

REPORT ON OIL ENGINE MACHINERY.

No. 13398

Received at London Office

15 AUG 1928

Date of writing Report 13. 8. 1928 When handed in at Local Office 13. 8. 1928 Port of MIDDLESBROUGH.
 No. in Survey held at MIDDLESBROUGH. Date, First Survey 16. 6. 27 Last Survey 13. 8. 1928
 Reg. Book. Number of Visits 68

2333 on the ^{Single} ~~Twin~~ ~~Triple~~ ^{Quadruple} Screw vessel "GULFHAWK" Tons ^{Gross} 10848. _{Net} 6370.

Built at Haverhill on Tees. By whom built Furness S.B. Co Ltd Yard No. 123 When built 1928.
 Engines made at Middlesbrough By whom made Richardsons, Westgait & Co. Engine No. 2574 When made 1928.
 Donkey Boilers made at do. By whom made do. Boiler No. 2575 When made 1928.
 Brake Horse Power 3600. Owners Gulf Refining Co. Port belonging to Middlesbrough
 Nom. Horse Power as per Rule 485 Is Refrigerating Machinery fitted for cargo purposes no. Is Electric Light fitted Ye.
 Trade for which vessel is intended _____

IL ENGINES, &c.—Type of Engines DOXFORD OPPOSED PISTON. 2 or 4 stroke cycle 2 Single or double acting Single
 Maximum pressure in cylinders 40 atm. Diameter of cylinders 640 1/4" Length of stroke 2480 1/4" No. of cylinders 4. No. of cranks 4-3 throw
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1110 1/4" Is there a bearing between each crank Yes
 Revolutions per minute 86. Flywheel dia. 2750 1/4" Weight 14.7 tons Means of ignition Compression Kind of fuel used Crude oil
 Crank Shaft, dia. of journals as per Rule approved as fitted 460 1/4" Crank pin dia. 500 1/4" Crank Webs Mid. length breadth 700 1/4" Thickness parallel to axis 300 1/4"
 as fitted 460 1/4" Crank pin dia. 500 1/4" Crank Webs Mid. length thickness 300 1/4" Thickness around eye-hole 225 1/4"
 Flywheel Shaft, diameter as per Rule approved as fitted 460 1/4" Intermediate Shafts, diameter as per Rule 15.3" 17 as fitted 24 1/4" Thrust Shaft, diameter at collars as per Rule 408 1/4" as fitted 460 1/4"
 Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule 16.8" as fitted 19 3/4" Is the ^{tube} ~~screw~~ shaft fitted with a continuous liner Ye
 Bronze Liners, thickness in way of bushes as per Rule 13 1/16" as fitted 15 1/16" Thickness between bushes as per rule 5 1/8" as fitted 7 1/8" Is the after end of the liner made watertight in the propeller boss Ye.
 If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner Ye
 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 Ye
 If two liners are fitted, is the shaft lapped or protected between the liners Ye Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft no. Length of Bearing in Stern Bush next to and supporting propeller 7'-0"

Propeller, dia. 18'-3" Pitch 15'-0" No. of blades 4. Material Bronze whether Moveable Ye Total Developed Surface 107. sq. feet
 Method of reversing Engines Direct by Compressed Air Is a governor or other arrangement fitted to prevent racing of the engine Ye Means of lubrication Forced
 Thickness of cylinder liners reinforced Are the cylinders fitted with safety valves Ye Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Ye
 If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Ye
 Cooling Water Pumps, No. 2-6 DRYSDALE CENTREX. Is the sea suction provided with an efficient strainer which can be cleared within the vessel FRESH WATER COOLING.

Bilge Pumps worked from the Main Engines, No. none Diameter Ye Stroke Ye Can one be overhauled while the other is at work Ye
 Pumps connected to the Main Bilge Line { No. and Size 1-3" DRYSDALE CENTREX; 1-6" x 6" LAMONT DUPLEX; 1-10" x 12" x 12" LAMONT DUPLEX BALLAST. How driven MOTOR STEAM STEAM.
 Ballast Pumps, No. and size 1-10" x 12" x 12" LAMONT DUPLEX. Lubricating Oil Pumps, including Spare Pump, No. and size 2-6" x 6" WEIR MOTOR DRIVEN.
 Are two independent means arranged for circulating water through the Oil Cooler Ye. Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces 5-3 1/2" (and 1-2" in Cofferdam)
 in Holds, &c. 1-2 1/2" in cofferdam forward of E.R. 15 Transfer Pump; 1-3" in Fore Hold; 1-2 1/2" in Pump Room; 1-2 1/2" in chain locker. To For^d Pump.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-3 1/2" and 1-8"
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Ye Are the Bilge Suctions in the Machinery Spaces Ye
 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 Ye 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 Ye Are the Blow Off Cocks fitted with a spigot and brass covering plate Ye
 That pipes pass through the bunkers none How are they protected Ye
 That pipes pass through the deep tanks Ye Have they been tested as per Rule Ye

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Ye
 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 Ye. Is the Shaft Tunnel watertight none Is it fitted with a watertight door Ye worked from Ye
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Ye
 Main Air Compressors, No. 1. No. of stages 3. Diameters 3 1/8", 7 3/4", 13" Stroke 7" Driven by 75 B.H.P. MOTOR
 Auxiliary Air Compressors, No. 1. No. of stages 3. Diameters 3 1/8", 7 3/4", 13" Stroke 7 1/2" Driven by STEAM ENGINE
 Small Auxiliary Air Compressors, No. Ye No. of stages Ye Diameters Ye Stroke Ye Driven by Ye
 scavenging Air Pumps, No. 1. Diameter 66" Stroke 44" Driven by MAIN ENGINE.

Auxiliary Engines crank shafts, diameter as per Rule as fitted see BREMEN CERTIFICATE.
R RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve Ye.
 Can the internal surfaces of the receivers be examined Ye. What means are provided for cleaning their inner surfaces manhole
 Is there a drain arrangement fitted at the lowest part of each receiver Ye.
 High Pressure Air Receivers, No. Ye Cubic capacity of each Ye Internal diameter Ye thickness Ye
 Seamless, lap welded or riveted longitudinal joint Ye Material Ye Range of tensile strength Ye Working pressure by Rules Ye
 Starting Air Receivers, No. 2. Total cubic capacity 300 cu ft. Internal diameter 4'-1 1/2" thickness 1 3/16"
 Seamless, lap welded or riveted longitudinal joint riveted Material Steel Range of tensile strength 28/32 Working pressure by Rules 631 lbs

IS A DONKEY BOILER FITTED? *Yes - two*

If so, is a report now forwarded? *Yes.*

PLANS. Are approved plans forwarded herewith for Shafting *17. 11. 27*

Receivers *8. 10. 27*

Separate Tanks

Donkey Boilers *19. 2. 27*

General Pumping Arrangements *23. 4. 28*

Oil Fuel Burning Arrangements *23. 4. 28*

SPARE GEAR 1 cyl. liner, 1 upper and 1 lower piston complete with skirt, rings, and rod; 6 piston rings, 2 centre side top end bolts and nuts; 2 centre and side bottom end bolts and nuts; 2 side end bolts, 2 main bearing studs; 1 set coupling bolts; 1 spare straight and intermediate length for camshaft; 1 set thrust pin 2 spur wheels and 1 bevel wheel for camshaft drive; 4 H.P. fuel pump ram complete with guide, bushings and nuts; 4 fuel valves; 2 H.P. fuel oil bottles; 8 spray plugs; 1 starting valve; 1 relief valve; 1 scavenging pump delivery valve; 1 scavenging pump suction valve; 1 fuel pump body; 2 sets fuel pump suction and discharge valves; 4 lengths fuel pipe with connections; 1 set spare springs; spare lengths of fuel pipe quantity of cone unions and dummy tails for fuel pipes; quantity assorted bolts and nuts, gaskets, cup leather washers, copper and white metal washers and iron of various size. 1 propeller shaft, 2 bronze propeller blade and studs for one flange.

The foregoing is a correct description,

For RICHARDSON WESTGARTH & Co. LIMITED.

[Signature]

Manufacturer.

Dates of Survey while building: During progress of work in shops - 1927: Jun 16, Sep 19, 23, 24, 30, Oct 5, 18, 21, 27, 29, Nov 4, 12, 22, 28, Dec 6, 13, 21. 1928: Jan 4, 13, 18, 26, Feb 1, 20, 24, Mar 2, 10, 28, 29, Apr 5, 12, 17, 18, 23, 25, 26, May 8, 22, 23, 24, 30, 31, Jun 4, 6, 19, 20, 23, 29, Jul 4, 5, 6, 7, 9, 10, 11, 12, 16, 17, 19, 21, 23, 28, Aug 3, 8, 10, 11, 13. Total No. of visits: 68

Dates of Examination of principal parts - Cylinders 17. 4. 28 Covers Pistons 17. 4. 28 Rods 17. 4. 28 Connecting rods 25. 4. 28 Crank shaft 25. 4. 28 Flywheel shaft Thrust shaft 25. 4. 28 Intermediate shafts 25. 4. 28 Tube shaft Screw shaft 20. 2. 28 Propeller 14. 3. 28 Stern tube 8. 3. 28 Engine seatings 1. 3. 28 Engines holding down bolts 17. 7. 28 Completion of fitting sea connections 23. 4. 28 Completion of pumping arrangements 8. 8. 28 Engines tried under working conditions 11. 8. 28 Crank shaft, Material *Steel* Identification Mark *LLOYDS NO 6417 CRM. 9. 9. 27* Flywheel shaft, Material Identification Mark Thrust shaft, Material *"* Identification Mark *LLOYDS NO 6411 CRM. 15. 9. 27* Intermediate shafts, Material *Steel* Identification Marks *LLOYDS NO 1128 MK 25. 4. 28 P.T.B.* Tube shaft, Material Identification Mark Screw shaft, Material *"* Identification Mark *LLOYDS NO 2235 T.C. 21. 3. 28 R.D.S.*

Is the flash point of the oil to be used over 150° F. *Yes.* Is this machinery duplicate of a previous case *Yes.* If so, state name of vessel *"Gulfbird" (Inab. Rpl No. 13338).*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The materials and workmanship are good. This machinery has been built under special survey in accordance with the Rules and approved Plans, securely fitted aboard and tested under working conditions with satisfactory results and is, in my opinion, suitable for classification with record + L.M.C. 8.28.

It is submitted that this vessel is eligible for THE RECORD. + LMC 8.28

CERTIFICATE WRITTEN. 17/8/28

OIL ENGINES. 2SCSA. 4cy 25 3/16 - 97 7/8. NHP. 785. CL. 2DB. 150 1/2. 17/8/28

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

The amount of Entry Fee ... £ 6-0-0 When applied for, Special ... £ 114-5-0 15. 8. 1928 Donkey Boiler Fee £ 4: 4: 0 When received, 17. 8. 28 Travelling Expenses (if any) £

[Signature]
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute Assigned *Thurs 8.28*
CL 2DB-150 1/2 Oil Engines

