

# REPORT ON MACHINERY.

No. 26942

Received at London Office

WED. 2 SEP 1908

of writing Report 12th Aug 1908 When handed in at Local Office 31st Aug. 1908 Port of Glasgow  
 in Survey held at Glasgow Date, First Survey 19th March Last Survey 21st Aug. 1908  
 on the S/S "NGAHERE" (Number of Visits 42)

Built at Port Glasgow By whom built A. Rodgers & Co (No 407) When built 1908  
 By whom made A. Rodgers & Co (No 154) when made (1908)  
 By whom made Lindsay Burnet & Co (No 1187-8) when made 1908  
 Owners \_\_\_\_\_ Port belonging to \_\_\_\_\_

Registered Horse Power \_\_\_\_\_ Owners \_\_\_\_\_ Port belonging to \_\_\_\_\_  
 Horse Power as per Section 28 165 Is Refrigerating Machinery fitted for cargo purposes  Is Electric Light fitted yes.

GINES, & Co. — Description of Engines Triple expansion, sur. condensing No. of Cylinders 3 No. of Cranks 3  
 No. of Cylinders 18-30-48 Length of Stroke 33" Revs. per minute 96 Dia. of Screw shaft 9 9/16" Material of screw shaft Steel

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 yes. If two

are fitted, is the shaft lapped or protected between the liners  Length of stern bush 3-7"  
 Dia. of Tunnel shaft 9 1/8" Dia. of Crank shaft journals 9 1/2" Dia. of Crank pin 9 5/8" Size of Crank webs 6 1/4" Dia. of thrust shaft under  
 Dia. of screw 12-0" Pitch of Screw 12-9" No. of Blades 4 State whether moveable no Total surface 41 sq ft.

No. of Feed pumps 2 Diameter of ditto 2 3/4" Stroke 16 1/2" Can one be overhauled while the other is at work yes.  
 No. of Bilge pumps 2 Diameter of ditto 2 3/4" Stroke 16 1/2" Can one be overhauled while the other is at work yes.

No. of Donkey Engines 4 Sizes of Pumps main feed 7x5x15 stroke No. and size of Suctions connected to both Bilge and Donkey pumps  
 Engine Room 2-2" for Port + Starboard + 2 1/2" centre In Holds, &c. Ford 2-2" + aft 2-2" and 2 1/2" to  
mech well. (Aux Air + Circ: pump 9" dia. + 2-5 1/2" Air pumps x 14" stroke)

Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size yes 2 1/4"  
 Are 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 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.  
 How are they protected Cased in with plates.

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 examination of completion of fitting of Sea Connections  of Stern Tube  Screw shaft and Propeller   
 Is Screw Shaft Tunnel watertight yes. Is it fitted with a watertight door yes. worked from Top grating.

MANUFACTURERS OF STEEL D. Colville & Sons and The Lanarkshire Steel Co  
 Heating Surface of Boilers 2850 sq ft. Is Forced Draft fitted no No. and Description of Boilers 2 Single Ended Marine  
 Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 7.7.08 No. of Certificate 9260

Can each boiler be worked separately yes. Area of fire grate in each boiler 43 sq ft. No. and Description of Safety Valves to  
 each boiler 2 spring loaded Area of each valve 4.9 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes.

Least distance between boilers or uptakes and bunkers or woodwork 8 1/2 beams inside Dia. of boilers 13-0" Length 10-6" Material of shell plates Steel  
 Range of tensile strength 35/32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R. Lap

Seams T.R.B.S Diameter of rivet holes in long seams 1 1/4" Pitch of rivets 8 7/8" Lap of plates or width of butt straps 1-6 1/4"  
 Percentages of strength of longitudinal joint rivets 86.5% Working pressure of shell by rules 207 lbs Size of manhole in shell 16" x 12"

Compensating ring flanged in + No. and Description of Furnaces in each boiler 2 Brighton Material Steel Outside diameter 4-2 3/4"  
 Thickness of plates 3 7/8" Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 198 lbs Combustion chamber plates: Material Steel Thickness: Sides 21/32" Back 21/32" Top 21/32" Bottom 15/16"  
 Stays to ditto: Sides 9 1/4" x 8 1/4" Back 9 1/4" x 8 1/4" Top 9 1/4" x 8 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 194 lbs

Area of stays Steel Diameter at smallest part 1.73 sq in Area supported by each stay 76.75 sq in Working pressure by rules 180 lbs End plates in steam space:  
 Thickness 1 1/8" Pitch of stays 17 x 18" How are stays secured D.N. + D.W Working pressure by rules 196 lbs Material of stays Steel

Area at smallest part 6.33 sq in Area supported by each stay 306 sq in Working pressure by rules 186 lbs Material of Front plates at bottom Steel  
 Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 14" Working pressure of plate by rules 199 lbs

Pitch of tubes 3 1/2" Pitch of tubes 4 3/4" Material of tube plates Steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 11 3/8"  
 Working pressures by rules 198 lbs. Girders to Chamber tops: Material Steel Depth and

Distance apart 9 1/4" Number and pitch of stays in each 3 @ 8 1/4"  
 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked

Material of shell plates  Material  Description of longitudinal joint  Diam. of rivet  
 Thickness of shell plates  Material of flue plates  Thickness

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

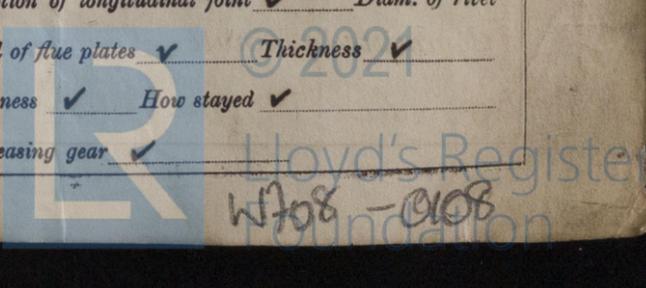
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Lindsay Stewart & Co. Manufacturers of the Boilers.

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 Safety 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 \_\_\_\_\_ Stayed by \_\_\_\_\_  
 Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— *Two connecting rods top end & 2 bottom end bolts & nuts, 2 main bearing bolts, 6 coupling bolts, 1 set each of feed & bilge pump valves, a quantity of assorted bolts & nuts, 1 section of crankshaft, propeller & shaft, 1 air & 1 circulating pump rod, ballast & feed & dry valves, safety valve springs, boiler & condenser tubes, 1 spare winch, 2 escape valve springs, firebars etc.*

The foregoing is a correct description,  
*A. Rodger & Co. Manufacturer of the Engines.*

Dates of Survey while building	During progress of work in shops—	Engines: 1908. Mar. 19, 25, Apr. 3, 14, 23, 29, May 2, 13, 19, 25, June 2, 9, 25, 27, 28, July 7, 15, 16
	During erection on board vessel—	Boilers: — 1908. Mar. 25, Apr. 8, 15, 17, 25, May 2, 6, 13, 19, 22, 23, June 3, 9, June 17, 25, 30, July 7
	Total No. of visits	25 + 17 = 42

Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " " *none*

Dates of Examination of principal parts—Cylinders *29.4.08* Slides *13.5.08* Covers *19.5.08* Pistons *2.6.08* Rods *25.5.08*  
 Connecting rods *25.5.08* Crank shaft *27.5.08* Thrust shaft *25.5.08* Tunnel shafts *2.6.08* Screw shaft *9.6.08* Propeller *15.6.08*  
 Stern tube *15.6.08* Steam pipes tested *13.8.08* Engine and boiler seatings *6.8.08* Engines holding down bolts *12.8.08*  
 Completion of pumping arrangements *15.8.08* Boilers fixed *15.8.08* Engines tried under steam *21.8.08*  
 Main boiler safety valves adjusted *19.8.08* Thickness of adjusting washers *S.B. FOR P.B. 3/8" F. 7/16"*  
 Material of Crank shaft *Steel* Identification Mark on Do. *2072 A.T.G.* Material of Thrust shaft *Steel* Identification Mark on Do. *154*  
 Material of Tunnel shafts *Steel* Identification Marks on Do. *154* Material of Screw shafts *Steel* Identification Marks on Do. *154*  
 Material of Steam Pipes *Copper* Test pressure *360 lbs per sq. in.*

General Remarks (State quality of workmanship, opinions as to class, &c. *The engines & boilers of this vessel have been built under Special Survey: the workmanship & materials are of good quality, & having been fitted on board & satisfactorily tried under steam. I am of opinion that they will be eligible for the record + L.M.C. 8.08.*

The amount of Entry Fee	£ 2 : -	When applied for	15/9/08
Special	£ 24 : 15	When received	25/9/08
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		

*H. Pilditch*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
 Assigned *+ L M C 8,08*  
 GLASGOW 1 SEP. 1908

MACHINERY CERTIFICATE  
 WRITTEN 2/9/08

