



U.S.C.G. Merchant Marine Exam
Chief Engineer, Limited
Q601 General Subjects
(Sample Examination)

Choose the best answer to the following Multiple Choice Questions.

1. You are at a shipyard in dry-dock. New anodes for the impressed current system are being installed. The yard workers are installing the capastic layer on the hull. What is the primary function of the capastic epoxy?
- (A) It protects the anode from impact with foreign objects.
 - (B) It prevents shorting of the anode current to the hull and aids in a wider current distribution to the hull.
 - (C) It raises the anode off the hull so as to improve the range of the anode current.
 - (D) It protects the hull coating from excessive current.

If choice B is selected set score to 1.

2. When tuning a proportional-integral-derivative (PID) controller/loop, one should know/understand the influence of each action component on the loop. Which description of a component is correct?
- (A) Integral - component in which the input is proportional to the output.
 - (B) Proportional - component in which there is a linear relationship between set point and input.
 - (C) Derivative - component in which the input is proportional to the rate of change of the output.
 - (D) Proportional - component in which there is a linear relationship between output and input.

If choice D is selected set score to 1.

3. In the illustrated schematic, the device used to replace the six-way valve, as found on many older type steering gears, is the component labeled as _____. Illustration GS-0123
- (A) "A"
 - (B) "B"
 - (C) "F"
 - (D) "H"

If choice A is selected set score to 1.

4. As a chief engineer, which of the following instructions would be most appropriately entered into the Chief Engineer's night orders due to the non-routine nature of the instruction?
- (A) All discharges, transfers, or disposal of bilge water must be logged in the oil record book by the officer in charge of the operation.
 - (B) The officer in charge of the engineering watch shall notify the chief engineer without delay when No.2 SSDG repairs are complete and the generator has been prepared for testing.
 - (C) When the engine room is in the periodic unmanned condition, the duty engineer shall be immediately available and on call to attend the machinery spaces.
 - (D) The officer in charge of the engineering watch shall notify the chief engineer without delay when a malfunction occurs which may be such as to endanger the safe operation of the ship.

If choice B is selected set score to 1.

5. A hydraulic fluid flow control circuit, controlling linear actuator speed during extension, with the pump operating at system pressure, is known as a _____.
- o (A) metered-out circuit
 - o (B) bleed-in circuit
 - o (C) bleed-off circuit
 - (D) metered-in circuit

If choice D is selected set score to 1.

6. The line labeled "E", as shown in the illustration, would be identified as the _____. Illustration GS-0175
- o (A) clean water inlet line
 - o (B) waste oil outlet line
 - o (C) processed water outlet line
 - (D) oily bilge water inlet line

If choice D is selected set score to 1.

7. In accordance with 33 CFR Subchapter O (Pollution), which of the following documents would be the most useful in dealing with a vessel oil spill resulting in a discharge into navigable waters?
- (A) Shipboard oil pollution emergency plan
 - o (B) Transfer procedures
 - o (C) Oil record book
 - o (D) Declaration of inspection

If choice A is selected set score to 1.

8. Which of the following comprehensive computerized maintenance system database modules would be used to generate a report tracking consumable supplies consumption?
- (A) Requisitions management module
 - o (B) Planned maintenance management module
 - o (C) Inventory management module
 - o (D) Equipment management module

If choice A is selected set score to 1.

- 9.** 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 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.
 - (B) 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.
 - (C) 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.
 - (D) 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.

If choice B is selected set score to 1.

- 10.** While a vessel is underway in periodically unmanned engine room condition, No.2 SSDG is to be down for repairs for at least the next 24 hours. Since the vessel is nearing US navigable waters, as chief engineer you wish the bridge be immediately informed of the availability of No.2 SSDG to support the electrical power requirements of maneuvering. How would you best insure that the bridge be so informed?
- (A) The request would be written as a note posted on the No.2 SSDG panel of the main switchboard.
 - (B) The request would be written as a note posted on the first assistant engineer's stateroom door.
 - (C) The request would be made of the duty engineer orally assuming that the word shall be passed on to his or her relief.
 - (D) The request would be written as a special instruction in the Chief Engineer's night order book.

If choice D is selected set score to 1.

- 11.** In a closed-loop process control system, what is meant by the derivative mode of control?
- (A) It is a control mode that produces a control action that is proportional to the error.
 - (B) It is a control mode that produces a control action that is proportional to the accumulation of error over time.
 - (C) It is a control mode that produces a control action that is proportional to the gain.
 - (D) It is a control mode that produces a control action that is proportional to the rate at which the error is changing.

If choice D is selected set score to 1.

12. A dented race in an antifriction bearing could be caused by _____.

- (A) vibration while the bearing is not in operation
- (B) abrasives in the lubricant
- (C) dirt in the bearing
- (D) water in the bearing

If choice A is selected set score to 1.

13. The line labeled "C", as shown in the illustration, would be identified as the _____. Illustration GS-0175

- (A) oily bilge water inlet line
- (B) processed water outlet line
- (C) clean water inlet line
- (D) waste oil discharge line

If choice C is selected set score to 1.

14. What type of maintenance system would be associated with manufacturer recommendations as a function of machinery running hours?

- (A) Corrective maintenance system
- (B) Planned maintenance system
- (C) Predictive maintenance system
- (D) Condition-based maintenance system

If choice B is selected set score to 1.

15. What statement is true concerning stress and personal psychological makeup of managers and supervisors?

- (A) Managers and supervisors are more likely to exhibit type "B" behavior, and this behavior is more likely to subject them to stress over long periods.
- (B) Managers and supervisors are more likely to exhibit type "A" behavior, and this behavior is less likely to subject them to stress over long periods.
- (C) Managers and supervisors are more likely to exhibit type "A" behavior, and this behavior is more likely to subject them to stress over long periods.
- (D) Managers and supervisors are more likely to exhibit type "B" behavior, and this behavior is less likely to subject them to stress over long periods.

If choice C is selected set score to 1.

16. Referring to the illustrated psychrometric chart, under what conditions are the dry bulb, wet bulb, and dew point temperatures for air all equal in value? Illustration GS-RA-22

- (A) When the relative humidity is 0%.
- (B) It is impossible for the dry bulb, wet bulb, and dew point temperatures to be the same value.
- (C) When the air is completely saturated with moisture and the relative humidity is 100%.
- (D) When the grains of moisture per pound of dry air is zero.

If choice C is selected set score to 1.

17. Elevated metal levels present in a recent sample of used diesel engine crankcase lubricating oil is indicative of a condition. What would high silicon levels indicate?

- (A) The lubricating oil has become contaminated with sand, dust, and dirt.
- (B) The lubricating oil detergent additives have become depleted.
- (C) The lubricating oil has become contaminated with engine coolant.
- (D) The lubricating oil has become excessively diluted with fuel oil.

If choice A is selected set score to 1.

18. In accordance with **46 CFR** Subchapter O (Pollution), what is the definition of a "Type III Marine Sanitation Device"?

- (A) A device that produces a fecal coli form bacteria count not greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter.
- (B) A device that produces a fecal coli form bacteria count not greater than 200 per 100 milliliters and no visible floating solids.
- (C) A device that produces a fecal coli form bacteria count not greater than 1,000 per 100 milliliters and no visible floating solids.
- (D) A device that is designed to prevent the overboard discharge of treated or untreated sewage or any waste derived from sewage.

If choice D is selected set score to 1.

19. As an engineering department manager in dealing with a grievance presented by a unlicensed engine department crew and union member, what documentation spells out the grievance procedure?

- (A) Collective Bargaining Agreement between Company and Union
- (B) Shipping Articles of Agreement
- (C) Title 46 CFR U.S. Coast Guard (Shipping)
- (D) Title 29 CFR Department of Labor

If choice A is selected set score to 1.

20. Which of the listed types of bearings is an example of a half bearing?

- (A) Piston pin bushing
- (B) Spring bearing
- (C) Thrust bearing
- (D) All of the above.

If choice B is selected set score to 1.

21. While examining vibration analysis of a particular piece of rotating machinery, one of the measurement location readings exhibits high amplitude/displacement in vertical and horizontal direction at 2 X RPM frequency. What would this indicate?

- (A) Bearing problem.
- (B) Imbalance.
- (C) Bad belt drive.
- (D) Misalignment.

If choice D is selected set score to 1.

22. What type of managerial control system features strategic control points which measure performance while the activity is taking place?

- (A) Concurrent controls
- (B) Feedback controls
- (C) Preventive controls
- (D) Feed forward controls

If choice A is selected set score to 1.

23. 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 C is selected set score to 1.

24. While starting a hydraulic anchor windlass, you observe that hydraulic pressure does not develop in spite of the proper operation of the electric drive motor. Which of the following actions should you take FIRST to restore pressure?

- (A) Inspect the disc brake on the electric motor for proper operation.
- (B) Check for full voltage supply to the electric motor.
- (C) Make certain that the hydraulic reservoir is filled to the proper level.
- (D) Check the electric motor for an open overload relay contact.

If choice C is selected set score to 1.

25. The "hot stove" rule is sometimes used to illustrate the principles of fair, effective discipline. Which of the following principles illustrates the principle of discipline carrying a clear warning?

- (A) A hot stove doesn't care whom it burns.
- (B) If you touch a hot stove, it burns you right away.
- (C) A hot stove always burns you when you touch it.
- (D) You know what will happen if you touch a hot stove.

If choice D is selected set score to 1.

26. Referring to the illustrated dual duct multiple zone HVAC system, how is the space temperature directly controlled? Illustration GS-RA-43

- (A) The space air temperature is controlled by automatically proportioning the cold and hot air streams at the mixing unit.
- (B) The space air temperature is controlled by automatically controlling the steam flow through the preheat coil.
- (C) The space air temperature is controlled by automatically controlling the chilled water flow through the cooling coil.
- (D) The space air temperature is controlled by automatically controlling the steam flow through the reheat coil.

If choice A is selected set score to 1.

27. Which of the following maintenance criteria would be the basis of condition-based maintenance?

- (A) Vibration analysis
- (B) Equipment breakdown
- (C) Equipment running hours
- (D) Calendar based interval of time

If choice A is selected set score to 1.

28. An important component of pre-planning for fire emergencies is the general arrangement drawing. What type of drawing is the general arrangement drawing?

- (A) Side elevation view
- (B) Top plan view
- (C) Perspective view
- (D) End elevation view

If choice A is selected set score to 1.

29. In accordance with 46 CFR Subchapter I (Cargo and Miscellaneous Vessels), it is the duty of the chief engineer to acquire and seal a sample of fuel oil received whenever fuel oil bunkers are taken. This sample must be preserved until _____.

- (A) that particular supply of oil is exhausted
- (B) return to the first U.S. port where upon it must be sent ashore for chemical analysis and the findings submitted to the nearest officer in charge, Marine Inspection
- (C) it can be sent ashore to the proper oil company personnel for testing and the results entered in the Oil Record Book, CG-480
- (D) the voyage is completed

If choice A is selected set score to 1.

30. What is meant by the term empowering employees?

- (A) Gaining employee acceptance and identification based on personal charisma.
- (B) Rewarding employees with positive rewards such as the availability of overtime.
- (C) Gaining employee compliance under threat of punishment such as pulling overtime.
- (D) Granting employees authority to make key decisions by delegation.

If choice D is selected set score to 1.

31. According to 46 CFR regulations pertaining to periodic tests and inspections as related to automatic auxiliary boilers, flame safeguard controls must be checked for proper shutdown operation. Which of the following must be checked? 1) Flame failure. 2) Ignition failure. 3) Audible alarm of shutdown. 4) Visual indication of shutdown. 5) Shutdown times.

- (A) 1,2,3,4
- (B) 1,2,3,4,5
- (C) 1,2,3,5
- (D) 1,2,5

If choice B is selected set score to 1.

32. A pneumatic pressure tank is installed in a sanitary system to _____.

- (A) reduce excessive cycling of the sanitary pump
- (B) prevent the sanitary pump from losing suction
- (C) provide a higher pressure in the system than the pump can deliver
- (D) increase water flow through the system

If choice A is selected set score to 1.

33. When new piping sections have been fabricated for installation in a hydraulic system, prior to installation the piping should be _____.

- (A) cleaned using a water-based detergent
- (B) descaled by using a pickling solution
- (C) hydrostatically tested to 100% of maximum working pressure
- (D) all of the above

If choice B is selected set score to 1.

34. Personnel servicing refrigeration systems that exposes them to commonly used refrigerants should wear what type of personal protective equipment?

- (A) an all purpose gas mask
- (B) rubber soled shoes
- (C) goggles and gloves
- (D) a respirator

If choice C is selected set score to 1.

35. Once a problem has been defined and the root cause (or causes) identified, the next step in the decision-making process is developing alternative solutions to the problem. What statement best reflects how many alternatives should be considered?

- (A) The number of alternatives is not an important consideration.
- (B) Develop only one alternative.
- (C) Develop as few alternatives as is feasible.
- (D) Develop as many alternatives as humanly possible.

If choice C is selected set score to 1.

36. Which of the projections represents the left side view of the object "X" in the illustration? Illustration GS-0022

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

If choice A is selected set score to 1.

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

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

If choice C is selected set score to 1.

38. Expansion tanks when used in a ship's low temperature hot water heating system may be of the open or closed type. Referring to the illustrated central-station hookup for a hot water heating system drawing, what would be the normal temperature range of the water? Illustration GS-0151

- (A) 180°F to 200°F
- (B) 220°F to 240°F
- (C) 260°F to 280°F
- (D) 320°F to 360°F

If choice A is selected set score to 1.

- 39.** Consider the following training objective for a training session designed for training your crew how to pump bilges:

"Using the engine room bilge system of the M/V Underway where a bilge pocket requires pumping out and the automated bilge pumping controls have been disabled, by the end of the training session the participants will be able to pump an engine room bilge pocket dry manually to the bilge water holding tank in conformance with the vessel's engine room bilge pumping procedure checklist. There shall be no violations of the domestic and international pollution prevention regulations."

What role does the phrase "where a bilge pocket requires pumping out" serve in the objective statement?

- (A) It states one of the standards of performance to be achieved.
- (B) It specifies the single outcome to be achieved.
- (C) It states a performance by using action words.
- (D) It specifies a performance input condition.

If choice D is selected set score to 1.

- 40.** Why can CFC or HCFC refrigerants leaking into a confined space or in limited surroundings cause suffocation?

- (A) Refrigerants are heavier than air and displace oxygen.
- (B) Refrigerants contain an acidic substance.
- (C) Refrigerants obnoxious odor prevents breathing.
- (D) Refrigerants lighter than air will rise.

If choice A is selected set score to 1.

- 41.** On a PERT network (or arrow or line), what do the circles which are the beginning points or ending points for arrows or lines represent?

- (A) The circles are numbered and represent the task activity identification number.
- (B) The circles are not numbered and represent milestones for task accomplishment.
- (C) The circles are numbered and represent the estimated duration of task.
- (D) The circles are not initially numbered, but when numbered represent the actual task completion time.

If choice B is selected set score to 1.

- 42.** As it pertains to the hoist motion limits associated with an electro-hydraulic cargo-handling pedestal-type deck crane, which statement is true?
- (A) When the boom is raised to a maximum permissible height or lowered to a minimum permissible height, the hoist pump shall be stroked to zero and the hoist winch brake set.
 - (B) When the boom is raised to a maximum permissible height or lowered to a minimum permissible height, the hoist pump shall be placed on stroke and the hoist winch brake released.
 - (C) When the hoist cable is payed out to a nearly empty drum condition or when the hoist block is raised to a maximum permissible height relative to the boom, the hoist pump shall be placed on stroke and the hoist winch brake released.
 - (D) When the hoist cable is payed out to a nearly empty drum condition or when the hoist block is raised to a maximum permissible height relative to the boom, the hoist pump shall be stroked to zero and the hoist winch brake set.

If choice D is selected set score to 1.

- 43.** A licensed officer designated to certify a trainee's performance of a practical demonstration should sign off when _____.
- (A) another licensed officer has witnessed the performance of the demonstration
 - (B) the pre-brief with the trainee has been completed
 - (C) the entire practical demonstration has been successfully completed and personally observed by the licensed officer
 - (D) the majority of any portion of the skill has been demonstrated

If choice C is selected set score to 1.

- 44.** Leadership style sometimes must change with the readiness level of the employees. Which of the following employee readiness level scenarios would be best suited for adopting a delegating leadership style?
- (A) Where the employees are able but unwilling or insecure.
 - (B) Where the employees are unable and unwilling or insecure.
 - (C) Where the employees are able and willing or confident.
 - (D) Where the employees are unable but willing or confident.

If choice C is selected set score to 1.

- 45.** While calibrating an electronic 4-20 mA or 3-15 PSI pneumatic controller, what is the value of 'Live Zero'?
- (A) '0' for input span and another value for output range.
 - (B) 4 mA or 3 PSI for process output range.
 - (C) '0' for span and range.
 - (D) 4 mA or 3 PSI.

If choice D is selected set score to 1.

46. As a chief engineer aboard a vessel that has just been dry-docked and is being connected to shipyard facilities, what would you consider to be your FIRST priority?

- (A) Ascertain that the sewage system shorelines are properly connected.
- (B) Make a walkthrough of the dry hull looking for/at any hull cracks, propeller(s) and rudder.
- (C) Ascertain that the electrical shore power is connected with proper phasing.
- (D) Ascertain that the shipyard's cooling waterlines are properly connected.

If choice C is selected set score to 1.

47. Various tests while conducting a fuel oil analysis can be performed on board to facilitate proper centrifugation. What test provides the key data for selecting the correct purifier gravity disk for fuel oil centrifugal purifiers?

- (A) Calorific heat content
- (B) Ignition quality
- (C) Water content
- (D) Density

If choice D is selected set score to 1.

48. In a closed-loop process control system, what is meant by gain?

- (A) The signal in a controller that is obtained by subtracting the measured value of the controlled value from the set point.
- (B) The ratio of the amplitude of the output signal of a component divided by the amplitude of the input signal.
- (C) The progressive reduction or suppression of oscillation in a component.
- (D) The undesirable characteristic in which the error of a control system oscillates with constant or increasing amplitude.

If choice B is selected set score to 1.

49. What is the critical first step that must be carried out before executing a plan?

- (A) Setting an objective or goal to be achieved by the plan.
- (B) Assessing present and future conditions affecting achievement of the plan.
- (C) Identifying present and future conditions affecting achievement of the plan.
- (D) Developing a systematic approach to achievement of the plan.

If choice A is selected set score to 1.

50. Air trapped in the hydraulic fluid of a steering system may be indicated by _____.

- (A) a constantly occurring improper rudder response
- (B) a jammed open relief valve
- (C) the steering pumps over speeding
- (D) excessive ram pressure

If choice A is selected set score to 1.

51. Which of the following comprehensive computerized maintenance system database modules would contain technical data such as machinery serial numbers?

- (A) Inventory management module
- (B) Equipment management module
- (C) Requisitions management module
- (D) Planned maintenance management module

If choice B is selected set score to 1.

52. A vessel you are sailing on as chief engineer had its last dry-docking survey 2 years prior and is not enrolled in an underwater survey program in lieu of dry-docking. When is the next dry-docking due?

- (A) 1 year
- (B) 6 months
- (C) 2 years
- (D) 3 years

If choice A is selected set score to 1.

53. (3.2.8.2-2) output shaft and the capstan head input shaft?

- (A) The drive arrangement where the drive motor, electric brake, gear reducer are hung from the underside of the weather deck, and only the capstan head is located on the weather deck.
- (B) The drive arrangement where the drive motor, electric brake, gear reducer are mounted on the deck below the weather deck, and only the capstan head is located on the weather deck.
- (C) The drive arrangement where the drive motor, electric brake, gear reducer, and capstan head are all located on the weather deck.
- (D) A flexible coupling is required on all three drive arrangements listed above.

If choice B is selected set score to 1.

54. As shown in the illustration, a section of standard weight, seamless steel pipe, has an external diameter of 4.0 inches. When the pipe, is bent into a 90 degree turn, the length of the outside edge of the curve "A-B" will exceed the length of the inside edge of the curve "C-D" by _____.
Illustration GS-0108

- (A) 1.05 inches
- (B) 1.25 inches
- (C) 2.67 inches
- (D) 6.28 inches

If choice D is selected set score to 1.

55. A water line ruptures under pressure and floods the engine room causing \$30,000(USD) damage to the machinery. By law, this must be reported to the _____.

- (A) insurance underwriter
- (B) engine manufacturer
- (C) owner or his agent
- (D) U.S. Coast Guard

If choice D is selected set score to 1.

56. Referring to the illustrated single zone HVAC system diagram, what statement is true concerning the damper controls? Illustration GS-RA-09

- (A) The exhaust and outside air dampers are normally open and the recirculation damper is normally closed and all three dampers are controlled by a single pilot air signal.
- (B) The exhaust and outside air dampers are normally closed and the recirculation damper is normally open and all three dampers are controlled by a single pilot air signal.
- (C) The exhaust and outside air dampers are normally closed and the recirculation damper is normally open and each damper is controlled by its own pilot air signal.
- (D) The exhaust and outside air dampers are normally open and the recirculation damper is normally closed and each damper is controlled by its own pilot air signal.

If choice B is selected set score to 1.

57. What is the distance between the center of the discharge outlet and the top of the motor illustrated? Illustration GS-0011

- (A) 34 5/8 inches
- (B) 35 inches
- (C) 35 5/8 inches
- (D) 36 inches

If choice D is selected set score to 1.

58. During the "forming" stage of group development, members are trying to determine the task of the group and their role expectations of one another. As a manager, what should be done to help facilitate the "forming" process?

- (A) The group members should be similar in background regardless of the degree of complexity of the task.
- (B) The group should not have a designated leader to promote equality.
- (C) The group should have a designated leader to provide structure and guidance.
- (D) The group members should be widely differing in background regardless of the degree of complexity of the task.

If choice C is selected set score to 1.

59. In accordance with 46 CFR Subchapter D (Tank Vessels), what is the minimum allowable flashpoint for a fuel to be burned in a steam boiler?

- (A) 100°F
- (B) 120°F
- (C) 140°F
- (D) 160°F

If choice C is selected set score to 1.

60. Which of the listed types of machined 'hole' is represented by "B" as shown in the illustration?
Illustration GS-0015

- (A) Counter bore
- (B) Countersink
- (C) Counter drill
- (D) Spot face

If choice C is selected set score to 1.

61. Who onboard is responsible for identifying all new crew members and insuring that the safety training and shipboard familiarization training program is implemented according to written policy and procedures?

- (A) Chief mate
- (B) Designated ship's training officer
- (C) Chief engineer
- (D) Ship's master

If choice D is selected set score to 1.

- 62.** A periodic hydrostatic test is being performed on potable water pressure tank with a maximum allowable working pressure of 100 psig. In accordance with 46 CFR Subchapter F (Marine Engineering), what is the required hydrostatic test pressure for this procedure, assuming that an internal inspection revealed a defect?
- (A) 110.0 psig
 - (B) 125.0 psig
 - (C) 150.0 psig
 - (D) 200.0 psig

If choice C is selected set score to 1.

- 63.** An important communication tool for managers is known as active listening. It helps better insure that managers understand employees and that feedback is encouraged. What is active listening?
- (A) Active listening is when you allow the employee to finish what they are saying before speaking.
 - (B) Active listening is when you maintain eye contact with the employee the whole time they are speaking.
 - (C) Active listening is when you make a response that states what you have heard from the employee.
 - (D) Active listening is when you listen to an employee with undivided attention and not be distracted.

If choice C is selected set score to 1.

- 64.** Referring to the illustration, suppose the oily-water separator vessel compound gauge is showing an unusually deep vacuum for operating in the separation processing mode with the separator service pump running. The oil content is 8.3 ppm. What is most likely the cause? Illustration GS-0175
- (A) The oily-water separator bilge suction strainer is clogged.
 - (B) The oily-water separator vessel relief valve is leaking.
 - (C) The oily-water separator service pump is worn.
 - (D) The bilge water holding tank level is unusually high resulting in a high level alarm.

If choice A is selected set score to 1.

- 65.** The Certificate of Inspection for your vessel was issued in January. In March of the same year you need to replace a cooling water pump for the refrigeration system. What action would be appropriate?
- (A) Defer informing the Coast Guard of the pump's replacement until the mid-period inspection.
 - (B) Replace the pump, as the Coast Guard need not be informed of the pump replacement.
 - (C) Inform the Coast Guard if the replacement will involve welding or burning.
 - (D) Inform the nearest Officer in Charge, Marine Inspection of the pump replacement.

If choice B is selected set score to 1.

66. According to the illustration, which of the following conditions would most likely cause Pump "A" to short cycle? Illustration GS-0173

- (A) The hydro-pneumatic expansion tank is operating with an insufficient air charge.
- (B) The hydro-pneumatic tank is operating with a low water level.
- (C) A low water level exists in the potable water storage tank.
- (D) Pump "A" wearing rings have excessive clearance.

If choice A is selected set score to 1.

67. A hydraulic fluid flow control circuit, controlling linear actuator speed, with the pump operating below maximum operating pressure is known as the _____.

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

If choice A is selected set score to 1.

68. Purging air from a hydraulic system is necessary when _____.

- (A) the system has been idle for a long period of time
- (B) the system has been drained and then filled with new oil
- (C) the system has been overheated
- (D) adding small amounts of oil to the system

If choice B is selected set score to 1.

69. What form of communication provides the greatest information richness, which is the amount of verbal and non-verbal information that a communication channel carries?

- (A) Large-group meeting
- (B) One-on-one, face-to-face
- (C) Small-group meeting
- (D) Telephone conversation

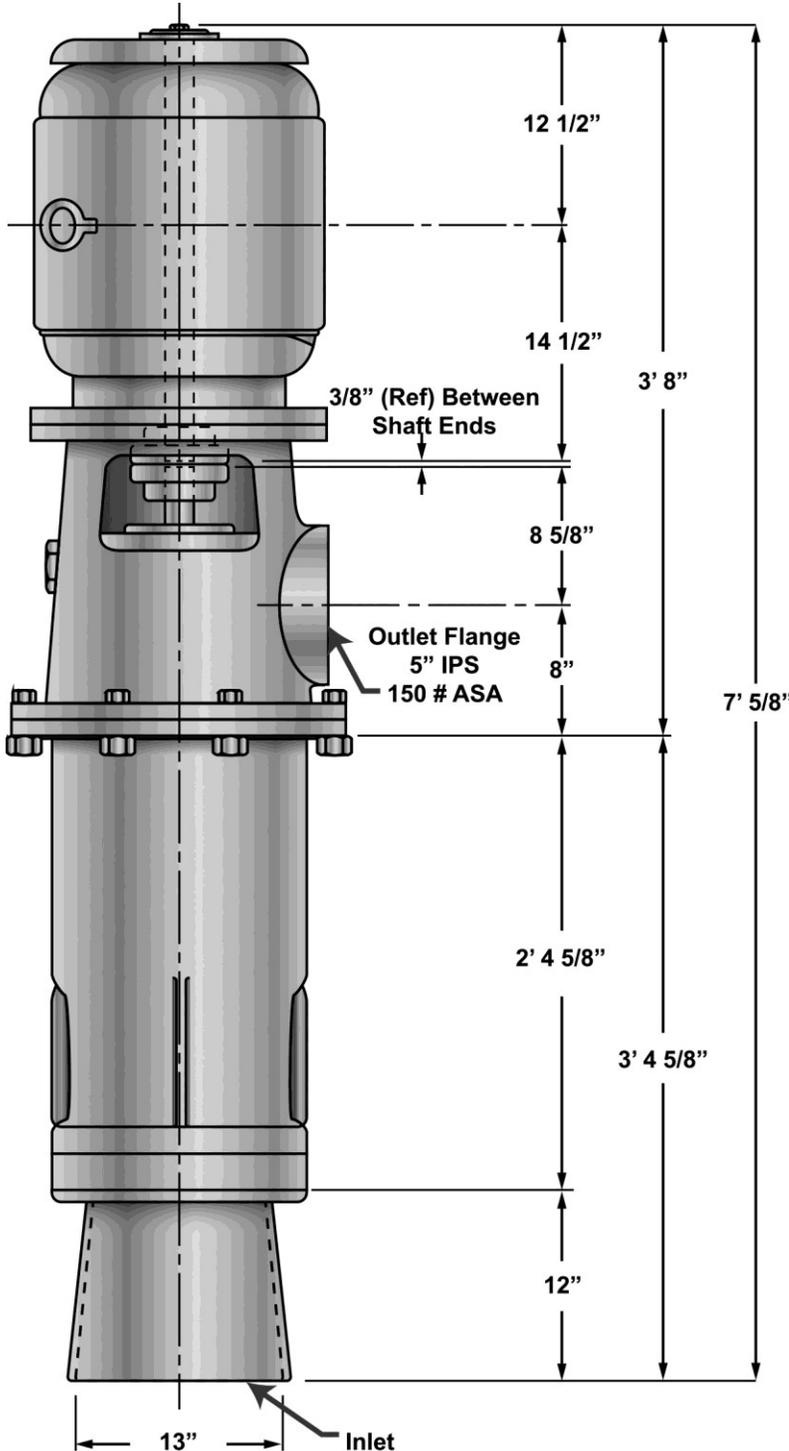
If choice B is selected set score to 1.

70. In a closed-loop process control system, what is meant by the integral mode of control?

- (A) It is a control mode that produces a control action that is proportional to the rate at which the error is changing.
- (B) It is a control mode that produces a control action that is proportional to the error.
- (C) It is a control mode that produces a control action that is proportional to the gain.
- (D) It is a control mode that produces a control action that is proportional to the accumulation of error over time.

If choice D is selected set score to 1.

GS-0011



MOTOR CHARACTERISTICS

Motor (A. C.)	Electro Dynamic
Rating H. P.	25
Speed R. P. M. (SYN.)	1200
Frame	365 VY
Type	TN
Volts	440
Cycles	60
Phase	3

PUMP CHARACTERISTICS

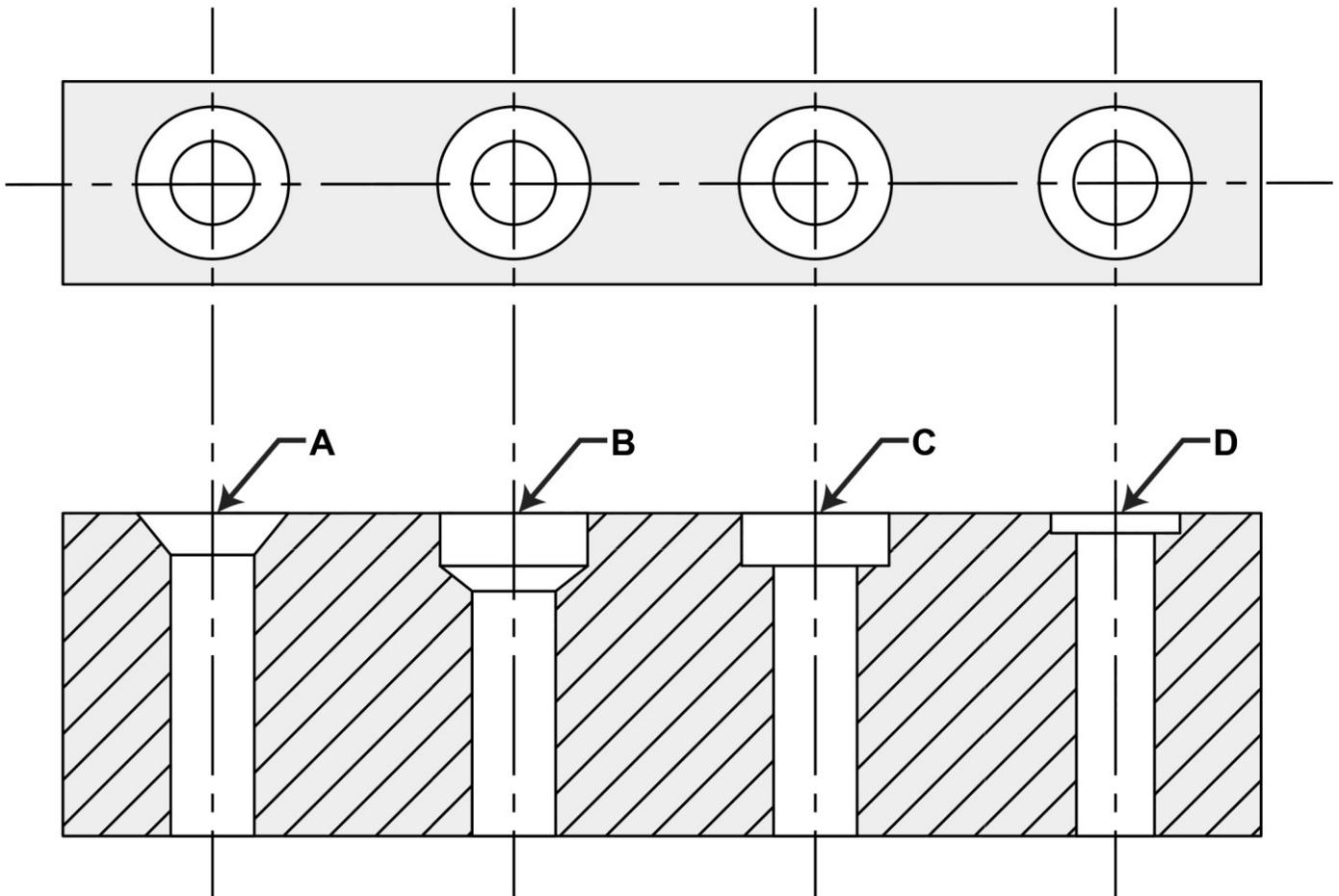
Capacity G. P. M.	400
Speed R. P. M.	1150
Suction Lift "HG	10
B, H, P. @ 1200 SSU-75° F	24.9
Oil viscosity Range, SSU	74-7000
Viscosity Normal SSU @ 140° F	155
Discharge Normal PSIG	55
Fluid Handled, Lube Oil	2190 TEP.
Navy Specification	MIL-L-17331
Oil Temperature Range ° F	40-180

Illustration scale: 1" = 1'

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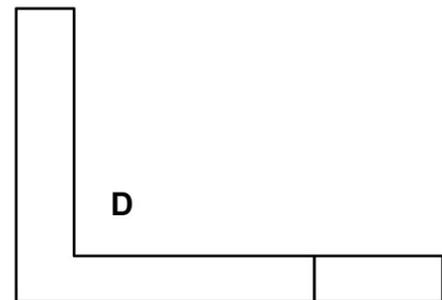
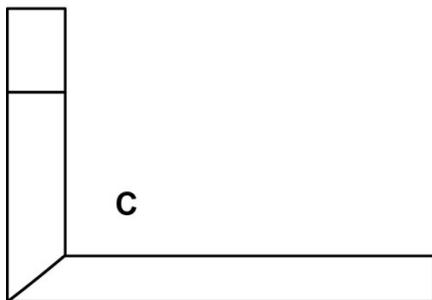
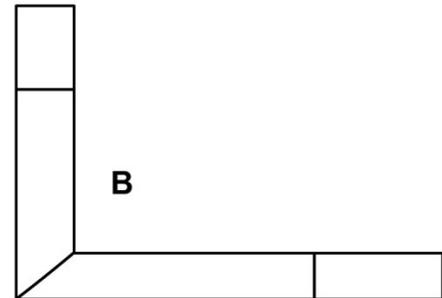
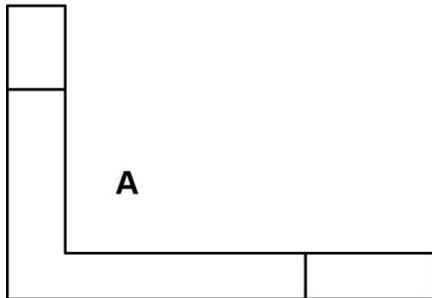
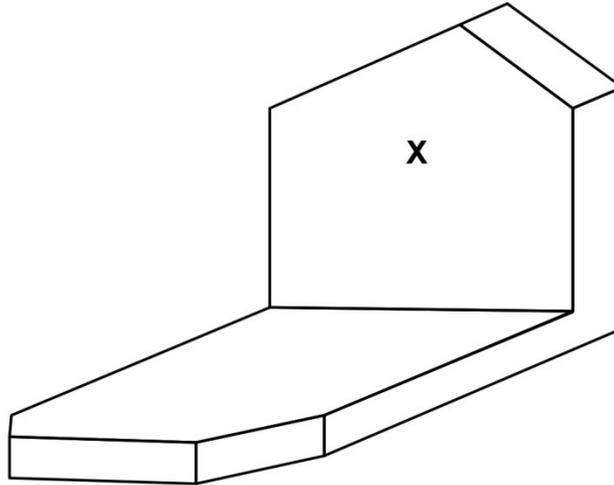
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GS-0015

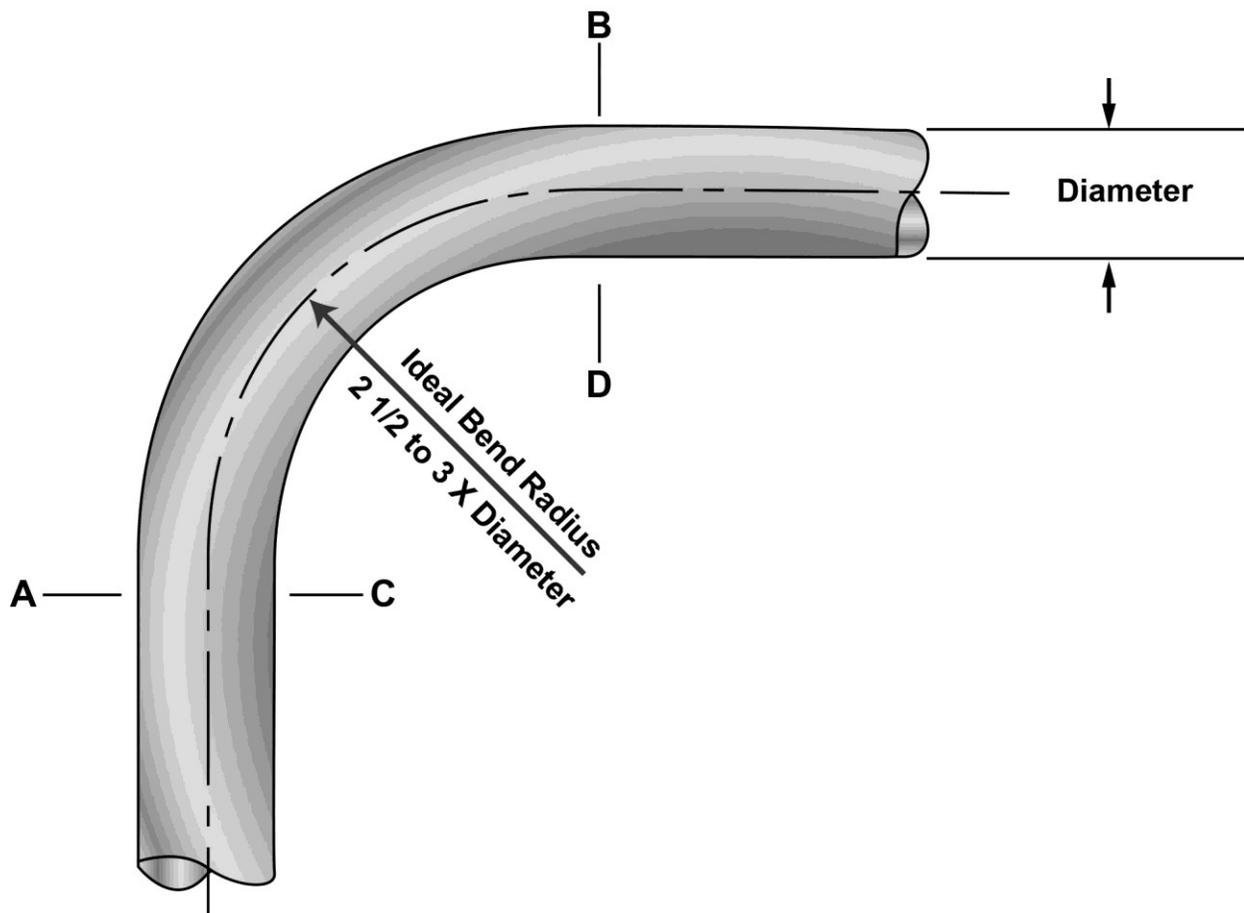


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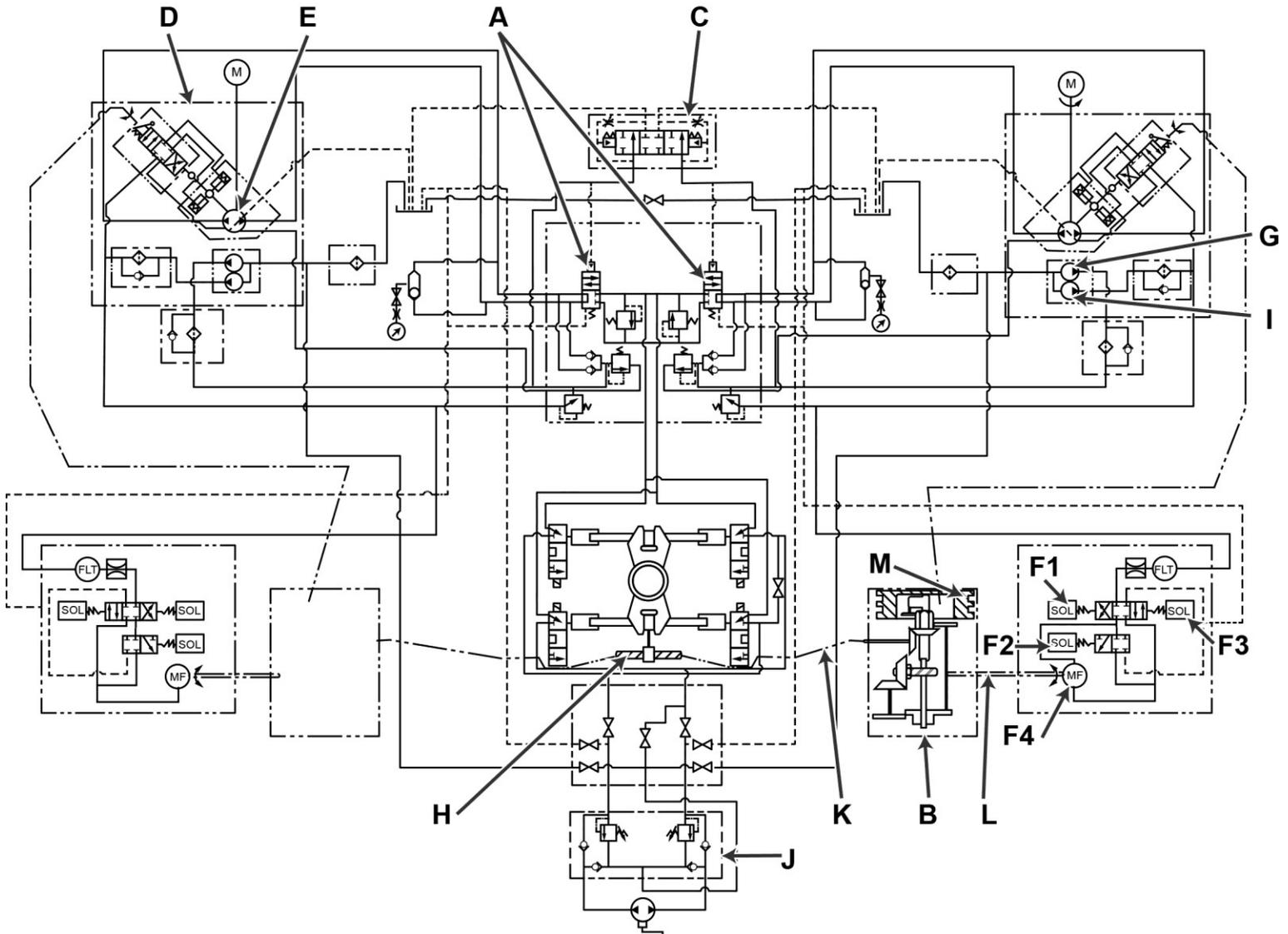
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GS-0123

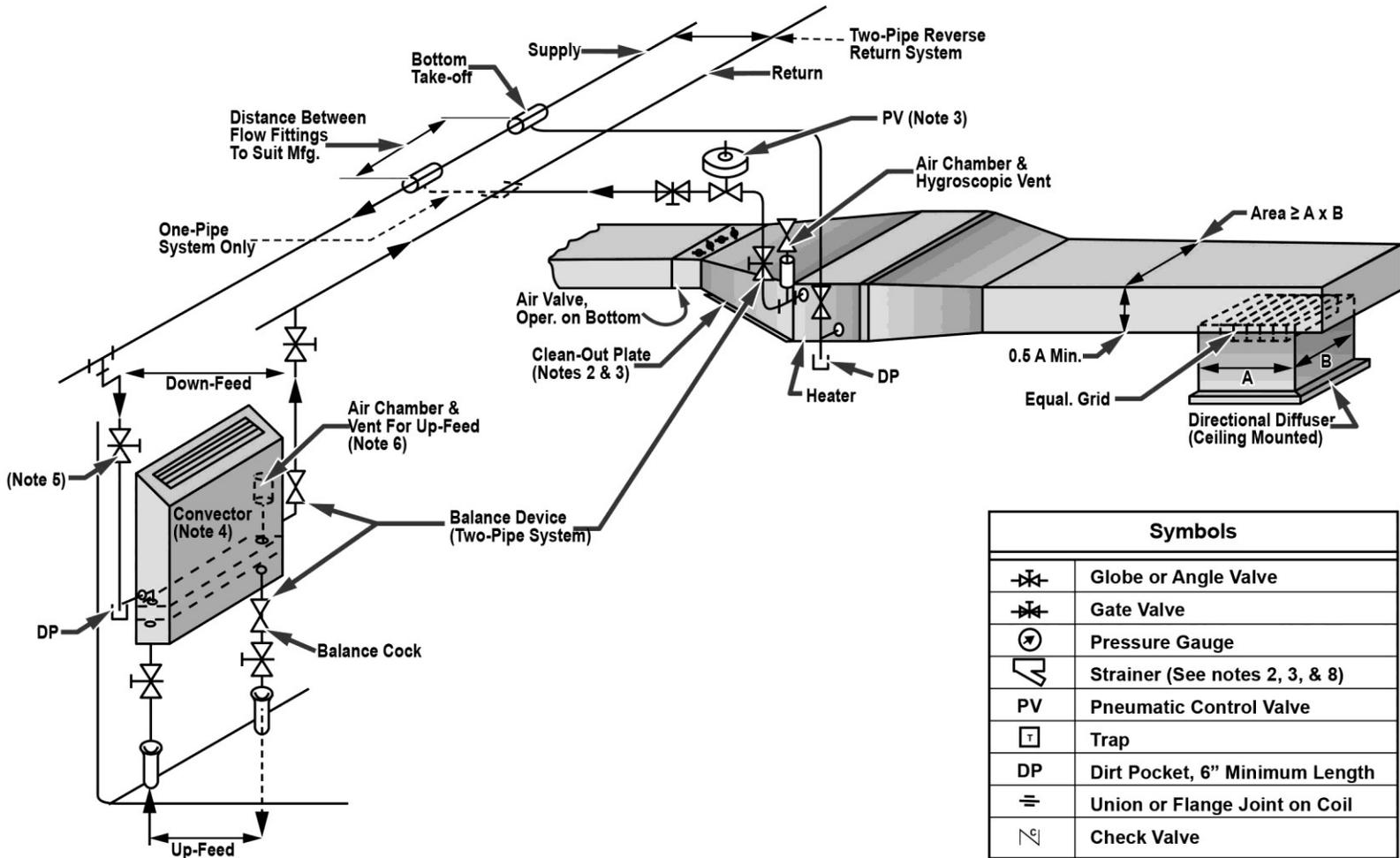


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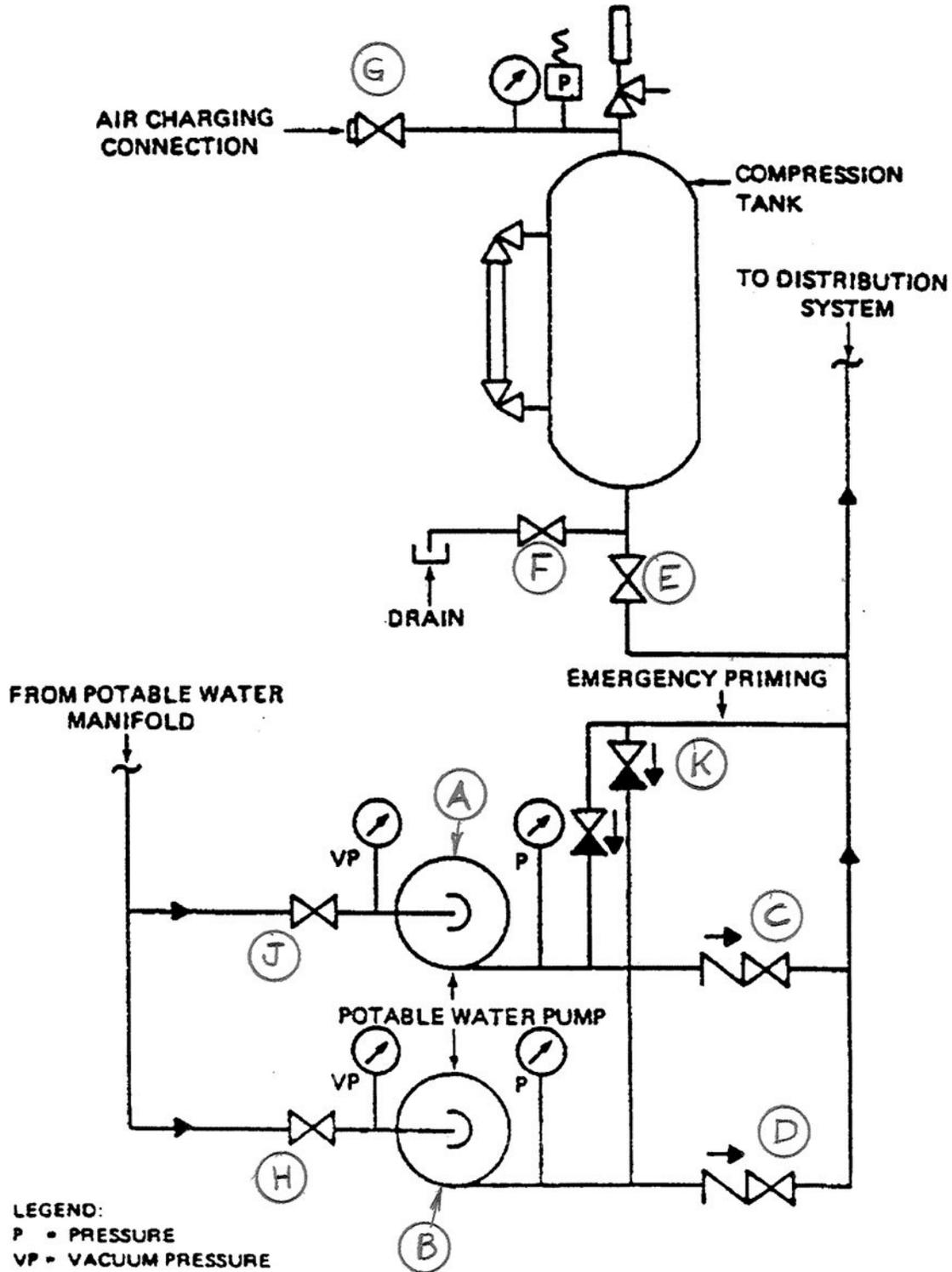
GS-0151



Notes

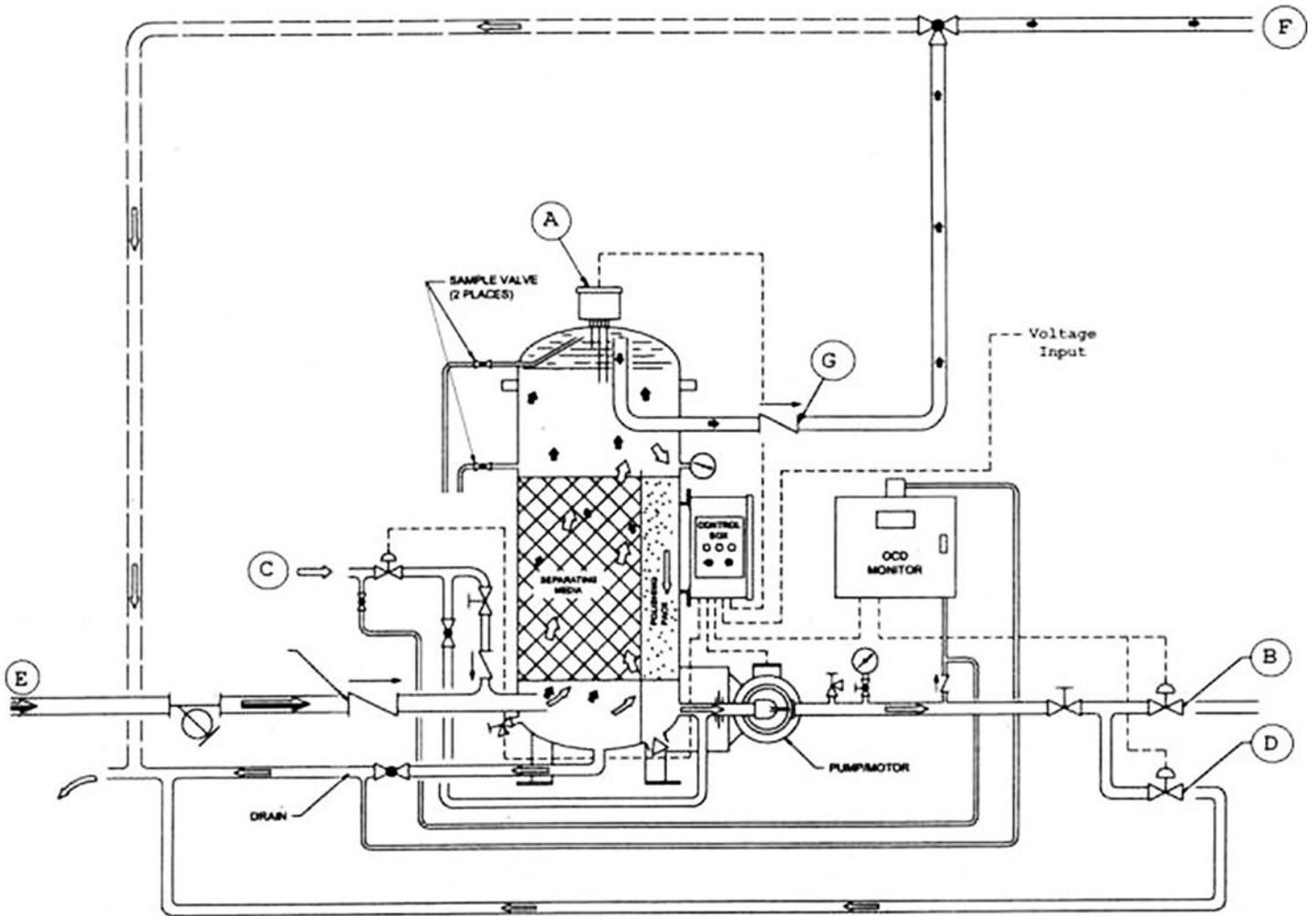
1. Mount convector on exposed (cold) bulkhead or bulkhead lining with 0.5" air space.
2. Clean-out plates should be 24" x 24" if possible.
3. Provide 24" x 24" hinged panel in joiner ceiling. Locate for easy access to air vent, valves, and clean-out.
4. The convector hook-up also applies to fin pipe elements.
5. Locate the shut-off valve for down-feed convectors approximately 6' above the deck.
6. The air vent must be operable through a side or discharge grille.

GS-0173



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GS-0175

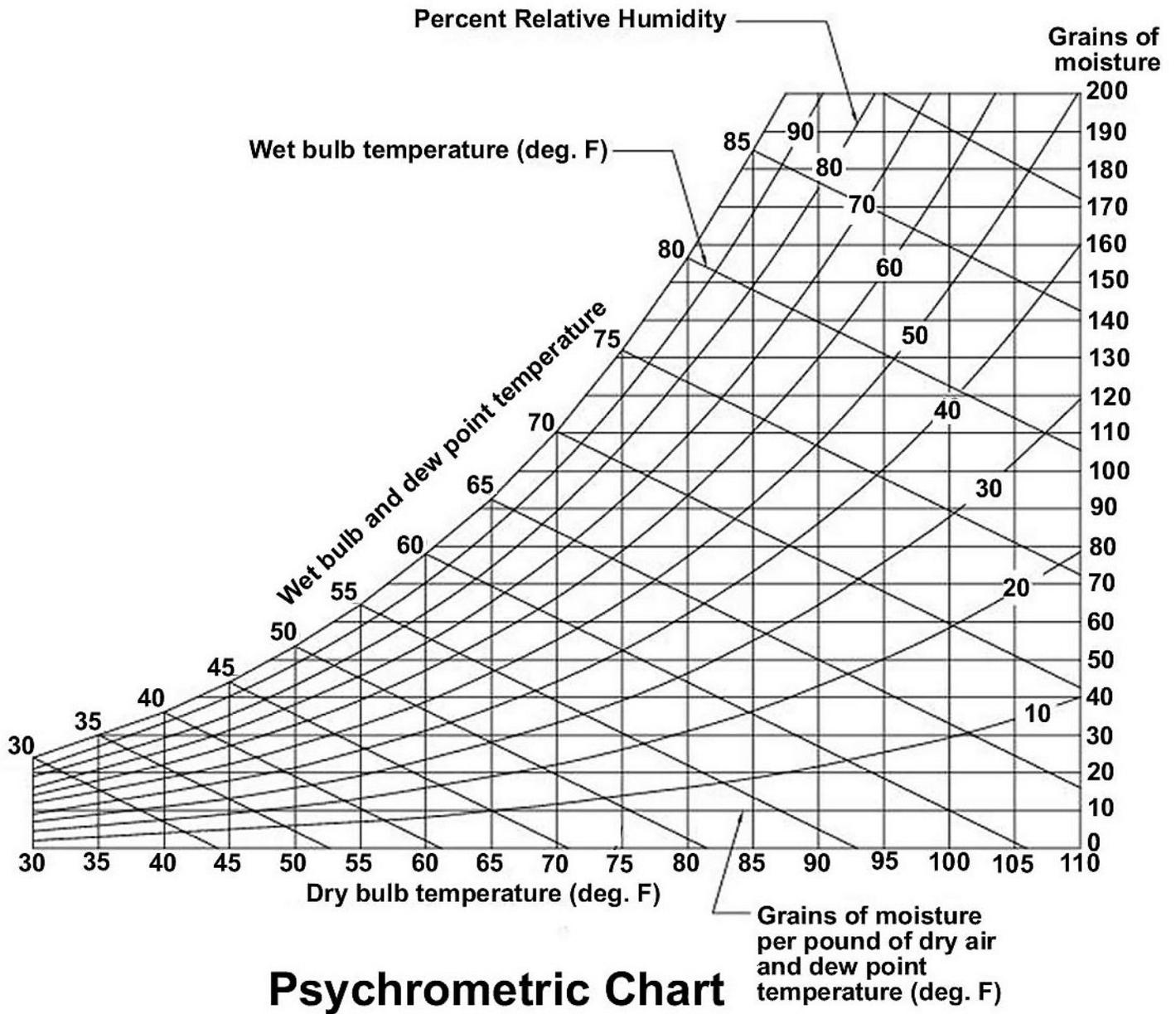


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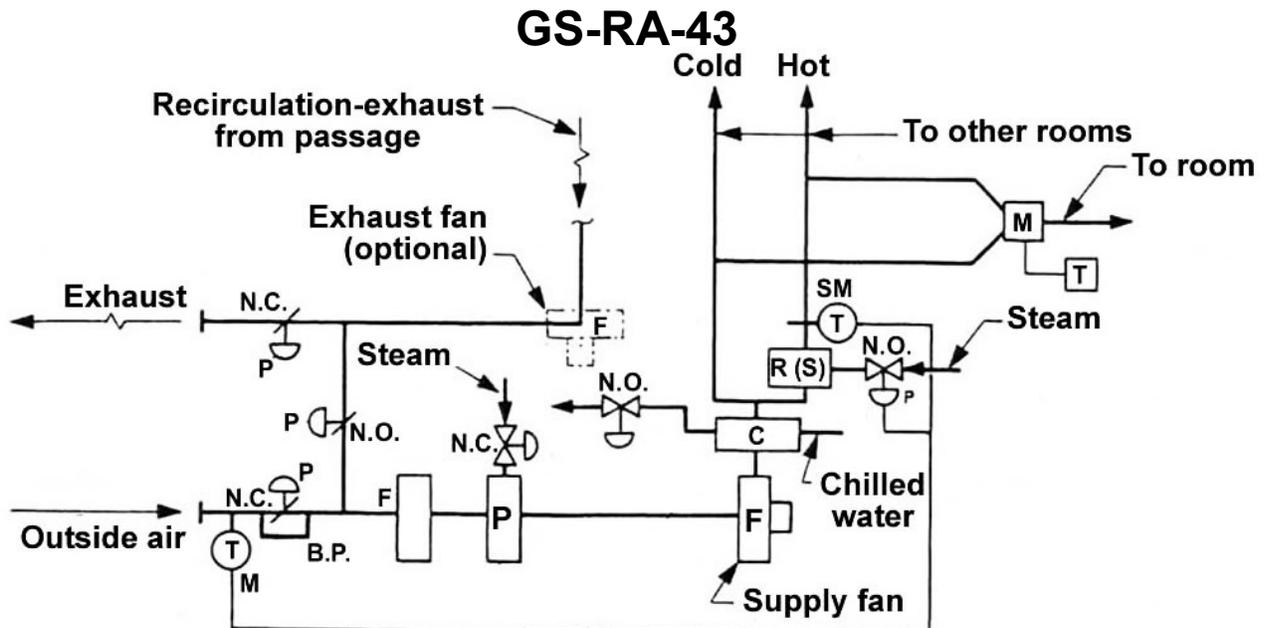
GS-RA-22



Psychrometric Chart

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Legend

[H] Humidistat	[T] Room thermostat
[F] Fan	[M] Dual duct air mixing unit
F Filter	⊗ Pneumatic damper & motor
[C] Cooling coil	M Master
[P] Preheater (steam)	SM Sub-master
[R] Reheater (W=water, S=steam)	P Positive positioning relay
(T) Duct thermostat	⊗ Pneumatic control valve
N.O. Normally open (valve or damper)	[D] Diverting relay
N.C. Normally closed (valve or damper)	B.P. Minimum outside air bypass

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