

Rpt. 4b

REPORT ON OIL ENGINE MACHINERY.

No. 3332.

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on the ^{Single} ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel **Aquila** Tons ^{Gross} ~~Net~~

Built at **Leith** By whom built **Henry Robb, Ltd.** Yard No. **181** When built **1930**
Engines made at **Stockholm** By whom made **A.-B. Atlas Diesel** Engine No. **85191**
Donkey Boilers made at By whom made **Boiler No.** When made
Brake Horse Power **400** Owners **Forestal Land, Timber & Railway Co. Ltd.** Port belonging to **London.**
Nom. Horse Power as per Rule **125** Is Refrigerating Machinery fitted for cargo purposes **Is Electric Light fitted**
Trade for which vessel is intended **x2 = 250 for 8 cylinders**

OIL ENGINES, &c.—Type of Engines **Polar Diesel Oil Engine type M34M** stroke cycle **Single** ~~Double~~ ~~Acting~~
Maximum pressure in cylinders **35 kg/cm²** Diameter of cylinders **340 mm** Length of stroke **570 mm** No. of cylinders **4** No. of cranks **4**
Span of bearings, adjacent to the Crank, measured from inner edge to inner edge **440 mm** Is there a bearing between each crank **yes**
Revolutions per minute **200** Flywheel dia. **1.550 mm** Weight **2.900 kg** Means of ignition **Diesel** Kind of fuel used **Crude Oil**
Crank Shaft, dia. of journals ^{as per Rule} **190 mm** ^{as fitted} **220 "** Crank pin dia. **220 mm** Crank Webs ^{Mid. length breadth} **308 mm** ^{Thicknes parallel to axis} **shrunk** ^{Mid. length thickness} **122 "** ^{Thicknes around eyehole} **shrunk**
The flywheel is fitted on the thrust shaft. ^{as per Rule} **138.2** **Thrust Shaft, diameter at collars** ^{as per Rule} **170 mm**
Flywheel Shaft, diameter ^{as fitted} **220 "** ^{as fitted} **220 "**

Tube Shaft, diameter ^{as per Rule} **160.2** ^{as fitted} **160.2** Screw Shaft, diameter ^{as per Rule} **160.2** ^{as fitted} **160.2** Is the { tube / screw } shaft fitted with a continuous liner { **shrunk** }

Bronze Liners, thickness in way of bushes ^{as per Rule} **1.5** ^{as fitted} **1.5** Thickness between bushes ^{as per rule} **1.5** ^{as fitted} **1.5** 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 **Yes**
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 **Yes**

Propeller, dia. **770 mm** Pitch **1.5** No. of blades **3** Material **Steel** whether Moveable **Yes** Total Developed Surface **1.5** sq. feet
Method of reversing Engine **by compressed air.** Is a governor **Yes** fitted to prevent racing of the engine when declutched **Yes** Means of lubrication **pumps**
Thickness of cylinder liners **27,5 mm** Are the cylinders fitted with safety valves **yes** Are the exhaust pipes and silencers water cooled or lagged with non-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 **Yes**

Cooling Water Pumps, No. **1** 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. **1** Diameter **905 mm** Stroke **140 mm** Can one be overhauled while the other is at work **Yes**
Pumps connected to the Main Bilge Line { No. and Size / How driven } **1**

Ballast Pumps, No. and size **1** Lubricating Oil Pumps, including Spare Pump, No. and size **1** *Spare pump required by Rule*
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 **1**
In Holds, &c. **1**

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size **1**
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes **Yes** Are the Bilge Suctions in the Machinery Spaces led 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 **Yes**
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 **Yes**
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 **1** How are they protected **Yes**
What pipes pass through the deep tanks **1** Have they been tested as per Rule **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 compartment to another **Yes** Is the Shaft Tunnel watertight **Yes** Is it fitted with a watertight door **Yes** worked from **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, **1** (for starting air) of stages **2** Diameters **175/70 mm** Stroke **350 mm** Driven by **engine**
Auxiliary Air Compressors, No. **1** No. of stages **1** Diameters **175 mm** Stroke **350 mm** Driven by **engine**
Small Auxiliary Air Compressors, No. **1** No. of stages **1** Diameters **175 mm** Stroke **350 mm** Driven by **engine**
Scavenging Air Pumps, No. **1** Diameter **770 mm** Stroke **350 mm** Driven by **engine**

Auxiliary Engines crank shafts, diameter ^{as per Rule} **160.2** ^{as fitted} **160.2**
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 **yes** What means are provided for cleaning their inner surfaces **Manhole 400x300 mm**
Is there a drain arrangement fitted at the lowest part of each receiver **yes**

High Pressure Air Receivers, **None fitted,** ^(solid injection) ^{Cubic capacity of each} **1.600 litres** Internal diameter **650 mm** thickness **14 mm**
Seamless, lap welded or riveted longitudinal joint **riveted** Material **S.M. Steel** Range of tensile strength **44 kg/mm²** Working pressure by Rules **25,5 kg/cm²**
Starting Air Receivers, No. **2** Total cubic capacity **1.600 litres** Internal diameter **650 mm** thickness **14 mm**
Seamless, lap welded or riveted longitudinal joint **riveted** Material **S.M. Steel** Range of tensile strength **44 kg/mm²** Working pressure by Rules **25,5 kg/cm²**

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

PLANS. Are approved plans forwarded herewith for Shafting 5. 12. 28. Receivers 19/7 30 Separate Tanks

Donkey Boilers General Pumping Arrangements Oil Fuel Burning Arrangements

SPARE GEAR To be supplied and inspected when machinery is being fitted in ship.

The foregoing is a correct description;

Manufacturer.

Dates of Survey while building
 During progress of work in shops - - 5/8-29, 5/2, 3 & 19/7, 29/8, 5/9, 13, 16 & 20/10-30
 During erection on board vessel - -
 Total No. of visits in shop 9

Dates of Examination of principal parts—Cylinders 11 & 16 Covers 11 & 16 Pistons 16/10-30 Rods - 5/8-29, 29/8, 16/10-1930. Connecting rods
 Crank shaft 19/7, 5/9, 16/10-30 Compr. Thrust shaft 5/2, 13 & 16/10-30 Thrust shaft 3/7 Intermediate shafts 13 & 16/10-30 Tube shaft
 Screw shaft Propeller Stern tube Engine seatings Engines holding down bolts

Completion of fitting sea connections Completion of pumping arrangements Engines tried under working conditions in shop 11.10

Crank shaft, Material S.M. Steel Identification Mark LLOYD'S N: 05978 Compr. Thrust shaft, Material S.M. Steel Identification Mark LLOYD'S N: 0599
 Thrust shaft, Material Identification Mark LLOYD'S N: 05945 Intermediate shafts, Material Identification Marks 13.10.30
 Tube shaft, Material Identification Mark Screw shaft, Material Identification Mark

Is the flash point of the oil to be used over 150° F.

Is this machinery duplicate of a previous case yes If so, state name of vessel See Skm. report No. 3137.

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

I am of opinion that this engine is of superior material and workmanship, and as it has been designed and constructed under special survey, I have respectfully to submit, that it will be eligible to be classed **LMC**, as soon as it has been fitted in a classed ship to the satisfaction of the Society's surveyors.

Certificate (if required) to be sent to
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee ... £	:	:	When applied for,
Special ... £ 568:75	:	:	<u>22.10 1930.</u>
Donkey Boiler Fee ... £	:	:	When received,
Travelling Expenses (if any) £	:	:	<u>26-11 1930.</u>

Committee's Minute

Assigned

TUE 17 FEB 1931

See Skm. 36. 17948

H. J. Andersson
 Engineer Surveyor to Lloyd's Register of Shipping.



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