

REPORT ON OIL ENGINE MACHINERY.

No 34542

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Date of writing Report 24 SEP 1946 Port of Sunderland
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No. in Survey held at Sunderland Date, First Survey 19 July 45 Last Survey 23 Jan 1946
Reg. Book. Number of Visits 88

Single on the Twin Triple Screw vessel "BRITISH MARSHAL"
Gross Tons 8582 Net Tons 4918
Built at Sunderland By whom built Wm Kayford & Sons Ltd. Yard No. 434 When built 1946
Engines made at Sunderland By whom made Wm Kayford & Sons Ltd. Engine No. 434 When made 1946
Donkey Boilers made at Stockton By whom made Stockton Chem. Engng & Riley Blast. Boiler No. 6931/2 When made 1946
Brake Horse Power 3100 Owners British Tanker Co. Ltd. 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 Tanker.

OIL ENGINES, &c. Type of Engines Approved piston airless injection 2 or 4 stroke cycle 2 Single or double acting Single.
Maximum pressure in cylinders 640 lbs/sq. in. Diameter of cylinders 600 mm Length of stroke Upper 980 mm Lower 1340 mm No. of cranks 4 (3 throws)
Mean Indicated Pressure 85 lbs/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 throw.
Revolutions per minute 105 Flywheel dia. 2450 mm Weight 1.33 tons Means of ignition Compression Kind of fuel used -
Crank Shaft, Solid forged dia. of journals as per Rule 431 mm Crank pin dia. 450 mm Crank Webs 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 - 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 -
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 disengaged Yes. Means of lubrication Force 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 Steam driven Is the sea suction provided with an efficient strainer which can be cleared within the vessel (F.V. 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" (Leuplex) & Ballast 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 mm x 510 mm
Are two independent means arranged for circulating water through the Oil Cooler Yes. one Steam driven 8" x 4" x 18"
Pumps, No. and size: - In Machinery Spaces 2 @ 3 1/2" in E.R. & 1-6" hull suction Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size: - In Pump Room 4" p.r.s. & Ballast Pumps.
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 Eng. Cooling water pump

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 3/4 Stroke 4" Driven by Steam Engine 13 1/2" x 4"
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 Compressors.)
Scavenging Air Pumps, No. Two Diameter 1510 mm Stroke 510 mm Driven by Levers from 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 -
Lloyd's Register Foundation
002490-002497-0160

AIR RECEIVERS: - Have they been made under survey *Yes*
 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*
 Injection Air Receivers, No. *Two* Cubic capacity of each *280 cu ft.* 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 *600 lbs.* Actual *600 lbs.*

IS A DONKEY BOILER FITTED? *Yes (Two)*
 Is the donkey boiler intended to be used for domestic purposes only *No*
 If so, is a report now forwarded? *Yes*

PLANS. Are approved plans forwarded herewith for Shipping *Yes* (If not, state date of approval) *4/5/45* Receivers *Caric. 1803* Separate Fuel Tanks *No*
 Donkey Boilers *Yes* General Pumping Arrangements *Isograph records* Pumping Arrangements in Machinery Space *taken from S.S. vessel*
 Oil Fuel Burning Arrangements *See above*
 Has the spare gear required by the Rules been supplied *Yes*
 State the principal additional spare gear supplied *SPARE GEAR. No. 734*

Cylinders lines & jacket complete, 1 upper & lower piston skirt, 4 scraper rings, 1 main piston head, 40 main piston rings, 4 fuel valves complete, 8 spray plugs, 1 Centre Cam, rod bolt, End Sph. bearing, 2 Side Cam, rod bolt, End Sph. bearings, 1 main sph. bearing, 2 main bearing bolts & nuts, 4 Centre & side (each) top & bottom end bearing bolts & nuts, 2 Side rod bolts & nuts, 1 Set Coupling bolts & nuts, 2 NR air starting valves, 2 Eff. relief valves, 1 fuel pump Suct. Chamber complete, 2 fuel pump heads complete with valves, 1 Seal pump Suct. & del. valve, 1 Set pads for thrust, 8 rubber hoses for piston cooling, 1 C. 1 propeller, 1 tail shaft, 1 roller chain for camshaft drive, 3 pads for int. & tail shaft bearings etc. etc.

The foregoing is a full description.
WILLIAM DOXFORD & SONS, LIMITED.
25 St. George's Road, London, E.C. 4.
 Manufacturer.

Dates of Survey while building	During progress of work in shops -	Director
1915 July 19, 23, 24, 29. Aug. 10, 12, 20, 21, 23, 24, 27, 28, 29, 30. Sep. 3, 4, 5, 7, 10, 11, 12, 18, 21, 24, 28. Oct. 1, 2, 4, 5, 10, 11, 15, 16, 17, 18, 19, 22, 24, 25, 26, 29, 30, 31. Nov. 1, 2, 5, 6, 7, 8, 9, 12, 13, 14, 23. Dec. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Jan. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Feb. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30. Mar. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Apr. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. May 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Jun. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Jul. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Aug. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Sep. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Oct. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Nov. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Dec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31.	1915 July 19, 23, 24, 29. Aug. 10, 12, 20, 21, 23, 24, 27, 28, 29, 30. Sep. 3, 4, 5, 7, 10, 11, 12, 18, 21, 24, 28. Oct. 1, 2, 4, 5, 10, 11, 15, 16, 17, 18, 19, 22, 24, 25, 26, 29, 30, 31. Nov. 1, 2, 5, 6, 7, 8, 9, 12, 13, 14, 23. Dec. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Jan. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Feb. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30. Mar. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Apr. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. May 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Jun. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Jul. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Aug. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Sep. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Oct. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Nov. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Dec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31.	Director
Dates of Examination of principal parts -	Cylinders	3/9/45, 5/9/45
Crank shaft	22/10/45	Flywheel shaft <i>As crank</i> 10/9/45, 18/9/45
Screw shaft	28/5/46	Propeller 22/2/46 (LON. 12/2/46)
Completion of fitting sea connections	3/6/46	Completion of pumping arrangements 23/9/46
Crank shaft, Material	Ingot Steel	Identification Mark N° 757 W.H.F.
Thrust shaft, Material	As crank	Identification Mark as crank
Tube shaft, Material	-	Identification Mark -
Identification Marks on Air Receivers	K. 1860/1	N° 22154
	A.R.R. 9/4/46.	

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*
 Description of fire extinguishing apparatus fitted *2 1/2" piped across furnace fronts between boilers for flooding & spraying. 10-29 gal. & 1-10 gal. (with hose) Contained for Phoenix*
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *(Tanker)*
 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 *Yes*. If so, state name of vessel *"BRITISH MAJOR"*

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 fitted on board the vessel & tried under working conditions alongside Quay & 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 work pressure. Section 20 of the rules has been complied with. The machinery is eligible in my opinion to have notation N° LMC 9.46 (oil Eng.), T.S. (CL), 2 DB 150 lbs.*

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

The amount of Entry Fee	£ 6	When applied for	5 SEP 1946
Special	£ 109 4	When received	
Welded Boilers	£ 12 12		
Donkey Boilers Fee			
Travelling Expenses (if any)	£		

J. H. Row
 Engineer Surveyor to Lloyd's Register of Shipping.

FRI 11 OCT 1946

Assigned + LMC 9.46 Oil Eng.
 C.L. 2 D.B. 150 lb.

