

REPORT ON OIL ENGINE MACHINERY

No. 1570

15 DEC 1931

Received at London Office

Date of writing Report 10th Dec 1931 When handed in at Local Office 12th Dec 1931 Port of GOTHENBURGNo. in Survey held at GOTHENBURG Date, First Survey 13th April 1931 Last Survey 5th Dec 1931

Reg. Book.

(SUPPLEMENT)

41763

Single

Triple

Quadruple

on the Twin

Screw vessel

"PAN GOTHIA"

Number of Visits 62

Tons

Gross 10409

Net 6225

Built at GOTHENBURG By whom built A.B. GÖTAVERKEN Yard No. 459 When built 1931-12
 Engines made at GOTHENBURG By whom made A.B. GÖTAVERKEN Engine No. 1998 When made 1931
 Donkey Boilers made at GOTHENBURG By whom made A.B. GÖTAVERKEN Boiler No. 1830 When made 1931
 Brake Horse Power 2x2000 Owners REDERI A.B. ALSE Port belonging to GOTHENBURG
 Nom. Horse Power as per Rule 712 7/11 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 Trade for which vessel is intended General

OIL ENGINES, &c.—Type of Engines Two Diesel Oil Engines 2 or 4 stroke cycle 4 Single or double acting single
 Maximum pressure in cylinders 38.0 kg/cm² Diameter of cylinders 630 mm [24 3/8"] Length of stroke 1200 mm [47 1/4"] No. of cylinders 12 No. of cranks 12
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 892 mm Is there a bearing between each crank Yes
 Revolutions per minute 140 Wheel dia. 1902 mm Weight 1200 kg Means of ignition Diesel system Kind of fuel used Diesel oil
 Crank Shaft, dia. of journals as per Rule 390 mm Crank pin dia. 414 mm Crank Webs Mid. length breadth Mid. length thickness Thickness parallel to axis 246-266 mm
 as fitted 414 mm shrunk Thickness around eyehole 188 mm
 Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule 260 mm Thrust Shaft, diameter at collars as per Rule 273 mm
 as fitted None as fitted 345 mm as fitted 345 mm
 Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule 286 mm Is the shaft fitted with a continuous liner Yes
 as fitted None as fitted 345 mm
 Bronze Liners, thickness in way of bushes as per Rule 16.3 mm Thickness between bushes as per rule 12.2 mm Is the after end of the liner made watertight in the
 as fitted 17-19 mm as fitted 16.5 mm
 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 in 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
 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 No If so, state type Length of Bearing in Stern Bush next to and supporting propeller 1345 mm
 Propeller, dia. 3780 mm Pitch 3010 mm No. of blades 4 Material Bronze whether Moveable No Total Developed Surface 2x5.4=10.8 sq. m
 Method of reversing Engines Bilh system Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication
 Forced Thickness of cylinder liners Bottom - 36 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 Led to a pump
 Cooling Water Pumps, No. Two centrifugal pumps 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 160 mm Stroke 180 mm Can one be overhauled while the other is at work Yes 8 1/2 x 8 1/2
 Pumps connected to the Main Bilge Line No. and Size 2 direct driven pumps 25 tons each Vertical duplex bilge pump Vertical duplex bilge pump Ballast pump
 Ballast Pumps, No. and size One 100 tons in machinery space How driven By main engines Lubricating Oil Pumps, including Spare Pump, No. and size Two, 80 tons/hour
 Are two independent means arranged for circulating water through the Oil Coolers Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
 Pumps, No. and size:—In Machinery Spaces Three 3 1/2" & two 2 1/2" [Two 2" to cofferdams in way of machinery space] In Pump Room None
 In Holds, &c. None [Two 2 1/2" in hold, one 2 1/2" in forward pump room two 4" in pump room amidship connected to separate pumps]
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size One 3 1/2" to bilge pump & one 5" to ballast pump
 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 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 No bunkers How are they protected
 What pipes pass through the deep tanks Cargo lines only 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 No tunnel 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. None No. of stages 1 Diameters 78, 285, 318 Stroke 170 Driven by Auxiliary engine
Auxiliary Air Compressors, No. 1 No. of stages 3 Diameters 65 Stroke 170 Driven by Steam engine
Scavenging Air Pumps, No. None Diameter 170 Stroke 170 Driven by Diesel engine
Auxiliary Engines crank shafts, diameter as per Rule 170 (see over) Position 1st forward part of machinery space

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. 2 Cubic capacity of each 35 litres Internal diameter 197 mm thickness 9.5 mm
 Seamless, lap welded or riveted longitudinal joint Seamless Material S.M. Steel Range of tensile strength 30-32 Working pressure by Rules 104.5 kg/cm²
 Actual 65.0 kg/cm²
Starting Air Receivers, No. 2 Total cubic capacity 2x18.15=36.3 m³ Internal diameter 1800-1850 mm thickness 25 & 25.5 mm
 Seamless, lap welded or riveted longitudinal joint Riveted Material S.M. Steel Range of tensile strength 44.3-48.7 Working pressure by Rules 26.0 kg/cm²
 Actual 25.0 kg/cm²

IS A DONKEY BOILER FITTED? *Yes, two boilers* 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 *No* ^{1/12/30, 20/1/31, 27/2/31} Receivers *No* ^{6/2/31, 25/2/31} Separate Tanks *No* ^{6/7/31}
Donkey Boilers *No* ^{28/2/31} General Pumping Arrangements *No* ^{2/2/31} Oil Fuel Burning Arrangements *No* ^{6/7/31}

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*

State the principal additional spare gear supplied

For the main engines: 10 sets of exhaust valves complete, 6 fuel valves complete, 1 starting air valve complete, 1 cylinder liner, 1 cylinder cooling jacket, 4 halves of crosshead braces, 4 halves of crank pin braces, 2 halves of main bearing braces, telescopic cooling pipes for 2 pistons, 2 sets of piston rings for one piston, 1 propeller shaft, 2 cast iron propellers, 1 fuel pump complete, 1 set of working for all fuel pumps for one main engine.

For the auxiliary Diesel engine:

1 exhaust valve complete, 1 fuel valve complete & 2 extra valves for same, 2 halves of crank pin braces, 2 halves of main bearing braces, 1 piston complete with piston rings & 1 additional set of ring for one piston.

The foregoing is a correct description,

Crest & Keeler

Manufacturer.

Dates of Survey while building
During progress of work in shops - *1931: April 13, May 21, 29, 24, June 4, 5, 10, 17, 30, July 7, 7, 8, 17, 23, 27, 30, 30, Aug 1, 4, 5, 7, 12, 19, 29, 24, 24, Sept 4, 8, 9, 10, 14, 15, 16, 17, 18, 23, 25, 26, 29, 30, Oct 1, 3, 15, 15, 22, 25, Nov 7, 9, 10.*
During erection on board vessel - *1931: Aug 11, Oct 8, 15, 26 Nov 2, 17, 21, 24, 25, 28, Dec 3, 5*
Total No. of visits *62*

Dates of Examination of principal parts—Cylinders and Covers *1/3/31* Pistons *17/23/31* Rods *7/11/31* Connecting rods *8/7/31*
Crank shaft *✓* Flywheel shaft *✓* Thrust shaft *4/9/31* Intermediate shafts *15/10/31* Tube shaft *✓*
Screw shaft *✓* Propeller *26/10/31* Stern tube *14/9/31* Engine seatings *11/8/31* Engines holding down bolts *8/10/31*
Completion of fitting sea connections *26/10/31* Completion of pumping arrangements *3/12/31* Engines tried under working conditions *5/12/31*
Crank shaft, Material *L.M. Steel* Identification Mark *LLOYDS No 1171672 No 8979-80 No 54.3.31 No 23.2.31* Flywheel shaft, Material *✓* Identification Mark *✓*
Thrust shaft, Material *L.M. Steel* Identification Mark *LLOYDS No 3537 No 3538 No 4.4.31* Intermediate shafts, Material *L.M. Steel* Identification Marks *LLOYDS No 3539 No 354 No 15.10.31*
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *L.M. Steel* Identification Mark *LLOYDS No 4513 HK 20.6.31 HK 11141, 11139, 11137*

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 *No* If so, state name of vessel *✓*

General Remarks (State quality of workmanship, opinions as to class, &c. *The main & auxiliary engines of this*

vessel have been built under Special Survey and all the Requirements of the Rules have been complied with. The shafting as per forging reports attached. Test sheets of the material for starting air receivers are forwarded herewith. The workmanship is good and the material fulfils the requirements of the Rules and approved plans.

The auxiliary machinery consists of one 2 cylinder, 2 stroke cycle, single acting Diesel oil engine of cylinder diam 310 mm and stroke 350 mm, manufactured by Messrs W. Götaverken of this port and one compound steam engine of cyl diam 11" and stroke 6" manufactured by Messrs Reader & Son Ltd of Nottingham, each with a dynamo of 66 Kw.

The machinery of this vessel is eligible in my opinion to be classed in the Registry Book of this Society with record of +LHC/12.31.

The amount of Entry Fee .. *Rs 109.20* When applied for, *12th Dec 1931*
Special ... *Rs 2012.92*
Starting air receiver *Rs 152.88* When received, *14.1.1932*
Donkey Boiler Fee
Travelling Expenses (if any) £ : : *14.1.1932*

Committee's Minute

FRI. 18 DEC 1931

Assigned

+ L.M.C. 12.31 C.L.

Oil Eng. 2078.150 lb.

A. Sander
Engineer Surveyor to Lloyd's Register of Shipping.



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