

REPORT ON OIL ENGINE MACHINERY.

No. 47816.

Received at London Office 7 NOV 1951

Date of writing Report 3.11.51 When handed in at Local Office 5.11.51 Port of Glasgow

No. in Survey held at Glasgow Date, First Survey 29 Aug: 1949 Last Survey 6 October 1951
Reg. Book. Number of Visits 66

Single on the Triple Screw vessel "BOLLSTA" Tons Gross Net

Built at Glasgow By whom built Harland & Wolff Ltd Yard No. 1419G When built 1951

Engines made at Glasgow By whom made Harland & Wolff Ltd Engine No. 1419G When made 1951

Donkey Boilers made at Belfast By whom made Harland & Wolff Ltd Boiler No. When made 1951

Brake Horse Power 4,500 @ 110 rpm Owners Fred Olsen & Co Port belonging to Oslo

M.N. Power as per Rule 1509 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Trade for which vessel is intended Ocean Going Oil Tanker.

OIL ENGINES, &c. — Type of Engines Oil Engine, Coverle mechanical or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 400 lb/sq in Diameter of cylinders 450 mm Length of stroke 1500 mm No. of cylinders 4 No. of cranks 4

Mean Indicated Pressure 6.5 kg/cm² Ahead Firing Order in Cylinders 1, 6, 3, 4, 5, 2, 7 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 12292 mm Is there a bearing between each crank Yes Revolutions per minute 110

Flywheel dia. 2800 mm Weight 13030 kg Moment of inertia of flywheel (lbs. in² or Kg.cm²) 57000 Means of ignition Compression Kind of fuel used Diesel Oil

Crank Shaft, Solid forged dia. of journals as per Rule 575 mm Crank pin dia. 575 mm Crank webs 185 centrad hole Mid. length breadth 1340 mm Thickness parallel to axis 76.5 mm All built as fitted 185 centrad hole Mid. length thickness 300 mm Thickness around eye hole 30.7 mm

Flywheel Shaft, diameter as per Rule 550 mm Intermediate Shafts, diameter as per Rule 17 1/4 Thrust Shaft, diameter at collars as fitted 550 mm as per Rule

Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule 21 Is the tube shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 1 1/16 Thickness between bushes as per Rule 7/8 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 Solid

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 Oil Is an approved Oil Gland or other appliances fitted at the after end of tube shaft If so, state type Length of bearing in Stern Bush next to and supporting propeller 7'-3"

Propeller, dia. 18'-5" Pitch 15 9/16 No. of blades 4 Material Bronze whether moveable no Total developed surface 130 sq. feet

Moment of inertia of propeller (lbs. in² or Kg.cm²) 27600 Kind of damper, if fitted

Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched Means of lubrication Pressure Thickness of cylinder liners 59 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Tunnel

Cooling Water Pumps, No. 3 Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Bilge Pumps worked from the Main Engines, No. None Diameter Stroke Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line (No. and size) Ballast 320T/hr G.S. 150T/hr Bilge 150T/hr How driven Steam Driven

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

Ballast Pumps, No. and size One - 320T/hr Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2 @ 943 gal/hr + 2 @ 1271 2/3 gal/hr

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 1 @ 10", 2 @ 8" 3 @ 4" Callendar 1 @ 4" Sludge 1 @ 3" In pump room

In holds, &c. Independent Power Pump Direct Suctions to the engine room bilges, No. and size 1 @ 10" 2 @ 8"

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes Are the bilge suction pipes in the machinery spaces 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 Values Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the overboard discharges above or below the deep water line Below

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 Callendar 3" bilge suction How are they protected Pipe thickness increased

What pipes pass through the deep tanks Have they been tested as per Rule 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 into the cargo or machinery spaces, or from one compartment to another Yes Is the shaft tunnel watertight none Is it fitted with a watertight door worked from

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Steel shell

Main Air Compressors, No. 113909/113910 No. of stages Two diameters 1 1/4" 4 3/4" stroke 8 driven by Steam Engine

Auxiliary Air Compressors, No. No. of stages diameters stroke driven by

Small Auxiliary Air Compressors, No. 79423 No. of stages 2 3/4" 1 1/8" diameters stroke 3" driven by Electric Motor

What provision is made for first charging the air receivers Steam driven dynamo supplying current to compressor motor

Scavenging Air Pumps, No. Roster Blowers diameter 908.5 mm stroke ROTARY driven by Main Engine

Auxiliary Engines crank shafts, diameter as per Rule as fitted No. Position

Have the auxiliary engines been constructed under special survey Yes Is a report sent herewith Yes Not 926

Lloyd's Register Foundation 010466 010477-0066

AIR RECEIVERS:—Have they been made under survey Yes. State No. of report or certificate Belfast X 344/345

Is each receiver, which can be isolated, fitted with a safety valve as per Rule. Yes
Can the internal surfaces of the receivers be examined and cleaned. Yes Is a drain fitted at the lowest part of each receiver. Yes

Injection Air Receivers, No. — Cubic capacity of each. — Internal diameter. — thickness. —
Seamless, welded or riveted longitudinal joint. Material. — Range of tensile strength. — Working pressure. —

Starting Air Receivers, No. 506/507 Total cubic capacity. 1300 cu ft Internal diameter. 17 1/4" thickness. 3/8"
Seamless, welded or riveted longitudinal joint. welded Material. O.H. steel Range of tensile strength. 28/32 Working pressure. 356

IS A DONKEY BOILER FITTED Yes If so, is a report now forwarded. Yes. Belfast 15198, London 122401
Is the donkey boiler intended to be used for domestic purposes only. No

PLANS. Are approved plans forwarded herewith for shafting. 12/3/49 Receivers. Yes Separate fuel tanks. Yes
Donkey boilers. 12/ General pumping arrangements. Yes Pumping arrangements in machinery space. 9/7/51 6/12/49

Oil fuel burning arrangements. Yes Have Torsional Vibration characteristics been approved. Yes Date of approval. 5th March 1951

SPARE GEAR.

Has the spare gear required by the Rules been supplied. Yes
State the principal additional spare gear supplied. 1 Cyl complete with jacket, 1 Main Piston, 2 sets

telescopic tubes for piston cooling, 2 Fuel pump cylinders & plungers, 4 Fuel Valves
Shave tail shaft: No G01419 Lloyds 27163 WH 12051.0. 31/3/50 Jmcl.

The foregoing is a correct description. For HARTON AND WOLFE LIMITED, Fimliston Secretary, Manufacturer.

Dates of Survey while building: During progress of work in shops - (1949) Aug. 29. (1950) Apr. 19, Jul. 5, Sep. 21, Oct. 11, 12, 16, 26, 400, 1, 20, Dec. 14, 20, 22 (1951) Jan. 4, 8, 10, 11, 15, 17, 18, 22, 29, 31, Feb. 1, 5, 6, 12, 14, 15, 19, 21, 22, 26, 28, Mar. 1, 7, 8, 14, 20, 28, Apr. 4, 9, 15, 18, 27, May 3.

During erection on board vessel - (1951) May 7-9, June 4, 7, 28, July 9, Aug. 9, 15, 29, Sep. 4, 11, 13, 18, 20, 24, 25, 28, Oct. 1, 4, 6.

Total No. of visits. 66
Dates of examination of principal parts: Cylinders. 28/10/50, 19/4/50, 11/7/50, 5/4, 11/10/50, 4/12/50 Pistons. 3/2/50, 10/11/49 Rods. 3/2/50, 10/11/49 Connecting rods. 5/5/50, 17/5/50

Crank shaft. 26/12/50, 3.1.51, 4/10/51 Flywheel shaft. 15.1.51 Thrust shaft. — Intermediate shafts. 17/5/50 Tube shaft. —
Screw shaft. 20/9/50, 29/9/50 Propeller. 31/3/50 Stern tube. 11/10/50, 21/2/51 Engine seatings. 18/1/51 Engine holding down bolts. 18/1/51, 15.4.51, 6/10/51

Completion of fitting sea connections. — Completion of pumping arrangements. 6/10/51 Engines tried under working conditions. 6/10/51
Crank shaft, material. O.H. steel Identification mark. L.R. 21756 Flywheel shaft, material. — Identification mark. —

Thrust shaft, material. O.H. steel Identification mark. S 6902 WH Intermediate shafts, material. O.H. steel Identification marks. 5729899, 12154, 5mcl 17/5/50, 5/5/50
Tube shaft, material. — Identification mark. — Screw shaft, material. O.H. steel Identification mark. 12075, 12/11/50 Jmcl

Identification marks on air receivers. No 5 305, 506, 507
Welded receivers, state Makers' Name. T.P 584 W.P. 356 Eb. R.O.B 18.1.51 B 20.3.51
Hayland & Wall Ltd, Belfast

Is the flash point of the oil to be used over 150°F. Yes
Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with. Yes

Description of fire extinguishing apparatus fitted. Steam smothering hoses, boilers & along each side main Eng. 2-2 1/2 han
1-2 1/2 han in fore room, 3-30 gallon foam, 1-10 gallon & 8-2 gallon

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

Is this machinery duplicate of a previous case. — If so, state name of vessel. —

General Remarks (State quality of workmanship, opinions as to class, &c.) The machinery of this vessel has been constructed under Special Survey in accordance with the approved plans, the Rules of the Society and the Secretary's letters. The materials and workmanship are good. The machinery has been properly fitted on board and on completion a satisfactory dock & full power sea trial was witnessed. In our opinion the vessel is eligible for the notation L.M.C. 10/51, the engine is not to be operated continuously between 43 & 52 rpm. See Sec 16 5-3-51 No band speed range. A notice to the above effect was fitted at the control station and the engine tachometer was marked accordingly.

The amount of Entry Fee. F.E. £ 325. 18
Special ... £ : When applied for ... 19
Donkey Boiler Fee... £ : When received ... 19
Travelling Expenses (if any) £ :
Committee's Minute CLASS 99W 6 NOV 1951

Assigned. + LMC 10, 51. Oil Engine with torsional endorsement 2 DB-180 W.
James. C. Murray Jorg. M. Ed. L. Engineer, Surveyor to Lloyd's Register of Shipping.
E. O. O'Malley

