

Rpt. 4b. RECEIVED 5 APR 1946

REPORT ON OIL ENGINE MACHINERY.

No 34436

Received at London Office 3 APR 1946

Date of writing Report: 29 April 1946 Port of Sunderland
Date, First Survey 19 Feb. 45 Last Survey 26 June 1946 Number of Visits 77

No. in Survey held at Reg. Book: 1
on the Single Twin Triple Quadruple Screw vessel
Built at Sunderland By whom built W. Beaford & Sons Ld. Yard No. 734 When built 1946
Engines made at Sunderland By whom made W. Beaford & Sons Ld. Engine No. 734 When made 1946
Donkey Boilers made at Stockton By whom made Stockton Chem. Eng. & Ship. Bldg. Co. Boiler No. 6923/4 When made 1946
Brake Horse Power 3100 Owners British Tanker Co. Ld. Port belonging to London
Nom. Horse Power as per Rule 684 Is Refrigerating Machinery fitted for cargo purposes no. Is Electric Light fitted Yes.
Trade for which vessel is intended 91 5/16

TYPE OF ENGINES, &c. Type of Engines Opposed piston under injection 2 or 4 stroke cycle 2 Single or double acting Single
Maximum pressure in cylinders 640 lb/sq. in. Diameter of cylinders 600 mm Length of stroke upper 980 mm lower 1340 mm No. of cylinders 4 No. of cranks 4 (3 throws)
Mean Indicated Pressure 85 lb/sq. in. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 886 mm Is there a bearing between each crank Between each 3 throws
Revolutions per minute 105 Flywheel dia. as per Rule 431 mm Weight A. 3269 lbs. Means of ignition Champion Kind of fuel used —
Crank Shaft, Solid forged dia. of journals as per Rule 431 mm Crank pin dia. 450 mm Crank Webs as per Rule 450 mm Mid. length breadth 650 mm Thickness parallel to axis 255 mm
Flywheel Shaft, diameter as per Rule 431 mm Intermediate Shafts, diameter as per Rule 450 mm Thrust Shaft, diameter at collars as per Rule 431 mm
Tube Shaft, diameter as per Rule 450 mm Screw Shaft, diameter as per Rule 450 mm Is the tube shaft fitted with a continuous liner Yes.

Bronze Liners, thickness in way of bushes as per Rule 22 mm Thickness between bushes as per Rule 14 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 one length

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 5'-8"

Propeller, dia. 16'-3" Pitch 11'-9" No. of blades 4 Material Bronze whether Moveable no. Total Developed Surface 93 sq. feet
Method of reversing Engines Hand lever Is a governor or other arrangement fitted to prevent racing of the engine when detached 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 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. one engine driven Is the sea suction provided with an efficient strainer which can be cleared within the vessel (F.W. cooling)
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 @ 4" x 8" x 8" (Leupler) Ballast Pump.
How driven 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 1 @ 10" x 12" x 10" Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size one engine driven 110" x 510"
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 2 @ 3 1/2" E.R. & 1-6" hull suction In Pump Room 4" P.S. & 5" ballast pump

In Holds, &c. (Tanker) Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 8" (Ballast) 1-6" (G.S.) 1-4" main engine cooling pumps.

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes — 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 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 none How are they protected —
What pipes pass through the deep tanks none Have they been tested as per Rule —

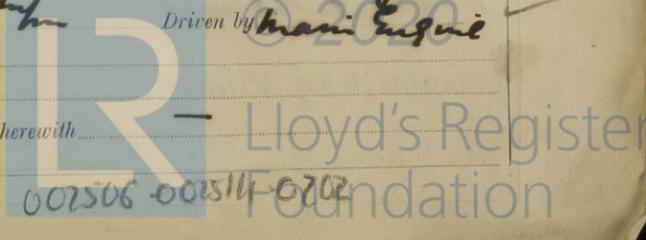
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes.
Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another (Tanker) 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 —
Main Air Compressors, No. Two No. of stages Three Diameters 12 3/4"-3, 12 3/4"-10 1/2", 3" Stroke 4" Driven by Steam 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 (Steam driven compressor) Driven from —
Scavenging Air Pumps, No. Two Diameter 1510 mm Stroke 510 mm Driven by main engine

Auxiliary Engines crank shafts, diameter as per Rule No. — Position —
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 *Pl. No. 5690*
 Is each receiver, which can be isolated, fitted with a safety valve as per Rule *Yes.* *Fitted with fusible plugs. Relief valves on Comps. disch.*
 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 Cuft.* Internal diameter *4'-6"* thickness *1 1/4"*
 Seamless, lap welded or riveted longitudinal joint *Riveted* Material *M/Steel* Range of tensile strength *28/32* Working pressure by Rules - Actual *600 lbs.*

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 *Retained for Sister vessels* Receivers *Line 1803* Separate Fuel Tanks
 (If not, state date of approval) *1/5/45* *23/1/45.* Pumping Arrangements in Machinery Space *Retained for Sister vessels.*
 Donkey Boilers - General Pumping Arrangements
 Oil Fuel Burning Arrangements *Retained for Sister vessels.*

SPARE GEAR.
 Has the spare gear required by the Rules been supplied *Yes.*

State the principal additional spare gear supplied *Cylinder liner Complete with jacket, 1 upper & 1 lower piston skirt, 4 scrap rings, 1 main piston head, 40 main piston rings, 4 fuel valves complete, 8 spray plugs, 1 central cam rod butt. end spherical bearing, 2 side cam. rod butt. end spherical bearings, 1 main (spherical) bearing, 2 main bearing studs & nuts, 4 Centre & side (rod) top & butt end bearing nuts & bolts, 2 side rod studs, 1 set coupling bolts & nuts, 2 NR air starting valves, 2 G.H. relief valves, 1 fuel pump fuel chamber, 2 fuel pump bodies complete with valves, 1 seawater pump delivery valve, 1 ditto for suction, 1 set prop. shaft Mitchell thrust & rubber hoses for piston cooling, 1 roller chain for camshaft drive, 1 C.I. propeller & tail shaft 3 pairs for int. shaft bearings, 3 ditto tail shaft bearing.*

The foregoing is a correct description.
WILLIAM DOXFORD & SONS, Limited. Manufacturer.

Wm. G. Turdie
 Dates of Survey while building
 During preparation of work in shops - *15. May. 22. 30. 31. June 7. 12. 22. 26. July 2. 4. 6. 9. 12. 12. 13. 16. 17. 19. 22. 24. 25. 26. 28.*
 During erection on board vessel - *Aug 9. 10. 12. 17. 21. 23. 28. 29. 30. 31. Sep 3. 4. 5. 6. 7. 10. 11. 12. 13. 14. 17. 18. 19. 20. 21. 25. 26. 27. Oct. 23. 25. Nov. 6. 22. 30. Dec. 3. 6. 10. 12. 13. 27. 31. 26. Jan. 17. 31. Feb. 4. 7. 8. 11. 12. 14. 18. 27. Mar. 4. 6. 26*
 Total No. of visits *77*

Dates of Examination of principal parts - Cylinders *12/4/45, 13/4/45, 14/4/45* Covers - *20/8/45* Pistons *30/8/45* Rods *30/8/45* Connecting rods *31/8/45*
 Crank shaft *13/8/45* Flywheel shaft *as crank* Thrust shaft *as crank* Intermediate shafts *20/9/45* Tube shaft -
 Screw shaft *12/12/45* Propeller *12/12/45 & (LON.)* Stern tube *6/12/45, 10/12/45* Engine seatings (Jank top) Engines holding down bolts *18/2/46*
 Completion of fitting sea connections *30/11/45* Completion of pumping arrangements *26/3/46* Engines tried under working conditions *26/3/46*
 Crank shaft, Material *Infst. Steel* Identification Mark *N° 434 W.H.F. 13/8/45* Flywheel shaft, Material *as crank* Identification Mark *as crank*
 Thrust shaft, Material *as crank* Identification Mark *as crank* Intermediate shafts, Material *Infst. Steel* Identification Marks *N° 9258 T. 945 W.H.F. 20/9/45*
 Tube shaft, Material - Identification Mark - Screw shaft, Material *Infst. Steel* Identification Mark *N° 9261 T. 943 W.H.F. 12/12/45*
 Identification Marks on Air Receivers *K. 1854/5*
LR. 22036
A.R.R. 31/10/45.

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.* *10-2 Gall & 1-10 Gall (hull hose) contains for Phos.*
 Description of fire extinguishing apparatus fitted *2 1/2 pipe led across furnace fronts & between boilers for heating & spraying.*
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *(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 *Not desired.*
 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 machinery has been built under Special Survey in accordance with the approved plans & the rules of the Society. The materials & workmanship are good. It has been securely fixed on board the vessel & tried under working conditions alongside quay & also at sea with satisfactory results. The two donkey boilers have also been securely fixed on board, fitted to burn oil fuel (f.p. above 150° F) & safety valves adjusted under steam to working pressure in accordance with rule requirements. Section 20 of the rules has been complied with. The machinery is eligible in my opinion to have notation 0 1/2 L.M.C. 3. 46 (oil Eng.) T. 3 (CL). 2 DB 150 lbs.*
Springer records approved 18/4/46.

The amount of Entry Fee .. £ *6* When applied for, *8 MAR 1946*
 Special £ *109. 4*
 Donkey Boiler Fee .. £ *12 : 12* When received,
 Travelling Expenses (if any) £ 19
Welded boats. Engineer Surveyor to Lloyd's Register of Shipping.
Wm. G. Turdie

Committee's Minute *FRI. 10 MAY 1946*
 Assigned *+ L.M.C. 3. 46*

