

# REPORT ON OIL ENGINE MACHINERY.

No. 32345

APR - 9 1938

Received at London Office

- 8 APR. 1938 Port of

Sunderland.

Date of writing Report

When handed in at Local Office

No. in Survey held at Reg. Book.

Sunderland

Date, First Survey

Aug 20

Last Survey

Apr 7 1938

Number of Visits

59

Single  
Twin  
Triple  
Quadruple

Screw vessel

## "DERRYMORE"

Tons  
Gross 4499.  
Net 2822.

Built at

Burntisland

By whom built

Burntisland S.B. Col.

Yard No.

When built

1938

Engines made at

Sunderland

By whom made

Wm. Beard & Sons Ld

Engine No.

202

When made

1938.

Donkey Boilers made at

Stockton.

By whom made

Stockton Chem. Eng. & Riley Bros Ld.

Boiler No.

6255

When made

1938.

Brake Horse Power

2100.

Owners

McLellan & Cross Ld.

Port belonging to

London.

Nom. 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

2276 85-16

### II ENGINES, &c.

Type of Engines *Opposed piston airless injection* 2 or 4 stroke cycle *2* Single or double acting *Single*

Maximum 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

FOR: 2240 in. F. 4.93 TONS.

Means of ignition *Compression*

Kind of fuel used

*Temperature*

Crank Shaft, dia. of journals

as per Rule *390 in.*

as fitted *420 in.*

Crank pin dia.

420 in.

Crank Webs

Mid. length breadth *610 in.*

Mid. length thickness *240 in.*

Thickness parallel to axis *240 in.*

Flywheel Shaft, diameter

as per Rule *390 in.*

as fitted *420 in.*

Intermediate Shafts, diameter

as per Rule *293 in.*

as fitted *343 in.*

Thrust Shaft, diameter at collars

as per Rule *390 in.*

as fitted *420 in.*

Tube Shaft, diameter

as per Rule

as fitted

Screw Shaft, diameter

as per Rule *326 in.*

as fitted *362 in.*

Is the shaft fitted with a continuous liner

*Yes.*

Bronze Liners, thickness in way of bushes

as per Rule *14 in.*

as fitted *20 in.*

Thickness between bushes

as per Rule *12 1/2 in.*

as fitted *14 in.*

Is the after end of the liner made watertight in the propeller boss

*Yes.*

*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

*Yes.*

Length of Bearing in Stern Bush next to and supporting propeller

*5-4 3/4 in.*

Propeller, dia.

*15-3 in.*

Pitch *11-9 in.*

No. of blades

*4*

Material *Bronze*

whether moveable

*no.*

Total Developed Surface *86* sq. feet

Method of reversing Engines

*Hand lever*

Is a governor or other arrangement fitted to prevent racing of the engine when detached *Yes.*

Means of lubrication

*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 with non-conducting material *Yes.*

Cooling Water Pumps, No.

*1*

Driven *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

Stroke

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"*

How driven

*Steam.*

Is the cooling water led to the bilges

*no.*

Ballast Pumps, No. and size

*1 @ 12" x 12" x 12"*

Power Driven

Lubricating Oil Pumps, including Spare Pump, No. and size

*1 main Eng. driven 85 in. x 540 in.*

one *4" x 4" x 12" Simplex.*

Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Are two independent means arranged for circulating water through the Oil Cooler

*Yes.*

Pumps, No. and size:—In Machinery Spaces

*4 @ 3" in E.R.*

In Pump Room

*1 @ 2 1/2" in Tunnel Well.*

In Holds, &c. *N°1. 3" φ r.s. N°2. 3 1/2" φ r.s. N°3 on Dup Tank 2 1/2" φ r.s. N°4. 3" φ r.s. N°5. 3" φ r.s. + 1 @ 2 1/2" aft.*

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 Spaces

*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

*For hold bilge suction*

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 *Bridge deck fr. of forward room.*

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.

*Two.*

No. of stages

*Three*

Diameters

*10 1/2" - 8 1/2" - 2 1/2"*

Stroke

*6"*

Driven by *Steam engine*

Auxiliary Air Compressors, No.

*none.*

No. of stages

Diameters

Stroke

Driven by

*levers from main engine.*

Small Auxiliary Air Compressors, No.

*none.*

No. of stages

Diameters

Stroke

Driven by

*levers from main engine.*

Scavenging Air Pumps, No.

*One*

Diameter

*1600 in.*

Stroke

*540 in.*

Driven by

*levers from main engine.*

Auxiliary Engines crank shafts, diameter

as per Rule

as fitted

No.

Position

*Yes.*

*Yes.*

*Yes.*

**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.** *Yes*. Cubic capacity of each *220 cuft.* Internal diameter *3'-6"* thickness *1"*  
 Seamless, lap welded or riveted longitudinal joint *Yes*. Material *M. Steel* Range of tensile strength *28/32* Working pressure by Rules *603 lbs* Actual *600 lbs*  
**Starting Air Receivers, No.** *Yes*. 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 lbs* Actual *600 lbs*

**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*.  
**PLANS.** Are approved plans forwarded herewith for Shafting *Yes*. Receivers *Yes*. Separate Fuel Tanks *Yes*.  
 Donkey Boilers *Yes*. General Pumping Arrangements *Yes*. Pumping Arrangements in Machinery Space *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, fuel, inlet & 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 of pads for high speed block, 1 roller chain for camshaft drive*

The foregoing is a correct description, Limited.  
*K. 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
	During erection on board vessel--	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
	Total No. of visits	59
Dates of Examination of principal parts	Cylinders	9/9/37, 24/9/37
	Covers	22/10/37
	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 <i>Cast attached</i> Stern tube 7/1/38, 13/1/38 (1st) Engine seatings (tank top) Engines holding down bolts 14/3/38
Completion of fitting sea connections	6/1/38 (1st)	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 22/11/37 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 as crank. 5526, 5525
	Identification Mark	5512, 5524, 5525
	Identification Mark	W.H.F. 13/12
	Identification Mark	No 5534 W.H.F. 6/1/38.

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 *Yes*. If so, have the requirements of the Rules been complied with *Yes*.  
 If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *not desired*.  
 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 fitted 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 100 lbs N.C. 4.38 oil Eng. T.S. (CL) 2 DB 120 lbs/o.*

The amount of Entry Fee .. £ 5 : - : When applied for,  
 Special ... £ 92 : 7 : 8 APR 1938  
 Donkey Boiler Fee ... £ 12 : 12 : When received,  
 Travelling Expenses (if any) £ : : 26. 4 19 38  
 Committee's Minute **WED. 20 APR 1938**  
 Assigned *to Engr. 4.38 2 DB - 120 lbs oil Eng. Ch*  
*J. St. Leger*  
 Engineer Surveyor to Lloyd's Register of Shipping.



SUNDERLAND