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pt. 4b.
JUL 1949

REPORT ON OIL ENGINE MACHINERY.

No. 13722.

17 APR 1950

Received at London Office.

DO. 27th January, 1949.

When handed in at Local Office 15th July 1949

Port of MANCHESTER.

Survey held at HAZELGROVE, STOCKPORT.

Date, First Survey 14th October, 1948 Last Survey 30th December, 1948.

eg. Book.

Number of Visits 12.

Single
on the Twin
Triple
Quadruple
Screw vessel

BERGÖ (see Groningen Rpt 439 B)

Tons Gross
Net

Martenshoek

By whom built Bodewes Scheepswerven.

Yard No. 377. When built 1950

Hazelgrove, Stockport

By whom made Mirrlees, Bickerton & Day Ltd.,

Engine No. 32992. When made 1948.

Monkey Boilers made at

By whom made

Boiler No. When made

540 (12 hr. rating)

Agents Hart, Nibbrig & Greave

Port belonging to Rotterdam.

N. Power as per Rule

120.119

Owner: G. Erikson, Finland.

Is Electric Light fitted

Trade for which vessel is intended Open Sea Service.

L ENGINES, &c. —Type of Engines Vertical Airless Injection Heavy Oil. 2 or 4 stroke cycle. 4. Single or double acting. Single.

Maximum pressure in cylinders 750 lbs/sq. inch. Diameter of cylinders 13.75". Length of stroke 21". No. of cylinders 6. No. of cranks 6.

Mean Indicated Pressure 97 lbs/sq. inch. Ahead Firing Order in Cylinders 1, 3, 5, 6, 4, 2. Span of bearings, adjacent to the crank, measured

from inner edge to inner edge 15.25". Is there a bearing between each crank Yes. Revolutions per minute 300.

Flywheel dia. 4' - 6" Weight 2,460 lbs. Moment of inertia of flywheel (10 lbs. in² Kg. cm²) 3,270,000. Means of ignition Compression. Kind of fuel used Diesel

Crank Shaft, Solid forged dia. of journals 8.75". Crank pin dia. 4.5". Crank webs Mid. length breadth 11.25". Thickness parallel to axis

as fitted 9.25". Crank pin dia. 4.5". Crank webs Mid. length thickness 4.5/8". shrunk Thickness around eyehole

Flywheel Shaft, as fitted. Intermediate Shafts, diameter As approved. Thrust Shaft, diameter at collars As approved.

Tube Shaft, diameter as fitted. Screw Shaft, diameter as fitted. Is the (tube/screw) shaft fitted with a continuous liner No.

Bronze Liners, thickness in way of bushes as fitted. Thickness between bushes as fitted. Is the after end of the liner made watertight in the

propeller boss. 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 tube shaft. If so, state type. Length of bearing in Stern Bush next to and supporting propeller

Propeller, dia. Pitch. No. of blades. Material. whether moveable. Total developed surface. sq. feet

Moment of inertia of propeller (16 lbs. in² Kg. cm²) 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 Yes. Means of

Lubrication Forced. Thickness of cylinder liners 7/8". Are the cylinders fitted with safety valves Yes. Are the exhaust pipes and silencers water cooled

or lagged with non-conducting material. Both. If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned

back to the engine. Cooling Water Pumps, No. 1 Ram Type. Dia. 4 3/4" x 5 1/2" Stroke. Is the sea suction provided with an efficient strainer which can be cleared within the vessel.

Bilge Pumps worked from the Main Engines, No. One. Diameter 4.75". Stroke 5.5". Can one be overhauled while the other is at work.

Pumps connected to the Main Bilge Line No. and size. How 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. Power Driven Lubricating Oil Pumps, including spare pump, No. and size. Dia. 3" x 3.5/8" stroke.

Are two independent means arranged for circulating water through the Oil Cooler. Suctions, connected to both main bilge pumps and auxiliary

bilge pumps, No. and size:—In machinery spaces. In pump room.

In holds, &c.

Independent Power Pump Direct Suctions to the engine room bilges, No. and size.

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes. Are the bilge suction 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.

Are all Sea Connections fitted direct on the skin of the Ship. Are they fitted with valves or cocks. Are they fixed

sufficiently high on the ship's side to be seen without lifting the platform plates. Are the overboard discharges above or below the deep water line.

Are they each fitted with a discharge valve always accessible on the plating of the vessel. Are the blow off cocks fitted with a spigot and brass covering plate.

What pipes pass through the bunkers. How are they protected.

What pipes pass through the deep tanks. 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.

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. Is the shaft tunnel watertight. 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.

Main Air Compressors, No. 1 Reavell Ref. No. 10498. No. of stages 2. diameters 5" x 5.5/8" stroke 5 1/2". driven by Main Engine.

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

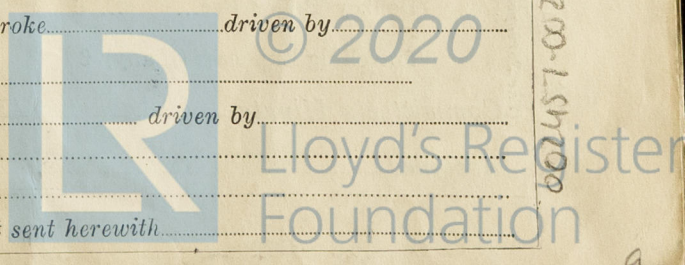
Small Auxiliary Air Compressors, No. No. of stages diameters stroke driven by

What provision is made for first charging the air receivers.

Scavenging Air Pumps, No. diameter stroke driven by

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

Have the auxiliary engines been constructed under special survey. Is a report sent herewith.



602457-00246-008

AIR RECEIVERS:—Have they been made under survey. Yes. State No. of report or certificate. 0
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. doors. 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. by Rules. Actual.
Starting Air Receivers, No. 2. Total cubic capacity. 48 cu. ft. Internal diameter. 21. 5. 2. 6. thickness. 3. 1. 2. by Rules. Actual.
Seamless, welded or riveted longitudinal joint. Circumferentially welded. Material. O.H. Steel. Range of tensile strength. 26/30. Working pressure. 300. by Rules. Actual.

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 shafting. 9th December, 1948. Receivers. Approved Standard Type. Separate fuel tanks.
(If not, state date of approval)

Donkey boilers. General pumping arrangements. Pumping arrangements in machinery space.
Oil fuel burning arrangements.
Have Torsional Vibration characteristics been approved. 20th July, 1949. Date of approval.

SPARE GEAR.

Has the spare gear required by the Rules been supplied. AS PER RULE REQUIREMENTS.
State the principal additional spare gear supplied.



The foregoing is a correct description, and the particulars of the installation as fitted are as approved for Torsional Vibration Characteristics. Manufacturer.

Dates of Survey while building. During progress of work in shops. 1948. October 14, 18, 19, 22, 27. Nov. 4, 16, 19, 26. Dec. 13, 15, 30.
During erection on board vessel.
Total No. of visits. 19. 10. 48.
Dates of examination of principal parts—Cylinders. 14. 10. 48. Covers. 22. 10. 48. Pistons. 15. 12. 48. Rods. Connecting rods. 27. 10. 48.
Crank shaft. 4. 11. 48. Flywheel shaft. Thrust shaft. 24. 12. 48. Intermediate shafts. Tube shaft.
Screw shaft. Propeller. Stern tube. Engine seatings. Engine holding down bolts.
Completion of fitting sea connections. Completion of pumping arrangements. Engines tried under working conditions. 13. 12. 48.
Crank shaft, material. O.H. Steel. Identification mark. Lloyd's 5821 R.J.Y. Flywheel shaft, material. Identification mark.
Thrust shaft, material. O.H. Steel. Identification mark. Lloyd's 2719. Intermediate shafts, material. Identification marks.
Tube shaft, material. Identification mark. Screw shaft, material. Identification mark.
Identification marks on air receivers. 81/470250 M.B. & D. Lloyd's. M.B. & D. 4299.
Welded receivers, state Makers' Name. Lloyd's Test. 4270. T.D.S. 4299.
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.
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.
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. This engine has been constructed under Special Survey of tested materials and in accordance with the Secretary's letters, approved plans and Rule requirements. The materials and workmanship are good. The engine was found satisfactory when tested in the shop under the following conditions of loading: Full load, overload, Astern running Starting and manoeuvring. During the test bed trials the Engine was directly coupled to a Weenan Froude Dynamometer. This Engine is, in our opinion, suitable to be installed in a vessel for the purpose of main propulsion. The details of the crankshaft are in accordance with the requirements of the Rules. Torsional vibration characteristics have been approved for a service speed of 300 R.P.M. in Secretary's letter of the 20th July, 1949.
Copies of Air Receiver and Crankshaft forging certificates attached herewith. ✓

2/3 of £48
The amount of Entry Fee ... £ 32 : 0 : 0
Special ... £ : :
Donkey Boiler Fee... £ : :
Travelling Expenses (if any) £ 5 : 0 : 0.
When applied for 15-7-49
When received 19
Engineer Surveyor to Lloyd's Register of Shipping.
Committee's Minute
Assigned See F.E. mch. rph.
5 MAY 1950

