

Deck General – Safety

Deck Engineering

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What would white exhaust smoke from a diesel engine probably mean?

Late fuel injection

The most serious effect of air trapped in a non-treated diesel engine jacket water cooling system is that it _____.

causes corrosion

What is the purpose of a vent header?

Combines individual vent lines into a main

What is the principle behind dynamic braking as used on an anchor windlass?

Electrical loading

What does blowing tubes accomplish?

Increases boiler efficiency

The carburetor is placed on the engine to _____.

mix the fuel and air

How does combustion air enter the cylinder of a two-cycle diesel engine?

Ports

The most serious effect of trapped air in a diesel engine jacket water cooling system is that it _____.

accelerates erosion

Overspeed of the diesel engine driving an electric generator could cause _____.

damage to windings

What is the most probable cause of reduced capacity in a reciprocating air compressor?

Leaking air valves

What is an advantage of a steam turbine over a diesel for the main propulsion?

Less weight per unit of horsepower

When fueling has been completed _____.

all hatches should be opened and all compartments should be ventilated

What are the three basic types of engine starters?

Air, hydraulic, electric

The most serious effect of oxygen retained in a diesel engine jacket water cooling system is that it _____.

causes corrosion

What causes cavitation in a centrifugal pump?

Vapor pockets in the flow stream

When two generators are operating in parallel, what will happen if one engine driving a generator shuts down?

The stalled generator's circuit breaker will trip on reverse power.

See REF168

Before starting any diesel or gasoline engine, which of the following must be checked?

Oil level

Which action should be taken once fueling has been completed?

all hatches should be opened and all compartments should be ventilated

Most medium and slow speed diesels are started by what medium?

Compressed air

What factor is essential to the proper operation of a radiator cooled engine?

Air flow through the radiator

What is the operating principal of a flash type evaporator?

Heated sea water is injected into a vacuum chamber.

Where a propeller shaft passes through the hull, water is prevented from entering by means of a _____.

stuffing box

You discover a leak in the fuel line to the engine. You should FIRST _____.

close the fuel valve at the tank

Gasoline tanks should be filled _____.

to near the top with some space allowed for gasoline expansion

What condition will result in the automatic shutdown of a diesel engine?

Low lube oil pressure

What is an advantage of diesel over steam turbine propulsion?

Less fuel consumption per SHP

What prevents water running along the shaft of a leaking centrifugal pump from entering the shaft bearing?

Water flinger

What power source actuates a solenoid valve?

Electric current

See REF169

Maintaining good working order of fuel pumps and injectors in auxiliary diesel engines requires the use of _____.

fuel filters

Upon completion of fueling a gasoline driven vessel it is necessary to _____.

ventilate before starting engine

Diesel engines are considered safer than gasoline engines because _____.

the fuel used is less volatile

The three conditions which cause engine shutdown are overspeed, low lube oil pressure, and _____.

high jacket water temperature

What is the effect of heated intake air on a diesel engine?

Reduces engine horsepower

Why does a centrifugal bilge pump require priming?

Lack of ability to lift water level to impellers

What is the purpose of a striker plate?

Provides landing surface for the sounding bob

See REF170

Outlets in gasoline fuel lines are _____.
prohibited

What factor is essential to the proper operation of a radiator cooled engine?
Air flow through the radiator

The quickest method to stop a small diesel engine whose throttle or governor has become stuck open is to _____.
close the fuel supply valve

If an engine shuts down due to high jacket water temperature, what action should be taken?
Allow engine to cool gradually

What does a pyrometer measure on a diesel engine?
Exhaust temperature
See REF165

In an emergency, the electro-hydraulic steering units can be directly controlled by the _____.
trick wheel

What is the function of wearing rings found on some centrifugal pumps?
Isolate the outlet side from the inlet side

The exhaust pipe must be gas tight throughout its entire length otherwise _____.
carbon monoxide may enter the interior of the vessel
See REF175

Which of the following is one of the most important safety procedures that should be adhered to prior to starting a gasoline engine on a motorboat?
the bilges, cabins, etc. are thoroughly ventilated

What monitoring device best indicates the load being carried by a diesel engine?
Exhaust pyrometer

Diesel engines obtain combustion air through turbo chargers, blowers, or _____.
natural aspiration

A hydraulic accumulator is designed to _____.
store fluid under pressure
See REF166

According to the Code of Federal Regulations, which of the following statements is correct regarding the steering gear on a vessel contracted for after June 9, 1995?
A separate auxiliary means of steering is not required where the main gear is of the dual power hydraulic type, having two independent pumps and connections.

A thrust block is designed to _____.
transmit the thrust of the propeller to the vessel
See REF171

If a gasoline engine turns over freely but will not start, the cause is generally _____.
a defective ignition system

A wobbling tail shaft is an indication of _____.
worn stern bearing or misalignment

What is the purpose of the intake/exhaust valves in a diesel engine?

They regulate the combustion cycle.

What is the function of an air receiver in the compressed air system?

Acts as an accumulator

See REF166

Mechanical gearing of deck machinery such as the windlass or towing engine should _____.

have a guard over the gearing

What quality of a diesel fuel is most significant for efficient combustion?

Volatility

See REF172

To find the cause of a gasoline engine's failure to start, you should _____.

ventilate the space, then check the battery, spark plugs, carburetor, and fuel line

During fueling, all doors, hatches, and ports _____.

should be closed

What is the best indication of the loading of a diesel engine?

Exhaust gas temperature

See REF165

The follow-up gear on an electro-hydraulic steering gear _____.

takes the pump off stroke when the desired rudder angle is attained

See REF167

Mechanical gearing of deck machinery such as the windlass or boat hoists should _____.

have a guard over the gearing

Which term is given to the brickwork surrounding the firebox of a boiler?

refractory

See REF173

A safe fuel system must _____.

be liquid- and vapor-tight

After an engine is started you should _____.

check operating pressures and temperatures, and check for leaks

All marine low-speed diesels are of what design?

Two-stroke

In an electro-hydraulic steering system, rudder movement is maintained in close synchronization with the steering wheel position by means of the _____.

follow-up control

See REF167

Rotation of the steering wheel on the navigation bridge initiates oil pressure being applied to the steering gear rams by _____.

varying the angle of a tilting box or eccentricity of a floating ring

What is NOT a function of the steam drum of a marine water-tube boiler?

Collects steam exhausted from the turbines

See REF174

Before any machinery is put in operation, you should _____.
ventilate all compartments, see that the machinery is clean and there are no obstructions

Lubricating oil should be changed on a heavy duty diesel engine when _____.
it has been in use for a specified interval

All diesel engines are classified as _____.
compression ignition

All electrical appliances aboard a vessel should be grounded to _____.
protect personnel from electrical shock

Dual electro-hydraulic steering units usually operate _____.
with one pump on standby

A spark arrestor _____.
prevents sparks from getting out of an engine's exhaust system

Which statement is TRUE concerning fuel vapors on a vessel?
Fuel vapors gather in the lowest portions of the vessel.

Generally speaking, the fuel injected into a marine diesel engine combustion chamber is ignited by _____.
heat of compression

Overspeed of the diesel engine driving an electric generator could cause _____.
damage to windings

If one hydraulic pump of an electro-hydraulic steering unit fails, the vessel's steering can initially be maintained by activating which of the following units?
standby pump

When the helm is turned on the navigation bridge, which of the listed actions will be the FIRST response in the steering room on a ship equipped with an electro-hydraulic steering gear?
The synchronous receiver turns, duplicating the helm motion.

One major disadvantage of a low-speed diesel as compared to a steam main-propulsion system is _____.
a minimum speed for the engines that limits the minimum speed of the vessel

Which statement is TRUE concerning gasoline vapors on board a vessel?
They are heavier than air and will settle in the lowest part of the vessel.

How should you warm up a diesel engine that has not been run for some time?
Idle for a brief period of time and then warm up at half speed.

Sudden unloading of a diesel engine can cause _____.
overspeed trip

What is the proper direction of flow through a globe valve when the valve is installed to be in a normally open position?
From below the seat

Under normal operating conditions, the rudder is hydraulically locked unless _____.
a rudder order is given by the control system

In a water tube marine boiler, what protects the superheater tubes from the fires of combustion?

Screen tubes

The nozzle of a gasoline hose or can should be kept _____.

in contact with the fill opening to guard against static spark

How would the exhaust of a properly operating diesel engine appear?

Perfectly clear

What is one effect of running a diesel engine at too cool a temperature?

Buildup of sludge in the lubricating system

On what type of pump would you find an impeller?

Centrifugal

What is NOT used as a stern tube bearing, on a large vessel?

Bronze bushings

In a water-tube marine type boiler, after the steam leaves the generating tubes, in what part of the boiler is temperature of the steam increased?

Superheater

Before you start an engine in a compartment, it's MOST important to _____.

ventilate the bilges

Each cylinder in a two cycle engine experiences combustion _____.

once each crankshaft revolution

If you are unable to stop a diesel engine by any other means, you should _____.

discharge a CO2 extinguisher in the air inlet

What is the purpose of a check valve?

Permits flow in one direction only

What type of stern tube bearing has the least friction?

Oil-lubricated bearings

What is NOT a function of the steam drum of a marine water-tube boiler?

Collects steam exhausted from the turbines

See REF174

Which statement is FALSE concerning precautions during small craft fueling operations?

Fuel tanks should be topped off with no room for expansion.

REF165

A pyrometer is generally considered as a unit for measuring high-temperatures that would be encountered in the exhaust system.

REF166

An "accumulator" contains hydraulic oil under pressure and is ready to do "work". An accumulator is an "unfired pressure vessel" (i.e., one that does not use an outside source of heat) in which energy is stored at high pressure in the form of a gas or a gas and hydraulic fluid. An example of an accumulator would be a tank that stores hydraulic fluid under pressure that, when released, can be used to start a lifeboat engine. Such an accumulator can be designed to recharge itself as the engine runs (assuming that the engine will run) or can be recharged manually by using a hand pump.

REF167

The rudder is prevented from over-traveling the helm command (i.e., the bridge signal) by the follow-up gear.

REF168

When paralleling generators and alternators, the machine coming on-line must have a slightly higher voltage so that it picks up some of the load when it is placed "on the by closing the circuit breaker. If machines are not "in phase" (i.e., synchronized) when they are paralleled, severe cross currents will occur and may cause damage. The maximum machines can be out of phase is 180°. Machines operating in parallel are both on line and sharing the load. However, they must have the same frequency, number of phases and phase rotation to do this. When paralleling, if the synchronizing lamps are dark and the synchroscope is at 12 o'clock (i.e., the 0° position), it indicates the oncoming alternator is "in phase" with the bus. To place an alternator "on line", adjust the oncoming machine's speed until the synchroscope revolves slowly in the "fast" direction. Then close the circuit breaker when the synchroscope is at the 12 o'clock (i.e., 0° position). The oncoming alternator should have slightly higher frequency than the "on-line" or bus frequency to: 1. Assume its load immediately, 2. Not "float" on the line, 3. Not "motorize" and activate the reverse power relay. After closing the circuit breaker to "parallel" the two machines, you should balance the loads (kilowatts) between the two machines by adjusting the governor settings.

REF169

A solenoid valve is an electromechanically-operated valve. Solenoid valves differ in the characteristics of the electric current they use, the strength of the magnetic field they generate, the mechanism they use to regulate the fluid, and the type and characteristics of fluid they control.

REF170

A plate installed in a storage tank, at a point directly beneath the drop tube or gauging port. The purpose of the plate is to absorb the impact of repeated insertions of gauge sticks, and to help dissipate the impact of product being dropped into the tank.

REF171

A thrust block, also known as a thrust box, is a specialised form of thrust bearing used in ships, to resist the thrust of the propeller shaft and transmit it to the hull.

REF172

Diesel is a stable liquid at normal outdoor temperatures. At temperatures above 100 degrees, the diesel liquid can begin to vaporize. ... Diesel vapors can ignite and explode when mixed with air. The vapors are explosive over a wide vapor-to-air mixture range.

REF173

Refractory Description A refractory material or refractory is a heat-resistant material: that is, a mineral that is resistant to decomposition by heat, pressure, or chemical attack, most commonly applied to a mineral that retains strength and form at high temperatures.

REF174

A steam drum is a standard feature of a water-tube boiler. It is a reservoir of water/steam at the top end of the water tubes. The drum stores the steam generated in the water tubes and acts as a phase-separator for the steam/water mixture.

REF175