

## REPORT ON OIL ENGINE MACHINERY.

No. 8409

Received at London Office

Date of writing Report 19 When handed in at Local Office 16<sup>th</sup> July 1931 Port of *Göteborg* 18 JUL 1931  
 Date, First Survey 1<sup>st</sup> May 1930 Last Survey 4<sup>th</sup> July 1931  
 Number of Visits 41  
 To. in Survey held at *Göteborg*  
 eg. Book. *Single*  
*730* on the *Twin* Screw vessel *Stad Twin S. BRALANTA*  
*Triple*  
*Quadruple*  
 Built at *Dundee* By whom built *Calder & F. & L. D.* Yard No. When built *1931-7.*  
 Engines made at *Göteborg* By whom made *A.B. Götaorden* Engine No. *958* When made *1931*  
 Donkey Boilers made at By whom made Boiler No. When made  
 Brake Horse Power *633* Owners *Banthen Rederi A/S* Port belonging to *Oslo.*  
 Nom. Horse Power as per Rule *634* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes.*  
 Trade for which vessel is intended *General.*

**L ENGINES, &c.**—Type of Engines *Two Diesel oil engines* 2 or 4 stroke cycle *4* Single or double acting *Single*  
 Maximum pressure in cylinders *35 lps/in<sup>2</sup>* Diameter of cylinders *550 mm [21 5/8"]* Length of stroke *1000 mm [39 3/8"]* No. of cylinders *14* No. of cranks *14*  
 Position of bearings, adjacent to the Crank, measured from inner edge to inner edge *724 mm* Is there a bearing between each crank *Yes.*  
 Revolutions per minute *155* Turning wheel *Eligible dia. 1362 mm* Weight *900 kg.* Means of ignition *Diesel System* Kind of fuel used *Diesel oil*  
 Crank Shaft, dia. of journals *as per Rule 350 mm* Crank pin dia. *350 mm* Crank Webs *as per Rule 255 mm* Mid. length breadth *✓* Thickness parallel to axis *142-213 mm*  
 as fitted *350 mm* Mid. length thickness *✓* shrunk Thickness around eye hole *171 mm*  
 Flywheel Shaft, diameter *as per Rule* Intermediate Shafts, diameter *as per Rule 255 mm* Thrust Shaft, diameter at collars *as per Rule 300 mm*  
 as fitted *None* as fitted *255 mm* as fitted *300 mm*  
 Tube Shaft, diameter *as per Rule* Screw Shaft, diameter *as per Rule 288 mm* Is the *✓* shaft fitted with a continuous liner *✓*  
 as fitted *None* as fitted *288 mm* as fitted *288 mm*  
 Bronze Liners, thickness in way of bushes *as per Rule 16.4 mm* Thickness between bushes *as per Rule 12.3 mm* Is the after end of the liner made watertight in the  
 as fitted *18.19 mm* as fitted *16.0 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 *Yes.*  
 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. *3504 mm* Pitch *2514 mm* No. of blades *4* Material *Bronze* whether Moveable *No* Total Developed Surface *2 1/2 = 8.4 sq. feet*  
 Method of reversing Engines *Direct reversible by means of compressed air [B&W 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 *Top 38 mm Bottom 32.5 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 150 lps water 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 *150 mm.* Stroke *125 mm.* Can one be overhauled while the other is at work *Yes.*  
 Pumps connected to the Main Bilge Line *No. and Size 2 direct driven pumps 20 lps each / vertical duplex bilge pump 20 lps / vertical duplex ballast pump 75 lps*  
 How driven *By main engines* *Steam* *Steam.*  
 Ballast Pumps, No. and size *One 75 lps in machinery space / One 60 " " pump room forward / Large pump in " " admidship* Lubricating Oil Pumps, including Spare Pump, No. and size *Two 60 lps rotary pumps*  
 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 3 1/2" & Two 2 1/2" [Two 2" to oil tanks in way of machinery space.]* In Pump Room *None.*  
 Holds, &c. *None [Two 2 1/2" in hold, one 2 1/2" in fore pump room & two 3" in pump room admidship, 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 pumps*  
 Are all the Bilge Suction pipes in Holds and Pump Room fitted with strum-boxes *Yes.* Are the Bilge Suctions in the Machinery Spaces  
 and 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.*  
 That pipes pass through the bunkers *No bunkers* How are they protected *✓*  
 That pipes pass through the deep tanks *Steam heating coils & cargo lines* 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 *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. 2.** No. of stages *3* Diameters *134, 540, 600 mm* Stroke *400 mm* Driven by *Main engines*  
**Auxiliary Air Compressors, No. 1** No. of stages *3.* Diameters *65, 350, 400 mm* Stroke *170 & 260 mm* Driven by *Steam engine*  
**Small Auxiliary Air Compressors, No. None** No. of stages *✓* Diameters *✓* Stroke *✓* Driven by *✓*  
**Scavenging Air Pumps, No. None** Diameter *✓* Stroke *✓* Driven by *✓*  
**Auxiliary Engines** crank shafts, diameter *as per Rule 135 mm.* No. *One Diesel & one steam eng. [See other side.]*  
 as fitted *135 mm.* Position *[On port and starb. side on a platform, aft.]*  
**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. 4** Cubic capacity of each *24 350 liters each* Internal diameter *450 mm* thickness *25.5 mm*  
 Seamless, lap welded or riveted longitudinal joint *Lap welded* Material *A.M. Steel* Range of tensile strength *373-394 lps* Working pressure *by Rules 72.1 lps/in<sup>2</sup>*  
**Starting Air Receivers, No. 2.** Total cubic capacity *24 350 = 27 met<sup>3</sup>* Internal diameter *1800 & 1850 mm* thickness *25.5 & 25.5 mm*  
 Seamless, lap welded or riveted longitudinal joint *Riveted* Material *A.M. Steel* Range of tensile strength *44-50 lps* Working pressure *by Rules 25.4 lps/in<sup>2</sup>*  
 Actual *25.5*

W 486-0117



IS A DONKEY BOILER FITTED? *Yes, two boilers* If so, is a report now forwarded? *No*

Is the donkey boiler intended to be used for domestic purposes only? *No*

PLANS. Are approved plans forwarded herewith for Shafting *No*, <sup>4/12/29</sup> <sup>12/10/29</sup> <sup>28/3/30</sup> Receivers *No*, <sup>19/12/29</sup> <sup>20/1/30</sup> Separate Tanks *No*, <sup>19/12/28</sup> <sup>7/5/31</sup>  
(If not, state date of approval)  
Donkey Boilers *✓* General Pumping Arrangements *No*, <sup>20/2/30</sup> 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 engines:- 12 sets of exhaust valves complete, 1 set inlet valve complete, 5 sets of fuel oil valves complete, 1 cylinder liner, 1 cylinder cooling jacket, 4 halves of main bearing houses, telescopic cooling pipes for one piston, 10 tubes for lubricating oil cooler, 4 halves of gudgeon pin houses, 4 halves of crank pin houses, 5 sets of piston rings for one piston, 1 cam roller with pin of each size, 1 propeller shaft with nut and 2 cast iron propellers.

For the main engine air compressor:-

Two halves of gudgeon pin houses, 2 halves of main bearing houses, 2 crank pin bolts & nuts, 2 halves of crank pin houses, 1 set of HP air cooling coils, 10 tubes for SP & LP air cooler.

The foregoing is a correct description,

**ARTIEBOLAGET GOTAVERKEN**

*E. E. E. E. E.*

Manufacturer.

Dates of Survey while building  
During progress of work in shops:- 1930: May 21, June 11, Sept 15, Nov 15; 1931: March 6, 7, 10, 12, 13, 14, 14, 16, 17, 21, 23, 24, 26, 30, April 9, 14, 17, May 6, 7, 11, 15, 20, 22, 26, June 4, 17, 18, 10.  
During erection on board vessel:- 1931: May 29, June 2, 5, 15, 20, 22, July 2, 3, 4.  
Total No. of visits 49.

Dates of Examination of principal parts—Cylinders 20, 22/5/31 Covers 20, 22/5/31 Pistons 16/3/31 Rods *✓* Connecting rods 30/3/31  
Crank shaft 6/4/30 5/12/30 Flywheel shaft *✓* Thrust shaft 12/2/31 5/6/31 Intermediate shafts 2/2/31 4/6/31 Tube shaft *✓*  
Screw shaft *✓* Propeller 15/6/31 Stern tube *✓* Engine seatings *✓* Engines holding down bolts 29/5/31

Completion of fitting sea connections *✓* Completion of pumping arrangements 3/7/31 Engines tried under working conditions 20/6/31 4/7/31  
Crank shaft, Material *P. M. Steel* Identification Mark *LLOYD'S* Flywheel shaft, Material *✓* Identification Mark *✓*  
Thrust shaft, Material *P. M. Steel* Identification Mark *LLOYD'S* Intermediate shafts, Material *P. M. Steel* Identification Marks *LLOYD'S*  
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *P. M. Steel* Identification Mark *LLOYD'S*

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? *No*

Is this machinery duplicate of a previous case? *Yes* If so, state name of vessel *"KALMIA"*

**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 copy of forging reports attached. The material of the starting air receivers as per test sheets attached. The workmanship is good and the material fulfils the requirements of the Rules. The auxiliary machinery consists of one 2 cpl., 2 stroke cycle, single acting Diesel oil engine manufactured by Messrs. Nydqvist & Holm of Trollhättan (Report attached) and one compound steam engine of cpl. diam 11" x 16" and stroke 6" manufactured by Messrs. Reader & Son Ltd of Nottingham, each working a dynamo of 50 kW. The steam engine driven auxiliary compressor is manufactured by Messrs. Nydqvist & Holm of Trollhättan and the engine driving same is delivered by Messrs. Reader & Son Ltd of Nottingham as per certificates attached. Bridge sections have been tested under working condition. The main and auxiliary engines have been tested under 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 7.31*

The amount of Entry Fee *£ 109:20*

Special *L. M. C. 7.31* *£ 194:94*

Starting air receiver *to Drum* *£ 152:88*

Donkey Boiler Fee *£ 25:00*

Travelling Expenses (if any) *£ 25:00*

Committee's Minute *£ 25:00*

Assigned *£ 25:00*

When applied for,

*16th July 1931*

When received,

*17th 8 1931*

*E. Magnusson for G. Reader and self. E. Magnusson*  
Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 12 FEB 1932

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