

REPORT ON OIL ENGINE MACHINERY.

Received at London Office

Date of writing Report **3. 1. 35** When handed in at Local Office **2nd FEBRUARY, 1935** Port of **Greenock** **6 FEB 1935**

No. in Survey held at **Greenock** Date, First Survey **9th FEBRUARY, 1934** Last Survey **2-2 1935**
Reg. Book. **MS "SAN AMADO"** Number of Visits **96**

on the **Single** **Triple** **Quadruple** Screw Vessel **MS "SAN AMADO"** Tons ^{Gross} **7316** _{Net} **4392**

Built at **Greenock** By whom built **Blythwood & Co. Ltd.** Yard No. **37** When built **1935**
Engines made at **Greenock** By whom made **John & Thomas Ltd.** Engine No. **1178** When made **1935**
Donkey Boilers made at **ditto** By whom made **ditto** Boiler No. **1175** When made **1935**
Bronze Horse Power **2800** Owners **Eagle Oil Refining Co. Ltd.** Port belonging to **LONDON**
Nom. Horse Power as per Rule **503** Is Refrigerating Machinery fitted for cargo purposes **NO** Is Electric Light fitted **Yes**
Trade for which vessel is intended **Foreign.** **75 7/8** **55 1/8**

OIL ENGINES, &c.—Type of Engines **Diesel Solid Injection Under Pressure 4 stroke cycle 4** Single ~~acting~~ **Single**

Maximum pressure in cylinders **600** Diameter of cylinders **650** mm Length of stroke **1400** mm No. of cylinders **8** No. of cranks **8**
Span of bearings, adjacent to the Crank, measured from inner edge to inner edge **844** mm Is there a bearing between each crank **Yes**
Revolutions per minute **112** Flywheel dia. **2218** mm Weight **2.195** tons Means of ignition **Compression** Kind of fuel used **Diesel**
Crank Shaft, dia. of journals as per Rule **436** mm as fitted **460** mm Crank pin dia. **460** mm Crank Webs Mid. length breadth **shrunk** Thickness parallel to axis **264** mm Mid. length thickness **shrunk** Thickness around eye-hole **265** mm
Flywheel Shaft, diameter as per Rule **436** mm as fitted **18 1/4** Intermediate Shafts, diameter as per Rule **12 1/8** as fitted **24** Thrust Shaft, diameter at collars as per Rule **12 1/8** as fitted **18 1/4**
Tube Shaft, diameter as per Rule **shrunk** as fitted **shrunk** Is the **tube** shaft fitted with a continuous liner **Yes**
Screw Shaft, diameter as per Rule **13 1/2** as fitted **18** Is the **screw** shaft fitted with a continuous liner **Yes**
Bronze Liners, thickness in way of bushes as per Rule **4/8** as fitted **4/8** Thickness between bushes as per Rule **5/16** as fitted **11/16** 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 **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 **Yes**
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** Length of Bearing in Stern Bush next to and supporting propeller **5-0**

Propeller, dia. **15-9** Pitch **11-3** No. of blades **4** Material **Brass** whether Moveable **NO** Total Developed Surface **80** sq. feet
Method of reversing Engines **air** Is a governor or other arrangement fitted to prevent racing of the engine when detached **Yes** Means of lubrication **Forced** Thickness of cylinder liners **48/540** mm Are the cylinders fitted with safety valves **Yes** Are the exhaust pipes and silencers water cooled or lagged with non-conducting material **lagged** If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine **Yes**

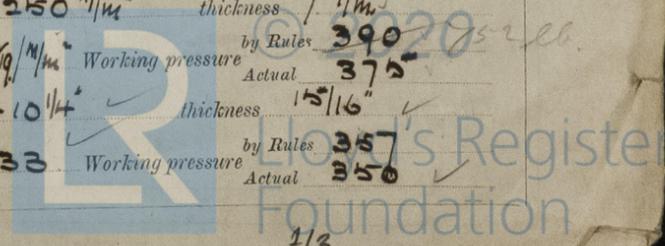
Cooling Water Pumps, No. **2 (one 7.5 tons) (one 2.50 tons)** Is the sea suction provided with an efficient strainer which can be cleared within the vessel **Yes**
Bilge Pumps worked from the Main Engines, No. **2** Diameter **35** tonnead Stroke **Rotary** Can one be overhauled while the other is at work **Yes**
Pumps connected to the Main Bilge Line { No. and Size } **2 at 3.5 tons** one **8-8-10** How driven **Main engine** **Steam**
Ballast Pumps, No. and size **None** Lubricating Oil Pumps, including Spare Pump, No. and size **2 one 40 lbs (Rotary) one 8-8-10**

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 at 3** In Pump Rooms **1-3" each**
In ~~Holds~~ &c. **2, 8" in each Tank** Cargo hold. **2-2 1/2** **2 1/2 in plan**

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **Yes 2-6** **5" in plan**
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 **Yes**
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 **Yes** Is the Shaft Tunnel watertight **None** Is it fitted with a watertight door **Yes** 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 **Yes**
Main Air Compressors, No. **None** No. of stages **—** Diameters **—** Stroke **—** Driven by **—**
Auxiliary Air Compressors, No. **Two** No. of stages **2** Diameters **9 1/4-11 1/2** Stroke **6 1/2** Driven by **Steam**
Small Auxiliary Air Compressors, No. **None** No. of stages **—** Diameters **—** Stroke **—** Driven by **—**
Scavenging Air Pumps, No. **—** Diameter **—** Stroke **—** Driven by **—**
Auxiliary Engines crank shafts, diameter as per Rule **(an approved London 1-2 34) 110** mm as fitted **110** mm

AIR RECEIVERS:—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**
High Pressure Air Receivers, No. **one** Cubic capacity of each **45 litres** Internal diameter **250** mm thickness **7** mm
Seamless, lap welded or riveted longitudinal joint **Seamless** Material **S** Range of tensile strength **50-68** Working pressure by Rules **390** Actual **375**
Starting Air Receivers, No. **2** Total cubic capacity **800** cu ft Internal diameter **5-10 1/4** thickness **15 1/16**
Seamless, lap welded or riveted longitudinal joint **Riveted** Material **S** Range of tensile strength **29-33** Working pressure by Rules **357** Actual **350**



4^B 19905

IS A DONKEY BOILER FITTED? Yes ² 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 Receivers Yes 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 Propeller shaft, stamped L.R. 4903 WGM. 21. 11. 34
2 cylinder heads - liners complete also base iron
Propeller

The foregoing is a correct description,
 For JOHN G. KINCAID & CO. LIMITED.

M. Carter Director. Manufacturer.

Dates of Survey while building
 During progress of work in shops - (1934) Feb. 9-23-26. Mar. 2-14-23-29. Apr. 13-16-24-24. May 3-10-14-15-23-25-29. June 1-5-15-21-22-26. July 5-13-14-24-31. Aug. 6-7-9-15-17-23-27-28-31.
 During erection on board vessel - Sept. 5-4-12-28. Oct. 2-10-12-15-18-22-22-24-26-29-30-31. Nov. 1-28-9-10-13-16-20-21-22-27-28-29-30. Dec. 3-4-5-10-11-12-14-18-20-21-24-26. (1935) Jan. 4-7-9-11-14-15-16-22-24-25-29-30.
 Total No. of visits 96.

Dates of Examination of principal parts - Cylinders 22. 10. 34 Covers 23-10-34 Pistons 8. 11. 34 Rods 18-9-34 Connecting rods 18-9-34
 Crank shaft 12. 12-34 Flywheel shaft ✓ Thrust shaft 24. 11-34 Intermediate shafts 27. 11-34 Tube shaft ✓
 Screw shaft 1-11-34 Propeller 1-11-34 Stern tube 30-10-34 Engine seatings 19. 11-34 Engines holding down bolts 10. 1-35
 Completion of fitting sea connections 19. 11-34 Completion of pumping arrangements 10-1-35 Engines tried under working conditions 30 1-35
 Crank shaft, Material S Identification Mark L.R. 148 WGM Flywheel shaft, Material ✓ Identification Mark ✓
 Thrust shaft, Material S Identification Mark L.R. 4903 WGM Intermediate shafts, Material S Identification Marks L.R. 4903 WGM
 Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material S Identification Mark L.R. 4903 WGM

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 ✓
 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.) These engines & boilers have been built under special survey in accordance with the approved plans and the workmanship & material are of good quality, they have now been securely fitted on board. Tried under working conditions & found satisfactory. The machinery is eligible in my opinion for the record of LMC 2-35 (Notation of Donkey Boilers 180 lbs) on the official books on the Clyde (30/1/35) a humming noise developed in the propeller at 84 revolutions to 112. It was agreed by the Eagle Oil Co Supt. Engineer & the engine builders that there was no doubt about the noise. Instructions have been given by the company's Supt. Engineer

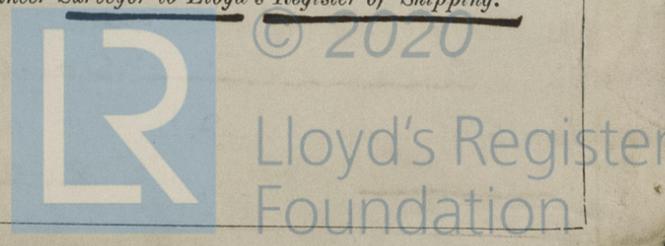
W. Gordon-Mitchell
 Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee .. £ 6 : ✓ : When applied for,
 Special £ 100 : 3 : 1st FEBRUARY 1935.
 Donkey Boiler Fee £ 19-10 : : When received,
Carriage £ 8 : 8 : 5/21 1935
 Travelling Expenses (if any) £ : :

Committee's Minute **GLASGOW 5 FEB 1935**

Assigned + L.M.C. 2,35
2 DB - 180 lb.

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



M/S "SKANDINAVIA"

Damage No. 1 (cont.) SB.

F. str. No. 17, G. str. No. 16 and 17, H. str. No. 16 and 17, J. str. No. 16 and 17 renewed.

22 main frames in way of No. 1 and 2 side tanks renewed.

11 upper stringer flat beams, and 12 at lower stringer flat renewed,

2 beams removed, faired and refitted.

13 bottom brackets renewed, with 4 face bars; 3 frame angles removed, faired and refitted.

2 stiffeners on trans. bulkhead between No. 1 and 2 side tanks renewed.

No. 1 and 2 side tanks tested on completion of repairs.

Damage No. 2: Port side. Plates counted from aft.

H. str. No. 15 and J. str. No. 14 faired in place.

J. - 17 renewed; No. 18 crossed and partly renewed.

K. - 17 renewed.

15 main frames renewed.

No. 1 and 2 port side tanks tested on completion of repairs.

Interim certificate issued - copy attached -

PE.



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Lloyd's Register
Foundation

4B.
Greenock.Continuation of Report No. 19906 dated 2nd February 1935. on the

M/s "San Amado"

That the revolutions are not to exceed 1049 an opportunity would be given to examine this Propeller, on the Vessel's next Dry Docking, at which survey all interested parties would be asked to attend. Propeller made by Messrs The Puls Metal Co^{ys} of Sebstoum Elburgow.

W^m Gordon Muir