

Rpt. 4b.

## REPORT ON OIL ENGINE MACHINERY

Received at London Office

JAN 11 1939

Date of writing Report

19

When handed in at Local Office

9:11:39 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

Single  
on the Twin  
Triple  
Quadruple  
Screw vessel

"SURAT"

Tons  
Gross 5528.64  
Net 3253.13

Built at Glasgow

By whom built Alex Stephen &amp; Co Ltd

Yard No. 561

When built 1939

Engines made at Glasgow

By whom made Barclay Curle &amp; Co Ltd

Engine No. E116

When made 1939

Donkey Boilers made at Glasgow

By whom made Alex Stephen &amp; Co Ltd

Boiler No. 561

When made 1939

Brake Horse Power 2400

Owners P &amp; 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

238

9116

OIL ENGINES, &amp;c.—Type of Engines Oxford 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

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

1200 mm

Is there a bearing between each crank

yes

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

Semi built

All built

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

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

Tube Shaft, diameter

as fitted

Screw Shaft, diameter

as fitted 15 1/4"

Is the shaft fitted with a continuous liner

yes

Bronze Liners, thickness in way of bushes

as per Rule 75 mm

Thickness between bushes

as per Rule 5625 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

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

shaft

If so, state type

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

Thickened

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

Diameter

Stroke

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 pump 12" x 10 1/2" x 24"

How driven

Steam

General service pump 9" x 10" x 18"

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 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

3 @ 3"

&amp; 2 @ 2"

In Pump Room

In Holds, &amp;c.

2 @ 3" N° 1 Hdd.

2 @ 3" N° 2 Hdd.

1 @ 2" N° 3 Hdd.

1 @ 2" N° 4 Hdd.

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

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

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

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

Diameters

Stroke

Driven by

Steam

Small Auxiliary Air Compressors, No. none

No. of stages

Diameters

Stroke

Driven by

Steam

What provision is made for first Charging the Air Receivers

Compressor driven by steam

Scavenging Air Pumps, No. one

Diameter

Stroke

Driven by

Steam

Auxiliary Engines crank shafts, diameter

as per Rule

No.

Position

Have the Auxiliary Engines been constructed under special survey

Is a report sent herewith

Lloyd's Register Foundation

W86-0116



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  
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 30-5-38 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. Eng. 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 3m 9 steel Identification Mark 448205  
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

GLASGOW

Erh  
9/1/39

The amount of Entry Fee £ 6:-  
Special 2109.8/- £ 72.18.8  
Donkey Boiler Fee £ 4:- £ 36 9 4  
Travelling Expenses (if any) £ 12:12  
Committee's Minute GLASGOW 10 JAN 1939  
Assigned Lmc 1.39 2 DB 120 LBS

Glennan & L. Davis  
Engineer Surveyor to Lloyd's Register of Shipping.