

## REPORT ON OIL ENGINE MACHINERY.

No. 59000

Received at London Office

NOV 11

Date of writing Report

When handed in at Local Office

11. 37 Port of

Glasgow

Date, First Survey 12. 11. 36 Last Survey 3. 11. 1937

Number of Visits 50 51

No. in Survey held at

Glasgow

Reg. Book.

Single  
on the Twin  
Triple  
Quadruple

Screw vessel

"BROOMDALE"Tons { Gross 8334.22  
Net 4967.35

Built at

Glasgow

By whom built Harland &amp; Wolff Ltd.

Yard No. 9736 When built 1937

Engines made at

Glasgow

By whom made Harland &amp; Wolff Ltd.

Engine No. 973 When made 1937

Donkey Boilers made at

Belfast

By whom made Harland &amp; Wolff Ltd.

Boiler No. 973 When made 1937

Brake Horse Power 2850 @ 105 R.P.M.

Owners The Admiralty.

Port belonging to London

Nom. Horse Power as per Rule 490

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

yes

Trade for which vessel is intended

Oil tanker

IL ENGINES, &amp;c.

Type of Engines

Solid injection

2 or 4 stroke cycle 4 Single or double acting S.A.

Maximum pressure in cylinders

700 lb

Diameter of cylinders

740 mm

Length of stroke

1500 mm

No. of cylinders

6

No. of cranks

6

Mean Indicated Pressure

128 "

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

972 mm

Is there a bearing between each crank

yes

Revolutions per minute

105

Flywheel dia.

2489 mm

Weight

2540 Kp.

Means of ignition

Compression

Kind of fuel used

Diesel oil

Crank Shaft, dia. of journals

as per Rule 483 mm

Crank pin dia.

505 mm

Crank Webs

Mid. length breadth 840 mm

Thick. parallel to axis

310 mm

Flywheel Shaft, diameter

as per Rule 483 mm

Intermediate Shafts, diameter

as per Rule 13.6 "

Thrust Shaft, diameter at collars

as per Rule 14.3 "

Tube Shaft, diameter

as per Rule

Screw Shaft, diameter

as per Rule 15 "

Is the tube

shaft fitted with a continuous liner

yes

Bronze Liners, thickness in way of bushes

as per Rule 7.58 "

Thickness between bushes

as per rule 5.57 "

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

shaft

If so, state type

Length of Bearing in Stern Bush next to and supporting propeller 5'-0"

Propeller, dia.

17'-0"

Pitch

11'-6"

No. of blades

4

Material

Mg. Bronze

whether Moveable

No

Total Developed Surface

89 sq. feet

Method of reversing Engines

Direct

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

yes

Means of lubrication

forced

Thickness of cylinder liners

536 32

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 @ 150 + 2 @ 250 ton/hr.

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.

Diameter

Stroke

Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line

No. and Size

1 Ballast Pump 150 ton per hour; 2 Bilge &amp; Sanitary pumps each 100 ton per hour.

How driven

Steam (9' x 10' x 10')

Steam

(7' x 8' x 8')

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

One 9' x 10' x 10' 150 ton per hour.

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

2 @ 70 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

Port drain hot 3 1/2"; Starboard drain hot 3 1/2"; Aft. well 3 1/2"

In Pump Room

In Holds, &amp;c.

Fore hold, one 3" port &amp; one 3" starboard.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size

2 @ 6"; 1 @ 4 1/2"

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

yes

Are the Bilge Suctions in the Machinery Spaces

ed 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

lock

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

How are they protected

What pipes pass through the deep tanks

Have they been tested as per Rule

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

Is it fitted with a watertight door

worked from

Main Air Compressors, No.

No. of stages

Diameters

Stroke

Driven by

Auxiliary Air Compressors, No.

Two

No. of stages

2

Diameters

120 G. of air/min. 356 lbs. at

Stroke

Driven by

Steam engine

Small Auxiliary Air Compressors, No.

No. of stages

Diameters

Stroke

Driven by

Scavenging Air Pumps, No.

Underside of pistons

Diameter

Stroke

Driven by

Auxiliary Engines crank shafts, diameter

as per Rule

as fitted

All auxy. machinery steam driven except 30 K.W. Generator driven by a Diesel engine. For lighting only.

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**AIR RECEIVERS:**—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*

**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 *—*

**Starting Air Receivers, No.** *Two*

Total cubic capacity *900 Cu ft.*

Internal diameter *6'-0 5/16"*

thickness *Shell 1 1/2" Ends 1 3/4" + 1 1/2"*

Seamless, lap welded or riveted longitudinal joint *Riveted*

Material *steel*

Range of tensile strength *26/30 ends 28/32 shell*

Working pressure *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*  
(If not, state date of approval)

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*

State the principal additional spare gear supplied *as per attached list.*

The foregoing is a correct description,  
**For HARLAND AND WOLFF, LIMITED.**

*Wm. J. Blaght*

Manufacturer.

Dates of Survey while building  
During progress of work in shops—*Finnloston Secretary 1936 Nov.: 12, 24 Dec.: 2, 18 (1937) Jan.: 15, 19, 27 Feb.: 5, 12, 23 Apr.: 2, 21, 29*  
During erection on board vessel—*May: 4, 6, 17, 19, 31 June: 8, 21, 28 July: 5, 8, 9, 12, 13, 26, 28 Aug.: 2, 5, 10, 13, 18, 20, 31 Sep.: 1, 3, 5, 8, 11, 14, 15, 18, 25, 26, 27 Nov.: 3*  
Total No. of visits *50*

Dates of Examination of principal parts—Cylinders *13-7-37* Covers *13-7-37* Pistons *8-7-37* Rods *8-7-37* Connecting rods *2-8-37*

Crank shaft *21-6-37* Flywheel shaft *—* Thrust shaft *21-6-37* Intermediate shafts *21-6-37* Tube shaft *—*

Screw shaft *21-6-37* Propeller *28-6-37* Stern tube *28-6-37* Engine seatings *29-6-37* Engines holding down bolts *28-9-37*

Completion of fitting sea connections *31-8-37* Completion of pumping arrangements *27-10-37* Engines tried under working conditions *3-11-37*

Crank shaft, Material *Steel* Identification Mark *973 G.A.* Flywheel shaft, Material *—* Identification Mark *—*

Thrust shaft, Material *Steel* Identification Mark *S.6206 G.A.* Intermediate shafts, Material *Steel* Identification Marks *S.6074 G.A.*

Tube shaft, Material *—* Identification Mark *—* Screw shaft, Material *Steel* Identification Mark *S.6046 G.A.*

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 *—*

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *—*

Is this machinery duplicate of a previous case *yes*

If so, state name of vessel *"British Integrity" Gb. Reg 5877*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been built under Special Survey and in accordance with the approved plans and the Rules of this Society. The materials and workmanship are good.

The machinery has been efficiently secured in position on board the vessel, and afterwards tried under full working conditions with satisfactory results.

The machinery is eligible in my opinion to be classed in the Register Book with notation of *1-LMC 11.37 C.L. 2DB WP 150 lb.*

*28/11/37*

The amount of Entry Fee .. £ *5* : -

Special ... £ *98* : *10*

Donkey Boiler Fee ... £ : :

Travelling Expenses (if any) £ : :

When applied for,

*3. 11. 1937*

When received,

*25/11 1937*

*P. Fitzgerald.*

*W. Campbell.*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW 9-NOV 1937**

Assigned *+ L.M.C. 11.37*

*2DB-150lb.*



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