

## REPORT ON OIL ENGINE MACHINERY.

No 13281

Received at London Office 8 JUL 1942

Date of writing Report 2-7-1942 When handed in at Local Office

3-7-1942 Port of Belfast

No. in Survey held at Belfast  
Reg. Book.Date, First Survey 1 April 1940 Last Survey 25 June 1942  
Number of Visits 118on the <sup>Single</sup> ~~Triple~~ ~~Quadruple~~ Screw vessel Empire ChapmanTons Gross 8194  
Net 4777

Built at Belfast By whom built Harland & Wolff. Ltd. Yard No. 1080 When built 1942-6 mo  
 Engines made at Belfast By whom made Harland & Wolff. Ltd. Engine No. 1079 When made 1942  
 Donkey Boilers made at Belfast By whom made Harland & Wolff. Ltd. Boiler No. 1079 When made 1942  
 Brake Horse Power 3850 Owners Ministry of War Transport Port belonging to Belfast  
 Nom. Horse Power as per Rule 502 ✓ Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
 Trade for which vessel is intended Carrying Petroleum in Bulk

OIL ENGINES, &c.—Type of Engines Heavy Oil—Under piston Supercharge 2 or 4 stroke cycle 4 Single or double acting Single ✓  
 Maximum pressure in cylinders 700 lbs/in<sup>2</sup> ✓ Diameter of cylinders 650 mm (25.6") Length of stroke 1400 mm (55.1") No. of cylinders 8 ✓ No. of cranks 8 ✓  
 Mean Indicated Pressure 135 lbs/in<sup>2</sup> ✓ Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 844 mm. ✓ Is there a bearing between each crank Yes ✓  
 Revolutions per minute 120 ✓ Flywheel dia. 2218.5 mm. Weight 2150 Kg. Means of ignition Compression Kind of fuel used Heavy Oil ✓  
 Crank Shaft, <sup>Solid forged</sup> ~~Cast~~ dia. of journals as per Rule as app. Crank pin dia. 460 mm. Crank Webs Mid. length breadth 800 mm ✓ Thickness parallel to axis 267 mm ✓  
 All built as fitted 460 mm (134 lbs) Mid. length thickness 267 mm ✓ Thickness around eyehole 235 mm ✓  
 Flywheel Shaft, diameter as per Rule as app. Intermediate Shafts, diameter as per Rule as app. Thrust Shaft, diameter at collars as per Rule as app.  
 as fitted 18" ✓ fitted 19" + 24" ✓ as fitted 18" + 18 1/4" ✓  
 Tube Shaft, diameter as per Rule as app. Screw Shaft, diameter as per Rule as app. Is the <sup>4 1/2</sup> ~~4 1/2~~ shaft fitted with a continuous liner Yes ✓  
 as fitted 18" ✓ as fitted 18" ✓  
 Bronze Liners, thickness in way of bushes as per Rule as app. Thickness between bushes as per Rule as app. Is the after end of the liner made watertight in the  
 as fitted 7/8" as fitted 3/4" ✓  
 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 5'-0" ✓  
 Propeller, dia. 15'-6" Pitch 12'-0" No. of blades 4 Material Brongze whether Moveable No Total Developed Surface 75 sq. feet  
 Method of reversing Engines Air-Hydl. Gear Is a governor or other arrangement fitted to prevent racing of the engine yes ✓ Means of lubrication  
Forced Thickness of cylinder liners 48 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 <sup>Eng. Driven (S.W. & F.W.)</sup> ~~Independent (Stand. By)~~ 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. 2 ✓ Diameter 4" Stroke Rotary Can one be overhauled while the other is at work Yes ✓  
 Pumps connected to the Main Bilge Line { No. and Size 2 @ 4" Dia ✓ 1 @ 200 Tons/Hour ✓ 1 @ 80 Tons/Hour ✓  
 How driven Eng. Driven Indep. Steam Indep. 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 @ 200 Tons/Hour Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1 Eng. Driven 40 Tons/Hr. ✓  
1 Ind. (Spare) 40 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 3 @ 3 1/2" ✓ In Pump Rooms 2 @ 4" (Back) ✓  
 In Holds, &c. 2 @ 2 1/2" ✓  
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 6" Port ✓ 1 @ 6" Starboard ✓  
 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 Bath  
 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 Yes ✓ Is the Shaft Tunnel watertight — 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. Airless Injection No. of stages — Diameters — Stroke — Driven by —  
 Auxiliary Air <sup>Starting</sup> Compressors, No. 2 ✓ No. of stages 2 ✓ Diameters 280.245 mm. Stroke 130 mm. Driven by Steam ✓  
 Small Auxiliary Air Compressors, No. None No. of stages — Diameters — Stroke — Driven by —  
 What provision is made for first Charging the Air Receivers Compressors are steam driven  
 Scavenging Air Pumps, No. None ✓ Diameter — Stroke — Driven by —  
 Auxiliary Engines crank shafts, diameter as per Rule No Heavy Oil Engine No. 2 Steam driven generator sets ✓  
 as fitted auxiliaries fitted Position Starboard side main Engine Room  
 Have the Auxiliary Engines been constructed under special survey No ✓ Is a report sent herewith —

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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 <sup>fusible plug</sup> 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. None Cubic capacity of each        Internal diameter        thickness         
Seamless, lap welded or riveted longitudinal joint        Material        Range of tensile strength        Working pressure         
Starting Air Receivers, No. 2 Total cubic capacity 400 x 2 = 800 Internal diameter 5'-1 23/32" thickness 55/64"  
Seamless, lap welded or riveted longitudinal joint Riveted Material Steel Range of tensile strength 28-32 tons/in<sup>2</sup> Working pressure by Rules as app.  
Actual 356 lbs/in<sup>2</sup>  
IS A DONKEY BOILER FITTED? Yes - Two 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 22-2-40 Receivers 14-12-39 Separate Fuel Tanks None  
(If not, state date of approval)  
Donkey Boilers 22-2-40 General Pumping Arrangements 20-5-40 Pumping Arrangements in Machinery Space 21-10-40  
Oil Fuel Burning Arrangements 4-12-40

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.

MANHULL MANUFACTURERS  
Man hull Manufacturer.

Dates of Survey while building  
During progress of work in shops - 1940  
Apr 7. 11. 22. 29 May 2. 13. 23 June 18. 27 July 8 Aug 4. 12. 20. 29 Sept 16. 22. 25 Oct 15. Nov 6. 13. 19. 24. 27. 28 Dec 5. 6. 8. 9. 10. 12. 15. 16. 19. 23. 26. 29. 31 1942 Jan 1. 5. 6. 7. 9. 10. 12. 16. 26. 28. 29 Feb 2. 7. 9. 10. 17. 20. 24. 26. Mar 2. 6. 7. 9. 10. 13. 23 Apr 3. 7. 9. 10. 11. 14. 16. 17. 18. 20. 22. 24. 27. 28. 29. 30 May 1. 4. 5. 6. 7. 11. 12. 13. 14. 15. 18. 19. 20. 21. 22. 23. 25. 26. 27. 28. 29. 30 June 1. 2. 3. 4. 5. 8. 9. 10. 11. 18. 17. 18. 24. 25. 26. 27. 28. 29. 30  
During erection on board vessel - 11. 12. 13. 14. 15. 18. 19. 20. 21. 22. 23. 25. 26. 27. 28. 29. 30 June 1. 2. 3. 4. 5. 8. 9. 10. 11. 18. 17. 18. 24. 25. 26. 27. 28. 29. 30  
Total No. of visits 115  
Dates of Examination of principal parts - Cylinders 13-1-42 To 21-1-42 Covers 23-10-41 To 21-2-42 Pistons 15-1-42 To 17-2-42 Rods 22-1-42 To 12-2-42 Connecting rods 12-1-42  
Crank shaft 1-1-42 Flywheel shaft 1-1-42 Thrust shaft 1-1-42 Intermediate shafts 22-1-42 Tube shaft         
Screw shaft 6-2-42 Propeller 17-10-41 Stern tube 7-1-42 Engine seatings 10-1-42 Engines holding down bolts 22-5-42  
Completion of fitting sea connections 10-1-42 Completion of pumping arrangements 9-6-42 Engines tried under working conditions 25-6-42  
Crank shaft, Material S.M. Steel Identification Mark Lloyds No 1040 Flywheel shaft, Material S.M. Steel Identification Mark Lloyds No 1040  
Thrust shaft, Material S.M. Steel Identification Mark Lloyds No 1040 Intermediate shafts, Material S.M. Steel Identification Marks Lloyds No 364  
Tube shaft, Material        Identification Mark        Screw shaft, Material S.M. Steel Identification Mark Lloyds No 364  
Identification Marks on Air Receivers No. 216 No. 216  
LLOYDS TEST LLOYDS TEST  
556 LB 556 LB  
W.P. 356 LB. W.P. 356 LB.  
G.J.T. 13-9-41 G.J.T. 17-10-41

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 Chemical + Steam as approved  
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo        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 Yes If so, state name of vessel "Dinsdale" Yard No. 1078

General Remarks (State quality of workmanship, opinions as to class, &c. This machinery has been constructed under Special Survey in accordance with the Society's Rules + the approved plans.  
The materials + workmanship are good.  
The machinery has been efficiently installed on board the vessel + tried under full working conditions during sea trials with satisfactory results + is eligible in our opinion to have notation in the Register Book of  
+ LMC 6,42 2 DB 150 lbs. T.S.C.L. Gil Engines.

The amount of Entry Fee .. £ 6 : - :  
Special ... £ 100 : 2 :  
Air Receivers ... £ 8 : 8 :  
Donkey Boiler Fee ... £ 8 : 8 :  
Travelling Expenses (if any) £ - : - :  
When applied for, 6. 7. 19. 42  
When received, 19. 42

Committee's Minute FRI. 10 JUL 1942  
to LMC 6,42  
2 DB - 150 lbs  
oil exp. CO  
Assigned

T.R. Manton + Rlee Ames  
Engineer Surveyor to Lloyd's Register of Shipping.

