



H.M.S. 'ROCKET'—A/S FRIGATE, TYPE 15

## NOTES FROM SEA

The following are extracts from letters received from Engineer Officers of sea-going ships, together with remarks by the Engineer-in-Chief's Department, where appropriate.

### **Auxiliary Feed Pumps—H.M.S. 'Implacable'**

Continual trouble was experienced with the failure of the throttle valve recessed cover joint, the cause of the joint failure being inadequate drainage due to the drain cock not being at the lowest point of the steam inlet chest. These joint failures have been completely overcome by fitting spiral wound gaskets.

### **Comment**

Spiral wound gaskets are satisfactory for use in cover joints, provided that care is taken to ensure an even compression when tightening, to preserve the alignment of the valve lid and its seat. Spiral wound gaskets will not, however, be provided specifically for use in valve cover joints, whether recessed or not, because of the large number of diameters which would be required to fit the many different sizes of valve in service.

For a recessed cover joint, a spiral wound gasket, with its backing-ring removed, should be a good diametral fit in the recess. The edge of the recess then gives the support normally provided by the backing-ring. At present, however, it remains a matter of chance whether one of the standard range of spiral wound gaskets is of a suitable size for a particular valve cover joint.

Improved types of compressed asbestos fibre are being tested at sea, but no conclusive results are available yet.

**Boats—H.M.S. 'Triumph'**

A case of failure of the core plugs in the cylinder block casting of a Dorman 8 VRM engine has occurred. The engine had been run only a few hours after receipt from a Pool Repair Depot and it would seem that this defect must have been overlooked during the major overhaul. Spare core plugs are not carried on board and it is recommended that the removal of these be made a routine during a major overhaul.

**Comment**

It is agreed that the core plugs should have been renewed at the major overhaul. This failure may indicate that the blocks themselves are corroded internally. The Engineer-in-Chief's Department is investigating the possibility of establishing a 'life' for cylinder heads and blocks.

So far, however, there is nothing comparable to a 'wear and waste' test for these items, upon which to base an estimate of their remaining life. An examination of the core plugs removed during a major overhaul may give information of value in deciding on the remaining life of the cylinder heads and blocks.

**Domestic Refrigerators—H.M.S. 'Illustrious'**

The fitting of Electrolux refrigerators, in accordance with A.F.O. 953/52, has proved a boon. Maintenance has been practically nil. One refrigerator failed to operate satisfactorily after several hours running. The cause of the failure was traced to the fact that, as installed, the refrigerator was leaning over sideways about three degrees. It is understood that refrigerators of this type installed in ships work better if the doors are fore and aft, to minimize the effect of list.

**Comment**

It is essential that Electrolux refrigerators should be installed in an upright position when the ship is on an even keel. A permanent list will make the plant inoperative and may finally damage the unit. Rolling and pitching should not affect it. It is true that in small ships these refrigerators work better with the doors fore and aft, but it is not essential that they should be so positioned in carriers.

**Main Refrigerators—H.M.S. 'Unicorn'**

The failure of No. 3 CO<sub>2</sub> condenser coil after only four and a half months in use has been reported in *Unicorn's* No. 93 of 7th August 1953. These coils are of aluminium brass. The disturbing factor has been that, so far, it has not been possible to obtain, either in Singapore or Hong Kong, aluminium brass tube of the required gauge to repair them. It is suggested that when new items of machinery of this sort are supplied to a ship, spare lengths of tube should be supplied, as part of the contract, for carrying out repairs.

**Comment**

The design of the new condensers supplied to *Unicorn* is a well-tried one, having been in service for at least fifteen years. No other report of a similar failure can be traced. The reliability of this type of condenser is such that spare tubes and coils are not normally supplied. Repairs to the coils can be made with 'Easiflo' silver solder and flux.

It is considered that the failure of the coil was due to erosion, caused by too high a water speed through the condenser, and probably aggravated by the local conditions described in *Unicorn's* No. 92 of 7th August 1953.

The water flow should be adjusted by closing the water outlet valve from the condenser until a temperature rise of not less than 5°F between the water inlet and outlet is obtained. Pending further experience with *Unicorn's* condensers operating as above, no action to provide spare tubing will be taken.

#### **Use of Main Boilers for Testing Floats—H.M.S. 'Maidstone'**

A new float had been made for the snort head valve of H.M.S. *Ambush*, the old float having been crushed during her deep dives. The drawings showed that the test pressure of 300 lb/sq in had to be exerted externally. The new float and its arms were put into the steam drum of a boiler which had been run down for washing through, and the boiler was then water pressure tested to 300 lb/sq in for five minutes. The float was found to be satisfactory.

#### **Comment**

The use of a boiler for testing the new float was an excellent idea, and is a good example of the latent resource which depot ship's staff can always be relied upon to produce when the occasion demands.

#### **Main Circulator Inlets—H.M.S. 'Swiftsure'**

The two starboard main inlets were treated in dock by an experimental process involving shot-blasting and painting with a neoprene rubber type paint. The condition of these inlets will be inspected during the next docking period.

#### **Comment**

The success of treating main inlets with rubber will be watched with interest. If successful, it will be possible to dispense with zincs, which have the habit of breaking loose and passing through the circulator impeller. This experiment is being sponsored by the Admiralty Corrosion Committee.

#### **Boilers—H.M.S. 'Swiftsure'**

All four boilers were water-washed externally, and 12 boilers have been washed since this method was first tried some nine months ago. No trouble has been experienced with furnace brickwork and the speed and efficiency of this method leaves nothing to be desired.

It has, however, sometimes been difficult to find a convenient opportunity for washing boilers since :—

- (a) It must be done in harbour otherwise the water is too cold.
- (b) The boiler must be flashed up immediately afterwards, and maintenance on auxiliary machinery, steam systems, etc., is necessarily restricted until both boilers in one boiler room have been washed.

It is therefore proposed in future to carry out external cleans at the same frequency as before—i.e. one clean per boiler per cruise—but to substitute a dry clean for every second water-wash.

Advice as to how vital it is to steam the boiler for at least 24 hours at full auxiliary load after water-washing would be welcomed ; it is considered that perhaps it might be sufficient merely to flash the boiler up, bring it up to working pressure and then shut it down, entailing four hours with a 300- or 400-lb. sprayer alight, and reducing the quantity of fresh soot deposited.

**Comment**

Successful washing at sea using the main feed heaters has been reported from some ships, but this method does offer difficulties with temperature control, with the consequent danger to personnel. It is most desirable that a successful technique for washing at sea should be evolved and the results of any attempts made in this direction will be useful information to E.-in-C's Department.

The proposal for alternate dry cleans is not agreed with, as the ultimate aim is to dispense with the dry cleaning gear.

In order to avoid risk of damage to the boiler after washing, steaming auxiliary for 20 hours at the very least is considered essential.

**Boiler Room Fans—H.M.S. ' Birmingham '**

During a recent patrol, when the atmospheric temperature was 17°F and the ship anchored at 10 minutes' notice, it was decided to by-pass the lubricating oil coolers in order to increase the oil temperature. This action had most unfortunate results, for when orders came to get under way and the oil was changed back to the cooler, it was found that the consistency of the oil remaining static in the cooler was such as to cause a complete blockage, which was only cleared after ten to fifteen minutes continual pumping with the hand-pump.

**Comment**

In view of these findings, which have also been experienced by other ships, it is considered that the oil coolers should not be by-passed when the air temperature drops below 25°F.

**A.B.C.D. Exercises—Destroyers, Far East Station**

It is hoped that with the changed conditions, ships in the operational area will have more opportunity to carry out A.B.C.D. exercises. *Cossack* has carried out several recently, and during one exercise in *Concord* the department steamed without main lights or ventilation for 15 minutes. It proved of good value.

**Comment**

Details of temperatures recorded during closed-down trials would be of value. If opportunity arises to repeat the experiment, it would be appreciated if a brief description of the steaming conditions and a series of temperature (wet and dry bulb)/time readings could be forwarded semi-officially.

**Lighting-up Hose—Destroyers, Far East Station**

*Concord* reports that endless trouble is experienced with the steel lattice flexible hose used in conjunction with the lighting-up U-tube (Naval Store Pattern No. N.P. 2613). This is also borne out by *Cossack*. The hose invariably fails adjacent to its connection to the U-tube. A more flexible hose is advocated and it is thought that 'Silvoflex' tubing would be more suitable.

**Comment**

As a result of similar reports, a new sort of hose with different end fittings has been ordered for trial in a minesweeping squadron. If successful, it will be introduced generally.

### **Funnel Gases—A/S Frigates, Home Fleet**

In the Sixth Frigate Squadron the funnel gases continue to cause considerable inconvenience to personnel in the after part of the ships, and the ash contents of the dirty fuels now supplied for the boilers soon cover the inside and outside of the superstructure when the ships put to sea. It can be said that the funnel gases foul the ships for at least 75 per cent of the time the boilers are in use. Experiments are being carried out in *Venus* with hoods fitted over engine-room fan intakes, so that the air is drawn in under the hoods.

#### **Comment**

This problem is common to all A/S frigates Type 15. Model experiments are being carried out at the National Physical Laboratory to find the best way of overcoming it.

### **Auxiliary Superheat Steam Systems—Destroyers, Home Fleet**

The Engineer Officer, Fourth Destroyer Squadron reports :—

In the absence of master valves, auxiliary superheated steam is led direct to the pump control valves of the auxiliary machinery, where it forms a dead end. Recurrent failures occur to the cover joint faces of the control valve, often with severe 'tree-ing' of the joint faces. Efforts to drain the dead ends inevitably lead to leakage of the sleeve packed drain cocks, which hardly appear 'man enough' for the job. It is recommended strongly that master valves should be fitted to obviate these recurrent failures, which have to be suffered for lengthy periods, at the usual notice for steam.

#### **Comment**

Master valves were omitted from the design because of weight, space, and cost. The fitting of master valves would not be a complete remedy for this trouble as it would still be necessary to keep the master valves on stand-by auxiliaries open when steaming, while the control valves would be shut. However, master valves have been fitted in *Darings*.

It is appreciated that sleeve-packed drain cocks are not suitable when they are required to remain in the 'cracked' position. Small screw-down and parallel slide valves in sizes  $\frac{3}{8}$  in,  $\frac{1}{2}$  in,  $\frac{3}{4}$  in, and 1 in are therefore being made Rate Book articles, and will be available in due course to replace existing drain cocks when the latter are worn out.

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