



BERMUDA MERCHANT SHIPPING INFORMATION NOTICE

Explosion on Main Engine Air Start Line

2021-01

Application

Ship Owners, Managers, Masters and Engineering Officers of Bermuda Registered ships

Summary

Following reports of an explosion on the starting air line of a Bermuda registered ship, the Bermuda Shipping and Maritime Authority would like to bring attention to this risk and make recommendations to minimise the possibility of explosion.

This Notice was issued on 4th February 2021.

1. Basis

- (1) An explosion in the starting air manifold may result in rupture of the manifold with the possibility for serious damage to equipment and persons in the area.
- (2) In order for an explosion to take place a combustible mixture must be present in the starting air line.
- (3) Starting air manifolds are typically designed in such a way as to allow any fluid to drain out.

2. Accumulation of Combustible Fluid

- (1) The most likely reasons that combustible mixtures may accumulate in the start air system are as follows:
 - a. Lubricating oil carry over from the starting air compressor.
 - b. Fuel oil leakage into the cylinder when the engine is stopped.
 - c. Leaking starting air valve.
 - d. Blocked manifold drain arrangements.

3. Recommendations

- (1) Each engine will have its own arrangements so you are advised to consult any guidance provided by the manufacturer in the first instance.
- (2) The above notwithstanding, we advise that the following guidance be used as a basis to minimise the possibility of an explosion in the air start system.
 - a. Air Compressor and Start Air Bottle automatic drain valves are to be checked to confirm that they have not been modified and continue to operate as designed. The area below any drain points is to be periodically inspected for water or oily substances.
 - b. Manual drain valves in the starting air line between the air bottles and the engine are to be regularly exercised and the content of any drainage checked for oily substances.
 - c. A 'hissing' sound from the drain points immediately after starting the engine may indicate that a bursting disc has ruptured.
 - d. The starting air valves are to be serviced and overhauled as per the engine maker's recommendations.
 - e. Starting air valves that are stuck open or leaking may be indicated by difficulty in starting the engine and/local overheating on the starting air manifold.
 - f. Starting air compressor to be maintained as per manufacturer's recommendations and daily running hours and lube oil consumption should be monitored.
- (3) If the presence of oil in the air start system is suspected or confirmed the following additional steps are recommended:
 - a. Starting air bottles and lines are to be cleaned of accumulated oil.
 - b. Starting air compressors are to be overhauled to minimise oil transfer to the start air system.
 - c. The start air valve is to be overhauled.
 - d. All safety devices (i.e. Flame traps, bursting discs, relief valves) to be in the correct position