

Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No 33,067

Received at London Office

APR -1

Date of writing Report 19 When handed in at Local Office 22 July 1941 Port of Sunderland
 No. in Survey held at Sunderland Date, First Survey 18 June 40 Last Survey 21 July 1941
 Reg. Book. Number of Visits 112
 on the Single Screw EMPIRE MIST Tons Gross 1241
 Net 506.9
 Built at Sunderland By whom built Wm. Bayford & Sons Ltd. Yard No. 669 When built 1941
 Engines made at Sunderland By whom made Wm. Bayford & Sons Ltd. Engine No. 640 When made 1941
 Donkey Boilers made at Stockton By whom made Stockton Chem. Works & Riley Bros Ltd. Boiler No. 6448 When made
 Brake Horse Power 2500 Owners Ministry of Shipping Port belonging to Sunderland
 Nom. Horse Power as per Rule 516 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.
 Trade for which vessel is intended 23 5/8 9 1/16

OIL ENGINES, &c. Type of Engines Approved piston airless injection 2 or 4 stroke cycle 2 Single or double acting Single
 Maximum pressure in cylinders 540 lbs/sq. in. Diameter of cylinders 600 mm Length of stroke Upper 980 mm No. of cylinders 3 No. of cranks 3 (3 throws)
 Mean Indicated Pressure 88 lbs/sq. in. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 940 mm Is there a bearing between each crank Between each 3 throws.
 Revolutions per minute 108 Flywheel dia. F 2300 mm Weight F 5340 mm Means of ignition Compression Kind of fuel used Gas
 Crank Shaft, { Solid forged dia. of journals 418 mm as fitted 450 mm Crank pin dia. 450 mm Crank Webs Mid. length breadth 650 mm Thickness parallel to axis 255 mm
 { Semi built dia. of journals 418 mm as fitted 450 mm Crank pin dia. 450 mm Crank Webs Mid. length thickness 255 mm Thickness around eye hole 200 mm
 { All built dia. of journals 418 mm as fitted 450 mm Crank pin dia. 450 mm Crank Webs Mid. length thickness 255 mm Thickness around eye hole 200 mm
 Flywheel Shaft, diameter 418 mm as fitted 450 mm Intermediate Shafts, diameter 308 mm as fitted 365 mm Thrust Shaft, diameter at collars 418 mm as fitted 450 mm
 Tube Shaft, diameter 18 mm as fitted 21 1/2 mm Screw Shaft, diameter 341 mm as fitted 392 mm Is the screw shaft fitted with a continuous liner Yes.
 Bronze Liners, thickness in way of bushes 18 mm as fitted 21 1/2 mm Thickness between bushes 13.5 mm as fitted 16.75 mm Is the after end of the liner made watertight in the 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 one length.
 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 Yes.
 If two liners are fitted, is the shaft lapped or protected between the liners Yes. Is an approved Oil Gland or other appliance fitted at the after end of the tube Yes.
 shaft No. If so, state type 10.4"-11.9" Length of Bearing in Stern Bush next to and supporting propeller 4'-11"
 Propeller, dia. 15'-9" Pitch 10.4"-11.9" No. of blades 4 Material Brass whether Movable No. Total Developed Surface 90 sq. feet
 Method of reversing Engines Hand lever Is a governor or other arrangement fitted to prevent racing of the engine when detached Yes. Means of lubrication Oil
 Thickness of cylinder liners 25 mm Are the cylinders fitted with safety valves Yes. Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Yes. If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Yes.
 Cooling Water Pumps, No. one steam driven Is the sea suction provided with an efficient strainer which can be cleared within the vessel (F.W. Cooling)
 Bilge Pumps worked from the Main Engines, No. none Diameter 1 - 5 1/2" x 6" x 15" Simplex & Ballcock pump. Can one be overhauled while the other is at work Yes.
 Pumps connected to the Main Bilge Line How driven Steam.
 Is the cooling water led to the bilges No. If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements Yes.
 Ballast Pumps, No. and size 1 @ 12 1/2" x 14" x 24" Simplex. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size one engine driven 8 1/2" dia. x 6 1/2" stroke
 Are two independent means arranged for circulating water through the Oil Cooler Yes. Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces 4 @ 3" in E.R. 1 @ 3" Tunnel well In Pump Room 1 @ 3" Tunnel well
 In Holds, &c. N°1. 3" p.r.s. N°2. 3 1/2" p.r.s. N°3 (Dep. Tank) 3 1/2" p.r.s. N°4. 3" p.r.s. N°5. 3 1/2" (aft.) 1 @ 8" (Ballast pump), 1 @ 5"
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 8" (Ballast pump), 1 @ 5"
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes. Are the Bilge Suctions in the Machinery Spaces Yes.
 led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes. Are they fitted with Valves or Cocks Both
 Are all Sea Connections fitted direct on the skin of the ship Yes. Are the Overboard Discharges above or below the deep water line Below.
 Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes. Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes.
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes. How are they protected Yes.
 What pipes pass through the bunkers none. Have they been tested as per Rule Yes.
 What pipes pass through the deep tanks Sn. bilge Suctions Yes.
 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 in 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 E.R. top
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Yes.
 Main Air Compressors, No. Two. No. of stages 3 Diameters 1 1/2", 9", 2 3/4" Stroke 6 1/2" Driven by Steam engine 11 1/2" dia. x 6 1/2" stroke
 Auxiliary Air Compressors, No. 1 No. of stages 1 Diameters 1 1/2" Stroke 6 1/2" Driven by Steam engine 11 1/2" dia. x 6 1/2" stroke
 Small Auxiliary Air Compressors, No. 1 No. of stages 1 Diameters 1 1/2" Stroke 6 1/2" Driven by Steam engine 11 1/2" dia. x 6 1/2" stroke
 What provision is made for first Charging the Air Receivers Steam driven compressors.
 Scavenging Air Pumps, No. One Diameter 1400 mm Stroke 610 mm Driven by Leaves from main engine.
 Auxiliary Engines crank shafts, diameter as per Rule Position as fitted
 Have the Auxiliary Engines been constructed under special survey Yes. Is a report sent herewith Yes.

AIR RECEIVERS: - Have they been made under survey

Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined and cleaned

Injection Air Receivers, No.

Cubic capacity of each

Internal diameter

thickness

Seamless, lap welded or riveted longitudinal joint

Material

Range of tensile strength

Working pressure by Rules

Starting Air Receivers, No.

Total cubic capacity

Internal diameter

thickness

Seamless, lap welded or riveted longitudinal joint

Material

Range of tensile strength

Working pressure by Rules

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

Is the donkey boiler intended to be used for domestic purposes only

PLANS. Are approved plans forwarded herewith for Shafing

(If not, state date of approval)

Receivers

Separate Fuel Tanks

Donkey Boilers

General Pumping Arrangements

Pumping Arrangements in Machinery Space

Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied

State the principal additional spare gear supplied

least main propeller, 1 cylinder liner & packet complete, 1 main piston with rings, 24 main piston rings, 4 fuel valves complete, 8 spray plugs, 2 side & centre top & bottom end bearing bolts & nuts, 1 N.R. starting air valve complete, 1 cyl. relief valve complete, 4 scavenging pump valve discs, 1 fuel pump body complete with shaft & nut, 1 fuel pump bell crank lever, 6 rubber hoses for upper piston cooling water, 1 roller chain for camshaft drive.

The foregoing is a correct description.

WILLIAM DOXFORD & SONS, Limited.

W. Keller

Manufacturer.

Director.

Dates of Survey while building: During progress of work in shops - 4/9 June 18.20. July 2.4.10. Aug 9.12.13.16.19.27.29. Sep 2.3.6.9.10.11.12.13.16.17.18.20.23.24.25.26.27.30. Oct 1.2.3.4.7.8.9.10.11.14.16.17.18.25.28.29.30.31. Nov 1.4.6.7.8.11.12.13.14.18.19.20.22.26.27.28. Dec 3.4.6.9.10.11.12.13.16.17.18.20.21. Jan 2.3.6.7.9.13.14.15.16.17.20.21. Feb 2.3.4.27.28.29. Mar 3.13.14.17.25.28. Apr 3.5.6.7.12.14.17.19.20.31. Total No. of visits 112

Dates of Examination of principal parts - Cylinders 4/11/40 6/11/40 Covers 11/11/40 Pistons 20/12/40 2/1/41 Rods 12/12/40 Connecting rods 3/1/41

Crank shaft 19/12/40 Flywheel shaft as crank Thrust shaft as crank Intermediate shafts 9/1/41 2/1/41 Tube shaft 3/1/41

Screw shaft 19/12/40 Propeller 12/11/40 Stern tube 16/9/40 Engine seatings (Dank top) Engines holding down bolts 25/2/41.

Completion of fitting sea connections 9/10/40 Completion of pumping arrangements 5/3/41. Engines tried under working conditions 3/3/41.

Crank shaft, Material Inf. Steel Identification Mark S.O. 5348 9660B. Flywheel shaft, Material as crank. Identification Mark as crank.

Thrust shaft, Material as crank Identification Mark as crank. Intermediate shafts, Material Inf. Steel Identification Marks 283, 299, 245, 249

Tube shaft, Material Identification Mark Identification Mark 283, 299, 245, 249

Screw shaft, Material Inf. Steel Identification Mark 9/1/41

Identification Marks on Air Receivers K.1166/4 L.R. No 20648 L.C.D. 30/10/40. N° 9524 445 W.H.F 19/12/40

Is the flash point of the oil to be used over 150° F.

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with

Description of fire extinguishing apparatus fitted 1 1/2 dia W.I. perforated pipe for steam led around E.R. & B.H. Rooms, 8-2 gall "Phosphor" Containers

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo

If so, have the requirements of the Rules been complied with

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with

Not desired.

Is this machinery duplicate of a previous case

If so, state name of vessel M/V "ANTAR"

General Remarks (State quality of workmanship, opinions as to class, &c.) This machinery has been built under Special Survey in accordance with the approved plans, Specification, Secretaries letters & the requirements of the rules of the Society. The materials & workmanship are good. It has been securely fitted on board the vessel & tried under working conditions alongside Quay with Satisfactory results. The two donkey boilers have also been securely fixed on board, fitted to burn oil fuel (F.P. above 150° F.), Section 20 of the rules has been complied with, Safety valves of boilers adjusted under steam to working pressure in accordance with rule requirements.

The machinery is eligible in my opinion to have notation 2 1/2 L.M.C. 3. 41. (oil Eng.), T.S. (C.), 2 D.B. 120 lbs.

The amount of Entry Fee .. £ 6

When applied for,

Specification .. £ 100 16

25 MAR 1941

Donkey Boiler Fee .. £ 25 4

When received,

Travelling Expenses (if any) £ 12 12

31 MAR 1941

Committee's Minute

TUE. 22 APR 1941

Assigned

+ Lmb. J. 41 oil Eng. 2 D.B. 120 lbs. C.L.

J. H. Fraser

Engineer Surveyor to Lloyd's Register of Shipping.



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