

19 JAN 1953

No. 130

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

(Received at London Office)

Date of writing Report 23rd Dec., 1952. When handed in at Local Office 19  
 No in Reg. Book. Survey held at Nagasaki Date. First Survey 18th Oct., 1952. Last Survey 25th Nov., 1952.  
 77505 on the Machinery of the ~~Wood, Iron or Steel~~ SS "SOVAC DAYLIGHT" (No. of Visits 7)

Tonnage Gross 17598 Vessel built at Chester, Pa. By whom Sun S.B. & Dry Dock Co. When 1950, 2  
 Net 10724 Engines made at Trenton New Jersey By whom Diaval Steam Turbine Co. When 1950, 2  
 Nominal Horse Power 2750 MN Boilers, when made (Main) 1950 (Donkey)  
 Owners Tankers Navigation Co. Inc. Owners' Address  
 (if not already recorded in Appendix to Register Book.)  
 No. of Main Boilers 2WTB Managers --- Port Panama Voyage  
 No. of Donkey Boilers --- If Surveyed Afloat or in Dry Dock Both  
 Steam Pressure in Main Boilers 685 lbs (Spt 600 lbs) Name of Dock Nagasaki Dry-Dock  
 in Donkey Boilers ---

Last Report No. Port

## Particulars of Examination and Repairs (if any) Turbine Gearing Damage

(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

was a damage report made by anyone else? If so, by whom? Copy Attached

Did the Surveyor personally go inside each Main Boiler separately and make a through examination at this time?

" " Donkey " " "

If not, state for what reasons

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)

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? No

Has it a continuous liner? -

Is an approved oil retaining appliance fitted at the after end? -

Has shaft now been changed? No If so, state reasons -

Has the shaft now fitted been previously used? -

Has it a continuous liner? -

Is an approved oil retaining appliance fitted at the after end? -

State date of examination of Screw Shaft -

State the wear down in the

stern bush 0.125

Is electric light and/or power fitted? -

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 See Below

Attended at request of owners representative on account of damage to main gearing stated to have been sustained through a defect in the main gearwheel Teeth, whilst on passage Sasebo Japan to Persian Gulf on the 15th October, 1952. For further particulars see Log Book.

Now Done:- Vessel placed in dry-dock, propeller and outside fastenings of stern bush and sea connections examined and found in order. Rope guard part renewed. (Found Damaged.)

NOTE: Owners placed vessel in dry-dock to make sure that no damage had been sustained to ships bottom in way of main engine, which might account for breakdown of gearing. (See Hull Report.)

## Main Gearing (Now Done)

H.P. & L.P. 1st Reduction pinions and wheel and H.P. & L.P. 2nd Reduction pinions and main gearwheel examined.

## Found (Main Gearwheel)

Two teeth at fore end of aft helix broken off, and a number of teeth at fore end of forward helix damaged on further examination with magnetic crack detector it was noted that approx. 37

## General Observations, Opinion, and Recommendation:-

P.T.O.

(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 to + LMC 140 lb., FD, &c.)

CS 3.34

The machinery of this vessel so far as now seen is in efficient condition and eligible in my opinion to remain as now classed without fresh record of Survey.

Subject to main gearwheel and H.P. and L.P. 2nd Reduction pinions being renewed before the end of November, 1953 and to revolutions of main shafting not exceeding 97 RPM and to the main gearing being examined on the vessels first Port of call in the United States of America.

Survey Fee (per Section 23)

£ 105-0-0

Fees applied for LR NYR 1953

Special Damage or Repair Fee (if any)

£ 90-0-0

Received by me, 19

(per Section 23.)

Travelling expenses (if chargeable)

£ 20-05-0

Sunday Fee

10-10-0

Committee's Minute

Assigned

As now, subject.

Peter Manson

Engineer Surveyor to Lloyd's Register of Shipping.



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011259-011266-0048 1/2

Insert Character of Ship and Machinery precisely as in the Register Book

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



teeth were cracked on the fore end of after helix and Approx. 4 cracked on the fore end of the forward helix.

#### 2nd Reduction Pinions H.P. & L.P.

Teeth found damaged at fore end of forward and aft helixes. Distorted at end for approximate length of 2".

#### 1st Reduction Pinions and Wheel.

Very slight damage was noted in these teeth, consisting of very small indents which were removed by honing of teeth principally on the H.P. pinion.

#### Repairs:-

##### Main Gearwheel

Two of the cracked teeth were broken off by means of hammer blows so that special examination could be made of grain structure. The remainder of cracked teeth were ground off to the root of the crack as detailed on table attached.

Pinions The 2nd Reduction L.P. and H.P. pinions were removed ashore and the pinion teeth machined off in way of the broken and damaged teeth on the main wheel, the amount machined off in each case being approx. 3 inches from the fore end of the forward helix and 4½ inches from the forward end of the after helix.

On completion of the above the pinions were replaced, and a number of teeth copper-ized, and main engine run on load for approx. two hours at slow speed. Afterwards the marking examined when it was noted the teeth of the H.P. pinion were marking hard at the fore end and were not bearing evenly. From this it was considered the pinion bearings were out of line. After determining the amount the pinion was out of line by means of fitting liners under the bearings until a perfect marking was obtained from the teeth it was determined the H.P. aft bearing was approx. 12 out of 1000. The H.P. aft bearing was re-metalled and bored eccentric to bring the pinion true with the main wheel, pinion bearings afterwards adjusted and gearing checked with short basin trial when the marking was found satisfactory.

On account of the amount of teeth that had been machined off the 2nd Reduction pinions the main engine H.P. was reduced from 12,500 to 8,500 the equivalent revolutions being 97 R.P.M.

A sea trial was carried out at this reduced Horse Power for approx. 3 hours after which the gearing was specially examined and found to be bearing satisfactorily. The owners representative stated that a new Main Gearwheel and 2nd Reduction H.P. and L.P. pinions were now on order but delivery could not be expected before approx. 9 months.

It is submitted the main gearwheel and 2nd Reduction H.P. & L.P. Pinions, are considered efficient in the meantime at the reduced Horse Power (8,500) equivalent revolution of Main Shafting not exceeding 97 R.P.M.

Subject to the gearing being examined at the first port of call in the United States of America, where the vessel is proceeding Via Persian Gulf.

NOTE: From the photographs attached it can be seen where the bearing marks of the Pinion teeth extend right to the end of the teeth on the main wheel, also the hair line cracks, and the machine marks at the root of the teeth. The marking of the teeth right for the full length, and the machine marks at the root of the teeth may be contributory factors to the gearing breakdown.

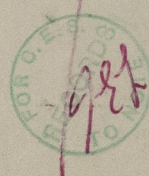
#### Attached

(1) Photographs

(2) Part of Broken Tooth

(3) Table Showing Readings of Number of Cracked Teeth

19 JAN 1953



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