

# REPORT ON OIL ENGINE MACHINERY.

No. 7087.A

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Date of writing Report 29<sup>th</sup> Aug. 1925 When handed in at Local Office 10 Port of Copenhagen  
 No. in Survey held at Copenhagen Date, First Survey 13<sup>th</sup> July 1923 Last Survey 21<sup>st</sup> August 1925  
 No. of Book. 202 on the Single Motor CRIPSHOLM. Tons { Gross ✓  
 { Net ✓  
 of opening in Triple Screw vessels  
 Master ✓ Built at Newcastle By whom built Armstrong Whitworth Ltd. Yard No. 999 When built 1925  
 Engines made at Copenhagen By whom made Atterburmeister & Søn, Copenhagen Engine No. 1000 When made 1924-25  
 Donkey Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓  
 Brake Horse Power 13,500. Owners Rederi A/S Sverige-Tord-Amerika. Port belonging to Göteborg.  
 Nom. Horse Power as per Rule 2510. <sup>5533</sup> Is Refrigerating Machinery fitted for cargo purposes ✓ Is Electric Light fitted ✓

LES and pitch L ENGINES, &c. Type of Engines Vertical Diesel Oil Engines 2 or 4 stroke cycle 4 Single or double acting Double  
 Maximum pressure in cylinders 35 Kg/cm<sup>2</sup>. No. of cylinders 2 x 6 = 12 No. of cranks 2 x 6 = 12 Diameter of cylinders 840 mm = 33.07" 33 1/16  
 Length of stroke 1500 mm = 59.05" Revolutions per minute 125 Means of ignition Air compression Kind of fuel used Crude oil, flash point above 150° F.  
 Is there a bearing between each crank Yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 1166 mm  
 Distance between centres of main bearings 1650 mm Is a flywheel fitted Yes Diameter of crank shaft journals as fitted 550 mm  
 Diameter of crank pins 550 mm Breadth of crank webs as fitted 1140 mm Thickness of ditto as fitted 345 mm  
 Diameter of flywheel shaft as per Rule 544 mm Diameter of tunnel shaft as per Rule 550 mm Diameter of thrust shaft as fitted 18"  
 Diameter of screw shaft as per Rule 550 mm Is the screw shaft fitted with a continuous liner the whole length of the stern tube ✓  
 Is the after end of the liner made watertight in the propeller boss ✓ If the liner is in more than one length are the joints burned ✓  
 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 ✓ If without liners, is the shaft arranged to run in oil ✓  
 Type of outer gland fitted to stern tube ✓ Length of stern bush ✓ Diameter of propeller ✓  
 Pitch of propeller ✓ No. of blades ✓ state whether moveable ✓ Total surface ✓ square feet ✓  
 Method of reversing Direct reversible Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Thickness of cylinder liners 56 mm  
 Are the cylinders fitted with safety valves Yes Means of lubrication Forced lubrication Are the exhaust pipes and silencers water cooled or lagged with ✓  
 non-conducting material Exhaust pipes water cooled If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine ✓  
 No. of cooling water pumps 6 off Is the sea suction provided with an efficient strainer which can be cleared ✓  
 within the vessel ✓ No. of bilge pumps fitted to the main engines none Diameter of ditto ✓ Stroke ✓  
 Can one be overhauled while the other is at work ✓ No. of auxiliary pumps connected to the main bilge lines ✓ How driven ✓  
 Sizes of pumps ✓ No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room ✓  
 and in holds, etc. ✓ No. of ballast pumps ✓ How driven ✓ Sizes of pumps ✓  
 Is the ballast pump fitted with a direct suction from the engine room bilges ✓ State size ✓ Is a separate auxiliary pump suction fitted in ✓  
 Engine Room and size ✓ Are all the bilge suction pipes fitted with roses ✓ Are the roses in Engine Room always accessible ✓  
 Are the sluices on Engine Room bulkheads always accessible ✓ Are all connections with the sea direct on the skin of the ship ✓  
 Are they valves or cocks ✓ Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates ✓  
 Are the discharge pipes above or below the deep water line ✓ Are they each fitted with a discharge valve always accessible on the plating of the vessel ✓  
 Are all pipes, cocks, valves and pumps in connection with the machinery accessible at all times ✓ Are the bilge suction pipes, cocks and valves arranged so as to prevent any ✓  
 communication between the sea and the bilges ✓ Is the screw shaft tunnel watertight ✓ 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 ✓

No. of main air compressors 3 duplex No. of stages 3 stages Diameters LP 860 mm, MP 775 mm, HP 172 mm Stroke 276 mm Driven by 3 auxiliary Diesel oil engines.  
 No. of auxiliary air compressors one off No. of stages 3 Diameters LP 860 mm, MP 775 mm, HP 172 mm Stroke 150 mm Driven by Electric motors  
 No. of small auxiliary air compressors one off No. of stages 2 Diameters LP 106 mm, HP 34 mm Stroke 80 mm Driven by Electric motor.  
 No. of scavenging air pumps none Diameter ✓ Stroke ✓ Driven by ✓  
 Diameter of auxiliary Diesel Engine crank shafts as fitted 300 mm Are the air compressors and their coolers made so as to be easy of access Yes  
 Internal diameter I - 17 3/4", II - 12 1/2", III - 17 3/4" Cubic capacity of each I - 350 litres, II - 125, III - 550  
 IR RECEIVERS:—No. of high pressure air receivers 3 Seamless, lap welded or riveted longitudinal joint Seamless. Range of tensile strength 31.87 to 27.7 tons  
 material S.M. Steel (Industrial Steel) working pressure 65 ATM. No. of starting air receivers 4 off Internal diameter 6'0" to 6'1 1/16"  
 Thickness 2 1/2" to 3 1/2" Total cubic capacity 4 x 800 cubic feet Material S.M. Steel Seamless, lap welded or riveted longitudinal joint Seamless  
 Range of tensile strength 31.9 to 26.7 tons thickness End 1 1/16" 1/32" Working pressure 25 atm. 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 Yes What means are provided for cleaning their ✓  
 inner surfaces The starting air receivers are fitted with man holes. Is there a drain arrangement fitted at the lowest part of each receiver Yes



IS A DONKEY BOILER FITTED? ✓

If so, is a report now forwarded? ✓

## HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS					
COVERS and JACKETS	25/11, 26/11, 17/12, 20/11, 22/11, 17/12, 16/11, 17/12	15 lbs per sq"	30 lbs per sq"	LLOYD'S TEST 30 LBS	25/11, 26/11, 17/12, 20/11, 22/11, 17/12, 16/11, 17/12 and 27/12, 24/11, 7/1, 8/1, 2/12, 25.
PISTON <del>WAS</del> PASSAGES	27/11, 24/11, 15/12, 21/11, 4/12, 19/12, 25.	1.5 ATM.	4 ATM.	LLOYD'S TEST 4 ATM	27/11, 24/11, 15/12, 21/11, 4/12, 19/12, 25.
MAIN COMPRESSORS—1st STAGE	24/9, 10/10, 17/10, 28/10, 24.	4 ATM.	10 ATM.	LLOYD'S TEST 10 ATM	24/9, 10/10, 17/10, 28/10, 24.
2nd "	30/9, 10/10, 29/10, 3/11, 24.	20 ATM.	40 ATM.	LLOYD'S TEST 40 ATM	30/9, 10/10, 29/10, 3/11, 24.
3rd "	20/9, 23/9, 24/9, 25/9, 29/9, 24.	65 ATM.	150 ATM.	LLOYD'S TEST 150 ATM	20/9, 23/9, 24/9, 25/9, 29/9, 24.
AIR RECEIVERS—STARTING	24/9, 29/9, 30/10, 5/11, 24.	25 ATM.	41 ATM.	LLOYD'S TEST 41 ATM	24/9, 29/9, 30/10, 5/11, 24.
INJECTION	25/10, 10/11, 27/11, 22/12, 24.	65 ATM.	130 ATM.	LLOYD'S TEST 130 ATM	25/10, 10/11, 27/11, 22/12, 24.
AIR PIPES <del>for starting purpose</del>	1/12, 24/12, 1/1, 13/1, 10/1, 16/1, 25.	25 ATM.	50 ATM.	LLOYD'S TEST 50 ATM	1/12, 24/12, 1/1, 13/1, 10/1, 16/1, 25.
FUEL PIPES	1/12, 24/12, 1/1, 13/1, 10/1, 16/1, 25.	75 ATM.	150 ATM.	LLOYD'S TEST 150 ATM	1/12, 24/12, 1/1, 13/1, 10/1, 16/1, 25.
FUEL PUMPS	20/10, 23/10, 29/10, 10/11, 29/11, 24.	1 ATM.	10 ATM.	LLOYD'S TEST 10 ATM	20/10, 23/10, 29/10, 10/11, 29/11, 24.
EXHAUST PIPE WATER JACKET	10/12, 22/12, 24/12, 13/1, 17/1, 18/1, 18/1, 25.	15 lbs per sq"	30 lbs per sq"	LLOYD'S TEST 30 LBS	10/12, 22/12, 24/12, 13/1, 17/1, 18/1, 18/1, 25.
SEPARATE FUEL TANKS	5/10, 20/10, 25/10, 15/11, 21/11, 24.	NIL.	10 lbs per sq"	LLOYD'S TEST 10 LBS	5/10, 20/10, 25/10, 15/11, 21/11, 24.

PLANS. Are approved plans forwarded herewith for shafting for the crank shafts. Receivers for starting air receivers Separate Tanks *yes*.

SPARE GEAR as per accompanying list, — to be checked when placed onboard the vessel.

The foregoing is a correct description,

BURNFISTER &amp; WAIN

MILKIN OG SKIBBYGGER

Manufacturer.

Dates of Survey while building	During progress of work in shops - 13, 17, 28 July; 14, 15, 29 Aug; 25 Sept; 5, 26, 27, 29 Oct; 1, 9, 14, 17, 28 Nov; 5, 8, 10, 11, 19, 21, 28 Dec 1923 - 2, 7, 9, 11, 15, 19, 22, 28 Jan - 1, 2, 4, 7, 9, 12, 13, 14, 25 Feb.
During erection on board vessel -	5, 10, 14, 15, 27 March; 13 April; 15, 24 July; 15, 29, 30 Aug; 6, 9, 11, 12, 16, 19, 20, 23, 24, 25, 29, 30 Sept; 1, 7, 8, 9, 10, 11, 14, 16, 17, 20, 21, 22, 23, 25, 28, 29, 30, 31 Oct; 3, 5, 7, 10, 11, 12, 14, 15, 17, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29 Nov; 1, 2, 3, 4, 9, 10, 11, 12, 17, 18, 19, 20, 22, 29, 31 Dec 1924 - 3, 6, 12, 13, 15, 20, 21, 22, 23, 26, 28, 29, 30 Jan.
Total No. of visits	2, 4, 6, 7, 8, 9, 10, 12, 13, 16, 17, 18, 19, 25, 27 Feb - 7, 9, 10, 11, 12, 13, 24, 30 March - 7, 14, 21, 28, 30 April, 15, 18, 26 May - 8, 10, 11, 16, 17, 18, 22 June - 7, 28 July - 7, 21 Aug 1925.
Dates of Examination of principal parts—Cylinder	15/12, 25/12, 27/12, 30/12, 1/1, 17/1, 18/1, 19/1, 20/1, 21/1, 22/1, 23/1, 24/1, 25/1, 26/1, 27/1, 28/1, 29/1, 30/1, 31/1, 1/2, 2/2, 3/2, 4/2, 5/2, 6/2, 7/2, 8/2, 9/2, 10/2, 11/2, 12/2, 13/2, 14/2, 15/2, 16/2, 17/2, 18/2, 19/2, 20/2, 21/2, 22/2, 23/2, 24/2, 25/2, 26/2, 27/2, 28/2, 29/2, 30/2, 31/2, 1/3, 2/3, 3/3, 4/3, 5/3, 6/3, 7/3, 8/3, 9/3, 10/3, 11/3, 12/3, 13/3, 14/3, 15/3, 16/3, 17/3, 18/3, 19/3, 20/3, 21/3, 22/3, 23/3, 24/3, 25/3, 26/3, 27/3, 28/3, 29/3, 30/3, 31/3, 1/4, 2/4, 3/4, 4/4, 5/4, 6/4, 7/4, 8/4, 9/4, 10/4, 11/4, 12/4, 13/4, 14/4, 15/4, 16/4, 17/4, 18/4, 19/4, 20/4, 21/4, 22/4, 23/4, 24/4, 25/4, 26/4, 27/4, 28/4, 29/4, 30/4, 31/4, 1/5, 2/5, 3/5, 4/5, 5/5, 6/5, 7/5, 8/5, 9/5, 10/5, 11/5, 12/5, 13/5, 14/5, 15/5, 16/5, 17/5, 18/5, 19/5, 20/5, 21/5, 22/5, 23/5, 24/5, 25/5, 26/5, 27/5, 28/5, 29/5, 30/5, 31/5, 1/6, 2/6, 3/6, 4/6, 5/6, 6/6, 7/6, 8/6, 9/6, 10/6, 11/6, 12/6, 13/6, 14/6, 15/6, 16/6, 17/6, 18/6, 19/6, 20/6, 21/6, 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Twin Screw Motor Vessel "GRIPSHOLM."

of Gothenburg.

The auxiliary machinery delivered by Messrs Burmeister & Wain comprising:

Four - 4 cylinders, four cycle single acting Diesel oil engines, each of 700 B.H.P. - Cyl. diam = 500 mm  
Stroke 900 mm, Rev 170 p.m. - each working a 3 stage duplex air compressor for the main engines.

Three - 3 cylinders, four cycle single acting Diesel oil engines, each of 500 B.H.P. Cyl. diam = 500 mm  
Stroke 750 mm, Rev 200 p.m. - each working a direct coupled 300/330 KW. Dynamo, at 220 Volt.

One - 3 stage auxiliary air compressor, Cyl. diam: L.P. 320 mm M.P. 280 mm, H.P. 63 mm, Stroke L = 150 mm, Rev 400 p.m.  
driven by a direct coupled 65 H.P. electro motor.

One - 2 stage auxiliary air compressor, Cyl. diam: L.P. 106 mm, H.P. 34 mm, Stroke 80 mm, Rev 500 p.m.  
driven by a direct coupled 6 H.P. electro motor.

4 - centrifugal cooling water pumps, for sea water to the main engines, each of 250 tons capacity, and each driven by a direct coupled 30 H.P. electro motor. (Rev. = 1000 p.m.)

2 - centrifugal cooling water pumps, for fresh water to the main engines, each of 200 tons capacity, and each driven by a direct coupled 20 H.P. electro motor. (Rev. = 1000 p.m.)

2 - centrifugal cooling water pumps, for sea water to the auxiliary engines, each of 200 tons capacity, and each driven by a direct coupled 20 H.P. electro motor. (Rev. = 1000 p.m.)

4 - rotary wing pumps for the forced oil lubrication to the main engines, each of 200 tons capacity, and each driven by a direct coupled 45 H.P. electro motor. (Rev. = 400 p.m.)

2 - rotary wing pumps for the oil fuel transfer purpose, each of 15 tons capacity, and each driven by a 20 H.P. electro motor, coupled by chain connection. (Rev. = <sup>250</sup>/1000 p.m.)

3 - rotary cog-wheel pumps for the daily supply and service oil fuel tanks, each of 30 tons capacity, and each driven by a 10 H.P. electro motor, coupled by chain connections. (Rev. = <sup>500</sup>/1000 p.m.)

A. E. Friberg.

SURVEYOR TO LLOYD'S  
REGISTER OF SHIPPING