

REPORT ON OIL ENGINE MACHINERY.

No. 51291
15 AUG 1941

Received at London Office

Date of writing Report 18.7.41 When handed in at Local Office 17 AUG 1941

Port of HULL

No. in Survey held at Reg. Book 18.7.41

Date, First Survey 10.2.41 Last Survey 19.7.41

Number of Visits 12

on the Empire } Screw vessel
Empire }
Empire }

EMPIRE ISLE.

Tons } Gross 402
 } Net 183

Built at Hessle By whom built Henry Scarr Ltd. Yard No. 416 When built 1941-7
 Engines made at Manchell's By whom made Crosby Bros. Engine No. 127905 When made do.
 Donkey Boilers made at Clyde By whom made ✓ Boiler No. ✓ When made ✓
 Brake Horse Power 385 Owners Ministry of Shipping Port belonging to Hull
 Nom. Horse Power as per Rule 135 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 Trade for which vessel is intended Coasting

OIL ENGINES, &c.—Type of Engines Direct injection heavy oil engine 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 800 lbs/sq. in. Diameter of cylinders 10 1/2 Length of stroke 13 1/2 No. of cylinders 7 No. of cranks 7

Mean Indicated Pressure 76 lbs/sq. in. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 14 1/16 Is there a bearing between each crank Yes

Revolutions per minute 500 Flywheel dia. 37 1/2 Weight 2166 lbs Means of ignition Comp. Kind of fuel used Heavy oil

Crank Shaft, { Solid forged dia. of journals as per Rule Appd. Crank pin dia. 7 1/4 Crank Webs Mid. length breadth 9 1/4 Thickness parallel to axis shrunk
 { Semi built dia. as fitted 7 1/2 Mid. length thickness 3 23/32 Thickness around eye-hole ✓
 { All built

Flywheel Shaft, diameter as per Rule Appd. Intermediate Shafts, diameter as per Rule Appd. Thrust Shaft, diameter at collars as per Rule Appd.
as fitted ON SHAFT as fitted 5 1/8 as fitted 5 1/4

Tube Shaft, diameter as per Rule ✓ Screw Shaft, diameter as per Rule Appd. Is the { tube } shaft fitted with a continuous liner { No
as fitted ✓ as fitted 5 3/4 as fitted ✓

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
as fitted ✓ as fitted ✓

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 Yes If so, state type Stewart type Length of Bearing in Stern Bush next to and supporting propeller 24"

Propeller, dia. 67" Pitch 4'-1" No. of blades 4 Material bronze whether Moveable Solid Total Developed Surface 11.6 sq. feet

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

Thickness of cylinder liners 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 Up funnel

Cooling Water Pumps, No. One M.E. 5" x 3" 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 5" Stroke 3" Can one be overhauled while the other is at work Yes

Pumps connected to the Main Bilge Line { No. and Size One 5" x 3" { One 40 lons/h. } One 8 lons/h.
How driven Main Engine { Aux Diesel Engine } Both driven from Main Eng Shaft

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 One 40 lons/h. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 in Series 2 1/2" x 1 3/4" x 2" Stroke

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 - NO 2 1/2" dia + one 2" dia + oil well. In Pump Room ✓

In Holds, &c. F.P. 3" dia, Hold. 2 @ 2 1/2" dia AP One @ 3" dia

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size One @ 2 1/2" dia included above

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 Above

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 ✓

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 ✓

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 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. One No. of stages 2 Diameters 5 1/4" x 2 1/2" Stroke 4" Driven by Main Engine

Auxiliary Air Compressors, No. One No. of stages One Diameters 3 1/4" Stroke 3 1/4" Driven by Aux Engine

Small Auxiliary Air Compressors, No. One No. of stages One Diameters 3 1/4" Stroke 3 1/4" Driven by Aux Engine

What provision is made for first Charging the Air Receivers The above aux. engine is hand started

Scavenging Air Pumps, No. 3 in line vertically Diameter 20 1/2" Stroke 7 1/4" Driven by Main Engine

Auxiliary Engines crank shafts, diameter as per Rule ✓ Position Port Side of Super Room

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

AIR RECEIVERS:—Have they been made under survey Yes No No State No. of Report or Certificate Man Rpt No 10,540
 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. 1 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 30 cu ft. Internal diameter 24 1/8" thickness 3/8" & 15/32"
 Seamless, lap welded or riveted longitudinal joint ✓ Material Steel Range of tensile strength 26-30 tons Working pressure 350 lbs/sq
Incl perforated scumblers. Centre Stroke
Both welded with flexible strap

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 ✓
PLANS. Are approved plans forwarded herewith for Shafting 2.4.41 & 27/4/40 Receivers 12.11.40 Separate Fuel Tanks 15.10.40
 (If not, state date of approval)
 Donkey Boilers None General Pumping Arrangements 30.5.40 Pumping Arrangements in Machinery Space 1.8.40
 Oil Fuel Burning Arrangements ✓

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes
 State the principal additional spare gear supplied See attached list.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building
 During progress of work in shops-- 1941- Feb. 10. 12. 14. 17. May. 27. 30.
 During erection on board vessel-- June 4. 16. 19. 27. 30 July 1 & 5. 9.
 Total No. of visits 14

Dates of Examination of principal parts—Cylinders Man Rpt Covers Man Rpt Pistons Man Rpt Rods ✓ Connecting rods Man Rpt
 Crank shaft Man Rpt Flywheel shaft ✓ Thrust shaft Man Rpt Intermediate shafts ✓ Tube shaft ✓
 Screw shaft 14/2/41 Propeller 14/2/41 Stern tube 12/2/41 Engine seatings 14/2/41 Engines holding down bolts 30/5/41
 Completion of fitting sea connections 14/2/41 Completion of pumping arrangements 3.7.41 Engines tried under working conditions 3.7.41
 Crank shaft, Material Steel Identification Mark 1323. W.T.M. 9.4.41 Flywheel shaft, Material ✓ Identification Mark ✓
 Thrust shaft, Material Steel Identification Mark 1341 W.T.M. 5.5.41 Intermediate shafts, Material Steel Identification Marks 5137 JFC 26.7.41
 Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material Steel Identification Mark 5134 JFC. 26.7.41

Identification Marks on Air Receivers No 2124 } Thin Air Receivers have not been constructed under survey.
No 2127 } but are duplicate of those being fitted in the second vessel which have been approved & built under survey. - Main Certificate on attached.

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 No 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 No
 Is this machinery duplicate of a previous case No If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Machinery of this vessel has been constructed & fitted on board under Special Survey in accordance with the approved plans & the Rules. The workmanship & materials are good & when tried under full working conditions it was found satisfactory in every respect. It is eligible, in my opinion, to be classed with the record of R.L.M.C. 7.41. 09. & the notations of Oil Eng. 2SESA. 7. Cy. 10 1/2 - 13 1/2 135 N.H.
The Machinery has been installed in accordance with the Specification

Certificate (if required) to be sent to (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee .. £	:	:	When applied for,
1/3 Special + 25.90 ... £	14	1	14.8.1941
Donkey Boiler Fee ... £	:	:	When received,
Travelling Expenses (if any) £	:	:	19

Dyke J.P. Williams
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
 Assigned 29 AUG 1941
7.41
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