

REPORT ON OIL ENGINE MACHINERY.

No. 10240.

Received at London Office

JUN 11 1937

Date of writing Report 1st June 1937 When handed in at Local Office 19 Port of Copenhagen
 No. in Survey held at Copenhagen & Skatsher Date, First Survey 12th June 1936 Last Survey 22nd May 1937
 Reg. Book. Number of Visits 73

on the Single Twin Triple Quadruple Screw vessel "NORDEN" Tons { Gross 4700.23 Net 2778.11
 Built at Skatsher By whom built Skatsher Skibsverft Yard No. 78 When built 1937-5 mo
 Engines made at Copenhagen By whom made Skatsher Skibsverft Engine No. 2613 When made 1937
 Donkey Boilers made at Annau By whom made Cochran & Co. Ltd. Boiler No. 3446 When made 1937
 Brake Horse Power 2 x 1775 Owners Skatsher Port belonging to Copenhagen
 Nom. Horse Power as per Rule 811 ⁸⁰⁸ Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
 Trade for which vessel is intended General cargo, open sea service

OIL ENGINES, &c.—Type of Engines Vertical Diesel engines, Solid Injection, 2 or 4 stroke cycle 2 Single or double acting single
 Maximum pressure in cylinders 4.9 kg/cm² Diameter of cylinders 500 mm Length of stroke 900 mm No. of cylinders 2 x 6 No. of cranks 2 x 6
 Mean Indicated Pressure 6.8 kg/cm² Flywheel dia. 1400 mm Weight 4800 kg Means of ignition Compression Kind of fuel used crude oil
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 698 mm Is there a bearing between each crank yes
 Revolutions per minute 135 Crank pin dia. 340 mm Crank Webs Mid. length breadth 850 mm Thickness parallel to axis 208 mm
 Crank Shaft, { Solid forged dia. of journals as per Rule 322 mm as fitted 340 mm Crank pin dia. 340 mm Crank Webs Mid. length thickness 208 mm Thickness around eyehole 195 mm
 { Semi built All built 115 mm dia. hole 115 mm dia. hole
 Flywheel Shaft, diameter as per Rule 244 mm as fitted 246 mm Thrust Shaft, diameter at collars as per Rule 256 mm as fitted 300 mm 115 ch hole
 Tube Shaft, diameter as per Rule 271 mm as fitted 272 mm Is the shaft fitted with a continuous liner yes
 Screw Shaft, diameter as per Rule 15.8 mm as fitted 19 mm Thickness between bushes as per Rule 11.9 mm as fitted 12 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 yes
 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 yes Is an approved Oil Gland or other appliance fitted at the after end of the tube
 shaft yes Length of Bearing in Stern Bush next to and supporting propeller 1400 mm
 Propeller, dia. 3900 mm Pitch 3200 mm No. of blades 3 Material Bronze whether Moveable no Total Developed Surface 44.5 sq. feet
 Method of reversing Engines direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication forced
 Thickness of cylinder liners 33.5 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 to funnel
 Cooling Water Pumps, No. 2 off - 175 l/h 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. 2 Diameter 150 mm Stroke 175 mm Can one be overhauled while the other is at work yes
 Pumps connected to the Main Bilge Line { No. and Size 2 engine bilge pumps, 20 l/h each, 1 Ballast pump 200 l/h, 1 bilge pump 20 l/h
 How driven electrically
 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 1 off - 200 l/h Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 off - 160 l/h, 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 4 off 3", 2 off 1/2" from overflow tank, 1 off 2 1/2" from tunnel well In Pump Room 1 off 3", 2 off 2"
 In Holds, &c. 1 off 3" I, 2 off 3" II, 2 off 3 1/2" each deep tanks, 1 off 3" III, 3 off 3" IV, 1 off 3" - 2 off 2"
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 off 7" - 1 off 3" + 2 off 3" from engine bilge pumps
 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 valves
 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 none How are they protected yes
 What pipes pass through the deep tanks bilge pipes to Hold, etc. I & II Have they been tested as per Rule yes
 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 upper 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 7" B Stroke — Driven by —
 Auxiliary Air Compressors, No. 2 off - 3 cyl No. of stages 2 Diameters 130 - 115 mm Stroke 120 mm Driven by electromotors
 Small Auxiliary Air Compressors, No. 1 off No. of stages 2 Diameters 9 mm Stroke — Driven by electromotor
 What provision is made for first Charging the Air Receiver's connected to emergency generator set, to start by hand
 Scavenging Air Pumps, No. 2 off each engine Diameter 2 x 80 mm Stroke — Driven by main engines
 Auxiliary Engines crank shafts, diameter as per Rule 122 mm No. 3 Position Port side of engine room, floor level
 as fitted 150 mm Is a report sent herewith yes

Have the Auxiliary Engines been constructed under special survey yes



AIR RECEIVERS:—Have they been made under survey yes Are reports or certificates now forwarded yes
 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
EMERGENCY STARTING
 Injection Air Receivers, No. 1 off Cubic capacity of each 100 litres Internal diameter 336 mm thickness 10 mm
 Seamless, lap welded or riveted longitudinal joint lap welded Material Sch. Steel Range of tensile strength 27.374/2 Working pressure by Rules 36.6 kg/cm² Actual 28 kg/cm²
 Starting Air Receivers, No. 1 off Total cubic capacity 8 m³ Internal diameter 6'-0" thickness 1"
 Seamless, lap welded or riveted longitudinal joint 3 riveted Material Sch. Steel Range of tensile strength 28 kg/cm² Working pressure by Rules 25.7 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 yes
PLANS. Are approved plans forwarded herewith for Shafting 26-36 & 27-36 Receivers 2/9-36 Separate Fuel Tanks 11/2-37
 Donkey Boilers no General Pumping Arrangements 23/9-36 Pumping Arrangements in Machinery Space 23/3-37
 Oil Fuel Burning Arrangements no
SPARE GEAR.
 Has the spare gear required by the Rules been supplied yes
 State the principal additional spare gear supplied For main Engine: - 1 cylinder complete, 1 piston complete, 2 bronze propellers, 1 propeller shaft. For auxiliary Engine: - 1 crank shaft, 1 cylinder complete, 1 piston complete.
 The foregoing is a correct description.
 Burmeister & Wain Maskin- og Skibsbyggeri, Aktieselskab
 NASKOV SKIBSVÆRFT, Manufacturer.
 Dates of Survey: During progress of work in shops - June 12, July 10, Aug. 3, 7, 13, 15, 19, 22, 25, 29, Sept. 3, 9, 11, 5, 23, 25, 26, 28, Oct. 17, 21, 24, 26, 27, 31, Nov. 5, 7, 9, 10, 11, 13, 14, 16, 17, 18, 20, 26, 30, Dec. 1, 4, 8, 14, 17, 19, 21, 22, 23, 30, 1936, Jan. 7, 12, 20, 21, March 3, 19, 27, 31, 1937.
 During erection on board vessel - March 19, April 7, 8, 9, 13, 14, 16, 20, 24, 28, May 5, 7, 11, 14, 19, 20, 21, 22, 1937.
 Total No. of visits 73
 Dates of Examination of principal parts: Cylinders 9/11, 17/11, 20/11, 24/11, 30/11, 1/12, 8/12, 15/12, 22/12, 29/12, 5/1, 12/1, 19/1, 26/1, 2/2, 9/2, 16/2, 23/2, 30/2, 6/3, 13/3, 20/3, 27/3, 3/4, 10/4, 17/4, 24/4, 31/4, 7/5, 14/5, 21/5, 28/5, 4/6, 11/6, 18/6, 25/6, 2/7, 9/7, 16/7, 23/7, 30/7, 6/8, 13/8, 20/8, 27/8, 3/9, 10/9, 17/9, 24/9, 1/10, 8/10, 15/10, 22/10, 29/10, 5/11, 12/11, 19/11, 26/11, 3/12, 10/12, 17/12, 24/12, 31/12, 7/1, 14/1, 21/1, 28/1, 4/2, 11/2, 18/2, 25/2, 3/3, 10/3, 17/3, 24/3, 31/3, 7/4, 14/4, 21/4, 28/4, 4/5, 11/5, 18/5, 25/5, 1/6, 8/6, 15/6, 22/6, 29/6, 6/7, 13/7, 20/7, 27/7, 3/8, 10/8, 17/8, 24/8, 31/8, 7/9, 14/9, 21/9, 28/9, 4/10, 11/10, 18/10, 25/10, 1/11, 8/11, 15/11, 22/11, 29/11, 6/12, 13/12, 20/12, 27/12, 3/1, 10/1, 17/1, 24/1, 31/1, 7/2, 14/2, 21/2, 28/2, 4/3, 11/3, 18/3, 25/3, 1/4, 8/4, 15/4, 22/4, 29/4, 6/5, 13/5, 20/5, 27/5, 3/6, 10/6, 17/6, 24/6, 31/6, 7/7, 14/7, 21/7, 28/7, 4/8, 11/8, 18/8, 25/8, 1/9, 8/9, 15/9, 22/9, 29/9, 6/10, 13/10, 20/10, 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