

REPORT ON MACHINERY.

No. 7791

Received at London Office FEB. 18A.

Date of writing Report 12th April 1917 When handed in at Local Office 10 Port of Belfast
 No. in Survey held at Belfast Date, First Survey 8th Aug 1912 Last Survey 7th April 1917
 Reg. Book. L.S.S. Justicia (Number of Visits 2/4)
 Gross 32120
 Tons Net 19738
 Master Hamilton Built at Belfast By whom built Harland & Wolff L^o 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. 22¹/₂ with 13¹/₂ 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" Astern ✓
 Thickness at Bottom of Groove, H.P. ✓ L.P. 13/16 to 1/8 Astern ✓ Revs. per Minute at Full Power, Turbine 200 Propeller 220

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 ¹ / ₂ "	8			
2ND "				10' 3/8"	12'-7 ¹ / ₂ "	8			
3RD "				13' 5"	13'-1 ¹ / ₂ "	7			
4TH "				17' 5"	13'-9 ¹ / ₂ "	7			
5TH "				17' 5"	13'-9 ¹ / ₂ "	7			
6TH "				17' 5"	13'-9 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 ✓ sizes ✓ 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 top bottom Thickness of plates top bottom 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.

Woburn

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 3-2-14

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

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

Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓

Material and tensile strength of Rotor shaft *S. Steel, 31'8" + 32'0" tens. eq.* Identification Mark on Do. *LL0408 R.F.B. 30-5-14*

Material and tensile strength of Pinion shaft ✓ Identification Mark on Do. ✓

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. *LL0408 R.F.B. 30-5-14* 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, &c.) *See other sheet ✓*

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

R. F. Beveridge
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
Assigned *See S. E. rpt. attached*

TUE - 1 MAY. 1917

W819/15 1/2

T.S.S. JusticiaSpare Gear

2 Propeller Shafts for Reciprocating Engines

1 Turbine

1 Turbine Propeller

3 - blades Port Engine

3 - - Star

2 - - bosses complete.

Pair H.P. cranks pin braces

- L.P.

- H.P. Top ends

- L.P.

Sets piston rings for one H.P. M.P. L.P. pistons

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

1 Valve spindle H.P.

1 - - L.P.

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

1 Eccentric Strip Complete

1 Link block & braces

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

Sets spare gear for auxiliary pumps, engines, fans etc

Turbine Gear

Gland Rings 2 sets (2 per set)

1 Escape valve spring

5 Segments for each of 1st & 2nd expansions of Rotors4 - - - 3rd 4th 5th 6th6 - - - 1st 2nd 3rd 4th 5th - - - Cylinders5 - - - 6th

Blade Stops, 2 male & 2 female for each section

Humming 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

- - - Inlet, 1

All spare gear to Lloyd's Rules for Recip^l Engines in addition.

See over

List of Pumps

2 Pavi Main Feeds, Weirs	20" x 14" x 27"
2 Main box	20" x 33" x 21"
2 Flotwell	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 & box	-
4 Main Centrif. Circulating	11" x 10" with 51" Impeller
1 Aux	Electrically driven
1 General Service	12" x 8" x 12"
4 Ash Expeller pumps	Turbine driven
1 Emergency Feed	12" x 8" x 12"
1 Aux & air pump	9" x 15" x 12"

R. F. Brewin

Rpt. 9.

Report

Date of writing

No. in Reg. Book. Sur

ON

Gross

Net

Horse Power

No. of Main Boilers

No. of Donkey Boilers

Steam Pressure in Main Boilers

in Donkey Boilers

Last Report

Particulars

(Periodical Survey)

cause of Repairs

account of Damage

besides being del

dates and initial

In damage cases

declined?

Did the Surveyor pe

Do.

If this was not done

And what parts of

Also what special m

Surveyor to assu

Did the Surveyor ex

Did the Surveyor ex

Did the Surveyor ex

Did the Surveyor ex

Has screw shaft no

Has shaft now been

Is the shaft now st

State the distance b

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General Ob

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any altera

140 lb. P.F.

The a

Survey Fee (per Head

Special Damage or Rep

(per Head)

Travelling Expenses (if

Committee's

Assigned