

REPORT OF SURVEY FOR REPAIRS, &c., OF ENGINES AND BOILERS

No. 134389

(Received at London Office 9-JAN 1952)

Date of writing Report 19 When handed in at Local Office 18 DEC 1951 Port of LIVERPOOL
 No in Reg. Book. Survey held at LIVERPOOL Date First Survey 5/11/51 Last Survey 7/12/19 51
 08656 on the Machinery of the ~~Wood, Iron or Steel~~ T.S.P. EMPRESS OF AUSTRALIA (No. of Visits 18)

Tonnage { Gross 21833 Vessel built at Stettin By whom Vulcan-werke A.G. Year. Month.
 Net 12177 Engines made at Glasgow When 1914
 Nominal Horse Power 3603 Boilers, when made (Main) 1927 By whom Fairfield S.B. & F.Co. When 1927 6
 Owners Canadian Pacific Railway Co. (Donkey) -
 No. of Main Boilers 6D(Spt) & 1S Owners' Address
 No. of Donkey Boilers - Managers Canadian Pacific S.S. Ltd. (if not already recorded in Appendix to Register Book.)
 Steam Pressure in Main Boilers 220 If Surveyed Afloat or in Dry Dock Canada & Pacific S.S. Port London Voyage
 in Donkey Boilers -

Last Report No. Port

Particulars of Examination and Repairs (if any) *Donkey, damage & repairs*

(Periodical Surveys, when held, must be reported in detail and serially in the terms of the Rules. State clearly the cause of Repairs, if any, and, in detail, the nature and extent of Examinations and subsequent Repairs. Repairs on account of Damage (the cause of which must be stated) should be separated from Repairs due to other causes; and besides being detailed in the body of the report, should be briefly summarised at the end of the report. State also the dates and initials of any letters respecting this case.

In damage cases where the Surveyor has not made a special damage report he is required to state whether he offered his services for this purpose, and why they were declined. *Yes, at request*

Was a damage report made by anyone else? If so, by whom? *Unlimited Surveyor*

Did the Surveyor personally go inside each Main Boiler separately and make a through examination at this time? No

Donkey " " " " " " " "

If not, state for what reasons. *BS. not done.* What parts of the Boilers could not be thus thoroughly examined? *✓*

What special means, in the absence of internal examination, were adopted by the Surveyor to assure himself of the thorough efficiency of those parts of each Boiler? *✓*

State latest date of internal examination of each boiler. *✓*

Present condition of funnel(s) *upright*

Did the Surveyor examine the Safety Valves of the Main Boilers? *✓* To what pressure were they afterwards adjusted under steam? *✓*

Did the Surveyor examine the Safety Valves of the Donkey Boilers? *✓* To what pressure were they afterwards adjusted under steam? *✓*

Did the Surveyor examine all the manholes, doors and their fastenings of the Main Boilers? *✓* and of the Donkey Boilers? *✓*

Did the Surveyor examine the drain plugs of the Main Boilers? *✓* and of the Donkey Boilers? *✓*

Did the Surveyor examine all the mountings of the Main Boilers? *✓* and of the Donkey Boilers? *✓*

Has the screw shaft now been drawn and examined? *Yes.* Has it a continuous liner? *Pat. (see below)* Is an approved oil retaining appliance fitted at the after end? No

Has shaft now been changed? No If so, state reasons. *✓* Has the shaft now fitted been previously used? *Pat.* Has it a continuous liner? *Pat.*

Is an approved oil retaining appliance fitted at the after end? *Pat.* State date of examination of Screw Shaft *30/11/51* State the wear down in the stern bush. *Close fit* Is electric light and/or power fitted? *Yes* If so, did the Surveyor examine the generators, motors, switchgear cables and fuses? No

Has the insulation resistance of the generators, circuits and apparatus been tested and found to be not less than 100,000 ohms? No

Engine parts, when referred to by numbers, should be counted from forward. Auxiliary machinery should be referred to by position in Machinery Space.

If the Survey is not complete, state what arrangements have been made for its completion and what remains to be done. *Complete.*

DAMAGE NO. 1: Damage to starboard I.P. turbine stated to have occurred on passage between Malta and Famagusta & subsequently Port Said to Liverpool - 1st Oct to 2nd Nov 1951. A metallic piece having been heard in the starboard I.P. turbine and a drop in RPM occurring in the starboard machinery.

The starboard I.P. turbine was opened up and the last 8 rows of rotor and casing blades found stripped or damaged - it was recommended that the starboard I.P. turbine be lifted and in this case the first two rows of rotor and stator blades were found damaged. The defective I.P. blades have now been cut out, the truth of the rotor checked, and the I.P. clamp coupling male portion, which was found slack has now been satisfactorily wedged on the rotor shaft and secured.

In the case of the L.P. turbine the first two rows of rotor and stator blades have been cut out, the making rows nos 1, 2, 6 & 13 now removed.

(See intermediate sheets)

General Observations, Opinion, and Recommendation:—

The machinery of this vessel so now seen (State clearly what alteration, if any, is suggested to be made in the existing classification of the vessel's machinery in the Register Book, consequent upon this survey, and also any alteration required to be made in the records of the vessel's machinery, boilers, working pressures, &c.; thus, for example, BS 9,11, B&MS 9,11, LMC 9,11 or 140 lb., FD, &c.)

is in my opinion eligible to remain as classed without fresh record of survey - Subject to the port and starboard L.P. turbine lower casings being examined before the end of 12.52. Also subject to the port and starboard tailshafts being re-examined at the Special Survey in April 1952 and being renewed by 12.52

Survey Fee (per Section 23) £ : : Fees applied for - 4 JAN 1952
 Special Damage or Repair Fee (if any) £ 30 0 0 Received by me, *CM*
 Special attendance fees (per Section 23.) £ 11 11 0
 Travelling expenses (if chargeable) £ 10 0 0

Committee's Minute LIVERPOOL - 8 JAN 1952

Assigned Defers for Completion Machinery Survey

J. R. Miller
 Engineer Surveyor to Lloyd's Register of Shipping.

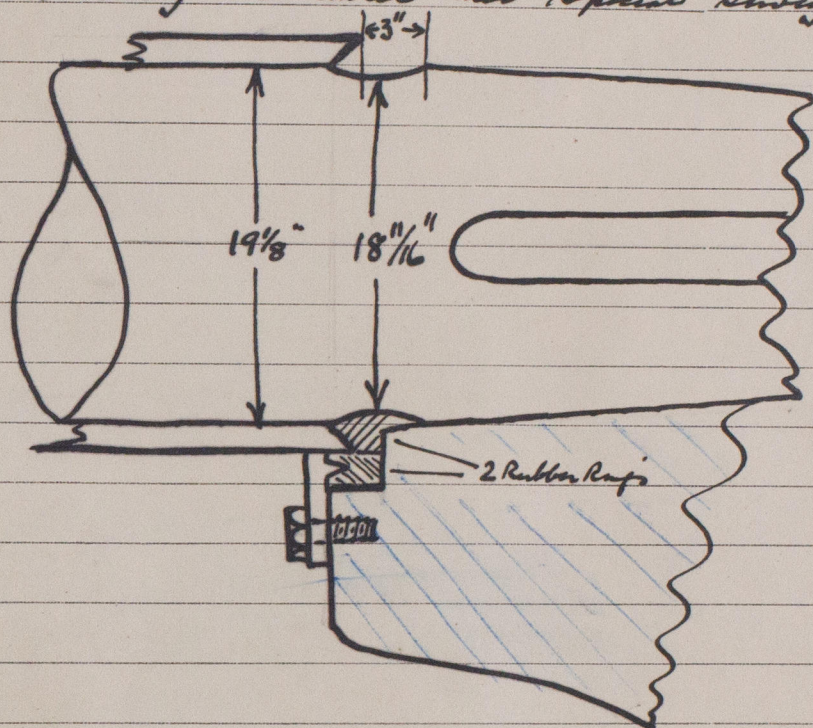


W. H. W. Wright
 Lloyd's Register Foundation

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The machinery was examined under steam after these repairs and found satisfactory (in dock).

Docking:- Vessel placed in dry dock propellers and all outside fastenings examined & in order. All sea valves opened up, examined, minor repairs & renewals effected, condition now satisfactory. The starboard tailshaft was withdrawn and owing to corrosion at the aft end of the liner, was removed ashore for machining - the liner was cut back $\frac{1}{2}$ " and circumferential grooving machined out of the shaft at the end of the liner, the final diameter being $18\frac{11}{16}$ " (original $19\frac{1}{8}$ "). A spare tailshaft was not available and this shaft has now been machined as per sketch below, to enable vessel to carry on until her Special Survey in April 1952.



It is understood from the Owners Rep^t that the original S.H.P. was 10,000 and the R.P.M. 125. with a propeller diameter of 210" - this gives a Rule Size of tailshaft = 18.7 ". The machining is now done at 7,000 S.H.P. and 110 RPM - in view of these facts this shaft was considered efficient meanwhile. The cone end has been skinned and the propeller, which had been a poor fit, has now been satisfactorily rebbed.

S.R.L. Fractures in port and starboard L.P. turbine lower casings examined and considered by previous port marks to be unaltered from previous examination - for further examination in 12 months time.

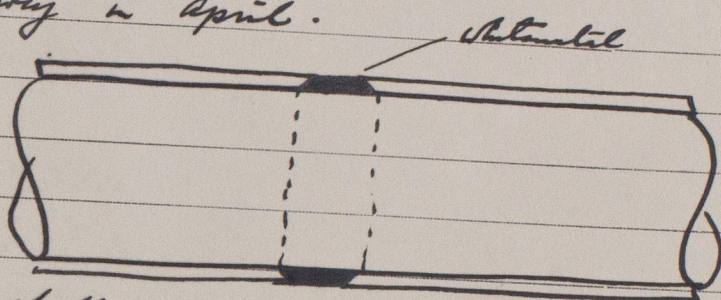
DAMAGE NO 2 :-

Examined damage to port propeller stated to have occurred on the 23rd inst whilst vessel passing through docks and bow stern came into contact with quay. The tips of all four propeller blades found to be bent over for about 9" - it was recommended that the propeller be removed for repairs, that the tailshaft be checked for truth and that the port gearing be examined.

Close gauging of the cone end of this tailshaft showed that the small end of the cone was running out $35/1000$ " from the centre line, and on this account it was recommended that a further

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Reading be taken at midlength of the shaft, through an inspection door in the stern tube. A reading taken at this point showed the shaft to be true but an examination of the liner in way of this inspection door showed the liner to be fractured circumferentially. The shaft was withdrawn, taken ashore and the fracture found to be at the junction of the two piece stepped joint liner. The liner was turned away to the bare shaft in way of the previous stepped joint and the shaft found satisfactory - after a through inspection and hammer test of the liners the ends were undercut (see sketch) and the junction filled in with white metal - this shaft then being considered efficient until the Special Survey in April.



Whilst the shaft was in the machine shop, the repaired and rebalanced propeller was tried on same, & rebalanced until a satisfactory marking with the key in position was obtained.

The port bearing was examined through inspection doors and found satisfactory. & in addition the port stern tube was examined internally (with the aft peak filled) and found sound and tight.

On completion of repairs the machinery was examined under working conditions in dock and found satisfactory.

J. Milton