

KISH P & I LOSS PREVENTION CIRCULAR KPI-LP-88-2012 **(Leaking Hydraulic Oil & Fire in Engine Room; Lessons to be Learnt)**

On a tanker on passage, the fire alarm suddenly sounded. At the same time, the engine room crew saw small flames and smoke rising from the after exhaust manifold and cylinder heads of the running main engine. After extinguishing the localised fire, it was discovered that hydraulic oil from the cargo pump system had leaked from a flange connection in the vent/overflow line situated directly above the main engine cylinder head platform.

► Result of investigation:

- 1-At the previous discharge port, a submerged cargo pump hydraulic motor had malfunctioned. In preparation for carrying out repairs, an engineer had closed the vent-cum-overflow line valve located before the service/header tank without draining the line;
- 2-Due to the residual pressure in the line, the flange connection (later found to have loose fasteners) leaked and a fine spray of hydraulic oil began falling on the hot surfaces on the top of the exhaust manifold and ignited after attaining self-ignition temperature.

► Root cause/contributory factors:

- 1-Inadequate work planning – line was not depressurised/drained before closing of valve before header tank;
- 2-Inadequate management of changes–the hydraulic piping had been modified some years ago to tap off a new branch line before the header tank leading to an offline oil filtering system. A stop valve was fitted without properly assessing risks;
- 3-Inadequate communication – the engineer who closed the valve failed to inform other members of this fact.

► Corrective/preventative actions:

- 1-Ship’s staff removed the stop valve from the vent line, and the piping was re-modified to ensure that the offline filtration circuit was independent of the vent/overflow line;
- 2-All joints in the hydraulic system lines were inspected for proper condition and tightness;
- 3-Sister vessels fitted with the same filtration plant were advised to check the lines to ensure that the overflow line could not be inadvertently shut. All vessels were instructed to thoroughly inspect all nuts and bolts on flange joints and tighten them.



Flange joint on vent / overflow line with loose nuts located high above after exhaust manifold of main engine



View of hydraulic header / service tank before corrective action