

pt. 4.

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

Reg. Book.

(Number of Visits)

Master Built at Baltimore By whom built Baltimore Dry Dock Shipbuilding Co.

Tons } Gross
Net

When built 1916

Engines made at Stockholm By whom made Messrs. J. & C. G. Behnders & Co. Ltd.

when made 1916

Boilers made at Stockholm By whom made when made

Registered Horse Power 500 Owners Aktieskabet 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 Compound, two stroke cycle reversible No. of Cylinders 4 No. of Cranks 4

Dia. of Cylinders 520 mm Length of Stroke 750 mm Revs. per minute 160 Dia. of Screw shaft as per rule as fitted 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

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush

Dia. of Tunnel shaft as per rule as fitted Dia. of Crank shaft journals as per rule 235 mm as fitted 240 mm Dia. of Crank pin 240 mm Size of Crank webs 350 mm Dia. of thrust shaft under

flars 230 mm Dia. of screw Pitch of Screw No. of Blades State whether movable Total surface

No. of Bilge pumps 2 Diameter of ditto 130 mm Stroke 66 mm Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 165 mm Stroke 66 mm 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 rivets plate 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 bottom Thickness of plates crown bottom 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

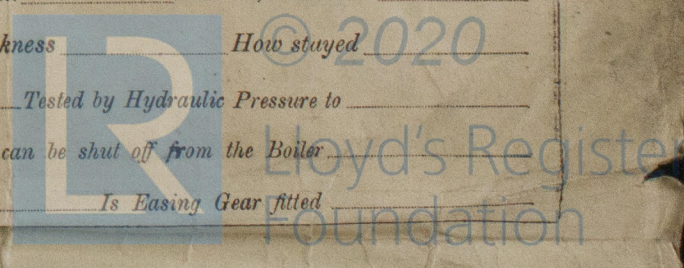
Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

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

Material 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
During progress of work in shops --
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 14/27/1916 (Silencers not yet) Covers 14/27/1916 Pistons 14/27/1916
Connecting rods 14/27/1916 Crank shaft 14/27/1916 Thrust shaft 14/27/1916 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 14/10/1916

Completion of fitting sea connections Stern tube Screw shaft and propeller

Starting air receiver 5/6/1916 Injection air receiver Thickness of adjusting washers 5/6/1916

Material of Crank shaft S.M. Steel Identification Mark on Do. Lloyd's No. 2710/16 Material of Thrust shaft S.M. Steel Identification Mark on Do. Lloyd's No. 2710/16

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

Material of Steam Pipes Solid drawn copper Test pressure 60 Atm.

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 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

The amount of Entry Fee ... £ : : When applied for,
Special for survey on ship £ 17 : 12 : 10 19th Dec. 1917
Donkey Boiler Fee ... £ : : When received,
Travelling Expenses (if any) £ : : 19

Committee's Minute

Assigned

A. Hakson
Engineer Surveyor to Lloyd's Register of Shipping,
Assisted by Mr. T. Schreil

Continuation of Report No. 1651 dated 31st January 1917 on the

BOLINDER 550 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 worked 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 plate S. M. S. 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. 5.7.16.). 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 550 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.

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.

A. Hakson

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