
Q538 - Steam Plants II

1. If a lube oil pump fails to build up discharge pressure, the cause could be the _____.

- bypass valve is closed
- suction vacuum is high
- **suction valve is closed**
- discharge valve is open

Note:
A closed suction valve prevents oil from entering the pump, resulting in a failure to build discharge pressure.

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2. Which of the following statements is true concerning lube oil coolers?

- Magnets are installed in the tube sheets to remove metal particles.
- The temperature of the oil is less than that of the cooling water.
- **The pressure of the oil is greater than that of the cooling water.**
- The pressure of the oil is less than that of the cooling water.

Note:
Lube oil coolers maintain higher oil pressure than cooling water to prevent water contamination of the lubricating oil system in the event of a leak; fluid always flows from the higher-pressure side to the lower-pressure side.

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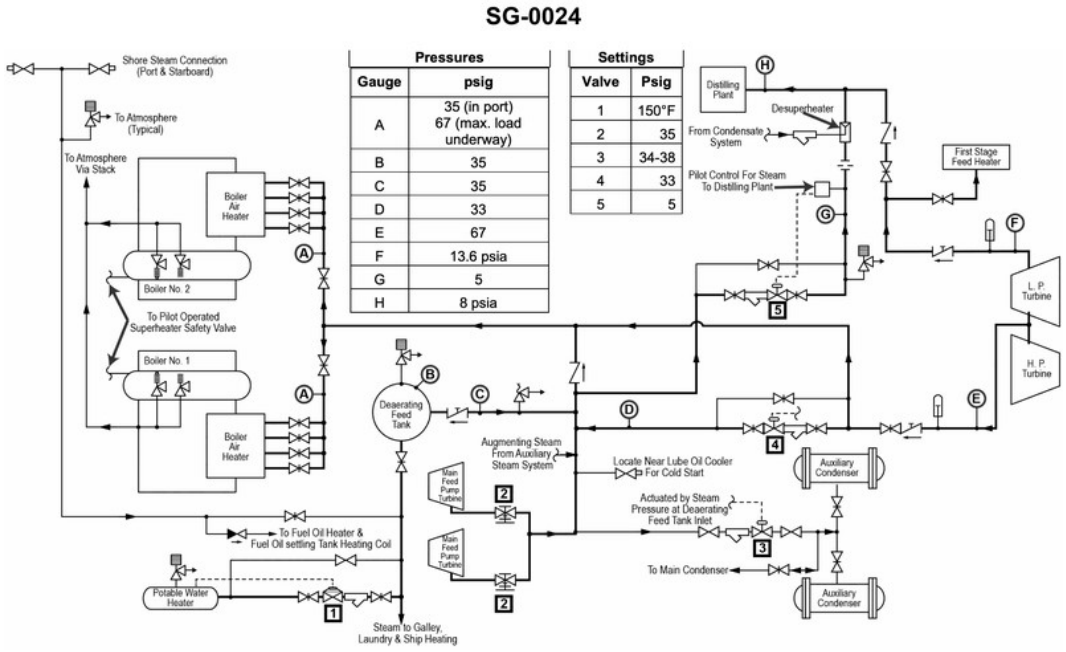
3. The auxiliary exhaust system shown in the illustration can be supplied by steam from the _____



- **<u>IP bleed system</u>**
- LP bleed system
- distilling plant
- turbo-generators

Note:
The illustration depicts the auxiliary exhaust system receiving steam from the intermediate-pressure (IP) bleed system. This connection provides supplemental steam to the auxiliary exhaust header for heating and other low-pressure services; the LP bleed system supplies separate low-pressure heaters, while the distilling plant and turbo-generators utilize auxiliary exhaust steam, not supply it.

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4. Which of the following systems can normally be supplied by auxiliary exhaust steam?

- Boiler steam atomizers
- Main feed pump
- **<u>Low-pressure evaporator</u>**
- Air ejectors

Note:
Low-pressure evaporators are designed to utilize low-pressure auxiliary exhaust steam as a heat source; other systems require higher pressure steam.

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5. The primary source of steam to the auxiliary exhaust system is typically supplied directly from _____.

- the main engine LP bleed
- **<u>turbine driven and reciprocating steam pumps</u>**
- the turbine gland exhaust system
- all of the above

Note:
Turbine driven and reciprocating steam pumps are the primary source of steam for the auxiliary exhaust system due to their large, continuous exhaust volumes.

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6. Which statement is true concerning drain inspection tanks?

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

Note:
Inspection tanks enable visual examination of condensate for oil contamination before it re-enters the system; this is their primary function, distinguishing them from tanks that collect specific drain types or discharge at a particular location.

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7. If live steam is supplied directly to the tank heating coils, the collected drains in the "clean" section of the contaminated drain inspection tank are removed directly to the _____.

- makeup feedwater tank
- **atmospheric drain tank**
- deaerating feedwater heater
- main and/or auxiliary condenser

Note:
Drains from live steam tank heating coils, due to potential oil contamination, are routed from the clean section of the contaminated drain inspection tank to the atmospheric drain tank to prevent oil from entering the main condensate or feedwater systems.

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8. A contaminated steam generator is used to produce saturated vapor from collected _____.

- sanitary water
- condenser cooling water
- **fuel oil heating return drains**
- bilge water

Note:
Fuel oil heating return drains are contaminated with oil and require a dedicated contaminated steam generator to safely produce saturated vapor, preventing contamination of the main boiler system.

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9. An excess pressure governor would normally be used on a _____.

- **turbine-driven feed pump**
- forced draft fan
- low-pressure propulsion turbine
- main circulator pump

Note:
Excess pressure governors are used on turbine-driven feed pumps to prevent discharge pressure from exceeding safe limits by automatically throttling steam to the driving turbine.

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10. The constant pressure governor of a turbine-driven feed pump maintains which of the following pressures at a constant value for all capacities?

- **Pump discharge**
- Pump suction
- Turbine exhaust
- Turbine inlet

Note:
A constant pressure governor regulates pump discharge pressure by adjusting turbine steam admission to maintain a constant value across varying flow rates.
