

## REPORT ON OIL ENGINE MACHINERY.

No. 63310

Received at London Office

JAN 9 1941

Date of writing Report

19

When handed in at Local Office

6. 1. 1941 Port of

Glasgow

No. in Survey held at  
Reg. Book.

Glasgow

Date, First Survey

14: 6: 40

Last Survey

3<sup>rd</sup> Jan 1941

Number of Visits

17

Single  
on the Twin  
Triple  
Quadruple  
Screw vessel

EMPIRE. FORELAND.

Tons  
Gross  
Net

Built at

Goole

By whom built

Goole S/S &amp; Repairing Co. Ltd. Yard No. 358 When built 1940

Engines made at

Glasgow

By whom made

British Auxiliaries Ltd. Engine No. 377 When made 1940

Donkey Boilers made at

By whom made

Boiler No.

When made

Brake Horse Power

520

Owners

Port belonging to

Nom. Horse Power as per Rule

118

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

Trade for which vessel is intended

OIL ENGINES, &amp;c.—Type of Engines

Heavy Oil Type M47E 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders

782 lbs per sq. in.

Diameter of cylinders

250 7/8

Length of stroke

420 7/8

No. of cylinders

7

No. of cranks

7

Mean Indicated Pressure

96.7 lbs per sq. in.

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge

366 7/8

Is there a bearing between each crank

Yes

Revolutions per minute

300

Flywheel dia.

1050 7/8

Weight

625 lb.

Means of ignition

Compression

Kind of fuel used

Diesel

Crank  
Shaft,Solid forged  
Semi-built  
All built

dia. of journals

as per Rule 155 7/8  
as fitted 170 7/8

Crank pin dia.

170 7/8

Crank Webs

Mid. length breadth 226 7/8  
Mid. length thickness 95 7/8

Thrust Shaft, diameter at collars

as per Rule 123 7/8  
as fitted 170 7/8Thickness parallel to axis  
Thickness around eyehole✓  
✓

Flywheel Shaft, diameter

as per Rule 155 7/8  
as fitted 170 7/8

Intermediate Shafts, diameter

as per Rule 117 7/8  
as fitted

Thrust Shaft, diameter at collars

as per Rule 123 7/8  
as fitted 170 7/8

Tube Shaft, diameter

as per Rule  
as fitted

Screw Shaft, diameter

as per Rule  
as fitted

Is the

tube

screw

shaft fitted with a continuous liner

Bronze Liners, thickness in way of bushes

as per Rule  
as fitted

Thickness between bushes

as per Rule  
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 If so, state type

Length of Bearing in Stern Bush next to and supporting propeller

Propeller, dia.

Pitch

No. of blades

Material

whether Moveable

Total Developed Surface

sq. feet

Method of reversing Engines

Direct

Is a governor or other arrangement fitted to prevent racing of the engine when decelerated

Yes

Means of lubrication

Forced

Thickness of cylinder liners

19.5 7/8

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

Cooling Water Pumps, No.

1 off 150 7/8 x 60 7/8 D.A.

Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Bilge Pumps worked from the Main Engines, No.

One

Diameter

120 7/8

Stroke

60 7/8

Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line

No. and Size  
How driven

Is the cooling water led to the bilges

If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping

Ballast Pumps, No. and size

Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size

2 off 2775 gallons per hr each

Are two independent means arranged for circulating water through the Oil Cooler

Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Machinery Spaces

In Pump Room

In Holds, &amp;c.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes

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

Are all Sea Connections fitted direct on the skin of the ship

Are they fitted with Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates

Are the Overboard Discharges above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel

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

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

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

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

2

Diameters

70 7/8 x 175 7/8

Stroke

170 7/8

Driven by Main Engines

Auxiliary Air Compressors, No.

No. of stages

Diameters

Stroke

Driven by

Small Auxiliary Air Compressors, No.

No. of stages

Diameters

Stroke

Driven by

What provision is made for first Charging the Air Receivers

Savenging Air Pumps, No.

One

Diameter

650 7/8

Stroke

170 7/8

Driven by Main Engines

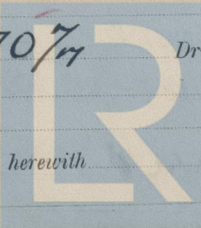
Auxiliary Engines crank shafts, diameter

as per Rule  
as fitted

No.

Is a report sent herewith

Have the Auxiliary Engines been constructed under special survey

Lloyd's Register  
Foundation

010777-010782-0155



**AIR RECEIVERS:**—Have they been made under survey *No. Admiralty Survey* State No. of Report or Certificate *Please See London letter*  
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 *✓*  
**Starting Air Receivers, No.** *Two* Total cubic capacity *28 Cub. ft* Internal diameter *1'-9"* thickness *13/32"*  
Seamless, lap welded or riveted longitudinal joint *Riveted* Material *Steel* Range of tensile strength *26/32 tons* Working pressure *by Rules 355 lb. Actual 355 lb.*

**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 *22-4-36* Receivers *23-5-32* Separate Fuel Tanks

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 *as per attached list*

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops - - } *1940 June 10 July 10 16 23 Aug 2 7 16 Nov 18 25 Dec 2 11 16 24 30 (1941) Jan 3*  
{ During erection on board vessel - - }  
Total No. of visits *17*

Dates of Examination of principal parts—Cylinders *14-6-40* Covers *23-7-40* Pistons *10-7-40* Rods *16-7-40* Connecting rods *16-7-40*  
Crank shaft *25-11-40* Flywheel shaft *and* Thrust shaft *12-11-40* Intermediate shafts  
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  
Crank shaft, Material *Steel* Identification Mark *LLOYD'S NO. 314* Flywheel shaft, Material *Steel* Identification Mark *and*  
Thrust shaft, Material *Steel* Identification Mark *LLOYD'S NO. 228 T.T.* Intermediate shafts, Material Identification Marks  
Tube shaft, Material Identification Mark 53.1-8-40 Screw shaft, Material Identification Mark

Identification Marks on Air Receivers *W. A. D.*  
*TESTED. 555 lb.*  
*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

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 *To Silvertown, l/b. rpt No. 61635*

General Remarks (State quality of workmanship, opinions as to class, &c.) *These engines have been built under*

*Special Survey in accordance with the Rules and approved plans*  
*The materials and workmanship are good. On completion they were*  
*tried on the bench at full power with satisfactory results.*

*These engines are to the order of Messrs Goble Shipbuilding and*  
*Repairing Co. and intended for a vessel building at their*  
*yard under No. 358.*

*The requirements of the M.O.S. Specification have been satisfactorily*  
*carried out.*

The amount of Entry Fee *£3.0.0*  
Special *£24-11-8*  
Donkey Boiler Fee *£36-17-6*  
Travelling Expenses (if any) *£*

When applied for *17 JAN 1941*  
When received, *19*

*G. C. Murdoch*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned *Deferred*

GLASGOW

7 JAN 1941

14 MAR 1941

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