

REPORT ON OIL ENGINE MACHINERY.

No. 10085

17 DEC 1934

Received at London Office

Date of writing Report 12th Dec 1934

When handed in at Local Office 15th Dec 1934

Port of

Göteborg

No. in Survey held at

Göteborg

Date, First Survey 28th February

Last Survey 12th Dec 1934

Number of Visits 65

Reg. Book.
SUPPLEMENT

Single

88545 on the

Triple

Quadruple

Screw Vessel

"BRAJARA"

Tons

Gross 8116.17

Net 4893.74

Built at GÖTHENBURG

By whom built A.B. GÖTAVERKEN

Yard No. 482 When built 1934

Engines made at GÖTHENBURG

By whom made A.B. GÖTAVERKEN

Engine No. 1070 When made 1934

Donkey Boilers made at GÖTHENBURG

By whom made A.B. GÖTAVERKEN

Boiler No. 1893 When made 1934

Brake Horse Power 3450

Owners REDERI A/S FREIKOLL

Port belonging to OSLO

Nom. Horse Power as per Rule 653

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted YES

Trade for which vessel is intended GENERAL

298

5976

OIL ENGINES, &c.—Type of Engines One Diesel Oil Engine 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 45 kg/cm²Mean Indicated Pressure 7 kg/cm² Diameter of cylinders 240 mm [29 1/8"] Length of stroke 1507 mm [54 1/2"] No. of cylinders 8 No. of cranks 8

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1004 mm

Is there a bearing between each crank Yes

Revolutions per minute 110

Flywheel dia. None

Weight

Means of ignition Diesel System

Kind of fuel used Diesel fuel oil

Crank Shaft, dia. of journals as per Rule 478 mm

as fitted 488 mm

Crank pin dia. 488 mm

Crank Webs

Mid. length breadth

shrunk

Thickness parallel to axis 290-310 mm

Flywheel Shaft, diameter as per Rule

as fitted None

Intermediate Shafts, diameter as per Rule 338 mm

as fitted 345 mm

Thrust Shaft, diameter at collars as per Rule 355 mm

as fitted 375 mm

Tube Shaft, diameter as per Rule

as fitted None

Screw Shaft, diameter as per Rule 373 mm

as fitted 390-392 mm

Is the

screw

shaft fitted with a continuous liner

Yes

Bronze Liners, thickness in way of bushes as per Rule 19 mm

as fitted 20 & 21 mm

Thickness between bushes as per rule 14.5 mm

as fitted 19 & 19.5 mm

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 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 Fits tightly

If two liners are fitted, is the shaft lapped or protected between the liners

No

If so, state type

Length of Bearing in Stern Bush next to and supporting propeller 1575 mm

Propeller, dia. 4990 mm Pitch 3615 mm No. of blades 4

Material Bronze

whether Moveable No

Total Developed Surface 944 m² sq. feet

Method of reversing Engines direct reversible

with compressed air a governor or other arrangement fitted to prevent racing of the engine when declutched Yes

Means of lubrication

Forced. Thickness of cylinder liners Top 53.5 mm Bottom 32 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 - 175 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. One

Diameter 130 mm

Stroke 350 mm

Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line

No. and Size

One ballast pump 100 tons/hour

One plunger pump 50 tons/hour

One plunger pump 20 tons/hour

How driven

Steam

Steam

By Main engine

Is the cooling water led to the bilges

No

If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements

Ballast Pumps, No. and size One 100 tons/hour

Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size Two - 70 tons 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 Three - 5 1/2"; Two - 2 1/2"; One 2 1/2" from cofferdam

In Pump Room and

In Holds, &c. None [Two 2 1/2" in hold forward, one 2 1/2" in fwd pump room, two 3 1/2" in main pump room, all to separate pumps]

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size One 5" (Ballast pump) One 3 1/2" (Separate bilge 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 coal bunkers

What pipes pass through the deep tanks

Cargo lines & heating coils

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

Yes

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

Yes

Main Air Compressors, No. None

No. of stages

Diameters

Stroke

Driven by

Auxiliary Air Compressors, No. one

No. of stages 2

Diameters 235 & 290 mm

Stroke 220 mm

Driven by Aux. oil engine

Small Auxiliary Air Compressors, No. one

No. of stages 2

Diameters 320 & 280 mm

Stroke 150 mm

Driven by Steam engine

Scavenging Air Pumps, No. None

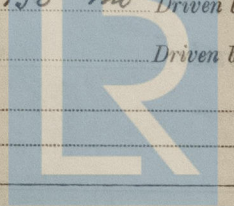
Diameter

Stroke

Driven by

Auxiliary Engines crank shafts, diameter as per Rule 150 mm

as fitted 150 mm

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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. *None* Cubic capacity of each *✓* Internal diameter *✓* thickness *✓*
Seamless, lap welded or riveted longitudinal joint *✓* Material *✓* Range of tensile strength *✓* Working pressure *✓*
Starting Air Receivers, No. *2* Total cubic capacity *2 x 13.5 m³ = 27 m³* Internal diameter *1800 - 1850 mm* thickness *25 & 25.5 mm*
Seamless, lap welded or riveted longitudinal joint *Riveted* Material *S. 17 Steel* Range of tensile strength *45.8 - 48.4 kg/cm²* Working pressure *by Rules 26.5 kg/cm²*
Actual *25 kg/cm²*

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 *6.2.34* Receivers *26.2.34* Separate Tanks *11.7.34*
(If not, state date of approval)
Donkey Boilers *17.2.34* General Pumping Arrangements *12.6.34* 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 the main engine: 1 cylinder liner with cooling jacket, 4 fuel valves with 2 extra valve rods and 2 extra atomizers, 6 exhaust valves with 2 extra spindles and 2 extra seats, 5 valves of crank pin brasses, 2 valves of main bearing brasses, 1 set of fuel pump, 8 plungers, 8 liners, 8 slide valves, 8 slides, 1 cast iron propeller, 6 bearing pads for the thrust-bearing.*
For the aux. air engine: 1 piston complete, 3 sets of piston rings, 2 fuel valves complete, 6 non return valves, 2 atomizers, 1 fuel slide valve chest with 2 valves & liner, 2 exhaust valves with 3 extra spindles, 1 set of gudgeon pin brasses, 2 valves of crank pin brasses, 2 sets of main bearing brasses, 1 H.P. cooling coil, 1/2 set of L.P. suction & delivery valves.
For the steam aux. engine: 1 set of H.P. & L.P. piston rings, 2 valves of conn. rod top & bottom end brasses with bolts & nuts, 2 crank pin bearing bolts & nuts, 1/2 set of compressor valves.
For the steam manoeuvring compressor: 1 set of steam piston rings, 2 crank pin bearing bolts & nuts, 1 set of compressor piston rings, 2 crank pin bearing bolts & nuts, 1/2 set of compressor valves.
For the donkey boiler: 2 check valves, 15 plain & 5 stay tubes.

The foregoing is a correct description,

ANTIEBOLAGET GOTAVÄRKEN

Manufacturer.

Dates of Survey while building
During progress of work in shops: *Febr. 28 April 25 May 25 26 28 June 6 8 13 19 22 July 2 5 6 9 10 17 21 23 24 25 26 27 31 Aug. 3 9 14 15 16 18 23 27 29 30*
During erection on board vessel: *Sept. 5 4 5 6 7 12 14 17 20 28 Oct. 1 4 6 9 10 11 13 16*
Total No. of visits *65*

Dates of Examination of principal parts—Cylinders *25/8 3.4.12/9* Covers *23/8 3.4.12/9* Pistons *10/4* Rods *10/4* Connecting rods *19/6*
Crank shaft *19/6* Flywheel shaft *✓* Thrust shaft *18/8* Intermediate shafts *10/10* Tube shaft *✓*
Screw shaft *14/9* Propeller *14/9* Stern tube *18/8* Engine seatings *2/4* Engines holding down bolts *20/10*
Completion of fitting sea connections *14/9* Completion of pumping arrangements *4/12-34* Engines tried under working conditions *19/8, 12/12*
Crank shaft, Material *S. 17 Steel* Identification Mark *LL6Y05 N. 4884 2005* Flywheel shaft, Material *✓* Identification Mark *LL6Y05 N. 4884*
Thrust shaft, Material *S. 17 Steel* Identification Mark *LL6Y05 N. 4885* Intermediate shafts, Material *S. 17 Steel* Identification Marks *LL6Y05 N. 4883*
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *S. 17 Steel* Identification Mark *LL6Y05 N. 4883*

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 machinery of this vessel*)

has been built under special Survey and all the requirements of the Rules have been complied with. The shafting and material of the donkey boilers 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 & approved plans. The auxiliary machinery consists of one 3 cylinder 4 stroke cycle diesel oil engine having cylinder diameter 240 mm and stroke 360 mm and manufactured by Messrs W. Götaverken of this port and one compound steam engine having cylinder diameter 112/16" and 6" stroke manufactured by Messrs S. Reader & Sons, Ltd, Nottingham each working a generator of 55 Kw.

The main & auxiliary engines have been tested on a trial trip and found to work satisfactorily.
The machinery of this vessel is eligible in my opinion to be classed in the Register Book with notation of + LMC 12.34 (Working pressure of donkey boilers 150 lbs/sq. in.)

The amount of Entry Fee *£ 109.20* When applied for, *15th Dec. 1934*
Special ... *£ 1959.23*
START AIR REC. Donkey Boiler Fee *£ 152.88* When received, *27.12.34*
Travelling Expenses (if any) *£*

Committee's Minute *FRI. 21 DEC 1934*
Assigned *+ Lmb 12.34 2 SB 150 lbs*
Oil Eng. CL

CERTIFICATE WRITTEN,

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