

REPORT ON MACHINERY.

26003 (No)
No. 15246 (Ink)
IUES 26 NOV 1907

Port of Glasgow & Glasgow
Survey held at Port Glasgow & Glasgow Date, first Survey 13th June Last Survey 13th Nov 07
Book. on the SCREW STEAMER CRAIGFORTH.

Built at Port Glasgow. By whom built A. Rodger & Co
Made at Glasgow By whom made A. Rodger & Co when made 1904.
Made at Port Glasgow. By whom made Clyde SB & Eng. Co Ltd. when made 1904.
Registered Horse Power _____ Owners David Russell & Co Port belonging to Leith.
Horse Power as per Section 28 271 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted yes.

PLANES, &c.—Description of Engines Triple Expansion. No. of Cylinders 3 No. of Cranks 3
No. of Cylinders 23-37-61 Length of Stroke 42 Revs. per minute 66 Dia. of Screw shaft as per rule 12.8" Material of screw shaft Steel
as fitted 13"
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
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
on 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 4-4"

Dia. of Tunnel shaft as per rule 10.9" Dia. of Crank shaft journals as per rule 11.43" Dia. of Crank pin 11 7/8" Size of Crank webs 2 1/2 x 7 1/2"
as fitted 11 7/8" as fitted 11 5/8"
Dia. of screw 16-6" Pitch of Screw 16-6" No. of Blades 4 State whether moveable no Total surface 80 sq ft.
No. of Feed pumps 2 Diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work yes.
No. of Bilge pumps 2 Diameter of ditto 4" Stroke 21" Can one be overhauled while the other is at work yes.
No. of Donkey Engines 3 Sizes of Pumps 4" x 2 3/4" x 5" + 1 @ 8" x 9" x 8" = Pump to Ballast (all the above pumps are duplex)
Engine Room 2 @ 3" x 1 @ 3 1/2" In Holds, &c. 2-3" to No 1 hold

Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump Cond. Is a separate Donkey Suction fitted in Engine room & size 1 @ 3 1/2"
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
all connections with the sea direct on the skin of the ship Yes. Are they Valves or Cocks Both!
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
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.
at pipes are carried through the bunkers none How are they protected

all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes.
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 22/10/07. of Stern Tube 22/10/07. Screw shaft and Propeller 22/10/07.
The Screw Shaft Tunnel watertight yes. Is it fitted with a watertight door yes worked from Cylinder platform.
MATERIALS, &c.—(Letter for record S.) Manufacturers of Steel Steel Coy of Scotland.

Working Surface of Boilers 4504 Is Forced Draft fitted No. No. and Description of Boilers 2: Cylindrical multi Single end
Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs Date of test 14/10/07. No. of Certificate 854.
Can each boiler be worked separately yes. Area of fire grate in each boiler 64 sq. ft. No. and Description of Safety Valves to
each boiler 2: Buret Spring Area of each valve 7.06 sq in Pressure to which they are adjusted 165 lbs Are they fitted with easing gear yes.
Clearance between boilers or uptakes and bunkers or woodwork 2-4" Mean dia. of boilers 16'0" Length 10'6" Material of shell plates Steel
Thickness 1 5/32" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Lap Double
Pitch of rivets 8 3/8" Pitch of rivets 8 3/8" Pitch of rivets 4 5/8" Pitch of rivets 4 5/8"

Percentage of strength of longitudinal joint 85-8 Working pressure of shell by rules 162 lbs. Size of manhole in shell 16" x 12"
No. and Description of Furnaces in each boiler 3: Deighton's Material Steel Outside diameter 50 1/2"
Length of plain part 6'6" Thickness of plates 32 Description of longitudinal joint Weld. No. of strengthening rings none
Working pressure of furnace by the rules 162 lbs Compustion chamber plates: Material Steel Thickness: Sides 32 Back 32 Top 32 Bottom 32
No. of stays to ditto: Sides 8 x 9" Back 8 1/2 x 9" Top 8 x 9" If stays are fitted with nuts or riveted heads Nuts. Working pressure by rules 165 lbs.

Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 42 sq in Working pressure by rules 164 lbs End plates in steam space:
Material Steel Thickness 1 1/8" Pitch of stays 19 x 16 1/4" How are stays secured Old nuts. Working pressure by rules 162 lbs Material of stays Steel
Diameter at smallest part 2 1/16" Area supported by each stay 309 sq in Working pressure by rules 141 lbs Material of Front plates: at bottom Steel
Thickness 3/4" Material of Lower back plate Steel Thickness 32 Greatest pitch of stays 14" Working pressure of plate by rules 164 lbs.
Diameter of tubes 5 1/4" Pitch of tubes 4 5/8 x 4 5/8" Material of tube plates Steel Thickness: Front 1 1/8" Back 3/4" Mean pitch of stays 10.6"
Pitch across wide water spaces 14 1/4" Working pressures by rules 199 lbs Girders to Chamber tops: Material Steel Depth and
Thickness of girder at centre 9 5/8 x 1 1/2" Length as per rule 36" Distance apart 9" Number and pitch of stays in each 3: 8"

Working pressure by rules 163 lbs. Superheater or Steam chest; how connected to boiler none. Can the superheater be shut off and the boiler worked
separately _____ 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 _____
Diameter _____ How stayed _____
Working pressure of end plates _____ Distance between rings _____ Working pressure by rules _____ End plates: Thickness _____
Area of safety valves to superheater _____ Are they fitted with easing gear _____

Lloyd's Register
2940-0037

VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description			When made	Where fixed
Made at	By whom made				
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 rod top end, & 2 bottom End bolts & nuts, 2 main bearing bolts, 1 set coupling bolts, 1 set of feed & bilge pump valves, a quantity of assorted bolts & nuts, Iron of various sizes, 1 spare propeller & Tail shaft, 12 Jamk ring bolts & nuts, 2 Ballast Dwy. valves, 2 Feed Dwy. valves, 2 Safety Valve springs, 1 set air & Circ. pump valves, 20 Boiler tubes, 3 Escape do do, 50 Firebars, & 2 Feed pump stops.*

The foregoing is a correct description,

W. P. O. Manufacturer of *W. Rodger & Co* Manufacturer

Dates of Survey while building	During progress of work in shops—	1907. June 13, 25, Aug. 21, 23, 27, 28, 29, Sept. 5, 6, 10, 17, 18, 20, 24, 30, Oct. 3, 4, 8, 9, 12
	During erection on board vessel—	14, 15, 22, 1907/1908, Aug. 5, 8, 21, 28, 29, Sept. 9, 20, 24, Oct. 17, 27, 30, Nov. 5, 9, 12
	Total No. of visits	23 Feb. 15 Feb.

Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—	Cylinders	21.8.07	Slides	21.8.07	Covers	21.8.07	Pistons	20.9.07	Rods	20.9.07	
Connecting rods	9.9.07	Crank shaft	28.8.07	Thrust shaft	29.8.07	Tunnel shafts	29.8.07	Screw shaft	29.8.07	Propeller	9.9.07
Stern tube	24.9.07	Steam pipes tested	5.11.07	Engine and boiler seatings	27.10.07	Engines holding down bolts	30.10.07				
Completion of pumping arrangements	13.11.07	Boilers fixed	30.10.07	Engines tried under steam	13.11.07						
Main boiler safety valves adjusted	9.11.07	Thickness of adjusting washers	P. Boiler: P. Valve 13/32 S = 7/16 S. Boiler S = 9/32 P. Valve 9/32								
Material of Crank shaft	Steel	Identification Mark on Do.	151	Material of Thrust shaft	Steel	Identification Mark on Do.	151				
Material of Tunnel shafts	Steel	Identification Marks on Do.	151	Material of Screw shafts	Steel	Identification Marks on Do.	151				
Material of Steam Pipes	Test pressure										

General Remarks (State quality of workmanship, opinions as to class, &c. *Donkey Boiler safety valves adjusted to 85 lbs per sq. inch washers both 3/8" thick*)

The main Boilers of this vessel have been built under Special Survey and the workmanship is good. When completed they were tested by hydraulic pressure to 320 lbs per sq. inch and found tight and sound. They have now been sent to Glasgow, to be fitted on board of the vessel.

The Propeller, Stern Bush and fastenings of Sea Connections were examined before launching and found in good condition. The Engines of this vessel have been built under Special Survey, the workmanship & materials are of good quality, & having been satisfactorily fitted on board, & tried under steam from the above main boilers, we are of opinion that they will be eligible for the record + L.M.C. 11.07.

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 11.07.

The amount of Entry Fee..	£	When applied for.
Special	£ 33.11.0	25.11.07
Donkey Boiler Fee	£	When received.
Travelling Expenses (if any)	£	27.11.07

Committee's Minute

Assigned *Deferred for completion*

Retain

Wm. Austin Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

+ L.M.C. 11.07

Lloyd's Register of Shipping
Machinery Certificate
WRITTEN

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