

REPORT ON OIL ENGINE MACHINERY.

No. 51120.
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Received at London Office

Date of writing Report 19 When handed in at Local Office 19 Port of HULL
 No. in Survey held at Goole Date, First Survey 9. 8. 40. Last Survey 4. 3. 1941.
 Reg. Book. Number of Visits 14.

on the Single Screw vessel EMPIRE FORELAND. Tons { Gross 873
 { Net 459

Built at Goole. By whom built Goole S.B. & Repg Co. Ltd. Yard No. 358 When built 1941-3.
 Engines made at Glasgow. By whom made Patent Auxiliary Eng. Co. Engine No. 577 When made do.
 Donkey Boilers made at None By whom made ✓ Boiler No. ✓ When made ✓
 Brake Horse Power 520 Owners The Ministry of Shipping Port belonging to ✓
 Nom. Horse Power as per Rule 118. Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes.
 Trade for which vessel is intended Coasting. 9 13 16 16

IL ENGINES, &c.—Type of Engines Heavy Oil (Type M. 47. I) 2 or 4 stroke cycle 2. Single or double acting S. A.
 Maximum pressure in cylinders 782 lb/sq. in. Diameter of cylinders 250 mm. Length of stroke 420 mm. No. of cylinders 7. No. of cranks 7.
 Mean Indicated Pressure 96.7 lb/sq. in. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 366 mm. Is there a bearing between each crank Yes.
 Revolutions per minute 300 Flywheel dia. 1050 mm. Weight 625 lbs. Means of ignition Comp. Kind of fuel used Heavy oil.
 Crank Shaft, { Solid forged ✓ dia. of journals as per Rule 155 mm. Crank pin dia. 170 mm. Mid. length breadth 226 mm. Thickness parallel to axis ✓
 { Semi built ✓ as fitted 170 mm. Crank Webs Mid. length thickness 95 mm. shrunk Thickness around eyehole ✓
 { All built ✓ Flywheel Shaft, diameter as per Rule 155 mm. Intermediate Shafts, diameter as per Rule 117 mm. Thrust Shaft, diameter at collars as per Rule 123 mm.
 as fitted 170 mm. as fitted 5 3/16" as fitted 170 mm.
 Tube Shaft, diameter as per Rule 5.38" Is the { tube screw } shaft fitted with a continuous liner { No.
 as fitted 6 1/8" as fitted ✓ as fitted ✓

Bronze Liners, thickness in way of bushes as per Rule ✓ Thickness between bushes as fitted ✓ Is the after end of the liner made watertight in the propeller boss ✓
 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 Yes.
 If so, state type See Dry App. 2 12. 8. 40. Length of Bearing in Stern Bush next to and supporting propeller 23 1/2"
Propeller, dia. 77" Pitch 49" No. of blades 4 Material C.I. whether Moveable Solid. Total Developed Surface 14.2 sq. feet
Method of reversing Engines Direct. Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes. Means of lubrication Forced.
 Thickness of cylinder liners 19.5 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 Up funnel

Cooling Water Pumps, No. 1 & 150 x 60 mm D.A. & Auxiliary Pumps. 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. One Diameter 120 mm. Stroke 160% Can one be overhauled while the other is at work ✓
Pumps connected to the Main Bilge Line { No. and Size One duplex 150 ton/h² } { One Centrifugal 47 ton/h² } { One 120 x 60 mm }
 { How driven Electric Motor } { Electric Motor } { Main Engine }
 Is the cooling water led to the bilges One 3/8" pipe from Air Comp. only If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements None.

Ballast Pumps, No. and size Both above Aux. Pumps. **Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size** 2 @ 2775 gals each/h²
 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 4 @ 3" dia In Pump Room ✓
 In Holds, &c. Hold 2 @ 2" dia for, & 2 @ 3" dia aft, & 2 @ peak tanks. 1 @ 3" dia end. 1 @ 1 D.B.T. 3 @ 3" dia 1 @ 2 D.B.T. 4 @ 3" dia
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 @ 3" dia included above.
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes. Are the Bilge Suctions in the Machinery Spaces ed 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 Yes.
 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 ✓
 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 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. One No. of stages 2 Diameters 70 & 175 mm Stroke 170 mm Driven by Main Engine.
Auxiliary Air Compressors, No. One No. of stages 2 Diameters 16 cu ft @ Stroke 1000 RPM Driven by Aux. Engine
Small Auxiliary Air Compressors, No. ✓ No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓
 What provision is made for first Charging the Air Receivers Aux Engine & hand starting.
Scavenging Air Pumps, No. One Diameter 650% App. per in. Stroke 170 mm. Driven by Main Engine
Auxiliary Engines crank shafts, diameter as per Rule See Separate Rpt. No. 40 HP. Position 1st & 2nd. 27 HP.
 as fitted ✓ Is a report sent herewith Yes. 14563 + 4

AIR RECEIVERS:—Have they been made under survey *No. Admiralty Survey* State No. of Report or Certificate *see form filed 18/9/40.*

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. *None* 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. *2* Total cubic capacity *28 Cu. Ft.* Internal diameter *21"* thickness *13/32"*
 Seamless, lap welded or riveted longitudinal joint *Proctor* Material *Steel* Range of tensile strength *26/32 tons/12"* Working pressure *by Rules 355 lbs/12"* *Actual 355 lbs/12"*

IS A DONKEY BOILER FITTED? *None* If so, is a report now forwarded? *✓*
 Is the donkey boiler intended to be used for domestic purposes only *✓*

PLANS. Are approved plans forwarded herewith for Shafting *22.4.36* Receivers *23-5-32* Separate Fuel Tanks *As for Legitimacy. 31-3-37.*
 (If not, state date of approval)

Donkey Boilers *None* General Pumping Arrangements *14.4.40* Pumping Arrangements in Machinery Space *5-7-40*
 Oil Fuel Burning Arrangements *✓*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*
 State the principal additional spare gear supplied *See also list attached to G/R Rpt 63310*

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building
 During progress of work in shops-- *1940. Aug. 9. Sept. 24. Nov. 22. 29.*
 During erection on board vessel--- *1941. Jan. 8. Feb. 11, 17, 19. 20. 21, 25. 26. 28. Mar. 4.*
 Total No. of visits *14.*

Dates of Examination of principal parts—Cylinders *See G/R Rpt* Covers *G/R Rpt* Pistons *G/R Rpt* Rods *G/R Rpt* Connecting rods *G/R Rpt*
 Crank shaft *G/R Rpt* Flywheel shaft *7* Thrust shaft *G/R Rpt* Intermediate shafts *11.2.41* Tube shaft *✓*
 Screw shaft *29-11-40* Propeller *29-11-40* Stern tube *22-11-40* Engine seatings *8.1.41* Engines holding down bolts *11.2.41*
 Completion of fitting sea connections *29-11-40* Completion of pumping arrangements *26.2.41* Engines tried under working conditions *3-3-41*

Crank shaft, Material *Steel* Identification Mark *No 314 W.T.M. 22/8/40* Flywheel shaft, Material *and 1* Identification Mark *4977 J.F.C.*
 Thrust shaft, Material *Steel* Identification Mark *228. T.T. 53. 1-8-40* Intermediate shafts, Material *Steel* Identification Marks *23.7.40 J.F.C.*
 Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Steel* Identification Mark *4974 J.F.C. 24.5.40 non-c*

Identification Marks on Air Receivers

W.T.D,
Teeles 555 lbs/12"
10.9.40

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 *No*
 Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *Empire Cliff Fuel Rpt No 51051*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Machinery of this vessel has been fitted on board under Special Survey in accordance with the Rules & the approved plans. The workmanship & materials are good & when tried under full working conditions it was found satisfactory in every respect. It is eligible, in my opinion, to have the records of L.M.C. 3.41 & O.G. & the notation of Oil Eng. 2. S.C.S.A. 7 G. 9 3/8" x 16 1/16" 118.N.H.P.

The amount of Entry Fee	£	:	When applied for,
Special	£	:	19
Donkey Boiler Fee	£	:	When received,
Travelling Expenses (if any)	£	:	19

D. J. J. J. J.
 Engineer Surveyor to Lloyd's Register of Shipping.



Committee's Minute *Admb. 341*
 Assigned *oil Eng. O.G.*

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