

## REPORT ON OIL ENGINE MACHINERY.

No. 32381

Received at London Office

MAY 19 1938

Date of writing Report

19

When handed in at Local Office 13 May 1938 Port of

Sunderland.

No. in Survey held at  
Reg. Book.

Sunderland

Date, First Survey Nov. 25 37 Last Survey May 12 1938

Number of Visits 56

Single  
on the ~~Four~~ Screw vessel

"CLIFTON HALL"

Tons Gross 5063  
Net 2968

Built at

Sunderland

By whom built

Wm. Leyland &amp; Sons Ltd

Yard No.

642

When built

1938.

Engines made at

Sunderland

By whom made

Wm. Leyland &amp; Sons Ltd

Engine No.

642

When made

1938.

Donkey Boilers made at

Stockton

By whom made

Stockton Chem. Engs &amp; Refry Bldg.

Boiler No.

13906

When made

1938.

Brake Horse Power

2100

Owners

West Hantsport Ship Nav. Co Ltd

Port belonging to

W. Hantsport.

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

8576

OIL ENGINES, &c. Type of Engines *Opposed piston airless injection* (2 or 4 stroke cycle) *2* Single or double acting *Single*

Maximum pressure in cylinders *5 1/2 lbs/sq in* Diameter of cylinders *560 mm* Length of stroke *Upper 910 mm* 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 mm* Is there a bearing between each crank *3 throw*

Revolutions per minute *110* Flywheel dia. *For 2240 mm* Weight *F 4.93 tons* Means of ignition *Compression* Kind of fuel used *between each*

Crank Shaft, dia. of journals *as per Rule 390 mm* Crank pin dia. *420 mm* Crank Webs *as per Rule 293 mm* Thickness parallel to axis *240 mm*

Flywheel Shaft, diameter *as per Rule 390 mm* Intermediate Shafts, diameter *as per Rule 343 mm* Thrust Shaft, diameter at collars *as per Rule 420 mm*

Tube Shaft, diameter *as per Rule* Screw Shaft, diameter *as per Rule 326 mm* Is the *tube* shaft fitted with a continuous liner *Yes*

Bronze Liners, thickness in way of bushes *as per Rule 14 mm* Thickness between bushes *as per Rule 12 1/2 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 *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*

Propeller, dia. *15'-3"* Pitch *11'-6" (variable)* No. of blades *4* Material *Bronze* whether Movable *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 decelerated *Yes* Means of lubrication *Hand forced*

Thickness of cylinder liners *23 mm* 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 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 *1 @ 10" x 11" x 10 Duplex* Stroke *2 @ 5 1/2" x 6" x 15 Simply*

Pumps connected to the Main Bilge Line { No. and Size *1 @ 10" x 11" x 10 Duplex* 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 *1 main eq. driven 8 1/2" x 540"*

Ballast Pumps, No. and size *1 @ 10" x 11" x 10* Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size *are 6" x 5 1/2" x 15 Simply*

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" in E.R.* In Pump Room *1 @ 3" in Tunnel well*

In Holds, &c. *No. 1. 3 1/2" p/s No. 2. 3 1/2" p/s No. 3. 3" p/s No. 4. 1 @ 3 1/2" Deep Tank 3 1/2" p/s*

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

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*

led 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 plate *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 *Forward hold bilge suction* Is the Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *E.R. top*

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*

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. *one* No. of stages *one* Diameters *1600 mm* Stroke *540 mm* Driven by *levers from main engine*

Small Auxiliary Air Compressors, No. *one* No. of stages *one* Diameters *1600 mm* Stroke *540 mm* Driven by *levers from main engine*

Scavenging Air Pumps, No. *One* Diameter *1600 mm* Stroke *540 mm* 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 Compressor)*

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. *none* 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 *603* by Rules *600.* Actual *600.*

IS A DONKEY BOILER FITTED?

Is the donkey boiler intended to be used for domestic purposes only *Yes.*

PLANS. Are approved plans forwarded herewith for Shafting (If not, state date of approval) *Yes.*

Donkey Boilers *Yes.* General Pumping Arrangements *Yes.* Receivers *Yes.* Separate Fuel Tanks *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 Propeller Shaft, 2 Front & 2 Back Fuel Valves Complete, 8 fuel valve spray plugs, 1 Cyl. relief valve, 1 Starting air valve Complete, 4 Scavenging Pump disc valves, 3 fuel pump bodies Complete with del. Chambers, 1 Suct. valve Chamber with Crosshead, bell crank lever & tappet, 1 main piston with rings, 5 main piston rings, 1 Centre Conn. rod Spherical bearing Complete, 1 ditto for Side Conn. rod, 2 Centre Conn. rod top end bearings Complete, 2 ditto for Side rods, 1 Set pads for Michell block, one roller chain for Camshaft drive, 1 Cyl. liner Complete.*

The foregoing is a correct description, *Limited.*

*W. H. Kelly*

Director.

Manufacturer.

Dates of Survey while building *During progress of work in shops - 1937. Nov. 25, 30. Dec. 1, 2, 6, 7, 8, 9, 10, 13, 14, 17, 1938. Jan. 10, 14, 28, 31. Feb. 1, 2, 4, 7, 9, 10, 14, 15, 17, 21. During erection on board vessel - 22, 24, 25, 28. Mar. 1, 2, 3, 7, 8, 9, 10, 11, 14, 15, 16, 18, 25, 28, 31. Apr. 5, 6, 11, 13, 21, 25, 28. May 2, 4, 12. Total No. of visits *56**

Dates of Examination of principal parts—Cylinders *4/2/38* Covers *3/1/38* Pistons *4/2/38* Rods *4/2/38* Connecting rods *9/2/38.*

Crank shaft *18/2/38 (See)* Flywheel shaft *as crank.* Thrust shaft *as crank.* Intermediate shafts *11/3/38.* Tube shaft *1/3/38.*

Screw shaft *16/3/38.* Propeller *(Ham. Gt.)* Stern tube *17/2/38.* Engine seatings *(Bank top)* Engines holding down bolts *21/4/38.*

Completion of fitting sea connections *10/2/38.* Completion of pumping arrangements *8/5/38* Engines tried under working conditions *12/5/38.*

Crank shaft, Material *Ingot Steel* Identification Mark *Nº 285 H.S.* 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 *Nºs 3930, 3953, 3949*

Tube shaft, Material *as crank.* Identification Mark *as crank.* Screw shaft, Material *Ingot Steel* Identification Mark *Nºs 3952, 3950, 3951*

Is the flash point of the oil to be used over 150° F. *Yes.* *Nº 3929 W.N.F. 16/3/38*

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 *Yes.*

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

Is this machinery duplicate of a previous case *Yes.* If so, state name of vessel *7/4 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° F.) Section 2 of the Rules has been complied with & safety valves of boilers adjusted in accordance with Rule requirements.*

*The machinery is eligible, in my opinion, to have notation of L.M.C. 5.38 oil Eng. T.S. (CL) 2 DB 120 H.P.*

The amount of Entry Fee *£ 5 :* When applied for, *18 MAY 1938.*  
Special *£ 92 :* *Y*  
Donkey Boiler Fee *£ 12 :* *12*  
Travelling Expenses (if any) *£ :* *21. 5 19.38*

Committee's Minute

Assigned

*+ L.M.C. 5.38*

*2 DB - 120 H.P.*

*W. H. Kelly*

*W. H. Kelly*

Engineer Surveyor to Lloyd's Register of Shipping.



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