

# REPORT ON OIL ENGINE MACHINERY.

No. 106781  
26 FEB 1936

Received at London Office

Date of writing Report 22/2/36 When handed in at Local Office Port of LIVERPOOL  
No. in Survey held at Birkenhead Date, First Survey 4/7/35 Last Survey 6/2/36  
Reg. Book. Number of Visits

on the <sup>Single</sup> ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel 'Dunedin Star'  
Tons { Gross 11168  
Net 6855

Built at Birkenhead By whom built Cammell Laird & Co Ltd Yard No. 1009 When built 1936  
Engines made at Winterthur, Switzerland By whom made Sulzer Bros Ltd Engine No. 1009 When made 1936  
Donkey Boilers made at Renfrew By whom made Babcock & Wilcox Ltd Boiler No. 1009 When made 36  
Brake Horse Power 12000 (total) Owners Blue Star Line Ltd Port belonging to London  
Nom. Horse Power as per Rule 2516 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes  
Trade for which vessel is intended Refrigerated & general cargo

OIL ENGINES, &c.—Type of Engines Sulzer solid injection 2 or 4 stroke cycle 2 Single or double acting single  
Maximum pressure in cylinders 850 lb sq in Diameter of cylinders 28 3/4" 720 mm Length of stroke 250 mm No. of cylinders 18 (2 Engines) No. of cranks 18 total

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge Is there a bearing between each crank  
Revolutions per minute Flywheel dia. 132" Means of ignition Kind of fuel used

Crank Shaft, dia. of journals as per Rule See Winterthur Report 132 Crank pin dia. Crank Webs Mid. length breadth Thickness parallel to axis  
as fitted Mid. length thickness shrunk Thickness around eyehole

Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule 377 mm Thrust Shaft, diameter at collars as per Rule 396 mm  
as fitted 15 1/2" as fitted 490 mm

Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule 16.28 Is the tube screw shaft fitted with a continuous liner Yes  
as fitted 17 1/2" as fitted

Bronze Liners, thickness in way of bushes as per Rule 7.98" Thickness between bushes as per rule 5.98" Is the after end of the liner made watertight in the  
as fitted 7/8" as fitted 23/32" 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

Propeller boss 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 tight  
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 Length of Bearing in Stern Bush next to and supporting propeller 6'6"

Propeller, dia. 17'0" Pitch 17'9" No. of blades 3 Material Mangalloy Movable No Total Developed Surface 84.3 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 45 mm 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 led up funnel  
Cooling Water Pumps, No. See Winterthur Rpt. 132 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. Diameter Stroke Can one be overhauled while the other is at work  
Pumps connected to the Main Bilge Line No. and Size one bilge pump 40 tons/hr, one ballast pump 200 tons/hr, one general service 80 tons/hr  
How driven all electric motors

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 200 tons/hr Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 3-48 cu ft per 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 4-3 1/2" dia In Pump Room

In Holds, &c. 4-2 1/2" x 1-3" dia in tunnel; 2-3 1/2" in 4 hold; 2-3 1/2" in 2 hold; 2-3 1/2" in 3 hold  
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2-5" x 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 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 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 Yes

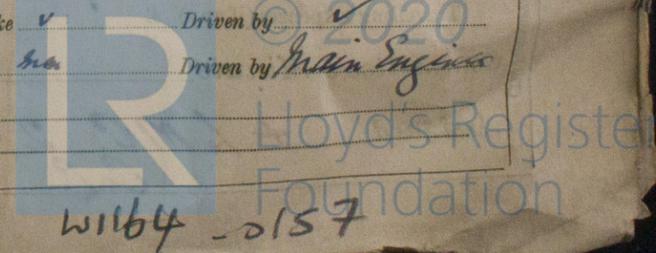
What pipes pass through the bunkers None How are they protected  
What pipes pass through the deep tanks Cofferdam suction, bilge ducts & scupper pipes Have they been tested as per Rule Yes  
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible 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 Skelton Beach  
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 two Diameters 2 1/2" & 5 1/4" Stroke 7 1/2" Driven by electric motors  
Auxiliary Air Compressors, No. 1 No. of stages two Diameters 7" & 2 1/2" Stroke 4 3/4" Driven by steam

Small Auxiliary Air Compressors, No. No. of stages Diameters Stroke Driven by  
Scavenging Air Pumps, No. 2 Diameter 1750 mm Stroke 750 mm Driven by Main Engines

Auxiliary Engines crank shafts, diameter as per Rule See Winterthur Rpt. 133 as fitted



W1164 - 0157

**AIR RECEIVERS:**—Is each receiver, which can be isolated, fitted with a safety valve as per Rule. *Yes* ✓

*Main Starting*  
 On the internal surfaces of the receivers be examined and cleaned. *Yes* ✓  
 Is a drain fitted at the lowest part of each receiver. *Yes* ✓  
 High Pressure Air Receivers, No. *2* ✓ Cubic capacity of each *16 cu metres* Internal diameter *1532 mm* thickness *3/4 mm*

Seamless, lap welded or riveted longitudinal joint. Material *Rpt 132* Range of tensile strength Working pressure by Rules Actual

Starting Air Receivers, No. *See winter Report 132* Internal diameter thickness

Seamless, lap welded or riveted longitudinal joint. Material Range of tensile strength Working pressure by Rules Actual

**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 - 4.3.35* Receivers *19.8.35* (N Steam Compressor) Separate Tanks *Yes*

Donkey Boilers *Yes* ✓ General Pumping Arrangements *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. *See winter Report 132*

The foregoing is a correct description,

**CAMMELL LAIRD & CO. LIMITED**

Manufacturer.

Dates of Survey while building  
 During progress of work in shops: 1935. July 4, 8, 11, 12, 15, 17, 18, 22, 24, Aug 5, 12, 13, 14, 16, 19, 21, 23, Sept 9, 12, 13, 16, 24, 25, 26, 27, 30, Oct 2, 3, 7, 8, 15, 17, 18, 21, 23, 25, 28, 29, 31.  
 During erection on board vessel: Nov 4, 5, 7, 9, 11, 12, 14, 15, 18, 21, 26, 27, 28, 29, Dec 2, 3, 4, 6, 9, 12, 13, 16, 17, 19, 23, 31, Jan 2, 6, 7, 8, 13, 14, 15, 17, 22, 23, 24, 25, 28, 30, Feb 3, 4, 5, 6.  
 Total No. of visits: *83*

Dates of Examination of principal parts—Cylinders  
 Crank shaft ✓ Flywheel shaft *See winter Report 132* Pistons ✓ Rods ✓ Connecting rods ✓  
 Screw shaft *8.8.35* Propeller *14/1/36* Thrust shaft ✓ Intermediate shafts *13.8.35, 16/8/35* Tube shaft ✓  
 Completion of fitting sea connections *19/8/35* Completion of pumping arrangements *23/1/36* Engine seatings *15/1/35* Engines holding down bolts *16/1/35*  
 Crank shaft, Material *Steel* Identification Mark *1165 MB* Flywheel shaft, Material *Cast* Identification Mark *9 648 J2*  
 Thrust shaft, Material *Steel* Identification Mark *1136 MB* Intermediate shafts, Material *Steel* Identification Marks *1925W, 217 W, 20*  
 Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material *Steel* Identification Mark *192 SW, 9650*

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 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 *No* ✓ If so, state name of vessel ✓

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *This machinery has been satisfactory fitted on board in accordance with the Rules and the approved plans. It has been examined under full working conditions during sea trials and found satisfactory & is eligible in our opinion for classification in Register book with record of + LMC 2.36*

The amount of Entry Fee £ *532 12 0* When applied for, *22 FEB 1936*  
 Special ...  
 Donkey Boiler Fee ... £ *18 3* When received, *19/3*  
 Travelling Expenses (if any) £ ...

Committee's Minute **LIVERPOOL** *25 FEB 1936*  
 Assigned *+ LMC 2.36*  
*C.L. Elec. Light*

*J. S. Milton*  
 Engineer Surveyor to Lloyd's Register of Shipping.



Certificates (if required) to be sent to ...

PILLARS  
 Centre Stiffe  
 Platib  
 STRING  
 Upper Strin  
 If S  
 Secor Stri  
 ST  
 FLAT PI  
 BOTTOM of St  
 BILGE Stra  
 SIDE I Stra  
 UPPER stra  
 UPPER stra  
 STRAK STRA  
 STRAK STRA  
 POOP S  
 BRIDGE  
 FOREC  
 Total  
 MII  
 COI  
 AF  
 ST

Rpt. 4  
 No. in Reg. Book.  
 Built at  
 Engines  
 Donkey  
 Brake H  
 Nom. H  
 Trade for  
 IL EN  
 Maximum p  
 Span of beam  
 Revolutions  
 Crank Sha  
 Flywheel  
 Tube Sha  
 Bronze Lin  
 propeller bos  
 If the liner  
 If two liner  
 shaft  
 Propeller,  
 Method of  
 forced  
 non-conductin  
 Cooling Wa  
 Bilge Pump  
 Pumps conn  
 Ballast Pur  
 Are two inde  
 Pumps, No.  
 In Holds, &c.  
 Independen  
 Are all the  
 ted from easi  
 Are all Sea  
 Are they fire  
 Are they each  
 What pipes pa  
 What pipes pa  
 Are all Pipes,  
 Is the arrange  
 compartment t  
 If a wood vess  
 Main Air Co  
 Auxiliary Ai  
 Small Auxili  
 Scavenging  
 Auxiliary En  
 AIR REC  
 Can the inter  
 High Pressu  
 Seamless, lap u  
 Starting Air  
 Seamless, lap u