

REPORT ON OIL ENGINE MACHINERY.

No. 7504.

8 MAY 1929

Received at London Office

Date of writing Report 3rd April 1929 When handed in at Local Office 4th April 1929 Port of Gothenburg

No. in Survey held at Gothenburg Date, First Survey 4th April 1928 Last Survey 28/4 April 1929
Number of Visits 52

Reg. Book (SUPPLEMENT) 7334 on the Single Twin Triple Quadruple Screw vessel "NAGARA" Tons {Gross 6525
Net 3980

Built at Gothenburg By whom built A.B. GÖTAVERKEN Yard No. 416 When built 1929-4

Engines made at Gothenburg By whom made A.B. GÖTAVERKEN Engine No. 1798 When made 1929

Donkey Boilers made at Longborough By whom made WALTER W. COLTMAN & Co Boiler No. 5062 When made 1927

Net Horse Power 700 Owners AB. SVENSKA OSTATIATISKA KOMP. Port belonging to Gothenburg

Gross Horse Power as per Rule 700 Is Refrigerating Machinery fitted for cargo purposes NO Is Electric Light fitted YES

For which vessel is intended GENERAL

Types of Engines Two Diesel Oil Engines 2 or 4 stroke cycle 4 Single or double acting Single

Pressure in cylinders 35 kgs/cm² Diameter of cylinders 630 [24 13/16] Length of stroke 1700 [66 5/8] No. of cylinders 12 No. of cranks 12

Bearings, adjacent to the Crank, measured from inner edge to inner edge 892 Is there a bearing between each crank Yes

Revolutions per minute 100 Flywheel dia. None Weight ✓ Means of ignition Diesel system Kind of fuel used Diesel Oil

Shaft, dia. of journals as per Rule 430.4 Crank pin dia. 434 Crank Webs Mid. length breadth ✓ Thickness parallel to axis 250-270

as fitted 434 Crank Webs M.d. length thickness ✓ Thickness around eyehole 213

Propeller Shaft, diameter as per Rule ✓ Intermediate Shafts, diameter as fitted 315 Thrust Shaft, diameter at collars as fitted 340

as fitted ✓ Screw Shaft, diameter as per Rule 345 Is the tube shaft fitted with a continuous liner Yes

as fitted 345 as per Rule 18.1 Thickness between bushes as per rule 13.6 Is the after end of the liner made watertight in the

as fitted 19.20 as fitted 18 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.

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

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

If so, state type ✓ Length of Bearing in Stern Bush next to and supporting propeller 1620

Propeller, dia. 4120 Pitch 4390 No. of blades 4 Material Bronze whether Moveable No Total Developed Surface 2 x 5.16 = 10.32

Kind of reversing Engines Direct reversible by means of compound Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication

used Bottom 42 Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with

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.

Working Water Pumps, No. Two 175 tons Is the sea suction provided with an efficient strainers which can be cleared within the vessel Yes

Large Pumps worked from the Main Engines, No. Two Diameter 160 Stroke 190 Can one be overhauled while the other is at work Yes

Pumps connected to the Main Bilge Line {No. and Size Two 20 tons trunk piston pumps, One 20 tons trunk piston pump, One 150 tons ballast pump.

How driven By main engines Electric Electric

Oil Pumps, No. and size One 150 tons for oil fuel & ballast, One 60 tons for vegetable oil Lubricating Oil Pumps, including Spare Pump, No. and size Four 42 tons driven by two electric motors

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 Four 3 1/2" & two 2 1/2", one 2 1/2" to each cofferdam & one 3 1/2" to tunnel well.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size One 3" to bilge pump, one 5" to ballast pump, one 3" to tank.

All the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces

from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

All Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks Both

Are they fitted sufficiently high on the ship's side to be seen without lifting the platform plates Not all, some by lifting of small plates Are the Overboard Discharges above or below the deep water line Above

Are they 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 ✓

Have they been tested as per Rule ✓

Are the 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

Cold to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper engine room platform

On 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. 2 No. of stages 3 Diameters 34, 540 & 600 Stroke 650 Driven by Main engines

Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 405 & 460 Stroke 260 Driven by Electric

Boiler Air Compressors, No. 1 No. of stages 2 Diameters 35 & 106 Stroke 80 Driven by Steam engine

Working Air Pumps, No. None Diameter ✓ Stroke ✓ Driven by ✓

Propeller Engines crank shafts, diameter as per Rule 165 as per Stockholm reports Nos. 3007, 3008 & 3009 attached.

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 Yes What means are provided for cleaning their inner surfaces By means of caustic soda & steam

Is there an arrangement fitted at the lowest part of each receiver Yes

High Pressure Air Receivers, No. 4 Cubic capacity of each 2 of 225 liters, 2 of 450 Internal diameter 400 & 466 thickness 14 & 17

Seamless, lap welded or riveted longitudinal joint Seamless Material L.M. steel Range of tensile strength 38-38.4 Working pressure by Rules 65 kgs/cm²

Starting Air Receivers, No. 2 Total cubic capacity 222.6 = 45.2 Internal diameter 1830 & 1880 thickness 25 & 25.5

Seamless, lap welded or riveted longitudinal joint Riveted Material L.M. steel Range of tensile strength 45.3-48.3 Working pressure by Rules 26.7 kgs/cm²

014077-014082-0191

IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *Yes*

PLANS. Are approved plans forwarded herewith for Shafting (If not, state date of approval)

14/7/27, 9/12/27, 20/10/27, 8/2/28, 17/1/28

Receivers *20/10/27, 8/2/28* Separate Tanks *12/9/28*

Donkey Boilers

General Pumping Arrangements

Oil Fuel Burning Arrangements

SPARE GEAR

For the main engines with compressors & pumps:
1 cylinder cover, 1 complete set of all valves, valve seats, springs & other fittings for one cylinder cover in addition, 1 air inlet valve complete, 1 exhaust valve complete and 3 extra valves for same, 1 starting air valve complete, 5 fuel valves complete with 6 extra valve seats for same, 1 cylinder liner, 1 cooling jacket for same, 1 piston complete with rings and, in addition, 3 sets of piston rings for one piston, telescopic cooling pipes for one piston, 1 set of studs & nuts for a cylinder cover, 2 crosshead bearing bolts & nuts and 4 halves of crosshead brasses, 2 crank pin bolts & nuts and 4 halves of crank pin brasses, 4 main bearing bolts & nuts and 4 halves of main bearings, 1 set of bolts & nuts for one intermediate shaft coupling, 1 propeller shaft with nut, 2 cast iron propellers, 1 cam roller with pin of each side for the valve gear, 1 complete set of springs for one engine & compressor, 1 set of rings for one piston, of each size used in the compressor, 1 set of suction & delivery valves of each size used in a compressor, 2 crosshead brasses for the compressor, 2 compressor crank pin bolts & nuts and halves of crank pin brasses, 1 set of 4 HP compressor air cooling coils, 1 set of all working parts for a fuel pump, 1 set of valves for the bilge pumps.

For the auxiliary engines:
Spare gear as per list, approved on the 12th February 1923, placed on board.

For the manoeuvring air compressor:
2 crank pin bolts & nuts and 2 halves of crank pin brasses, 2 halves of main bearing brasses, 1 set of piston springs of each size used in the compressor, 1 set of suction and delivery valves.

For the small steam driven compressor:
1 set of piston rings, 1 set of suction & delivery valves.

For the auxiliary pumps: 1 set of suction & delivery valves for the bilge & sanitary pump, 1/2 set of ditto for the donkey boiler feed pump, 2 wings for the ballast pump.

For the donkey boiler: 1 check valve, 1 safety valve spring, spare parts for the fuel installation.

General: A quantity of assorted nuts & bolts, a length of pipe of each size used for the fuel delivery and injection low pipes to the main & auxiliary power cylinders, and the air delivery from the main and auxiliary compressors to the receivers, with unions & flanges suitable for each.

The foregoing is a correct description.

AKTIEBOLAGET GOTTERBERG
Leeds & Co. Ltd.

Manufacturer.

1928: April 4, May 23, June 7, Aug 4, 21, 28, 29, Sept 3, 5, 7, Oct 2, 4, 5, Nov 3, Dec 18.
1929: Jan 2, 22, 24, 25, 31, Feb 6, 15, 21, 22, 23, 25, 28, March 1, 2, 6, 7, 9, 11, 18, 22, 26, April 2, 4, 13.
1929: Feb 25, March 12, 22, April 29, 18, 22, 23, 25, 28.
Total No. of visits *52*

Dates of Examination of principal parts—Cylinders *2/1/29, 2/6/29, 7/1/26, 3/29* Covers *2/1/29, 2/6/29, 7/1/26, 3/29* Pistons *2/1/29, 2/6/29, 7/1/26, 3/29* Rods *2/1/29, 2/6/29, 7/1/26, 3/29* Connecting rods *2/10/28, 10/3/29*
Crank shafts *2/1/29, 3/1/29* Flywheel shaft Thrust shaft *11/3/29* Intermediate shafts *2/4/29* Tube shaft
Screw shafts *22/4/29* Propellers *6/2/29* Stern tube *22/2/29* Engine seatings *25/2/29* Engines holding down bolts *12/3/29*
Completion of fitting sea connections *9/4/29* Completion of pumping arrangements *23/4/29* Engines tried under working conditions *28/4/29*
Crank shaft, Material *L.M. Steel* Identification Mark *LLOYDS No 1315, 1316 No 382, 383 FK 21.5.28* Flywheel shaft, Material Identification Mark
Thrust shaft, Material *L.M. Steel* Identification Mark *LLOYDS No 13294, 13295 SA. 16.3.29* Intermediate shafts, Material *L.M. Steel* Identification Marks *See below*
Tube shaft, Material Identification Mark Screw shaft, Material *L.M. Steel* Identification Mark *LLOYDS No 13297, 4523, 531, 13299, 3621/13298 No 13296, 2436, 2623, 13300, 529, 530 SA. 2.4.29 SA. 2.4.29*
Is the flash point of the oil to be used over 150° F. *No*

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 *forward wing tanks*. If so, have the requirements of the Rules been complied with *Yes*
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 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 material of the starting air receiver as per test sheets 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 three 4-stroke cycle, single acting Diesel oil engines of cylinder diam 290mm & stroke 430mm manufactured by Messrs AB Atlas Diesel of Stockholm, as per skm reports No 3007, 3008 & 3009 attached, each working an electric dynamo of 66 kw.

The main & auxiliary engines have been tested under full working power on a seven hours trial trip & found to work satisfactorily.

(Part of the survey was at the Builders request carried out by the undersigned E. Brunelius on the 13th April 1929, per 8)

The Machinery of this vessel is eligible in our opinion to be classed in the Register Book with notation of +LMC 4.29.

Working pressure of donkey boiler 85 lbs/sq"

The amount of Entry Fee ... *100.20*
Special STARTING AIR RECEIVERS ... *200.00*
Donkey Boiler Fee ... *152.88*
LATE FEE ... *95.00*
Travelling Expenses (if any) ...

When applied for, *6th May 1929*
When received, *27.5.29*

E. Brunelius
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 14 MAY 1929

Assigned

L.M.C 4:29
Oil Engines
S.B 85 lbs



Certificate (if required) to be sent to Surveyors office, Gothenburg

The Surveyors are requested not to write on or below the space for Committee's Minutes

CERTIFICATE WRITTEN