

REPORT ON MACHINERY.

No. 1651

Received at London Office

WED. 14 MAR. 1917

Date of writing Report 31st Jan. 1917 When handed in at Local Office

Port of Stockholm

No. in Survey held at Stockholm

Date, First Survey 3rd June 1916 Last Survey 27th October 1916

on the

(Number of Visits 17)

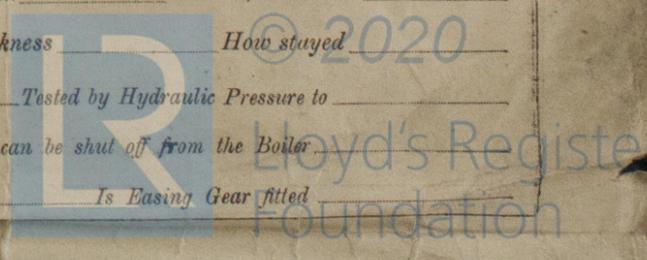
Master _____ Built at Baltimore By whom built Baltimore Dry Dock Shipbuilding Co. Tons } Gross }
 Engines made at Stockholm By whom made Nevins & Co. G. P. Behnders Co. Ltd. When built 1916 } Net }
 Boilers made at _____ By whom made _____ when made _____ }
 Registered Horse Power 500 Owners Attefallskabot Motor Tank (Chr. Hammerig) Port belonging to Christiania
 Nom. Horse Power as per Section 28 _____ Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____

ENGINES, &c.—Description of Engines Refrigerator, two stroke cycle, reversible No. of Cylinders 4 No. of Cranks 4
 Dia. of Cylinders 5.20 in. Length of Stroke 7.50 in. Revs. per minute 160 Dia. of Screw shaft _____ Material of screw shaft }
 the screw shaft fitted with a continuous liner the whole length of the stern tube _____ Is the after end of the liner made water tight
 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
 bearings are fitted, is the shaft lapped or protected between the liners _____ Length of stern bush _____
 Dia. of Tunnel shaft _____ Dia. of Crank shaft journals _____ Dia. of Crank pin 2.40 in. Size of Crank webs 3.50 in. Dia. of thrust shaft under
 flange 2.30 in. Dia. of screw _____ Pitch of Screw _____ No. of Blades _____ State whether moveable _____ Total surface _____
 No. of Feed pumps 2 Diameter of ditto 1.30 in. Stroke 6.6 in. Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 1.65 in. Stroke 6.6 in. Can one be overhauled while the other is at work Yes
 No. of Donkey Engines _____ Sizes of Pumps _____ No. and size of Suctions connected to both Bilge and Donkey pumps _____
 Engine Room _____ In Holds, &c. _____

No. of Bilge Injections _____ sizes _____ Connected to condenser, or to circulating pump _____ Is a separate Donkey Suction fitted in Engine room & 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 stokehold 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 the Blow Off Cocks fitted with a spigot and brass covering plate _____
 What pipes are carried through the bunkers _____ How are they protected _____
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings 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 _____

BOILERS, &c.—(Letter for record _____) Manufacturers of Steel _____
 Total Heating Surface of Boilers _____ Is Forced Draft fitted _____ No. and Description of Boilers _____
 Working Pressure _____ Tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____
 Can each boiler be worked separately _____ Area of fire grate in each boiler _____ No. and Description of Safety Valves to _____
 each boiler _____ Area of each valve _____ Pressure to which they are adjusted _____ Are they fitted with easing gear _____
 Smallest distance between boilers or uptakes and bunkers or woodwork _____ Mean dia. of boilers _____ Length _____ Material of shell plates _____
 Thickness _____ Range of tensile strength _____ Are the shell plates welded or flanged _____ Descrip. of riveting: cir. seams _____
 Long. seams _____ Diameter of rivet holes in long. seams _____ Pitch of rivets _____ Lap of plates or width of butt straps _____
 Percentages of strength of longitudinal joint _____ Working pressure of shell by rules _____ Size of manhole in shell _____
 Size of compensating ring _____ No. and Description of Furnaces in each boiler _____ Material _____ Outside diameter _____
 Length of plain part _____ Thickness of plates _____ Description of longitudinal joint _____ No. of strengthening rings _____
 Working pressure of furnace by the rules _____ Combustion chamber plates: Material _____ Thickness: Sides _____ Back _____ Top _____ Bottom _____
 Pitch of stays to ditto: Sides _____ Back _____ Top _____ If stays are fitted with nuts or riveted heads _____ Working pressure by rules _____
 Material of stays _____ Area at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ End plates in steam space: _____
 Material _____ Thickness _____ Pitch of stays _____ How are stays secured _____ Working pressure by rules _____ Material of stays _____
 Area at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ Material of Front plates at bottom _____
 Thickness _____ Material of Lower back plate _____ Thickness _____ Greatest pitch of stays _____ Working pressure of plate by rules _____
 Diameter of tubes _____ Pitch of tubes _____ Material of tube plates _____ Thickness: Front _____ Back _____ Mean pitch of stays _____
 Pitch across wide water spaces _____ Working pressures by rules _____ Girders to Chamber tops: Material _____ Depth and _____
 Thickness of girder at centre _____ Length as per rule _____ Distance apart _____ Number and pitch of stays in each _____
 Working pressure by rules _____ Steam dome: description of joint to shell _____ % of strength of joint _____
 Diameter _____ Thickness of shell plates _____ Material _____ Description of longitudinal joint _____ Diam. of rivet holes _____
 Pitch of rivets _____ Working pressure of shell by rules _____ Crown plates _____ Thickness _____ How stayed _____
 SUPERHEATER. Type _____ Date of Approval of Plan _____ Tested by Hydraulic Pressure to _____
 Date of Test _____ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler _____
 Diameter of Safety Valve _____ Pressure to which each is adjusted _____ Is Easing Gear fitted _____

W1015-0035 1/2



IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building... Total No. of visits 19... Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders... Covers... Pistons... Crank shaft... Thrust shaft... Tunnel shafts... Screw shaft... Propeller

Stern tube... Steam pipes tested... Engine and boiler seatings... Engines holding down bolts... Completion of pumping arrangements... Boilers fixed... Engines tried

Completion of fitting sea connections... Stern tube... Screw shaft and propeller... Starting air receiver... Injection air receiver... Thickness of adjusting washers

Material of Crank shaft... Identification Mark on Do... Material of Thrust shaft... Identification Mark on Do... Material of Tunnel shafts... Identification Marks on Do... Material of Screw shafts... Identification Marks on Do

Material of Steam Pipes... Solid drawn copper... Silencers cast iron... Is an installation fitted for burning oil fuel... Test pressure... Is the flash point of the oil to be used over 150° F.

Have the requirements of Section 49 of the Rules been complied with... Is this machinery duplicate of a previous case... If so, state name of vessel... See Gen. Report No. 1650.

General Remarks (State quality of workmanship, opinions as to class, &c. See appended sheet)

Material of compressor crank shaft... S.M. Steel... Identification mark on Do... Lloyd's No. 2710.16

Table with columns for fees: The amount of Entry Fee, Special fee, Donkey Boiler Fee, Travelling Expenses. Includes dates and amounts.

Committee's Minute

Assigned

Signature of A. Hakson, Engineer Surveyor to Lloyd's Register of Shipping.

CYLINDER 570 B. H. P. motor, Cyl. Nos 11568/71

The designs of the crank & thrust shafts and the connecting rods of this type and size of Bolinder Motor have been submitted and approved (See Secretary's letter E. 17.9.15, 21.10.15, 10.2.16, 12.5.16).

These shafts and connecting rods have been manufactured at the Sandviken and Björneborg Steel Works in accordance with the Rules. They have been inspected while being roughturned and finished and found good and sound. Their materials have been tested by the undersigned and found to fill Rule Requirements.

The cylinders, of cast iron, have been examined and found sound. Thickness of cylinderwalls stated to be 22 mm. and of waterjackets 18 mm. Cylinders tested with hydraulic pressure to 529 lbs per sq. inch or twice the working pressure of 18 Atm. and found tight. They have been tested on upper flange of each cylinder: Lloyd's Test 529 lbs 27.10.16.A Their waterjackets have been tested to 50 lbs and found tight.

The compressor cylinders (2 stage) and their waterjackets have been tested: H. P. cyl. to 60 Atm., L. P. cyl. to 16 Atm., or twice the working pressures, and waterjackets to 50 lbs and all found tight.

The starting air receiver, of low tensile S. M. S. plates, lapwelded by the ordinary 'water gas' method, is manufactured at the Avesta Steel Works, who have also manufactured and rolled the steel. Length of receiver 25.5 mm.; outside diam. 600 mm., platethickness 9 mm. Plan submitted and approved (See Secretary's letter E. 8.3.16.). The steel material has been tested by the undersigned and found good, and the receiver been tested with hydraulic pressure to 30 Atm. or twice the working pressure and found sound and tight. It has been stamped as follows:

Lloyd's Test 30 Atm. Working Pr. 15 Atm. No. 2081 Skm. 18.10.16 A

The injection air receiver, of low tensile solid drawn S. M. S. plate, is manufactured at the Avesta Steel Works, who have also manufactured and rolled the steel. Length of receiver 1400 mm., outside diam. 230 mm., platethickness 7 mm. Plan submitted and approved (See Secretary's letter E. 5.). The material has been tested by the undersigned and found good, and the receiver tested by me with hydraulic pressure to 60 Atm. or twice the working pressure and found sound and tight. It has been stamped as follows:

Lloyd's Test 60 Atm. Working Pr. 30 Atm. No. 2082 Skm. 18.10.16 A

The motor has been tried in shop under full power in my presence and found to give an effect at normal load and 160 revolutions of 570 B. H. P. It has also been tried with a continuous overload at 550 B. H. P. and found to work well.

The Society's Rules with regard to the details of construction, fitting of valves, lubrication, accessibility, etc., have been adhered to so far as concerns the motor itself. The remaining requirements will have to be attended to at the fitting of the motor in ship, if a classed vessel.

I am of opinion, that this motor is of superior material and workmanship, and as it has been designed and constructed under my special survey, I have respectfully to submit, that it will be eligible to be classed LMC, as soon as it has been fitted in a classed vessel to the satisfaction of the Society's Surveyors, and the silencers have been examined and tested.

Signature of A. Hakson, Engineer Surveyor to Lloyd's Register of Shipping.

Note: On the 15th Febr. 1917, the silencers, with waterjackets, of this engine were tested with hydraulic pressure to 50 lbs. per square inch and found tight.

Signature of A. Hakson

W1015-0035 1/2