Missing protection – progressive wear on hydraulic hoses causes damage

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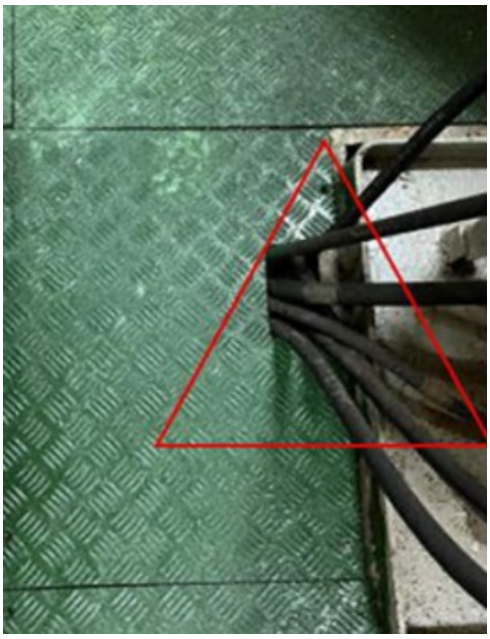
During an inspection, several hydraulic hoses and fuel hoses were found in direct contact with surrounding surfaces and sharp edges.

What happened?

This contact causes friction and progressive hose wear during vessel movement and equipment operation. Visible abrasion marks and missing insulation indicated inadequate hose routing and weak inspection controls. If not rectified, continued wear may have led to hose rupture, hydraulic-oil or fuel leaks, and a significantly elevated fire and machinery-failure risk.



What could have been done better?

- **Design and planning:** Better, smarter routing of hoses – route hoses with sufficient clearance from structural surfaces or moving components, so that friction/contact points do not occur.
- Installation practices: Take the time, effort and expense to install hoses with proper securing methods;
  - Ensure Correct Hose Routing: Hydraulic and fuel hoses should have adequate clearance from sharp edges, moving parts, and structural surfaces. No hose should be left resting against metal components.
- **Routine and thorough preventive maintenance:** Routine inspections will pick up early wear, missing insulation, or incorrect hose support arrangements – particularly in hot or high vibration environments, or when hoses are exposed

to the elements;
    - Pay particular attention to high-movement zones and known wear points. Identify early signs of abrasion, missing insulation, loose supports, or rubbing;
    - Ensure the person doing the inspection knows what to look for.
- **Protective Measures:** Hose routings need flanges, chafing guards, protective sleeves or insulation.
- **Operational Awareness:** Crew could be better aware of the fire, pollution, and equipment-damage risks associated with ongoing hydraulic or fuel hose wear. Hydraulic hoses in particular will move and vibrate during use; this movement should be fully understood and managed.
- IMCA also notes the deck plates illustrated are not secured. i.e. screwed down. International guidelines and codes, such as those from the International Labour Organization, set out standards for flooring to prevent personal injury incidents, requiring that plates are properly fastened and maintained.
    - Prevents Trips and Falls: Loose, uneven, or damaged floor plates are a common cause of slips, trips, and falls, which can lead to serious injuries in the busy and complex environment of an engine room.
    - Avoids "Missile" Hazards: In the rare but serious event of a crankcase explosion, unsecured plates can be propelled with great force, becoming potential missiles that pose an extreme danger to personnel and equipment.

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