

### FIRE PREVENTION IN MACHINERY SPACES DUE TO INSTRUMENTATION LINE FAILURE

ALL SAMSA PERSONNEL, SHIP AGENTS, PORT AUTHORITIES, SHIP OWNERS, SHIP MANAGERS, SEAFARERS AND OTHER INTERESTED AND AFFECTED PARTIES

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#### Marine Notice's affected

<i>Cancelled or superseded:</i>	11 of 1992	<i>Read in conjunction with:</i>	Not Applicable
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#### **SUMMARY**

To provide a guideline on the best practice for the installation and maintenance of high and low pressure piping systems conveying flammable fluids to instrument panels that upon failure could cause a fire due to coming into contact with hot surfaces found in machinery spaces.

#### **Background,**

1. A fishing vessel suffered an engine room fire due to lubricating oil spraying onto a hot surface and igniting. The resulting fire rendered the auxiliary engine in-operable.
2. The casualty investigation by a Surveyor revealed that a plastic pipe had been fitted to the oil pressure gauge line and had melted, a similar plastic pipe was found on the port auxiliary engine.
3. It is strongly recommended that the following best practices be adhered to at all times.

#### **Pressure, temperature, oil level gauges and sight glasses,**

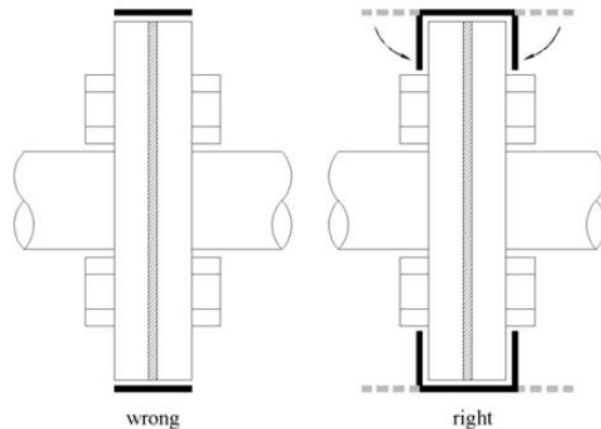
4. All pressure gauges and other similar instruments in oil systems should wherever possible;
  1. Be fitted with an isolating valve or cock at the connection to the take-off point.
  2. The number of take-off points should be kept to a minimum.
  3. Piping runs should be as short as possible.
  4. Piping runs to be adequately clamped and secured to prevent vibration and movement relative to support structure.
  5. Copper pipes, where permitted, may be joined by brazing but soldered connections should not be used in oil systems.
  6. Temperature gauges in oil systems should be fitted in fixed pockets (thermo-wells).
  7. Oil level sight glass and overflow sight glasses should be made of a heat resistant type material and level sight glasses must be fitted with self-closing cocks that cannot be locked in the open position. Special attention needs to be paid here as historically during survey's many sight glass self-closing cocks are either found held in the open position by using cable ties or propped open using a block of wood depending on design. A sight glass is an inherent weakness yet necessary addition to storage tanks for monitoring of fluid levels, due to this the safety devices fitted need to be used in the correct manner at all times.

#### **Flexible pipes, hoses and hose assemblies,**

5. Flexible pipes, hoses and hose assemblies – which are flexible hoses with end fittings attached – should be in as short length as practical and only be used where necessary to accommodate relative movement between fixed piping and machinery parts.
6. Any flexible coupling must be of an approved type and should be inspected regularly.
7. Hoses should be constructed to a recognised standard and be approved for the service intended taking into account, pressure, temperature, fire resistance, fluid compatibility and mechanical loading including impulse pressure fluctuations where applicable.
8. Hoses should be installed in accordance with the manufacturer's instructions, having regard to minimum bend radius, twist angle and orientation, and support where necessary.
9. In locations where hoses could suffer external damage, adequate protection is to be provided.

### Use of spray shields and anti-splashing tape,

10. It is recommended that all flanged joints, flanged bonnets and other threaded connections on fuel and lubricating oil systems be fitted with a form of spray shield that will control any pressurized spray due to connection failure and prevent possible impingement on hot surfaces.
11. For instrumentation lines using compression fittings at connection points the most suitable form of anti-spray shielding remains approved anti-spray tape suitable to the specific service application.
12. Spray shields include; thermal insulation having sufficient thickness, anti-splash tape made of approved materials (the use of which should not include hot surfaces as adhesive characteristics may be affected by temperature) and steel anti-spray covers that mount onto flanges (important to note the following illustration regarding spray covers)



### Control of ignition source,

13. In addition to the recommended installation and control practices above it is required that all surfaces with temperatures above 220 degrees Celsius be insulated using approved materials to reduce and remove the ignition source in its entirety.
14. Areas that require this type of insulation include but are not limited to; exhaust gas manifolds, cylinder head indicator cocks, exhaust gas turbochargers and superheated steam pipes

### Fire Fighting Capabilities,

15. Machinery spaces are to be equipped with the required fire fighting devices as per applicable regulations based on vessel specifications. All of the devices whether portable or fixed are to be maintained in a constant state of readiness and regular drills and training should be conducted with the crew to ensure that they are all familiar with the operation and location of these devices.

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