

REPORT ON OIL ENGINE MACHINERY.

No 35269

27 JAN 1950

Received at London Office

Date of writing Report

When handed in at Local Office 25 January 1950 Port of Sunderland.

No. in Survey held at Reg. Book.

Sunderland

Date, First Survey 19 March 1948

Last Survey 24 January 1950

Number of Visits 45

Single / Twin / Triple / Quadruple Screw vessel

"DARTMOOR"

Tons: Gross 3324 Net 2928

Built at Sunderland

By whom built W. Bayford & Sons L.L. Yard No. 441

When built 1949

Engines made at Sunderland

By whom made W. Bayford & Sons L.L.

Engine No. 441

When made 1949

Donkey Boilers made at Stockton

By whom Stockton & Co. (Lancashire) L.L.

Boiler No. 14580

When made 1949.

Brake Horse Power 3300.

Owners Moor Line L.L.

Port belonging to London.

Nom. Horse Power as per Rule M.N. 4/12

Is Refrigerating Machinery fitted for cargo purposes No.

Is Electric Light fitted Yes.

Trade for which vessel is intended

L ENGINES, &c.—Type of Engines Opposed piston Archer injection 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 640 lbf. Diameter of cylinders 600 mm Length of stroke 1340 mm No. of cylinders 4 Triple Crank

Lead Indicated Pressure 98 lbf. Between each triple throw

Distance of bearings, adjacent to the Crank, measured from inner edge to inner edge 886 mm Is there a bearing between each crank

Revolutions per minute 108 Flywheel dia. 2200 mm Weight 12.8 tons Means of ignition Compression Kind of fuel used -

Crank Shaft, dia. of journals as per Rule 431 mm Crank pin dia. 450 mm Crank Webs Mid. length breadth 650 mm Thickness parallel to axis 255 mm

Flywheel Shaft, diameter as per Rule 431 mm Intermediate Shafts, diameter as per Rule 322 mm Thrust Shaft, diameter at collars as per Rule 431 mm

Propeller Shaft, diameter as per Rule 389 mm Is the tube shaft fitted with a continuous liner Yes.

Bronze Liners, thickness in way of bushes as per Rule 20 mm Thickness between bushes as per Rule 16 mm 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 One length.

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 -

If two liners are fitted, is the shaft lapped or protected between the liners - Is an approved Oil Gland or other appliance fitted at the after end of the tube

No. If so, state type 10-7' at radii Length of Bearing in Stern Bush next to and supporting propeller 4'-11"

Propeller, dia. 16'-0" Pitch 1302 at tips No. of blades 4 Material Bronze whether Moveable No. Total Developed Surface 88.46 sq. feet

Method of reversing Engines Hand lever Is a governor or other arrangement fitted to prevent racing of the engine when disengaged Yes. Means of lubrication

needed Thickness of cylinder liners 25 mm Are the cylinders fitted with safety valves Yes. Are the exhaust pipes and silencers water cooled or lagged with

insulating 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 -

Boiling Water Pumps, No. one Engine Driven one Steam Driven Is the sea suction provided with an efficient strainer which can be cleared within the vessel (F.W. Cooling)

Large Pumps worked from the Main Engines, No. none Diameter - Stroke - Can one be overhauled while the other is at work -

Pumps connected to the Main Bilge Line No. and Size 2-3 1/2" x 6" x 15" 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 pumping

arrangements -

Fast Pumps, No. and size 1-12 1/2" x 14" x 24" Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size one Engine Driven 110 mm x 510 mm

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" L.E.R. 1-3" Tunnel Well. In Pump Room -

Holds, &c. N°1. 3" φ. N°2. 3 1/2" φ. N°3 (keep tank) 2 1/2" φ. N°4. 3" φ. N°5. 3" (aft).

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-8" (Ballast) 1-5" (Bilge Pump)

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes. Are the Bilge Suctions in the Machinery Spaces

fitted 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 Below.

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.

How are they protected -

Are all pipes pass through the bunkers None Have they been tested as per Rule Yes.

Are all pipes pass through the deep tanks. For hold bilge suction 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

apartment to another Yes. Is the Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes. worked from ER top

Is the vessel a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork - Driven by Steam Engine

Main Air Compressors, No. Two No. of stages Three Diameters 11 1/2"-23 1/4" - 11 1/2"-9 1/4" - 23 1/4" Stroke 4" Driven by 13 1/2" x 4"

Auxiliary Air Compressors, No. - No. of stages - Diameters - Stroke - Driven by -

Small Auxiliary Air Compressors, No. - No. of stages - Diameters - Stroke - Driven by -

What provision is made for first Charging the Air Receivers (Steam Driven Compressors)

Scavenging Air Pumps, No. Two Diameter 1510 mm Stroke 510 mm Driven by Suctions from Main Engine

Auxiliary Engines crank shafts, diameter as per Rule - No. - Position -

Have the Auxiliary Engines been constructed under special survey - Is a report sent herewith -



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AIR RECEIVERS: - Have they been made under survey *Yes.*
 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.*
 Injection 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 cu ft.* Internal diameter *3'-6 3/4"* thickness *1"*
 Seamless, lap welded or riveted longitudinal joint *Incon. held (Class I)* Material *M/Steel* Range of tensile strength *28/32* Working pressure by Rules Actual *600 lbs.*
 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 (if not, state date of approval) *11/10/44* *14/2/46* Receivers - Separate Fuel Tanks -
 Donkey Boilers - General Pumping Arrangements *Retained* Pumping Arrangements in Machinery Space *Retained*
 Oil Fuel Burning Arrangements *Retained*

Has the spare gear required by the Rules been supplied *Yes.*
 State the principal additional spare gear supplied *Two cylinder liners & pistons complete, 4 main piston heads & 24 rings, 2 Centre & side top & bottom end bearings belts & nuts, 2 main bearing studs & nuts, 1 set coupling belts & nuts, 4 fuel valves complete, 14 spray flaps, 1 N.R. air starting valve, 1 relief valve complete, 2 fuel pump levers with 1/2 inch valve chambers, rams & guides, 1 bell crank lever with 1/2 inch & studs, 1 set thrust pads, spheres & bearings for side & centre bottom end bearings, 2 side & centre top end bearings, 1 propeller shaft, 1 C.I. pin & nut, 6 rubber hoses for piston cooling system, 1 set pads for int. & tail shaft bearings, 1 roller chain for camshaft &c.*

The foregoing is a correct description of the foregoing *ITED.*
 Manufacturer: *Wm. G. Purdie*

Dates of Survey while building	During progress of work in shops - -	1948 Mar 19 Mar 20 21 22 23 24 25 26 27 28 29 30 Dec 21 1949 Jan 18 Feb 1 3 4 7 11 21 24 28 Mar 1 3 Apr 1 12 14 19 21 25 27 28 29 May 4 9 10 11 12
	During erection on board vessel - - -	20 23 24 Jun 3 10 13 14 15 16 20 21 23 24 25 Aug 25 26 30 Sep 2 6 9 20 21 29 30 Oct 3 6 10 12 14 17 24 27 Nov 2 4 11 14 15 Dec 6 8
	Total No. of visits	1950 Jan 20 24 45
Dates of Examination of principal parts -	Cylinders	4/5/49, 9/5/49
	Covers	-
	Pistons	3/6/49 3/6/49
	Rods	10/6/49
	Connecting rods	16/6/49
Crank shaft	11/5/49	Flywheel shaft as crank
	11/5/49	Thrust shaft as crank
	11/5/49	Intermediate shafts
	11/5/49	Tube shaft -
Screw shaft	6/9/49	Propeller 26/8/49 (M.B.C.) 2501
	6/9/49	Stern tube 14/4/49, 25/4/49
	6/9/49	Engine seatings (Bank top)
	6/9/49	Engines holding down bolts 4/11/49
Completion of fitting sea connections	28/4/49	Completion of pumping arrangements 8/12/49
	28/4/49	Engines tried under working conditions 20/1/50
Crank shaft, Material	Ingot Steel	Identification Mark N° 771 W.H.F. 11/5/49
	Ingot Steel	Flywheel shaft, Material as crank
	Ingot Steel	Identification Mark as crank
	Ingot Steel	Intermediate shafts, Material Ingot Steel
	Ingot Steel	Identification Mark N° 455, 7857, 7629 (2), 7846, 7914, 7851
Tube shaft, Material	-	Identification Mark -
	-	Screw shaft, Material Ingot Steel
	-	Identification Mark W.H.F. 9/9/49
Identification Marks on Air Receivers	K. 2142/3	N° 4851-1032
	LR. 22893	W.H.F. 6/9/49
	ARR. 19/5/49	

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.*
 Description of fire extinguishing apparatus fitted *1 1/2 n.l. Supratia pipe for steam led around E.R. & Bunks. Contains for Phenomenon*
 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 *Not desired.*
 Is this machinery duplicate of a previous case *Yes.* If so, state name of vessel *"CRAGMOOR" Old Rpt. N° 34685*

General Remarks (State quality of workmanship, opinions as to class, &c.) *This machinery has been built in accordance with the approved plans & the rules of the Society. The materials & workmanship are good. It has been securely fitted on the vessel & tried under full working conditions with satisfactory results. The two donkey boilers have also been securely fixed on board the vessel fitted to burn oil fuel (F.P. above 150° F.) & safety valves adjusted under steam to working pressure. Section 20 of the rules has been complied with. This machinery is now eligible in our opinion to have notation of L.M.C. 1.50 (oil Eng.), T.P. (C.), 2 D.B. 120 lbs.*
Topplings approved 14/2/46 for 108 lbs provided.
Note: Engines not to be run continuously between 38 & 55 r.p.m.

The amount of Entry Fee .. £ : : When applied for,
 Special £ 214 : 8 : JAN 26 1950
 Donkey Boiler Fee £ 16 : - : When received,
 Travelling Expenses (if any) £ : : : 19.....
 Committee's Minute *FRI. 17 FEB 1950*
 Assigned + L.M.C. 150 Oil Eng.
2 D.B. 120 lbs. C.L.
 Engineer Surveyor to Lloyd's Register of Shipping.
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