

REPORT ON OIL ENGINE MACHINERY.

No

67629

Received at London Office

14 OCT 1943

Date of writing Report

When handed in at Local Office

G. 10. 143 Port of

Glasgow

Date, First Survey (1942) June 19th Last Survey 5th Oct. 1943

Number of Visits

78

No. in Survey held at
Reg. Book.Single
on the
Triple
Quadruple

Screw vessel

"EMPIRE MACKAY"Tons Gross 8908
Net 5658

Built at Glasgow

By whom built Harland & Wolff, Ltd.

Yard No. 1167 When built 1943

Engines made at Glasgow

By whom made Harland & Wolff, Ltd.

Engine No. 1167 When made 1943

Donkey Boilers made at Hyde

By whom made Joseph Adamson & Co. Ltd.

Boiler No. 2585 STAR 8th When made 1943

Brake Horse Power 3200

Owners Ministry of War Transport

Port belonging to Glasgow.

Nom. Horse Power as per Rule 490

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted yes

Trade for which vessel is intended

Tanker

OIL ENGINES, &c. Type of Engines Heavy oil, Airless injection 2 or 4 stroke cycle 4 Single or double acting S.A.

Maximum pressure in cylinders 700 lb.

Diameter of cylinders 740 mm.

Length of stroke 1500

No. of cylinders 6 No. of cranks 6

Mean Indicated Pressure 128 lb.

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 972 mm.

Is there a bearing between each crank yes

Revolutions per minute 115

Flywheel dia. 2489 mm.

Weight 2590 Kgs.

Means of ignition Compression Kind of fuel used Diesel oil.

Crank Shaft, { Solid forged
Semi built
All built

dia. of journals as per Rule 490 mm.

Crank pin dia. 505 mm.

Mid. length breadth 980 mm.

Thickness parallel to axis 310 mm.

as fitted 505 mm.

BORED 230 mm.

Crank Webs Mid. length thickness 310 "

Thickness around eye hole 292.5 "

Flywheel Shaft, diameter as per Rule

Intermediate Shafts, diameter as per Rule

fitted 18 "

Thrust Shaft, diameter at collars as per Rule 351 mm.

Tube Shaft, diameter as per Rule

Screw Shaft, diameter as per Rule

14.48 "

Is the shaft fitted with a continuous liner yes.

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

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

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 no

If so, state type

11.6 "

Length of Bearing in Stern Bush next to and supporting propeller 5'-0"

Propeller, dia. 16'-0"

Pitch

9'-6"

No. of blades 4

Material Bronze

whether Moveable no

Total Developed Surface 81 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

53 lb.

Are the cylinders fitted with safety valves yes

Are the exhaust pipes and silencers water cooled or lagged with

non-conducting material lagged 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 @ 170 tons per hour, 2 @ 120 tons per hour 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 80 tons per hour

Can one be overhauled while the other is at work

Standby Bilge & Sanitary

Ballast

80 tons per hour

120 tons per hour

Steam

Steam

Pumps connected to the Main Bilge Line

No. and Size

One Bilge & Sanitary, 80 tons per hour

How driven Main 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

Ballast Pumps, No. and size One, 120 tons per hour Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 each 100 tons per hour.

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 Port 3 1/2"; Starb. 3 1/2"; aft. well 3 1/2".

In Pump Room

In Holds, &c. Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 3 @ 6"; Oil fuel transfer pump suction from guttering, P.S. 2"

Left hand. 2 1/2"

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

Steel stools

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 yes

Are the Overboard Discharges above or below the deep water line below

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

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 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.

No. of stages

Diameters

Stroke

Driven by

Auxiliary Air Compressors, No. 2

No. of stages 2

Diameters 280 + 245

Stroke 130 mm.

Driven by

Steam engine.

Small Auxiliary Air Compressors, No.

No. of stages

Diameters

Stroke

Driven by

What provision is made for first Charging the Air Receivers

Steam driven compressors.

Scavenging Air Pumps, No.

Diameter

Stroke

Driven by

Auxiliary Engines crank shafts, diameter as per Rule

all auxiliaries steam driven

Position

Have the Auxiliary Engines been constructed under special survey

Is a report sent herewith

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002498-002505-0247

AIR RECEIVERS: — Have they been made under survey *yes* State No. of Report or Certificate *Z-837* Rpt.

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

Starting Air Receivers, No. *2* Total cubic capacity *900 Cuft.* Internal diameter *6'-0 5/16"* thickness *Shell 1 5/16" Ends 1 3/32 + 1/16"*

Seamless, lap welded or riveted longitudinal joint *Riveted* Material *Steel* Range of tensile strength *Ends 28/32 tons.* Working pressure *by Rules 356 lb Actual 356*

IS A DONKEY BOILER FITTED? *yes* If so, is a report now forwarded?

Is the donkey boiler intended to be used for domestic purposes only *no*

PLANS. Are approved plans forwarded herewith for Shafting *yes* Receivers *yes* Separate Fuel Tanks *yes*

Donkey Boilers *No. Made at Manchester* General Pumping Arrangements *yes* Pumping Arrangements in Machinery Space *yes*

Oil Fuel Burning Arrangements *yes*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *yes*

State the principal additional spare gear supplied *as per attached list. (Under separate cover today)*

The foregoing is a correct description,

Wm. F. Wright Manufacturer.

Dates of Examination of principal parts — Cylinders *25-5-43* Covers *25-5-43* Pistons *3-6-43* Rods *3-6-43* Connecting rods *7-6-43*

Crank shaft *4-3-43* Flywheel shaft *✓* Thrust shaft *4-3-43* Intermediate shafts *5-5-43* Tube shaft *✓*

Screw shaft *17-5-43* Propeller *17-5-43* Stern tube *17-5-43* Engine seatings *10-5-43* Engines holding down bolts *6-8-43*

Completion of fitting sea connections *14-6-43* Completion of pumping arrangements *5-10-43* Engines tried under working conditions *5-10-43*

Crank shaft, Material *Steel* Identification Mark *1167 P.F.* Flywheel shaft, Material *✓* Identification Mark *✓*

Thrust shaft, Material *Steel* Identification Mark *S-4989 P.F.* Intermediate shafts, Material *Steel* Identification Marks *S-5054 P.F.*

Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Steel* Identification Mark *Working, S-5081 Spare, S-5174*

Identification Marks on Air Receivers *For 229 R.S. 2-9-42; apt. Lloyd's 230 R.S. 2-9-42.*

Steam pipes Bessemer Steel. Flanges stamped accordingly.

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*

Description of fire extinguishing apparatus fitted *Perforated steam pipes under boilers; and as per B.O.T. & Merchant Shipping Regulations*

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 *"British Portenice" Glasgow Rpt No 672*

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

The machinery of this vessel has been built under Special Survey and in accordance with the approved plans and the Rules of this Society.

The materials and workmanship are good.

The machinery has been efficiently secured in position on board the vessel, and afterwards tried under full working conditions with satisfactory results.

The machinery is eligible in my opinion to be classed in the Register Book with notations of -1-LMC 10, 43. C.L. 2 DB. WP 150 lbs.

The amount of Entry Fee .. £ *5* : - : When applied for,

Special ... £ *98* : *10* : *12 OCT 1943*

Donkey Boiler Fee ... £ : : When received,

Travelling Expenses (if any) £ : : 19

Committee's Minute *GLASGOW 12 OCT 1943*

Assigned *-1-LMC 10.43 all Eng 2 DB 150 lb*

P. Fitzgerald & G. E. Murdoch

Engineer Surveyor to Lloyd's Register of Shipping.



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