Australian Government
Australian Maritime Safety Authority

MARINE NOTICE

Marine Notice 12/2017

Operation and maintenance of rescue boat outboard motors

Purpose

The purpose of this marine notice is to draw to the attention of ship owners, operators, masters, officers, seafarer training organisations and industry organisations the importance of maintaining rescue boats in good working order ready for immediate use. This marine notice highlights operation and maintenance issues that the ship's crew and operators should be aware of.

Background

Australian Maritime Safety Authority (AMSA) Port Sate Control Officers (PSCOs) are increasingly finding that some crew members are unfamiliar with the operation and maintenance of outboard motors.

A lack of understanding on how outboard motors are operated and maintained could result in poor performance, or total failure, of these motors. This is an unacceptable risk during a rescue operation that could have catastrophic consequences.

Rescue Boats

A rescue boat is designed to rescue persons in distress and to marshal survival craft. Masters have the responsibility for ensuring that rescue boats and associated equipment are maintained in good working order at all times.

Rescue boats may be either of rigid or inflated construction or a combination of both and are fitted with an inboard engine or outboard motor. The most common type of propulsion system used for a rescue boat is a petrol driven outboard motor.

During recent Port State Control (PSC) inspections, AMSA PSCOs have identified rescue boat outboard motor operational and maintenance issues which are described below.

Cooling Water

Outboard motor cooling water circulation is provided by a cooling water pump incorporating a rubber impeller and is confirmed during operation by a jet of water through a tell-tale hole located below the power head.

Outboard motors are not designed to be operated without cooling water, even for short periods of time, unlike inboard engines which are designed to be capable of operating for not less than 5 min after starting from cold with the lifeboat out of the water (International Life-Saving Appliance (LSA) Code Chapter IV/ 4.4).

While proper procedures should be followed during routine testing and operation of outboard motors, AMSA PSCOs have observed that some crew operate the motor without any cooling water, which will result in damage of the water pump and possibly result in failure.

Even testing using an external pressurised water supply has limitations, as these do not demonstrate that the water pump is capable of taking suction and circulating water through the motor.

An effective operational test is to submerge the motor leg in water to a depth which will cover the inlet ports. When the motor is started, the pump circulates water through the motor and out through the exhaust outlet. The pump condition and circulation is verified by observing the cooling water flow through the water flow indication (tell-tale) hole as indicated in Figure 1. The manufacturer's advice with respect to flushing of cooling water passages with fresh water after use must always be followed.

Figure: 1

During inspections of outboard motors, AMSA PSCOs have found various defects including:

- blocked cooling water inlet mesh/ports;
- tell-tale holes blocked by salt deposits, broken pieces of rubber or by paint;
- worn out impellers (Figure 2);
- salt water deposits in cooling water passages.

All these defects could lead to serious engine damage due to overheating.

Figure: 2

Damaged impeller v/s new impeller

Fuel and Oil

Rescue boats have either 2-stroke or 4-stroke petrol (gasoline) outboard motors (diesel outboard motors are available but not common). Use of improper fuel can damage the engine or result in starting difficulties.

AMSA PSCOs have found that manufacturer's operating manuals are not always available and crew are unsure of the type of outboard motor fitted and its associated systems. 4-stroke motors require no mixing of oil and fuel. Some 2-stroke designs use oil injection systems, while others require pre-mixing of oil and fuel.

Fuel problems are the most common cause for an engine failing to start. Generally, the fuel is either too old, contaminated, not the correct mix, or may not be able to be ignited due to the spark plugs being fouled by oily residue.

Sufficient fuel (for maintaining a speed of at least 6 knots for a period of at least 4 hrs) must be carried on-board and stored in approved containers. Fuel systems are to be approved and fitted tanks are to be specially protected against fire & explosion. (LSA Code Chapter V/ 5.1.1.8).

Best practice guidance

Safety of Life At Sea (SOLAS) and the International Safety management (ISM) Code require that ships crews are properly familiarised with the operation and maintenance of emergency equipment, including rescue boat outboard motors. The ISM Code, under element 10.3, requires that companies identify equipment the sudden operational failure of which may result in a hazardous situation. Specific measures should be provided in the Safety Management System (SMS) to promote the reliability of such equipment.

The ship's SMS should ensure that effective maintenance procedures for rescue boat inboard and/or outboard motors are developed and included in the ship's planned maintenance system. Manufacturers instruction manuals must also be available on-board, as should a fully inventory of the manufacturer recommended spares, such as fuel and oil filters, spark-plugs and water pump impeller.

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