

Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY

No. 104073

Received at London Office

21 NOV 1946

Date of writing Report

When handed in at Local Office

11. 11. 1946 Port of

NEWCASTLE-ON-TYNE

No. in Survey held at

Newcastle on Tyne

Date, First Survey (1945) June 25 Last Survey Oct. 31st 1946

Reg. Book

Number of Visits 112

85891 on the ^{Single} ~~Triple~~ ~~Quadruple~~ Screw vessel

M.V. BRITISH EARL

Tons { Gross 8573.44
Net 4908.97

Built at Walker on Tyne By whom built Swan Hunter & Wigham Reith Ltd No. 1772 When built 1946

Engines made at Neptune Works Walker By whom made " " Engine No. 1772 When made 1946

Donkey Boilers made at " " By whom made " " Boiler No. 1772 When made 1946

Brake Horse Power 3100 Owners British Tanker Co Ltd Port belonging to London

Nom. Horse Power as per Rule 687 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Trade for which vessel is intended Carrying petroleum in bulk

OIL ENGINES, &c. Type of Engines Swan Hunter & Wigham Reith Ltd 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 568 lb/sq. in. Diameter of cylinders 600 mm Length of stroke 2320 mm No. of cylinders 4 No. of cranks 4 THREE THROW

Mean Indicated Pressure 86 lb/sq. in. BETWEEN CENTRES OF SIDE RODS BETWEEN

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 940 mm 1200 mm Is there a bearing between each crank EACH 3-THROW

Revolutions per minute 105 Flywheel dia. A-2450 mm Weight A-3.24 tons Means of ignition Compression Kind of fuel used Heavy oil

Crank Shaft, { Solid forged dia. of journals as per Rule 425 mm as fitted 450 mm Crank pin dia. 450 mm Crank Webs Mid. length breadth 650 mm Thickness parallel to axis 255 mm
Semi built dia. of journals as fitted 450 mm Crank pin dia. 450 mm Crank Webs Mid. length thickness 255 mm shrunk Thickness around eyehole 200 mm
All built

Flywheel Shaft, diameter as per Rule 450 mm Intermediate Shafts, diameter as per Rule 13 1/8" as fitted 18" Thrust Shaft, diameter at collars as per Rule 425 mm as fitted 450 mm

Tube Shaft, diameter as per Rule 14.5" as fitted 16 7/8" Is the { tube screw } shaft fitted with a continuous liner { Yes

Bronze Liners, thickness in way of bushes as per Rule 816 as fitted 21/32" Thickness between bushes as per Rule 10 as fitted 10 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 No If so, state type Yes Length of Bearing in Stern Bush next to and supporting propeller 5'-8 1/2"

Propeller, dia. 16'-0" Pitch 12'-0" No. of blades 4 Material Bronze whether Moveable No Total Developed Surface 90 sq. feet

Method of reversing Engines Compression Is a governor or other arrangement fitted to prevent racing of the engine when disengaged Yes Means of lubrication

Forced Thickness of cylinder liners 25 mm 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 Yes

Cooling Water Pumps, No. Two-DISTILLED WATER 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 10" Stroke 10" Can one be overhauled while the other is at work Yes

Pumps connected to the Main Bilge Line { No. and Size (1) 10x11x10 (1) 8x8x8 (1) 8x8x8 How driven 190T/HK Steam 100T/HK

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 Yes Ballast Pumps, No. and size (1) 10x11x10 Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size (1) 8x7x10 - 30T/HK

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 3-3 1/2" dia. 1-3" dia E.R. Cofferdam In Pump Room 2-4" dia

In Holds, &c. Yes Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-6" dia. 1-5" dia

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 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 Yes How are they protected Yes

What pipes pass through the deep tanks Yes 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 11 1/2" - 2 3/4" Stroke 7" Driven by Steam engine

Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 11 1/2" - 9 1/4" - 2 3/4" Stroke 7" Driven by Steam engine

Small Auxiliary Air Compressors, No. 1 No. of stages 1 Diameters 11 1/2" - 9 1/4" - 2 3/4" Stroke 7" Driven by Steam engine

What provision is made for first Charging the Air Receivers Auxiliary compressors

Scavenging Air Pumps, No. One double acting Diameter 1960 mm Stroke 608 mm Driven by M.E. LEVER

Auxiliary Engines crank shafts, diameter as per Rule 1960 mm as fitted 1960 mm No. 1 Position 1

Have the Auxiliary Engines been constructed under special survey Yes Is a report sent herewith Yes

002559-0057-0056

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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 *✓*
Starting Air Receivers, No. *2* Total cubic capacity *280 cu ft* Internal diameter *4-1 1/2"* thickness *1 3/4"*
Seamless, lap welded or riveted longitudinal joint *Riveted* Material *Steel* Range of tensile strength *29-30 Tons* Working pressure *602 lbs sq in*

IS A DONKEY BOILER FITTED? *Yes - Two* If so, is a report now forwarded? *Yes*
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 *Yes* 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 *1 Spare screw shaft. 1 Main spherical bearing complete. 2 Side rod bolters nuts. 1 Upper. 1 Lower piston skirt. 1 Non return starting air valve. 1 Relief valve. 4 Scrapers rings. 6 Piston water service elbows. 6 Rubber hose for P.W.S. 5 Piston rings. 1-6 Feed lubricator 2 complete sets of springs for each type. 2 complete sets of joints for each type.*

The foregoing is a correct description,

W. H. HINTER, & WIGHAM RICHARDSON LTD *P. L. Jones* Manufacturer.

Dates of Survey while building
During progress of work in shops--
During erection on board vessel--
Total No. of visits *112*

Dates of Examination of principal parts—Cylinders *6-9-45* Covers *✓* Pistons *1-10-45* Rods *1-10-45* Connecting rods *14-11-45*
Crank shaft *13-9-45* Flywheel shaft *13-9-45* Thrust shaft *13-9-45* Intermediate shafts *25-6-45* Tube shaft *✓*
Screw shaft *13-5-46* Propeller *21-6-46* Stern tube *13-6-46* Engine seatings *16-10-46* Engines holding down bolts *16-10-46*
Completion of fitting sea connections *27-6-46* Completion of pumping arrangements *21-10-46* Engines tried under working conditions *31-10-46*
Crank shaft, Material *O.H. Steel* Identification Mark *14253 G.H.M.* Flywheel shaft, Material *O.H. Steel* Identification Mark *14253 G.H.M.*
Thrust shaft, Material *O.H. Steel* Identification Mark *14253 G.H.M.* Intermediate shafts, Material *O.H. Steel* Identification Marks *14216 H.A.I. 669*
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *O.H. Steel* Identification Mark *14612 H.A.I. 661*

Identification Marks on Air Receivers
LLOYD'S TEST
T.P. 800 lbs sq in
W.P. 600 lbs sq in
16-5-46 J.H.M.

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 *Yes* If so, have the requirements of the Rules been complied with *Yes*
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 *EMPIRE M^S CABE*

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

The machinery of this vessel has been constructed under special survey in accordance with rule requirements & approved plans.

Materials & workmanship are good.

The machinery was satisfactorily tested on moving & sea trials & in my opinion is eligible for classification with records of + L.M.C. 10,46 T.S.C.L. 20.B.150 lbs sq in.

The amount of Entry Fee .. £ 6 : 0 :
Special ... £ 109 : 7 :
Donkey Boiler Fee ... £ 26 : 14 :
Air Receivers
Travelling Expenses (if any) £ 4 : 4 :
When applied for, *13 NOV 1945*
When received, *19*

Committee's Minute

Assigned *+ LMC 10,46 Oil Eng.*
C.L. 20.B. 150 lb.

J. H. Matthews
Engineer Surveyor to Lloyd's Register of Shipping.



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