

REPORT ON MACHINERY

No. 8321
FRI. 11 NOV. 1921

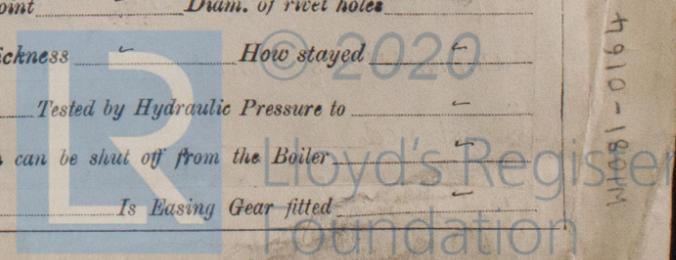
Received at London Office

Date of writing Report 19 When handed in at Local Office 10 Port of Dumfries
 Date, First Survey 4:10:1921 Last Survey 8:11:1921
 (Number of Visits 8)
 in Survey held at Dumfries
 eg. Book. 650 on the S.S. "ARBROATH"
 Gross 1106
 Net 623
 When built 1909
 Built at Rostock By whom built Akt. Ges. "Neptun"
 Engines made at Rostock By whom made Akt. Ges. "Neptun" when made 1909
 Cylinders made at Rostock By whom made Akt. Ges. "Neptun" when made 1909
 Registered Horse Power _____ Owners Dumfries Perth & London Shipping Co. Ltd. Port belonging to Dumfries
 m. Horse Power as per Section 28 182 Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines
 No. of Cylinders 14 1/2 9 4 1/2 4 1/2 4 1/2 Length of Stroke 31 1/2 Revs. per minute _____ Dia. of Screw shaft as per rule 9.94 Material of screw shaft as fitted 10 3/8
 the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight
 the propeller boss Yes 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 3'-6"
 Dia. of Tunnel shaft as per rule 8.84 Dia. of Crank shaft journals as per rule 9.31 Dia. of Crank pin 9 5/16 Size of Crank webs _____ Dia. of thrust shaft under
 Bars 9 3/8 Dia. of screw 12'-2" Pitch of Screw 14'-4" No. of Blades 4 State whether moveable Solid Total surface 46.87
 No. of Feed pumps 2 Diameter of ditto 22" Stroke _____ Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 38" Stroke _____ Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps DALRYMPLE 8 1/2 x 9 No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 3 2 2 3/4 In Holds, &c. F.P. 1 @ 2 3/8" V.A.C. 1 @ 2 3/8" Tunnel, well, 1 @ 2 3/8"
 No. of Bilge Injections 1 sizes 3 1/16 Connected to condenser, or to circulating pump circul pump Is a separate Donkey Suction fitted in Engine room & size Yes 2 1/2"
 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 _____
 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 Forward Suctions How are they protected Strong wood casings
 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 Main deck

BOILERS, &c.—(Letter for record _____) Manufacturers of Steel _____
 Total Heating Surface of Boilers 1668.47 Is Forced Draft fitted No No. and Description of Boilers 2, S.E. Marine
 Working Pressure 200 Tested by hydraulic pressure to 300 lbs. Date of test 1-11-1921 No. of Certificate 38
 Can each boiler be worked separately Yes Area of fire grate in each boiler 45.3 No. and Description of Safety Valves to
 each boiler 2, Spring loaded Area of each valve 5.94 Pressure to which they are adjusted 195 Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork _____ Mean dia. of boilers 12'-1 3/4" Length 10'-2" Material of shell plates
 Thickness 1.06 Range of tensile strength _____ Are the shell plates welded or flanged _____ Descrip. of riveting: cir. seams D.R.
 Long. seams J.R. D.B.S. Diameter of rivet holes in long. seams 1.26 Pitch of rivets 13 1/2 Lap of plates or width of butt straps 14 1/8 25 1/2
 Percentages of strength of longitudinal joint rivets 114.44 Combined % 98.1 Working pressure of shell by rules 199 Size of manhole in shell 16" x 12"
 Size of compensating ring 1 1/16 x 8" No. and Description of Furnaces in each boiler 2, Harrison Material _____ Outside diameter 49.2
 Length of plain part top 9.21 Thickness of plates crown .65 Description of longitudinal joint welded No. of strengthening rings _____
 Working pressure of furnace by the rules 194 Combustion chamber plates: Material _____ Thickness: Sides .63 Back .63 Top .64 Bottom .49
 Pitch of stays to ditto: Sides 4.48 x 4.84 Back 4.48 Top 8 x 4.8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 229 MIN.
 Material of stays _____ Area at smallest part 1.5 Area supported by each stay 63.5 Working pressure by rules 194.4 End plates in steam space: _____
 Material _____ Thickness .963 Pitch of stays 14.8 x 16.4 How are stays secured D.I. 9 WASHERS WITH ONE WASHER RIVETED. Working pressure by rules 204 Material of stays _____
 Area at smallest part 5.42 Area supported by each stay 229 Working pressure by rules 245 Material of Front plates at bottom _____
 Thickness .905 Material of Lower back plate _____ Thickness .865 Greatest pitch of stays 12.2 x 4.48 Working pressure of plate by rules 253
 Diameter of tubes 3 1/2 Pitch of tubes 4.53 Material of tube plates _____ Thickness: Front .9 Back .845 Mean pitch of stays 9.06
 Pitch across wide water spaces 14.14 Working pressures by rules 264 Girders to Chamber tops: Material _____ Depth and
 Thickness of girder at centre 13/16 x 6 1/2 (2) Length as per rule 25.2 Distance apart 8.04 Number and pitch of stays in each Yes 8 x 4.84
 Working pressure by rules 214 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 _____



4910-1801M

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

Two top end bolts & nuts. Two bottom end bolts & nuts. Two main bearing bolts & nuts. Set of coupling bolts & nuts. Spare valves for feed & bilge pumps and air & circulating pumps. Spare valve spindle end & eccentric strap complete. Assorted bolts and nuts and iron of various sizes.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1921 Oct. 4. 6. 14. 18. 21. Nov. 1. 4. 8. During erection on board vessel -- Total No. of visits 8. Is the approved plan of main boiler forwarded herewith Yes. " " " donkey " " " "

Dates of Examination of principal parts—Cylinders 6.10.21 Slides 6.10.21 Covers 6.10.21 Pistons 6.10.21 Rods 6.10.21 Connecting rods 6.10.21 Crank shaft 6.10.21 Thrust shaft 6.10.21 Tunnel shafts 6.10.21 Screw shaft 6.10.21 Propeller 6.10.21 Stern tube 6.10.21 Steam pipes tested 4.10.21 Engine and boiler seatings 2.11.21 Engines holding down bolts 6.10.21 Completion of pumping arrangements 8.11.21 Boilers fixed Engines tried under steam 8.11.21 Completion of fitting sea connections Stern tube Screw shaft and propeller Main boiler safety valves adjusted 8.11.21 Thickness of adjusting washers S. R. 5/16 F. 1/32 P. A. 5/16 F. 9/32 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 S. D. Copper 3/2" Bone x 6 H. G. Test pressure 450 Lbs. per sq. in. Is an installation fitted for burning oil fuel Yes Is the flash point of the oil to be used over 150°F. Yes Have the requirements of Section 49 of the Rules been complied with Yes Is this machinery duplicate of a previous case Yes If so, state name of vessel Yes

General Remarks (State quality of workmanship, opinions as to class, &c. In accordance with the instructions contained in letter E of 11.3.21, regarding this vessel (then named "Alexandra") the furnaces were specially examined during the survey of the boilers. Those in the port boiler were practically cylindrical, but both furnaces in the Starboard boiler were found to be deflected, the port furnace being 1 3/16" down at the worst part. The boilers were tested to 300 lbs per sq. in. by hydraulic pressure & found tight. The furnaces were carefully inspected under pressure & no alteration in form took place. The combustion chambers tops were deflected slightly under pressure (maximum 1/8"). They returned to their normal shape when the pressure was relieved. The modifications in the pumping plan, indicated in my letter of 1st inst. have been satisfactorily carried out. A survey has been held upon the machinery for records of L.M. and the details are given in the accompanying report (Rpt. 9). The Board of Trade have approved these boilers for a working pressure of 195 lbs (the vessel being surveyed for passenger certificate) and the safety valves were set at that pressure.

Table with columns for fee type (Entry Fee, Special, Donkey Boiler Fee, Travelling Expenses) and amount (£). Includes a signature and date.

John H. Mackintosh, Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute Assigned L.M.C. 11.21 (on Dec 8 1921)



The Surveyors are requested not to write on or below the space for Committee's Minute. Certificate (if required) to be sent to