

COPY

*for Islas Malvinas*

# LLOYD'S REGISTER OF SHIPPING

UNITED WITH THE BRITISH CORPORATION REGISTER

71, Fenchurch Street, London, E.C.3

Telegrams: Committee, Fen, London

Telephone: Royal 3551 (6 Lines)

VIA AIRMAIL

Ref:- Eng.

13th November, 1951.

Dear Sirs,

M.T. "ISLAS ORCADAS".

I am in receipt of your letter of the 10th ultimo relating to the breakdown of auxiliary generators in the above vessel, the contents of which have been noted.

In the first place, I am directed to inform you that the auxiliary generating sets in this case were surveyed during manufacture and testing by the Society's Surveyors and that the torsional vibration characteristics of the shafting installation of these sets were examined in conjunction with the Engine Builders' calculations and approved on the 26th October, 1948 for a service speed of 600 R.P.M.

There are no objectionable torsional critical speeds near the service speed and, as far as can be judged, in the absence of calculations of the axial vibration characteristics, the presence of an objectionable axial critical near the service speed is unlikely.

In regard to the second paragraph of your letter, it is not clear what is meant by "with evidence of axial movement of the armature core on the spider". In this respect the fracture of the commutator risers is no direct evidence of axial movement of the core.

The possibility of fracture of the commutator risers as a result of their natural frequency on a generator of the size in question due to torsional vibration is practically impossible.



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There is little doubt that fracture of the commutator risers is due to work hardening consequent upon fatigue and is probably due to one of the following causes:-

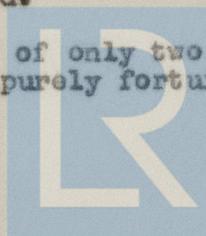
- (1) Armature core working loose and slogging, a combined result of torque variation and inertia.
- (2) Relative movement between the commutator hub and core hub if the commutator is mounted on a separate hub.
- (3) The leatheroid or fibre under the binding bands being carried right up to the soldering clips on the ends of the commutator risers. The leatheroid or fibre should finish at least half an inch from the soldering clips. The binding bands should not be nearer than one inch from the soldering clips.

It should be noted it is detrimental to make the risers stronger, preferably the risers should be made weaker to give more flexibility.

If the core was loose it is most likely that it was the cause of fracture of the commutator risers. The core can work loose due to poor fitting of the key between the core plates and the spider or by the core end plates or tightening devices for the core plates being insufficiently locked or supported. Provided the core is prevented from working loose it is considered that fracture of the commutator risers is unlikely.

In view of the foregoing, it is considered you should examine all the remaining generators on this ship and the two sister vessels ("ISLAS MALVINAS" and "ISLAS GEORGIAS") as soon as possible. A careful examination of the cores should be made and if any red oxide is visible or signs of working then the armatures should be removed and rectified.

Whilst the failure of only two of the generators on one vessel only may be purely fortuitous, you should



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ascertain whether at any time the method of starting the engines has been different. If very rapid starting has been employed, it is always possible for the initial damage to the armature core to occur during this running up.

Yours faithfully,

pro Secretary. <sup>R</sup>

The Surveyors,

BUENOS AIRES.



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