

REPORT ON MACHINERY

No. 4634
REC'D OCT 20 1920

Received at London Office

Date of writing Report 19 When handed in at Local Office 19 Port of Gothenburg
 No. in Survey held at Gothenburg Date, First Survey Dec, 1918 Last Survey 7th October 1920
 Reg. Book. on the Steel 5/8 "KNÄPPINGSBORG" (Number of Visits 39)
 Master J. W. Wicklund Built at Gothenburg By whom built Aktiebol. Lindholmen-Motala Tons { Gross Net }
 Engines made at Gothenburg By whom made Aktiebol. Lindholmen-Motala when made 1920
 Boilers made at Gothenburg By whom made Aktiebol. Lindholmen-Motala when made 1920
 Registered Horse Power ✓ Owners H. Uner Aktiebolag Port belonging to Norköping
 Nom. Horse Power as per Section 28 216 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines One triple expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 21 1/8" x 33" x 55" Length of Stroke 30 3/8" Revs. per minute 96 Dia. of Screw shaft as per rule 12" 12.2" Material of Steel
 as fitted 19 3/8" screw shaft
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liner fitted 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 50"
 Dia. of Tunnel shaft as per rule 10 5/8" 10-15 Dia. of Crank shaft journals as per rule 10 3/8" 10-6 1/2 Dia. of Crank pin 11" Size of Crank webs 6 3/8" x 12" Dia. of thrust shaft under collars 10 1/8" Dia. of screw 14-6" Pitch of Screw 14-0" No. of Blades 4 State whether moveable No Total surface 59.99 feet
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps 190, 1125, 1787 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Two 2 3/4" In Tunnel well one 2 1/2" In Holds, &c. Four 2 3/4"
 No. of Bilge Injections 1 sizes 5 1/2" Connected to condenser, or to circulating pump Each pump a separate Donkey Suction fitted in Engine room & size Yes 3"
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible None
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes 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 are carried through the bunkers Bilge suction pipes for fore hold How are they protected Covered with wood
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper engine room platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel William Beardmore & Co. Ltd.
 Total Heating Surface of Boilers 28500 Is Forced Draft fitted Yes No. and Description of Boilers Two cylindrical, multilubular
 Working Pressure 185 lbs per sq in Tested by hydraulic pressure to 327.5 lbs per sq in Date of test 18th Sept. 1920 No. of Certificate 163, 164
 Can each boiler be worked separately Yes Area of fire grate in each boiler 33 sq ft No. and Description of Safety Valves to each boiler Two spring loaded Area of each valve 19.5 sq in Pressure to which they are adjusted 190 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 7" Mean dia. of boilers 19-0 3/32" Length 11-3" Material of shell plates Steel
 Thickness 1 3/32" Range of tensile strength Double butt straps Are the shell plates welded or flanged No Descrip. of riveting: cir. seams None
 long. seams of unequal width Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 9/16" Lap of plates or width of butt straps 20 1/4" x 12 1/2"
 Per centages of strength of longitudinal joint rivets 84.7 Working pressure of shell by rules 199 lbs Size of manhole in shell 19" x 16"
 plate 84.5
 Size of compensating ring 30" x 1" No. and Description of Furnaces in each boiler Two corrugated Material Steel Outside diameter 42"
 Length of plain part top 33 1/4" Thickness of plates crown 33 1/4" Description of longitudinal joint welded No. of strengthening rings ✓
 Working pressure of furnace by the rules 187 lbs Combustion chamber plates: Material Steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 7/8"
 Pitch of stays to ditto: Sides 8 1/4" x 7 1/2" Back 8 3/8" x 7 1/2" Top 8 3/4" x 8 1/4" If stays are fitted with nuts or riveted heads on margin stays Working pressure by rules 194 lbs
 Material of stays Steel Area at smallest part 1,478 sq in Area supported by each stay 61,870 sq in Working pressure by rules 194 lbs End plates in steam space: Material Steel Thickness 1 1/16" Pitch of stays 17 1/2" x 17" How are stays secured All nuts and washers Working pressure by rules 194 lbs Material of stays Steel
 Area at smallest part 6.10 sq in Area supported by each stay 997.5 sq in Working pressure by rules 212 lbs Material of Front plates at bottom Steel
 Thickness 7/8" Material of Lower back plate Steel Thickness 25/32" Greatest pitch of stays 12 1/8" x 7 1/8" Working pressure of plate by rules 194 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates Steel Thickness: Front 7/8" Back 7/8" Mean pitch of stays 11 1/8"
 Pitch across wide water spaces 14" Working pressures by rules 256 lbs Girders to Chamber tops: Material Steel 8 1/4" Depth and thickness of girder at centre 2 x 6 7/8" x 1" Length as per rule 27" Distance apart 8 3/4" Number and pitch of stays in each Two, 8 1/4"
 Working pressure by rules 193 lbs 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 Schmidt's Date of Approval of Plan No plan submitted Tested by Hydraulic Pressure to 50 atm
 Date of Test ✓ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler Yes
 Diameter of Safety Valve 1 1/2" Pressure to which each is adjusted 190 lbs Is Easing Gear fitted Yes



IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 2 connecting rod top-end bolts and nuts, 2 connecting rod bottom-end bolts and nuts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of feed and bilge pump valves, 1 propeller, 1 propellershaft, 1/2 crank shaft, 1 air pump rod, 1 circulation pump shaft, 4 ordinary boiler tubes and 2 stay tubes, 10 condenser tubes, 2 safety valve springs, 1 set of H.P. piston rings, 2 air pump valves, a quantity of assorted bolts and nuts of various sizes, 1 thrust shaft.

The foregoing is a correct description,
AKTIEBOLAGET LINDHOLMEN-MOTALA

O. Rom Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1920: April 7, 21, June 12, 25, July 13, Aug. 4, 9, 14, 25, Sept 15, 18, 30, Oct 7. 1918: Dec. 11, 1919: Jan 28, March 20, April 7, 11, 23, May 6, 9, June 7, 12, July 23, Aug. 22, 23, 26, 27, Sept 4, 5, 12, 15, 16, 19, Oct 20, Nov 7. During erection on board vessel -- 1920: Sept 30, Oct 7, 8, 9. Total No. of visits 39.

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders 7/6/19, 26/8/19 Slides 23/7/19 Covers 22/8/19, 4/9/19 Pistons 26/8/19, 4/9/19 Rods 9/5/19 Connecting rods 26/8/19 Crank shaft 13/4/20 Thrust shaft 14/6/20 Tunnel shafts 12/6/20 Screw shaft 12/6/20 Propeller 12/7/20 Stern tube 20/10/19 Steam pipes tested 30/9/20 Engine and boiler seatings 15/8/19, 7/10/19 Engines holding down bolts 15/8/20 Completion of pumping arrangements 7/10/20 Boilers fixed 30/9/20 Engines tried under steam 8/10/20 Completion of fitting sea connections 15/9/20 Stern tube 15/15/20 Screw shaft and propeller 18/4/20 Main boiler safety valves adjusted 9/10/20 Thickness of adjusting washers ✓

Material of Crank shaft Steel Identification Mark on Do. See below Material of Thrust shaft Steel Identification Mark on Do. Material of Tunnel shafts Steel Identification Marks on Do. See below Material of Screw shafts Steel Identification Marks on Do. Material of Steam Pipes Steel Test pressure 555 lbs per sq inch

Is an installation fitted for burning oil fuel *No* 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 *S.S. Orania, S.S. Briavalla*

General Remarks (State quality of workmanship, opinions as to class, &c.) Identification marks: Tunnel shafts LLOYD'S 16.9.19, 18.6.20, 19.6.20, 20.6.20, 21.6.20, 22.6.20, 23.6.20, 24.6.20, 25.6.20, 26.6.20, 27.6.20, 28.6.20, 29.6.20, 30.6.20, 31.6.20, 32.6.20, 33.6.20, 34.6.20, 35.6.20, 36.6.20, 37.6.20, 38.6.20, 39.6.20. Crank shaft LLOYD'S 14.6.19, 15.6.19, 16.6.19, 17.6.19, 18.6.19, 19.6.19, 20.6.19, 21.6.19, 22.6.19, 23.6.19, 24.6.19, 25.6.19, 26.6.19, 27.6.19, 28.6.19, 29.6.19, 30.6.19, 31.6.19, 32.6.19, 33.6.19, 34.6.19, 35.6.19, 36.6.19, 37.6.19, 38.6.19, 39.6.19. Spare propeller shaft LLOYD'S 12.6.20, 13.6.20, 14.6.20, 15.6.20, 16.6.20, 17.6.20, 18.6.20, 19.6.20, 20.6.20, 21.6.20, 22.6.20, 23.6.20, 24.6.20, 25.6.20, 26.6.20, 27.6.20, 28.6.20, 29.6.20, 30.6.20, 31.6.20, 32.6.20, 33.6.20, 34.6.20, 35.6.20, 36.6.20, 37.6.20, 38.6.20, 39.6.20. Spare thrust shaft LLOYD'S 12.6.20, 13.6.20, 14.6.20, 15.6.20, 16.6.20, 17.6.20, 18.6.20, 19.6.20, 20.6.20, 21.6.20, 22.6.20, 23.6.20, 24.6.20, 25.6.20, 26.6.20, 27.6.20, 28.6.20, 29.6.20, 30.6.20, 31.6.20, 32.6.20, 33.6.20, 34.6.20, 35.6.20, 36.6.20, 37.6.20, 38.6.20, 39.6.20.

This machinery has been built under special survey and all the requirements of the Rules have been complied with. The shafting as per forging reports which will be forwarded shortly. The boilers as per approved plan. The workmanship is good.

The machinery of this vessel is worthy in my opinion to be classed in the Register Book of this Society with the notation of +LMC 10.20 being in a good and safe working condition at a working pressure of 185 lbs per sq inch.

The amount of Entry Fee ... £ 36.40 : When applied for, Special ... £ 560.55 : 15th Oct. 1920. Donkey Boiler Fee ... £ : : When received, Travelling Expenses (if any) £ : : 26/11/20

V. Dulton Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute Assigned + L.M.C. 10.20 F.D.



This Surveyors are requested not to write on or below the space for Committee's Minute.

Rpt. 13. Port of No. in Reg. Book 49993 Owners Yard No. DESCRIP Capacity of Where is L Position of Positions of accom gangwa charthe If fuses an circuit If vessel is Are the fu Are all fus are per Are all swi Total numb A in eng B " accom C " port D " star E " acco I