

## REPORT ON OIL ENGINE MACHINERY.

No. 32235

NOV 13 1937

Received at London Office

Date of writing Report

19

When handed in at Local Office

12 NOV. 1937

Port of

Sunderland.

No. in Survey held at  
Reg. Book.

Date, First Survey

8 June

Last Survey

11 Nov 1937

Number of Visits

79

Single  
on the ~~Twin~~  
Triple  
Quadruple  
Screw vessel

ETTRICK BANK

Tons { Gross 5138.  
Net 3040.

Built at

By whom built

Wm. Duff &amp; Sons Ltd.

Yard No. 634

When built 1934

Engines made at

By whom made

Wm. Duff &amp; Sons Ltd.

Engine No. 634

When made 1934

Donkey Boilers made at

By whom made

Directon Chem. Eng. &amp; Riley, Bristol

Boiler No. 13588

When made 1934

Brake Horse Power 3000

Owners

Imperial Trading &amp; Transport Co. Ltd.

Port belonging to

Glasgow.

Nom. Horse Power as per Rule 684

Is Refrigerating Machinery fitted for cargo purposes

No.

Is Electric Light fitted

Yes.

Trade for which vessel is intended

IL ENGINES, &amp;c.—Type of Engines

Opposed piston air line injection 2 or 4 stroke cycle 2

Single or double acting

Single

Maximum pressure in cylinders

340 lbs/sq. in.

Diameter of cylinders

600 mm

Length of stroke

980 mm

No. of cylinders

4

Mean Indicated Pressure

88 lbs/sq. in.

Length of stroke

Lower 1340 mm

No. of cranks

4 (3 throw)

between each

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

940 mm

Is there a bearing between each crank

3 throw

Revolutions per minute

95

Flywheel dia.

425 mm

Weight

2.9 tons

Means of ignition

Compression

Kind of fuel used

Crank Shaft, dia. of journals

425 mm

Crank pin dia.

450 mm

Mid. length breadth

650 mm

Thickness parallel to axis

255 mm

Flywheel Shaft, diameter

425 mm

Intermediate Shafts, diameter

335 mm

Mid. length thickness

255 mm

Thickness around eye hole

200 mm

Tube Shaft, diameter

425 mm

Thrust Shaft, diameter at collars

425 mm

Is the tube shaft fitted with a continuous liner

Yes.

Screw Shaft, diameter

390 mm

Bronze Liners, thickness in way of bushes

19 mm

Thickness between bushes

14.25 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.

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

No.

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' 6"

Propeller, dia.

16' 9"

Pitch

14' 0"

No. of blades

4

Material

Bronze

whether Moveable

No.

Total Developed Surface

98 sq. feet

Method of reversing Engines

Hand lever

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

Yes.

Means of lubrication

Thickens of cylinder liners

25 mm

Are the cylinders fitted with safety valves

Yes.

Are the exhaust pipes and silencers water cooled or lagged with

conducting 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

One engine driven

Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Yes.

Cooling Water Pumps, No.

One steam driven

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

How driven

Two 8" x 4" x 18"

Steam.

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

Blast Pumps, No. and size

2 @ 12" x 10 1/2" x 24"

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

one engine driven 100 mm x 610 mm

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 at 3" in E.R.

1 @ 3 1/2" in Tunnel well

In Pump Room

Yes.

Holds, &amp;c.

N°1. 3 1/2" p.r.

N°2. 3 1/2" p.r.

N°3. 3 1/2" p.r.

N°4. 3" p.r.

N°5. 3 1/2" in Hold well

Cup Tank

5 1/2" p.r.

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

Two @ 8"

Are the Bilge Suctions in the Machinery Spaces

Yes.

Are they fitted with Valves or Cocks

Both

Are the Overboard Discharges above or below the deep water line

above

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

None

Have they been tested as per Rule

Yes.

all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Yes.

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

Is the Shaft Tunnel watertight

Yes.

Is it fitted with a watertight door

Yes.

In wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Yes.

In Air Compressors, No.

Two

No. of stages

3

Diameters

1 1/2" 9 1/4" 2 3/4"

Auxiliary Air Compressors, No.

No. of stages

Diameters

Stroke

Driven by

Steam

All Auxiliary Air Compressors, No.

No. of stages

Reversing Air Pumps, No.

One

Diameter

1960 mm

Stroke

610 mm

Driven by

Liners from main engine

Auxiliary Engines crank shafts, diameter

as per Rule

as fitted

No.

Position

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**AIR RECEIVERS:**—Is each receiver, which can be isolated, fitted with a safety valve as per Rule *Yes* (on discharge from Compressor) *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 by Rules *✓*  
**Starting Air Receivers, No.** *Two* Total cubic capacity *220 cuft.* Internal diameter *3'-6"* thickness *1"*  
Seamless, lap welded or riveted longitudinal joint *Limited* Material *M. Steel* Range of tensile strength *28/32* Working pressure by Rules *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 *No*.  
**PLANS.** Are approved plans forwarded herewith for Shafting (If not, state date of approval) *Yes*. Receivers *Yes*. Separate Fuel Tanks *Yes*.  
Donkey Boilers *(Embo.)* General Pumping Arrangements *✓* Pumping Arrangements in Machinery Space *✓*  
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 *1 Cast iron Propeller, 1 propeller shaft, 1 Cylinder liner & jacket, 3 main piston heads, 1 upper & 1 lower piston rod & skirt, 12 main piston rings, 4 fuel valves complete, 8 fuel valve spray plugs, 2 centre conn. rod top end bolts & nuts, 2 ditto bottom bolts & nuts, 2 Side Conn. rod top & bottom bolts & nuts, 1 Sliding air valve complete, 1 Cyl. relief valve complete, 4 Scavenge pump discs, 4 fuel pump bodies complete, 1 main & intermediate Crosshead for fuel pump with full crank lever & rod & tappet. 1 roller chain for camshaft drive.*

The foregoing is a correct description.  
**WILLIAM DOXFORD & SONS, Limited.**

*W. H. F. 21/*

Manufacturer.

**Dates of Examination of principal parts—**  
Cylinders *27/10/37, 12/7/37* Covers *✓* Pistons *13/9/37, 14/9/37* Rods *13/9/37, 14/9/37* Connecting rods *13/9/37*  
Crank shaft *29/9/37* Flywheel shaft *as crank* Thrust shaft *as crank* Intermediate shafts *(Bank top)* Engines holding down bolts *19/10/37*  
Screw shaft *15/10/37* Propeller *14/10/37* Stern tube *27/7/37, 19/8/37* Engine seatings *(Bank top)* Engines tried under working conditions *11/11/37*  
Completion of fitting sea connections *19/8/37* Completion of pumping arrangements *4/11/37* Engines tried under working conditions *11/11/37*  
Crank shaft, Material *Ingot Steel* Identification Mark *Nos. 952, 953, 954* 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. 2737, 2744, 2748*  
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Ingot Steel* Identification Mark *2738, 2739*  
*2745, 2746*  
*W. H. F. 21/*

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 "ESKBANK"*.

**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 of the Secretary's letter E 25/4/34. The materials & workmanship are found to be satisfactory. 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 20 of the Rules has been complied with, Safety valves of boilers & all working pressure & accumulation test carried out satisfactorily. The machinery is reliable in my opinion to have not a ton of L.M.C. 11.34 oil eng. T.S. (CL.) 2 D.B. 120 lbs.*

The amount of Entry Fee .. £ *6* : : When applied for, *12 NOV 1937*  
Special ... £ *109* : *✓* : :  
Donkey Boiler Fee ... £ *12* : *12* : : When received, *13.11.1937*  
Travelling Expenses (if any) £ : : : *15/11*

Committee's Minute  
Assigned *Adm. 11.37 oil eng*  
*2 D.B. - 120 lbs*

*W. H. F. 21/*

Engineer Surveyor to Lloyd's Register of Shipping.



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