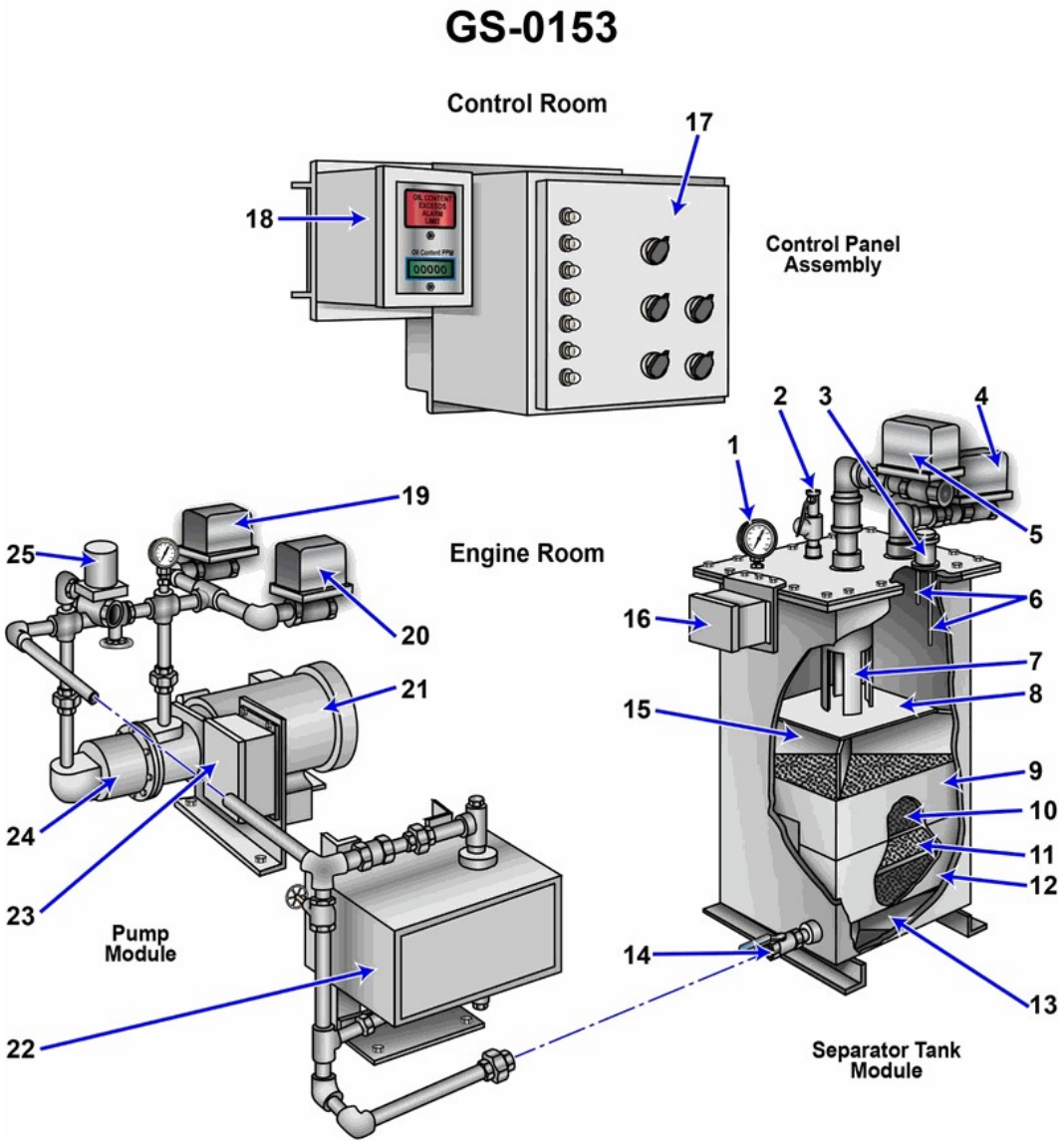

Q682 - General Subjects

1. If item "1" in the illustrated oily-water separator indicates an abnormally deep vacuum, which of the following conditions is the most probable cause



- Process water inlet valve, item "5", is open.
- Coalescer beds are severely fouled.
- **Suction line inlet strainer is obstructed.**
- No problem exists as a high vacuum should be maintained in the chamber whose vacuum is to be measured.

Note:
A deep vacuum at item '1' indicates restricted flow on the suction side. An obstructed suction line inlet strainer restricts water flow, forcing the pump to work harder and creating an abnormally deep vacuum. This is the most probable cause.

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

- prevent the sanitary pump from losing suction
- provide a higher pressure in the system than the pump can deliver
- **reduce excessive cycling of the sanitary pump**
- increase water flow through the system

Note:
A pneumatic pressure tank reduces excessive cycling of the sanitary pump by storing pressurized water, allowing the pump to remain off during small demands and extending its lifespan.

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3. Coast Guard regulations concerning marine sanitation devices may be found in _____.

- **33 CFR Section 159**
- 33 CFR Section 153
- 33 CFR Section 155
- 33 CFR Section 156

Note:
Coast Guard regulations for marine sanitation devices are found in 33 CFR Section 159, which specifically addresses marine sanitation device standards; other sections cover oil and hazardous substance pollution or transfer operations.

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4. Marine sanitation devices installed on vessels must be certified by the _____.

- **U.S. Coast Guard**
- American Bureau of Shipping
- Society of Naval Architects and Marine Engineers
- Environmental Protection Agency

Note:
Marine sanitation devices on U.S. vessels require certification by the U.S. Coast Guard, as mandated by 33 CFR Part 159. The Coast Guard is the designated certifying authority; the EPA sets standards, while ABS and SNAME provide guidance but lack legal certification authority.

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5. In accordance with 33 CFR Subchapter O (Pollution), what is the definition of a "Type I Marine Sanitation Device"?

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

Note:
A Type I Marine Sanitation Device, according to 33 CFR, produces an effluent with a fecal coliform bacteria count not exceeding 1,000 per 100 milliliters and no visible floating solids.

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6. When preparing/writing shipyard items for your vessel's upcoming dry-docking period, what would you consider as an item regarding CuNi saltwater cooling systems/piping?

- **Identify in your item all steel waster piece pipe spools in the CuNi systems and require them to be removed and replaced.**
- This item should be of no concern since you have not experienced system piping degradation/leaks.
- Remove certain designated CuNi piping sections for inspection.
- Replace all bonding pieces/wires between all CuNi system flanges.

Note:
Steel waster pieces in CuNi saltwater systems create galvanic corrosion and should be identified and replaced during dry-dock to ensure system reliability.

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7. A hydraulic fluid flow control circuit, controlling linear actuator speed during extension, with the pump operating at system pressure, is known as a _____.

- bleed-in circuit
- metered-out circuit
- bleed-off circuit
- **metered-in circuit**

Note:
The circuit controls actuator speed during extension while the pump maintains system pressure, indicating flow is metered into the actuator; this configuration is a metered-in circuit.

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

- bleed-in circuit
- metered-in circuit
- **bleed-off circuit**
- metered-out circuit

Note:
A bleed-off circuit controls linear actuator speed while maintaining pump pressure below maximum by diverting excess flow back to the reservoir.

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9. Hydraulic system reservoirs are often fitted with a combined filler/breather cap. If the breather element becomes fouled, the _____.

- reservoir will become pressurized
- flow through the return lines will be stopped
- actuator response time will be halved
- **reservoir will be subjected to a partial vacuum**

Note:
A blocked breather prevents air from entering the reservoir as fluid is drawn out, creating a partial vacuum.

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

- hydrostatically tested to 100% of maximum working pressure
- **descaled by using a pickling solution**
- cleaned using a water-based detergent
- all of the above

Note:
New hydraulic piping must be chemically descaled to remove mill scale, rust, and welding residues before installation.
