

# REPORT ON, OIL ENGINE MACHINERY.

No. 14525

OCT - 7 1940

State of writing Report 28<sup>th</sup> Sept 1940 When handed in at Local Office Dursley Port of Bristol  
 No. in Survey held at Dursley Date, First Survey 19<sup>th</sup> Sept Last Survey 25<sup>th</sup> Sept 1940  
 Reg. Book. MS Empire Cliff Number of Visits 2

on the Single } Screw vessel  
Twin }  
Triple }  
Quadruple }

Built at Dursley By whom built R.A. Lister Ltd Yard No. 60/4915 When built 1940  
 Engines made at Dursley By whom made R.A. Lister Ltd Engine No. 1940 When made 1940  
 Donkey Boilers made at Dursley By whom made R.A. Lister Ltd Boiler No. 1940 When made 1940  
 Brake Horse Power 40 Owners MS Empire Cliff Port belonging to MS Empire Cliff  
 Nom. Horse Power as per Rule 40 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No  
 Trade for which vessel is intended MS Empire Cliff

**IL ENGINES, &c.**—Type of Engines Lister 4 J.P. Heavy Oil 2 or 4 stroke cycle 4 Single or double acting single  
 Maximum pressure in cylinders 750 lbs - 800 lbs / sq Diameter of cylinders 4 1/2" Length of stroke 5 1/2" No. of cylinders 4 No. of cranks 4  
 Mean Indicated Pressure 104 lbs / sq Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 14 5/16" Is there a bearing between each crank No  
 Revolutions per minute 1200 Flywheel dia. 23" Weight 415 lbs Means of ignition compression Kind of fuel used Diesel  
 Crank Shaft, { Solid forged dia. of journals as per Rule 3" as fitted 3" Crank pin dia. 3" Crank Webs Mid. length breadth 4 1/4" Thickness parallel to axis shrunk  
 { Semi built dia. of journals as fitted 3" Mid. length thickness 1 7/8" Thickness around eyehole shrunk  
 { All built dia. of journals as fitted 3" Thickness around eyehole shrunk  
 Flywheel Shaft, diameter as per Rule 3" as fitted 3" Intermediate Shafts, diameter as per Rule 3" as fitted 3" Thrust Shaft, diameter at collars as per Rule 3" as fitted 3"  
 Tube Shaft, diameter as per Rule 3" as fitted 3" Screw Shaft, diameter as per Rule 3" as fitted 3" Is the { tube screw } shaft fitted with a continuous liner { Yes }

Bronze Liners, thickness in way of bushes as per Rule 3" as fitted 3" Thickness between bushes as per Rule 3" as fitted 3" 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 Yes  
 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 Yes  
 If two liners are fitted, is the shaft lapped or protected between the liners Yes Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft Yes  
 If so, state type Oil Gland Length of Bearing in Stern Bush next to and supporting propeller 14 5/16"  
 Propeller, dia. 14 5/16" Pitch 18" No. of blades 3 Material Cast Iron whether Moveable No Total Developed Surface 14.5 sq. feet  
 Method of reversing Engines forced Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication oil  
 Thickness of cylinder liners 5/16" 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 Yes  
 Cooling Water Pumps, No. One Plunger type 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. 1 Diameter 3" Stroke 3" Can one be overhauled while the other is at work Yes  
 Pumps connected to the Main Bilge Line { No. and Size 1 How driven Electric }

Is the cooling water led to the bilges Yes If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements Yes  
 Ballast Pumps, No. and size 1 Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1  
 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 1 In Pump Room 1  
 In Holds, &c. 1 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1  
 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 Yes  
 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 1 How are they protected Yes  
 What pipes pass through the deep tanks 1 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 Yes Is it fitted with a watertight door Yes worked from Yes  
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Yes

Main Air Compressors, No. 1 No. of stages 1 Diameters 3" Stroke 3" Driven by Electric  
 Auxiliary Air Compressors, No. 1 No. of stages 1 Diameters 3" Stroke 3" Driven by Electric  
 Small Auxiliary Air Compressors, No. 1 No. of stages 1 Diameters 3" Stroke 3" Driven by Electric  
 What provision is made for first Charging the Air Receivers Yes  
 Scavenging Air Pumps, No. 1 Diameter 3" Stroke 3" Driven by Electric  
 Auxiliary Engines crank shafts, diameter as per Rule 3" as fitted 3" No. 1 Position Yes  
 Have the Auxiliary Engines been constructed under special survey Yes Is a report sent herewith Yes



**AIR RECEIVERS:**—Have they been made under survey  State No. of Report or Certificate

Is each receiver, which can be isolated, fitted with a safety valve as per Rule   
Can the internal surfaces of the receivers be examined and cleaned  Is a drain fitted at the lowest part of each receiver

**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  Actual   
**Starting Air Receivers, No.**  Total cubic capacity  Internal diameter  thickness   
Seamless, lap welded or riveted longitudinal joint  Material  Range of tensile strength  Working pressure  by Rules  Actual

**IS A DONKEY BOILER FITTED?**

Is the donkey boiler intended to be used for domestic purposes only  If so, is a report now forwarded?

**PLANS.** Are approved plans forwarded herewith for Shafting No. 30/5/35 Receivers  Separate Fuel Tanks   
(If not, state date of approval)  
Donkey Boilers  General Pumping Arrangements  Pumping Arrangements in Machinery Space   
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,

P.P.R.A. LISTER (MARINE SALES) LTD. *Wm* Manufacturer.

Dates of Survey while building { During progress of work in shops -- } 19-9-40 25-9-40.  
{ During erection on board vessel -- }   
Total No. of visits 2.

Dates of Examination of principal parts—Cylinders 19-9-40 Covers  Pistons 19-9-40 Rods  Connecting rods 19-9-40  
Crank shaft 19-9-40 Flywheel shaft 19-9-40 Thrust shaft  Intermediate shafts  Tube shaft   
Screw shaft  Propeller  Stern tube  Engine seatings  Engines holding down bolts   
Completion of fitting sea connections  Completion of pumping arrangements  Engines tried under working conditions 25-9-40.  
Crank shaft, Material *Steel* Identification Mark *25, S* Flywheel shaft, Material *Steel* Identification Mark *as crank shaft*  
Thrust shaft, Material  Identification Mark  Intermediate shafts, Material  Identification Marks   
Tube shaft, Material  Identification Mark  Screw shaft, Material  Identification Mark   
Identification Marks on Air Receivers

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   
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  If so, state name of vessel

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

This Auxiliary Oil Engine has been built under special survey and in accordance with approved plan. All parts were examined in a finished machined condition before assembly. Cylinder heads & jackets tested with hydraulic pressure. The materials and workmanship have been good. Upon completion the engine was examined during a six hour full load test bed trial, governor tested and all found satisfactory. For identification purposes the engine has been stamped Lloyd's Test M936. 19-9-40 S. The engine made to the order of The Goole Shipbuilding Co.

The amount of Entry Fee .. £ 3 : 3 :  
Special ... .. £ : :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : 15 :  
When applied for, 3-10-1940  
When received, 10-12-1940

J. Brooke Smith  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 25 FEB 1941

Assigned

See minute on  
Hul 51051

