

REPORT ON OIL ENGINE MACHINERY.

No. 11342.

Received at London Office

Date of writing Report 28/9/1934 When handed in at Local Office

28/9/1934 Port of

Belfast

-1 OCT 4

No. in Survey held at
Reg. Book.

Belfast

Date, First Survey 12 January

Last Survey 9 Sept 1934

Number of Visits 110

75271 on the ^{Single} ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel

DURHAM

Tons { Gross 10892.66
Net 6260.72

Built at Belfast

By whom built Workman Clark (1928) Ltd Yard No. 533 When built 1934

Engines made at Belfast

By whom made Workman Clark (1928) Ltd Engine No. 533 When made 1934

Donkey Boilers made at Belfast

By whom made Workman Clark (1928) Ltd Boiler No. 533 When made 1934

Brake Horse Power 11000

Owners Federal Steam Navigation Co Ltd Port belonging to London

Nom. Horse Power as per Rule 2236

Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

Trade for which vessel is intended

Ocean going

OIL ENGINES, &c.—Type of Engines Workman Clark Sulzer Airless Injection 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 700 lb sq. in. Diameter of cylinders 720 mm Length of stroke 1250 mm No. of cylinders 8 each No. of cranks 8 each eng.

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 930 mm

Is there a bearing between each crank Yes

Revolutions per minute 130 Flywheel dia. 2350 mm Weight 4.2 tons

Means of ignition Compression Kind of fuel used Heavy fuel oil

Crank Shaft, dia. of journals as per Rule 490 mm

Crank pin dia. 490 mm

Crank Webs

Mid. length breadth shrunk Thickness parallel to axis 305 mm.

Flywheel Shaft, diameter as fitted 490 mm

Intermediate Shafts, diameter as fitted 14 3/4"

Thrust Shaft, diameter at collars as fitted 490 mm.

Tube Shaft, diameter as fitted

Screw Shaft, diameter as fitted 17"

Is the shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 27 3/4"

Thickness between bushes as fitted 27 3/4" and 32"

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

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 No

Length of Bearing in Stern Bush next to and supporting propeller 5'-8"

Propeller, dia. 16'-6"

Pitch 15'-4"

No. of blades 3

Material Bronze whether Moveable Yes

Total Developed Surface 75 sq. feet

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 45 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

Cooling Water Pumps, No. 3-Saltwater 3-Freshwater

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

2 @ 120 tons/hr

2 @ 100 tons/hr

How driven

Electric motor

Ballast Pumps, No. and size

2 @ 100 tons/hr

Lubricating Oil Pumps, including Spare Pump, No. and size

3 @ 55 tons/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

4 @ 3 1/2"

2 @ 2 1/2"

1 @ 2 1/2" (in aft. compartment)

In Holds, &c. no 1-2 @ 3", no 2-2 @ 3 1/2", no 3-2 @ 3 1/2", no 4-2 @ 3", no 5-2 @ 3"

no 6-2 @ 3"

no 7-2 @ 3"

no 8-2 @ 3"

no 9-2 @ 3"

no 10-2 @ 3"

no 11-2 @ 3"

no 12-2 @ 3"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size

2 @ 6"

2 @ 6"

2 @ 6"

2 @ 6"

2 @ 6"

2 @ 6"

2 @ 6"

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes

Yes

Are the Bilge Suctions 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

Valves and Cocks

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

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

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 Upper Deck

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.

No. of stages

Diameters

Stroke

Driven by

Auxiliary Air Compressors, No. 2

No. of stages 2

Diameters 250 cu. ft. free air @ 450 lb each

Stroke

Driven by 100 HP motor @ 350 R.P.M.

Small Auxiliary Air Compressors, No. 1

No. of stages 2

Diameters 20 cu. ft. free air @ 450 lb

Stroke

Driven by Steam

Scavenging Air Pumps, No. 2 D.A.

Diameter 1660 mm.

Stroke 750 mm

Driven by Main shaft extension

Auxiliary Engines crank shafts, diameter

as per Rule 158 mm

as fitted 160 mm.

No. 3

Position 2 on starboard side 1 on port side

main air charging line

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

Yes

Is a drain fitted at the lowest part of each receiver

Yes

Can the internal surfaces of the receivers be examined and cleaned

Yes

High Pressure Air Receivers, No.

Cubic capacity of each

Internal diameter

thickness

Seamless, lap welded or riveted longitudinal joint

Material

Range of tensile strength

Working pressure

Actual

Starting Air Receivers, No. 4

Total cubic capacity 1400 cu. ft.

Internal diameter 5'-9"

thickness 1 3/8"

Seamless, lap welded or riveted longitudinal joint T.R. D. Butt

Material Steel

Range of tensile strength 28-32 tons/sq. in.

Working pressure

Actual

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IS A DONKEY BOILER FITTED? Yes If so, is a report now forwarded? Yes
Is the donkey boiler intended to be used for domestic purposes only No
PLANS. Are approved plans forwarded herewith for Shafting 28/12/33 Receivers 10/1/34 Separate Tanks 14/2/34
(If not, state date of approval)
Donkey Boilers 16/11/33 General Pumping Arrangements 5/12/33 Oil Fuel Burning Arrangements Todd's Gravity System

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes
State the principal additional spare gear supplied 1 propeller shaft complete and 4 bronze propeller blades.
1 stack of tubes for each side of cooler. 1 complete set of thrust pads
5 cylinder liners and 1 cylinder cover w/p. 1 piston complete with rod and
cooling water pipes. 1 piston skirt and 2 piston crowns. 5 fuel valves, 2 starting
air valves, 8 cylinder relief valves, 8 fuel cams, 4 piston cooling running pipes
and 4 stand pipes.

The foregoing is a correct description,
pro WORKMAN CLARK (1928) LIMITED.

J. Cunningham Secretary. Manufacturer.

1934
Dates of Survey while building { During progress of work in shops - Jan 12. 19. 24. 29 Feb 13. 16 Mar 7. 13. 15. 19. 20. 24. 25. 26. 27. 29. 30 Apr 5. 9. 10. 11. 12. 13. 16. 19. 20. 23. 24
During erection on board vessel - 15. 26. 27. 30. May 1. 2. 3. 4. 7. 8. 9. 10. 11. 14. 15. 16. 17. 18. 22. 23. 24. 28. 29. 30. 31 June 1. 3. 4. 5. 6. 7. 11. 12. 13.
Total No. of visits 110

Dates of Examination of principal parts - Cylinders 15/3/34 to 30/4/34 Covers 2nd to 12th 5/34 Pistons 20/4/34 Rods 20/4/34 Connecting rods 20/4/34

Crank shaft 30/4/34 Flywheel shaft and Thrust shaft 30/4/34 Intermediate shafts 4/5/34 Tube shaft -

Screw shafts Star 14/5/34 Star 15/5/34 Propellers 14/5/34 Stern tubes 10/5/34 Engine seatings 2/8/34 Engines holding down bolts 2/8/34

Completion of fitting sea connections 21/6/34 Completion of pumping arrangements 13/9/34 Engines tried under working conditions 13/9/34

Crank shaft, Material Steel Identification Mark J.K.W. 30/4/34 Flywheel shaft, Material Steel Identification Mark LLOYDS NO 93 J.K.W. 30/4/34

Thrust shaft, Material Steel Identification Mark J.K.W. 30/4/34 Intermediate shafts, Material Steel Identification Marks LLOYDS NO 93 J.K.W. 4/5/34

Tube shaft, Material - Identification Mark - Screw shafts, Material Steel Identification Mark Post- LLOYDS 139 J.K.W. 14/5/34

Is the flash point of the oil to be used over 150° F. Yes Spare: LLOYDS 13 J.K.W. 15/5/34 J.R. 13/9/34

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

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo No 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. The workmanship and materials are sound and good. The main and auxiliary machinery has been efficiently installed and tried out at moored and sea trials with satisfactory results. In my opinion the vessel is eligible for record in the Society's Register Book + LMC 9,34. CL 2DB 120 to 12" Electric light OIL ENGINES.

The amount of Entry Fee .. £ 6 : - : When applied for,
Special £ 155 : 18 : - 28th Sept. 1934.
Donkey Boiler Fee £ 17 : 6 : - When received,
air receivers
Travelling Expenses (if any) £ 16 : 16 : - 12.10.34

Committee's Minute

Assigned

FRI. 12 OCT 1934
+ Lmb. 9.34 oil Eng. L.
2 DB - 120 to

CERTIFICATE WRITTEN.

John Rundle
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation