

Demo PDF file. This file includes questions: 10 from 188. Full version of file looks the same as demo, but full version includes all questions. You may download file with all questions by link on bottom of this page

Q620 - Motor Plants

1. When any low-pressure distilling plant is operated with less than the designed vacuum, the _____.

- heat level drops
- scale formation decreases
- **heat level rises**
- capacity increases

Note:

Reduced vacuum in a low-pressure distilling plant increases the feed's boiling temperature, requiring a higher heat level to maintain evaporation.

2. Regarding the high-pressure pump of a reverse-osmosis freshwater generator, what statement is true?

- The high-pressure pump is typically a two-stage centrifugal pump, but may be a two-stage rotary pump.
- The high-pressure pump is typically a single-cylinder reciprocating pump, but may be a single-stage centrifugal pump.
- **The high-pressure pump is typically a multiple-cylinder reciprocating pump, but may be a multi-stage centrifugal pump.**
- The high-pressure pump is typically a two-stage rotary pump, but may be a two-stage centrifugal pump.

Note:

Reverse osmosis freshwater generators typically use multiple-cylinder reciprocating pumps for high-pressure service, although multi-stage centrifugal pumps are a less common alternative.

3. You are analyzing the data used for trend analysis for one of the 2-stroke turbocharged main propulsion diesel engines on your ocean-going tug. Over time the scavenging air receiver (air box) pressure is steadily increasing. What condition would produce this data?

- The turbocharger air inlet screen is gradually becoming fouled.
- The engine air intake filter is gradually becoming fouled.
- **The scavenging air ports are gradually becoming restricted with carbon.**
- The air side of the turbocharger after cooler is gradually becoming fouled.

Note:

Increasing scavenging air receiver pressure indicates a downstream restriction. Carbon buildup in the scavenging air ports creates this restriction, impeding airflow and causing pressure to rise over time.

4. You are analyzing the data used for trend analysis for one of the main propulsion diesel engines on the OSV to which you are assigned. The cylinder exhaust temperature of one of the cylinders is significantly lower than the others. When analyzing compression and firing pressure data, however, the numbers are within the normal range for this particular cylinder. What condition would produce these results?

- **Excessive carbon build-up on exhaust pyrometer probe of affected cylinder**
- Excessive carbon build-up on air inlet ports or valves of affected cylinder
- Leaking exhaust valve on affected cylinder
- Leaking fuel injector needle valve for affected cylinder

Note:

Carbon build-up on the exhaust pyrometer probe can cause a falsely low exhaust temperature reading while maintaining normal cylinder compression and firing pressure.

5. You are analyzing the data used for trend analysis for a two-stroke main propulsion diesel engine on your river push boat. Although the engine has yet to experience a safety shutdown on high crankcase pressure, over time the crankcase pressure (which normally runs in a vacuum) has gradually become less negative. Which of the following failures would most likely be responsible for this condition?

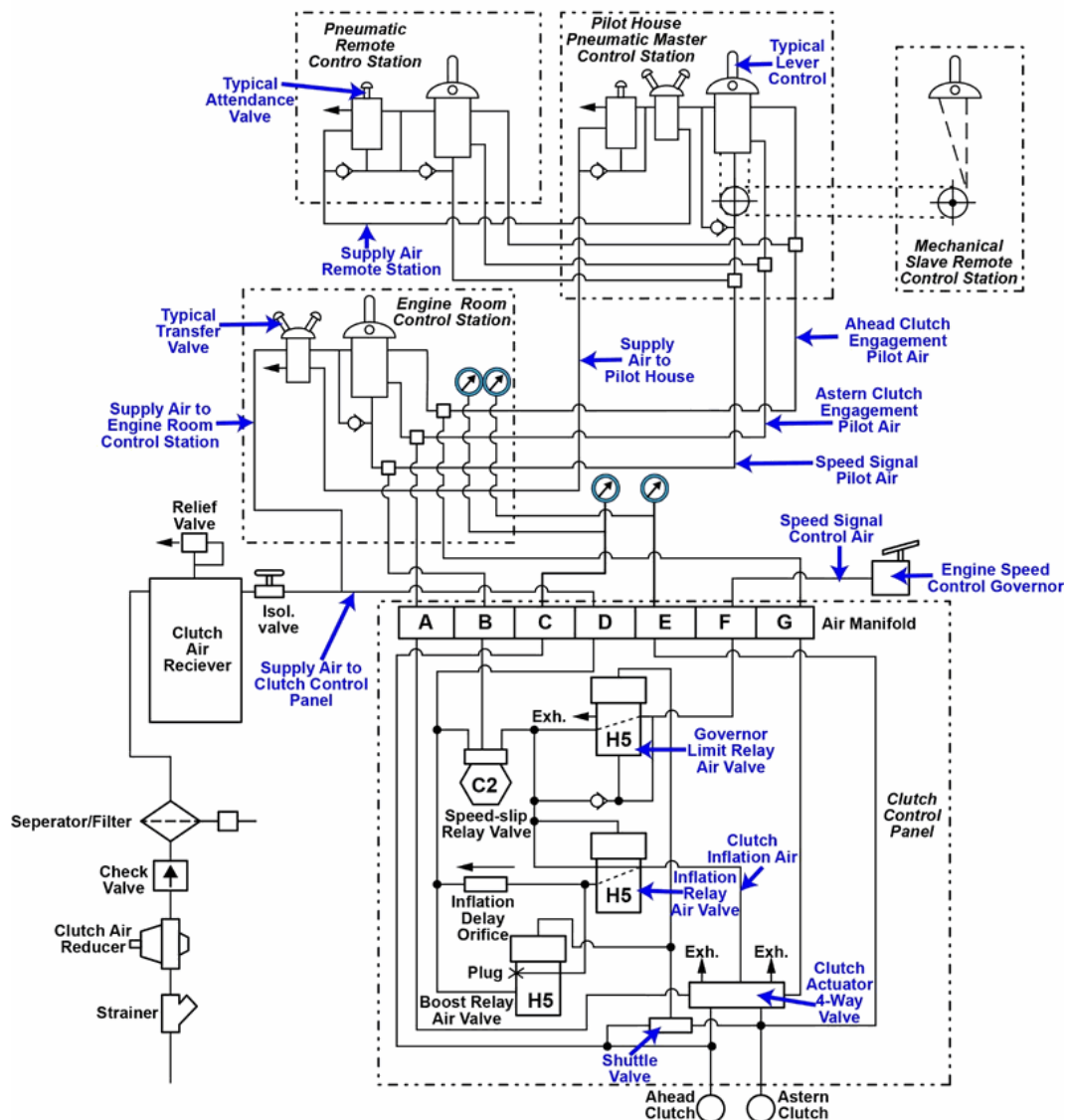
- Burned cylinder exhaust valve
- Dribbling injector needle valve
- **Worn piston compression rings**
- Leaking crankcase handhole cover

Note:

Gradual reduction in crankcase vacuum, which is normally a vacuum, is most likely caused by worn piston compression rings, which increase combustion gas leakage into the crankcase over time.

6. The anchor-handling supply boat to which you are assigned is fitted with a totally pneumatic propulsion control system as shown in the illustration. If the astern clutch fails to engage from the engine room control station, but engages properly from all remote-control stations, which of the following system faults best accounts for these symptoms

MO-0168



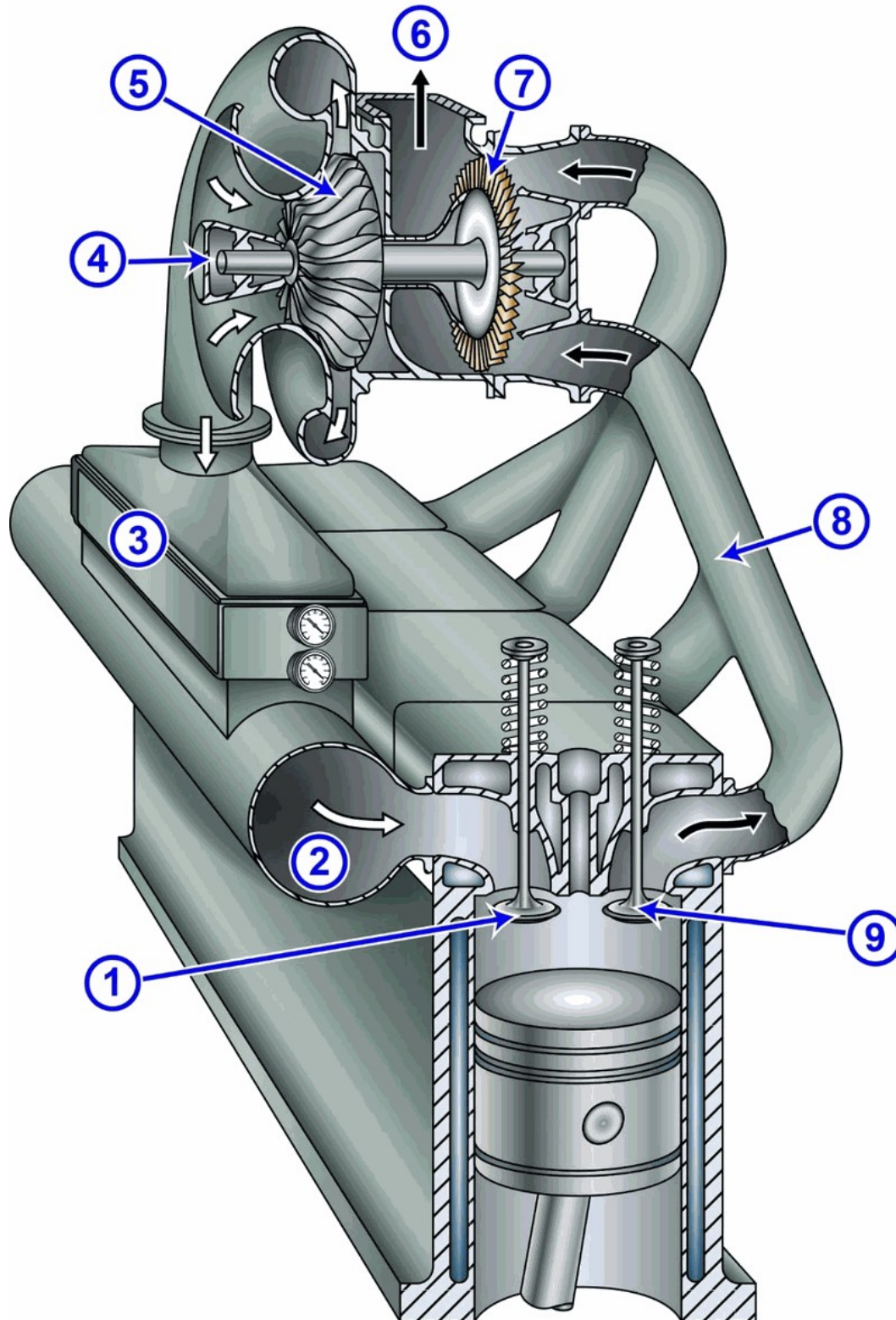
- The control lever at the engine room control station has a blocked astern clutch engagement pilot port.
- The clutch actuator 4-way control valve at the clutch control panel has a restricted astern clutch quick exhaust port opening.
- The local/remote transfer valve at the engine room control station has a blocked local port.
- The astern clutch engagement pilot air tubing has separated from the clutch actuator 4-way control valve at the clutch control panel.

Note:

The engine room astern clutch failure, while remote stations function normally, indicates a localized fault within the engine room control lever's astern pilot port, preventing pilot air delivery without affecting the shared pneumatic system components.

7. The anchor handling supply vessel to which you are assigned has diesel generator engines fitted with intake and exhaust systems as shown in the illustration. What type of turbo-charging configuration is used

MO-0176



- Boost-controlled turbocharging
- Constant pressure turbocharging

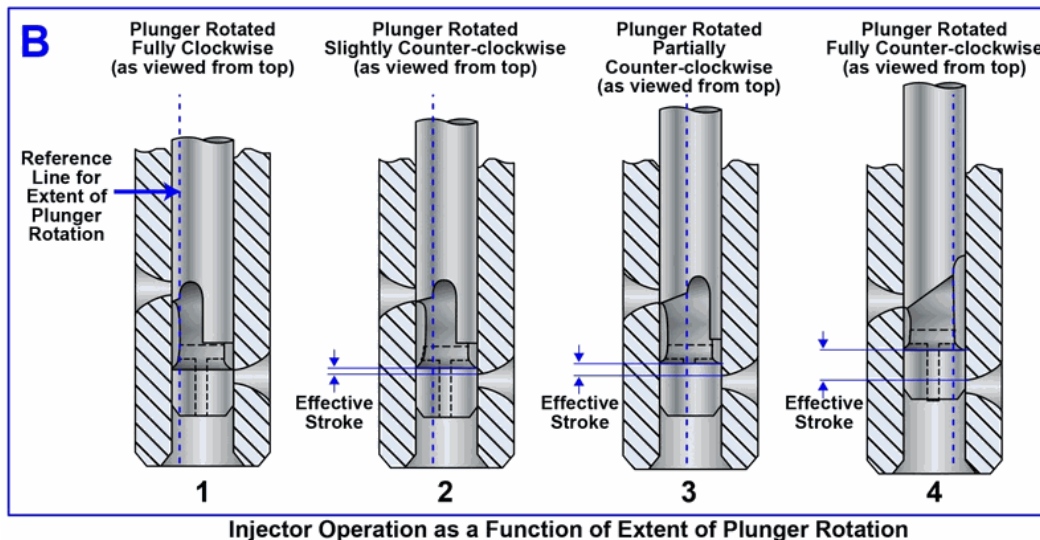
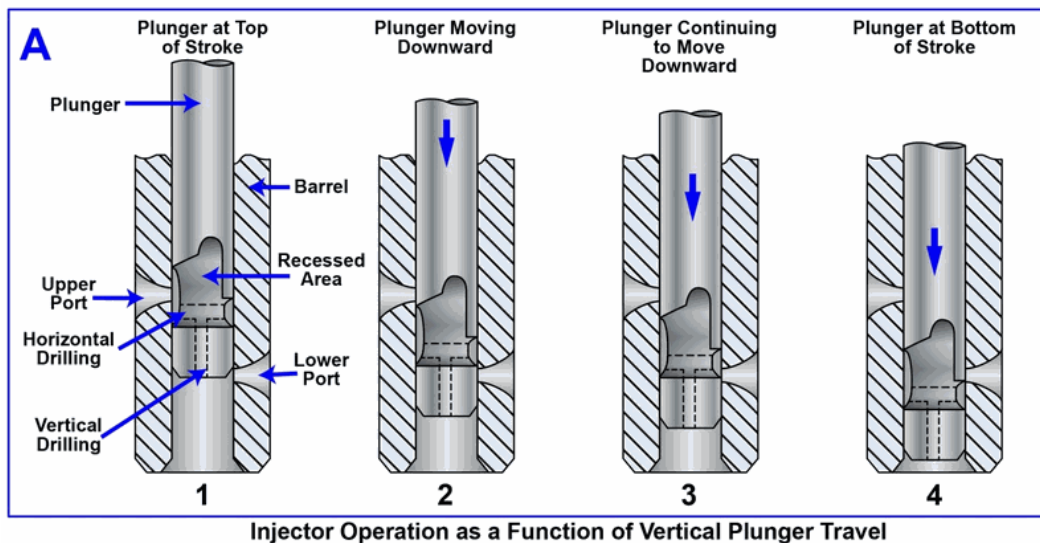
- 2-stage turbocharging
- **Pulse turbocharging**

Note:

The illustration depicts individual exhaust runners directly feeding the turbine, characteristic of pulse turbocharging. This configuration preserves exhaust pulses for turbine energy, differentiating it from constant pressure systems which use a common manifold to smooth pulses, and two-stage systems which utilize multiple turbochargers. Boost control refers to pressure regulation, not the exhaust manifold layout.

8. The river push boat to which you are assigned has diesel generators fitted with fuel injectors with the operating principle as shown in the illustration. In figure "B" which plunger rotation position corresponds to the engine running under no load at idle RPM

MP-FI-12



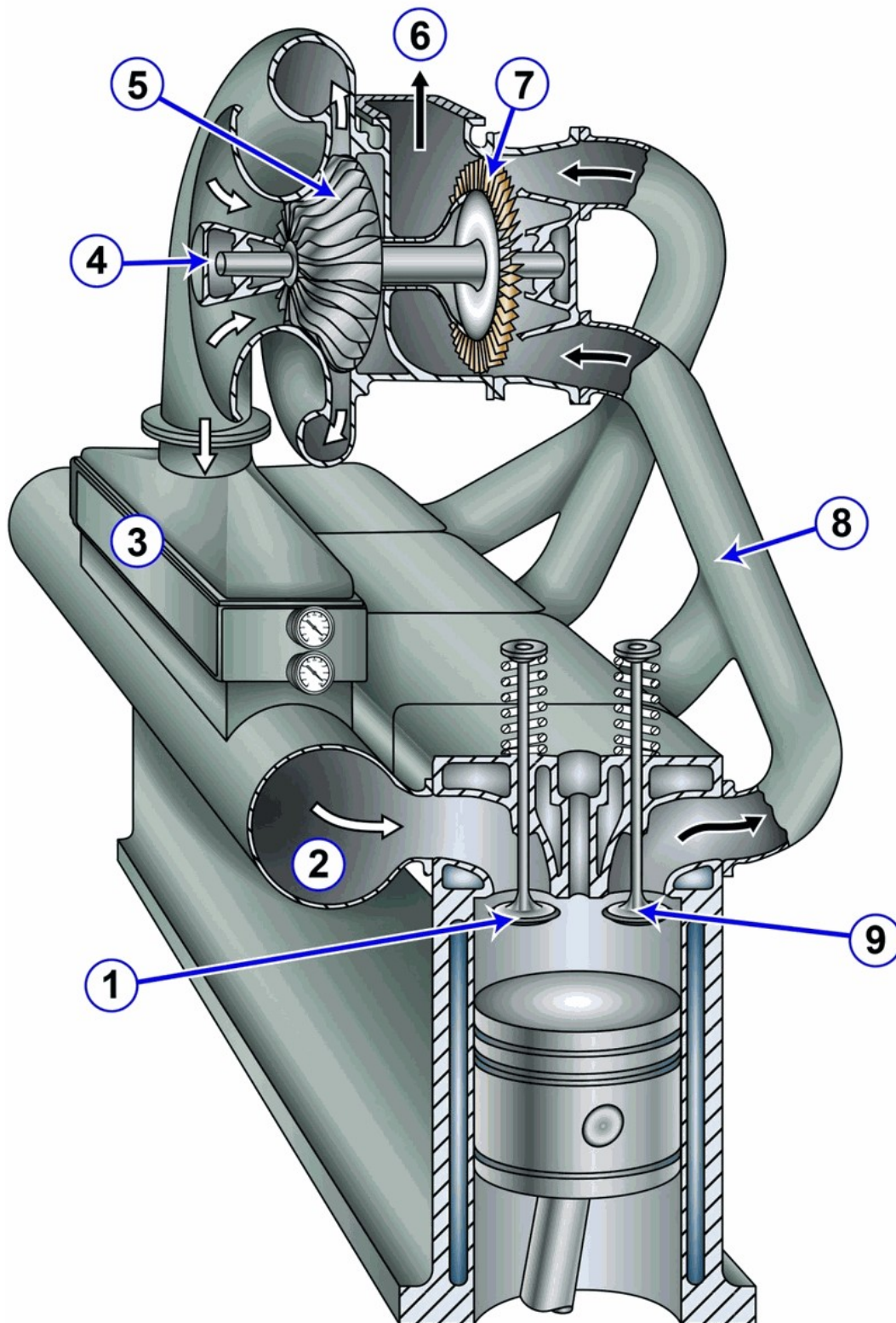
- 1
- 2
- 3
- 4

Note:

Position 2 corresponds to no-load idle because it provides a minimal, non-zero fuel quantity by limiting the effective stroke.

9. The river push boat to which you are assigned has diesel generators fitted with intake and exhaust systems as shown in the illustration. What does the component labeled "3" represent

MP-IX-06



- Wet muffler
- Charge air cooler
- Charge air manifold

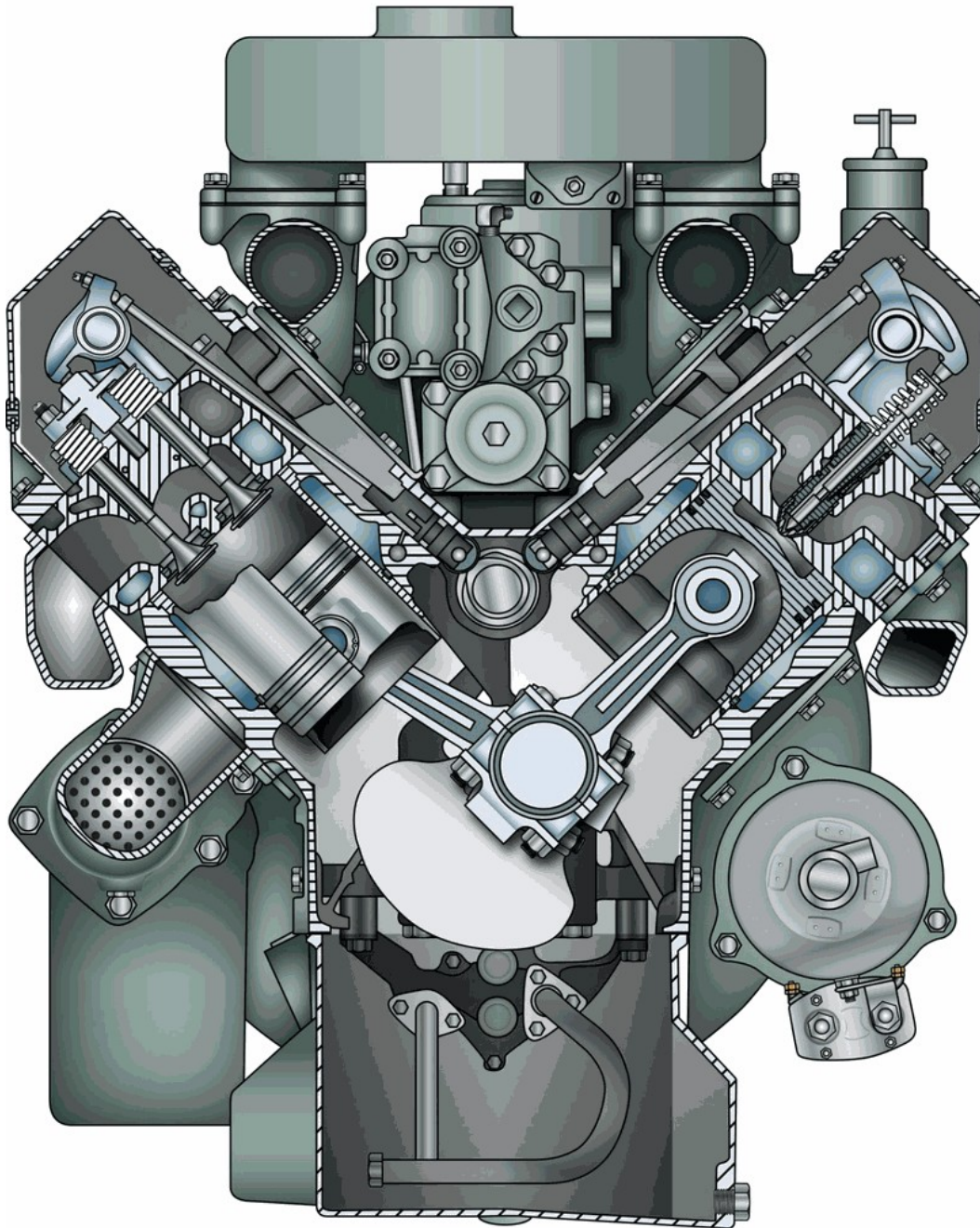
- Exhaust manifold

Note:

The component labeled '3' is a charge air cooler, positioned in the intake path after the turbocharger compressor to cool the compressed air and increase its density before it enters the engine cylinders.

10. The anchor handling vessel to which you are assigned is fitted with generator drive engines of the type shown in the illustration. In terms of operating cycle and cylinder configuration, what statement is true

MP-HS-03



- This is a two-stroke cycle, 90° V-type engine
- This is a four-stroke cycle, 90° V-type engine
- This is a four-stroke cycle, 60° V-type engine
- **This is a two-stroke cycle, 60° V-type engine**

Note:

The engine is a two-stroke cycle with a 60° V-type configuration, as evidenced by the scavenge ports in the cylinder liner and the narrow angle between the cylinder banks.