

## REPORT ON OIL ENGINE MACHINERY.

No. 32345

Date of writing Report

When handed in at Local Office

- 8 APR. 1938

Port of

Received at London Office

APR - 9 1938

No. in Survey held at  
Reg. Book.

Date, First Survey Aug 20 Last Survey Apr 7 1938

Number of Visits 59

on the Single  
Twin  
Triple  
Quadruple  
Screw vessel

" DERRYMORE "

Tons Gross 4499.  
Net 2822.Built at BurntislandBy whom built Burntisland S.B. Co. Ld. Yard No. When built 1938Engines made at SunderlandBy whom made Wm. Beard & Sons Ld. Engine No. 202 When made 1938Donkey Boilers made at StocktonBy whom made Stockton Chem. Eng. & Riley Bros Ld. Boiler No. 6255 When made 1938Brake Horse Power 2100Owners McLaren & Cross Ld. Port belonging to LondonNom. Horse Power as per Rule 449 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

Trade for which vessel is intended

II ENGINES, &c. Type of Engines Opposed piston air injection 2 or 4 stroke cycle 2 Single or double acting SingleMaximum pressure in cylinders 540 lbs/sq. in. Diameter of cylinders 560 in. Length of stroke Upper 910 in. No. of cylinders 3 No. of cranks 3 (3 throw)Mean Indicated Pressure 90 lbs/sq. in. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 880 in. Is there a bearing between each crank Between each 3 throw.Revolutions per minute 110 Flywheel dia. 2240 in. Weight 4.93 TONS. Means of ignition Compression Kind of fuel used Heavy oilCrank Shaft, dia. of journals 390 in. Crank pin dia. 420 in. Crank Webs 293 in. Mid. length breadth 610 in. Thickness parallel to axis 240 in.Flywheel Shaft, diameter 390 in. Intermediate Shafts, diameter 343 in. Thrust Shaft, diameter at collars 420 in.Tube Shaft, diameter 326 in. Screw Shaft, diameter 362 in. Is the shaft fitted with a continuous liner Yes.Bronze Liners, thickness in way of bushes 14 in. Thickness between bushes 12 1/2 in. Is the after end of the liner made watertight in thepropeller 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 tubeshaft no If so, state type Hand lever Length of Bearing in Stern Bush next to and supporting propeller 5-4 3/4 in.Propeller, dia. 15'-3" Pitch 11'-9" mean No. of blades 4 Material Bronze whether Moveable no Total Developed Surface 86 sq. feetMethod of reversing Engines Hand lever Is a governor or other arrangement fitted to prevent racing of the engine when detached Yes. Means of lubricationforced Yes. Thickness of cylinder liners 23 in. Are the cylinders fitted with safety valves Yes. Are the exhaust pipes and silencers water cooled or lagged withnon-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 Yes.Cooling Water Pumps, No. 1 Steam driven 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. none Diameter 4" x 4" x 12" vertical Simplex. Can one be overhauled while the other is at work Yes.Pumps connected to the Main Bilge Line No. and Size Two, 4" x 4" x 12" vertical Simplex. How driven Steam.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 pumpingarrangements no Ballast Pumps, No. and size 1 @ 12" x 12" x 12" duplex Power Driven Lubricating Oil Pumps, including Spare Pump, No. and sizeAre two independent means arranged for circulating water through the Oil Cooler Yes. Suctions, connected to both Main Bilge Pumps and Auxiliary BilgePumps, No. and size:—In Machinery Spaces 4 @ 3" in E.R. 1 @ 2 1/2" in Tunnel well. In Pump Room 1In Holds, &c. Nº 1. 3" φ r.s. Nº 2. 3 1/2" φ r.s. Nº 3. 3" φ r.s. Nº 4. 3" φ r.s. Nº 5. 3" φ r.s. 1 @ 2 1/2" φ r.s.Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 @ 8" (Ballast pump) 1 @ 5" (Gen. Ser.)Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes. Are the Bilge Suctions in the Machinery Spacesled from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes. Are they fitted with Valves or Cocks Both.Are all Sea Connections fitted direct on the skin of the ship Yes. Are the Overboard Discharges above or below the deep water line Above.Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes. Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes.Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes. How are they protected Yes.What pipes pass through the bunkers None. Have they been tested as per Rule Yes.What pipes pass through the deep tanks For hold bilge suction Is the Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes.Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes. worked from Bridge deck & of forward room.

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. Main Air Compressors, No. Two. No. of stages Three Diameters 10 1/2" 8 1/2" 2 1/2" Stroke 6" Driven by Steam engineAuxiliary Air Compressors, No. One No. of stages One Diameters 1600 in. Stroke 540 in. Driven by levers from main engine.Small Auxiliary Air Compressors, No. One No. of stages One Diameters 1600 in. Stroke 540 in. Driven by levers from main engine.Suctioning Air Pumps, No. One No. of stages One Diameters 1600 in. Stroke 540 in. Driven by levers from main engine.Auxiliary Engines crank shafts, diameter as per Rule Position as fitted



**AIR RECEIVERS:**—Is each receiver, which can be isolated, fitted with a safety valve as per Rule *Yes*. On discharge from Compt. 5a.

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.** *✓* Cubic capacity of each *✓* Internal diameter *✓* thickness *✓*

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

**Starting Air Receivers, No.** *Two* Total cubic capacity *220 cuft.* Internal diameter *3'-6"* thickness *1"*

Seamless, lap welded or riveted longitudinal joint *Riveted* Material *M. Steel* Range of tensile strength *28/32* Working pressure by Rules *603 lb/sq. in.* Actual *600 lb/sq. in.*

**IS A DONKEY BOILER FITTED?** *Yes*. If so, is a report now forwarded? *Yes*.

Is the donkey boiler intended to be used for domestic purposes only *Yes*. Receivers *Yes*. Separate Fuel Tanks *Yes*.

**PLANS.** Are approved plans forwarded herewith for Shafting (If not, state date of approval) *Yes*. Pumping Arrangements in Machinery Space *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 (To latest requirements)*.

State the principal additional spare gear supplied *One Cast iron Propeller, one cylinder liner complete,*

*1 main piston head, 5 main piston rings, 1 Centre & 1 side Conn. rod Spherical bearings*

*for bottom end with bolts & nuts, 2 Centre & side Conn. rod top end bearings & bolts,*

*1 Fuel pump body with ram, guide, nut & del. Chamber &c, 2 Front & 2 Back Fuel valves*

*Complete, 8 Fuel Spray plugs, 1 Starting air valve complete, 1 relief valve complete, 1 Set*

*each Side valves for engine driven & adapt. pumps, 1 Set of pads for high speed block, 1 roller chain*

*for cam shaft drive*

The foregoing is a correct description, *W. H. Miller* Director. Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1937 Aug. 20. Sep. 9. 14. 16. 20. 21. 23. 27. 29. Oct. 3. 6. 11. 18. 22. 26. Nov. 8. 9. 10. 12. 15. 16. 18. 19. 22. 23. 25. 26. 29. 30. Dec. 1. 2. 6. 7. 9. 10. 13. 14. 15. 17. 20. 21. 24. 29. 31. Jan. 6. 7. Feb. 21. 24. Mar. 1. 2. 8. 9. 10. 11. 15. 17. 22. 23. 25. 26. 29. 30. Apr. 7. Total No. of visits *59*

Dates of Examination of principal parts—Cylinders *22/10/37* Covers *✓* Pistons *12/11/37* Rods *12/11/37* Connecting rods *26/11/37*

Crank shaft *22/11/37 (G.L.S.)* Flywheel shaft *as crank.* Thrust shaft *as crank.* Intermediate shafts *13/12/37* Tube shaft *✓*

Screw shaft *6/1/38* Propeller *as crank.* Stern tube *7/1/38* Engine seatings *(tank top)* Engines holding down bolts *14/3/38*

Completion of fitting sea connections *6/1/38 (det.)* Completion of pumping arrangements *23/3/38* Engines tried under working conditions *4/4/38*

Crank shaft, Material *Ingot Steel* Identification Mark *S.O. 4531* Flywheel shaft, Material *as crank* Identification Mark *as crank.*

Thrust shaft, Material *as crank.* Identification Mark *as crank.* Intermediate shafts, Material *Ingot Steel* Identification Marks *5514, 5529, 5522*

Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Ingot Steel* Identification Mark *5526, 5525*

Is the flash point of the oil to be used over 150° F. *Yes*. If so, have the requirements of the Rules been complied with *Yes*.

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with *Yes*. If so, have the requirements of the Rules been complied with *Yes*.

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *Yes*. If so, state name of vessel *M/V "FOREST"*.

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *not denied*.

Is this machinery duplicate of a previous case *Yes*. If so, state name of vessel *M/V "FOREST"*.

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has*

*been built under Special Survey in accordance with the Rules of the Society*

*the Secretary's letter E 25/4/34. The materials & workmanship are*

*good. The machinery has been securely fitted on board the vessel*

*tried under full working conditions at sea, including rule requirements*

*for starting, with satisfactory results. The two donkey boilers have also*

*been securely fixed on board & fitted to burn oil fuel (F.P. above 150°*

*Section 20 of the Rules has been complied with, Safety valves of boilers*

*adjusted to rule requirements.*

*The machinery is eligible in my opinion to have notation*

*150 lb M.C. 4.38 oil Eng. T.S. (CL) 2 DB 120 lbs/sq. in.*

The amount of Entry Fee *£ 5 : -* When applied for, *8 APR 1938*

Special *£ 92 : 7* When received, *26. 4. 1938*

Donkey Boiler Fee *£ 12 : 12*

Travelling Expenses (if any) *£ :*

Committee's Minute *WED. 20 APR 1938*

Assigned *+ Lmb. 4.38*

*2 DB - 120 lb*

*oil Eng. Ch*

*W. H. Miller*