Fires In Engine Room

As in all areas of industry, the damage and costs of fires in the vessels and particularly in their engine rooms are quite high, as well as causing loss of life from both burns and smoke asphyxiation. For this reason, it is very important to comply with all relevant international rules and regulations regarding precautions and to carry out the necessary training and drills completely to prevent fires.

Research by the International Maritime Organization (IMO) has found that between 30% and 50% of all fires on board merchant ships start in the engine room, and 70% of these fires are caused by oil leaks and spills.

As additional information, when we (TPI) take into account our total loss records for the last 5 years, in both H&M and P&I coverages, the proportion of fire damages on board was only 3.77%, while the proportion of indemnity costs reached up to 15.53%, which gives a decisive information about the high costs of fire damages.

Unfortunately, according to the information gathered from the vessel's inspections, while the majority of fire drills on board the vessel is mostly conducted on deck, the majority of fires is being originated in the engine room.

If we look at the engine rooms, we see that all the elements needed for a fire to start (the so-called fire triangle) such as pressurized flammable liquids, heat and oxygen are present there. Oil, fuel mist or droplets that can reach, splash onto these hot surfaces through damaged pressurized pipelines or leaks between connection points (flanges, etc.) can ignite and cause a fire, which is generally considered the main cause of engine room fires.

These hot surfaces, which are located in the most open areas of the engine rooms, are known to be the exhaust pipes/manifolds of the Main Engine and Generators. Although the insulation of the exhaust systems of the main and auxiliary engines, including their turbochargers, are normally in good condition when new, over time, the insulation on the exhaust pipes may deteriorate during maintenance operations such as main overhauls, when the exhaust pipes are removed and reinstalled. These damaged, albeit small, insulation surfaces, which will cause ignitions as a result of oil and fuel splashes, will again be an effective cause of fire. For this reason, even a 5 - 10% deterioration in the insulation cannot be considered ignorable, it should always be 100% intact.

Preventive measures for the vessel and engine room fires are a priority, but the speed and effectiveness of the response is just as important. An effective and rapid response within a few minutes can limit fire and damage in the early stages, but if the response is delayed or the extinguishing systems are not operated correctly and on time, the fire can multiply and spread, which can cause serious damage and huge costs.

Sezer Tanju ÖNER
Claims Senior Manager
+90 850 420 81 36 (Ext.232)
sezer.oner@turkpandi.com

After graduated from ITU Maritime Academy Engine department in 1986, he commenced to work on vessels of DB Deniz Nakliyatı T.A.S. as marine engineer. After completion of his short-term military service in 1988, he joined and commenced to work on various sizes of bulk carrier vessels of Zodiac Maritime - London as second and 1st engineer. When ABB Turbocharger service established in Istanbul as ABB Turkey service in year 1991, he joined and served as service chief for 2 years. Then after he joined to STFA Shipping company in 1993 and subsequently acted as superintendent and technical manager respectively for 8 years. In between 2001 and 2015 he worked as a technical manager at various shipping companies including the chemical tanker shipping companies. In 2015, He joined to "Yeditepe International survey and consultancy company as manager and managed the surveying of several marine casualties, hull & Machinery damage surveys, risk assessment surveys to shipyards, ports along with various cargo surveys on behalf of local and foreign insurance companies. As a sudden decision, he finalized the survey management job and back to work on board the tanker vessels as Chief Engineer for 2 years. Sezer Tanju Öner joined Türk P&I Team on November 2024 as a Claims Senior Manager.

TURKP&I

In order to prevent the formation of oil, fuel mists and splashes, which are the main cause of engine room fires, it is important to pay attention to the following issues.

- Bilges should be kept always clean and dry
- Oil-soaked rags should be stored and disposed of in accordance with the relevant vessel's garbage management plan
- All connections to fuel systems should be properly maintained to prevent leaks and any leaks found should be investigated and dealt with immediately.
- To prevent hot surfaces from becoming a source of ignition, they should be covered or protected by insulation. This situation is also included in the Safety of Life at Sea (SOLAS) as requiring the insulation of surfaces that may come into contact with oil and have a temperature above 220°C.
- Screening/Shielding arrangements for fuel and lube oil pipes should be checked regularly against any deterioration.

No combustible material or flammable compounds should be stored in machinery spaces.

As a result, although the damage is covered by insurance, the lives lost cannot be recovered. For this reason, we understand that it is necessary to take protective measures against fire damage, which is considered catastrophic among other damages, and that on-board training and drills to create and maintain awareness of this issue should continue uninterrupted.