

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

43 MAY 1928

Date of writing Report 19 When handed in at Local Office 22 MAY 1928 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 28 Oct 27 Last Survey 17 May 1928
Reg. Book. (Number of Visits 43)

40978 on the Single Screw Steamer "BOTHNIA" Tons { Gross 2402
Net 1209

Built at Sunderland By whom built Jos L. Thompson & Sons, Ltd. Yard No. 562 When built 1928

Engines made at Sunderland By whom made John Dickinson & Sons, Ltd. Engine No. 893 when made 1928

Boilers made at Sunderland By whom made John Dickinson & Sons, Ltd. Boiler No. 893 when made 1928

Registered Horse Power Owners America-Levant, Line, Ltd. Port belonging to London

Nom. Horse Power as per Rule 403 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Trade for which Vessel is intended General Cargo

ENGINES, &c.—Description of Engines Triple Expansion—Single Screw Revs. per minute 46

Dia. of Cylinders 24" - 40" - 66" Length of Stroke 45" No. of Cylinders 3 No. of Cranks 3
Crank shaft, dia. of journals as per Rule 12.568" Crank pin dia. 12 3/4" Crank webs Mid. length breadth 2 1/4" Thickness parallel to axis 8"
as fitted 12 3/4" Mid. length thickness 8" shrunk Thickness around eye-hole 5 5/8"

Intermediate Shafts, diameter as per Rule 11.94" Thrust shaft, diameter at collars as per Rule 12.568"
as fitted 12 1/8" as fitted 12 3/4"

Tube Shafts, diameter as per Rule Screw Shaft, diameter as per Rule 13.34" Is the { tube } shaft fitted with a continuous liner {
as fitted 13 1/2" as fitted 13 1/2" screw } Yes

Bronze Liners, thickness in way of bushes as per Rule 4.04" Thickness between bushes as per Rule .53" Is the after end of the liner made watertight in the
as fitted 3 1/4" as fitted 2 1/32" propeller boss Yes. If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive
If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft

Propeller, dia. 16'-6" Pitch 15'-9" No. of Blades 4 Material Bronze whether Moveable No Total Developed Surface 82 sq. feet
Feed Pumps worked from the Main Engines, No. None Diameter Stroke Can one be overhauled while the other is at work

Bilge Pumps worked from the Main Engines, No. Two Diameter 4" Stroke 2 1/2" Can one be overhauled while the other is at work Yes
Feed Pumps { No. and size One - Mumford 4 1/2 x 5 x 4" Pumps connected to the { No. and size One - Fire Pump 4 1/2 x 5 x 4"
How driven Steam Main Bilge Line How driven Steam

Ballast Pumps, No. and size One 8" x 10" x 10" Lubricating Oil Pumps, including Spare Pump, No. and size
Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room 4 at 2 1/2" dia. & 1 at 3" dia.

In Holds, &c. Fore Hold 2 at 2 1/2" dia. Main Hold 2 at 3" dia.
Aft Hold 2 at 3" dia. Tunnel Well 1 at 2 1/2" dia.

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 at 8" dia. Independent Power Pump Direct Suctions to the Engine Room Bilges,
No. and size 1 at 4 1/2" dia. Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes Yes.

Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes
Are all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Overboard Discharges above or below the deep water line Above
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes.

What Pipes pass through the bunkers None How are they protected
What pipes pass through the deep tanks None Have they been tested as per Rule

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes
Is the arrangement of Valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform.

MAIN BOILERS, &c.—(Letter for record (S)) Total Heating Surface of Boilers 5944 sq. ft.

Is Forced Draft fitted Yes No. and Description of Boilers 2—Single Ended Marine Type, Working Pressure 180 lbs a
IS A REPORT ON MAIN BOILERS NOW FORWARDED? Yes

IS A DONKEY BOILER FITTED? Yes If so, is a report now forwarded? Yes

PLANS. Are approved plans forwarded herewith for Shafting Main Boilers Yes Auxiliary Boilers Donkey Boilers Yes
(If not state date of approval)

Superheaters General Pumping Arrangements Yes (with Ship Rpt) Oil fuel Burning Piping Arrangements

SPARE GEAR. State the articles supplied:— 1 C.I. Propeller, 1 Set Coupling bolts & nuts, 2 Main Bearing bolts & nuts, 2 Top End bolts & nuts, 2 Bottom End bolts & nuts, 1 Set Feed Pump Valves, 1 Set Bilge Pump Valves, 50 Assorted Bolts & Nuts, 3 Bars of assorted Iron, 30 Condenser Tubes, 6 Plain Boiler Tubes, 1 cwt. Steel Plate, 1 Safety Valve Spring, 3 Patent Tube Stoppers, 3 Common Tube Stoppers, 1 Bottom End bearing, 6 Junk-Ring bolts & nuts.

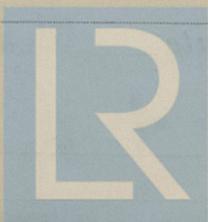
The foregoing is a correct description,

John Dickinson & Sons, Limited.

H. H. Robertson

Manufacturer.

Director.



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Dates of Survey while building
 During progress of work in shops -- 1927. Oct 28. Nov 23. Dec 8. 1928. Jan 9. 10. 11. Feb. 2. 5. 24. 28. 29. Mar. 1. 2. 8. 12. 13. 16. 21. 27. 28. 29. 30. Apr. 2. 3. 4. 11. 13. 17. 19. 24. 25. 26. 27. 30. May. 1. 2. 5. 8. 9. 11. 16. 17. 18.
 During erection on board vessel ---
 Total No. of visits 43.

Dates of Examination of principal parts—Cylinders 13-4-28 Slides 3-4-28 Covers 13-4-28
 Pistons 12-3-28 Piston Rods 9-1-28 Connecting rods 15-2-28
 Crank shaft 2-4-28 Thrust shaft 17-4-28 Intermediate shafts 17-4-28
 Tube shaft ✓ Screw shaft 19-4-28 Propeller 19-4-28
 Stern tube 11-4-28 Engine and boiler seatings 25-4-28 Engines holding down bolts 5-5-28
 Completion of fitting sea connections 4-4-28
 Completion of pumping arrangements 16-5-28 Boilers fixed 3-5-28 Engines tried under steam 8-5-28
 Main boiler safety valves adjusted 8-5-28 Thickness of adjusting washers P.F. $\frac{7}{16}$; P.A. $\frac{11}{32}$; S.F. $\frac{13}{32}$; S.A. $\frac{13}{32}$
 Crank shaft material Ingot Steel Identification Mark A.T.G. 2-4-28 Thrust shaft material Ingot Steel Identification Mark A.T.G. 17-4-28
 Intermediate shafts, material Ingot Steel Identification Marks A.T.G. 17-4-28. Tube shaft, material Ingot Steel Identification Mark ✓
 Screw shaft, material Ingot Steel Identification Mark A.T.G. 19-4-28 Steam Pipes, material Steel HOT ROLLED. Solid drawn Test pressure 540 lbs. Date of Test 26-4-28
 Is an installation fitted for burning oil fuel No. Is the flash point of the oil to be used over 150°F. ✓
 Have the requirements of the Rules for carrying and burning oil fuel been complied with ✓
 Is this machinery duplicate of a previous case YES. If so, state name of vessel S.S. "Bosnia" (Std. Rpt. No. 29682) & S.S. "Bacaria" (Std. Rpt. No. 2971)

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The materials and workmanship are good.
 The Machinery has been constructed under Special Survey, and satisfactorily fitted in the vessel, and is eligible in my opinion for classification and the notation **LMC 5, 28.**

SUNDERLAND.
 Certificate to be sent to
 The Surveyors are requested not to write on or below the space for Committee's Minute.

The amount of Entry Fee ... £ 5 : : When applied for,
 Special ... £ 85 : 9 : 1.8 May 1928
 Donkey Boiler Fee ... £ 7 : 2 :
 Travelling Expenses (if any) £ : : 24.5.28

A. I. Griffiths.
 Engineer/Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 25 MAY 1928
 Assigned + L.M.C. 5.28

