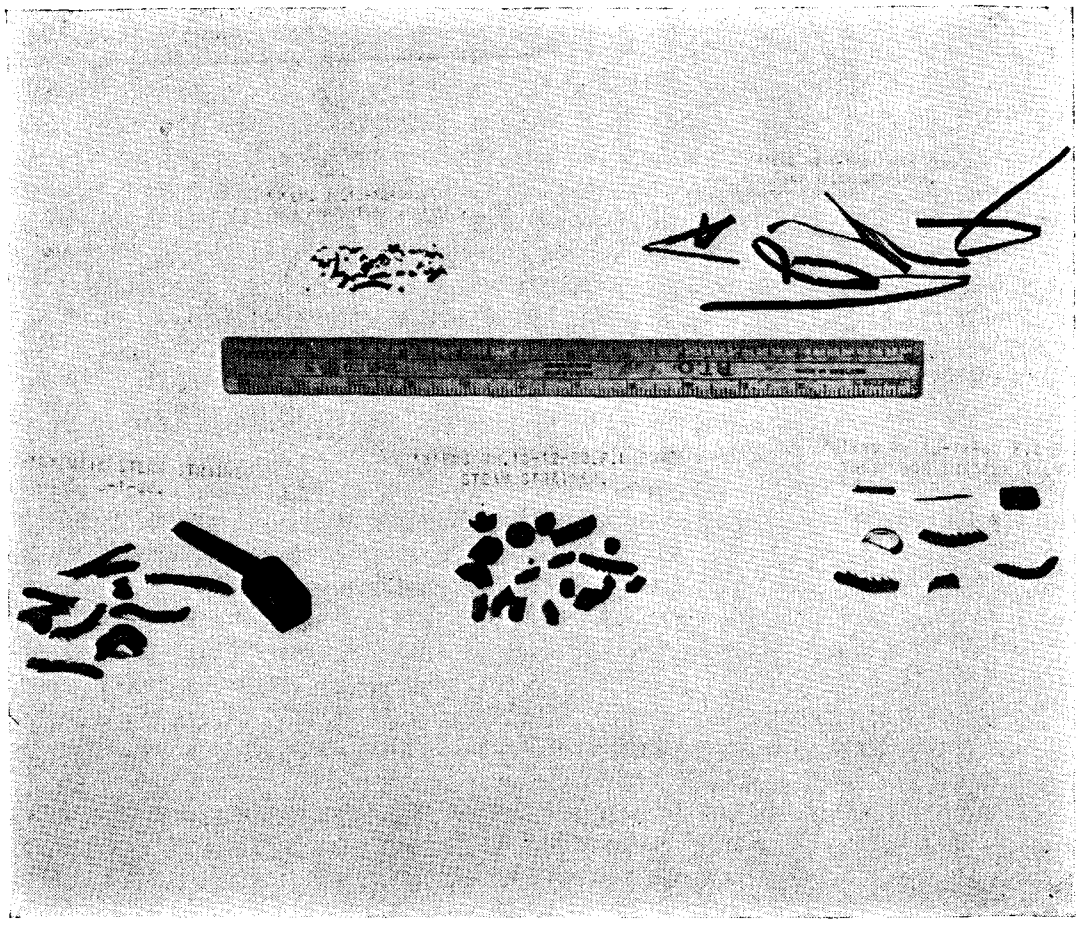

FIG. 1—IS IT A WASTE OF TIME?

NOTES FROM THE SEA

Readers are invited to discuss either the extracts or the comments in the Correspondence section of the Journal.

Steam Strainers—Daring Class

The result of the examination of the steam strainers is shown graphically in FIG. 1 and needs no elaboration. The bits and pieces, some of which are almost recognizable, were found as follows:

Top left—'A' engineroom main feed pump steam strainer (13–12–66)

Top right—'A' engine room main feed pump steam strainer (4–1–67)

Bottom left—'A' main steam strainer (3–1–67)

Bottom centre—'B' engine room F.L. pump steam strainer (13–12–66)

Bottom right—'B' engine room F.L. pump valve box (master valve) (13–12–66)

Main Steam Turbo Blowers—Tribal Class

A number of failures with these blowers have occurred over the past year.

These can be divided into two groups:

(*i*) Failure of the turbine end bearings

(*ii*) Failure of blower impeller blades

The bearing failures have been attributed to heat soakage along the turbine shaft both when the machine is stand-by and shortly after shut-down. Temporary measures have been introduced to reduce the effects of heat soakage and small auxiliary lubricating oil circulating pumps will be fitted as soon as they become available.

The impeller blade failures are considered to have been due to inadequate tip clearance between one (or more) blades and the casing ring. A slight blade rub sets up a high frequency vibration which causes fatigue cracks. This defect is being overcome by increasing the blade tip clearance and altering the method of manufacture to ensure that the tolerance between minimum and maximum blade tip clearance is reduced.

Main Gearbox—G6 Power Turbine Tacho Drive

On investigation of a G6 power turbine tacho generator failure it was found that the drive flange on the gearbox side of the coupling had become detached rotationally from the steel shaft. One of the grub screws locking this flange to the shaft was found loose in its hole, the other one was missing. The stub shaft had been drilled right through, presumably to allow the grub screws to provide a positive drive, but in doing so destroyed any locking effect.

This arrangement for providing the drive seems very weak indeed. As it is unlikely that the drive flange would ever need to be detached from the stub shaft, it is suggested that the drive be modified either by riveting a pin through the existing holes, providing a key-way, or making the drive flange integral with the stub shaft.

Comment

A modification has been produced and is the subject of AEI Modification G52.

Evaporator Pumps—G.M. Destroyers

BR 3393 states that the fresh water and brine pump glands should be packed with $\frac{1}{4}$in. square graphited asbestos packing, Patt. 0414–7601. This is no longer a Rate Book item and has been superseded by Leafoil packing.

The use of Leafoil packing has resulted in grooving of the shafts in way of the glands.

Comment

The makers recommend the use of proprietary packings, either Walkers' 'Fluolion' or Crane's SS.3. Both of these are 'Fluon'-based packings and for successful use it is essential that they should be ordered in pre-formed rings to the correct cross-sectional area, and to suit the diameter of the pump shaft concerned.

The fitting of mechanical seals to these pumps by modification will be carried out as opportunity permits, but in the meantime, as a temporary measure, marine engineer officers are advised to arrange for local purchase of one of these proprietary packings for use in these pumps.

Evaporator Combined Pumps—Installation—Type 81 Frigates

Following reports from Type 81 frigates of inaccessibility and heavy corrosion of evaporator combined pump pedestals and holding down arrangements (also previously reported in G.M. destroyers) A and A action is being taken to mount the pumps on individual pedestals. The engine-room set will be turned through

90 degrees and spread over a wider area; the S.W. circulating pump being resited adjacent to the ship's side by the evaporator shells, thus giving better access.

The after set will also be mounted on individual pedestals and will be resited below the evaporator shells.

Main Boilers—F.F.O. Hoses

Without warning a F.F.O. hose split three inches from the burner and with F.F.O. pressure 500 lb/sq in. spraying the whole of the port side of the boiler room with F.F.O. The prompt action of the P.O.M(E) on watch prevented a dangerous situation developing.

Hose guards were removed some months ago and great care is taken to prevent twisting of the hoses.

Results obtained with the new type hoses are no better than the ones replaced.

Comment

Action has been taken with the hose manufacturer to eliminate the defects in these hoses.

A drawing, DGS/DME No. 497431, has been prepared to show a modification to the hose guard which can be carried out by ships' staff and print copies of this drawing are being issued to the ships concerned.

1,000 kW Steam Turbo Alternator—G.M. Destroyers

The steam turbo alternator was shut down for three hours and lubricating oil was pumped round every 15 minutes. On restarting, excessive vibration occurred and the LP bearing was found to be wiped. The probable cause of the failure is as follows:

When the turbine is shut down for more than 15 minutes, the turbine shaft hogs and, if restarted before the cooling process is completed, bearings wipe.

It is suggested that turbo alternators of this size should be fitted with an auxiliary lubricating oil pump and an easily accessible turning spindle.

When operating the turbo alternator in contaminated waters, it has been necessary to shut down at two-hourly intervals to clean the sea water strainers. It would be of great advantage if an emergency cooling water supply was available from the firemain.

Comment

The problems raised have been discussed with the makers, A.E.I. Ltd., and the following comments are made:

(*a*) Although some thermal distortion does undoubtedly take place under hot standing conditions which will cause vibration on starting, experience of similar conditions during shop trials indicates that this is not sufficient to cause wiping of the bearings.

(*b*) The makers have stated that when this problem occurs the machine should be run for several minutes at low speed, i.e. 500 r.p.m., as recommended in the Instructional Manual.

(*c*) To overcome the problem of providing sufficient lubricating oil under this condition and when normally starting, it has been decided that future construction sets will have a separate motor-driven lubricating oil pump fitted; A and A action has been initiated to provide a similar facility in other G.M.D.s concerned.

(*d*) It is considered unnecessary to pump oil round during shut-down periods unless vacuum is maintained; the makers state that heat soakage from the rotor is thought not to be a problem on these sets.

(*e*) If, however, vacuum is maintained, the periodic circulation of oil is necessary; it is observed, however, that as the air ejector is condensate cooled and the extraction pump is driven from the TG gearbox, overheating of the ejector is very likely to take place under these conditions and it is therefore strongly recommended that if the machine is likely to be shut down for more than five minutes, the vacuum should be broken and steam to glands and ejectors shut off.

(*f*) To provide easier access to the turning gear in this machine would require redesign of the pinion shaft and casing which is not considered justified in the circumstances, since the time required to gain access to the gear will be only a small proportion of the time required to complete any repairs requiring its use.

(*g*) The large amount of water required precludes the use of firemain as an alternative source of cooling water for the condenser. Alternative methods of overcoming this problem by the use of the auxiliary circulating water system on duplex type strainers have been investigated but the modification is considered impracticable due to the restricted space available, and no further action is therefore contemplated on this proposal.

Stabilizer Fixed Fin Lubricators—'Leander' Class Frigate

One of the roll dampers crosshead bearings was found to be seized. The lubricating pipe from the multi-lubricator cylinder to this bearing was broken. Even if the pipe had not been broken grease would not have flowed as the grease was not passing the injector into the pipe.

Comment

Modifications are in hand to rectify this defect.

Main Feed Pump—Type 81 Frigate

During maintenance inspection of the TMFP 36 main feed pump it was found that the turbine side, pump end thrust pads had wiped, badly scoring the thrust collar.

The pump had been in use for a considerable time since the last inspection with no change in running conditions. A sample of the lubricating oil was sent to the Dockyard Laboratory for test and was found to contain 0·05 per cent salt water plus some slight sediment.

On further inspection, after removal of the impellers, considerable erosion was found behind the impeller packing ring (for'd).

Comment

Pump thrust failures in these units have resulted in the following modifications:

(*a*) Increasing the capacity of the lubricating oil pump

(*b*) Standardizing of bearing lubricating oil orifices

(*c*) Fitting a pump 'Y'-piece suction

(*d*) The fitting of 1,250 g.p.h. Air Maze filters in lieu of the Autoklean, now curtailed in favour of a 5-microm filtration system soon to be introduced.

(*e*) The introduction as Y.100 TMFP 35 Mod. No. 2, of a new valve and spring for the lubricating oil relief valve.

Wear may be reduced by ensuring overspeed trip test procedure is carried out in accordance with DCI 1718/65.

S.2022a No. 130 dated 7th January, 1966, refers to repair measures advised for eroded pump casings. The *Journal of Naval Engineering*, Vol. 3, No. 2, p. 165 also refers.