

REPORT ON OIL ENGINE MACHINERY.

No. 58752
SEP - 1 1937

Received at London Office

Date of writing Report 28.8.37 When handed in at Local Office Glasgow Port of Glasgow
Date, First Survey 30.6.36 Last Survey 24-8-1937
Number of Visits 63

No. in Survey held at Reg. Book. 3973 on the Single Twin Triple Quadruple Screw vessel M.V. "Dunera" Tons ^{Gross} 11162 _{Net} 6634

Built at Glasgow By whom built Barday built & co Ltd Yard No. 663 When built 1934
Engines made at do By whom made do Engine No. 663 When made 1934
Donkey Boilers made at do By whom made do Boiler No. 663 When made 1934
Brake Horse Power 3265 each Eng. Owners British India Steam Navigation Co Ltd Port belonging to London
Nom. Horse Power as per Rule 1510 Is Refrigerating Machinery fitted for cargo purposes do Is Electric Light fitted Ys.
Trade for which vessel is intended Shipping

OIL ENGINES, &c. Type of Engines Dot fed opposed piston 2 or 4 stroke cycle 2 Single or double acting Single
Maximum pressure in cylinders 568 lb. Diameter of cylinders 22.047" Length of stroke 66.2" No. of cylinders 5 each Eng. No. of cranks 5 each Eng.
Mean Indicated Pressure 90 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 44.1" Is there a bearing between each crank -

Revolutions per minute 128 Flywheel dia. 76 3/4" Weight 3.4 tons Means of ignition Comp. Kind of fuel used Deer oil
Crank Shaft, dia. of journals as per Rule 16.15" Crank pin dia. 16.95" Crank Webs as per Rule Mid. length breadth 30.5" Thickness parallel to axis 9.65"
as fitted 16.15" as fitted 16.95" as fitted 30.5" shrunk 4.95"

Flywheel Shaft, diameter as per Rule 12 5/8" Intermediate Shafts, diameter as per Rule 12 5/8" Thrust Shaft, diameter at collars as per Rule 16.15"
as fitted 12 5/8" as fitted 12 5/8" as fitted 16.15"

Tube Shaft, diameter as per Rule 14" Screw Shaft, diameter as per Rule 14" Is the tube shaft fitted with a continuous liner Ys.
as fitted 14" as fitted 14"

Bronze Liners, thickness in way of bushes as per Rule 3/4" Thickness between bushes as per Rule 9/16" Is the after end of the liner made watertight in the propeller boss Ys.
as fitted 3/4" as fitted 9/16"

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 Ys.
If two liners are fitted, is the shaft lapped or protected between the liners Ys. Is an approved Oil Gland or other appliance fitted at the after end of the tube Ys.
shaft No. If so, state type cast steel, fixed Length of Bearing in Stern Bush next to and supporting propeller 62"

Propeller, dia. 15' 6" Pitch 14' 0" No. of blades 3 Material cast steel whether Moveable Ys. Total Developed Surface 49 sq. feet
Method of reversing Engines Comp air direct Is a governor or other arrangement fitted to prevent racing of the engine when disengaged Ys. Means of lubrication Force

Thickness of cylinder liners 0.9 in. in press Are the cylinders fitted with safety valves Ys. Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Ys.
If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Ys.

Cooling Water Pumps, No. 4 fresh water pumps Is the sea suction provided with an efficient strainer, which can be cleared within the vessel Ys. 5 to compressors
Bilge Pumps worked from the Main Engines, No. None Diameter Stroke Can one be overhauled while the other is at work Ys.
Pumps connected to the Main Bilge Line No. and Size 1 @ 200 tons/hr. 2 @ 115 tons/hr. 2 emergency high pumps 125 tons/hr.
How driven Electric motor

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 Ys.
Ballast Pumps, No. and size 1 @ 200 tons/hr. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 @ 60 tons/hr. 1 @ 25 tons/hr.

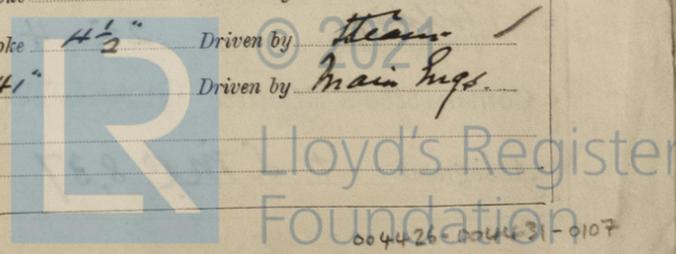
Are two independent means arranged for circulating water through the Oil Cooler Ys. Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces 4 @ 3 1/2" 1 @ 2 1/2" oil gutters 2 @ 3 1/2" Coll. 10 2 1/2" In Pump Room 2 @ 10 2 1/2" 1 @ 2 1/2"
In Holds, &c. No. 1-2 @ 2 1/2" No. 2-2 @ 3" No. 3-2 @ 3" No. 4-2 @ 3" No. 5-2 @ 3" No. 6-2 @ 3" No. 7-2 @ 3"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 4 @ 5 1/2"
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Ys. 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 Ys.

Are all Sea Connections fitted direct on the skin of the ship Ys. 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 Ys. 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 Ys. Are the Blow Off Cocks fitted with a spigot and brass covering plate Ys.

What pipes pass through the bunkers None. How are they protected Ys.
What pipes pass through the deep tanks None. Have they been tested as per Rule Ys.
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Ys.
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 Ys. Is the Shaft Tunnel watertight See hull report Is it fitted with a watertight door Ys. worked from upper deck & bridge

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Ys.
Main Air Compressors, No. 2 No. of stages 3 Diameters 11 1/2" - 9 1/2" Stroke 7" Driven by Electric Motors
Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 6 1/2" - 5 1/2" Stroke 4 1/2" Driven by Main Eng.
Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 5 1/2" Stroke 4 1/2" Driven by Main Eng.
Scavenging Air Pumps, No. 1 each Eng. Diameter 55.5" Stroke 41" Driven by Main Eng.
Auxiliary Engines crank shafts, diameter as per Rule See attached report No. 1 Position Ys.
as fitted See attached report



AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Y/s.

Can the internal surfaces of the receivers be examined and cleaned Y/s. Is a drain fitted at the lowest part of each receiver Y/s.

High Pressure Air Receivers, No. ✓ Cubic capacity of each 417 ft³ Internal diameter 139/16 inch thickness 1 3/32

Seamless, lap welded or riveted longitudinal joint Material 5 Range of tensile strength 29-33 Tons Working pressure by Rules Actual 600 lbs.

Starting Air Receivers, No. 3 Total cubic capacity 139/16 inch Internal diameter 4 1/2" thickness 1 3/32

Seamless, lap welded or riveted longitudinal joint Welded Material 5 Range of tensile strength 29-33 Tons Working pressure by Rules Actual 600 lbs.

IS A DONKEY BOILER FITTED? Y/s.

If so, is a report now forwarded? Y/s.

Is the donkey boiler intended to be used for domestic purposes only No.

PLANS. Are approved plans forwarded herewith for Shafting Y/s. Receivers Y/s. Separate Fuel Tanks Y/s.

Donkey Boilers Y/s. General Pumping Arrangements Y/s. Pumping Arrangements in Machinery Space Y/s.

Oil Fuel Burning Arrangements Y/s.

SPARE GEAR.

Has the spare gear required by the Rules been supplied Y/s.

State the principal additional spare gear supplied See List Attached.

The foregoing is a correct description, FOR BURGLEY, CURLE & Co., LTD.

William Wright, Manufacturer.

Dates of Survey while building: During progress of work in shops-- 1936 June: 30 Aug: 13, 19 Sep: 14, 15, 24, 29 Oct: 5, 13, 23, 27 Nov: 10, 18, 19, 23, 26 Dec: 3, 7
During erection on board vessel-- 16, 28, 29, 30 (1937) Jan: 14, 19, 20, 25, 26, 29 Feb: 2, 5, 9, 11, 16, 19, 24, 26 Mar: 1, 4, 8, 9, 12, 16, 18, 22, 23
Total No. of visits 65

Dates of Examination of principal parts—Cylinders 9.3.34 Covers - Pistons 18.3.34 Rods 18.3.34 Connecting rods 14.1.34

Crank shaft 4.11.36 Flywheel shafts and Thrust shafts Intermediate shafts 24.3.34 Tube shaft -

Screw shaft 12.3.34 Propeller 4.3.34 Stern tube 8.3.34 Engine seatings 24.3.34 Engines holding down bolts 10.6.34

Completion of fitting sea connections 8.4.34 Completion of pumping arrangements 9.4.34 Engines tried under working conditions Y/s.

Crank shafts Material P. Supt Steel Identification Mark 10.4212-26 Flywheel shafts Material and Identification Mark -

Thrust shafts Material - Identification Mark - Intermediate shafts, Material P. Supt Steel Identification Marks 99/1011-HAI-26

Tube shaft, Material - Identification Mark - Screw shaft, Material do Identification Mark 1012/4-HAI-26

Is the flash point of the oil to be used over 150° F. Y/s.

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with Y/s.

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 Y/s.

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with Y/s.

Is this machinery duplicate of a previous case Y/s. If so, state name of vessel M.V. "Dilwara"

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 Rules. The materials and workmanship are good. It has been efficiently secured in position on board and afterwards tried under working conditions with satisfactory results.

The machinery of this vessel is eligible, in my opinion, to be classed in the Register Book with notation of +LMC 8.37.

28/8/37

The amount of Entry Fee .. £ 6 : - : When applied for, 23.8.19.37.
Special £ 134 : 15 :
Donkey Boiler Fee £ : : When received, 29.9.37.
Travelling Expenses (if any) £ 25 : 4 : 30/9

John Brown
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW 31 AUG 1937**

Assigned + L.M.C 8.37 2 DB-100th



GLASGOW

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