

Attached to Baltimore Report No. 2055
REPORT ON MACHINERY. No. 1602

Rpt. 4.

Date of writing Report 28 Sept. 1916 When handed in at Local Office 19 Port of Stockholm Received at London Office MON. 9-OCT. 1916

No. in Survey held at Stockholm Date, First Survey 30 Nov. 1915 Last Survey 13 Sept. 1916
 Reg. Book. 44 Suff on the Twin Screw Motor Vessel "Holden Erans" (Number of Visits 20)

Master W. Habel Built at Baltimore By whom built Baltimore Dry Dock & Shipbuilding When built 1917
 Tons { Gross 3253
 Net 2025

Engines made at Stockholm By whom made J. & C. G. Bolander Co. when made 1916
 Boilers made at Brake By whom made (Christiania order no. 1052. Cf. nos. 11548/51) when made

Registered Horse Power 500 Owners Aktieselskabet Motor Taak Port belonging to Christiania
 Nom. Horse Power as per Section 28 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Bolander 2 stroke cycle, reversible with air injection No. of Cylinders 4 No. of Cranks 4

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

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 as fitted Dia. of Crank shaft journals as per rule 235 mm as fitted 140 mm Dia. of Crank pin 240 mm Size of Crank webs 350 mm Dia. of thrust shaft under collars 230 mm Dia. of screw Pitch of Screw No. of Blades State whether moceable Total surface

No. of Feed 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 160 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
 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.

Dates of examination of completion of fitting of Sea Connections of Stern Tube Screw shaft and Propeller
 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 Working pressure of shell by rules Size of manhole in shell

Percentage 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

Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom
 Diameter of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

Material of stays Diameter 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

Diameter 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
 Distance 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 Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

Material Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet
 Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

Reinforced with rings Distance between rings Working pressure by rules End plates: Thickness How stayed
 Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

Material of stays Diameter 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

Diameter 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
 Distance 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
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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 Examination of principal parts... During progress of work in shops... During erection on board vessel... Total No. of visits

Dates of Examination of principal parts—Cylinder, Connecting rods, Crank shaft, Thrust shaft, Tunnel shafts, Steam pipes tested, Engine and boiler seatings, Engines holding down bolts, Engines tried, Main boiler safety valves adjusted, Material of Crank shaft, Material of Thrust shaft, Material of Screw shafts, Material of Piston Rods, Material of Piston Rings, Material of Piston Skirts, Material of Piston Pins, Material of Piston Bolts, Material of Piston Washers, Material of Piston Gaskets, Material of Piston Rings, Material of Piston Pins, Material of Piston Bolts, Material of Piston Washers, Material of Piston Gaskets

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 Rep. no. 1594.

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

Material of Compressor Crank shaft S.M.S. Identification Mark on dia

The amount of Entry Fee... Donkey Boiler Fee... Travelling Expenses (if any)

Committee's Minute New York MAR 22 1917

Assigned

See Balto. S.C. Rpt on Mchry

port of Stockholm

Continuation of Report No. 1602 dated 28th Sept. 1916 on the

BOLINDER 500 B. H. P. motor, Cyl. Nos 11548/51

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; 10.2.16; 12.5.16 & 21.10.15)

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 the Rule Requirements.

The cylinders, of cast iron, have been examined and found sound. Thickness of cylinderwalls stated to be 32 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 marked on upper flange of each cylinder: Lloyd's Test 529 lbs 25.7.16A. 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 resp. 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 2515 mm.; outside diam. 600 mm., platethickness 9 mm. Plan submitted and approved (See Secretary's letter E. 9.3.16). The steel material has been tested by the undersigned and found good, and the receiver been tested by me with hydraulic pressure to 24 Atm. or twice the working pressure and found sound and tight. It has been stamped as follows:

Lloyd's Test 24 Atm. Working Pr. 12 Atm. No. 2071 Skm. 13.9.16 A

The injection air receiver, of low tensile S. M. S. tube, is manufactured at the Avesta Steel Works, who have also manufactured the steel. Length of receiver 1400 mm., outside diam. 230 mm., platethickness 7 mm. Plan submitted and approved (See Secretary's letter E. 6.12.15). 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 60 Atm. Working Pr. 30 Atm. No. 2076 Skm. 13.9.16 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 500 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. The special certificate, has enclosed, dated 19th Sept. 1916, be stamped and returned to this Office (See Secy's letter E. 25.1.1916 and my letter E. 5.2.16)

A. Gustafson Engineer Surveyor to Lloyd's Register of Shipping. Assisted by Mr. V. Schreil

This engine installed as Starb^d Engine on Twin Screw Motor Vessel "Holden Evans" Baltimore Report No 2055

H. A. Stewart

A. Gustafson Engineer Surveyor to Lloyd's Register of British & Foreign Shipping. Assisted by Mr. V. Schreil