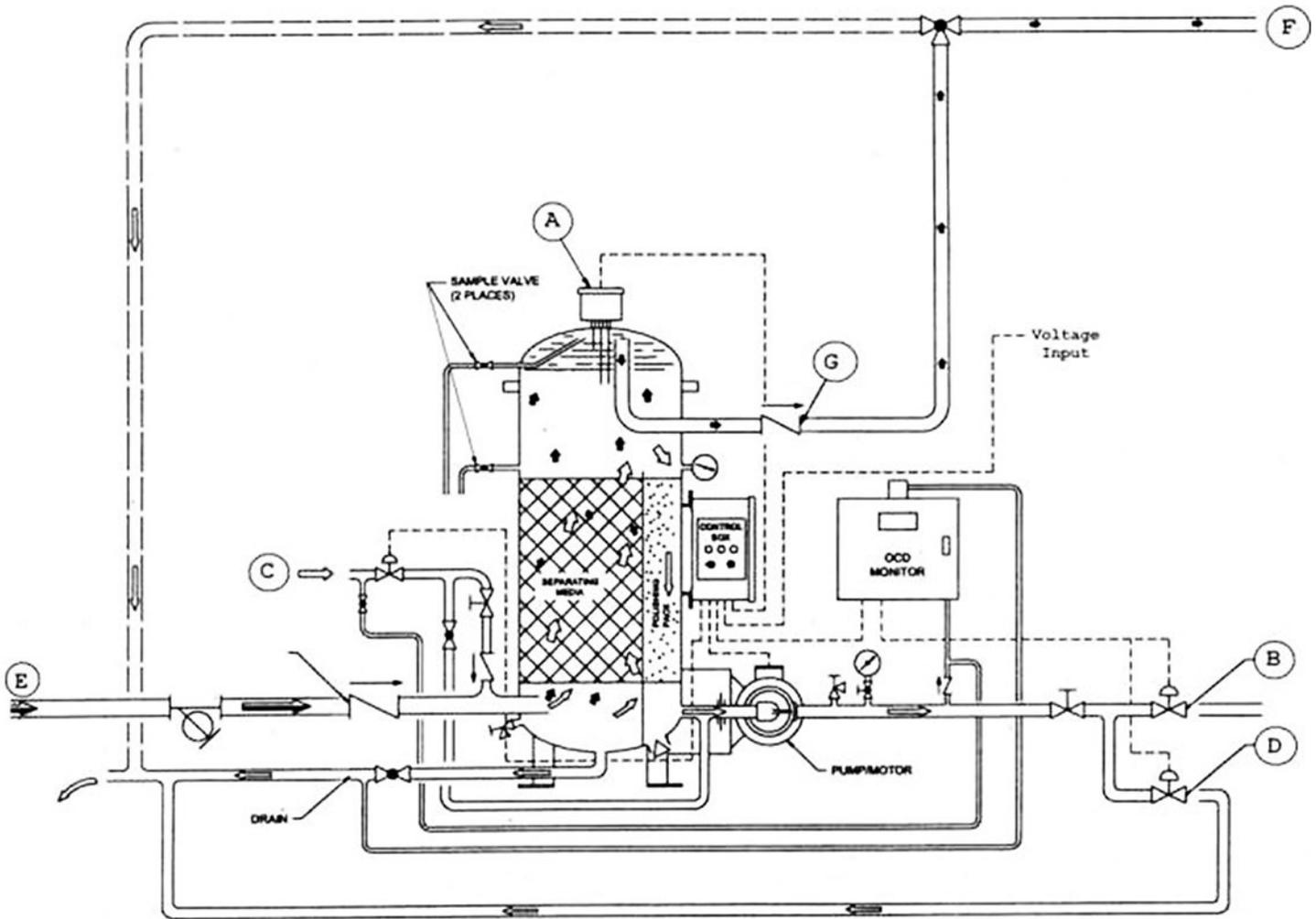
Pump Module



Separator Tank Module

Adapted for testing purposes only from Operator, Unit and Direct Support Maintenance Manual
Including Repair Parts and Special Tools List for Oil Water Separator
TM 55-1925-285-13 & P

GS-0175

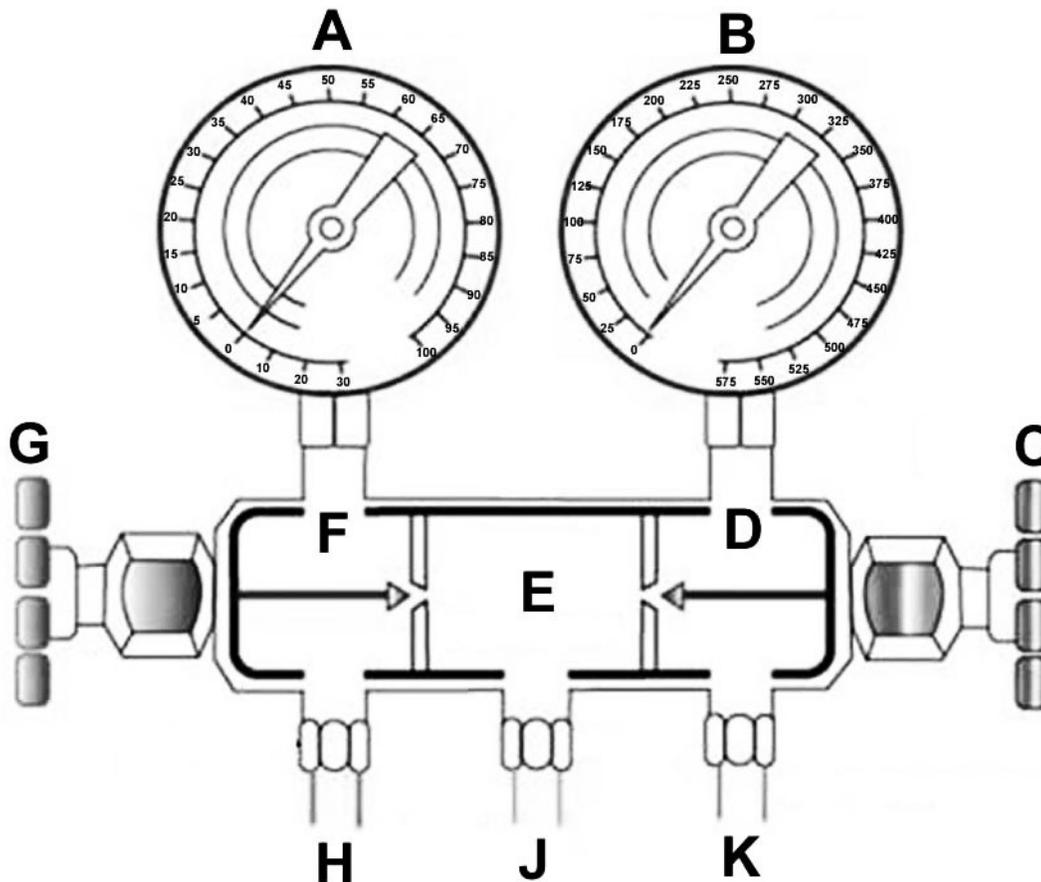


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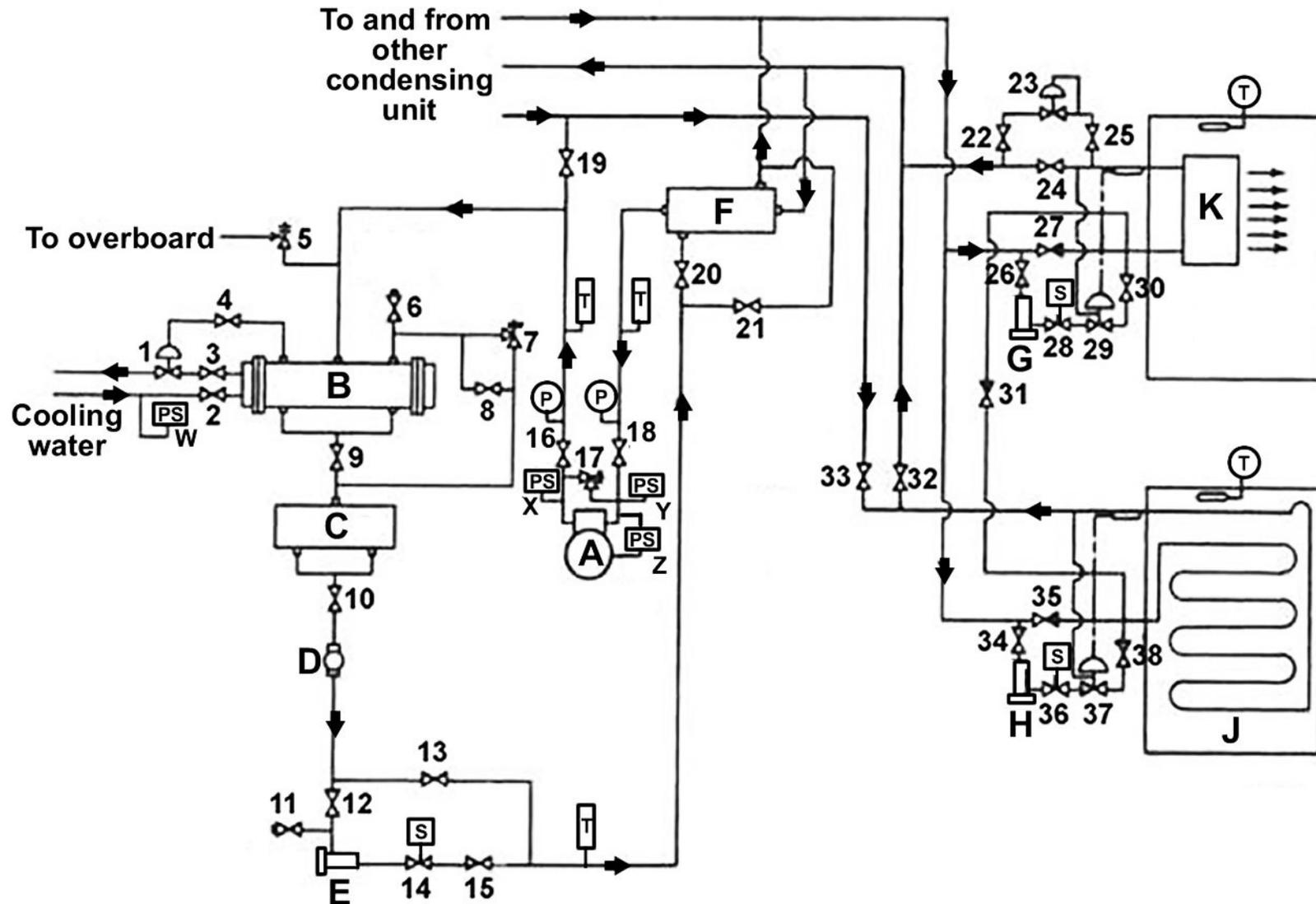
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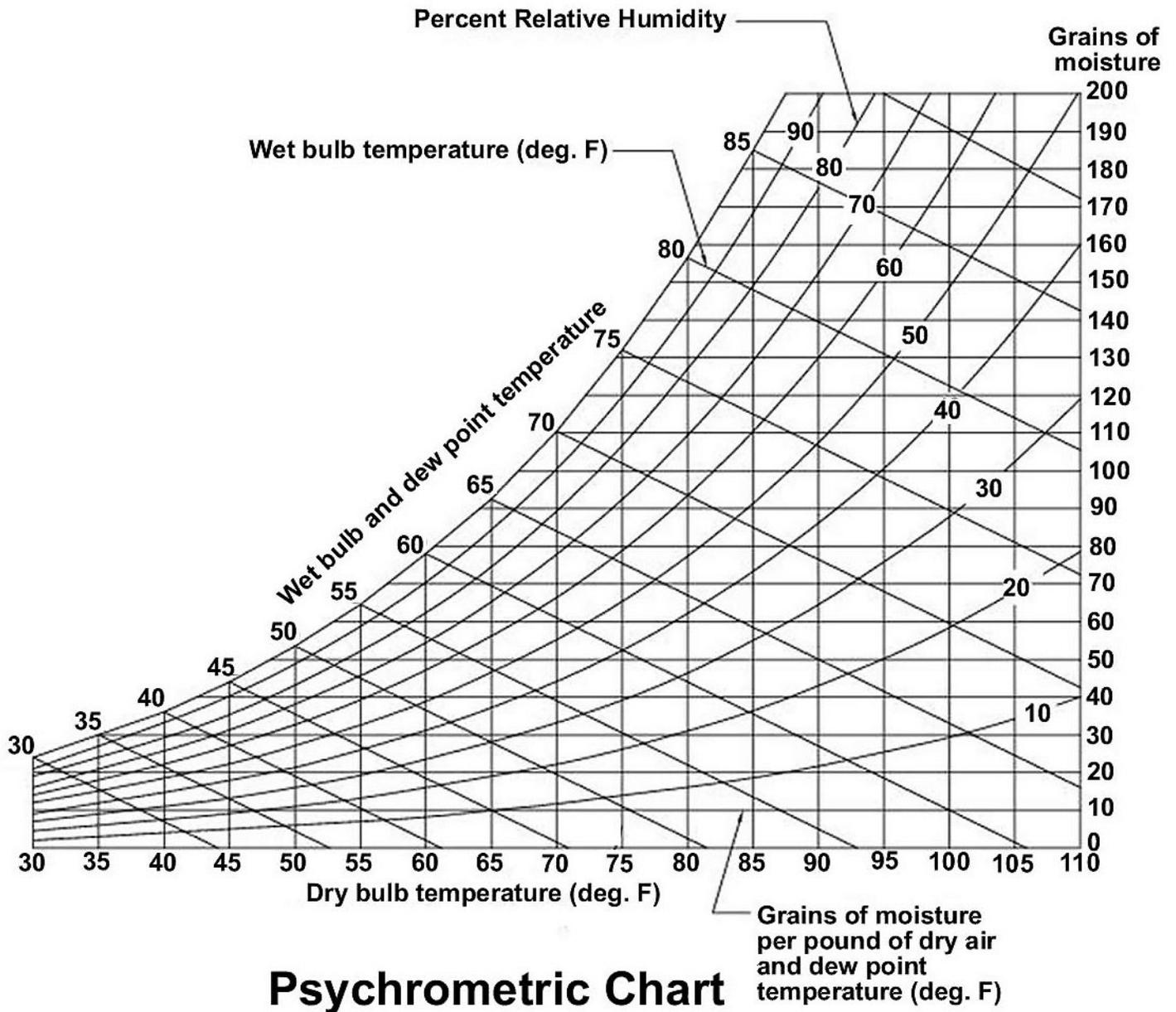


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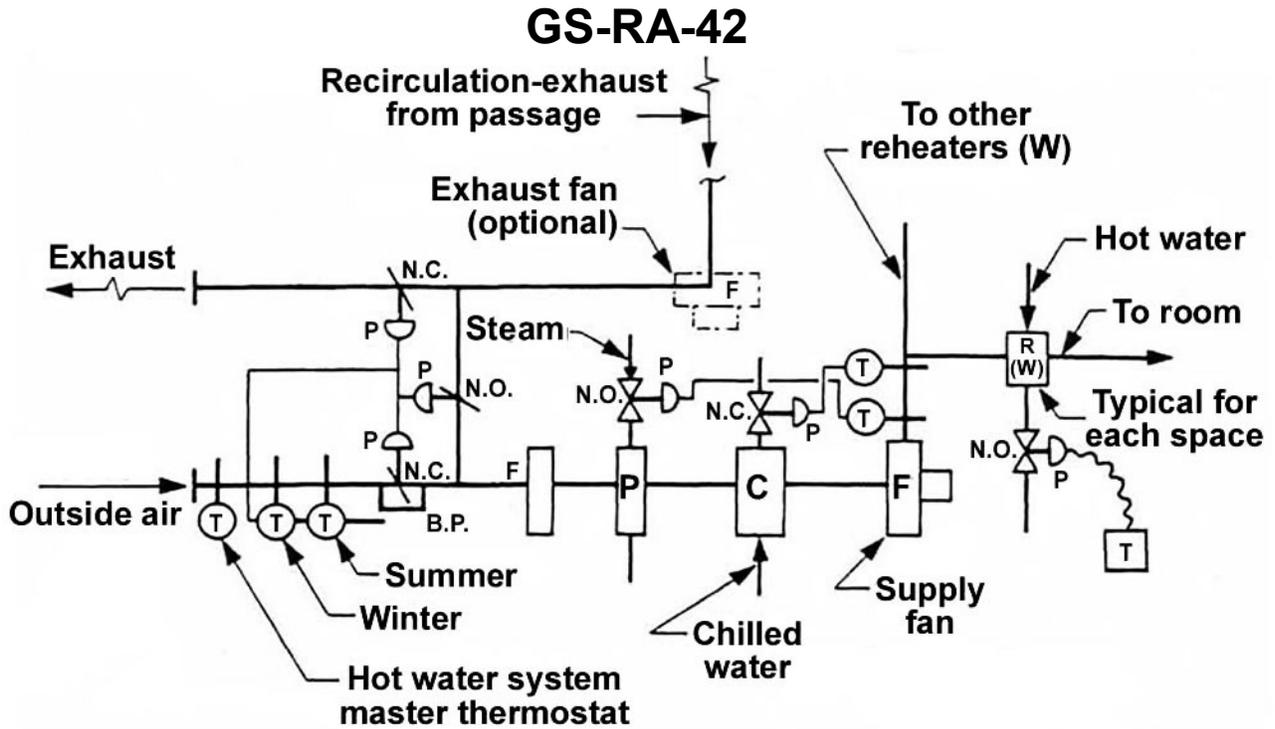
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Psychrometric Chart

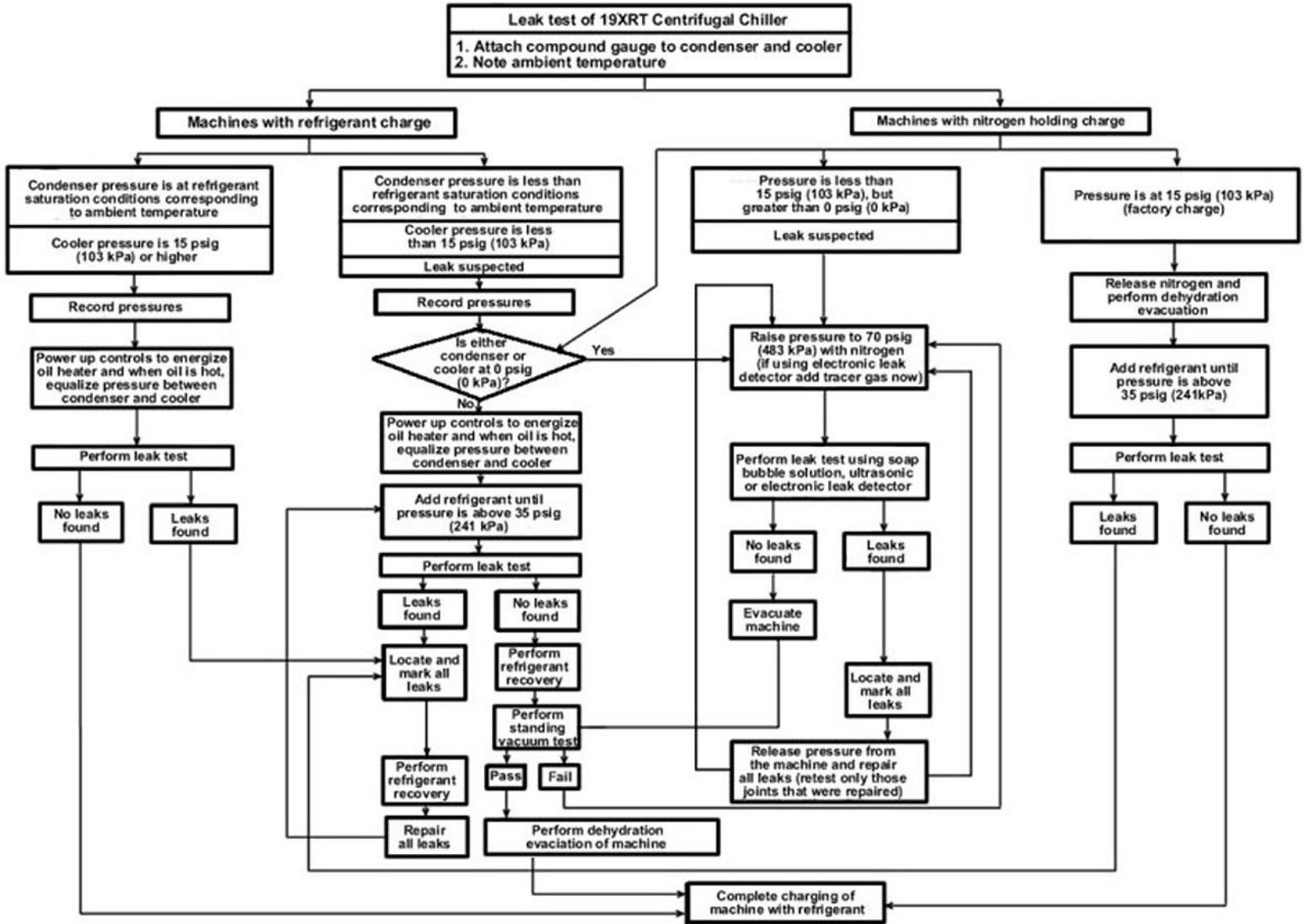
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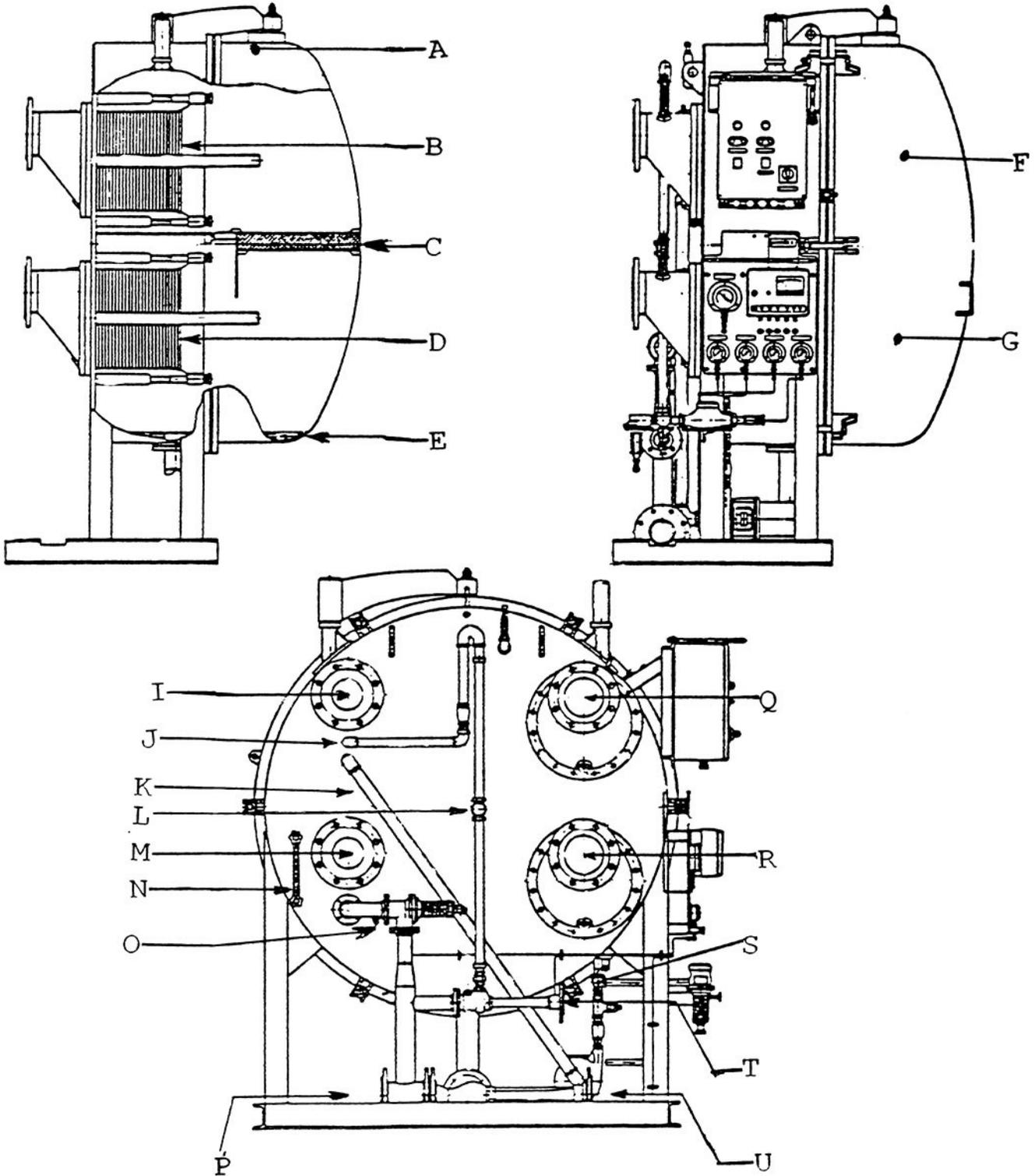
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Centrifugal Chiller Leak Test Procedures

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Start-Up, Operation, and Maintenance Instructions
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