

U.S.C.G. Merchant Marine Exam

First Assistant Engineer

Q512 General Subjects II

(Sample Examination)

Choose the best answer to the following Multiple-Choice Questions:

1. What is the color coding for a storage container of R-134a refrigerant?

- A. light blue
- B. purple
- C. green
- D. grey

Correct answer: A

2. EPA Clean Air Act rules permit refrigerant to be released to the atmosphere under which of the following conditions?

- A. when adding oil to a compressor
- B. when release is considered "de minimis"
- C. during replacement of a compressor
- D. when testing a system for leaks using R-12 and nitrogen

Correct answer: B

3. If it is necessary to increase the operating head pressure of the refrigeration system using the device shown in the illustration, what should be done? Illustration RA-0014

- A. "2" should be turned to further compress the spring
- B. "2" should be turned to relax the compression of the spring
- C. "4" should be rotated to compress the enclosed bellows
- D. "4" should be rotated to relax the enclosed bellows

Correct answer: A

4. The fluid used as a source of actuating power against the underside of the unloader power element piston of the refrigeration compressor capacity control mechanism illustrated is obtained from where? Illustration RA-0013

- A. high side liquid receiver
- B. gas discharge from the compressor
- C. discharge of the compressor lube oil pump
- D. discharge of a secondary hydraulic pump specifically installed for this operation

Correct answer: C

5. Which of the lettered components shown in the illustration indicates the high-pressure cutout? Illustration RA-0012

- A. W
- B. X
- C. Y
- D. Z

Correct answer: B

6. When replacing a thermostatic expansion valve power element, what is true concerning the thermal bulb?
- A. apply a light film of oil to increase heat transfer
 - B. with steel wool or an abrasive cloth remove oxidation on the bulb and suction line
 - C. apply a heavy coating of grease to function as a heat sink
 - D. carefully coat the device with silicone sealant to reduce the effects of convective cooling

Correct answer: B

7. Of the various possible methods shown in the illustration, which is the correct method of attaching a TXV feeler bulb to a large line with a horizontal run? Illustration RA-0050
- A. A
 - B. B
 - C. C
 - D. D

Correct answer: C

8. An obstructed expansion valve may be indicated by an incompletely cooled evaporator and what other symptom?
- A. a higher than normal discharge pressure
 - B. a decrease in the amount of frosting across the drier
 - C. frosting at the suction side of the compressor
 - D. frosting at the evaporator inlet

Correct answer: D

9. If the needle and seat assembly is excessively eroded, the valve cage assembly can be replaced. In replacing the original valve cage assembly rated at 1/2 tons, what would be the result if the replacement valve cage was oversized at 5 tons? Illustration RA-0007
- A. The expansion valve would function normally, with the presentation of no problems.
 - B. The expansion valve would hunt excessively, alternately starving and overfeeding the evaporator coil.
 - C. The evaporator would be overfed producing consistently insufficient superheat.
 - D. The evaporator would be starved producing consistently excessive superheat.

Correct answer: B

10. If increasing the cooling water flow to a refrigeration condenser fails to lower the condenser pressure, the probable cause may be due to what condition?
- A. partially blocked thermal expansion valve
 - B. an evaporator coil in need of defrosting
 - C. excessive amount of non-condensable gases trapped in the condenser
 - D. a low level of Freon in the receiver

Correct answer: C

11. Technicians servicing small refrigeration appliances can employ what type of recovery equipment?

- A. passive only
- B. active only
- C. either active or passive
- D. do not need to recover the refrigerant

Correct answer: C

12. The most cost-effective method of recovering refrigerant from a low-pressure chiller with more than 500 lbs. of refrigerant and to meet EPA requirements is to recover the refrigerant using what protocol?

- A. vapor recovery using a vacuum pump-based recovery unit followed by liquid recovery using a liquid pump
- B. recovery using a vacuum pump-based vapor recovery machine only
- C. recovering using a liquid pump only
- D. liquid recovery using a liquid pump, followed by vapor recovery using a vacuum pump-based recovery unit

Correct answer: D

13. How should small appliances with less than three pounds of refrigerant be charged with refrigerant?

- A. vapor charged
- B. liquid charged
- C. either vapor or liquid charged
- D. initially liquid charged and then topped with a vapor charge

Correct answer: A

14. When a refrigeration system is being topped off with a small amount of refrigerant through the low side with the compressor running, what should be done?

- A. the refrigerant charging cylinder should be turned upside down
- B. the refrigerant should be charged into the system as a vapor
- C. the suction service valve must be back seated
- D. the discharge service valve must be front seated

Correct answer: B

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

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

Correct answer: C

16. When starting a reciprocating refrigeration compressor that has been shut down for a period of time, you should manually throttle which valve?
- A. king valve
 - B. expansion valve
 - C. suction valve
 - D. Sea water valve

Correct answer: C

17. In general, the thermal bulb for a thermal expansion valve used in a reciprocating air conditioning system is usually charged with what substance?
- A. the same refrigerant as the system
 - B. bees wax
 - C. distilled water
 - D. mercuric sulfate

Correct answer: A

18. The introduction of outside air to the air conditioning system is 90°F with a relative humidity of 60%. The air has been conditioned to 70°F with a relative humidity of 80%. Using the psychrometric chart, shown in the illustration, determine the quantity of moisture removed from one pound of the conditioned air. Illustration RA-0022
- A. 20 grains
 - B. 30 grains
 - C. 40 grains
 - D. 50 grains

Correct answer: C

19. When pumping down an air conditioning system to test the low-pressure cutout switch, assuming that the compressor is running, what should be done to initiate the test?
- A. stop the circulating pump
 - B. secure the condenser
 - C. stop the compressor
 - D. close the "king" valve

Correct answer: D

20. The air temperature associated with a direct reciprocating air conditioning plant is found to be too warm, and the compressor is not operating. A service check determines the compressor suction pressure to be above the normal cut-in point, with a normal head pressure, and high evaporator superheat. Which of the following could be the cause of this problem?
- A. Cooling water flow to the condenser is excessive.
 - B. A liquid line solenoid valve is stuck open.
 - C. The low-pressure switch contacts are not operating correctly.
 - D. A liquid line solenoid valve has failed closed.

Correct answer: C

21. While securing the air conditioning compressor you close the suction valve, and the compressor stops after a short period of time. Subsequent attempts to start it produce no result. What control component would you suspect is preventing the compressor from starting?

- A. The low-pressure cutout switch
- B. The high-pressure cutout switch
- C. The lube oil differential pressure switch
- D. The water regulating valve

Correct answer: A

22. Referring to the illustrated dual duct multiple zone HVAC system, how is the space temperature directly controlled? Illustration RA-0043

- 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 reheat 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 preheat coil.

Correct answer: A

23. What advantage does a 4-pipe hydronic heating/cooling system have over a 2-pipe hydronic heating/cooling system?

- A. A 4-pipe hydronic heating/cooling system requires one-half the amount of piping as compared to a 2-pipe hydronic heating/cooling system serving the same number of zones.
- B. A 4-pipe hydronic heating/cooling system requires double the amount of piping as compared to a 2-pipe hydronic heating/cooling system serving the same number of zones.
- C. A 4-pipe hydronic heating/cooling system allows simultaneous heating and cooling of different zones, whereas a 2-pipe hydronic heating/cooling system does not.
- D. A 4-pipe hydronic heating/cooling system can serve twice as many zones as a 2-pipe hydronic heating/cooling system.

Correct answer: C

24. 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 RA-0022

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

Correct answer: A

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

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

Correct answer: D

26. Which of the conditions listed could cause excessively low refrigerant pressure at the compressor suction of a TXV controlled refrigeration system?

- A. Insufficient flow of condenser cooling water.
- B. The box solenoid valve "stuck" in the open position.
- C. The system is low on refrigerant.
- D. The high-pressure cutout switch is inoperative.

Correct answer: C

27. In order to establish a good climate for communication it is important to minimize status barriers. Which of the following techniques would be the best way to minimize status barriers on a one-on-one, face-to-face conversation of a sensitive nature with an employee?

- A. Conversing with the employee in the ship's office with the employee sitting on the opposite side of the desk from you.
- B. Conversing with the employee in your office with the employee sitting on the opposite side of the desk from you.
- C. Conversing with the employee in his/her workspace or a neutral area with privacy assured.
- D. Conversing with the employee in his/her workspace or a neutral area without regard to being interrupted.

Correct answer: C

28. In order to establish a good climate for communication it is important to establish mutual trust between the employee and the manager. Which of the following facilitates the trust of employees in managers?

- A. Disciplining fairly and consistently, respecting your employee's abilities, and advocating on their behalf.
- B. Disciplining fairly and consistently, showing contempt for your employee's abilities, and advocating on their behalf.
- C. Disciplining fairly and consistently, respecting your employee's abilities, and requiring them to advocating on their own behalf.
- D. Disciplining unfairly and inconsistently, respecting your employee's abilities, and advocating on their behalf.

Correct answer: A

29. Some managers think that the average person has a dislike for work, avoids responsibility, and cannot be trusted. What type of leadership style is such a manager likely to adopt?

- A. Transformational leadership style
- B. Structured, autocratic leadership style
- C. Developmental leadership style
- D. Supportive, participative leadership style

Correct answer: B

30. Which of the following shipboard groups would be an example of an informal group?

- A. Those officers and crew assigned to the safety committee of a ship.
- B. Those officers and crew assigned to a maintenance task on a ship.
- C. Those officers and crew assigned to the engineering department of a ship.
- D. Those officers and crew assigned to a particular ship.

Correct answer: B

31. As a manager, which of the following conflict management styles is considered the most appropriate for resolving conflict and is considered both an assertive and a cooperative approach?
- A. Avoiding
 - B. Forcing
 - C. Collaborating
 - D. Accommodating

Correct answer: C

32. In planning for a fire and emergency drill, to ensure drill success within the context of a comprehensive fire and emergency training program, what should be planned for?
- A. The fire drill should be a simulated outbreak in a low fire risk area and for each fire drill the location should remain the same.
 - B. The fire drill should be a simulated outbreak in a low fire risk area and for each fire drill the location should be changed.
 - C. The fire drill should be a simulated outbreak in a high fire risk area and for each fire drill the location should be changed.
 - D. The fire drill should be a simulated outbreak in a high fire risk area and for each fire drill the location should remain the same.

Correct answer: C

33. Automatic fire, smoke, and heat detectors are crucial in sizing-up a fire. Which of the following statements is true about the type of alarms sounding?
- A. The type of alarms sounding may give an indication of the intensity of a fire or the stage of development.
 - B. The type of alarms sounding gives an indication of the extent to which a fire has spread.
 - C. The type of alarms sounding gives an indication of the size of the fire.
 - D. The type of alarms sounding are not particularly useful in sizing-up a fire.

Correct answer: A

34. As a senior engineer involved in new vessel construction, what would you consider to be the final proof of proper shaft alignment?
- A. On a motor vessel, rely on crankshaft deflections solely.
 - B. Confirm shaft bearing reaction figures/loads, as designed per bearing.
 - C. On a steam turbine vessel, rely on reduction gear tooth contact solely.
 - D. Rely on optical or laser alignment figures/readings solely.

Correct answer: B

35. 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

Correct answer: A

36. For newly constructed vessels, extensive shipyard repair or a vessel's modification period, what does a shipyard's 'Gantt' chart represent?

- A. Daily shipyard's production figures and progress.
- B. Daily actual shipyard progress, per item, vs. estimated.
- C. Project's shipyard fiscal and man-hours expenditures per item/goal.
- D. Master schedule of time/man-hours vs. project's significant goals/items for the duration of the project.

Correct answer: D

37. As it pertains to graphical tools used to visualize task scheduling in project management, what statement best represents the difference between a Gantt chart and a PERT chart?

- A. The Gantt chart makes it easy to visualize task dependencies and milestones, whereas the PERT chart makes it easy to visualize progress with respect to an actual calendar. Both are line diagrams.
- B. The PERT chart (which is a line diagram) makes it easy to visualize task dependencies and milestones, whereas the Gantt chart (which is a bar chart) makes it easy to visualize progress with respect to an actual calendar.
- C. The PERT chart (which is a bar chart) makes it easy to visualize task dependencies and milestones, whereas the Gantt chart (which is a line diagram) makes it easy to visualize progress with respect to an actual calendar.
- D. The Gantt chart makes it easy to visualize task dependencies and milestones, whereas the PERT chart makes it easy to visualize progress with respect to an actual calendar. Both are bar charts.

Correct answer: B

38. The intermediate survey for a vessel is typically carried out at what point in the survey cycle?

- A. At or between the second and third annual classification surveys
- B. Before the second annual classification survey
- C. After the third annual classification survey
- D. Between the second and third special classification surveys

Correct answer: A

39. As Chief Engineer you join a vessel enrolled in Continuous Machinery Survey. Approximately what percent of the machinery should be surveyed per year throughout the Special Survey cycle?

- A. 10%
- B. 20%
- C. 25%
- D. 50%

Correct answer: B

40. According to 46 CFR regulations pertaining to periodic tests and inspections as related to machinery and equipment, what functional test must be performed on boiler draft fans, fuel oil transfer and service pumps, and machinery space ventilation fans during periodic inspections?

- A. Remote startup capability
- B. Remote shutdown capability
- C. Remote run status indication capability
- D. Remote speed change capability

Correct answer: B

41. According to 46 CFR regulations pertaining to periodic tests and inspections as related to machinery and equipment, what statement is true concerning tailshaft examinations?
- A. Tailshaft examination requirements only apply to vessels in ocean and coastwise service and the inspection must be conducted in the presence of a marine inspector.
 - B. Tailshaft examination requirements only apply to vessels in ocean and coastwise service and the inspection must be conducted in the presence of the chief engineer.
 - C. Tailshaft examination requirements only apply to vessels in ocean service and the inspection must be conducted in the presence of the chief engineer.
 - D. Tailshaft examination requirements only apply to vessels in ocean service and the inspection must be conducted in the presence of a marine inspector.

Correct answer: A

42. When transitioning from full sea speed to maneuvering speed on a slow-speed diesel-powered motor vessel featuring a direct-drive fixed-pitch propeller propulsion arrangement, how should this be accomplished?
- A. The engine should be decelerated from full sea speed to maneuvering speed very gradually, even if it means lingering for extended periods of time at critical speeds.
 - B. The engine should be decelerated from full sea speed to maneuvering speed very gradually, without any concern for critical speeds as they will not be encountered.
 - C. The engine should be decelerated from full sea speed to maneuvering speed very gradually, but should transition through any critical speeds without any lingering.
 - D. The engine should be decelerated from full sea speed to maneuvering speed very quickly and should transition through any critical speeds without any lingering.

Correct answer: C

43. As a chief engineer on a motor vessel in a shipyard undergoing extensive repairs/modifications or being repaired after a significant grounding, what factors would you consider paramount to ensure the main engine and line shafting are properly aligned?
- A. Ascertain that crankshaft deflections are within limits and that main shaft bearing reactions are as per design.
 - B. Physically check all main engine bed frame hold down bolts.
 - C. Rely on shipyard's optical/laser alignment figures.
 - D. Confirm proper clearances of all crankshaft and line shaft bearings.

Correct answer: A

44. Of all the individual components of a pre-fire planning package, which component contains information about emergency duty station locations and responsibilities for each crew member by position AND name?
- A. Fire control plan
 - B. Muster list
 - C. Station bill
 - D. Pre-fire plan

Correct answer: B

45. An important component of pre-planning for fire emergencies is the fire control plan. Which statement is true concerning the fire control plan for a vessel?

- A. The fire control plan is a set of written instructions and contains information for how to extinguish a fire in a particular space.
- B. The fire control plan is a set of drawings for each deck of the vessel and contains information for how to extinguish a fire in a particular space.
- C. The fire control plan is a set of drawings for each deck of the vessel and contains information on vessel arrangements and fire suppression systems and locations of firefighting equipment.
- D. The fire control plan is a set of written descriptions for each deck of the vessel and contains information on vessel arrangement and fire suppression systems and locations of firefighting equipment.

Correct answer: C

46. In accordance with the international MARPOL Annex VI regulations, what is the minimum allowable flue gas outlet temperature for a continuous-fed shipboard incinerator while in operation?

- A. 450oC
- B. 650oF
- C. 850oF
- D. 1050oF

Correct answer: C

47. Machinery spaces must be designed to minimize the exposure of personnel to noise in accordance with U.S. regulations. Machinery control room noise must not exceed which noise level?

- A. 75 dB(A)
- B. 85 dB(A)
- C. 90 dB(A)
- D. 110 dB(A)

Correct answer: A

48. You are installing a new refrigeration system aboard your vessel. The system comes with a 240 psi rupture disk, a safety valve set at 240 psi and a pressure gauge connection and gauge. In accordance with 46 CFR, what is the preferred setup for installing the equipment on the condenser?

- A. The rupture disk, safety valve, and pressure gauge are all piped in parallel.
- B. Rupture disk closest to the condenser, then pressure gauge then safety valve in series after the rupture disk.
- C. Pressure gauge closest to the condenser, then safety valve then rupture disk in series after the pressure gauge.
- D. Safety valve closest to the condenser, then pressure gage then rupture disk in series after the safety valve.

Correct answer: D

49. If a vessel is to be laid up for an extended period of time with minimal utilities provided from ashore, what statement is true as it relates to keeping gearboxes, turbine casings, and engine crankcases dry and free of moisture?
- A. A combination of mechanical circulation of air and dehumidification should be used.
 - B. A combination of an absence of air circulation and dehumidification should be used.
 - C. A combination of an absence of air circulation and humidification should be used.
 - D. A combination of mechanical circulation of air and humidification should be used.

Correct answer: A

50. If a vessel is to be laid up for an extended period of time with minimal utilities provided where freezing is not a concern, boilers may be laid up wet. What statement concerning wet boiler lay-up is true?
- A. The boiler should be completely filled with deaerated and chemically treated water until water issues from the atmospheric vent.
 - B. The boiler should be completely filled with ordinary fresh water (such as potable water) until water issues from the atmospheric vent.
 - C. The boiler should be filled with ordinary water (such as potable water) until the water level is brought to the top of the sight glass.
 - D. The boiler should be filled with deaerated and chemically treated water until the water level is brought to the top of the sight glass.

Correct answer: A

51. If a new assistant engineer reports onboard, ideally, who should conduct the familiarization training specific and relevant to the engineer's routine maintenance and watchkeeping duties?
- A. The 3rd assistant engineer being relieved
 - B. Chief engineer
 - C. First assistant engineer
 - D. The designated ship's training officer

Correct answer: A

52. Before training is to be planned for, it is necessary to conduct a training needs analysis. What would be the best source of information to analyze before providing general safety training?
- A. Conduct a careful review of all manufacturer technical manuals for safety related instructions.
 - B. Conduct a careful review of all marine casualty and damage reports filed.
 - C. Conduct a careful review of all accident and incident investigations.
 - D. Conduct a careful review of all vessel procedures and policy manuals for safety related instructions.

Correct answer: C

53. Before training is to be planned for, it is necessary to conduct a training needs analysis. What would be the best source of information to analyze before providing fire emergency skills training?
- A. Analyzing insurance premium costs relevant to fires that have occurred on the vessel in the past.
 - B. Direct observation and reviewing critiques of the execution of shipboard fire and emergency drills performed by the existing crew.
 - C. Analyzing statistical data collected relevant to fires that have occurred on the vessel in the past.
 - D. Reviewing marine casualty and damage reports attributed to fires that have occurred on the vessel in the past.

Correct answer: B

54. As a management level engineering officer on a motor vessel equipped with engines capable of burning both high sulfur content residual fuels and low sulfur content distillate fuels, on departure from a US port, when would you plan for the fuel changeover be commenced?
- A. When leaving US territorial boundaries 12 miles from the coastline.
 - B. When leaving US navigable waters 3 miles from the coastline.
 - C. When leaving the US economic exclusion zone 200 miles from the coastline.
 - D. When leaving the SOx emission control area.

Correct answer: D

55. A very large crude carrier is scheduled to depart of the Port of Long Beach, CA at 0800 on June 28th on a voyage to exceed 48 hours. What is the EARLIEST time that the communication means between the wheelhouse and the engine control room could be tested prior to getting underway and be in compliance 46 CFR Subchapter D (Tank Vessels)?
- A. 0800 June 27th
 - B. 1400 June 27th
 - C. 2000 June 27th
 - D. 0200 June 28th

Correct answer: C

56. There are many tasks to carry out prior to and during bunkering. What is the best way to ensure no task is missed?
- A. Use of the vessel oil pollution response plan.
 - B. Use of the certificate of inspection.
 - C. Use of the declaration of inspection.
 - D. Use of a bunkering safety checklist.

Correct answer: D

57. As a chief engineer you are reviewing the engine room logbook. You must ensure that all entries are made properly. What should be your criteria for how a watch officer makes a correction to an incorrect log entry?
- A. The incorrect entry should be completely obliterated, and the new correct entry made just below the obliterated incorrect entry.
 - B. The new correct entry should be written directly on top of the old incorrect entry making every effort to cleverly disguise the incorrect entry.
 - C. The incorrect entry is to be completely erased and the new correct entry written on top of the erasure, so no evidence remains of the incorrect entry.
 - D. The incorrect entry should have a thin line drawn through the error and be initialed by the person making the correction so that the incorrect entry is still visible.

Correct answer: D

58. Resonant vibrations, which can cause machinery failure, occur when which of the following conditions happen?
- A. The natural frequency of the machinery is the same as the free vibration frequency.
 - B. The frequency of an external vibration is the same as one of the natural frequencies of the machinery.
 - C. The machinery is operated at the natural frequency with no external forces in play.
 - D. A forced frequency is placed on a piece of operating machinery.

Correct answer: B

59. If it is desired to perform a thermographic analysis of new equipment to gain a thermal signature for purposes of comparison to the thermal signature for the same equipment at a later date, what is the name of the thermography performed on the equipment when new?

- A. Comparative thermography
- B. Spectral thermography
- C. Thermal trending
- D. Baseline thermography

Correct answer: D

60. Which of the following comprehensive computerized maintenance system database modules would contain data such as part numbers and part stowage locations?

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

Correct answer: A

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

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

Correct answer: A

62. What type of maintenance system would be associated with accomplishing maintenance after a machinery breakdown?

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

Correct answer: B

63. Which of the following would be a positive outcome associated with performing a trend analysis of data acquired from lube oil testing, vibration sensors, performance data sensors, and thermographic sensors?

- I) Avoidance of catastrophic failures.
- II) Determining the need of when to perform corrective maintenance.
- III) Improving the overall effectiveness of the engineering plant.

- A. I only
- B. II only
- C. I and II only
- D. I, II, and III

Correct answer: D

64. As a management level engineering officer, you are apt to be the primary investigator investigating the root cause of the failure of a piece of machinery. Besides collecting and preserving the physical evidence of the failure and interviewing key personnel, which of the following supplemental information should be considered?

- I) Onboard operating and maintenance procedures
- II) Historical operating and maintenance records
- III) Technical manuals and specifications
- IV) Personnel training records

- A. I, II, and III only
- B. I, III, and IV only
- C. II, III, and IV only
- D. I, II, III, and IV

Correct answer: D

65. Which of the following statements represents the acceptable practice to follow to prevent mixing of potentially incompatible fuels in a heavy fuel oil settling tank?

- A. Before shifting storage tank transfer pump suctions to another set of tanks, ideally the recipient heavy fuel oil settling tank should be brought to 50% volumetric capacity first.
- B. Before shifting storage tank transfer pump suctions to another set of tanks, ideally the recipient heavy fuel oil settling tank should be stripped empty first.
- C. Before shifting storage tank transfer pump suctions to another set of tanks, ideally the recipient heavy fuel oil settling tank should be drained of moisture and solids first.
- D. Before shifting storage tank transfer pump suctions to another set of tanks, ideally the recipient heavy fuel oil settling tank should be brought to the proper settling temperature first.

Correct answer: B

66. When observing the candidate's performance while conducting an assessment, what is the appropriate response from the assessor when a safety condition is being violated?

- A. The assessment must be terminated whenever safety conditions are being violated.
- B. The assessor should offer unsolicited assistance in order to correct the unsafe condition.
- C. The assessor should ask leading questions in an attempt to correct the unsafe condition.
- D. For the purposes of assessment, the safety condition violation should be ignored.

Correct answer: A

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

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

Correct answer: C

68. 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. 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.
 - B. 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.
 - C. 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.
 - D. All discharges, transfers, or disposal of bilge water must be logged in the oil record book by the officer in charge of the operation.

Correct answer: C

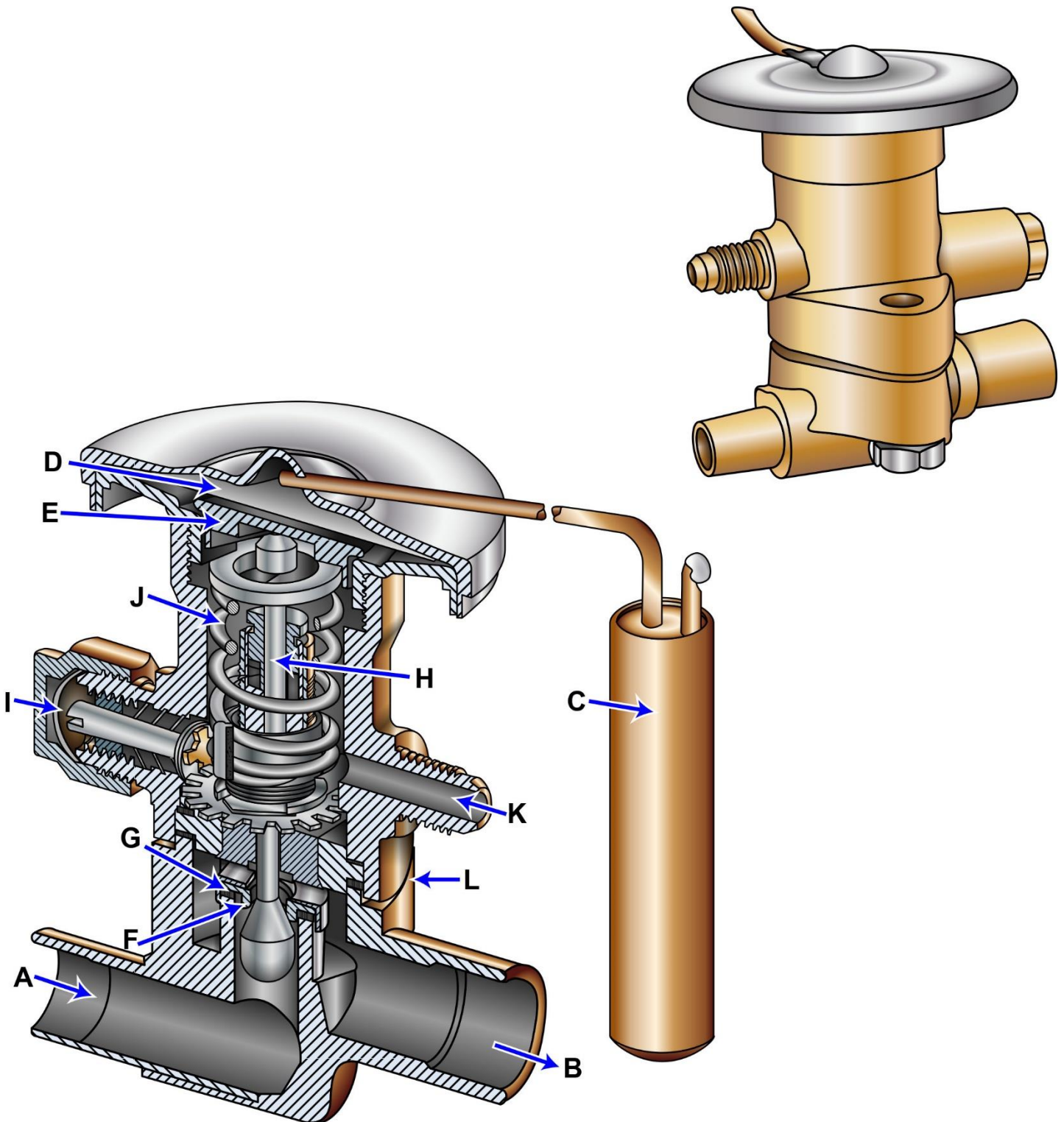
69. What is meant by the term empowering employees?
- A. Rewarding employees with positive rewards such as the availability of overtime.
 - B. Gaining employee compliance under threat of punishment such as pulling overtime.
 - C. Granting employee's authority to make key decisions by delegation.
 - D. Gaining employee acceptance and identification based on personal charisma.

Correct answer: C

70. What is usually the first step in trying to resolve a beef or a dispute brought up by a crew member?
- A. Filing a formal grievance with the port committee made up of both company and union representatives in port before terminating articles.
 - B. Filing a formal grievance with a company and union agreed-upon arbitrator for binding arbitration.
 - C. Attempting to resolve the conflict by the crew member and the affected supervisor as immediately as practical.
 - D. Filing a formal grievance with the union's designated representative on board before terminating articles.

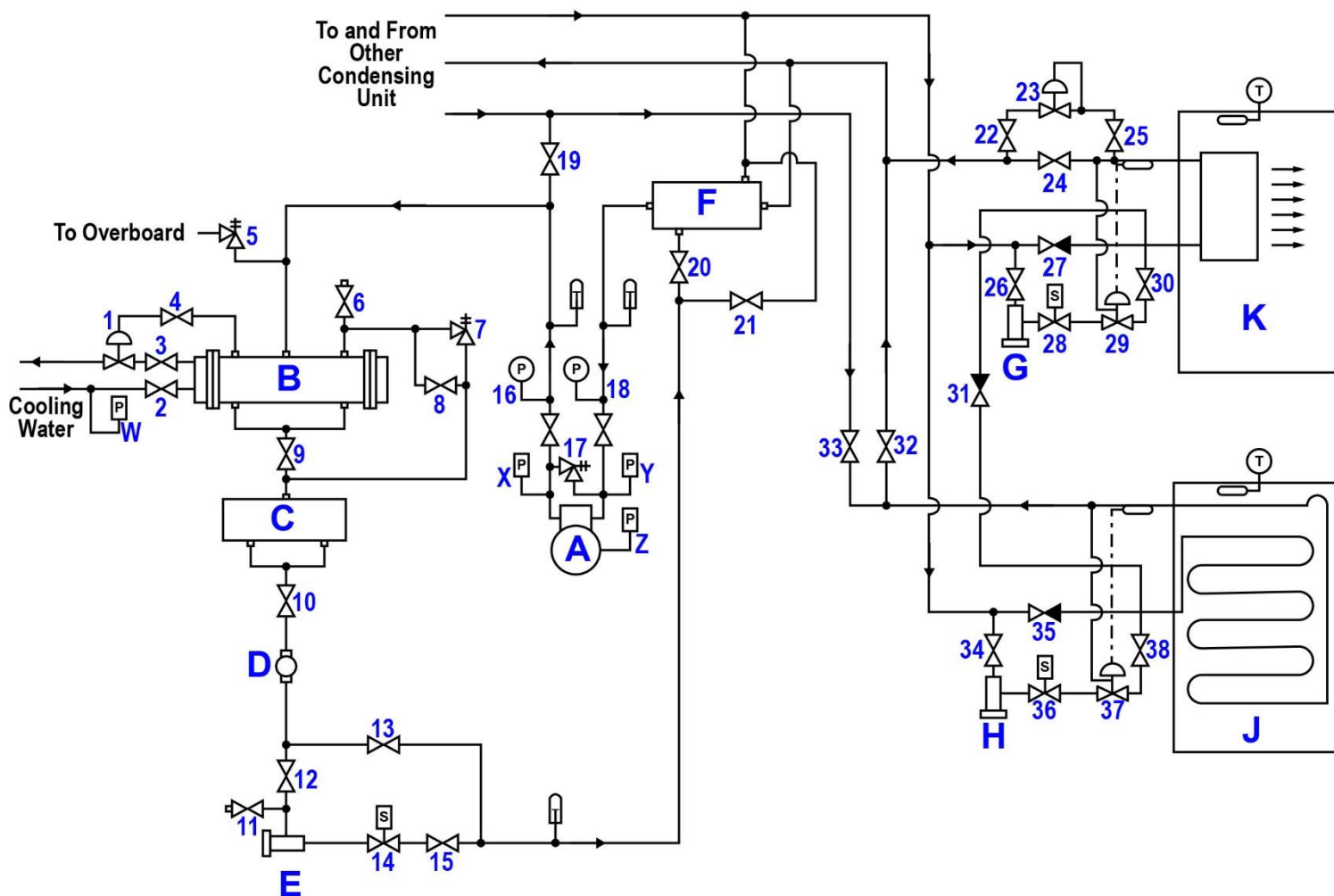
Correct answer: C

RA-0007



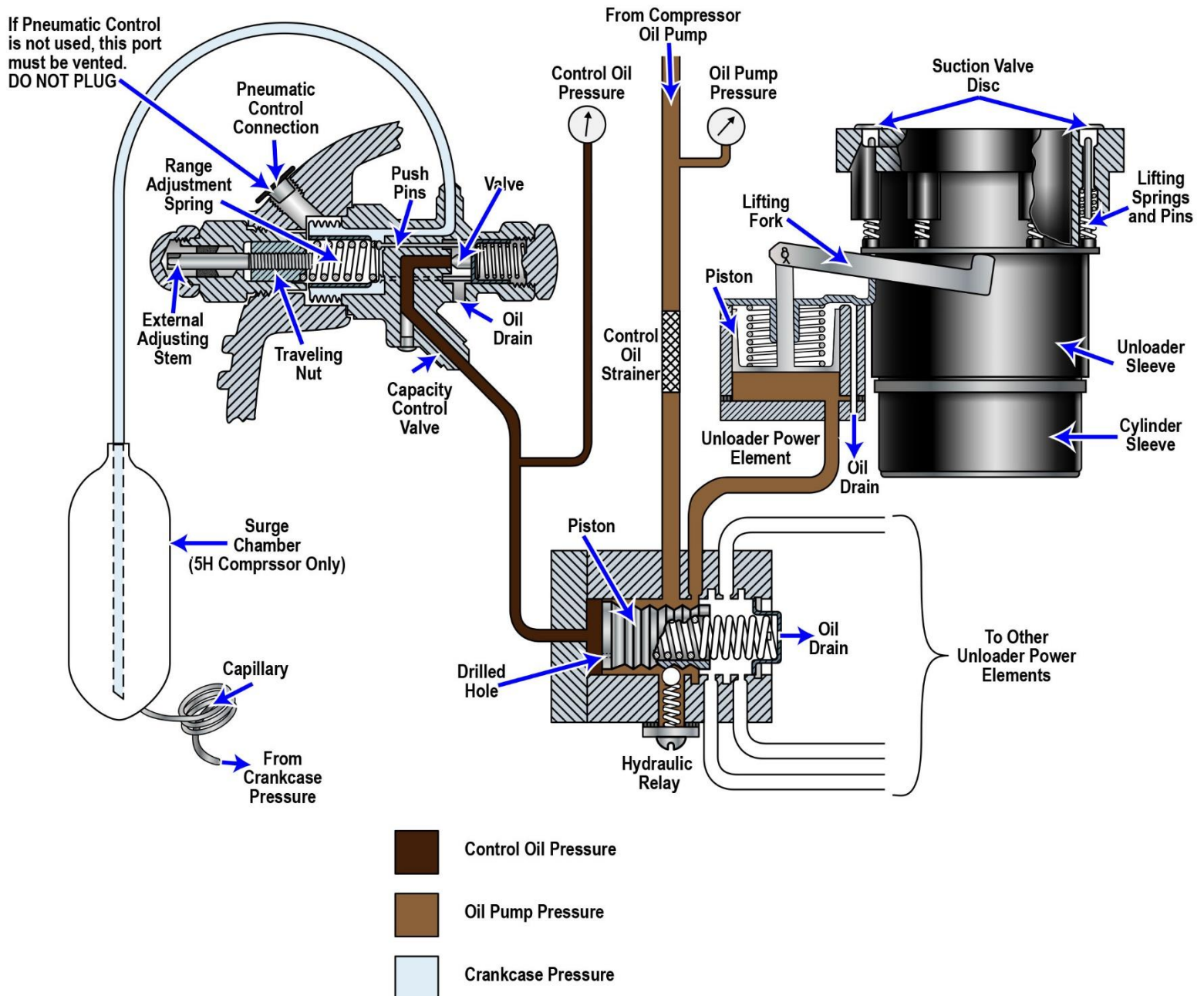
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RA-0012



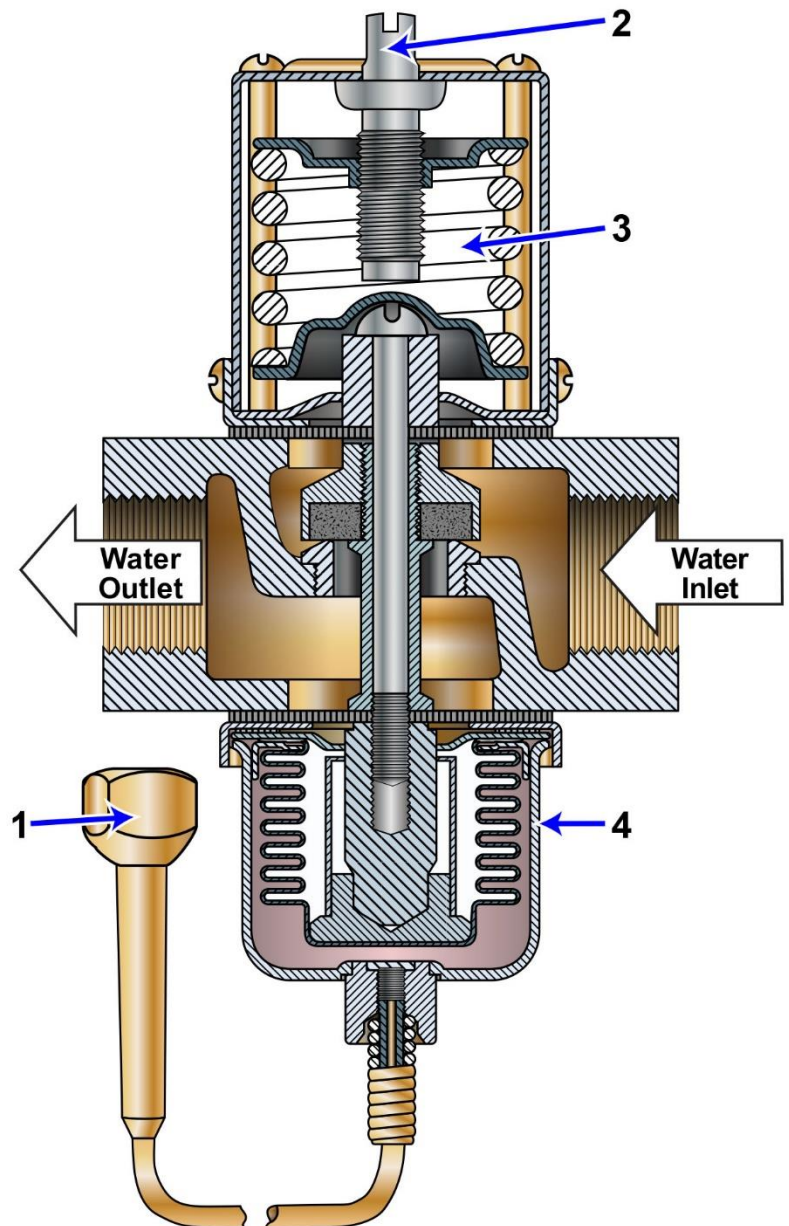
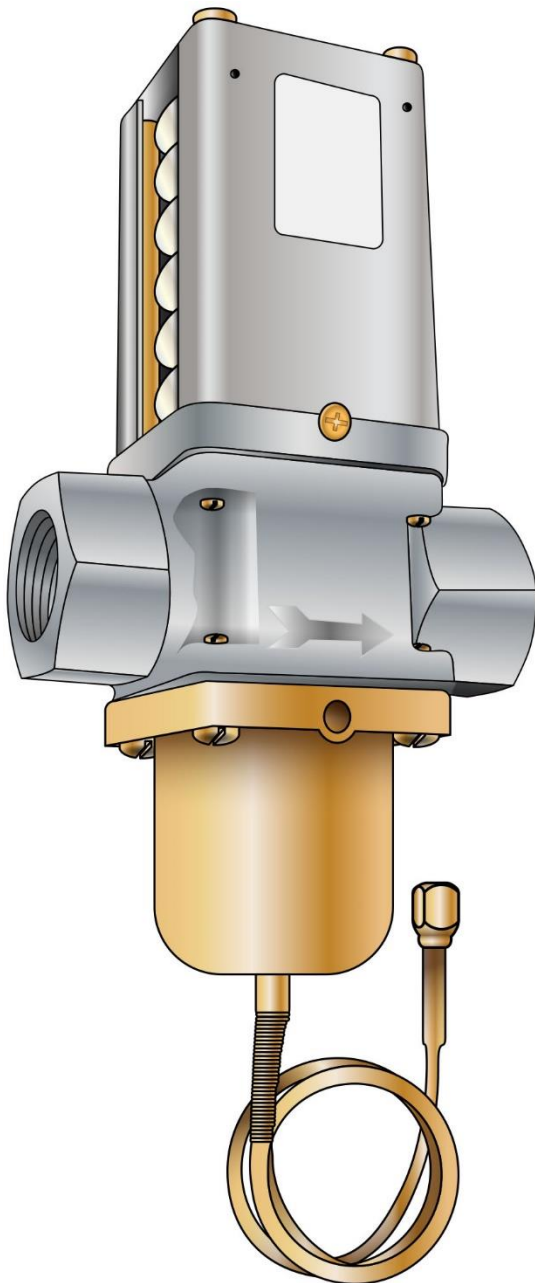
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RA-0013



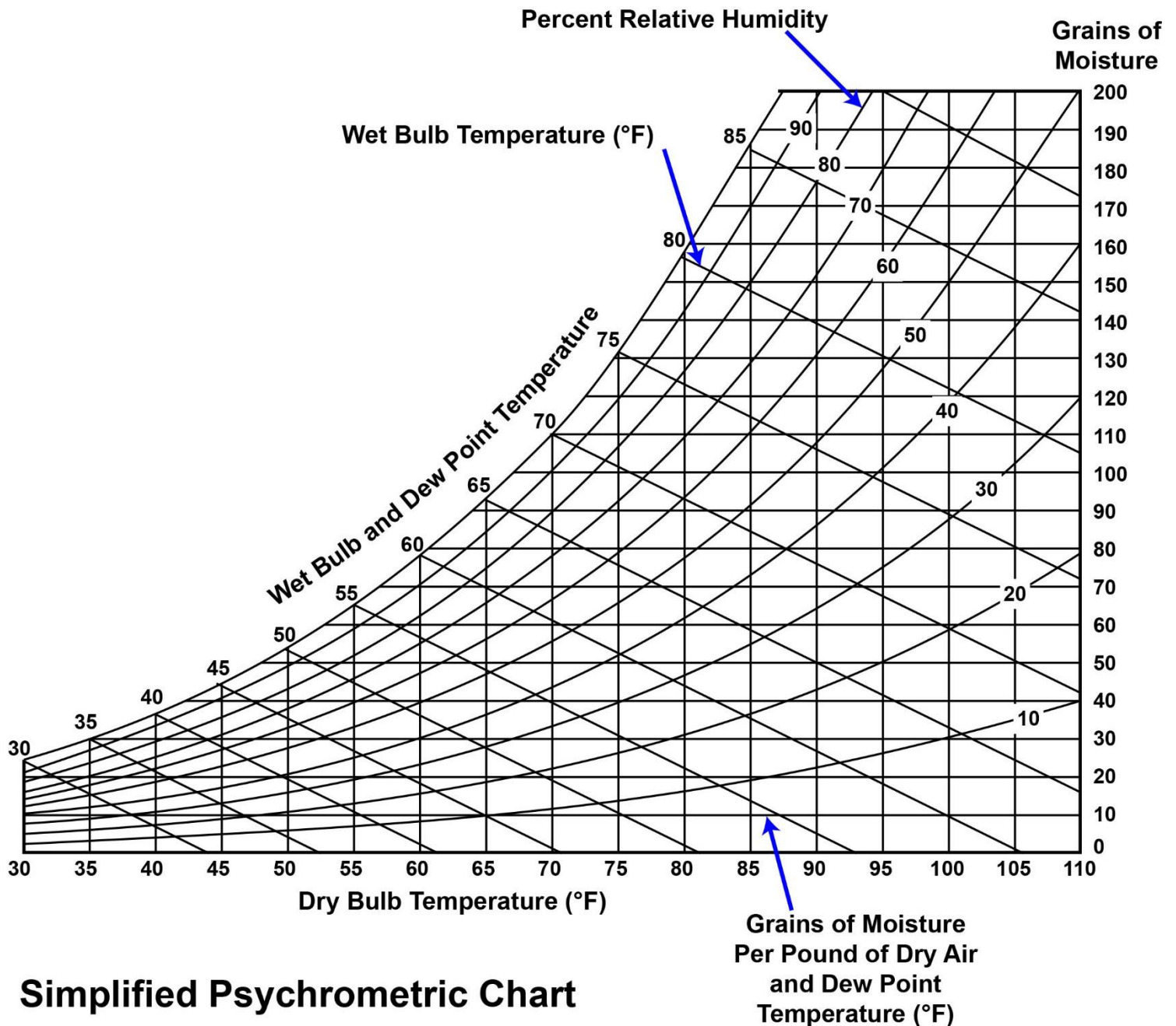
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RA-0014



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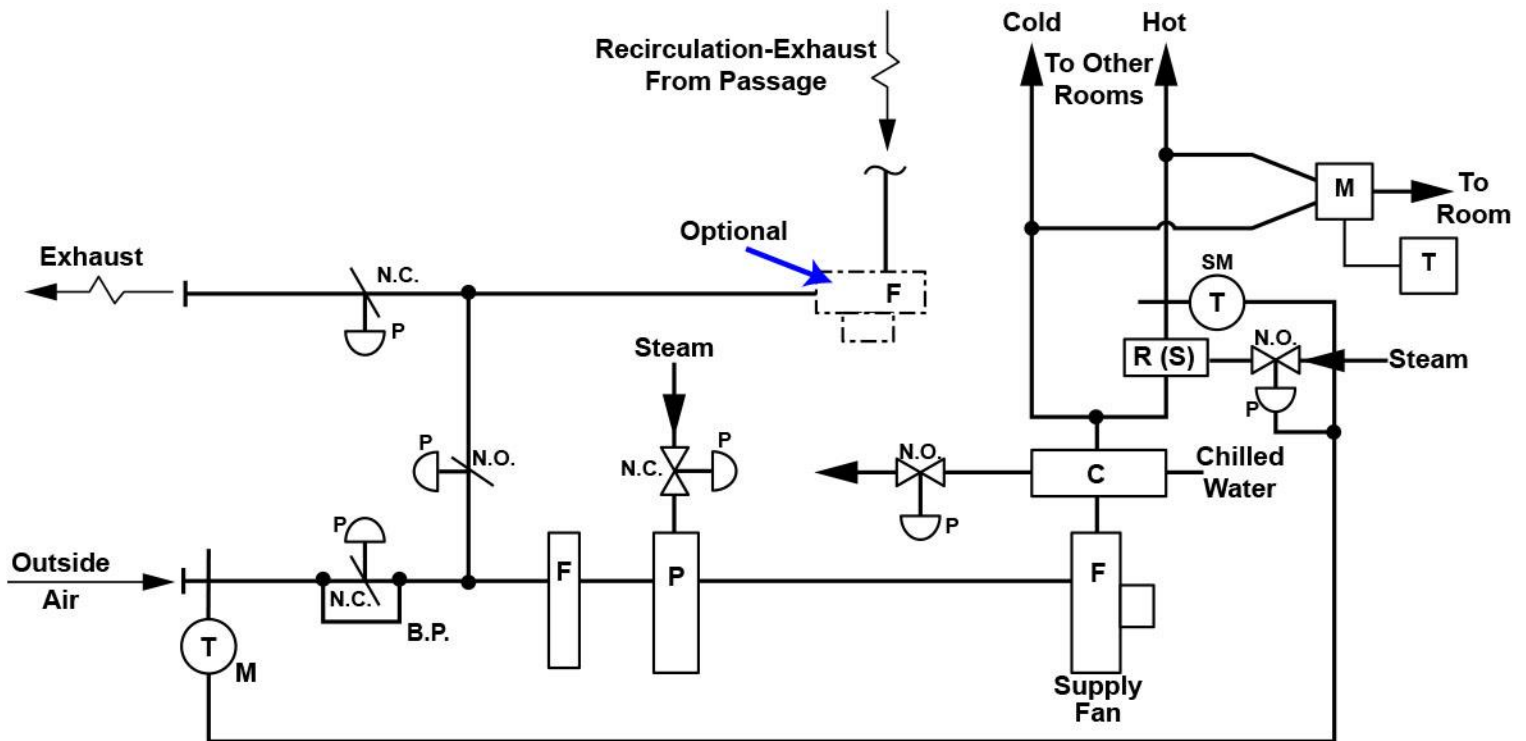
RA-0022







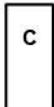





Simplified Psychrometric Chart

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RA-0043



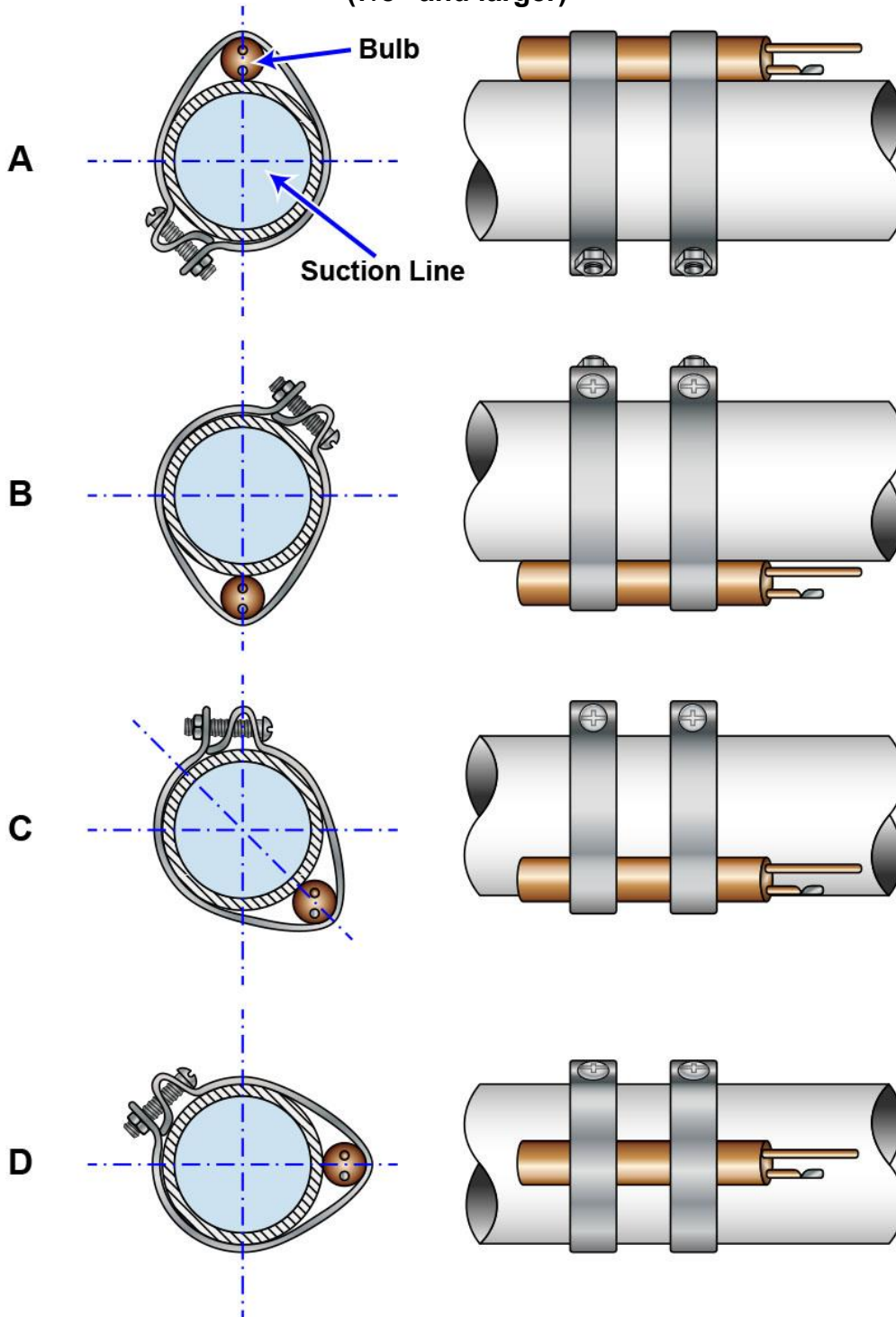
LEGEND

	Fan		Room Thermostat
	Filter		Duct Thermostat
	Cooling Coil		Pneumatic Damper and Motor
	Preheater (Steam)		Pneumatic Relay
	Reheater (Steam)	N.C.	Normally Closed (Valve or Damper)
	Dual Duct Air Mixing Unit	N.O.	Normally Open (Valve or Damper)
		B.P.	Minimum Outside Air Bypass
		P	Positive Positioning Relay
		M	Sub-Master
		SM	Master

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RA-0050

TXV Feeler Bulb on Small Suction Line (7/8" and larger)



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