

REPORT ON MACHINERY.

No. 9354

3876
Date of writing Report July 10th 1911 When handed in at Local Office July 20th 1911 Port of Antwerp
 No. in Survey held at Antwerp Date, First Survey June 21st Last Survey July 1st 1911
 Reg. Book. on the Twin screw steel steamer "Reopoldville" (Number of Visits six)
 Master J. Benaerts Built at Belfast By whom built Harland & Wolff Ltd Tons { Gross
 Engines made at Belfast By whom made Harland & Wolff when made 1908 Net
 Boilers made at Belfast By whom made Harland & Wolff when made 1908
 Registered Horse Power Owners Cie Belge Maritime du Congo Port belonging to Antwerp
 Nom. Horse Power as per Section 28 816 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Quadruple twin screw No. of Cylinders 4 each set No. of Cranks 4 each
 Dia. of Cylinders 21"-30"-43"-61½" Length of Stroke 48" Revs. per minute 80 Dia. of Screw shaft as per rule 13.19" Material of Steel
Is the screw shafts 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 (rubber) the liner is in more than one length are the joints burned Yes 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 14'-6"
 Dia. of Tunnel shaft as per rule 11.9" Dia. of Crank shaft journals as per rule 12.45" Dia. of Crank pin 13" Size of Crank webs 9½" Dia. of thrust shaft under
 collars 13" Dia. of screws 15-10" Pitch of Screw 19'-6" No. of Blades 3 State whether moveable Yes Total surface 61½ ft² each propeller
 No. of Feed pumps Two Diameter of ditto 4" Stroke 28" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps Two Diameter of ditto 4½" Stroke 28" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines Four Sizes of Pumps 7½" x 9" x 10", 7½" x 5" x 12", 6" x 6" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2-4" bilge main on donkeys, 2-4" bilge main on eng. bilge In Holds, &c. Holds 10 off 3½" dia Eng room 2 off 3½" dia
Tunnel 1 in each 3" dia, for peak 1 off 3" N° 1 tank 1 off 6" N° 5, 2 off 3½" dia, N° 2, 3, 4 tanks 2 off 6" dia, N° 7 tank 1 off 6" dia
 No. of Bilge Injections 2 sizes 8" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 2-4"
 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 Valves & cocks
 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 Not seen but stated to be
 What pipes are carried through the bunkers None How are they protected Yes
 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 Yes of Stern Tube Yes Screw shaft and Propeller Yes
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight doors Yes worked from platform above main deck

BOILERS, &c.—(Letter for record David Colville & Sons Ltd.) Manufacturers of Steel David Colville & Sons Ltd.
 Total Heating Surface of Boilers 11948 ft² Is Forced Draft fitted Yes No. and Description of Boilers Four cylindrical multitubular
 Working Pressure 215 lbs Tested by hydraulic pressure to Yes Date of test Yes No. of Certificate Yes
 Can each boiler be worked separately Yes Area of fire grate in each boiler 67 ft² No. and Description of Safety Valves to
 each boiler 2 Spring loaded Area of each valve 11045 ft² Pressure to which they are adjusted 215 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 6 feet Mean dia. of boilers 15'-3" Length 12'-0" Material of shell plates Steel
 Thickness 1½" Range of tensile strength 29-32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams T.R. lap
 long. seams T.R. double butt straps Diameter of rivet holes in long. seams 1½" Pitch of rivets 10" Length of plates or width of butt straps 1'-11"
 Per centages of strength of longitudinal joint 88.6% Working pressure of shell by rules 250 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 28" x 32" x 1½" No. and Description of Furnaces in each boiler 3. Morrison & Sons Material Steel Outside diameter 4'-1 3/4"
 Length of furnace top 8'-6" Thickness of plates crown 2.3" Description of longitudinal joint Yes No. of strengthening rings Yes
 Working pressure of furnace by the rules 240 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/32" Back 3/32" Top 3/32" Bottom 1/16"
 Pitch of stays to ditto: Sides 7 3/4" x 7 3/4" Back 7 3/4" x 7 3/4" Top 7 3/4" x 7 3/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 248 lbs
 Material of stays Steel Area at smallest part 7.76 ft² Area supported by each stay 60.6" Working pressure by rules 264 lbs End plates in steam space:
 Material Steel Thickness 1½" Pitch of stays 17 5/8" x 15 3/4" How are stays secured Drill not Working pressure by rules 264 lbs Material of stays Steel
 Diameter at smallest part 7.06 ft² Area supported by each stay 278.37 ft² Working pressure by rules 263 Material of Front plates at bottom Steel
 Thickness 1½" Material of Lower back plate Steel Thickness 1½" Greatest pitch of stays 16" Working pressure of plate by rules 224 lbs
 Diameter of tubes 2½" Pitch of tubes 3 3/4" x 3 3/4" Material of tube plates Steel Thickness: Front 1/8" Back 1/16" Mean pitch of stays 7 1/2"
 Pitch across wide water spaces 13 3/4" Working pressures by rules 295 lbs Girders to Chamber tops: Material U-bolts Depth and
 thickness of girder at centre 9 1/2" x 1/8" x 2" Length as per rule 2-7" Distance apart 7 3/4" Number and pitch of stays in each Three 7 3/4"
 Working pressure by rules 240 lbs Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked
 separately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet
 holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes
 If stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes
 Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

H612-0204

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	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:— 1 set of connecting rod brasses, 1 air pump bucket + rod, 1 spindle + impeller for circulating pump, 1 an pp lead valve seat + guard, 1 set of an pump valves, 2 main bearing bolts + nuts, 2 connecting rod bolts + nuts top + bottom ends, 8 screw shaft coupling bolts + nuts, 1 set of piston rings for HP, IP, IP², + LP cylinders, 2 main engine feed pump valves + seats, 2 main engine bilge pump valves + seats, 12 boiler tubes.

The foregoing is a correct description,
For Harland & Wolff Ltd Belfast.
J. Cunningham Director Manufacturer.

Dates of Survey while building
 During progress of work in shops ---
 During erection on board vessel ---
 Total No. of visits

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

Dates of Examination of principal parts—Cylinders *23-6-11* Slides *23-6-11* Covers *23-6-11* Pistons *23-6-11* Rods *23-6-11*
 Connecting rods *23-6-11* Crank shaft *23-6-11* Thrust shaft *23-6-11* Tunnel shafts *23-6-11* Screw shaft *22-4-11* Propeller *Ditto*
 Stern tube *Ditto* Steam pipes tested ✓ Engine and boiler seatings *23-6-11* Engines holding down bolts *23-6-11*
 Completion of pumping arrangements ✓ Boilers fixed ✓ Engines tried under steam *1-7-11*
 Main boiler safety valves adjusted *30-6-11* Thickness of adjusting washers *Conte* *Forward boiler 0 1/2 10 1/2 Port boiler 0 1/2 8 3/4*
 Material of Crank shaft *Steel* Identification Mark on Do. ✓ Material of Thrust shaft *Steel* Identification Mark on Do. ✓
 Material of Tunnel shafts *Steel* Identification Marks on Do. ✓ Material of Screw shafts *Steel* Identification Marks on Do. ✓
 Material of Steam Pipes *Copper* Test pressure ✓

General Remarks (State quality of workmanship, opinions as to class, &c.)

With the exception of the screw shafts, stern bush + sea cocks, & the propeller, the whole of the main & auxiliary opened out examined & found in good condition, the four main boiler & mountings opened out examined & found in good condition, steam pipes, etc. the general arrangement of pipes, cocks + valves are in accordance with the rules. The workmanship was found to be of the highest quality & the machinery in my opinion merits the favourable consideration of the Committee for the highest class.

Spare gear continued:— 50 condenser tubes, 100 ferrules, 1 set of springs for cylinder escape valves, 2 safety valve springs, 2 propeller blades, 1 propeller shaft, 1 HP valve spindle, with deck bush, 6 piston junk ring bolts, studs for piston + valve rod glands, 2 main + 2 auxiliary feed valves, 12 studs for cylinder + 12 studs for casing covers, 1 set of valves for bilge feed pump, General service pump + Auxiliary feed pump, + a quantity of nuts bolts, plating + bars of various sizes.

The amount of Entry Fee .. £ : :
 Special .. £ : :
 Donkey Boiler Fee .. £ : :
 Travelling Expenses (if any) £ : :
 When applied for, *5/7*
 When received, *19/7*

It is submitted that this vessel is eligible for THE RECORD LMC 7-11.
A.E. Ferminier
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

TUE JUL 25 1911

Assigned

MACHINERY CERTIFICATE
 HATTON

Lmb 7 11