

REPORT ON OIL ENGINE MACHINERY.

No. 9708

Received at London Office - 3 APR 1934

Date of writing Report 28th March 1934 When handed in at Local Office 31st March 1934 Port of Gathenburg

No. in Survey held at Gathenburg Date, First Survey 19th August 1931 Last Survey 27th March 1934 Number of Visits 71

34786 on the Twin Screw vessel M/S "SENATOR" Tons Gross 6588.55 Net 4001.75

Built at GOTHENBURG By whom built AB. GÖTAVERKEN Yard No. 461 When built 1934

Engines made at GOTHENBURG By whom made AB. GÖTAVERKEN Engine No. 1003/1004 When made 1934

Donkey Boilers made at GOTHENBURG By whom made AB. GÖTAVERKEN Boiler No. When made 1934

Brake Horse Power 2475 Owners STAVANGER TANKREDERI A/S Port belonging to STAVANGER

Horse Power as per Rule 543 Is Refrigerating Machinery fitted for cargo purposes NO Is Electric Light fitted YES

Use for which vessel is intended GENERAL

ENGINES, &c. Type of Engines Two Diesel oil engines 2 or 4 stroke cycle 4 Single or double acting Single

Mean pressure in cylinders 35 kg/cm² Diameter of cylinders 550 mm Length of stroke 400 mm No. of cylinders 12 No. of cranks 12

Is there a bearing between each crank Yes

Shaft, dia. of journals as per Rule 340 mm as fitted 343 mm Crank pin dia. 343 mm Crank Webs Mid. length breadth shrunk Thickness parallel to axis 193-213 mm

Intermediate Shafts, diameter as per Rule 285 mm as fitted 285 mm Thrust Shaft, diameter at collars as per Rule 290 mm as fitted 290 mm

Screw Shaft, diameter as per Rule 285-287 mm as fitted 285-287 mm Is the shaft fitted with a continuous liner Yes

Liners, thickness in way of bushes as per Rule 16 mm as fitted 16 2 18 mm Thickness between bushes as per Rule 13 mm as fitted 15.5 mm Is the after end of the liner made watertight in the

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner Liner in one length

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 Liner fits tightly

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

Length of Bearing in Stern Bush next to and supporting propeller 1350 mm

Propeller, dia. 3353 mm Pitch 2560 mm No. of blades 4 Material Bronze whether Moveable No Total Developed Surface 22.4 m² sq. feet

Method of reversing Engines with compressed air Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication

Thickness of cylinder liners 38 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with

ducting 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 To a funnel

Water Pumps, No. 2 - 140 tons each Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Pumps worked from the Main Engines, No. 2 Diameter 150 mm Stroke 155 mm Can one be overhauled while the other is at work Yes

Pumps connected to the Main Bilge Line No. and Size Two plunger pumps 30 tons each How driven Main engine Steam Steam

Oil Pumps, No. and size One 100 tons Lubricating Oil Pumps, including Spare Pump, No. and size Two 55 tons each

Independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

No. and size: In Machinery Spaces Three 3 1/2", Two 2 1/2", Two 2", Two 2" to engine room effluents In Pump Room and

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size One 5" from ballast pump One 3 1/2" from bilge pump

Are the Bilge Suctions in the Machinery Spaces

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

Are they fitted with Valves or Cocks Yes

Are the Overboard Discharges above or below the deep water line Above

Are they fitted with Blow Off Cocks fitted with a spigot and brass covering plate Yes

How are they protected

Have they been tested as per Rule Yes

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

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

to another Yes Is the Shaft Tunnel watertight No tunnel Is it fitted with a watertight door None worked from

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

Air Compressors, No. None No. of stages Diameters Stroke Driven by

Auxiliary Air Compressors, No. One No. of stages 2 Diameters 350x310 mm Stroke 160 mm Driven by Steam engine

Primary Air Compressors, No. One No. of stages 2 Diameters 235x90 mm Stroke 220 mm Driven by Diesel oil engine

Primary Engines crank shafts, diameter as per Rule 150 mm as fitted 150 mm Diesel oil engine No. - One 3 cyl oil engine One Steam engine

Position - Port side Starboard side in the engine room

RECEIVERS: - Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes

Are the internal surfaces of the receivers be examined and cleaned Yes Is a drain fitted at the lowest part of each receiver Yes

Pressure Air Receivers, No. One Cubic capacity of each 35 litres Internal diameter 197 mm thickness 9.5 mm

Working pressure by Rules 47.2 kg/cm² Actual 40 kg/cm²

Material 1.1 Steel Range of tensile strength 30.2 kg/mm² thickness 25 mm

Working pressure by Rules 26.7 kg/cm² Actual 25 kg/cm²

Material 1.1 Steel Range of tensile strength 45.7-48.5 kg/mm² thickness 25 mm

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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 14/31 29/31 11/51 Receivers 3/9 31 29/2 32 Separate Tanks 23/5 32
Donkey Boilers 27/9 31 General Pumping Arrangements 16.12.31 Oil Fuel Burning Arrangements ✓

SPARE GEAR.

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

State the principal additional spare gear supplied For main engine: 1 cyl. liner, 1 cooling casing, 10 exhaust valves with 3 extra spindles, 12 seats, 4 fuel valves with 9 extra spindles, 6 atomizers & 12 seats, 102 piston rings, 2 telescopic pipes, 3 halves of crank pin and 4 of crosshead brasses, 3 halves of m. bearing brasses, 1 propeller, shaft, 2 cast iron propellers, 12 pads for the thrust bearing. For the solid injection pumps: 6 sections valves, 12 plungers with liners, 6 little valves with liners, 12 pipes from pump to fuel valve. For diesel aux. engine: 1 piston, 1 gudgeon pin, 1 set of piston rings for one piston, 2 exhaust valves with 6 extra spindles, 2 fuel valves, 6 non return valves, 1 cam shaft, 2 halves of crank pin brasses, 4 halves of m. bearing brasses. For steam aux. engine: 1 set of piston rings, 1 crank pin and 3 crosshead bearing halves. For air compressor: 1 set of piston rings, 1 HP cooling coil, 1/2 set of valves. For manoeuvre compressor: 1 set of piston rings, 1 set of valves, 2 halves of crank pin brasses, 1 set of gudgeon pin brasses. For the compressor steam engine: 1 set of pist. rings of each size, 1 set of crank pin brasses, 1 set of crossh. brasses. For the donkey boiler: 2 check valves, 2 reg. valve springs, 5 1/2 of plain & stay tubes.

The foregoing is a correct description,

H. G. Hallmar Manufacturer.

Dates of Survey while building: During progress of work in shops - 1931 Aug. 19, 1932 Feb. 16, 27, March 14, 29, 31 April 6, 7, 8, 11, 16, 28 May 17, 20, 23, 27 June 14 July 4, 23, Aug. 3, 12, 17, 20, 22, 25 Oct. 20, 8, Nov. 28, Dec. 1, 3, 22, 23, 1933 Jan. 9, 18, 24, 25 Feb. 2, 3, 27, 28 March 11, 14, 15, 16, 28 April 3.
During erection on board vessel - 1932 Nov. 16, 1933 Feb. 3, March 14, 15, 28, April 3, 7, 27 July 4, Aug 4, Sept 5, 1934 Feb. 26, March 1, 5, 5, 6, 8, 10, 14, 21, 22, 23, 24, 26, 27.
Total No. of visits 71 visits

Dates of Examination of principal parts - Cylinders 1/11 12/12 31/12 31/1 Covers 29/11 12/12 31/12 31/1 Pistons 29/3 1932 Rods ✓ Connecting rods 23/5 1932
Crank shaft 19/31 7/10 32 Flywheel shaft ✓ Thrust shaft 20/5 32 Intermediate shafts 3/4 33 Tube shaft ✓

Screw shaft 7/4 32 Propeller 8/3 34 5/9 33 Stern tube 3/2 33 Engine seatings 16/11 32 Engines holding down bolts 14/3 33
Completion of fitting sea connections 3/2 33 7/9 33 Completion of pumping arrangements 26/3 34 Engines tried under working conditions 27/3 34.

Crank shaft, Material S. 17. Steel Identification Mark 420705 2972 59 7.10.32 Flywheel shaft, Material ✓ Identification Mark 420705 293, 4933

Thrust shaft, Material S. 17. Steel Identification Mark 420705 4987, 2772 59 20.5.32 Intermediate shafts, Material S. 17. Steel Identification Marks CB 3.4.33

Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material S. 17. Steel Identification Mark 2161, 2162, 2163 44 7.4.32

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
If so, have the requirements of the Rules been complied with ✓

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo ✓
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 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. The workmanship is good and the material fulfils the requirements of the Rules. The dimensions are as specified and in accordance with the Rules and approved plans. The auxiliary machinery consists of one 3 cylinder 4 stroke cycle diesel oil engine with cyl. diameter 240 mm and stroke 360 mm, manufactured by Messrs AB. Göteborg of this port and one compound steam engine cyl. diam 11" x 16" and stroke 6" manufactured by Messrs S. Reader & Sons, Ltd. Nottingham each working a generator of 50 kw. The steam driven manoeuvring compressor has been delivered by Messrs S. Reader & Sons, Nottingham. The main & auxiliary engines have been tested under full working conditions on a trial trip and found to work satisfactorily. The machinery of this vessel is eligible in our opinion to be classed in the Register Book of this Society with notation of LMC 3.34. Working pressure of Donkey Boilers 150 lbs.

The amount of Entry Fee Sh. 109: 20 When applied for, 3/3 19 34
Special Sh. 1859: 13
Start air receivers Sh. 152: 88 When received, 9.4 19 34
Donkey Boiler Fee
SWINDAY FEE
Travelling Expenses (if any) Sh. 40: 00
Committee's Minute TUE 10 APR 1934
Assigned + Lmb. 3-34: 2 D.B. - 150 lbs of Oil Inf.

V. Paulou Engineer Surveyor to Lloyd's Register of Shipping.
S. Bernheim



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