ASSIGNMENT 4

Textbook Assignment: Steering System, , Bow and Stern Planes Systems, Anchor Handling Gear and Capstans, and Fuel and Lubricating Oil Systems—Chapters 13-16.

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1. (TRUE/FALSE) The steering system uses the same type IMO pump as main hydraulics.
    1. True
    2. False

2. Hand operation of the steering system is used when emergency power or normal power have failed and when
    1. silent operation of the submarine is necessary.
    2. steering is done from the maneuvering room.
    3. high pressure air is the source of energy.
    4. steering from the bridge.

3. The accumulator for the steering system is located in
    1. the pump room.
    2. the after torpedo room.
    3. shaft alley.
    4. (not required with Waterbury speed gear).

4. (TRUE/FALSE) The flow of oil from the Waterbury A-end pump is controlled by changing the speed of the electric motor.
    1. True
    2. False

5. When the socket ring is in the vertical position
    1. no oil is pumped.
    2. there is positive pressure on the discharge side.
    3. there is negative pressure on the discharge side.
    4. oil flows through the alternate suction and discharge.

6. The cylinder barrel and socket ring rotate at the same rpm as the main shaft. The tilting box
    1. also rotates at that same rpm.
    2. rotates in the opposite direction.
    3. rotates slower in the same direction through reduction gears.
    4. does not rotate but changes angle by moving the control shaft up or down.

7. The rudder is moved by
    1. A-end hydraulic pump.
    2. cutout manifold.
    3. main cylinder ram assemblies.
    4. B-end hydraulic pump.

8. (TRUE/FALSE) When steering the submarine from the coning tower, a pin in the hand operated A-end pump is pulled to disengage the pump.
    1. True
    2. False.

9. To maintain a 10-degree right rudder the steersman would move the steering wheel to the
    1. left until the rudder angle indicator is at 10-degees and keep the wheel in that position.
    2. right until the rudder angle indicator is at 10-degrees and keep the wheel in that position.
    3. left until rudder angle indicator is at 10-degrees and stop the swing by returning the wheel to its original position.
    4. right until rudder angle indicator is at 10-degrees and stop the swing by returning the wheel to its original position.

10. The mechanical rudder angle indicator is located in
    1. the after torpedo room.
    2. maneuvering.
    3. the control room.
    4. the coning tower.

11. (TRUE/FALSE) The bow and stern planes have their own hydraulic systems.
    1. True
    2. False

12. When the bow or stern planes are operated by hand, the hydraulic power is generated from
    1. the operator.
    2. A-end pump in the pump room.
    3. B-end pumps in the forward and after torpedo rooms.
    4. main hydraulic pump.

13. (TRUE/FALSE) The bow planes are fixed to a single stock and tilted by the same control ram.
    1. True
    2. False

14. On a 688-class submarine the bow planes are tilted down (dive) by pushing forward on the hand wheel. On the Fleet Type submarine the hand wheel is
    1. screwed in to put the planes in the dive position.
    2. turned to the right for the dive position.
    3. turned to the left for the dive position.
    4. screwed out to put the planes in the dive position.

15. To move the planes in power mode the tilting ram has oil delivered to it through the tilting box of the hydraulic pump. The tilting box is part of a
    1. Waterbury A-end pump.
    2. positive displacement screw pump.
    3. centrifugal hydraulic pump.
    4. offset gear pump.

16. (TRUE/FALSE) When tilting the bow plans by power, hydraulic oil from the diving stand flows directly to the bow planes ram.
    1. True
    2. False

17. Power to operate the bow or stern planes in emergency mode, power comes from
    1. the emergency hydraulic system.
    2. direct drive electric motors.
    3. the 3000 lbs. air system.
    4. the main hydraulic system.

18. (TRUE/FALSE) The auxiliary planes angle indicators are at the diving stand and are graduated in 5-degree intervals.
    1. True
    2. False.

19. If you forget to put the pump control shaft in neutral when operating the after capstan
    1. the stern planes will move as well.
    2. the bow planes will move as well.
    3. the main hydraulic system will be over pressurized.
    4. the capstan will fail to rotate.

20. (TRUE/FALSE) When the stern planes angle indicator reads zero the planes are at zero.
    1. True
    2. False.

21. To rig-in the bow planes, the angle of the planes must be less than
    1. ½-degree.
    2. 1 ½-degrees.
    3. 2 ½-degrees.
    4. 3 degrees.

22. The 8 ½-inch depth gage reads to 450 feet but the 16” depth gage reads to only 165 because
    1. it is harder to maintain depth above 165 feet.
    2. depth gages are less accurate at deeper depths so there is no need for greater accuracy.
    3. it is critical to know exact depth when raising the periscope to avoid detection.
    4. it is too expensive to make a 450 foot depth gage that is 16 inches in diameter.

23. The anchor consists of _____ feet of 1-inch die-lock steel chain.
    1. 330
    2. 450
    3. 570
    4. 630

24. (TRUE/FALSE) The windless motor is a Waterbury size 10 B-end supplied by main hydraulics.
    1. True
    2. False

25. The windless is used to raise the anchor. The fore and after capstans are used to
    1. lower the anchor.
    2. draw the submarine next to the pier with rope pulled with the capstan.
    3. lower supplies and food through the hatches.
    4. supply hydraulic power instead of the Waterbury A-end motor.

26. The last step when dropping the anchor is to
    1. release the break band.
    2. switch power from the capstan to the windless.
    3. shut the cut off valve.
    4. open the wildcat.

27. (TRUE/FALSE) If main hydraulics to the after torpedo room is secured, the anchor cannot be raised.
    1. True
    2. False

28. The fuel oil tanks are connected to three different piping systems, they are
    1. the fuel oil filling and transfer; the engine supply system; and the drain system
    2. the fuel oil filling and transfer; the compensating water; and the 225-pound service air system.
    3. the fuel oil filling and transfer; fuel oil filter system; and the main ballast tank system.
    4. the 3000-pound air system; the fuel oil filling and transfer system; and the drain system.

29. (TRUE/FALSE) Under normal operation the fuel oil tanks are allow to fill with air as the fuel is used.
    1. True
    2. False

30. When submerged, if no supply tank valve is open to the filling and transfer main, the compensating tank
    1. will drain completely empty.
    2. overflow to the clean oil tank.
    3. will requiring blowing down with the 225-pound air system.
    4. be subject to the sea pressure at the depth of the submarine.

31. (TRUE/FALSE) When operating at depths greater than 200 feet the main engines are supplied with fuel oil only from the reserve tanks.
    1. True
    2. False

32. Fuel oil for the engines is supplied by the main engine fuel pump or
    1. fuel transfer purifier pump.
    2. pressurized compensating tank.
    3. hand operated pump.
    4. gravity feed reserve oil tanks.

33. There is a line from the compensating tank to the drain pump to
    1. pump fuel oil overboard in an emergency.
    2. use the drain pump to supply fuel oil to the engines in an emergency
    3. pump water from sea into the compensating tank to pressurize it.
    4. remove water from the bottom of the compensating tank.

34. The reserve fuel oil ballast tanks can be used to store fuel oil or
    1. when empty, for the storage of dry good.
    2. used as regular ballast tanks.
    3. storage of lubricating oil.
    4. storage of fresh water.

35. _____ must be installed before using a reserve fuel oil ballast tank to store fuel oil.
    1. A fuel oil pump inside the tank
    2. Blank flanges on the main and emergency vent valves
    3. Cross main connection piping
    4. 3000-pound air system check valves

36. Lubricating oil is purified by
    1. passing it through a series of oil filters.
    2. passing it through activated charcoal grainuals.
    3. pumping it off the top of a settling tank.
    4. a centrifugal process in the purifying and flushing system.