

## REPORT ON MACHINERY.

No. 7791

Received at London Office WED. 18.4.

Date of writing Report 12<sup>th</sup> April 1917 When handed in at Local Office 10 Port of Belfast  
 No. in Survey held at Belfast Date, First Survey 8<sup>th</sup> Aug 1912 Last Survey 7<sup>th</sup> April 1917  
 Reg. Book. L.S.S. Justicia (Number of Visits 214)  
 Master Hamilton Built at Belfast By whom built Harland & Wolff Ltd When built 1917  
 Engines made at Belfast By whom made - when made -  
 Boilers made at - By whom made - when made -  
 Registered Horse Power ✓ Owners Oceanic Steam Navigation Co Port belonging to Liverpool  
 Shaft Horse Power at Full Power 6200 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

TURBINE ENGINES, &c.—Description of Engines Direct coupled Parsons type No. of Turbines one L.P.

Diameter of Rotor Shaft Journals, H.P. ✓ L.P. 22 $\frac{1}{2}$  with 15 $\frac{1}{2}$  hole Diameter of Pinion Shaft ✓  
 Diameter of Journals ✓ Distance between Centres of Bearings ✓ Diameter of Pitch Circle ✓  
 Diameter of Wheel Shaft ✓ Distance between Centres of Bearings ✓ Diameter of Pitch Circle of Wheel ✓  
 Width of Face ✓ Diameter of Thrust Shaft under Collars ✓ Diameter of Tunnel Shaft as per rule 13.8  
 No. of Screw Shafts one Diameter of same as per rule 14.76 Diameter of Propeller 13'-0" Pitch of Propeller 10'-0"  
 No. of Blades 4 State whether Moveable No Total Surface 73 sq ft. Diameter of Rotor Drum, H.P. ✓ L.P. 10'-10 $\frac{1}{2}$ " Astern  
 Thickness at Bottom of Groove, H.P. ✓ L.P. 13 $\frac{1}{16}$  to 13 $\frac{1}{8}$ " Astern Revs. per Minute at Full Power, Turbine 200 Propeller 200

## PARTICULARS OF BLADING.

	H.P.			L.P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION				8"	12'-2 $\frac{1}{2}$ "	8			
2ND				10'-3 $\frac{7}{8}$ "	12'-7 $\frac{1}{2}$ "	8			
3RD				13'-5"	13'-1 $\frac{1}{2}$ "	7			
4TH				14'-5"	13'-9 $\frac{1}{2}$ "	7			
5TH				17'-5"	13'-9 $\frac{1}{2}$ "	7			
6TH				14'-5"	13'-9 $\frac{1}{2}$ "	6			
7TH									
8TH									

No. and size of Feed pumps  
 No. and size of Bilge pumps  
 No. and size of Bilge suction in Engine Room  
 In Holds, &c.  
 No. of Bilge Injections size Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine Room & size  
 Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible  
 Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Discharge Pipes above or below the deep water line  
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate  
 What pipes are carried through the bunkers How are they protected  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges  
 Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from -

BOILERS, &c.—(Letter for record -) Manufacturers of Steel

Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers  
 Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate  
 Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to each boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear  
 Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates  
 Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams  
 long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps  
 Per centages of strength of longitudinal joint Working pressure of shell by rules Size of manhole in shell  
 Size of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter  
 Length of plain part Thickness of plates Description of longitudinal joint No. of strengthening rings  
 Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom  
 Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules  
 Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space  
 Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays  
 Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom  
 Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules  
 Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays  
 Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and  
 thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each  
 Working pressure by rules Steam dome: description of joint to shell % of strength of joint Diameter  
 Thickness of shell plates Material Description of longitudinal joint Diameter 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 \_\_\_\_\_

IS A DONKEY BOILER FITTED? \_\_\_\_\_ If so, is a report now forwarded? \_\_\_\_\_

SPARE GEAR. State the articles supplied:— See other sheet ✓

The foregoing is a correct description  
for Harland & Wolff Ltd.

Manufacturer.

See other sheet

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 ✓

Dates of Examination of principal parts—Casings 17-3-14 Rotors 11-9-13 Blading 7-3-14 Gearing ✓

Rotor shaft 8-4-13 Thrust shaft ✓ Tunnel shafts 30-5-14 Screw shaft 30-5-14 Propeller 3-4-14

Stern tube 7-5-14 Steam pipes tested ✓ Engine and boiler seatings ✓ Engines holding down bolts ✓

Completion of pumping arrangements ✓ Boilers fixed ✓ Engines tried under steam ✓

Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓

Material and tensile strength of Rotor shaft S. Steel 3 1/8 x 32 1/2 tons sq.

Identification Mark on Do. LLD 4 DS 7.5.3

Material and tensile strength of Pinion shaft ✓

Identification Mark on Do. 30-5-14

Material of Wheel shaft ✓ Identification Mark on Do. ✓ Material of Thrust shaft ✓ Identification Mark on Do. ✓

Material of Tunnel shafts S. Steel Identification Marks on Do. LLD 4 DS 7.5.3 Material of Screw shafts Do Identification Marks on Do. Do

Material of Steam Pipes ✓ Test pressure

Is an installation fitted for burning oil fuel ✓ Is the flash point of the oil to be used over 150°F. ✓

Have the requirements of Section 49 of the Rules been complied with ✓

Is this machinery a duplicate of a previous case No If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, etc.) See other sheet ✓

The amount of Entry Fee ... £ : : When applied for, ✓  
Special ... £ : : ✓  
Donkey Boiler Fee ... £ : : When received, ✓  
Travelling Expenses (if any) ... £ : : ✓

Committee's Minute TUE. 1 MAY. 1917

Assigned See A. E. rpt. attached

Rpt. 9a.

Port of Belfast Continuation of Report No. 7491 dated 12<sup>th</sup> April on the

S.S. Justicia

Spare Gear

2 Propeller Shafts for Reciprocating Engine  
1 Turbine

1 Turbine Propeller

3 - blades Port Engine

3 - - - - - Star

2 - - - - - bores complete.

Pair H. P. cranks pin brasses

- L. P. - - - - -

- H. P. top end - - - - -

- L. P. - - - - -

Set piston rings for one H. P. M. P. L. P. piston

1 Guide sleeve each for H. P. & L. P.

1 Valve spindle H. P.

1 - - - - - L. P.

Set piston valve rings H. P. M. P. & L. P.

1 Eccentric Strap Complete

1 Link block & brasses

4 Cylinder escape valve springs

1 Safety valve spring for every four valves

240 Boiler tubes. 60 Condenser tubes

1 Impeller & spindle main circulating pump

Set spare gear for auxiliary pumps, engines, fans etc

Turbine Gear

Gland Rings 2 sets (1 per set)

1 Escape valve spring

5 Segments for each of 1<sup>st</sup> & 2<sup>nd</sup> expansions of Rotan

4 - - - - - 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> 6<sup>th</sup>

6 - - - - - 1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> - - - - - Cylinders

5 - - - - - 6<sup>th</sup>

Blade Stops 2 male & 2 female for each section

Dummy Strip 5% Gland Strip 5%

Light glass cylinders for oil drains, 1 complete set

Adjusting block liners 2 sets

Thermometers for oil drain, 1 for each light glass

- - - - - 1 set

All spare gear to Lloyd's Rules for Recip.

Engines in addition.

See over



# List of Pumps

2	Pain Main Feed, Weirs	20" x 14" x 27"
2	Main Air	20" x 33" x 21"
2	Hotwell	12 1/2" x 12 1/2" x 26"
2	Turbine oil	7" x 4" x 15"
3	Ballast	12 1/2" x 14" x 24"
2	Bilge	10 1/2" x 12" x 21"
2	Sanitary	Electrically driven
1	Aux & Feed	-
2	Fresh Water	-
1	Aux & Air	-
4	Main Centrif. Circulating	11" x 10" with 5 1/2" Impeller
1	Aux	Electrically driven
1	General Service	12" x 8" x 12"
4	Asch Expeller pumps	Turbine driven
1	Emergency Feed	12" x 8" x 12"
1	Aux & air pump	9" x 15" x 12"

R. F. Beveridge



© 2020

Lloyd's Register  
Foundation