

## REPORT ON OIL ENGINE MACHINERY.

Bel. No. 12305

No. 60344

Received at London Office

NOV - 2 1938

Date of writing Report

19- When handed in at Local Office

29.10.38 Port of

Glasgow

30. Jan 1939

No. in Survey held at  
Reg. Book.

Glasgow

Date, First Survey

8th Aug 1938

Last Survey

26th Oct 1938

Number of Visits

16

on the Single  
Twin  
Triple  
Quadruple Screw vessel

Single Screw Motor Tanker "CAIRNDALE"

Tons Gross 8128.58  
Net 4826.32

Built at

Belfast

By whom built

Harland &amp; Wolff Ltd

Yard No. 1014 When built 1938

Engines made at

Glasgow

By whom made

Harland &amp; Wolff Ltd

Engine No. 1014 When made 1938

Donkey Boilers made at

Belfast

By whom made

Harland &amp; Wolff Ltd

Boiler No. 1014 When made 1939

Brake Horse Power

3600

Owners

Anglo-Saxon Petroleum Co. Ltd

Port belonging to London

Nom. Horse Power as per Rule

502

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

Yes

Trade for which vessel is intended

Oil Tanker

OIL ENGINES, &amp;c. Type of Engines Heavy oil. Solid injection 2 or 4 stroke cycle 4 Single or double acting S.A.

Maximum pressure in cylinders

700 lb

Diameter of cylinders

650 mm

Length of stroke

1400 mm

No. of cylinders

8

No. of cranks

8

Mean Indicated Pressure

130 "

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge

866 mm

Is there a bearing between each crank

Yes

Revolutions per minute

120

Flywheel dia.

2218.5 mm

Weight

2150 Kg

Means of ignition Compression

Kind of fuel used Diesel oil

Crank Shaft, Solid forged  
Semi-bent  
All built

dia. of journals

as per Rule 454 mm  
as fitted 460

Crank pin dia.

460 mm  
134 mm hole

Crank Webs

Mid. length breadth 750 mm  
Mid. length thickness 267 mmThickness parallel to axis 267 mm  
Thickness around eyehole 205 mm

Flywheel Shaft, diameter

as per Rule 454 mm  
as fitted

Intermediate Shafts, diameter

as per Rule 13.65"  
as fitted 19"

Thrust Shaft, diameter at collars

as per Rule 14.35"  
as fitted 18 1/2"

Tube Shaft, diameter

as per Rule  
as fitted

Screw Shaft, diameter

as per Rule 14.94"  
as fitted 18"Is the tube  
screw shaft fitted with a continuous liner

Yes

Bronze Liners, thickness in way of bushes

as per Rule 756 mm  
as fitted 2 3/8"

Thickness between bushes

as per Rule 567 mm  
as fitted 3 3/4"

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

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

Propeller, dia. 15'-6"

Pitch 12'-0"

No. of blades 4

Material Bronze

whether Moveable No

Total Developed Surface 75 sq. feet

Method of reversing Engines Direct

Is a governor or other arrangement fitted to prevent racing of the engine when disconnected

Yes

Means of lubrication

Forced

Thickness of cylinder liners 48/40 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

Cooling Water Pumps, No. 1 @ 75

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 mm per inch each

Can one be overhauled while the other is at work

Yes

Pumps connected to the Main Bilge Line

No. and Size One 100 tons General Service

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

Ballast Pumps, No. and size

Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 1 @ 40 ton per hour, 1 @ 8" x 8" x 10" 50 ton per hour

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 - 3 1/2"

In Holds, &amp;c. Fore Hold 3 - 2 1/2"

Twin Port 1 - 2"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 - 6"

Are the Bilge Suctions in the Machinery Spaces

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes

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

What pipes pass through the bunkers

Coffin dam suction

Have they been tested as per Rule

What pipes pass through the deep tanks

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

Is it fitted with a watertight door

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

Main Air Compressors, No. 2

No. of stages 2

Diameters 184 x 206 mm

Stroke 160 mm

Driven by 3m Steam

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 compressor

Stroke

Driven by

Scavenging Air Pumps, No.

Diameter

No. 3

Position

Engine room

Auxiliary Engines crank shafts, diameter

as per Rule See separate report

Is a report sent herewith

Yes

Have the Auxiliary Engines been constructed under special survey

Yes

W1161-0162

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Lloyd's Register  
Foundation



**AIR RECEIVERS:**—Have they been made under survey *yes* State No. of Report or Certificate  
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*  
**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  
**Starting Air Receivers, No.** *2* Total cubic capacity *800 cu ft* Internal diameter *5'-1 3/4"* thickness *5/16"*  
Seamless, lap welded or riveted longitudinal joint *seamless* Material *S* Range of tensile strength *28/32 ton* Working pressure by Rules *362 lb*  
Actual *356 lb*  
**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 *No*  
**PLANS.** Are approved plans forwarded herewith for Shafting *yes* Receivers *yes* Separate Fuel Tanks *✓*  
(If not, state date of approval)  
Donkey Boiler *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*  
State the principal additional spare gear supplied *as per attached list.*

The foregoing is a correct description,  
for **HARLAND AND WOLFE LIMITED.**

*Wm. J. Wright*

Manufacturer.

Dates of Survey while building { During progress of work in shops - *Finneston Secretary 1938 Aug. 8. 18. 19. 23. 25. 30. Sep. 1. 5. 7. 8. 9. 22. 30. Oct. 10. 14. 26*  
During erection on board vessel - *June 15. 16. July 19. 28. Aug. 16. 17. 18. 19. 22. 29. Sept. 15. 26. 30. Oct. 31. 5. 6. 7. 11. 14. 18. 21. 25. 27. 31*  
Total No. of visits *16 + 68*  
Dates of Examination of principal parts—Cylinders *5-9-38 to 9-9-38* Covers *5-9-38 to 9-9-38* Pistons *5-9-38 to 9-9-38* Rods *22-9-38* Connecting rods *22-9-38*  
Crank shaft *19-8-38* Flywheel shaft *✓* Thrust shaft *19-8-38* Intermediate shafts *6-10-38* Tube shaft *✓*  
Screw shaft *22-8-38* Propeller *16-1-39* Stern tube *28-7-38* Engine seatings *10-10-38* Engines holding down bolts *6-1-39*  
Completion of fitting sea connections *10-10-38* Completion of pumping arrangements *25-1-39* Engines tried under working conditions *24-26-1-39*  
Crank shaft, Material *Steel* Identification Mark *1014 G.E.M.* Flywheel shaft, Material *✓* Identification Mark *✓*  
Thrust shaft, Material *Steel* Identification Mark *8145 G.E.M.* Intermediate shafts, Material *S* Identification Marks *327 J.E.M.*  
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *S* Identification Mark *327 C.N.H.*  
Identification Marks on Air Receivers *220405*  
*Nº 185*  
*5.86 lb/1" test pressure*  
*3.56 lb/1" working pressure*  
*C.N.H. 21-10-38*

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 *✓* If so, have the requirements of the Rules been complied with *No.*  
If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *No.*  
Is this machinery duplicate of a previous case *yes* If so, state name of vessel *MV DONAX.*  
**General Remarks** (State quality of workmanship, opinions as to class, &c.)

These engines have been built under Special Survey & in accordance with the approved plan and the Rules of this Society.  
The materials and workmanship are good.  
The engines have been shipped to Belfast to be fitted on board the vessel.  
The main & auxiliary machinery has been efficiently installed & tried out under full working conditions with satisfactory results. In my opinion the vessel is eligible for record in the Society's Register Book + LMC 1-39 CL 10B 180 lbs. Electric light 0.2 Kw  
*Wb*  
*29/10/38*

*Paid 16-12-38*

The amount of Entry Fee .. £ 6 : 0 : 0 When applied for, *1- NOV 1938*  
Special *2/3 LMC 9.4* £ 66 : 14 : 8  
Donkey Boiler Fee ... £ 16 : 14 : 0 When received,  
**AIR RECEIVERS** £ 8 : 8  
Travelling Expenses (if any) £ 33 : 7  
*16 Dec 1938*  
*155.9.4 not 15/2/39*  
*1- NOV 1938*

Committee's Minute

Assigned

*Deferred*

*P. Fitzgerald. Charles J. Hunter*  
Engineer Surveyor to Lloyd's Register of Shipping.

*1/3 Special LMC for 1-33-7-4.*  
*rendered 6. 2. 39*  
*FRI 10 FEB 1939*  
*Lloyd's Register*  
*Foundation*  
*DB 18 11 CL*