

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

No. 1968

(Received at London Office)

29 MAR 1954

Writing Report 3rd March, 1954. When handed in at Local Office 1954. Port of Kobe
Survey held at Kobe Date First Survey 13th Aug., 1952 Last Survey 13th Jan., 1953.
on the Machinery of the ~~Wood, Iron or Steel~~ S/S. "EMPIRE VICEROY" (No. of Visits 36)

7803 Vessel built at Barrow By whom Vickers Armstrongs Year 1943 Month 8
4475 Engines made at Hpl. By whom Richardsons Westgarth Co. Ltd. When 1943 8
1388 Boilers, when made (Main) 1943. (Donkey)
8262 Owners Pandelis Shipping Co., Ltd. Owners' Address 1943 -
1 Managers Port London Voyage
460 If Surveyed Afloat or in Dry Dock Both
105 (State name of Dock) Kawasaki Dockyard, Kobe.
Particulars of Classification (which must be inserted precisely as in Register Book & Supplements).

| No. | Port | HULL | MACHINERY |
|--|------|--------------|-------------------------------------|
| of Examination and Repairs (if any) B.S. & Machinery Repairs | | | |
| Examinations, when held, must be reported in detail and serially in the terms of the Rules. State clearly the nature, and, in detail, the nature and extent of Examinations and subsequent Repairs. Repairs on the body of the report, should be separated from Repairs due to other causes; and besides matters respecting this case. | | +100AL 2,52 | +LMC 6,49 BS 10,50 CL N 12,51 |
| 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. | | ss Cff.-6,49 | |

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.
Work made by anyone else? If so, by whom?
Personally go inside each Main Boiler separately and make a thorough examination at this time?
Donkey

What reasons? What parts of the Boilers could not be thus thoroughly examined?
In the absence of internal examination, were adopted by the Surveyor himself of the thorough efficiency of those parts of each Boiler?
of internal examination of each boiler Main B. 13th January, D.B. 1st Dec., 1952.

examine the Safety Valves of the Main Boilers? Yes To what pressure were they afterwards adjusted under steam? 440 lbs/sq.in.
examine the Safety Valves of the Donkey Boilers? Yes To what pressure were they afterwards adjusted under steam? 105 lbs/sq.in.
examine all the manholes, doors and their fastenings of the Main Boilers? Yes and of the Donkey Boilers? Yes
examine the drain plugs of the Main Boilers? None and of the Donkey Boilers? None
examine all the mountings of the Main Boilers? Yes and of the Donkey Boilers? Yes
Has it now been drawn and examined? No Has it a continuous liner? - Is an approved oil retaining appliance fitted at the after end? -
Has it been changed? No If so, state reasons. Has the shaft now fitted been previously used? - Has it a continuous liner? -
retaining appliance fitted at the after end? No State date of examination of Screw Shaft. State the wear down in the Port
Is electric light and/or power fitted? Yes If so, did the Surveyor examine the generators, motors, switchgear cables and fuses? Port
resistance of the generators, circuits and apparatus been tested and found to be not less than 100,000 ohms? Yes
When referred to by numbers, should be counted from forward. Auxiliary machinery should be referred to by position in Machinery Space.

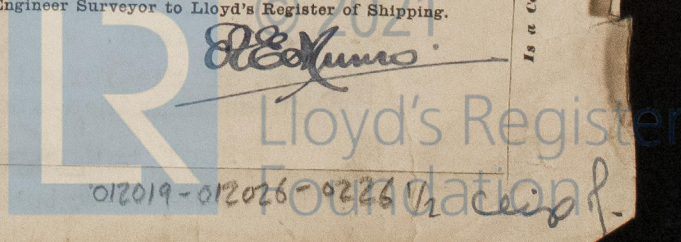
Not complete, state what arrangements have been made for its completion and what remains to be done. To complete survey:-
The Main turbines require to be re-bladed, and a full L.M.C. to be carried out. The Port boiler to re-tube completely and the Port boiler economiser tubes to be renewed.
Worked on board off Kobe Harbour at the request of the Owners Agents and found the H.P. Aft turbine bearing had siezed, the labyrinth packing at fore and aft ends leaking badly, as also the I.P. & L.P.
It was recommended that the ship be brought to the Dockyard for further examination.
On arrival at the Dockyard the H.P. turbine casing and rotor labyrinth packing and bearings were examined. The blading appeared in about the same condition as when last seen, but the labyrinth housing housings were excessively corroded.
It was recommended that all the housings be renewed.
Blading clearances were found excessive thus causing higher terminal pressures.
It is considered, that the cause of the H.P. bearing overheating was due to the leakage of steam from the gland.
(P.T.O.)

Observations, Opinion, and Recommendation:-
Early 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 alteration required to be made in the records of the vessel's machinery, boilers, working pressures, etc.)

For the information of the Committee.

Repair Fee (if any) (per Section 23.) £100.00.0
If chargeable £20.00.0
Received by me, 1954

Aburns & Co. Surveyors
Engineer Surveyor to Lloyd's Register of Shipping.



Is a Certificate required? If so, to be sent to

29 MAR 1954

Rpt. 9a

Port of KOBE

Continuation of Report No. 1968

dated 3rd March, 1954

on the Rpt. 9

The L.P. glands, are so badly wasted that every when carrying a high gland steam pressure valve is unable to be maintained. In view of the generally wasted condition of these turbines the ship at present is considered to be in an unseaworthy condition and it is recommended that the turbines be completely reconditioned including re-blading.

Due to the delivery of new blades being about 6 months the owners requested recommendations for temporary repairs to allow the vessel to operate in its present trade and charter for a period of 6 months.

With a view to this request the machinery was further inspected with the undermentioned results. The I.P. turbine casing and rotor examined found in more deteriorated condition than when seen months ago. L.P. turbine, rotor and casing examined. Gland labyrinth packing in very deteriorated condition also dummy piston packing. H.P., I.P., L.P., rotors and top casings were taken ashore. The roots of previously removed blades were cut out in order to ascertain sizes necessary for new blades.

- HP top casing 1st row of 1st stage.
- IP " " " " " " " "
- IP " " " " " " " "
- HP Rotor 1st & 2nd Row of 1st stage and 1st Row of 1st stage.
- IP Rotor 1st Row of 1st stage.

The grooves were found in a very badly corroded condition and will require machining before fitting new blades. The rotors and casings were in a very dirty and rusted condition and recommendations were made to clean and polish casings and rotors. The HP Turbine thrust pads white metal was found in poor condition and has now been renewed using a spare set.

- HP Labyrinth packing renewed.
- boxes
- Rotor Balanced.
- IP Labyrinth packing renewed.
- boxes

5th & 6th rows shrouding part renewed about 8 inches each.
4th, 7th, 8th, 9th, 10th & 11th rows shrouding renewed complete.
Centre gland labyrinth packing renewed.
Centre gland labyrinth box renewed.

- IP Labyrinth packing renewed.
- boxes
- Dummy cylinder renewed.
- " piston packing renewed.

Rotor balanced; after considerable difficulty had been experienced in balancing, this rotor it was discovered that scale had formed inside and become loose. This was removed through the plug holes. All corroded blades were cleaned up and the rotors put into reasonable condition. All bearings cleaned up and the rotors re-bedded into the casings. Gearing generally examined through sight doors and found in good condition.

B.S. Both main boilers opened up cleaned examined in their entirety together with their mounting economisers, superheaters, doors and fastenings and found the following conditions. A total of 400 air pre-heater tubes wasted now renewed. The economiser tubes of both boilers found in very poor condition and blanked off. Intermediate feed check valves renewed on both boilers.

Starb'd boiler Side wall tubes and roof tubes found distorted and it was recommended that they be renewed together with the economiser tubes of both boilers, concurrently with the M.E. P. repairs. The starb'd boiler due to the above condition was Hydro tested and found tight.

Donkey Boiler: Opened up cleaned examined in its entirety together with its mountings, doors and fastenings and found or now placed in good condition.

Repairs:- 15 smoke tubes renewed and the remainder expanded. A large number of shell rivets found leaking together with the seams and these have been replaced. All boilers examined under steam on completion of repairs and safety valves adjusted as standard. The feed water regulator was opened up for examination and a soft carbon deposits found the (An analysis of this deposits was forwarded to London together with our letter of 26th Jan 1953)

It was therefore recommended that the entire feed system including all tanks, heaters, and condenser be opened up and cleaned (See also previous report of a similar deposits found at previous survey already forwarded to you for information).

In order to ascertain the possibility of electrolysis action a megger test was carried out on circuits and although some were found low it was considered that this was not the cause of heavy corrosion and deposits.

All circuits now show good readings.

Several mooring and short sea trials were carried out during which time the vacuum showed a low reading with a maximum of 15 ins. to a minimum of 5 ins.

The boiler water level of the starb'd boiler reached a very dangerous low level twice and was never constant.

It was also discovered that raw water was being used for make up feed and the distiller was off also that evaporation from the Cochran boiler direct to the main condenser was the normal of make up feed.

In view of the foregoing the starb'd boiler was again opened up and examined and the distorted tubes examined and they were found to be as follows:-

- Roof tube 8 1/4 ins.
- Side wall tubes 11 1/4 ins.

(Cont'd.)

On these findings it was recommended that the starb'd boiler be retubed completely and renew the economiser tubes of the Port boiler.

Both boilers to be cleaned in their entirety.

A full L.M.C. to be carried out together with the permanent repairs to the main turbines.

The vessel is still in port and all work has ceased since the last sea trial.

The Master of the vessel was contacted recently and he stated that the owners were contemplating the fitting of a new diesel engine in the vessel.

The sea trials were originally carried out to ascertain whether the vessel could maintain a speed of 9 knots as required by the Charterers.

The trials were attended by Messrs. A.E. Munro, Principal Surveyor for Japan and H.Warkman, Salvage Association Surveyor and all were agreed with the above mentioned recommendations.

On 3rd November, 1952 the vessel was placed in drydock and the propeller and outside fastenings of sea connections examined and found satisfactory.

The main sea injection valve chest was found badly corroded and leaking. This has now been renewed.