

Rpt. 4.

REPORT ON MACHINERY.

No. 1742

Received at London Office

WED. APR. 25 1923

Date of writing Report 7th Dec. 1917 When handed in at Local Office

19 Port of Stockholm

No. in Survey held at Stockholm
Reg. Book.

Date, First Survey 28th September 1916 Last Survey 28th November 1917

(Number of Visits 19)

on the motorvessel no. 1

Tons } Gross
 } Net

When built 1917

Master Built at Fevig, Arendal, By whom built A/S. Radolphs Tærft

Engines made at Stockholm By whom made Messrs. J. & C. G. Bolinders Co. Ltd. when made 1917

Boilers made at (Brake) By whom made (Exp. nos. 13097/13100. Christiania order no. 1353) when made

Registered Horse Power 240 Owners A/S. Motorfart Port belonging to Christiania

Nom. Hors. Power as per Section 28 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

ENGINES, &c.—Description of Engines Bolinder, two stroke cycle, reversible No. of Cylinders 4 No. of Cranks 4

Dia. of Cylinders 15" 380 mm. Length of Stroke 410 mm. Revs. per minute 250 168" Dia. of Screw shaft as per rule Material of screw shaft as fitted

Is 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

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 Length of stern bush

Dia. of Tunnel shaft as per rule Dia. of Crank shaft journals as per rule 156 mm. Dia. of Crank pin 160 mm. Size of Crank webs 220 mm. Dia. of thrust shaft under collars 155 mm. Dia. of screw Pitch of Screw No. of Blades State whether moveable Total surface

No. of Cooling Pumps 2 Diameter of ditto 85 mm. Stroke 28 mm. Can one be overhauled while the other is at work

No. of Bilge pumps 2 Diameter of ditto 110 mm. Stroke 130 mm. Can one be overhauled while the other is at work

No. of Donkey Engines Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps

In 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

Per centages of strength of longitudinal joint rivets. 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 top Thickness of plates crown Description of longitudinal joint No. of strengthening rings

bottom Thickness of plates bottom 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

(111) 9010-524m

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 { During progress of work in shops - - 28/9 1916; 1x27/2; 4.6x14/5; 5.14.20x28/6; 30/7; 16x21/8; 5/10; 3.7.8.23x28/11 1917.
During erection on board vessel - - -
Total No. of visits 19

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders 3x8/11 1917 Silencers 3x8/11 1917 Slides 3x8/11 1917 Covers 3x8/11 1917 Pistons 3x8/11 1917 Compressor Crank 28/9 1916
Connecting rods 7/10; 3.7x8/11 1917 Crank shaft 3.8x28/11 1917 Thrust shaft 3.8x28/11 1917 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 in shop under steam 3.11.1917

Completion of fitting sea connections Stern tube Screw shaft and propeller

Starting air receiver Injection air receiver 23.11.1917

Main boiler safety valves adjusted 23.11.1917 Thickness of adjusting washers 23.11.1917

Material of Crank shaft S.M. Steel Identification Mark on Do. Lloyd's No. 2620 Material of Thrust shaft S.M. Steel Identification Mark on Do. Lloyd's No. 2620

Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Identification Marks on Do.

Material of Pipes solid drawn copper Test pressure 60 Atm.

Silencers cast iron 50 lbs. per square inch.

Is an installation fitted for burning oil fuel 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 Yes If so, state name of vessel (Skm. report no. 1451)

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 ditto Lloyd's No. 2620

Certificate (if required) to be sent to

The amount of Entry Fee ... £ : : When applied for.
Special for survey ... £ 8 : 9:10 27.11.1917
Donkey Boiler Fee ... £ : : When received.
Travelling Expenses (if any) £ : : 19

Committee's Minute

Assigned

FRI 25 MAY 1923

See Lia Rpt 2537

A. Saxon
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation

of *Stockholm*

Continuation of Report No. *1742* dated *7th Decr. 1917* on the

CYLINDER 240 **B. H. P. motor, Cyl. Nos** *13097/00.*

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 *S. E. 19.2.15 & 2.10.15*).

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 *26* mm. and of waterjackets *14* 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 marked on upper flange of each cylinder: Lloyd's Test 529 lbs. *23.11.17* 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 sp. 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 *2000* mm.; outside diam. *450* mm., platethickness *8* 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 by me 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	<i>30</i>	Atm.
Working Pr.	<i>15</i>	Atm.
No. <i>2149</i>	Skm. <i>23.11.17</i>	A

The **injection air receiver**, of solid drawn S. M. S. tube, is manufactured at the Avesta Steel Works from tube, manufactured at the Storfors Steel Works. Length of receiver *1265* mm., outside diam. *152* mm., platethickness *4.5* mm. Plan submitted and approved (See Secretary's letter *E. 2.15*). 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	<i>60</i>	Atm.
Working Pr.	<i>30</i>	Atm.
No. <i>2150</i>	Skm. <i>23.11.17</i>	A

The **motor** has been tried in shop under full power in my presence and found to give an effect at normal load and *250* revolutions of *and found to work well. No overload test has been carried out, due to the present scarcity of oil.*
240 B. H. P. ~~It has also been tried with a continuous overload at~~ 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 farz 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.

O. Bakson
Engineer Surveyor to Lloyd's Register of Shipping.

W425-0106 (2/2)



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