

Safety Alert

Number: 23-14

Published: 20/10/2023

Subject: LTI – Partial Thickness Burns from Cooling Water

What Happened / Narrative

The incident occurred on a Platform Supply Vessel while in operation. In the early morning hours, the Engine Alarm System was activated due to low level in High Temperature (HT) cooling water system on diesel generator no.1. The 1st. Engineer examined the diesel generator no.1 and quickly identified a leak from one of the rubber compensators. He installed a new compensator and began filling the system with water. He went down to inspect the newly installed compensator to ensure it was not leaking. While standing in front of the compensator, another compensator in proximity burst and the 1st Engineer was exposed to a blast of steam and scalding water.

The 1st engineer suffered partial thickness burns to his face and upper body. First aid treatment was administered on site and the IP was medevac'd to hospital. The IP made a full recovery after spending some time in hospital.

Why Did it Happen / Cause

The investigation revealed several human factor and organization causes for the incident. Below is a distilled version of these:

- The pressure in the cooling water system raised suddenly when the cold water was added to the hot system. This raised pressure exceeded the installed compensator's structural integrity.
- The installed compensator did not have the correct temperature rating for the system it was installed on.
- There was no maintenance or replacement history on the compensator since the vessel was built (10yrs ago)
- The compensator material likely degraded and weakened overtime due to the incompatible temperature rating.
- The cooling water system had a pressure relief valve; however, it was not sufficient or expected to deal with a sudden pressure increase.
- The manufactures procedure for filling the system while still hot was not followed. The system needed to be cooled before filling with water.

Corrective Actions Taken / Recommendations

- The primary corrective action was to ensure the compensators are rated for the media, pressure, and temperature of the system they are installed on.
- The compensators should also be checked to ensure they are not misaligned and are installed within manufacture specifications.
- The manufactures procedure for filling the High Temperature cooling water system with water, especially when the system is hot must be followed to avoid sudden increase in pressure.
- Appropriate inspection and maintenance plan to be implemented for this type of equipment.

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Photographs / Supporting Information

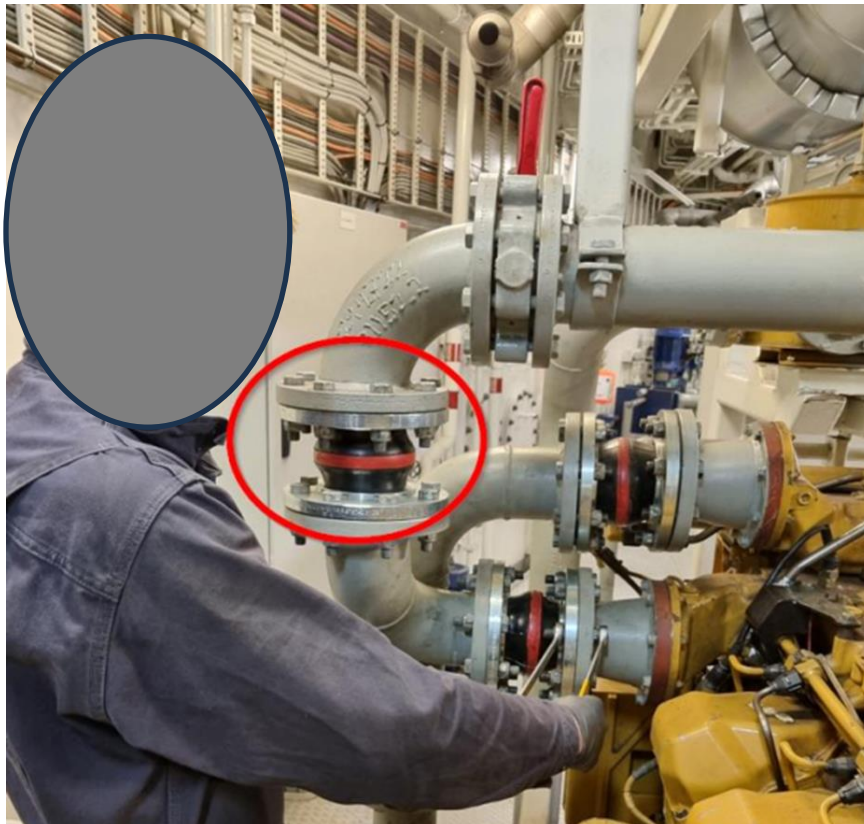


Figure 1: Position of the IP in relation to the ruptured compensator.

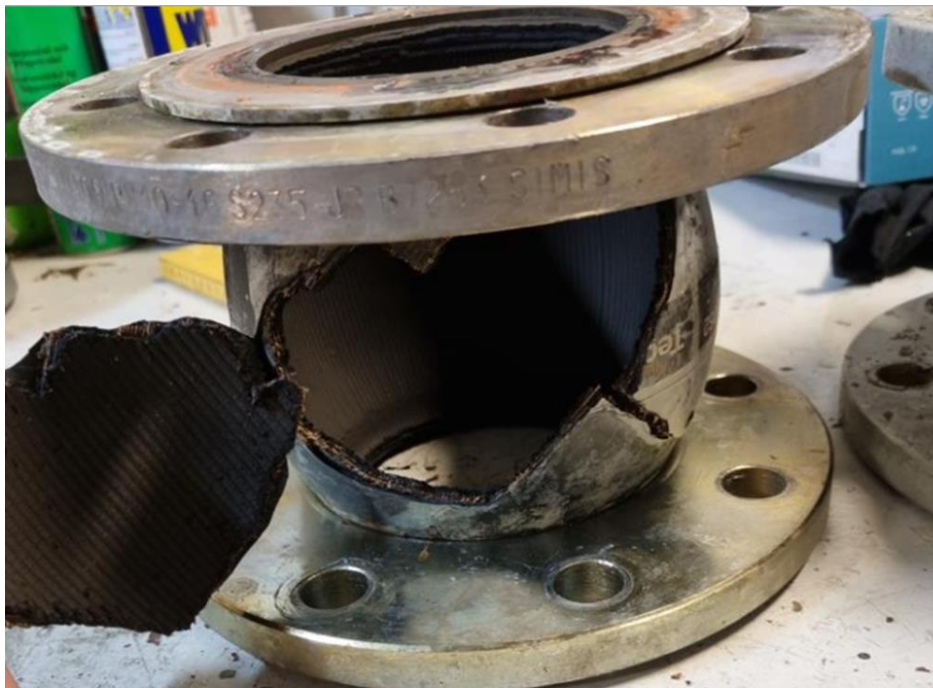


Figure 2: Ruptured Compensator.

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