

CHAPTER 17

DAMAGE CONTROL ARRANGEMENTS IN ICY CONDITIONS

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CHAPTER 17**DAMAGE CONTROL ARRANGEMENTS IN ICY CONDITIONS****1701. General**

ATP 17 - Naval Arctic Manual, contains information on operating in ice. Certain aspects of Damage Control can be affected by icy conditions and the following paragraphs are intended as information for ships officers on the design arrangements called for by the MOD(Navy) in dealing with these conditions, and the ways in which a ship can deal with them.

1702. High Pressure Sea Water (HPSW) Service

- a. All mains and branches which are exposed to the weather, or which supply hydrant valves in exposed positions, are fitted with drain down arrangements.
- b. Whenever possible, hydrants and magazine locker flood pipes in exposed positions have an additional valve in the branch supply well inside the main structure, so arranged that the exposed length of supply pipe can be drained and left empty. PVC or polythene covers should be used to cover hydrants. Hoses and nozzles in exposed positions should be as dry as possible internally or re-located between decks.
- c. Attention is given to the insulation of all supply pipes, including flanges which, although not in exposed positions, are likely to be subjected to very low temperatures, eg those near lift openings in aircraft carriers. Similar precautions are made for the spraying arrangements to any magazines or magazine lockers in exposed positions, but some difficulty may be experienced where the spray piping is 'dead end' and has no flow-through. The main supplies to hangar spray systems are insulated as far as the control valves.
- d. Where the extreme fore and aft ends of the HP sea water system are in exposed positions, leak-offs are fitted to ensure a continuous circulation of water. The leak-offs should be 12 mm diameter, well insulated and so arranged to discharge either directly overboard or into a scupper with a warmed storm valve.
- e. Hoses and nozzles will perform satisfactorily at freezing temperatures, if the water is kept flowing and a good pressure is maintained. After use, they should be drained, taken between decks for drying and replaced by dry hoses and nozzles.

1703. Prewetting

The arrangement of prewetting systems is such that the supply pipes drain down after use. If difficulty is experienced with the complete draining of any pipe, it should be blown through with LP air. Nozzles should be cleared of ice by seawater hosing or manually.

1704. Scuppers and Drains

Decks and platforms are equipped with sufficient drains to eliminate the formation of pools of water. Arrangements are made to prevent, as far as possible, the ingress of water to exposed deck equipment, or ready drainage is fitted.

1705. Fresh Water Systems

Piping in exposed positions or in positions likely to be subjected to low temperatures is insulated and steam or electrically heated. Frost plugs are fitted in positions of ready access. Care should be taken that insulation does not interfere with any working parts of the system.

1706. Ventilation

Heating systems are designed to maintain a minimum temperature of 18.3°C in living and working spaces. Low humidity is avoided by limiting fresh air intake. Thermal insulation is fitted to cold surfaces inside the ship to reduce heat transfer losses and prevent condensation. Insulation is fitted to the weather boundaries in all living, working and other spaces where condensation must be avoided, and to all fresh air trunking where it passes through such spaces.

1707. Weatherdeck Terminals

The hinges and clips of all weatherdeck ventilation terminals should be treated with a de-icing compound.

1708. Portable Firefighting Appliances in Exposed Positions

Whenever possible, portable firefighting appliances that are likely to freeze should be stowed in sheltered positions. Diesel fuel systems in portable pumps are liable to blockage by waxing at very low temperatures. AFFF drums and AFFF extinguishers should be stowed in their heated lockers (where provided). On no account should anti-freeze be added to AFFF extinguishers because of the danger of AFFF losing its fire extinguishing properties. For freeze protection of exposed AFFF drums in exceptional conditions (see [Chapter 23](#)). CO₂ and dry powder extinguishers are unaffected by cold weather.

1709. Stability

Heavy icing on the weatherdeck, superstructure and weatherdeck, fittings and equipment will adversely affect the stability of the ship due to the additional topweight (see [Chapter 30](#)). Every effort must be made to prevent the information of ice and to remove it as quickly as possible when it has formed. The methods used for ice prevention and removal is contained in ATP 17.

1710. Citadel Openings

Careful attention must be given to keeping the jointing portion of the door rubbers dry in order that they will not freeze to their seatings on the door coamings.

1711. Door and Hatch Clips and Hinges

All grease nipples should be charged, and clip barrels and hinges should be smeared with de-icing compound.

1712. Batteries

Low temperature reduces the output of all types of batteries, so those required for damage control purposes must be kept in a warm area.