

U.S.C.G. Merchant Marine Exam

QMED

Q806 Fireman-Watertender

(Sample Examination)

Choose the best answer to the following Multiple Choice Questions.

1. If a steam propulsion plant is provided with two main propulsion boilers, two fuel oil service heaters, two fuel oil service pumps, and two fuel oil settling tanks, what is the capacity of each fuel oil service heater?
- (A) Each heater has the capacity to supply heated fuel to both boilers under full load with one service pump running.
 - (B) Each heater has the capacity to supply heated fuel to both boilers under full load with both service pumps running.
 - (C) Each heater has the capacity to supply heated fuel to just one boiler under full load with both service pumps running.
 - (D) Each heater has the capacity to supply heated fuel to just one boiler under full load with one service pump running.

If choice A is selected set score to 1.

2. The main steam stop bypass valve is used to _____.
- (A) isolate the main steam stop for repairs while steaming
 - (B) gradually increase the pressure and temperature of the main steam piping when warming up
 - (C) cross-connect two steaming boilers
 - (D) supply auxiliary steam when the main steam stop is closed

If choice B is selected set score to 1.

3. Steam condensed in the air ejector inter condenser, drains to the _____.
- (A) atmospheric drain tank
 - (B) vent condenser drain tank
 - (C) main condenser through the loop seal
 - (D) after condenser drain tank

If choice C is selected set score to 1.

4. Which of the listed devices would be installed at a control system air pressure reducing station?
- (A) Non-return valve
 - (B) Vacuum breaker
 - (C) Lubricator
 - (D) Moisture separator

If choice D is selected set score to 1.

5. The usual method of unloading a low-pressure air compressor at start-up is accomplished by _____.

- (A) the use of a precharged accumulator
- (B) temporarily discharging to the air receiver
- (C) holding the discharge valve open
- (D) holding the suction valve open

If choice D is selected set score to 1.

6. Which of the listed order of valves represents the proper installation of the main feed water supply line to a marine propulsion boiler?

- (A) Stop, regulator, stop-check
- (B) Regulator, stop, stop-check
- (C) Stop-check, stop, regulator
- (D) Stop-check, regulator, stop

If choice D is selected set score to 1.

7. If a boiler is brought on the line with its steam pressure much higher than that of the boiler already on the line, there is danger of _____.

- (A) thermal shock
- (B) low water
- (C) an overloaded superheater
- (D) priming and carryover

If choice D is selected set score to 1.

8. The pressure in the feed water system must exceed boiler steam drum pressure in order to _____.

- (A) prevent air leakage into the feed water system
- (B) prevent water hammer in the lines
- (C) remove the steam from the steam drum
- (D) force the feed water into the boiler

If choice D is selected set score to 1.

9. The auxiliary exhaust system shown in the illustration can be supplied by steam from the _____. Illustration SG-0024

- (A) distilling plant
- (B) turbo-generators
- (C) IP bleed system
- (D) LP bleed system

If choice C is selected set score to 1.

10. The external flotation bladder on an immersion suit should be inflated _____.

- (A) before you enter the water
- (B) after you enter the water
- (C) after one hour in the water
- (D) after you notice that your suit is losing buoyancy

If choice B is selected set score to 1.

11. When administering mouth-to-mouth rescue breathing to an adult, you should breathe at the rate of how many breaths per minute?

- (A) 4
- (B) 8
- (C) 12
- (D) 20

If choice C is selected set score to 1.

12. An excess pressure governor is a special type of control device which would normally be found on a _____.

- (A) main circulator pump
- (B) forced draft fan
- (C) low-pressure propulsion turbine
- (D) turbine-driven feed pump

If choice D is selected set score to 1.

13. Fuels as produced in a refinery are generally sterile; however, contamination can occur as fuels are _____.

- (A) transported to the distribution sites
- (B) stored at the refinery
- (C) stored on the vessel
- (D) All of the above are correct.

If choice D is selected set score to 1.

14. Which of the following statements is correct regarding the fog applicators used in conjunction with the combination nozzle?

- (A) On container ships, an applicator termed a bayonet or piercing type utilizes a sharp tip for cutting and penetrating the metal skin of a container.
- (B) In machinery spaces, the applicators should be 10 to 12 feet in length to insure all portions of the bilge can be effectively reached.
- (C) All cargo and miscellaneous vessels must be equipped with high velocity fog applicators for use with the required combination nozzle at each station.
- (D) All of the above.

If choice A is selected set score to 1.

15. Prior to relieving the watch you should first check the fire room status by verifying the boiler steam drum level and _____.

- (A) port and starboard settling tank levels
- (B) preparing to blow tubes
- (C) inspecting the fires and burners
- (D) stack temperature

If choice C is selected set score to 1.

16. Which of the following statements is correct concerning heat transfer?

- (A) Heat is given off from a high temperature region known as a heat sink.
- (B) Heat transfer rate is affected most by the size of the heat sink involved.
- (C) Heat transfer rate is affected most by the temperature difference between the heat source and the heat sink.
- (D) Heat transfer by radiation will occur only by mass motion of a fluid substance.

If choice C is selected set score to 1.

17. Which of the following procedures reduces the possibility of an interior ventilation duct fire from rapidly spreading?

- (A) Keeping the duct exterior clean.
- (B) Having a portable CO₂ ready at each duct opening.
- (C) Having a fire hose charged at each duct opening.
- (D) Keeping the duct interior clean.

If choice D is selected set score to 1.

18. By which of the listed methods may heat be transferred from one body to another?

- (A) Convection
- (B) Conduction
- (C) Radiation
- (D) All of the above

If choice D is selected set score to 1.

19. What type of wound is most susceptible to a tetanus (lockjaw) infection?

- (A) Abrasion
- (B) Incision
- (C) Laceration
- (D) Puncture

If choice D is selected set score to 1.

20. In the event of a fire, the doors to a stair tower must be closed to prevent the spread of fire by _____.

- (A) conduction
- (B) radiation
- (C) ventilation
- (D) convection

If choice D is selected set score to 1.

21. The main feed check valve functions to _____.

- (A) reduce feed pump discharge pressure loading
- (B) prevent backflow of water from the boiler in the event of a feed pump failure
- (C) check pressure pulsations in the feed line
- (D) provide feed pump positive discharge head

If choice B is selected set score to 1.

22. When the compressed air reservoir is placed in line with an air compressor and is used as an after cooler, the reservoir must be _____.

- (A) fitted with a moisture trap at the inlet
- (B) frequently drained of condensed water
- (C) fitted with a manhole
- (D) fitted with a sight glass

If choice B is selected set score to 1.

23. What will be the FIRST thing to occur if both the main and standby lube oil pumps failed to operate on a geared main propulsion steam turbine operating at full sea speed?

- (A) Ahead throttle will close.
- (B) Shaft brake will engage.
- (C) Vacuum will be lost.
- (D) Lube oil sump will overflow.

If choice A is selected set score to 1.

24. Which of the following symptoms may be observed in a victim of cardiac arrest as a result of electric shock?

- (A) weak pulse at wrist or neck
- (B) respiration is weak or has stopped
- (C) flushed face
- (D) all of the above symptoms

If choice B is selected set score to 1.

25. Which of the listed conditions is a symptom of sun stroke?

- (A) Temperature is high, pulse is slow and feeble, and skin is clammy.
- (B) Temperature is high, pulse is strong and rapid, and skin is hot and dry.
- (C) Temperature falls below normal, pulse is rapid and feeble, and skin is cold and clammy.
- (D) Temperature falls below normal, pulse is rapid, and skin is clammy.

If choice B is selected set score to 1.

26. In a cross-compounded turbine propulsion plant, steam enters the _____.

- (A) high-pressure unit and then cross-flows to the condenser
- (B) high and low-pressure units simultaneously
- (C) high-pressure unit and then flows through a crossover to the low-pressure unit
- (D) high-pressure, intermediate and low-pressure units simultaneously

If choice C is selected set score to 1.

27. The jacking gear on main propulsion turbines can be used to _____.

- (A) lift the reduction gear casing
- (B) provide propulsion in emergencies
- (C) provide reduction gear tooth inspection
- (D) reduce turbine speed during maneuvering

If choice C is selected set score to 1.

28. One of the limitations of foam as a fire extinguishing agent is that foam _____.

- (A) cannot be made with salt water
- (B) conducts electricity
- (C) is heavier than oil and sinks below its surface
- (D) is corrosive and a hazard to firefighters

If choice B is selected set score to 1.

29. Why should you wear a self-contained breathing apparatus before entering a closed compartment to fight a fire?

- (A) The fire produces smoke, which contains toxic gases that cause breathing difficulties and irritation of the respiratory tract.
- (B) The fire consumes oxygen which may lead to asphyxiation.
- (C) The fire produces carbon monoxide which causes an oxygen deficiency in the brain and body, leading quickly to death.
- (D) All of the above.

If choice D is selected set score to 1.

30. What would be the most probable cause for a high-pressure alarm to be activated in a low-pressure CO₂ fixed fire extinguishing system?

- (A) An excessive amount of insulation has been installed on the tank and piping.
- (B) An air leak has developed in the tank.
- (C) The tank cooling system has malfunctioned.
- (D) The pilot cylinder discharge valve is leaking.

If choice C is selected set score to 1.

31. If a patient has an electrical burn, you would check for breathing, pulse, and _____.

- (A) remove any dirt or charred skin from the burned area
- (B) apply alcohol to the burn area and wrap with clean cloth
- (C) locate the nearest water source and flood the burn with water for five minutes
- (D) look for a second burn, which may have been caused by the current leaving the body

If choice D is selected set score to 1.

32. In figure 1 of the illustration, fire would spread to compartment "B" by _____. Illustration SF-0013

- (A) radiation
- (B) impingement
- (C) convection
- (D) conduction

If choice D is selected set score to 1.

- 33.** At a minimum threshold, how many milliamps of current through the body produces a condition where most people would be unable to let go of the energized electrical conductor due to involuntary muscular contraction?
- (A) 3 to 7 mA
 - (B) 10 to 16 mA
 - (C) 30 mA
 - (D) 75 mA for 5 sec.

If choice B is selected set score to 1.

- 34.** When fighting an oil or gasoline fire, which of the listed fire extinguishing agents should NEVER be sprayed directly into the fire?
- (A) Dry chemical
 - (B) Steam smothering
 - (C) Low velocity fog
 - (D) High velocity fog

If choice A is selected set score to 1.

- 35.** As found in a reduction gear drive system, thrust bearings serve to _____.
- (A) limit the radial movement of the shaft
 - (B) transmit the force produced by the propeller to the structure of the ship
 - (C) hold the main engine in place
 - (D) increase the shaft speed

If choice B is selected set score to 1.

- 36.** Which of the following statements about boilers is correct?
- (A) Loss of water will not harm a boiler if the water level can be restored.
 - (B) No boiler will continue to generate steam after the fires are secured.
 - (C) The water level in a properly operated boiler will not shrink or swell.
 - (D) A hot boiler will continue to generate steam after the fires are secured.

If choice D is selected set score to 1.

- 37.** After the steam leaves the low-pressure turbine, it enters the _____.
- (A) main condenser
 - (B) turbine extraction valve manifold
 - (C) feed and filter tank
 - (D) first-stage feed water heater

If choice A is selected set score to 1.

38. Serious tube leaks in the air ejector after condenser assembly may cause _____.

- (A) an overflow of the contaminated drain inspection tank
- (B) an overflow of the atmospheric drain tank
- (C) clogged steam strainers
- (D) fouled nozzles

If choice B is selected set score to 1.

39. At a minimum threshold, how many milliamps of current through the body produces a painful sensation that most people would perceive as an electric shock?

- (A) 3 to 7 mA
- (B) 10 to 16 mA
- (C) 30 mA
- (D) 100 mA for 2.5 sec.

If choice A is selected set score to 1.

40. In addition to sensing steam drum water level, what additional sensing input does a two-element feed water regulator control system utilize?

- (A) Boiler feed flow
- (B) Boiler fuel flow
- (C) Boiler steam flow
- (D) Boiler air flow

If choice C is selected set score to 1.

41. To prevent pulsations from developing in the boiler feed water lines, the discharge side of a reciprocating feed pump is equipped with a/an _____.

- (A) feed water regulator
- (B) air chamber
- (C) reed valve
- (D) relief valve

If choice B is selected set score to 1.

42. (1.4.3.1-2) Most auxiliary turbine feed pumps do not require an external source of gland sealing steam because they _____.

- (A) operate at relatively low pressures
- (B) utilize carbon packing rings at the low-pressure end
- (C) operate with only a small amount of axial thrust
- (D) exhaust to pressures above atmospheric pressure

If choice D is selected set score to 1.

43. What type of gland seal packing arrangement is shown in the illustrated turbine shaft gland?
Illustration SE-0006

- (A) Straight-through carbon packing.
- (B) Stepped labyrinth packing.
- (C) Straight-through labyrinth packing.
- (D) Stepped carbon packing.

If choice B is selected set score to 1.

44. As shown in the illustrated D type single furnace boiler, what does item "G" represent? Illustration
SG-0008

- (A) Superheater tubes
- (B) Generating tubes
- (C) Screening tubes
- (D) Desuperheater tubes

If choice A is selected set score to 1.

45. Which of the following procedures represents the proper care of unused burners during low load conditions?

- (A) They may be left in place, with fuel and steam secured as long as they are not fouled.
- (B) They should be removed, cleaned and stored in the rack on the burner bench.
- (C) They may be left in place, but only if they are clean and if fuel oil is recirculated to provide cooling.
- (D) They should be removed, cleaned, refitted with smaller tips and reinstalled to be ready for immediate use.

If choice B is selected set score to 1.

46. When replacing a gasket in a six-bolt flanged joint, in what order should the bolts be tightened?

- (A) Install and tighten bolts in pairs which are opposite each other in the flange (1-4, 2-5, and 3-6).
- (B) Each bolt should be installed and tightened in consecutive order in the counter-clockwise direction.
- (C) Each bolt should be installed and tightened in consecutive order in the clockwise direction.
- (D) Install and tighten bolts 1, 3, 4, 2, 5, and 6, in that order.

If choice A is selected set score to 1.

47. Ball peen hammers are sized according to their _____.

- (A) overall length
- (B) face diameter
- (C) head weight
- (D) peen head size

If choice C is selected set score to 1.

48. Which of the listed characteristics of fuel oil establishes the danger point as far as transferring, pumping, and firing procedures are concerned?

- (A) Viscosity
- (B) Fire point
- (C) Specific gravity
- (D) Flash point

If choice D is selected set score to 1.

49. While raising steam on a cold boiler, the air cock is to be closed after _____.

- (A) the economizer drain is closed
- (B) steam has formed and all air is vented
- (C) all burners have been lit and firing normally
- (D) the boiler is cut in on the line

If choice B is selected set score to 1.

50. The emergency bilge suction valve is typically used _____.

- (A) to inject cleaning additives when the bilges are extremely dirty
- (B) when the main condenser becomes fouled, in order to provide additional cooling water circulation
- (C) to connect the rose box to the independent bilge suction
- (D) if the bilges become flooded and they cannot be emptied by any other means

If choice D is selected set score to 1.

51. To properly remove the burner tip nut from the burner barrel, the barrel should be _____.

- (A) clamped in a machinist's vice on the work bench
- (B) held by the fixture on the burner cleaning bench
- (C) fixed in the burner stowage rack
- (D) removed from the gooseneck before removing the tip nut

If choice B is selected set score to 1.

52. The flash point of a residual fuel oil should be used to determine the highest temperature to which the oil may be heated _____.

- (A) for centrifuging
- (B) in the recirculating line
- (C) for atomizing
- (D) in a storage tank

If choice D is selected set score to 1.

53. Which of the listed components would be considered the dividing line separating the condensate system from the feed water system?

- (A) Main condenser
- (B) Main air ejectors
- (C) Deaerating feed tank
- (D) Boiler drum

If choice C is selected set score to 1.

54. Why is it important for double bottom fuel oil tanks not to be topped off when loading fuel at cold temperatures?

- (A) Air pockets may cause the fuel to bubble out of the ullage hole.
- (B) Fueling valve may become stuck closed and cause the fuel oil to spill before the valve can be opened.
- (C) Increased viscosity of the product needs higher loading pressure, which increases the chances of a spill.
- (D) A temperature rise of the fuel will cause an overflow from the tank vent.

If choice D is selected set score to 1.

55. The blade for a power hacksaw should be installed with the teeth _____.

- (A) pointing toward the motor if using a 4 or 6 tooth blade and away from the motor if using a 10 or 14 tooth blade
- (B) pointing either toward or away from the motor end of the machine
- (C) pointing away from the motor end of the machine
- (D) pointing toward the motor end of the machine

If choice D is selected set score to 1.

56. The component shown in the illustration would be installed in which of the following types of fire detection systems? Illustration SF-0004

- (A) Fixed temperature
- (B) Line type pneumatic
- (C) Combined fixed temperature and rate-of-rise
- (D) Rate-of-rise

If choice A is selected set score to 1.

57. Small oil spills on deck can be prevented from contaminating any waters by _____.

- (A) regularly emptying all drip pans
- (B) plugging all scuppers and drains
- (C) placing floating booms around the ship
- (D) thoroughly draining all bunkering hoses

If choice B is selected set score to 1.

58. Which of the following modes of heat transfer does NOT require any physical contact between a warmer and a cooler substance?

- (A) Lamination
- (B) Radiation
- (C) Conduction
- (D) All of the above

If choice B is selected set score to 1.

59. According to the illustrated diagram, what is the normal source of heat for the boiler air heaters when the vessel is underway under full power? Illustration SG-0024

- (A) Intermediate pressure bleed steam.
- (B) Main feed pump drive turbine exhaust.
- (C) Deaerating feed tank.
- (D) Main boiler furnace.

If choice A is selected set score to 1.

60. Which of the pumps listed operates at constant speed and delivers water to the deaerating feed tank at a nearly constant pressure?

- (A) Main condensate pump
- (B) Main feed booster pump
- (C) Main circulating pump
- (D) Main feed pump

If choice A is selected set score to 1.

61. Which of the tanks, shown in the illustration, supplies fuel to the emergency generator? Illustration MO-0058

- (A) Light fuel oil service tank
- (B) Light fuel oil settling tank
- (C) Light fuel oil boiler tank
- (D) Light fuel oil booster tank

If choice A is selected set score to 1.

62. The main turbine gland sealing system is designed to _____.

- (A) allow minimal steam leakage out of the gland
- (B) regulate steam pressure to the glands when the main turbine is operating at reduced speeds
- (C) seal the turbine shaft against air leakage into the turbine casing
- (D) all of the above

If choice D is selected set score to 1.

63. When you are transferring fuel oil to the settling tanks, precautions to be observed should include _____.

- (A) maintaining a high transfer rate until a slight trickle of oil is observed flowing from the overflow line
- (B) maintaining a supply of chemical dispersant to cleanup minor oil spills adjacent to the ship
- (C) sounding the tanks frequently and reducing the transfer rate as the level approaches maximum fill
- (D) plugging gooseneck tank vents to prevent accidental overflow

If choice C is selected set score to 1.

64. Carbon deposits on the diffuser and register throat ring of a burner _____.

- (A) are of no consequence and may be left in place until a fireside inspection allows time for removal
- (B) allow heat loss to the boiler casing
- (C) interfere with air flow around the burner
- (D) cause pre-ignition of the atomized fuel

If choice C is selected set score to 1.

65. Air trapped within the main condenser shell is detrimental because it will _____.

- (A) cause heat to be transferred too rapidly
- (B) cause the turbine casing to warp and bow
- (C) decrease the vacuum in the main condenser
- (D) decrease the turbine exhaust steam temperature

If choice C is selected set score to 1.

66. A main condenser utilizing a scoop for the circulation of sea water must be constructed as a _____.

- (A) parallel flow heat exchanger
- (B) counter flow heat exchanger
- (C) single-pass heat exchanger
- (D) two-pass heat exchanger

If choice C is selected set score to 1.

67. If the water level in a steaming boiler is dropping rapidly and cannot be kept at the normal level by standard practices, you should _____.

- (A) speed up the feed pump to raise the water to normal
- (B) secure the fires and then secure the steam stop
- (C) secure the steam stop and then secure the fires
- (D) blow down the gauge glass to find the true water level

If choice B is selected set score to 1.

68. The illustrated valve is known as a _____. Illustration GS-0056

- (A) swing globe valve
- (B) butterfly lift valve
- (C) lift gate valve
- (D) swing check valve

If choice D is selected set score to 1.

69. A person has suffered a laceration of the arm. Severe bleeding has been controlled by using a sterile dressing and direct pressure. Which of the following actions should be taken next?

- (A) Remove any small foreign matter and apply antiseptic.
- (B) Apply a pressure bandage over the dressing.
- (C) Administer fluids to assist the body in replacing the lost blood.
- (D) Apply a tourniquet to prevent the bleeding from restarting.

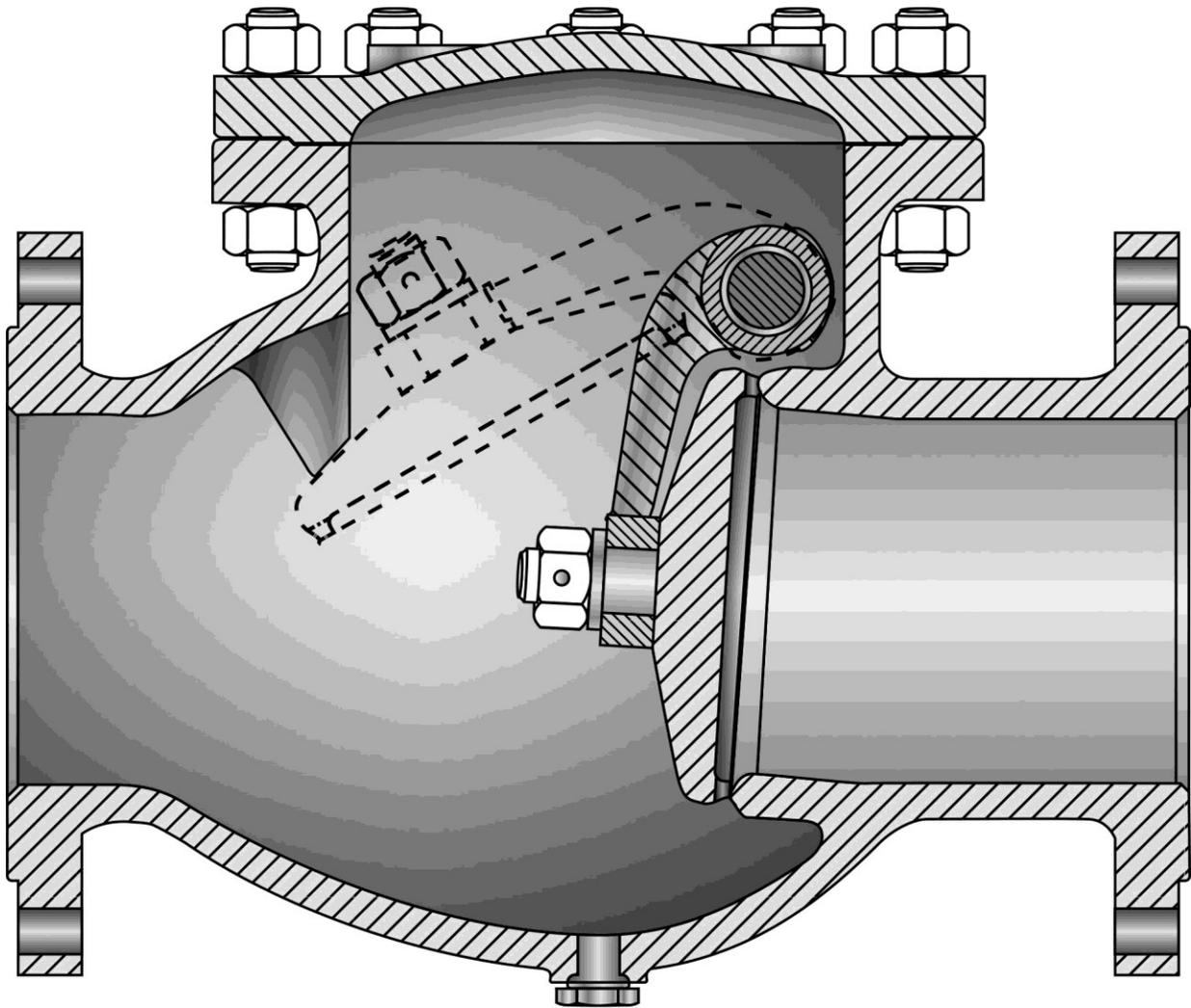
If choice B is selected set score to 1.

70. Which statement is true concerning drain inspection tanks?

- (A) Inspection tanks provide for a visual examination of condensate which could be oil contaminated.
- (B) They collect condensate from the cargo tank heating coils only.
- (C) They are discharged to the condensate system just forward of the feed pump.
- (D) Inspection tanks collect all HP drains.

If choice A is selected set score to 1.

GS-0056

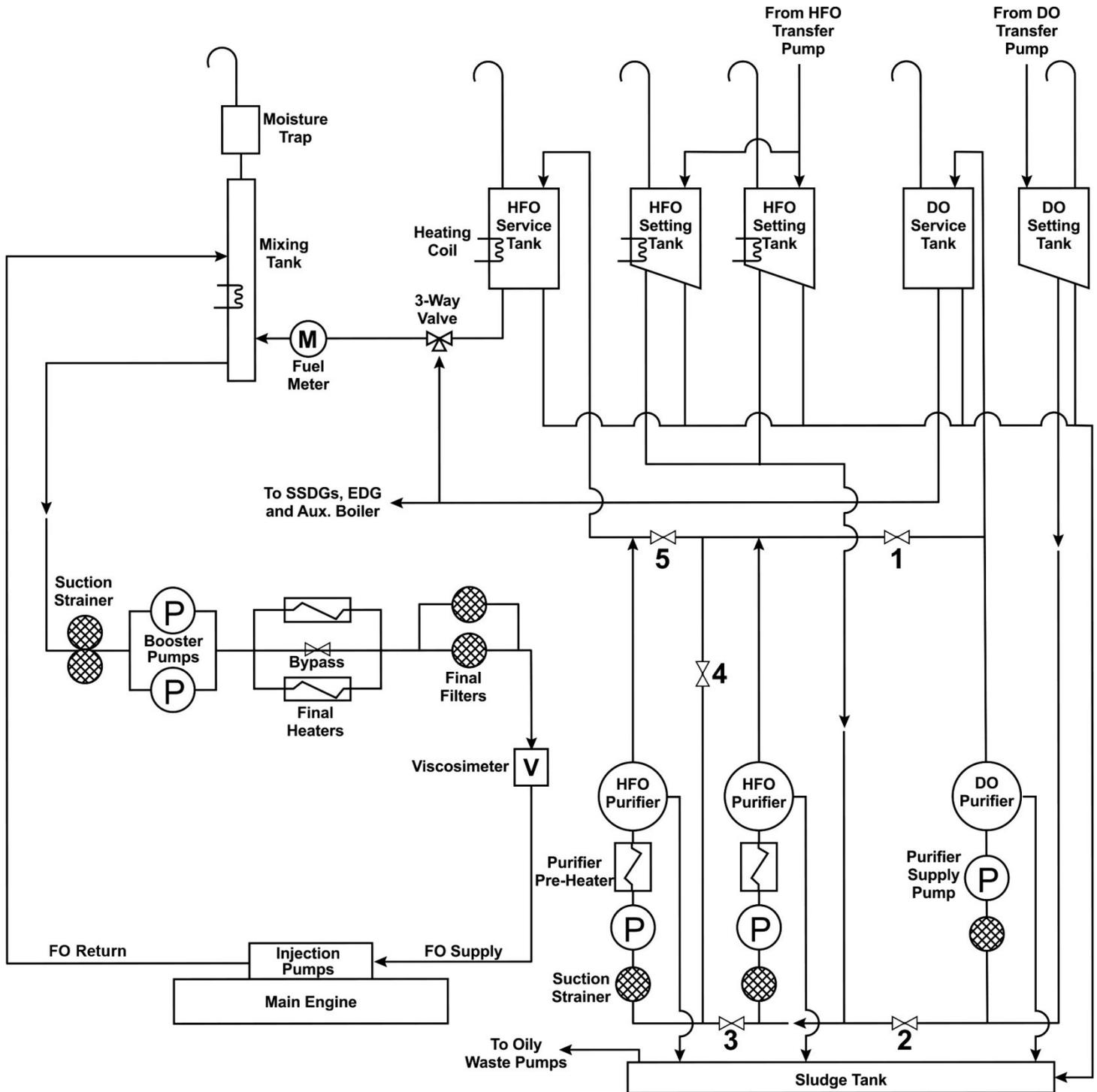


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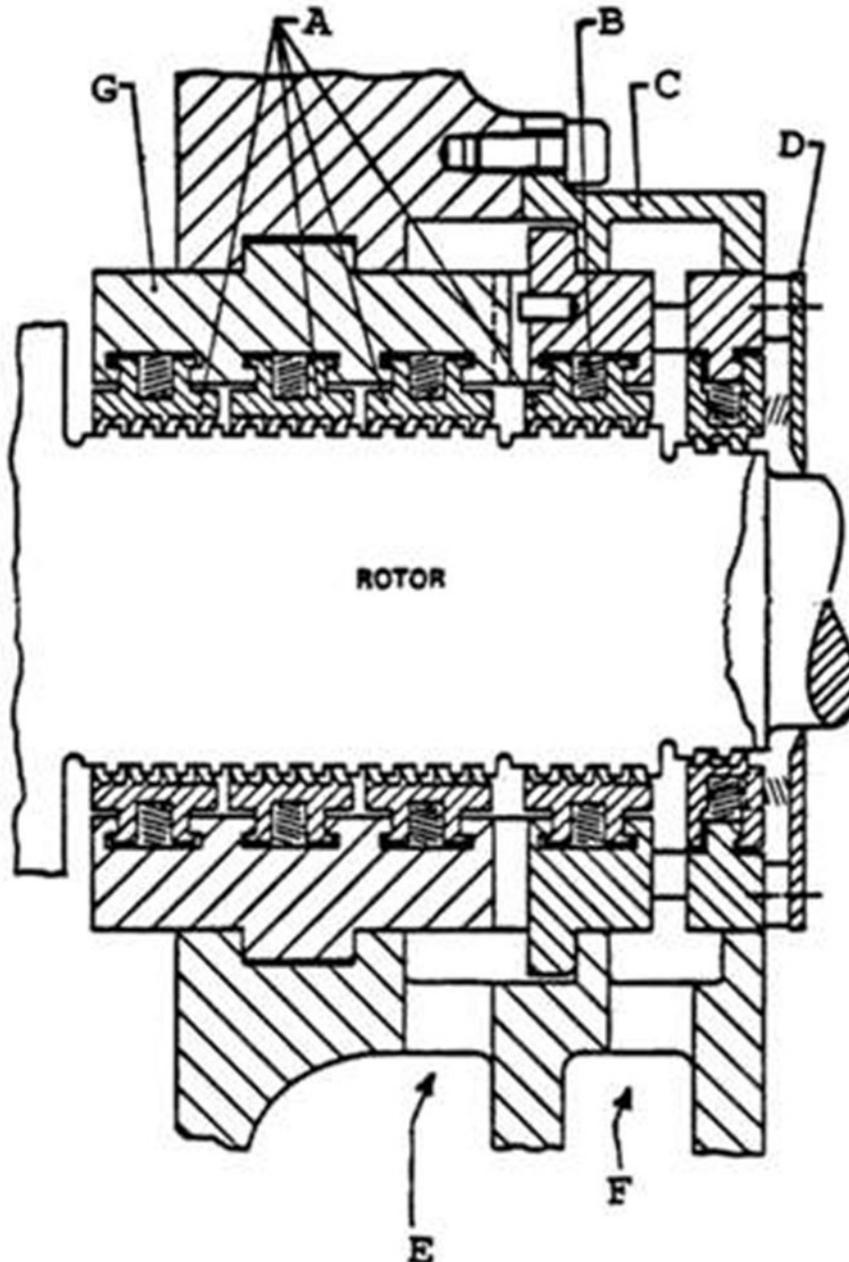
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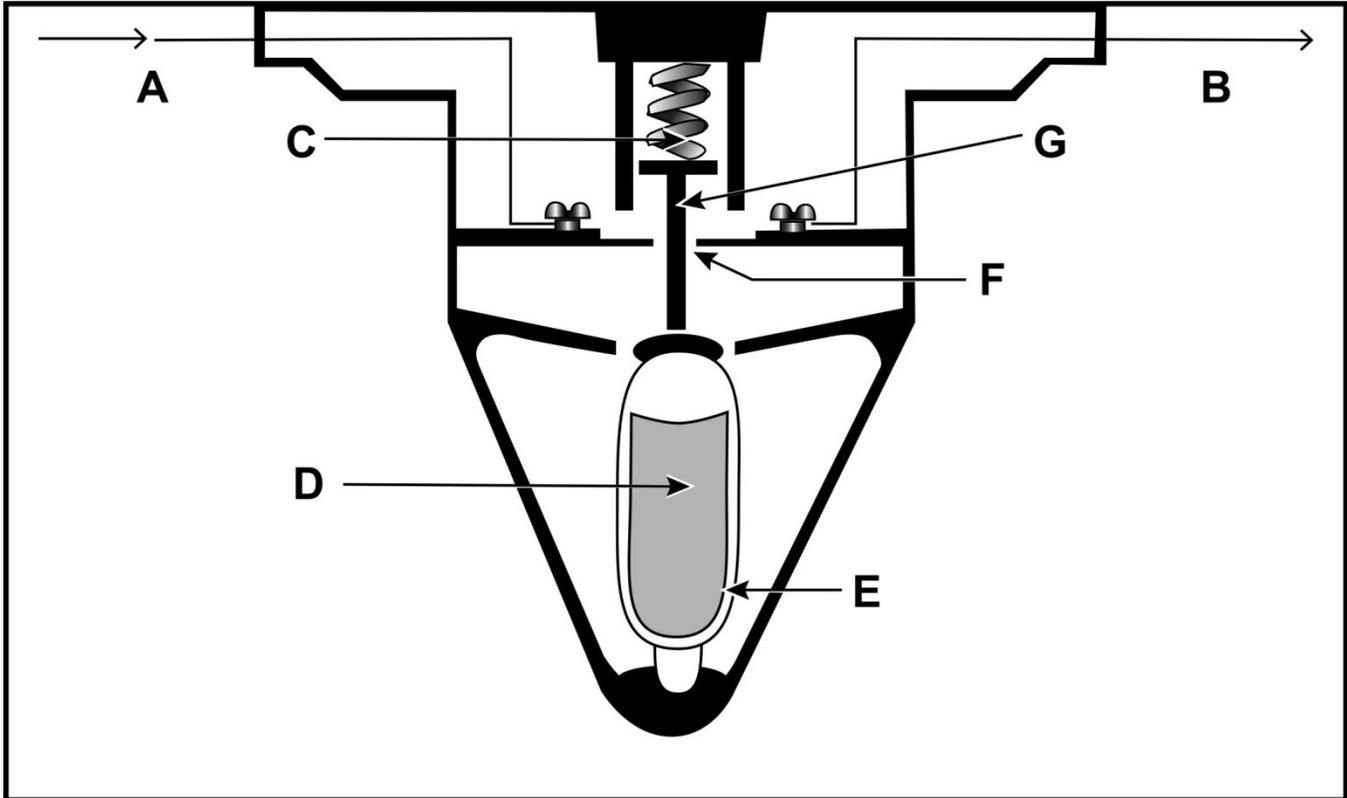
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SF-0004



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SF-0013

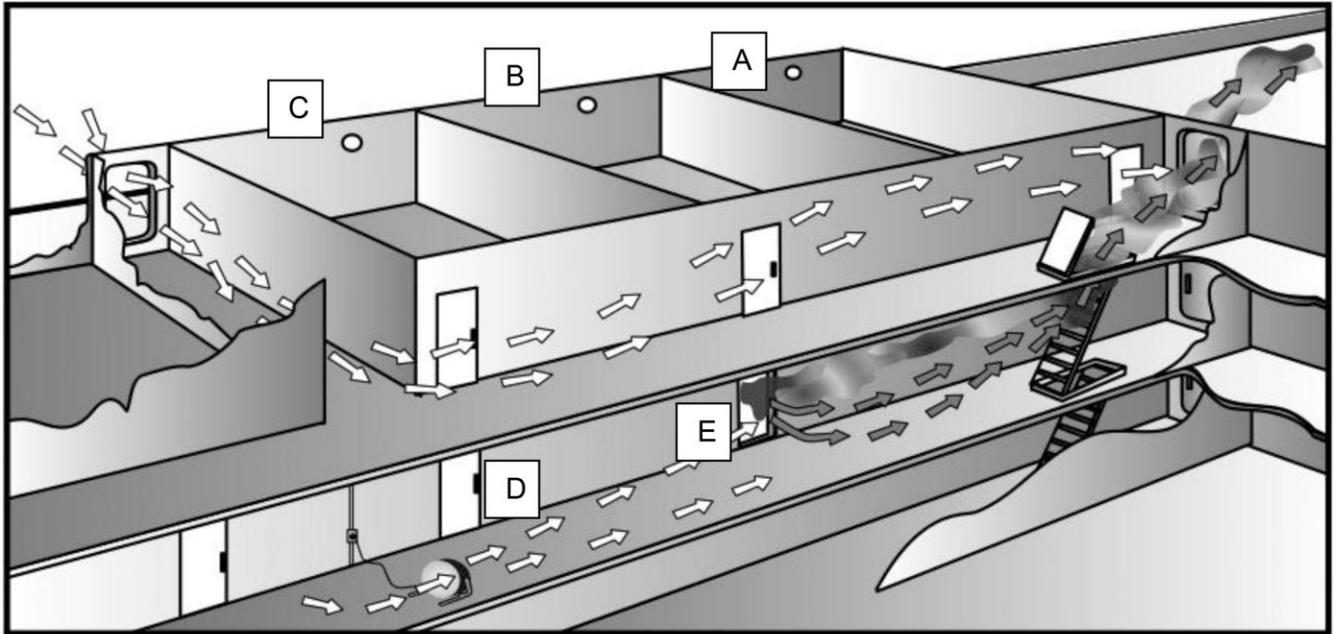


Figure 1

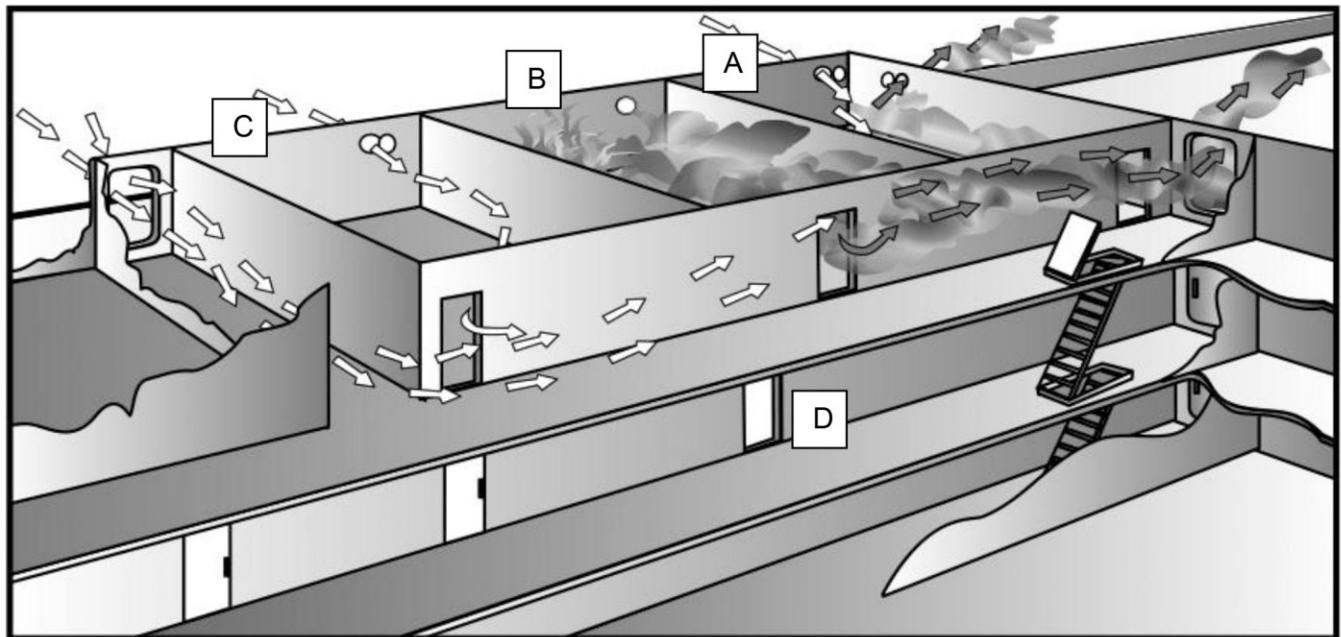
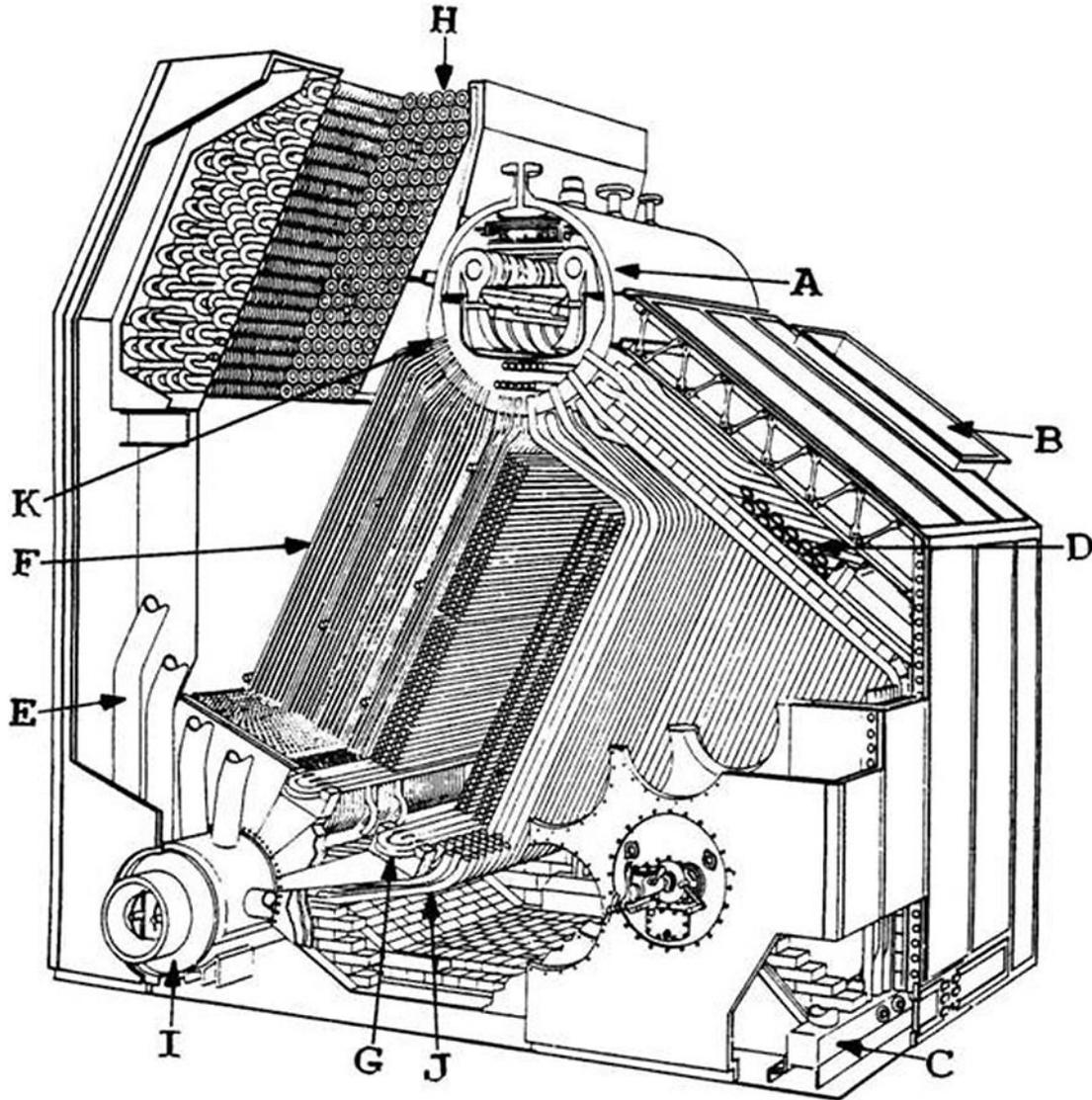


Figure 2

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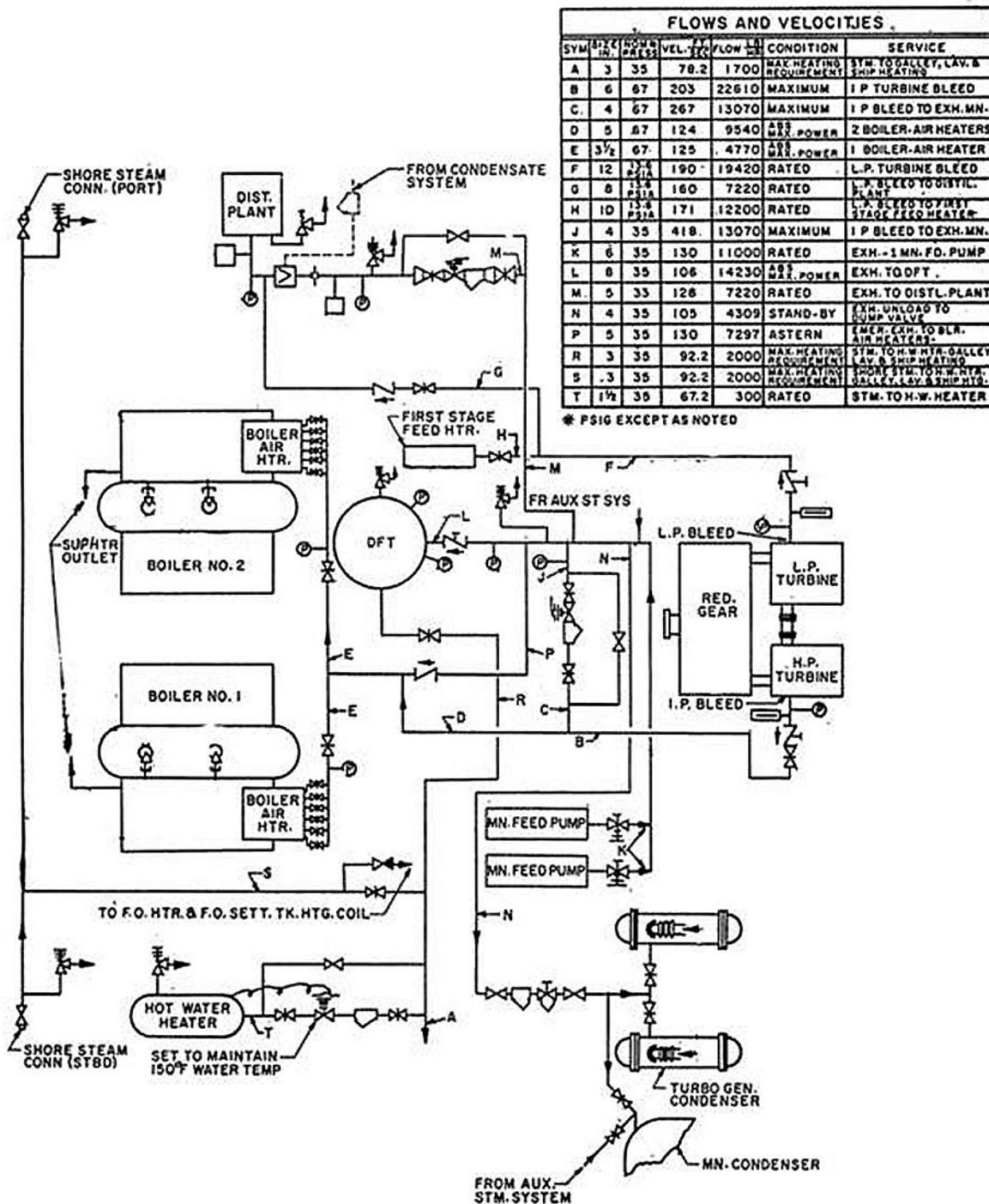
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SG-0008



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SG-0024



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