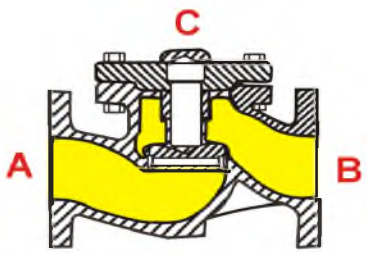
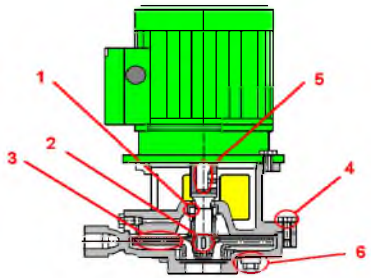
| GUÍA DE ESTUDIOS - TITULACIÓN MAQUINISTA NAVAL | | | | | | |
|---|---|---|---|---|---|---|
| **Q. Number** | **Question** | | **A** | **B** | **C** | **D** |
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 1 | Which way will fluid pass through this valve ? |  | From B to A. | From A to B. | In either direction. | From A to C. |
| 2 | What is part number 4 ? |  | A cover securing screw. | A pressure adjuster. | A vent screw. | A drain screw. |

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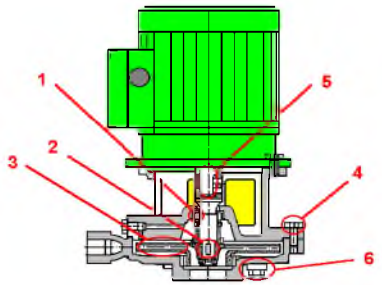
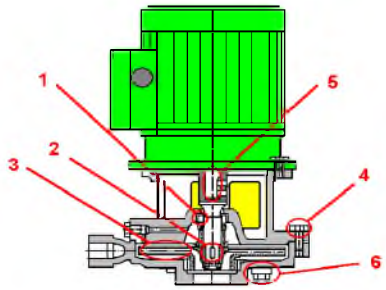
|---|---|---|---|---|---|---|
| **Q. Number** | **Question** | | **A** | **B** | **C** | **D** |
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 3 | What is part number 5 ? |  | The pump shaft. | The motor shaft. | The pressure outlet. | An air seal. |
| 4 | What is part number 6 ? |  | A pressure adjusting scew. | A drain plug. | An inspection plug. | A sacrificial anode. |

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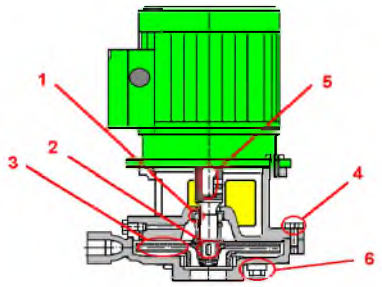
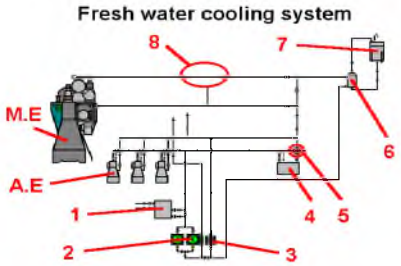
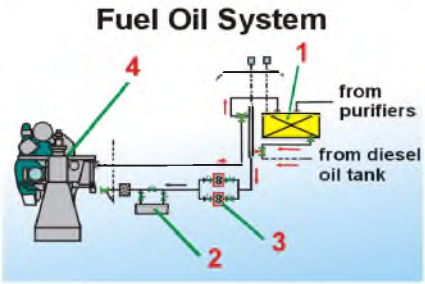
|---|---|---|---|---|---|---|
| **Q. Number** | **Question** | | **A** | **B** | **C** | **D** |
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 5 | What part number is the pump shaft ? |  | Number 2. | Number 1. | Number 5. | Number 4. |
| 6 | What is part number 1 ? |  | The fresh water pump. | The fresh water generator. | The salt water generator. | The thermostat pump. |
| 7 | What is part number 3? |  | The purifier. | The primary pump | The clarifier. | The suction filter. |

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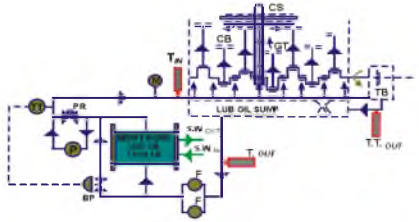
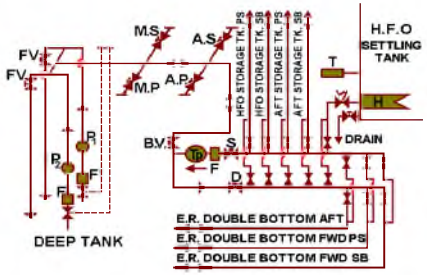
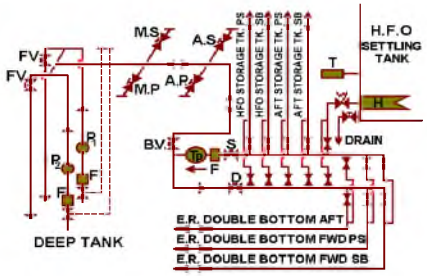
|---|---|---|---|---|---|---|
| **Q. Number** | **Question** | | **A** | **B** | **C** | **D** |
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 8 | What type of pump is the pump "P" ? |  | A centrifugal pump. | A piston pump. | A gear or worm wheel pump. | A vane pump. |
| 9 | What do you call the tanks in which heavy fuel oil is stored on board ? |  | Heavy fuel oil tanks. | Heavy fuel oil daily tanks. | Heavy fuel oil settling tanks. | Heavy fuel oil bunker tanks. |
| 10 | What do you call the gate valves "MP", "MS", "AP", "AS" located on deck ? |  | Heavy fuel oil shut-off valves. | Heavy fuel oil manifold bunker valves. | Heavy fuel oil main bunker valves. | Heavy fuel oil tank valves. |

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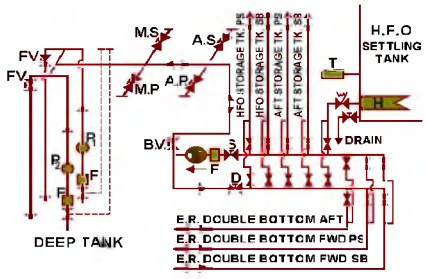
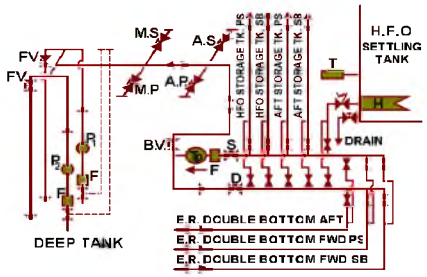
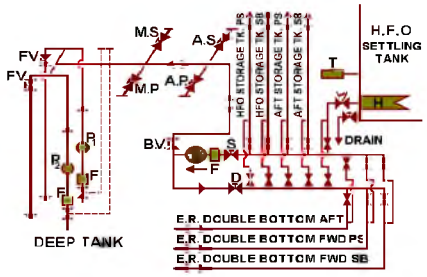
|---|---|---|---|---|---|---|
| **Q. Number** | **Question** | | **A** | **B** | **C** | **D** |
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 11 | How is heavy fuel oil from the deeptank transferred to the bunker ? |  | Via suction valve "S", the transfer pump, to discharge valve "D". | Via main bunker valve "B.V." to transfer pump "Tp". | Via own pumps "P1" and "P2", the main bunker valve "BV" to valve "D". | Via own pumps "P1" and "P2" to transfer pump "Tp". |
| 12 | What is the name and function of the gate valve "BV" ? |  | Main bunker valve, separates bunker manifold from Engine Room. | Bunker valve, separates suction and discharge manifold. | Bunker valve, separates bunker manifold from deeptank. | Main bunker valve, separates double bottom tanks. |
| 13 | How is the free flow of HFO in the bunker tanks maintained when the external temperature drops below it's pour point ? |  | By transferring it on time to the HFO settling tank. | By circulating it with the transfer pump. | By heating the oil with steam via steam coils or steam banks. | By always ensuring that warm oil is bunkered. |

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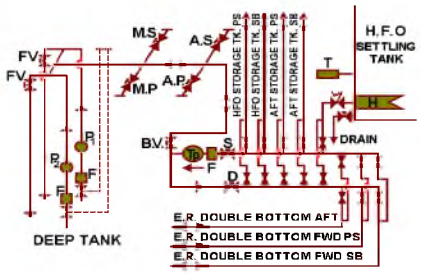
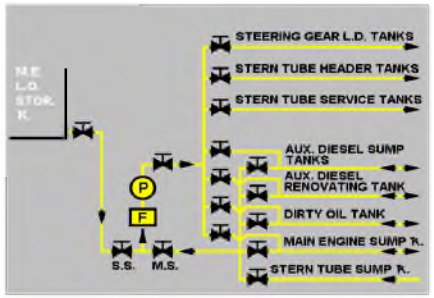
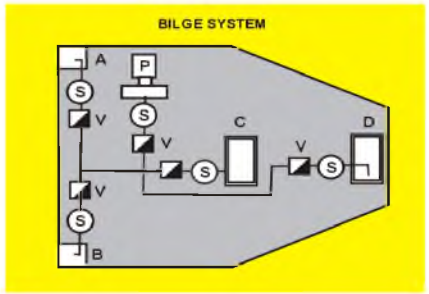
| **Q. Number** | **Question** | | **A** | **B** | **C** | **D** |
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 14 | Which valve in the engine room must be kept closed if no bunker operations or transfer from the deep tanks are taking place ? |  | The settling tank valve. | Valve "BV". | Valve "S". | Valve "D". |
| 15 | What type of pump would normally be fitted at position "P" ? |  | A piston pump. | A centrifugal pump. | A vane pump. | A gear or screw displacement pump. |
| 16 | What are items "V" ? |  | Straight bilge gate valves. | Non-return screw down valves. | Vacuum suction boxes. | Vacuum flap valves. |

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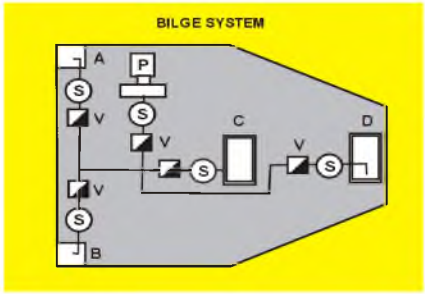
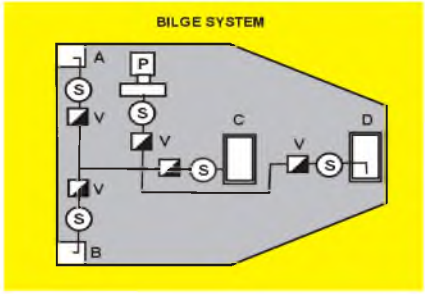
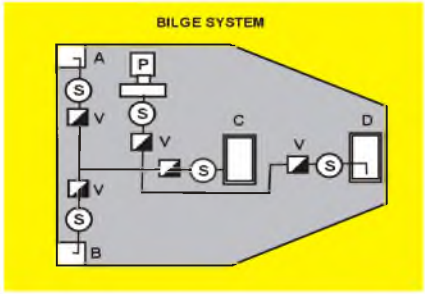
|---|---|---|---|---|---|---|
| **Q. Number** | **Question** | | **A** | **B** | **C** | **D** |
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 17 | What are items "S" and what is their purpose ? |  | Suction valves to pump the wells. | Strainers to stop dirt from entering the bilge system. | Suction boxes to retain priming water. | Elephant shoe to facilitate bilge pumping. |
| 18 | What type of pump do you think is used for the purpose shown here ? |  | A gear pump. | A piston pump. | A vane pump. | A worm wheel pump. |
| 19 | If you find it difficult to obtain suction whilst pumping bilge well "A" which of the following actions would you take ? |  | Check that bilge well valves "B","C" and "D" are properly closed. | Check that strainer cover of well "A" is not leaking. | Prime the pump with sea water. | All of these options. |

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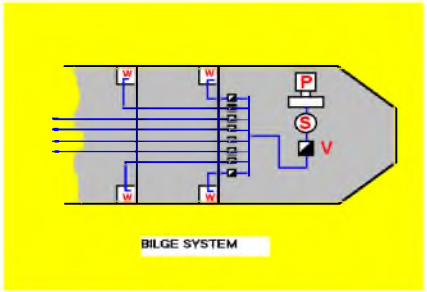
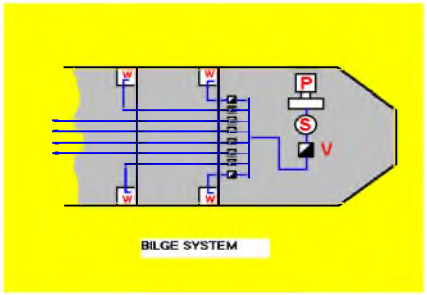
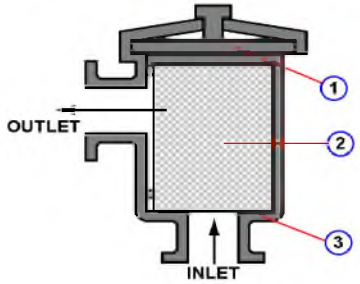
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 20 | What are items "W" ? |  | Ballast water tanks. | Hold deep wells. | Side water tanks. | Cargo hold bilge wells. |
| 21 | What is item "S" ? |  | A mesh type strainer. | The sea suction valve of the pump. | A shut-off valve. | The automatic 15 ppm shut-down valve. |
| 22 | What is shown here ? |  | A Lubricating Oil pressure line filter. | A Fuel Oil pressure line filter. | A seawater, basket suction strainer. | A centrifugal filter. |

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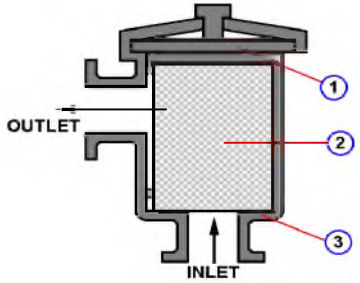
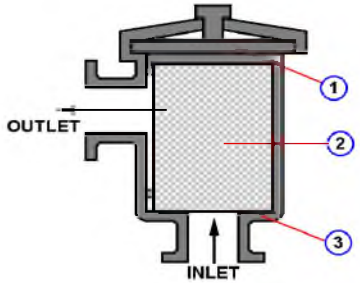
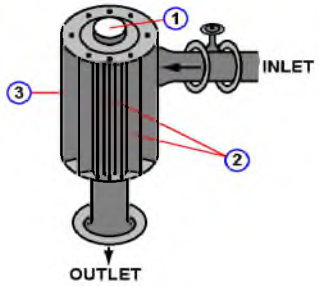
|---|---|---|---|---|---|---|
| **Q. Number** | **Question** | | **A** | **B** | **C** | **D** |
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 23 | Which is the correct parts description list of this suction filter ? |  | 1 = Filter cover, 2 = Filter mesh element, 3 = Filter body. | 1 = Body cover, 2 = Cartridge, 3 = Cartridge housing. | 1 = Top cover , 2 = Filter, 3 = Cast steel pressure body. | 1 = Top sealing plate, 2 = Filter element, 3 = Cast Iron body. |
| 24 | What ensures the tightness of the filter cover (1) to the filter body (3) ? |  | The vacuum created in the filter. | The clamp on top of the filter cover. | The filter's gasket. | The gasket pressed down by the filter cover's clamp. |
| 25 | What type of filter is shown here ? |  | A cartridge type pressure line filter. | A suction wire mesh filter. | A rotating filter. | A magnetic filter. |

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|---|---|---|---|---|---|---|
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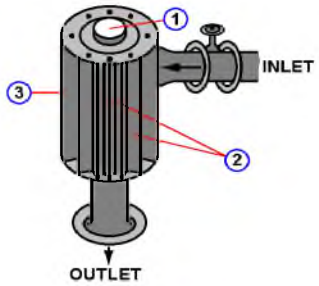
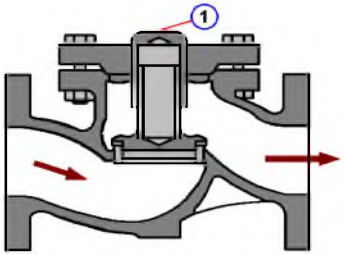
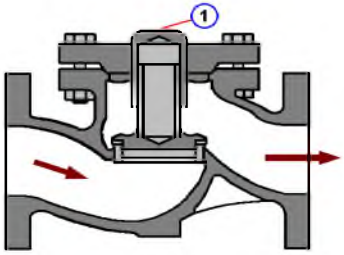
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 26 | What is the correct parts description list of this pressurised filter ? |  | 1 = Top plate, 2 = Mesh cloth, 3 = Housing. | 1 = Filter cover, 2 = Ribbed filter cartridge, 3 = Filter body. | 1 = Top cover, 2 = Element, 3 = Cast body. | 1 = Filter top, 2 = Filter cloth, 3 = Housing body. |
| 27 | What kind of valve is this ? |  | A screw-down non-return valve. | A fixed non-return valve or check valve. | A high pressure control valve. | A high pressure stop valve. |
| 28 | If the diameter of this valve is 60 mm on it's inner seat, what is the minimum fixed lift height ? |  | 20 mm. | 15 mm. | 12.5 mm. | 10 mm. |

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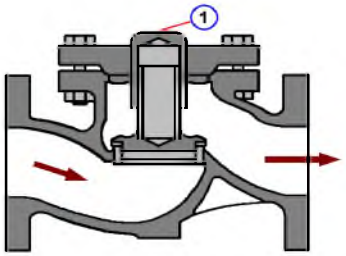
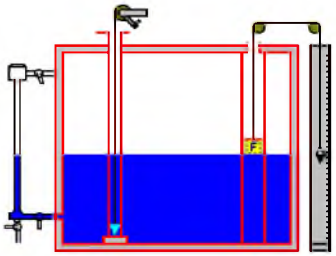
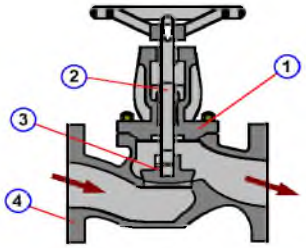
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 29 | What is the purpose of the screw cap (1) in the picture ? |  | To adjust the valve lift. | To access the valve. | To adjust the valve down if it is heard banging. | To manually close the valve. |
| 30 | Which types of tank gauging are fitted here, if: 1 = Float reading on the tank, 2 = Measure tape reading, 3 = Sight glass reading, 4 = Distance reading, 5 = Pneumatic gauging.? |  | 1, 3 and 5. | 2, 3 and 4. | 1, 2 and 3. | 2, 3 and 5. |
| 31 | What are parts 1 and 4 and what ensures the seal between them ? |  | Part 1 = top plate, part 4 = casing, an O-ring. | Part 1 = valve cover, part 4 = valve body, a gasket. | Part 1 = valve plate, part 4 = cast body, a seal. | Part 1 = top cover, part 4 = valve casing, a joint. |

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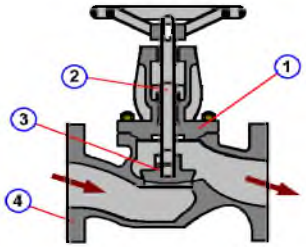
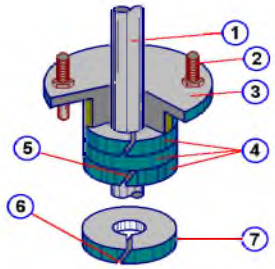
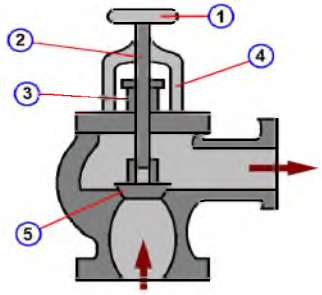
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 32 | What type of valve is shown here ? |  | A gate valve. | A non-return valve. | A check valve. | A screw-lift valve. |
| 33 | What is this unit called ? |  | A shaft seal gland and packing. | A mechanical shaft seal. | A segmented seal unit. | A flexible type rotating packing assembly. |
| 34 | What type of valve is shown here ? |  | A 90 degree gate valve. | An angle screw lift valve. | An angle screw-down valve (non return). | A 90 degree check stop valve. |

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|---|---|---|---|---|---|---|
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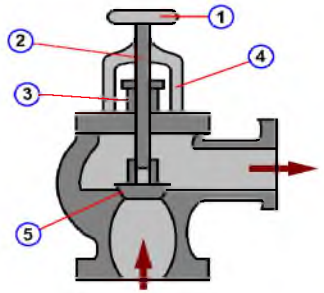
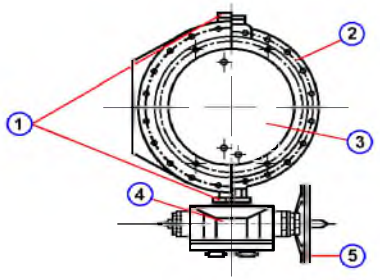
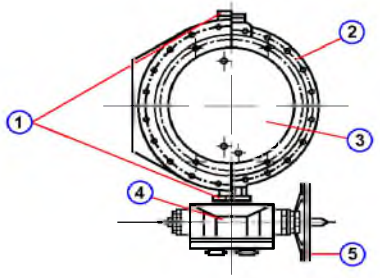
| | | ***OPERATE PUMPING SYSTEMS*** | | | | |
| 35 | Where are you most likely to find this kind of valve fitted ? |  | On ballast lines. | In diesel engine starting air lines. | On refrigerating machinery. | On sea chests. |
| 36 | What kind of valve is this ? |  | A manually operated butterfly valve. | A gear operated butterfly valve. | A gear operated gate valve. | A worm wheel operated gate valve. |
| 37 | How is the sealing ring (2) fitted on the butterfly valve plate ? |  | It is kept in place by a retaining ring secured by countersunks. | It is bolted on and secured by wiring. | It is glued on a separate removable ring. | It sits in a grooved bolted-on section. |

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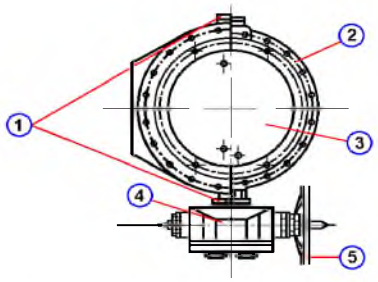
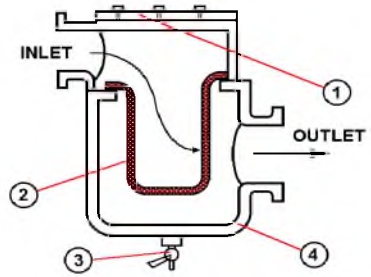
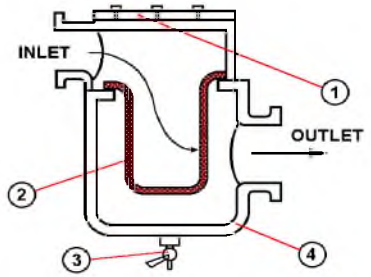
| 38 | Where is this type of valve usually found ? |  | In piping with large flow but low pressure. | In piping of high pressure and large flow. | In piping of low pressure and low flow. | In piping of high pressure but limited flow. |
| 39 | In what kind of piping would you find this type of filter ? |  | In fuel oil piping. | In sea water piping. | In starting air piping. | In bilge piping. |
| 40 | What is the purpose of the drain cock (3) on this filter ? |  | To drain the dirt out of the filter basket. | To take samples of the liquid. | To drain out the collected water. | To drain the filter before cleaning. |

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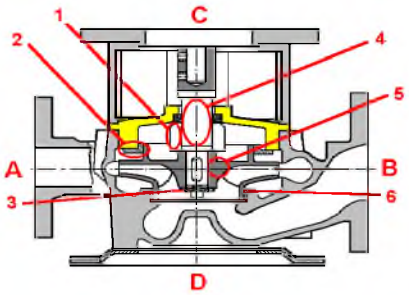
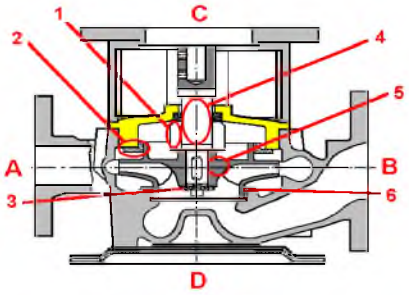
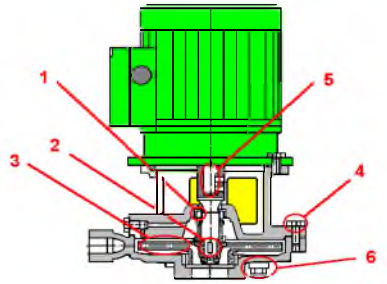
| 41 | What are items No. 2 and No. 6 called ? |  | Bearing sleeves. | Water throwing seals. | Impeller wear rings. | Impeller support rings. |
| 42 | This in terms of overall pump performance, what is the most important negative effect if an impeller wear ring (No 6) is worn excessively ? |  | The pump will absorb excessive power, motor overload. | The pumping efficiency deteriorates, less output. | The pump starts vibrating, bearing damage will occur. | The housing will be attacked by cavitation. |
| 43 | What type of centrifugal pump is shown here ? |  | Multi-stage, medium speed. | Floating, self balancing, single stage. | Self priming, single stage, high speed. | Single stage, high speed. |

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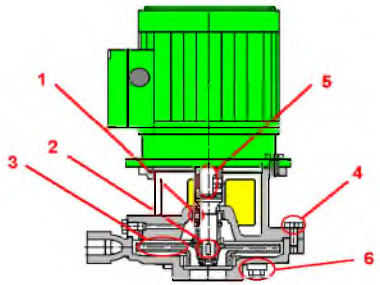
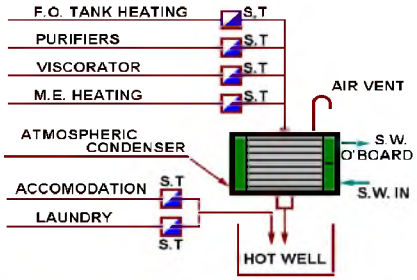
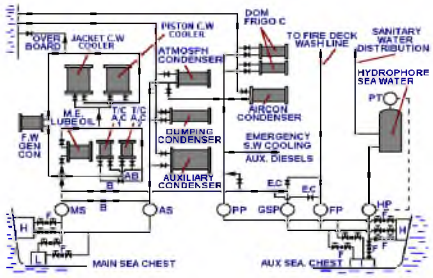
| 44 | What do you think would be the RPM of the electric motor driving this pump (Frequency on board is 60 Hz) ? |  | About 2300 RPM. | About 1500 RPM. | About 1150 RPM. | About 870 RPM. |
| 45 | What would happen if the cooling water is shut off the atmospheric condenser? |  | Steam will blow from the air vent. | The hot well will steam up. | Overpressure will occur in the condenser. | All of the given options. |
| 46 | When are the high sea chests used ? |  | When the ship is deeply laden at sea. | When the ship is in shallow water. | When the ship is in ballast condition. | When the ship is in polluted waters. |

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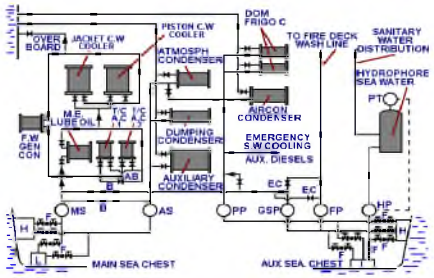
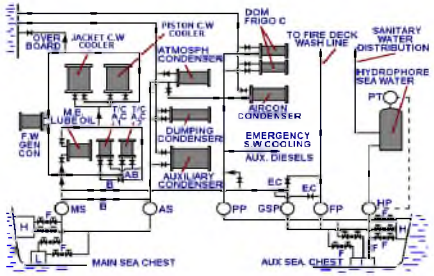
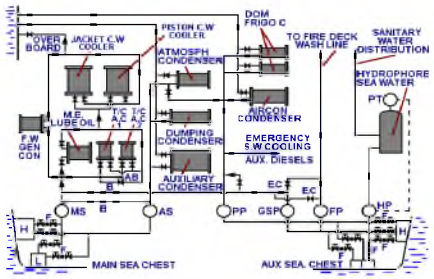
| 47 | What type of filters are fitted to the high and low sea chest suction lines ? |  | Perforated plate filters. | Mesh wire filters. | Ball flush filters. | Backflow filters. |
| 48 | Here are some capacities of sea water pumps. Which pump would be the Fire and Ballast Pump ? |  | 410 m3/hour x 20 metres. | 110/410 m3/hour x 70/35 metres. | 140 m3/hour x 30 metres. | 40 m3/hour x 55 metres. |
| 49 | Here are some capacities of engine room water pumps. Which one would be the Fresh Water Hydrophore Pump ? |  | 5 m3/hour x 50 metres. | 0.5 m3/hour x 40 metres. | 5 m3/hour x 25 metres. | 40 m3/hour x 55 metres. |

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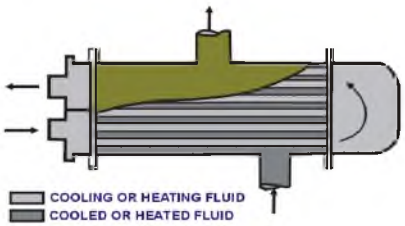
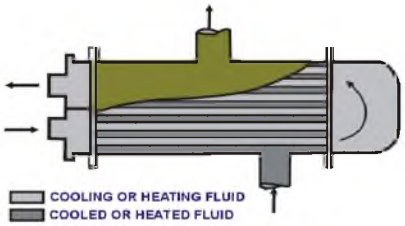
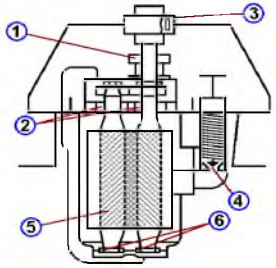
| 50 | What kind of heat exchanger is drawn here ? |  | A single flow pipe tube heat exchanger. | A double flow or loop flow tube heat exchanger. | A finned bank block heat exchanger. | A plate battery heat exchanger. |
| 51 | If you find a leak on one of the tubes of this heat exchanger, what should you do ? |  | Weld the tube tight. | Put the heater out of commission. | Seal off the tube with plugs hammered in both tube ends. | Machine plugs and weld in place. |
| 52 | What is the purpose of item No4, fitted to this pump ? |  | It is a filter. | It is a balance valve. | It is a bleed-off valve. | It is a delivery control valve. |

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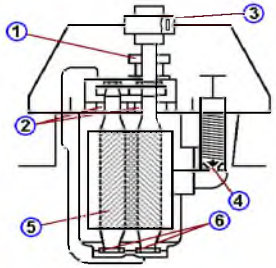
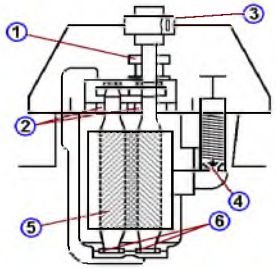
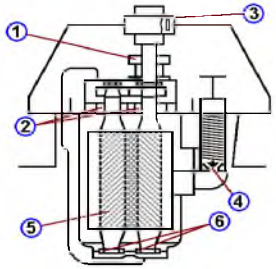
| 53 | When pumping cold oil with this pump, what precaution would you take? |  | Start/stop the pump frequently. | Throttle the discharge valve. | Scew back the spring pressure on the pressure regulating valve. | Throttle the suction valve. |
| 54 | What are items No. 2 of this pump ? |  | The driven end bearings. | The shaft seals. | Shaft collars. | The shaft locating collars. |
| 55 | What are items No. 6 on this pump ? |  | The thrust plates. | The shaft bearings. | The shaft plates. | The axial plummer pads. |

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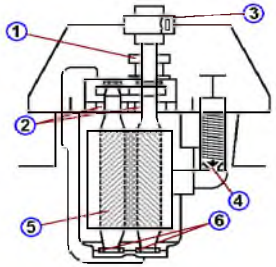
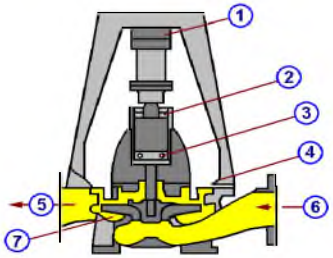
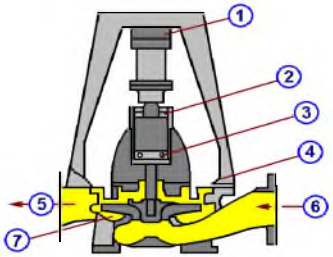
| 56 | What is part No. 1 of this pump ? |  | A metallic type mechanical seal. | Main shaft locating bush. | Main shaft bearing. | The shaft locking collar. |
| 57 | What is item No. 1 of this type of pump lay-out ? |  | The pump coupling unit. | The pump shafting system. | The pump driving arrangement. | The intermediate shaft assembly. |
| 58 | What is item No. 4 on this pump assembly ? |  | The outer casing. | The reinforcement frame. | The motor stool. | The pump top casing assembly. |

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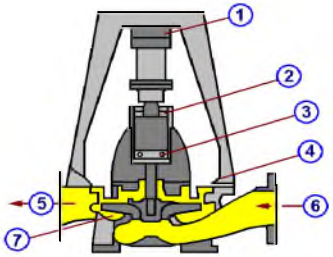
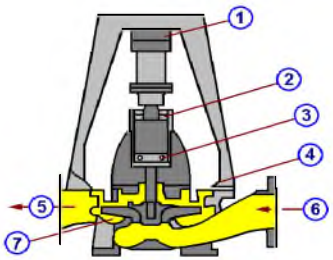
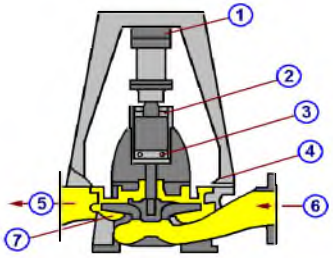
| 59 | How is the vertical clearance of the impeller in this pump casing adjusted ? |  | By adjusting distance/ height by screwed connection 2 on shaft. | By fitting shims between motor shaft and intermediate shaft. | By fitting shims on pump impeller. | By fitting shims in coupled part, item No 2 on shaft. |
| 60 | Which pump parts are fitted in shaft assembly part No. 3 ? |  | Mechanical seal, O-ring and water thrower. | Shaft sleeve and mechanical seal. | Mechanical seal and ball bearing. | Shaft sleeve and ball bearing. |
| 61 | If you need to replace the mechanical seal on this pump, which parts would you dismantle and remove in order to give access to the seal ? |  | Remove motor and intermediate shaft, remove shaft flange. | Remove motor stool with motor and intermediate shaft complete.. | Remove pump casing half, release coupling and take out pump assembly. | Remove intermediate shaft and shaft flange, take out pump assembly. |

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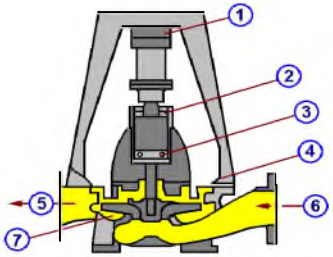
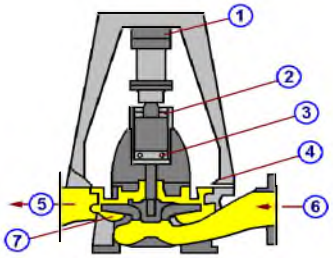
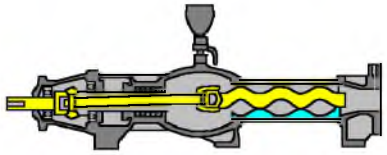
| 62 | When starting a centrifugal pump, in order to reduce the initial power surge, you should start the pump with ..... |  | the suction valve closed. | the discharge valve closed. | throttled suction valve. | throttled discharge valves. |
| 63 | If it is noted after overhaul that the pump bearings overheat and it is verified that it is correctly assembled and no parts are touching, the reason could be..... |  | that the pump is not bled off properly. | there is insufficient liquid supply to the pump. | misalignment of the shaft. | an obstruction on the discharge side. |
| 64 | On a reciprocating pump piston, the rings are made of material with low elastic limit such as hard rubber, Bakelite etc. In order to be able to fit them in the piston grooves you will need to ..... | | use a special sliding tool. | apply grease or vaseline to slide the rings on. | heat them in boiling water for 20 to 30 minutes. | put them on top of the boiler casing to warm up. |
| 65 | In which pipe lines would you expect to find an illuminated sight glass? | | Lube oil pump discharge lines. | Tank overflow lines. | Fresh water return piping and condensate line. | Sea water lines to overboard. |
| 66 | What is the component shown here ? |  | A centrifugal pump. | A rotor screw pump. | A piston pump. | A screw compressor. |

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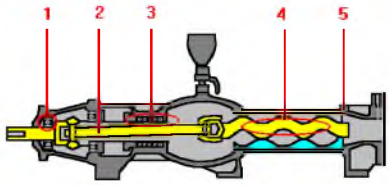
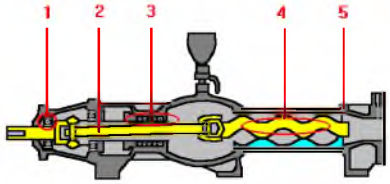
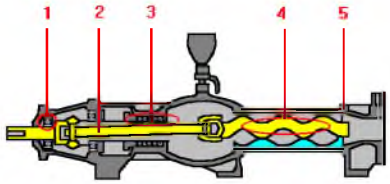
| 67 | What is part number 1 in this drawing ? |  | A seal ring. | The pump shaft. | A ball bearing. | An end cover. |
| 68 | What is part number 2 in this drawing ? |  | The pump shaft. | The cam shaft. | The distance piece. | The connecting rod. |
| 69 | What is part number 3 in this drawing ? |  | The gland packing. | The stuffing box. | A bearing. | A cooling pipe. |

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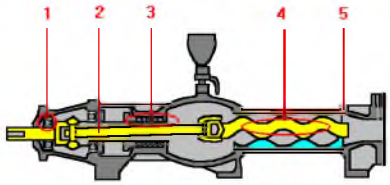
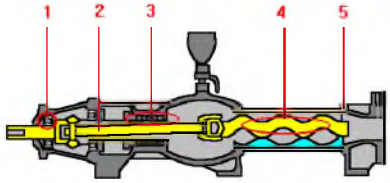
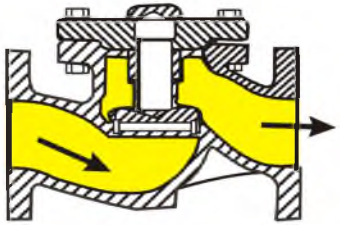
| 70 | What is part number 4 in this drawing ? |  | The connecting rod. | The pump rotor. | The pump body. | A cooling pipe. |
| 71 | What is part number 5 in this drawing ? |  | The bearing holder. | The end cover. | The shaft seal. | The pressure relief valve. |
| 72 | What is shown here? |  | A Non return valve. | A Two way valve. | A Triple flushing valve. | A Dynamic valve. |

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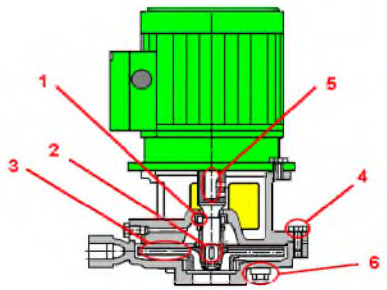
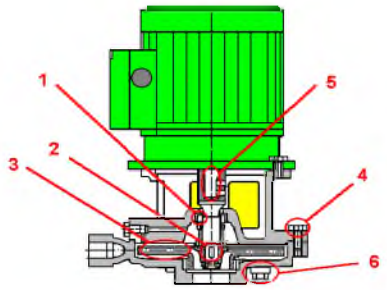
| 73 | What is part No.1 ? |  | The pump bearing. | The mechanical seal. | The water throw ring. | Shaft locking ring. |
| 74 | What is part No. 2 ? |  | The shaft key. | The shaft securing nut. | Impeller locking ring. | The shaft taper section. |

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|---|---|---|---|---|---|---|
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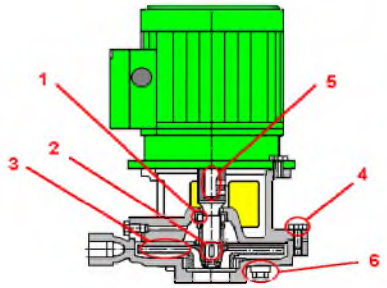
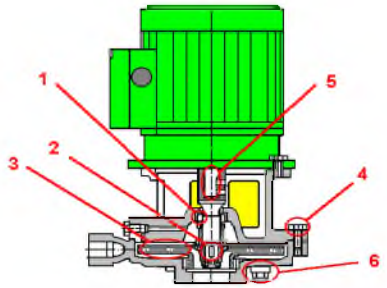
| 75 | What is part No. 3 ? |  | The propeller. | The housing. | The diffuser. | The impeller. |
| 76 | What are the two main items in this drawing ? |  | A compressor and an electric motor. | An electric motor and a screw pump. | A hydraulic motor and a pump. | A centrifugal pump and an electric motor. |

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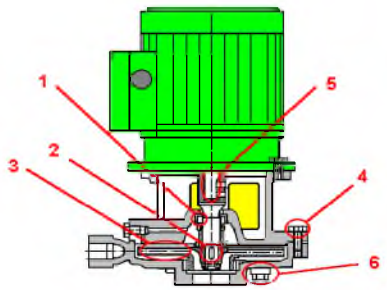
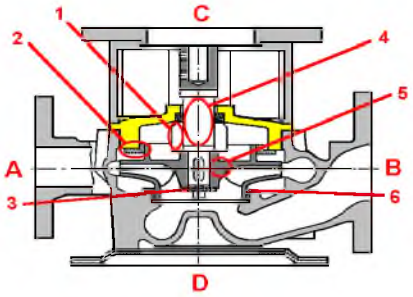
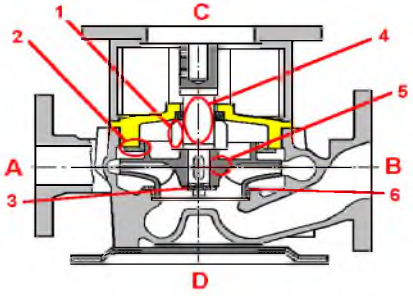
| 77 | What type of pump is shown here? |  | A piston pump. | A screw pump. | A centrifugal pump. | A vane pump. |
| 78 | What is part No. 3 ? |  | The lower shaft seal. | The lower shaft bush. | The Impeller securing washer. | The impeller securing nut. |
| 79 | What is the purpose of Part No. 4 ? |  | To prevent liquid moving upward. | To hold the impeller and connect the motor. | To support the shaft. | To support the impeller. |

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|---|---|---|---|---|---|---|
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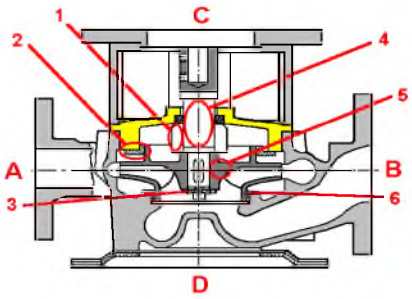
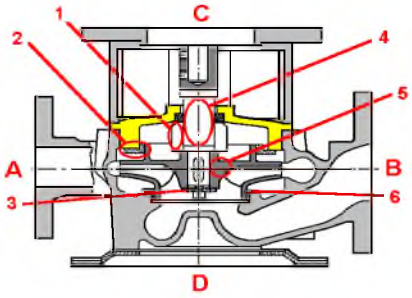
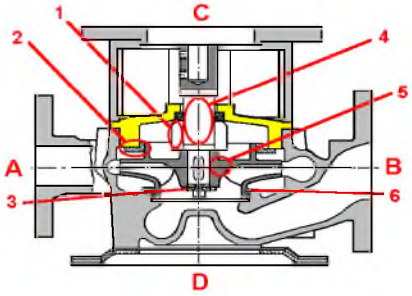
| 80 | What is Part No. 6 ? |  | The impeller wear ring. | The diffuser vanes. | The impeller blade. | The thrust washer. |
| 81 | What is shown in this drawing ? |  | A screw pump. | A centrifugal compressor. | A vane pump. | A centrifugal pump. |
| 82 | Which is the inlet ? |  | A. | B. | C. | D. |

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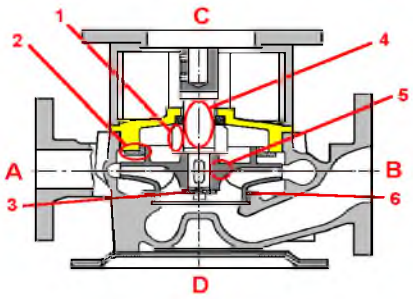
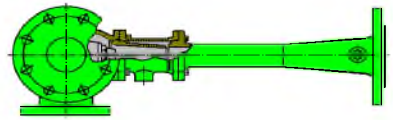
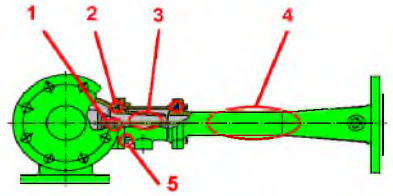
| 83 | Which is the outlet ? |  | A. | B. | C. | D. |
| 84 | What is the component shown here ? |  | A Defector. | A Constructor. | An Injector. | An Ejector. |
| 85 | What is Part No. 1 called ? |  | The diffusor. | The ejector. | The nozzle. | The sprayer. |

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|---|---|---|---|---|---|---|
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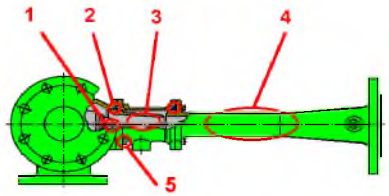
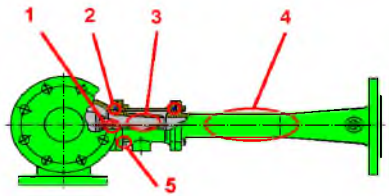
| 86 | Which part is the diffusor ? |  | Part 1. | Part 2. | Part 3. | Part 4. |
| 87 | What is Part No. 5 called ? |  | The drain screw. | The volute chamber. | The nozzle securing screw. | The flange ring. |
| 88 | When taking over the engine room watch, what should you look for on all operating worm wheel or gear type pumps ? | | The pump casing temperature. | The pressure relief valve setting. | Vibration and noise free operation. | Free movement of the by-pass valve. |
| 89 | Oil purifiers can be used for purifying as well as for clarifying operations. The purifying operation is referred to as..... | | the separation of light liquids from heavy liquids, (oil from water) and is called a two-phase operation. | the separation of solids from liquids and is called a single phase operation. | the separation of solids from oils with the use of a water barrier seal and is called a two-phase operation. | a 3-phase separating operation of light liquid, heavy liquid and solids (water, oil, dirt). |
| 90 | Which of the following is the correct name for a void space between two tanks carrying different liquids ? | | A bilge. | A drain tank. | A deep tank. | A cofferdam. |
| 91 | Information about the maximum weight and volume per charge recommended for your incinerator can be found in: | | MARPOL Annex V. | the type approval certificate. | the Garbage Record Book. | the manufacturer's manual. |
| 92 | MARPOL Annex V applies to: | | *all ships.* | *all ships of 400 gross tons or above.* | *all ships certified to carry more than 15 people.* | *all ships of 500 gross tons or above.* |
| 93 | Why are domestic cleaners used on shore not suitable for cleaning toilets on board? | | They are too expensive | They are not strong enough | They damage the marine environment | They would kill the bacteria on which the plant depends |

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| 94 | Which MARPOL Annex relates to the sewage system? | | II | III | VI | IV |
| 95 | Very rarely, someone may have to go inside the plant for maintenance. If so: | | the Master should be consulted. | Head office should give permission. | a proper risk assessment should be undertaken first. | the Chief engineer should be consulted. |
| 96 | Which of the sources listed is not one that is a concern in terms of oily water pollution? | | A hose bursting | Condensation from the charge air cooler | Galley wastes | A flange leaking during bunkering |
| 97 | When garbage is incinerated you must record: | | the date and time. | the category of garbage. | an estimate of the quantity in cubic metres. | all the above. |
| 98 | Why are anaerobic bacteria not desirable in a sewage system? | | They are not very efficient. | They can produce toxic or flammable gases. | They are not killed off by the chlorinator. | They produce a foul smell |
| 99 | Which is the final stage of treatment in an extended aeration plant? | | Settling | Chlorination | Aeration | Settling combined with Aeration |
| 100 | What is the minimum distance a ship must be from land before it is allowed to discharge comminuted and disinfected sewage? | | 3 nautical miles | 6 nautical miles | 9 nautical miles | 12 nautical miles |
| 101 | For how long after the date of the last entry must the garbage record book be kept? | | 1 year | 2 years | 3 years | 4 years |
| 102 | Which MARPOL Annex relates to the discharge of garbage? | | II | VI | V | IV |
| 103 | Oil and water separate because of differences in: | | viscosity. | specific gravity. | temperature. | all the above. |
| 104 | Each completed page of the Oil Record Book must be signed by: | | the Officer of the Watch. | the Chief Engineer. | the Master. | the Chief Officer |
| 105 | Which of the impurities listed may prevent the OWS or the OCM from working properly? | | Soot | Rust | Paint chippings | All the above |
| 106 | Which of the items listed should not be put into lavatories on board? | | Condoms | Cigarette ends and packets | Female sanitary products | All the above |
| 107 | certified to carry more than: | | 10 people. | 12 people. | 15 people. | 20 people. |
| 108 | Which country insists on chlorination? | | Canada | USA | Korea | Japan |
| 109 | What is the minimum distance a ship must be from land before it is allowed to discharge untreated sewage? | | 3 nautical miles | 6 nautical miles | 9 nautical miles | 12 nautical miles |
| 110 | What is the usual method of reducing delivery pressure on a gear pump? | | By adjusting the internal spring loaded pressure relief valve. | By throttling the suction valve. | By throttling the discharge valve. | By fitting an orifice in the discharge line. |

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| 111 | Why is an isolating valve fitted on the fire main from the engine room? | | To isolate the pump for repairs. | To isolate the engine room and enable the emergency fire pump to supply the deck. | In case there is a fire restricted to the engine room. | To maintain pressure on the fire main with the pump not running. |
| 112 | What would loss of vacuum indicate on a bilge pump? | | Suction strainer blocked. | Bilge empty. | Pump impeller choked. | Discharge valve closed. |
| 113 | What is the most common cause of failure of reciprocating bilge pumps? | | Worn cylinder liner or bucket rings. | Leaking piston rod gland. | Debris holding suction or delivery valves open. | Malfunctioning priming pump. |
| 114 | On a centrifugal pump what would happen if the priming pump float valve stuck in the closed position? | | Pump would not prime. | Pump would not deliver pressure. | Priming pump would run hot. | Pump would run hot. |
| 115 | What item is essential to be fitted to a gear pump? | | Pressure relief valve. | Pressure adjusting valve. | Non-return suction valve. | Non-return discharge valve. |
| 116 | In a centrifugal general service pump how are suction and discharge sections separated? | | Mechanical garter spring seals. | Machineable sealing rings. | Neoprene lip seals. | Labyrinth seals. |
| 117 | What service are centrifugal pumps most suitable for? | | Where liquids are not excessively viscous. | Where liquids are extremely viscous. | Where there is a high air content. | Where the liquid has a high temperature. |
| 118 | Where would you find a thermostatic control valve? | | In an engine lub oil system. | In a fuel oil system. | In an engine jacket water cooling system. | In hydraulic ring main supply system. |
| 119 | In a reciprocating pump what would NOT cause of loss of vacuum? | | Priming pump malfunction. | Worn cylinder liner or bucket rings. | Leaking suction/delivery valves. | Leaking piston rod gland. |
| 120 | What maximum oil content may be discharged overboard in 'Special Areas'? | | No oil content is permissable. | 15ppm. | 25ppm. | 50ppm. |
| 121 | If when in port there is an urgent requirement to pump bilge water from the vessel, what would you do? | | Pump the bilges over the sides via the oily water separator. | Lower the bilges only during night time. | Pump the bilges only to a shore or barge reception facility. | Pump bilges in a dirty oil tank or sludge tank and note in logbook. |
| 122 | How are cargo hold bilge wells covered to prevent solids from entering them? | | By steel grid plates bolted in place. | By very fine mesh grids. | By perforated plating. | There is no covering. |
| 123 | What type of valve is fitted to cargo bilge lines at the Engine Room bulkhead? | | Gate valves. | Non-return screw down valves. | Butterfly valves. | Screw lift valves. |
| 124 | How does a 'quick closing' valve operate? | | An independent mechanism closes the valve. | The valve bridge is collapsed remotely allowing the valve to close. | A retaining collar is released allowing the valve to close. | The valve can only be opened and closed hydraulically. |

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| 125 | Where would you find a duplex filter unit? | | In fuel oil piping. | In sea water piping. | In starting air piping. | In bilge piping. |
| 126 | If a serious cavitation problem is experienced effecting the pump casing and impeller badly, the shape and design of which pump part could be altered and why? | | The shape of the inlet piping to smooth the flow into the impeller. | The shape of the outlet pipe to dampen turbulence. | The shape of the impeller to decrease capacity. | The shape of the mouth ring to extend it and avoid turbulence. |
| 127 | What would happen if a centrifugal pump priming pump had no water? | | Pump would run hot. | Pump would not prime. | Pump would not maintain a vacuum when running. | Delivery pressure would be low. |
| 128 | What maximum oil content must oil/water separators generally discharge? | | 1000ppm. | 500ppm. | 100ppm. | 50ppm. |
| 129 | If the centrifugal pump delivery pressure is low which would NOT be the cause? | | Excessive neck bush/shaft clearance. | Choked impeller. | Worn impeller. | Excessive impeller/wear ring clearance. |
| 130 | What material are large tube, heat exchanger covers manufactured from? | | Cast steel. | Cast iron. | Alloy steel. | Bronze. |
| 131 | What is the purpose of a cofferdam? | | To provide a barrier space between tanks containing different liquids. | As an emergency storage space for bilge water. | As a collection space for leaking pipe work. | As a watertight barrier. |
| 132 | Before loosening pump covers how should the pressure be checked? | | Checking the pressure gauge. | Open and check vents are clear. | Remove drain plug. | Remove cover slowly. |
| 133 | What capacity would you consider most suitable for a ballast pump? | | 25 to 50 cubic metres/hour. | 10 to 15 cubic metres/hour. | 20 to 30 cubic metres/hour. | 100 to 150 cubic metres/hour. |
| 134 | What generator cooling is sometimes used during dry-docking? | | Ship's sanitary system. | Circulating fresh water tanks. | Ballast pumps. | Circulating fore or aft peak tanks. |
| 135 | If the priming pump was not working how could a vacuum be raised on a centrifugal pump? | | Starting the pump with the discharge valve open. | Filling the pump by hand. | Starting the pump with the sea suction valve open. | Starting the pump with the suction valve closed. |
| 136 | What is the most obvious reason for drop in electrical load on a ballast pump? | | Malfunction of the electrical motor. | Pump no longer pumping liquid. | Malfunction of the pump. | Tank being transferred into is full. |
| 137 | Why are conventional strainers not fitted in the cargo hold bilge wells? | | They would restrict the pumping of bilge wells. | Because they are inaccessible when cargo is loaded. | Because the cargo holds are cleaner than the engine room. | Because they might be damaged during loading and discharging. |
| 138 | Where what be the most likely service for a multi stage centrifugal pump? | | Bilge and ballast. | Fuel oil transfer. | Boiler feed pump. | Hydraulic winch power pack. |
| 139 | Where can wear most affect efficiency in a gear pump? | | In the gear shaft bearings. | Casing/end gear clearance. | Gear backlash. | Shaft wear at gland. |

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| 140 | What could cause overheating after pump overhaul if it is verified that assembly is correct? | | The pump is not bled off properly. | Insufficient liquid supply to the pump. | Tightness of the shaft. | Obstruction on the discharge side. |
| 141 | When assembling an "Endless Screw" type pump what results from insufficient axial or radial clearance? | | Pump will draw more load and quickly overheat. | The pump will not pump. | The pump will not deliver correct pressure. | The shaft seal will loosen due to vibrations. |
| 142 | When starting a centrifugal pump what condition would be adopted to reduce the initial load? | | The suction valve closed. | The discharge valve closed. | The suction valve throttled. | Suction and discharge valves closed. |
| 143 | In thermodynamic terms what is a 'perfect fluid'. | | Fluid that remains unchanged through a working cycle. | An inert gas. | A fluid that cannot be compressed. | Fluid that exhibits similar characteristics to fuel/air mixture. |
| 144 | Reciprocating pumps are most suited to pumping which medium? | | Liquids mixed with solids. | Transferring liquids at very high flow rates. | Liquids having high air content. | Pumping liquids against a high head pressure. |
| 145 | What is the main advantage of a central sea water cooler system? | | Cheaper to install. | Ease of cleaning. | More efficient cooling. | Simple and short cooling water pipelines. |
| 146 | Worm and worm wheel distinguish between what pump components? | | The rounded and the bellow gear. | The driving and driven shaft gears. | The tangential gear and the straight shaft gear. | The long shaft gear and the stub shaft gear. |
| 147 | What is the purpose of the Oil Record Book? | | To record quantity of fuel onboard. | To record all fuel bunkered and bilge discharges. | To record fuel consumption. | To record oily bilge levels. |
| 148 | When would the main sea circulating system high sea suction valves be used? | | When the ship is deeply laden at sea. | When the ship is in shallow water. | When the ship is in ballast condition. | When the ship is in polluted waters. |
| 149 | What happens if the separator oil content exceeds the equipment allowable level? | | The pump is stopped and an alarm sounds. | A visible alarm. | An audible alarm. | The discharge is dumped to the bilge. |
| 150 | Under what circumstance may untreated bilges be discharged overboard in 'Special Areas'? | | When proceeding Full Ahead. | During the hours of darkness. | Only in a case of emergency. | If the bilges are only to be lowered and not pumped right out. |
| 151 | Why does the fluid pass through the valve from beneath the valve lid? | | The valve is easier to open. | With the valve closed the delivery pressure is isolated from the gland. | There is less restriction to flow in this direction. | There is less scouring of the valve seat at partial openings. |
| 152 | What is the first check if difficulty is encountered when pumping bilges | | Clean the oil/water | Inspect pump | Open the sea suction | Check suction strainers |

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| 153 | What would you do on first starting a gear pump if pumping cold oil? | | Start/stop the pump frequently. | Start the pump with valves closed and gradually open. | Ease off the spring loaded pressure relief valve. | Throttle the suction valve. |
| 154 | For which service would a gear pump be most suitable? | | Bilge pumping. | Engine lub oil pressure supply. | Engine cooling water circulating. | Boiler feed water supply. |
| 155 | What advantage does the gate valve have over globe valves? | | No flow obstruction when fully open. | Positive closing action. | Low maintenance. | Can be throttled. |
| 156 | What are gauze element filters designed to remove? | | Fine non-metallic solids. | Metallic particles. | Water and sludge. | Coarse solids. |
| 157 | What is the most commonly used packing for valve spindle glands? | | Mechanical shaft seal. | Soft gland packing. | Preformed lip seals | Carbon sealing rings. |
| 158 | When on passage, what should be the condition of the fire main? | | Pressurised at all times. | Sea suction and fire main discharge valves open ready to pressurise the main when the fire pump is started. | Drained and empty to prevent leakage at hydrants. | All pump and isolating valves closed. |
| 159 | If the valve wheel of an extended spindle valve is free, but the valve does not seem to be not moving, what would you check first? | | Whether the valve is dirty. | To see if the valve spindle is being turned. | To see if there is excess pressure on the valve. | To check that the valve is not broken. |
| 160 | What pollution certification must deep-sea vessels possess? | | Lloyd's Machinery survey certificate. | MCA pollution certificate. | IOPP certificate. | Safety Construction certificate. |
| 161 | According to regulations, on board ships it is necessary to have PUMP REDUNDANCY. What does this mean? | | All pumps in the engine room are duplicated. | All essential pumps in the engine room have a back-up possibility. | Two identical pumps must be fitted for each circuit. | A stand-by pump must be available for each pump separately. |
| 162 | What would be the main reason for a centrifugal pump's performance deteriorating over time? | | Cavitation of the impeller. | Excessive wear between impeller and wear ring. | Wear of the gland neck bush. | Wear of the pump housing. |
| 163 | From the following pump capacities, which would be most suitable for the domestic fresh water system? | | 5 m3/hour x 50 metres. | 0.5 m3/hour x 40 metres. | 20 m3/hour x 25 metres. | 40 m3/hour x 55 metres. |
| 164 | How is air leakage into the packing gland of a condensate pump is prevented? | | A water seal line to the packing gland. | Special packing in the stuffing box. | An air seal line from the compressed airline. | The air pump fitted to the pump. |
| 165 | Where is it necessary to use Screw Lift Valves? | | Fuel tank valves. | Ballast tank valves. | Bilge line valves. | Main sea suction valves. |

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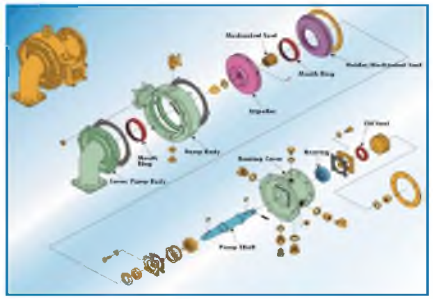
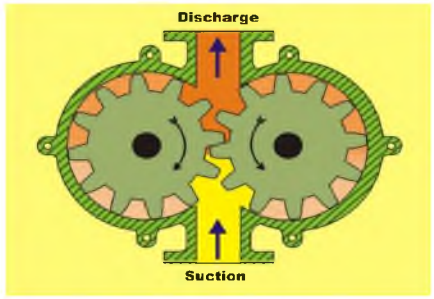
| 166 | If a centrifugal pump does NOT pull a vacuum what is the most likely cause? | | Impeller vanes choked. | Impeller/wear ring clearance excessive. | Neck bush/shaft clearance excessive. | Priming pump not functioning correctly. |
| 167 | Where would you always find Screw Down Non-Return valves fitted? | | As ballast tank valves. | As fire main isolating valves. | As bilge suction valves. | As fuel tank valves. |
| 168 | After gear pump re-assembly what must be checked? | | Suction valve is open. | Direction of rotation is correct. | Gland is not tight. | Discharge valve is open. |
| 169 | In the pump illustrated what separates the suction and discharge pressures? |  | The mouth ring. | The mechanical seal. | The pump body seal. | The pump body cover seal. |
| 170 | What must be fitted to the discharge of the pump in the drawing? |  | Pressure relief valve. | Non return discharge valve. | Manual by-pass valve. | Leak-off connection to cool the shaft gland. |

| GUÍA DE ESTUDIO MAQUINISTA NAVAL | |
|---|---|
| OPERATE PUMPING SYSTEMS | |
| ANSWERS | |
| 1 | B |
| 2 | A |
| 3 | B |
| 4 | B |
| 5 | A |
| 6 | B |
| 7 | B |
| 8 | C |
| 9 | D |
| 10 | B |
| 11 | C |
| 12 | A |
| 13 | C |
| 14 | B |
| 15 | D |
| 16 | B |
| 17 | B |
| 18 | B |
| 19 | D |
| 20 | D |
| 21 | A |
| 22 | C |
| 23 | A |
| 24 | D |
| 25 | A |
| 26 | B |
| 27 | B |
| 28 | B |
| 29 | A |
| 30 | C |
| 31 | B |
| 32 | D |

| GUÍA DE ESTUDIO MAQUINISTA NAVAL | |
|---|---|
| OPERATE PUMPING SYSTEMS | |
| ANSWERS | |
| 33 | A |
| 34 | C |
| 35 | D |
| 36 | B |
| 37 | A |
| 38 | A |
| 39 | A |
| 40 | C |
| 41 | C |
| 42 | B |
| 43 | D |
| 44 | A |
| 45 | D |
| 46 | B |
| 47 | A |
| 48 | B |
| 49 | A |
| 50 | B |
| 51 | C |
| 52 | D |
| 53 | C |
| 54 | A |
| 55 | B |
| 56 | A |
| 57 | D |
| 58 | C |
| 59 | A |
| 60 | C |
| 61 | C |
| 62 | B |
| 63 | C |
| 64 | C |

| GUÍA DE ESTUDIO MAQUINISTA NAVAL | |
|---|---|
| OPERATE PUMPING SYSTEMS | |
| ANSWERS | |
| 65 | B |
| 66 | B |
| 67 | C |
| 68 | D |
| 69 | A |
| 70 | B |
| 71 | B |
| 72 | A |
| 73 | B |
| 74 | A |
| 75 | D |
| 76 | D |
| 77 | C |
| 78 | C |
| 79 | B |
| 80 | A |
| 81 | D |
| 82 | B |
| 83 | A |
| 84 | D |
| 85 | C |
| 86 | C |
| 87 | C |
| 88 | C |
| 89 | D |
| 90 | D |
| 91 | D |
| 92 | A |
| 93 | D |
| 94 | D |
| 95 | C |
| 96 | C |

| GUÍA DE ESTUDIO MAQUINISTA NAVAL | |
|---|---|
| OPERATE PUMPING SYSTEMS | |
| ANSWERS | |
| 97 | D |
| 98 | B |
| 99 | B |
| 100 | A |
| 101 | B |
| 102 | C |
| 103 | B |
| 104 | C |
| 105 | D |
| 106 | D |
| 107 | C |
| 108 | C |
| 109 | D |
| 110 | A |
| 111 | B |
| 112 | B |
| 113 | C |
| 114 | A |
| 115 | A |
| 116 | B |
| 117 | A |
| 118 | C |
| 119 | A |
| 120 | B |
| 121 | C |
| 122 | C |
| 123 | B |
| 124 | B |
| 125 | A |
| 126 | C |
| 127 | B |
| 128 | D |

| GUÍA DE ESTUDIO MAQUINISTA NAVAL | |
|---|---|
| OPERATE PUMPING SYSTEMS | |
| ANSWERS | |
| 129 | A |
| 130 | B |
| 131 | A |
| 132 | B |
| 133 | D |
| 134 | D |
| 135 | C |
| 136 | B |
| 137 | B |
| 138 | C |
| 139 | B |
| 140 | C |
| 141 | A |
| 142 | B |
| 143 | A |
| 144 | C |
| 145 | D |
| 146 | B |
| 147 | B |
| 148 | B |
| 149 | A |
| 150 | C |
| 151 | B |
| 152 | D |
| 153 | C |
| 154 | B |
| 155 | A |
| 156 | D |
| 157 | B |
| 158 | B |
| 159 | B |
| 160 | C |

| GUÍA DE ESTUDIO MAQUINISTA NAVAL | |
|---|---|
| OPERATE PUMPING SYSTEMS | |
| ANSWERS | |
| 161 | B |
| 162 | B |
| 163 | A |
| 164 | A |
| 165 | B |
| 166 | D |
| 167 | C |
| 168 | B |
| 169 | A |
| 170 | A |