

# REPORT ON OIL ENGINE MACHINERY.

No. 9122  
22 DEC 1932

Received at London Office

Date of writing Report 16th Dec. 1932 When handed in at Local Office 19th Dec. 1932 Port of Gothenburg  
Date, First Survey 24th April Last Survey 10th Dec. 1932  
No. in Survey held at Gothenburg Number of Visits 52  
Reg. Book. SUPPLEMENT 25521 on the Single "AURORA" Tons Gross 4147 Net 2268  
Triple Screw vessel  
Built at Gothenburg By whom built A.B. GÖTAVERKEN Yard No. 470 When built 1932  
Engines made at Gothenburg By whom made A.B. GÖTAVERKEN Engine No. 1011 When made 1932  
Donkey Boilers made at Gothenburg By whom made A.B. GÖTAVERKEN Boiler No. 1855 When made 1932  
Brake Horse Power 2250 Owners REDERIAKTIEB. ZENIT Port belonging to Gothenburg  
Nom. Horse Power as per Rule 350 Is Refrigerating Machinery fitted for cargo purposes NO Is Electric Light fitted YES  
Trade for which vessel is intended GENERAL 24 13/16 66 15/16

**L ENGINES, &c.**—Type of Engines One Diesel Oil Engine 2 or 4 stroke cycle 4 Single or double acting Single  
Maximum pressure in cylinders 50 kg/cm<sup>2</sup> Diameter of cylinders 630 mm [24 3/4"] Length of stroke 1000 mm [66 1/8"] No. of cylinders 6 No. of cranks 6  
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 108 Turning wheel dia. 1900 Weight 3400 Means of ignition Diesel System Kind of fuel used Diesel fuel oil  
Crank Shaft, dia. of journals as per Rule 423 mm Crank pin dia. 434 mm Crank Webs Mid. length breadth ✓ Thickness parallel to axis 250-270 mm  
as fitted 434 mm Mid. length thickness ✓ shrunk Thickness around eyehole 213 mm  
Flywheel Shaft, diameter as per Rule ✓ Intermediate Shafts, diameter as per Rule 294 mm Thrust Shaft, diameter at collars as per Rule 309 mm  
as fitted ✓ as fitted 295 mm as fitted 345 mm  
Tube Shaft, diameter as per Rule ✓ Screw Shaft, diameter as per Rule 327 mm Is the ✓ shaft fitted with a continuous liner yes  
as fitted ✓ as fitted 338 mm  
Bronze Liners, thickness in way of bushes as per Rule 17.9 mm Thickness between bushes as per rule 13.5 mm Is the after end of the liner made watertight in the  
as fitted 18-19 mm as fitted 17.5 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 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 1578 mm  
Propeller, dia. 4730 mm Pitch 3140 mm No. of blades 4 Material Bronze whether Moveable NO Total Developed Surface 7.5 sq. feet  
Method of reversing Engines Direct reversible with compressed air 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 funnel  
Cooling Water Pumps, No. Two - 125 tons/hour each 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 One 100 tons ballast pump Two - 20 tons each, plunger pumps  
How driven Electric Electric  
Ballast Pumps, No. and size One 100 tons/hour Lubricating Oil Pumps, including Spare Pump, No. and size Two - 40 tons/hour each  
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 2-3 1/2", 2-3", 2-2" from engine room cofferdam, 1-2 1/2" from tunnel well In Pump Room ✓  
In Holds, &c. 2-3 1/2" in each hold and in after hold additionally 2-2 1/2"  
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-5" 1-3 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  
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 coal bunkers How are they protected ✓  
What pipes pass through the deep tanks No 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 yes Is it fitted with a watertight door yes worked from room platform  
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. ✓ No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓  
starting Auxiliary Air Compressors, No. 3 No. of stages 2 Diameters 90 & 235 mm Stroke 220 mm Driven by Aux. engines  
Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 34 & 106 mm Stroke 80 mm Driven by Steam engine  
Scavenging Air Pumps, No. ✓ Diameter ✓ Stroke ✓ Driven by ✓  
Auxiliary Engines crank shafts, diameter as per Rule 150 mm as fitted 150 mm 304 450 SA No. 3 Position On port side in the engine room

**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. 1 Cubic capacity of each 250 liters Internal diameter 380 mm thickness 15 mm  
Seamless, lap welded or riveted longitudinal joint Lap welded Material S. M. Steel Range of tensile strength 35.5-40.1 kg/cm<sup>2</sup> Working pressure 42.5 kg/cm<sup>2</sup>  
Starting Air Receivers, No. 2 Total cubic capacity 2x103 = 206 m<sup>3</sup> Internal diameter 1800 mm thickness 25 mm  
Seamless, lap welded or riveted longitudinal joint Riveted Material S. M. Steel Range of tensile strength 46.6-49.9 kg/cm<sup>2</sup> Working pressure 27.2 kg/cm<sup>2</sup>  
Actual 25 kg/cm<sup>2</sup>



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 *Steam heating and small auxiliary compressor.*

PLANS. Are approved plans forwarded herewith for Shafting *Yes*

Receivers *Yes*

Separate Tanks *Yes*

Donkey Boilers *Yes*

General Pumping Arrangements *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 *For the main engines.*

*1 cylinder liner with coating jacket, 6 exhaust valves complete with 2 extra spindles & 6 extra seats for same, 6 fuel valves complete with 2 extra spindles and 12 extra atomizers for same, for the fuel pump: 6 plungers, 6 liners, 6 slide valves complete, 3 suction valves, 3 rollers with pins and cam sheaves and 6 pipes between fuel pump and valve. 3 halves of crosshead brasses, and 2 halves of crank pin brasses, 2 halves of journal brasses, 6 sets of piston rings for one piston, 4 telescopic pipes, 4 propeller shaft with nut, one cast iron propeller, a number of springs of each size used.*

*For the auxiliary engines with compressors.*

*1 cylinder cover & liner with coating jacket, 5 exhaust valves & 2 extra spindles for same, 1 starting air valve spindle, 1 set of working parts for a fuel pump, 7 fuel atomizers, 4 fuel non return valves, 1 piston gudgeon pin, 4 sets of piston rings for one piston, 2 halves of crank pin brasses, 4 halves of journal brasses, 1 gudgeon pin bushing, 2 sets of piston rings for one H.P. compressor piston, 1 H.P. cooling coil, a number of springs of each size used.*

The foregoing is a correct description.

AKTIEBOLAGET GOTAVÄRKEN

*H. G. Hammar*

Manufacturer. *H. G.*

Dates of Survey while building  
During progress of work in shops - April 7, July 28, Aug 3, 20, 24, 24, Sept. 1, 3, 7, 8, 9, 15, 15, 16, 21, 22, 22, 23, 23, 24, 24, 24, 26, 26, 27, 28, 29  
During erection on board vessel - Oct. 3, 7, 12, 12, 13, 26, 27, 29, 31 Nov. 1, 2, 29 = 40 visits  
Total No. of visits 52 visits

Dates of Examination of principal parts—Cylinders 27/10 Covers 27/10 Pistons 24/9 Rods 7/9 Connecting rods 7/9  
Crank shaft 7/4, 1/9 Flywheel shaft 7/4, 3/10 Thrust shaft 7/4, 3/10 Intermediate shafts 7/4, 16/9 Tube shaft 7/4  
Screw shaft 7/4, 9/9, 9/9, 3/10 Propeller 7/9, 7/10 Stern tube 3/10 Engine seatings 15/9 Engines holding down bolts 28/10  
Completion of filling sea connections 3/10 Completion of pumping arrangements 2/12 Engines tried under working conditions 10/12

Crank shaft, Material *2 1/2 Steel* Identification Mark *44703 2190 6B 74.32*  
Thrust shaft, Material *2 1/2 Steel* Identification Mark *44703 2190 6B 74.32*  
Tube shaft, Material *✓* Identification Mark *✓*  
Screw shaft, Material *2 1/2 Steel* Identification Mark *44703 2190 6B 16.9.32*  
Auxiliary engine shafts *44703 2190 6B 15.7.32*

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*

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *No*

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 machinery of this vessel has been built under special survey and all the Rules requirements have been complied with. The shafting as per forging report 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 plan. The auxiliary machinery consists of three - 4 stroke cycle, single acting Diesel oil engines Cyl. diam 240 mm, stroke 360 mm each having 3 cylinders and each driving a dynamo of 66 Kw. The main and auxiliary engines have been tested 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 2 MC 12.32. Working pressure of donkey boiler 100 LBS/10"*

The amount of Entry Fee *£ 91.00*  
Special *£ 1410.50*  
STARTING AIR REC. FEE *£ 152.88*  
Donkey Boiler Fee  
Travelling Expenses (if any) *£ 20.1*

When applied for, *9/12 1932*

When received, *20.1 1933*

Committee's Minute

*FRI. 30 DEC 1932*

Assigned

*+ L. MC. 12.32*

*C.L.*

*DB. 100 lb.*

*V. Bailow & Bernelius*  
Engineer Surveyors to Lloyd's Register of Shipping.



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