

## REPORT ON OIL ENGINE MACHINERY.

No 13091

Received at London Office

4 NOV 1941

Date of writing Report

19

When handed in at Local Office

1. 11.

in Port of

Belfast

No. in Survey held at  
Reg. Book.Date, First Survey 11<sup>th</sup> Dec. 1939 Last Survey 22<sup>nd</sup> Oct. 1941  
Number of Visits 24590966 on the Single Twin Triple Quadruple Screw vessel"EMPIRE HOPE"Tons Gross 12688  
Net 7640

Built at Belfast

By whom built Harland &amp; Wolff Ltd.

Yard No. 1050 When built 1941

Engines made at Belfast

By whom made Harland &amp; Wolff Ltd.

Engine No. 1050 When made 1941

Donkey Boilers made at Belfast

By whom made Harland &amp; Wolff Ltd.

Boiler No. 1117 1122 When made 1941

Brake Horse Power 6625 x 2

Owners Ministry of War Transport.

Port belonging to Belfast.

Nom. Horse Power as per Rule 2463

Is Refrigerating Machinery fitted for cargo purposes yes

Is Electric Light fitted yes

Trade for which vessel is intended

Ocean Going

2476

538

OIL ENGINES, &amp;c.—Type of Engines Harland B/W Airless Injection 2 or 4 stroke cycle 2 Single or double acting double

Maximum pressure in cylinders 700 lbf/sq. in. Diameter of cylinders 620 7/8 Length of stroke 1400 7/8 No. of cylinders 6 x 2 No. of cranks 6 x 2

Mean Indicated Pressure 100 lbf/sq. in. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1164 7/8

Revolutions per minute 115 Flywheel dia. 2483 7/8 Weight 2500 Kgs Means of ignition Compression Kind of fuel used Diesel oil

Crank Shaft, Solid forged dia. of journals as per Rule as approved. Crank pin dia. 485 7/8 Crank Webs Mid. length breadth 1040 7/8 Mid. length thickness 750 7/8 Thickness parallel to axis 250 7/8 Thickness around eye-hole 272.5 7/8

Flywheel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule as approved Thrust Shaft, diameter at collars as per Rule as fitted

Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule as approved Is the shaft fitted with a continuous liner yes.

Bronze Liners, thickness in way of bushes as per Rule as approved Thickness between bushes as per Rule as approved 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 Length of Bearing in Stern Bush next to and supporting propeller 6' 9"

Propeller, dia. 17' 9" Pitch 18' 9" No. of blades 3 Material Bronze whether Moveable Solid Total Developed Surface 78.5 sq. feet

Method of reversing Engines Air Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication Forced.

Thickness of cylinder liners 1 1/2" Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material lagged.

Cooling Water Pumps, No. 3 Salt water 1 aux salt 7 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. 3 Diameter 200 mm/hr 1 @ 200 tons/hr. Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line No. and size 3. 2 @ 120 tons/hr 1 @ 200 tons/hr. How driven Electrically.

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 @ 200 tons/hr Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 3 @ 280 tons/hr

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 10. 2 @ 2" 4 @ 3 1/2" 2 @ 5" 1 @ 6" in Tunnel @ 3 1/2" In Pump Room

In Holds, &amp;c. Nos. 1, 2, 3. 4 x 5 Holds 2 @ 3 1/2" No. 6 2 @ 3"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 3. 2 @ 5" 1 @ 6"

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 valves

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 both

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 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 yes Is it fitted with a watertight door no 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. 2 No. of stages 2 Diameters 350/400 7/8 Stroke 260 7/8 Driven by Electrically

Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 88/100 7/8 Stroke 80 7/8 Driven by Steam engine

Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 88/100 7/8 Stroke 80 7/8 Driven by Steam engine

What provision is made for first Charging the Air Receivers Steam driven Auxiliary Compressor

Scavenging Air Pumps, No. 2 each engine Diameters 343 1/2 in Capacity each at 115 Rph Driven by Main engine

Auxiliary Engines crank shafts, diameter as per Rule as approved No. 3 Position Bottom platform Nos. 1, 2 port No. 3 std.

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



AIR RECEIVERS:—Have they been made under survey

State No. of Report or Certificate

Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined and cleaned

MAIN STARTING  
Injection Air Receivers, No. 2

Cubic capacity of each

800 cu ft

Is a drain fitted at the lowest part of each receiver

Internal diameter 6' 4 1/8"

thickness 1 1/16"

Seamless, lap welded or riveted longitudinal joint

Liveted

Material

Steel

Range of tensile strength 28/31 tons

Working pressure

by Rules

Actual

356/1850

AUX  
Starting Air Receivers, No. 2

Total cubic capacity

360 litres

Internal diameter

2' 0 1/16"

thickness

1 1/2"

Seamless, lap welded or riveted longitudinal joint

welded

Material

Steel

Range of tensile strength 28/32 tons

Working pressure

by Rules

Actual

391/356/1850

IS A DONKEY BOILER FITTED? (2)

yes

If so, is a report now forwarded?

yes

Is the donkey boiler intended to be used for domestic purposes only

Whistle, Reprim CO. black warning: also fire extinguishing

PLANS. Are approved plans forwarded herewith for Shafting

(If not, state date of approval)

28/9/39: 11/10/39

Receivers 2/1/40

Separate Fuel Tanks 22/6/40

Donkey Boilers 6/3/40

General Pumping Arrangements 12/1/41

Pumping Arrangements in Machinery Space 7/1/41: 29/5/41

Oil Fuel Burning Arrangements 1/10/40

SPARE GEAR.

Has the spare gear required by the Rules been supplied

yes

State the principal additional spare gear supplied

See attached list.

For HARLAND AND WOLFF, LIMITED.  
The foregoing is a correct description,

Manufacturer.

Dates of Examination of principal parts—Cylinders 2/2-21/5/41 Covers 23/10/39  
Crank shafts 3.2.41 Flywheel shaft 17.1.41 Thrust shafts 3.2.41 Intermediate shafts 7/8/40-31/10/40 Tube shaft 24/1-3/4/41  
Screw shafts 1/11/40 Propeller 23.1.41 Stern tube 27/1/41 Engine seatings 26/3/41 Engines holding down bolts 12/5/41 21/8/41  
Completion of fitting sea connections 20/3/41 Completion of pumping arrangements 21/10/41 Engines tried under working conditions 22/10/41  
Crank shaft, Material S.M. Steel Identification Mark 1020 RLA. 1022 RLA Flywheel shaft, Material Identification Mark 110405  
Thrust shaft, Material S.M. Steel Identification Mark 1020 RLA 1022 RLA Intermediate shafts, Material S.M. Steel Identification Marks 339 R.L.A. G.T.T.  
Tube shaft, Material Identification Mark Identification Mark 110405  
Identification Marks on Air Receivers MAIN. 110205 110405 TEST 585 lbs 3" WP 356 lbs 5" G.T.T. 23.12.40  
AUX. 110205 E. 110405 TEST 585 lbs 5" WP 356 lbs 5" G.T.T. 27.12.40

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

yes

Description of fire extinguishing apparatus fitted

Steam, CO<sub>2</sub> & Chemical as approved

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

Is this machinery duplicate of a previous case

If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) This machinery has been constructed under special survey in accordance with the Society's Rules and the approved plans. The materials and workmanship are good.

The machinery has been efficiently installed on board the vessel and tried under full working conditions during sea trials with satisfactory results and is eligible in our opinion to have notation in the Register Book of.

+LMC 10.41, 2 DB 100 lbs 5" TS. CL Oil Engines.

The amount of Entry Fee .. £ 6 : - : When applied for,

Special ... £ 161 : 11 : 6 1.11.19.41

Donkey Boiler Fee ... £ 8 : 8 : When received,

AIR RECEIVERS ... £ 8 : 8 : 19.

Travelling Expenses (if any) ... £ 8 : 8 : 19.

Specification 25% 44 11

Committee's Minute 21 NOV 1941

Assigned

+dmb. 10.41  
2 DB 100 lbs 5"  
out by CH

K. Shaw. R. Lee. Engineer Surveyors to Lloyd's Register of Shipping.



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