

REPORT ON MACHINERY.

No. 34565

Received at London Office WED. NOV. 18. 1914

Date of writing Report 19 When handed in at Local Office 19 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 19/12/13 Last Survey 10/11/14
 Reg. Book. on the S.S. Mahanada (Number of Visits 37)
 Master Leqq Built at Glasgow By whom built C. Connell & Co (361) Tons { Gross 7196
 Engines made at Newcastle-on-Tyne By whom made Parsons Marine Steam Turbine Co when made 1914 Net 4522
 Boilers made at Glasgow By whom made D. Rowan & Co (612) when made 1914
 Registered Horse Power 3600 Owners J. & J. Brocklebank & Co Port belonging to Liverpool
 Nom. Horse Power as per Section 28 729 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Steam Turbine No. of Cylinders 2 No. of Cranks 2
 Dia. of Cylinders 18" Length of Stroke 16" Revs. per minute 90 Dia. of Screw shaft 1 1/2" Material of steel
 Is 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
 in the propeller boss yes If the liner is in more than one length are the joints burned length 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 yes If two
 liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 5'-10"
 Dia. of Tunnel shaft 14" Dia. of Crank shaft journals 14" Dia. of Crank pin 14" Size of Crank webs 14" Dia. of thrust shaft under
 collars 15 1/2" Dia. of screw 18" Pitch of Screw 16" No. of Blades 4 State whether moveable yes Total surface 104"
 No. of Feed pumps 2 Diameter of ditto 12" Stroke 10" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 10" Stroke 10" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 5 Sizes of Pumps 10" x 12" x 18" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 10 3 1/2" (1) 2 1/2" x 12" x 18" In Holds, &c. (2) 3 1/2" in each hold (3) 3 1/2" x 12" x 18"
 No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size yes 3 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 yes
 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 below
 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 for bilge & ballast suction How are they protected wood casing
 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
 Dates of examination of completion of fitting of Sea Connections 7/9/14 of Stern Tube 7/9/14 Screw shaft and Propeller 7/9/14
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight doors yes worked from top platform

BOILERS, &c.—(Letter for record 7) Manufacturers of Steel The Steel Company of Scotland Ltd.
 Total Heating Surface of Boilers 2195 (Is Forced Draft fitted no) No. and Description of Boilers 2 double ended cylindrical
 Working Pressure 180 Tested by hydraulic pressure to 300 Date of test 7/9/14 No. of Certificate 12859
 Can each boiler be worked separately yes Area of fire grate in each boiler 107 1/2" No. and Description of Safety Valves to
 each boiler 1 pair dual spring Area of each valve 11-04" Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork about 12" Mean dia. of boilers 16-6" Length 18-3" Material of shell plates steel
 Thickness 1 1/2" Range of tensile strength 28 to 32 Are the shell plates welded or flanged yes Descrip. of riveting: cir. seams 2 1/2" lap
 long. seams double butt Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 9 3/16" Lap of plates or width of butt straps 21"
 Per centages of strength of longitudinal joint 84.5 Working pressure of shell by rules 183 Size of manhole in shell 16" x 12"
 Size of compensating ring 2-11 1/2" x 2-7 1/2" No. and Description of Furnaces in each boiler 6 reamers Material steel Outside diameter 4'-4"
 Length of plain part top Thickness of plates bottom Description of longitudinal joint welded No. of strengthening rings yes
 Working pressure of furnace by the rules 193 Combustion chamber plates: Material steel Thickness: Sides 5 1/2" Back 5 1/2" Top 5 1/2" Bottom 5 1/2"
 Pitch of stays to ditto: Sides 8" x 9" Back 8" x 9" Top 8" x 9" If stays are fitted with nuts or riveted heads yes Working pressure by rules 187
 Material of stays steel Diameter at smallest part 2-07" Area supported by each stay 72 Working pressure by rules 215 End plates in steam space:
 Material steel Thickness 1 1/2" Pitch of stays 24" x 22" How are stays secured 2 nuts Working pressure by rules 194 Material of stays steel
 Diameter at smallest part 8-29 Area supported by each stay 5-30 Working pressure by rules 180 Material of Front plates at bottom steel
 Thickness 5 1/2" Material of Lower back plate steel Thickness 5 1/2" Greatest pitch of stays 11 1/2" Working pressure of plate by rules 187
 Diameter of tubes 3 1/2" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates steel Thickness: Front 1" Back 3 1/2" Mean pitch of stays 11 1/2"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 214 Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 11 1/2" x 13" Length as per rule 3-10 1/2" Distance apart 8" Number and pitch of stays in each 4" x 9"
 Working pressure by rules 200 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked
 separately yes Diameter 14" Length 14" Thickness of shell plates 1" Material steel Description of longitudinal joint double butt Diam. of rivet
 holes 1" Pitch of rivets 1" Working pressure of shell by rules 183 Diameter of flue 14" Material of flue plates steel Thickness 1"
 If stiffened with rings yes Distance between rings 14" Working pressure by rules 183 End plates: Thickness 1" How stayed yes
 Working pressure of end plates 183 Area of safety valves to superheater yes Are they fitted with easing gear yes

Assigned See minute on accompanying

W 49-0127

VERTICAL DONKEY BOILER— Manufacturers of Steel.

No. _____ Description _____
 Made at _____ By whom made _____ When made _____ Where fixed _____
 Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safe _____
 Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____
 If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____
 Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Plates _____
 Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____
 Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____
 Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Radius of do. _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— 6 coupling bolts & nuts, 1 piston shaft adjusting screw, 1 pinion shaft, 1 turbine bearing, 2 propeller blades, 1 air pump rod & valve, 1 circulating pump shaft & impeller, 1 feed pump rod, feed and balance pump valves, 5% total blading for all rotors, 2 segments of blading for 1st & 2nd H.P. expansion.

The foregoing is a correct description, iron, bolts & nuts etc.

for David Rowan & Co. Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1913 Dec 19. 29 - 1914 Jan 13. 30 Mar 3. 28 Apr. 6. 23 May 14. June 1. 9. 25 July 6. 28 29.
 { During erection on board vessel -- Aug 3. 25. 26. Sept 2. 7.
 { Total No. of visits 37.
 Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders _____ Slides _____ Covers _____ Pistons _____ Rods _____
 Connecting rods _____ Crank shaft _____ Thrust shaft 25/8/14 Tunnel shafts 6/7/14 Screw shaft 26/8/14 Propeller 25/6/14
 Stern tube 26/8/14 Steam pipes tested 23/9/14 to 28/10/14 Engine and boiler seatings 7/9/14 Engines holding down bolts 2/10/14
 Completion of pumping arrangements 5/11/14 Boilers fixed 30/9/14 Engines tried under steam 9/11/14
 Main boiler safety valves adjusted 5/11/14 Thickness of adjusting washers *Forst Bros 3/8, Port P 15 S 13, 30 P 15 S 13, 30 P 15 S 13*
 Material of Crank shaft *✓* Identification Mark on Do. *✓* Material of Thrust shaft *stainless* Identification Mark on Do. *9047 25/8/14*
 Material of Tunnel shafts *stainless* Identification Marks on Do. *772 27/11/14* Material of Screw shafts *stainless* Identification Marks on Do. *9213 27/11/14*
 Material of Steam Pipes *lap welded iron* ✓ Test pressure. *540 lbs* ✓

General Remarks (State quality of workmanship, opinions as to class, &c. *This machinery has been well fitted on board and tried under steam, and is in my opinion eligible to have notification + L.M.C 11. 14 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C 11. 14.

2 Steam Turbines geared to 1 Screw Shaft.

The amount of Entry Fee .. £ 3 : : When applied for, 16/11/14
 Special .. £ 56 . 9 : :
 Donkey Boiler Fee .. £ (13/2 due here a/c) : :
 Travelling Expenses (if any) £ : : When received, 20/11/14

Committee's Minute GLASGOW 17 NOV. 1914

Assigned + L.M.C 11. 14

A.M. McLeod
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping



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GLASGOW

Certificates (if required) to be sent to

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

22/11/14

18/11/14