

Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY

Attached to No. 60484
60484
No. 60460

Received at London Office JAN 11 1939

Date of writing Report 19 When handed in at Local Office 9:1:39 Port of Glasgow
No. in Survey held at Reg. Book. Glasgow Date, First Survey 30:11:37 Last Survey 9-1-1939
Number of Visits 104

on the ^{Single} ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel "SURAT" Tons } Gross 5528.64
Net 3253.13

Built at Glasgow By whom built Alex Stephen & Son Ltd Yard No. 561 When built 1939
Engines made at Glasgow By whom made Barclay Curle & Co Ltd Engine No. E-1116 When made 1939
Donkey Boilers made at Glasgow By whom made Alex Stephen & Son Ltd Boiler No. 561 When made 1939
Brake Horse Power 2400 Owners P & O S N Co Port belonging to London
Nom. Horse Power as per Rule 688 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes
Trade for which vessel is intended 23 5/8 9 1/16

OIL ENGINES, &c. Type of Engines Doxford Opposed Piston 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 568 lbs. Diameter of cylinders 600 mm Length of stroke 2320 mm No. of cylinders 4 No. of cranks 4
Mean Indicated Pressure 82 lbs. Combined

Span of bearings adjacent to the Crank, measured from inner edge to inner edge 1200 mm Is there a bearing between each crank
Revolutions per minute 95 Flywheel dia. 2300 mm Weight 2.915 tons Means of ignition Comp. Kind of fuel used Heavy Oil

Crank Shaft, { Solid forged dia. of journals as per Rule 450 mm Crank pin dia. 450 mm Crank Webs Mid. length breadth 820 mm Thickness parallel to axis 255 mm
Semi built as fitted 450 mm Mid. length thickness 192 mm Thickness around eyehole 200 mm
All built

Flywheel Shaft, diameter as per Rule 450 mm Intermediate Shafts, diameter as per Rule 13 3/8" Thrust Shaft, diameter at collars as per Rule 450 mm
as fitted 450 mm as fitted 13 7/8"

Tube Shaft, diameter as per Rule 14.75" Is the tube shaft fitted with a continuous liner yes
as fitted 15 1/4" screw

Bronze Liners, thickness in way of bushes as per Rule 7.5" Thickness between bushes as per Rule 5625" Is the after end of the liner made watertight in the
as fitted 3 1/4" 9/16"

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 If so, state type Length of Bearing in Stern Bush next to and supporting propeller 4.11"

Propeller, dia. 16.6" Pitch 13.92" No. of blades 4 Material Bronze whether Moveable no Total Developed Surface 81.75 sq. feet

Method of reversing Engines Comp air 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 25 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

Cooling Water Pumps, No. 2 F.W. 200 mm dia x 600 mm S.W. 220 mm dia x 600 mm Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes
for compressor, F.W. cooler and main engine top guides only. all other cooling by fresh water. Can one be overhauled while the other is at work

Bilge Pumps worked from the Main Engines, No. none Diameter - Stroke - Are they fitted with valves or cocks both
Pumps connected to the Main Bilge Line { No. and Size Ballast pump 12 x 10 1/2 x 24 General service pumps 9 x 10 x 18
How driven steam 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
Ballast Pumps, No. and size one @ 12 x 10 1/2 x 24 Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size One 100 mm dia x 600 mm - F.W. Spare - Wens - 7 x 6 1/2 x 13"

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 3 @ 3" & 2 @ 2" in oil gutter In Pump Room -

In Holds, &c. 2 @ 3" N° 1 Hdd. 2 @ 3/2" N° 2 Hdd. 1 @ 2" N° 3 C/dm. 1 @ 2" N° 23 C/dm. 2 @ 5" deep tank. 2 @ 3" N° 3 Hdd. 2 @ 3" N° 2 Hdd. 1 @ 2" N° 3 & 4 C/dm. 1 @ 2" Tunnel well.
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 @ 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 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 platform 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 Bilge pipes 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 yes Is it fitted with a watertight door yes worked from cylinder tops

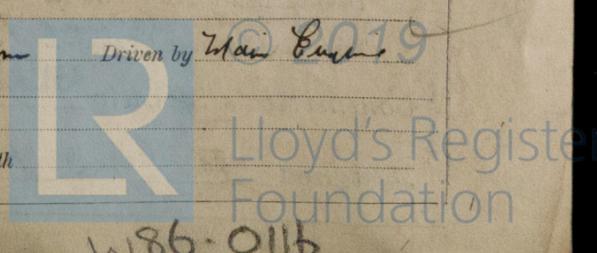
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Main Air Compressors, No. none No. of stages - Diameters - Stroke - Driven by -
Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 10 1/2 - 2 1/2 - 5 1/4 - 3 1/2 Stroke 6" Driven by steam
Small Auxiliary Air Compressors, No. none No. of stages - Diameters - Stroke - Driven by hand

What provision is made for first Charging the Air Receivers Compressor driven by steam
Scavenging Air Pumps, No. one Diameter 1960 mm Stroke 600 mm Driven by steam

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

Have the Auxiliary Engines been constructed under special survey Is a report sent herewith



AIR RECEIVERS:—Have they been made under survey yes State No. of Report or Certificate _____

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, lap welded or riveted longitudinal joint _____ Material _____ Range of tensile strength _____ Working pressure _____ by Rules _____ Actual _____

Starting Air Receivers, No. two Total cubic capacity 280 cu ft Internal diameter 4 3/2" thickness 1 9/16"

Seamless, lap welded or riveted longitudinal joint Riveted Material Steel Range of tensile strength 29,335 lb Working pressure _____ by Rules 625 Actual 600

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 36-5-37 Receivers yes Separate Fuel Tanks yes

(If not, state date of approval)

Donkey Boilers yes General Pumping Arrangements no Pumping Arrangements in Machinery Space yes

Oil Fuel Burning Arrangements yes

SPARE GEAR.

Has the spare gear required by the Rules been supplied yes

State the principal additional spare gear supplied see attached list



The foregoing is a correct description,
 FOR BARCLAY, CURLE & Co., LTD
 Alexander Macneil
 Manufacturer.

Dates of Survey while building

During progress of work in shops -- 28 Mar.: 1. 8. 9. 15. 17. 21. 22. 23. 28. 31 Apr.: 1. 4. 6. 8. 11. 13. 19. 25. 27. 29 May.: 4. 5. 6. 11. 13. 16. 18. 20. 23. 30. 31 June.: 2. 6. 9. 13. 14. 15. 16. 17. 20. 23. 24. 28 July.: 1. 28 Aug.: 1. 2. 5. 9. 15. 17. 19. 23. 25. 26. 28. 30. 31

During erection on board vessel -- Sep.: 1. 5. 8. 9. 12. 14. 15. 19. 23. 27. 28. 30 Oct.: 6. 7. 17. 19. 27. 28 Nov.: 1. 3. 4. 9. 11. 16. 18. 23. 25. 30 (1939) Jan.: 9

Total No. of visits 104

Dates of Examination of principal parts—Cylinders 19-8-38 Covers ✓ Pistons 30-8-38 Rods 30-8-38 Connecting rods 5-9-38

Crank shaft 1-9-38 Flywheel shaft ✓ Thrust shaft ✓ Intermediate shafts 5-5-38 ✓ Tube shaft ✓

Screw shaft 30-7-38 Propeller 11-5-38 Stern tube 8-4-38 Engine seatings 5-5-38 Engines holding down bolts 17-10-38

Completion of fitting sea connections 16-5-38 Completion of pumping arrangements 11-11-38 Engines tried under working conditions 30-11-38

Crank shaft, Material S.M. Imp. Steel Identification Mark GA Flywheel shaft, Material LLOYD'S Identification Mark ✓

Thrust shaft, Material --- Identification Mark --- Intermediate shafts, Material 7814 steel Identification Marks GOC. 5-5-38

Tube shaft, Material --- Identification Mark --- Screw shaft, Material 5M 9 steel Identification Mark 42705

Identification Marks on Air Receivers

LLOYD'S TEST
950 LBS
WP-600 LBS
11-5-38 G.O.C.

LLOYD'S TEST
950 LBS
WP-600 LBS
13-5-38 G.O.C.

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

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 no If so, state name of vessel _____

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, satisfactorily fitted in the vessel, tried and found good. It is eligible in my opinion for Classification and the Record of LMC 1.39. 2 DB 120 LBS

Certificate (if required) to be sent to _____

(The Surveyors are requested not to write on or below the space for Committee's Minute.)

Erh
9/14/39

91.10.8 9/22/12/30
40.13.4 9/19/12/30

The amount of Entry Fee £ 6: - : - :
 Special £ 72: 18: 8
 £ 36: 9: 4
 Donkey Boiler Fee £ 4: 4: - :
 Air Receiver Weeding £ 12: 12: - :
 Travelling Expenses (if any) £ - : - : - :

When applied for, DEC 1938
 When received, 10-1-39

1911. 10. 8. pd 1/2/39 E/T
 1926. 1. 6. pd 17/2/39 E/T

GLASGOW 10 JAN 1939
 14.11.10 pd 1/2/39 E/T

Committee's Minute

Assigned to Lmc 1.39 2 DB 120 LBS.

G. Anderson
 Engineer Surveyor to Lloyd's Register of Shipping.

