

REPORT ON OIL ENGINE MACHINERY.

No 35044

Received at London Office

Date of writing Report 19 25th January 1949 Port of Sunderland.
 When handed in at Local Office Sunderland. Date, First Survey 22nd August 1947 Last Survey 25th January 1949
 No. in Survey held at Reg. Book. Sunderland. Number of Visits 2

on the Single Screw vessel **"BRITISH FORTUNE"** Tons: Gross 6108 Net 3334
 Built at Sunderland. By whom built Wm. Beard & Sons L^d Yard No. 463 When built 1949
 Engines made at Sunderland. By whom made Wm. Beard & Sons L^d Engine No. 463 When made 1949
 Donkey Boilers made at Stockton By whom made Stockton Chem. Eng. & Riley Bros L^d Boiler No. 4049/50 When made 1949
 Brake Horse Power 2250 Owners British Tanker Co L^d Port belonging to London
 Nom. Horse Power as per Rule 516 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.
 Trade for which vessel is intended 91 1/2"

IL ENGINES, &c. Type of Engines Opposed piston, airless injection, 2 or 4 stroke cycle 2 Single or double acting Single.
 Maximum pressure in cylinders 640 lbs/sq. in. Diameter of cylinders 600 in. Length of Stroke 980 in. No. of cylinders 3 No. of cranks 3 Triple Cranks
 Mean Indicated Pressure 82 lbs/sq. in. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 940 in. Is there a bearing between each crank Between each triple throw.
 Revolutions per minute 100 Flywheel dia. 2200 in. Weight 2263 lbs. Means of ignition Compression Kind of fuel used -
 Crank Shaft, { Semi forged dia. of journals 418 in. Crank pin dia. 450 in. Crank Webs 308 in. Mid. length breadth 650 in. Thickness parallel to axis 255 in.
 { All built as fitted 450 in.
 Flywheel Shaft, diameter 418 in. Intermediate Shafts, diameter 308 in. Thrust Shaft, diameter at collars 418 in.
 Tube Shaft, diameter 341 in. Screw Shaft, diameter 430 in. Is the screw shaft fitted with a continuous liner Yes.
 Bronze Liners, thickness in way of bushes 18 in. Thickness between bushes 21 in. 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 one length.

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.
 Length of Bearing in Stern Bush next to and supporting propeller 4'-10"
 Propeller, dia. 15'-9" Pitch 11'-6" No. of blades 4 Material Bronze whether Moveable No. Total Developed Surface 85 sq. feet

Method of reversing Engines Hand lever Is a governor or other arrangement fitted to prevent racing of the engine when disengaged Yes. Means of lubrication Hand forced
 Thickness of cylinder liners 25 in. 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. one Steam driven Is the sea suction provided with an efficient strainer which can be cleared within the vessel (In cooling)
 Bilge Pumps worked from the Main Engines, No. none Diameter - Stroke - Can one be overhauled while the other is at work -
 Pumps connected to the Main Bilge Line { No. and Size 2 @ 4" x 8" x 8" Leupold. How driven Steam. } + Sanitary Pump

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 1 @ 10" x 12" x 10" Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size one Steam driven 8 1/2" x 6 1/2" x 15"
 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 2 - 3 1/2" + (1-6") x 1-6"
 In Machinery Spaces (Tanker) In Pump Room 1-2"
 In Holds, &c. (Tanker) 2-4" in each room.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-8" (Ballast pumps), 1-6"
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes - 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 filled with Valves or Cocks Bath
 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 none How are they protected -
 What pipes pass through the deep tanks none 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 (Tanker) Is the Shaft Tunnel watertight none 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. two No. of stages 8. Diameters 11.5-12.5" Stroke 7" Driven by Steam engine 17" dia x 7"
 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 Steam driven Compressor.
 Scavenging Air Pumps, No. one Diameter 1400 in. Stroke 6 1/2 in. Driven by Steam engine
 Auxiliary Engines crank shafts, diameter - as per Rule - as fitted - Position -
 Have the Auxiliary Engines been constructed under special survey - Is a report sent herewith -

AIR RECEIVERS: - Have they been made under survey *Yes.*
 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.*
 State No. of Report or Certificate *Geo. Cert. No. C. 66697.*
 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 Actual -
Starting Air Receivers, No. *Two* Total cubic capacity *220 cu ft.* Internal diameter *3' 6 3/4"* thickness *1"*
 Seamless, lap welded or riveted longitudinal joint *welded.* Material *M/Steel* Range of tensile strength *28/32* Working pressure by Rules Actual *600 lb/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 *3/2/37* Receivers *Yes* Separate Fuel Tanks *Yes.*
 (If not, state date of approval) *Enc. 1803 2/12/44.*
 Donkey Boilers - General Pumping Arrangements - 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 Cast iron Propeller, 1 Propeller Shaft, 1 Cylinder Liner & Jacket-Complete, 1 Upper & Lower Piston Skirts, 4 Scrapers rings, 2 main Piston heads, 40 rings, 8 fuel valve spray plungers, 1 Cent. & 1 Side Cam. rod bolt end Spherical bearing, 1 main Sph. bearing, 4 Centre & Side top & ball end bearing bolts & nuts, 2 main bearing Sph. nuts, 1 Set Coupling bolts & nuts for intermediate shaft, 2 N.R. Starting valves, 2 relief valves Complete, 1 Fuel Pump Suct. Chamber Complete, 2 fuel pump heads Complete, 4 fuel valves Complete, 1 Sea. Pump Suct. & del Valve Complete, 1 Set ahead pads for thrust, 1 roller chain for Camshaft drive, 3 pads for inter & tail shaft bearings.*

The foregoing is all of correct description.
WILLIAM DOXFORD & SONS, LIMITED
 Manufacturer.

W. G. Purvis Director.
 Dates of Survey while building
 During progress of work in shops - 1947 Aug 22, 27, 29, Sep 25, 15, 18, Oct 2, Dec 19, 24, 30 (1948) Jan 6, 13, 15, Mar 9, 11, 12, Apr 20, 27, 29, 30, May 3, 5, 10, 11, 19, 20, Jun 3, 8, Aug 19, 23, 24, 25, 26, Sep 1, 2, 3, 6, 7, 8, 10, 13, 14, 15, 16, 17, 21, 23, 27, 28, 29, 30, Oct 1, 5, 13, 25, 26, 27, 28, Dec 1, 13, 23, 24, 29
 During erection on board vessel - 1949 Jan 6, 10, 12, 14, 24, 25
 Total No. of visits *72*

Dates of Examination of principal parts - Cylinders *12/3/48* Covers - *14/9/48* Pistons *21/9/48* Rods *21/9/48* Connecting rods *15/9/48*
 Crank shaft *8/7/48* Flywheel shaft *as crank* Thrust shaft *as crank* Intermediate shafts *26/10/48* Tube shaft -
 Screw shaft *28/10/48* Propeller *21/5/48* Stern tube *30/4/48* Engine sealings *(Tank top)* Engines holding down bolts *10/1/49.*
 Completion of fitting sea connections *20/5/48.* Completion of pumping arrangements *25/1/49* Engines tried under working conditions *25/1/49.*
 Crank shaft, Material *Ingot Steel* Identification Mark *8/7/48* Flywheel shaft, Material *as crank.* Identification Mark *as crank.*
 Thrust shaft, Material *as crank* Identification Mark *as crank.* Intermediate shafts, Material *Ingot Steel* Identification Marks *No 16026-F.4784 WHF. 26/10/48.*
 Tube shaft, Material - Identification Mark - Screw shaft, Material *Ingot Steel* Identification Mark *No 16026-F.4785 WHF. 28/10/48.*
 Identification Marks on Air Receivers *K. 2142/3, L.R. 22681, A.R.R. 23/5/48.*

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 *1 1/2" perforated pipe for steam led around E.R. Ash. Rm. Phenol & 2 1/2" hoses for extinguishing pipe for furnace & boiler.*
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *Danker.* If so, have the requirements of the Rules been complied with *Not decided.*
 If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *Not decided.*
 Is this machinery duplicate of a previous case *Yes.* If so, state name of vessel *'BRITISH ENTERPRISE.'*

General Remarks (State quality of workmanship, opinions as to class, &c.) *This machinery has been built under Special Survey in accordance with the approved plans & the rules of the Society. The materials & workmanship are good. It has been securely fitted on board the vessel & tried under full working conditions with satisfactory results. The two donkey boilers have also been securely fixed on board, fitted to burn oil fuel (F.P. about 150°F) & safety valves adjusted under steam to working pressure. Section 20 of the rules has been complied with. The machinery is now eligible in my opinion to have notation L.M.C. 1.49. (oil Eng.) T.S. (cr) 2 DB 150 lb/sq. in.*

The amount of Entry Fee .. £ *178* : 4 : When applied for, *FEB - 8 1949*
 Special .. £ *14* : - : When received,
 Donkey Boiler .. £ .. : ..
 Travelling Expenses (if any) £ .. : ..
Committee's Minute *FRI. 25 FEB 1949*
 Assigned *+ L.M.C. 1.49 oil Eng, 2 D.B. 150 lb. CL*
W. G. Purvis
 Engineer & Surveyor to Lloyd's Register of Shipping.

SUNDERLAND.

