

# REPORT ON OIL ENGINE MACHINERY.

Received at London Office

Date of writing Report 30<sup>th</sup> September 41 When handed in at Local Office 8<sup>th</sup> October 1941 Port of Grimsby  
 No. in Survey held at Gainsborough Date, First Survey 18<sup>th</sup> March, 1941 Last Survey 23<sup>rd</sup> September 1941  
 Reg. Book. Single on the Twin Screw vessel "EMPIRE FORD" Tons: Gross 310  
Triple  
Quadruple

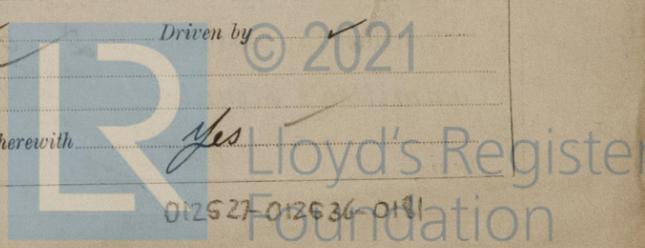
Built at Gainsborough By whom built J. S. Watson (Gainsborough) Ltd Yard No. 1520 When built 1941  
 Engines made at Leighley By whom made H. Widdop & Co. Ltd Engine No. 4022 When made 1941  
 Donkey Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓  
 Brake Horse Power 300 Owners Ministry of War Transport, (Robt. Pix & Sons) Port belonging to Hull  
 Nom. Horse Power as per Rule 140 Is Refrigerating Machinery fitted for cargo purposes ✓ Is Electric Light fitted Yes  
 Trade for which vessel is intended Coasting Vessel

**OIL ENGINES, &c.**—Type of Engines Vertical Solid Injection 2 or 4 stroke cycle 2 Single or double acting Single  
 Maximum pressure in cylinders 650 lbs. Diameter of cylinders 11.5" Length of stroke 13.5" No. of cylinders 6 No. of cranks 6  
 Mean Indicated Pressure 53.5 lbs. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 16.75" Is there a bearing between each crank Yes  
 Revolutions per minute 330 Flywheel dia. 36.75" Weight 15.6 Cwts. Means of ignition Compression Kind of fuel used Heavy oil  
 Crank Shaft, { Solid forged dia. of journals as per Rule Approved Crank pin dia. 6.75" Crank Webs Mid. length breadth 9" Thickness parallel to axis ✓  
 { Semi-built as fitted 6.75" Mid. length thickness 3.75" Thickness around eye-hole ✓  
 { All built  
 Flywheel Shaft, diameter as per Rule ✓ Intermediate Shafts, diameter as per Rule Approved Thrust Shaft, diameter at collars as per Rule Approved  
 as fitted 4" as fitted 4.75"  
 Tube Shaft, diameter as per Rule ✓ Screw Shaft, diameter as per Rule Approved Is the { tube } shaft fitted with a continuous liner { ✓  
 as fitted 4 5/8" { screw }  
 Bronze Liners, thickness in way of bushes as per Rule ✓ Thickness between bushes as per Rule ✓ Is the after end of the liner made watertight in the  
 as fitted 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 Rotating Rubber Sleeve Type Length of Bearing in Stern Bush next to and supporting propeller 19.5"  
 Propeller, dia. 59.5" Pitch 43" No. of blades 4 Material Cast Iron whether Moveable No. Total Developed Surface 9.6 sq. feet  
 Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when disengaged Yes Means of lubrication  
Forced Thickness of cylinder liners 1/8" Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with  
 non-conducting material Water cooled 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. (3) Main eng. Main eng. bilge pumps & General service 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 4.25" Stroke 3" Can one be overhauled while the other is at work ✓  
 Pumps connected to the Main Bilge Line { No. and Size (Two) One 4.25 x 3" One 2" Centrifugal Pump  
 How driven Main Engine Auxiliary Engine  
 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 None Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 3 - 1.75 dia. x 3" stroke.  
 Are two independent means arranged for circulating water through the Oil Cooler One ✓ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge  
 Pumps, No. and size:—In Machinery Spaces 3 - 2 1/2" In Pump Room ✓  
 In Holds, &c. 2 - 2 1/2"  
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size None ✓  
 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 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 ✓ How are they protected ✓  
 What pipes pass through the deep tanks One peak & 2 hold suction Have they been tested as per Rule Yes ✓  
 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. One ✓ No. of stages Two Diameters 6" & 2 3/4" Stroke 3" Driven by Main engine  
 Auxiliary Air Compressors, No. One ✓ No. of stages One Diameters 4.5" Stroke 2 3/4" 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 Independent air compressor ✓

Scavenging Air Pumps, No. ✓ Diameter ✓ Stroke ✓ Driven by ✓  
 Auxiliary Engines crank shafts, diameter as per Rule Approved No. 3 Position ✓  
 as fitted 2.25" Have the Auxiliary Engines been constructed under special survey Yes ✓ Is a report sent herewith Yes ✓



**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 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.** *✓* Cubic capacity of each *✓* Internal diameter *✓* thickness *✓*  
 Seamless, lap welded or riveted longitudinal joint *✓* Material *✓* Range of tensile strength *✓* Working pressure by Rules *✓*  
**Starting Air Receivers, No.** *3* Total cubic capacity *18.4 Cub. ft.* Internal diameter *1-9 1/8"* thickness *1-5/16"*  
 Seamless, lap welded or riveted longitudinal joint *Seamless* Material *Steel* Range of tensile strength *28-32 Tons* Working pressure by Rules *Approved*  
 Actual *350 lbs.*

**IS A DONKEY BOILER FITTED?** *✓* 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 *22-1-40* Receivers *22-1-40* Separate Fuel Tanks *✓*  
 (If not, state date of approval)  
 Donkey Boilers *✓* General Pumping Arrangements *30-10-40* Pumping Arrangements in Machinery Space *20.9.40*  
 Oil Fuel Burning Arrangements *✓*

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied *Yes*  
 State the principal additional spare gear supplied

The foregoing is a correct description.

Manufacturer.

Dates of Survey while building  
 During progress of work in shops - - *See Manufacturer Rpt. No. 10,374.*  
 During erection on board vessel - - *18-3-41, 30-4-41, 14-7-41, 6-8-41, 19-9-41, 23-9-41.*  
 Total No. of visits *12* *✓*

Dates of Examination of principal parts - Cylinders *26-8-40* Covers *26-8-40* Pistons *26-8-40* Rods *✓* Connecting rods *26-8-40*  
 Crank shaft *26-8-40* Flywheel shaft *✓* Thrust shaft *9-9-40* Intermediate shafts *2-7-41* Tube shaft *✓*  
 Screw shaft *8-11-40* Propeller *8-11-40* Stern tube *8-11-40* Engine sealings *30-4-41* Engines holding down bolts *14-7-41*  
 Completion of fitting sea connections *30-4-41* Completion of pumping arrangements *23-9-41* Engines tried under working conditions *✓*  
 Crank shaft, Material *O.H. Steel* Identification Mark *LLOYDS 3341 AS 25-7-40* Flywheel shaft, Material *✓* Identification Mark *✓*  
 Thrust shaft, Material *O.H. Steel* Identification Mark *LLOYDS 217 JWL 9-9-40* Intermediate shafts, Material *O.H. Steel* Identification Marks *LLOYDS 184-2-7-41*  
 Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *O.H. Steel* Identification Mark *LLOYDS 23-8-11-40*  
 Identification Marks on Air Receivers *C. T. Co.* *C. T. Co.* *Ruston*  
*890443 WP 350 lbs.* *890447 WP 350 lbs.* *39/81/791 DY53*  
*Lloyds Seal 1000 lbs. 7-5-40 LT.* *Lloyds Seal 1000 lbs. 21-6-40 HM.* *Lloyds Seal AS 8-1-40 1000 lbs.*

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* *Container with sand & scoop in ER.*  
 Description of fire extinguishing apparatus fitted *One hose connection in ER. Two 2 Gal. Foamite extinguishers for oil fires one in ER & one in after accommodation.*  
 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 *✓*  
 Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *Pimblotts Yard No. 635 Wh. Rpt. 10,283*

General Remarks (State quality of workmanship, opinions as to class, &c.)

*See Manufacturer Report No. 10,374.*

*These engines have been properly fitted on board the vessel and will be eligible for the notation of + LMC 9-41 when a satisfactory running test has been carried out.*

*The running test has since been satisfactorily carried out at Hull & the machinery is now eligible for the notation of + LMC 9-41.*

*A stand-by lubricating oil pump set, to be driven by a 3/4 HP motor, has been ordered at the request of the Ministry of Shipping & will be installed at the first opportunity.*

The amount of Entry Fee ... £ : : When applied for,  
 Special ... £ *14 7 6* *8/10/1941*  
 Donkey Boiler Fee ... £ : : When received,  
 Travelling Expenses (if any) £ *2 0 0* 19

Committee's Minute

FRI. 24 OCT 1941

Assigned

*+ LMC 9-41*

*R. K. Wheeler*

Engineer Surveyor to Lloyd's Register of Shipping.



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