

REPORT ON MACHINERY.

No. 8386

MON. SEP. 13 1920

Date of writing Report 9th Sep^r 1920 When handed in at Local Office 19 Port of Belfast
 No. in Survey held at Belfast Date, First Survey 5th July 1918 Last Survey 2 Sep^r 1920
 Reg. Book. T.S.S. Yorkshire (Number of Visits 106)
 on the T.S.S. Yorkshire Tons Gross 10184 Net 6266
 Master G. E. B. Millson Built at Belfast By whom built Harland & Wolff L^d When built 1920
 Engines made at Belfast By whom made when made
 Boilers made at Belfast By whom made when made
 Registered Horse Power ✓ Owners Bibby Bros Port belonging to Liverpool
 Shaft Horse Power at Full Power 5000 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

URBINE ENGINES, &c.—Description of Engines Levin Screw Single Reduction Seared Turbines No. of Turbines 4
 Diameter of Rotor Shaft Journals, H.P. 6 1/2 L.P. 10 Diameter of Pinion Shafts 6 1/2" & 8 1/4"
 Diameter of Journals 5 1/4" Distance between Centres of Bearings 28 1/2" Diameter of Pitch Circle 6' 2 1/3" & 8' 3 5/8"
 Diameter of Wheel Shaft 13" to 17 1/2" Distance between Centres of Bearings 66 1/2" Diameter of Pitch Circle of Wheel 124' 4 7/4"
 Width of Face 33" Diameter of Thrust Shaft under Collars 13 1/2" Diameter of Tunnel Shaft as per rule 12' 0 5/8"
 No. of Screw Shafts 2 Diameter of same as per rule 13' 6" Diameter of Propeller 16' 9" Pitch of Propeller 15' 0"
 No. of Blades 3 State whether Moveable Yes Total Surface 80 sq ft. Diameter of Rotor Drum as per rule 12' 0 5/8"
 Thickness at Bottom of Groove, H.P. ✓ Astern ✓ Revs. per Minute at Full Power, Turbine H.P. 2003 L.P. 1490 Propeller 100

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.
EXPANSION	3 1/4" 1" 1 1/4"	39 1/2"	2	1 1/2"	67 1/2"	1	3 1/4" 1" 1 1/4"	60 1/2" 61 1/2" 62 1/2"	3
"	"	"	2	1 1/4"	67 1/2"	1	1 1/2" 1 1/4" 1 1/2" 1 1/4" 1 1/2" 1 1/4" 1 1/2" 1 1/4"	61 1/2" 62 1/2" 63 1/2" 64 1/2" 65 1/2" 66 1/2" 67 1/2" 68 1/2"	3
"	1"	40"	1	2 1/4"	67 1/2"	1			
"	1 1/4"	40 1/2"	1	2 1/2"	67 1/2"	1			
"	1 1/2"	40 3/4"	1	3 1/8"	67 1/2"	1			
"	1 3/4"	40 1/2"	1	3 1/2"	67 1/2"	1			
"	1 7/8"	40 1/2"	1	4 1/8"	67 1/2"	1			
"	1 7/8"	40 1/2"	1	5 1/8"	67 1/2"	1			
"	1 7/8"	40 1/2"	1	6 1/8"	67 1/2"	1			
"	1 7/8"	40 1/2"	1	8 1/8"	67 1/2"	1			
"	1 7/8"	40 1/2"	1	9 1/8"	67 1/2"	1			
No. and size of Feed pumps	See Sheet								
No. and size of Bilge pumps	See Sheet								
No. and size of Bilge suction in Engine Room	8-3 1/2" & 1-2 1/2"								

In Holds, &c. 14-3 1/2" & 9-2 1/2"

No. of Bilge Injections 2 sizes 11" Connected to condenser, or to circulating pump Pumps a separate Donkey Suction fitted in Engine Room & size 1-6" & 1-4"
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes
 Are all 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
 Are the pipes carried through the bunkers Fore hold suction How are they protected Wood Casings
 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 the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Engine Room Upper deck level and from Bilge

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel D. Calville & Sons L^d
 Total Heating Surface of Boilers 11212 sq ft. Forced Draft fitted ✓ No. and Description of Boilers 2 W. & A. G. L. L^d
 Working Pressure 215 lbs Tested by hydraulic pressure to 480 lbs Date of test 23-2-19 No. of Certificate 548
 Are each boiler be worked separately Yes Area of fire grate in each boiler 140 sq ft. No. and Description of Safety Valves to each boiler 3- Direct Spring Area of each valve 12.56 sq in. Pressure to which they are adjusted 275 lbs Are they fitted with casing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork about 3 ft. dia. of boilers 16'-3" Length 20'-0" Material of shell plates Steel
 Thickness 1 1/4" Range of tensile strength 29-33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seam Lap Dr. 1"
 g. seams Butt. Tube Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 24 1/2"
 rivets 97.5 Working pressure of shell by rules 253 lbs Size of manhole in shell 16" x 12"
 Centages of strength of longitudinal joint plates 83.3
 No. of compensating rings None No. and Description of Furnaces in each Boiler 8- Morrison Material Steel Outside diameter 46 1/2"
 Length of plain part top 7" bottom 7" Thickness of plates top 1/4" bottom 1/4" Description of longitudinal joint Weld No. of strengthening rings ✓
 Working pressure of furnace by the rules 243 lbs Combustion chamber plates: Material Steel Thickness: Sides 5" Back 5" Top 5" Bottom 1"
 Ch of stays to ditto: Sides 8" x 7 1/2" Back 7 1/2" x 7 1/2" Top 7 1/2" x 7 1/2" Bottom 7 1/2" x 7 1/2" Are stays fitted with nuts or riveted heads None Working pressure by rules 218 lbs
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 62 sq in. Working pressure by rules 255 lbs End plates in steam space Steel
 Thickness 1 1/2" Pitch of stays 14 1/2" x 15 1/2" How are stays secured by nuts & washers Working pressure by rules 247 lbs Material of stays Steel
 Diameter at smallest part 5' 9" Area supported by each stay 248 sq in. Working pressure by rules 247 lbs Material of Front plates at bottom Steel
 Thickness 5" Material of Lower back plate ✓ Thickness 5" Greatest pitch of stays ✓ Working pressure of plate by rules ✓
 Diameter of tubes 2 1/2" Pitch of tubes 4" x 4" Material of tube plates Steel Thickness: Front 5" Back 1 1/2" Mean pitch of stays 8" x 8"
 Ch across wide water spaces 13 1/2" Working pressures by rules 287 lbs Material of Chamber tops: Material Steel Depth and thickness of girder at centre 9" x (5" x 2) Length as per rule 54 1/2" Distance apart 7' x 7 1/4" Number and pitch of stays in each 6-7 1/2"
 Working pressure by rules 398 lbs 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 ✓



Lloyd's Register
 W450-0146
 Foundation

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?

No

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.

F. E. Roberts

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

1918. July 5th 5th 2nd Sep^r 1920

106

Is the approved plan of main boiler forwarded herewith

Yes

Dates of Examination of principal parts—Casings

16-10-18

Rotors

16-4-19

Blading

17-5-19

Gearing

25-6-19

Rotor shaft

16-4-19

Thrust shaft

14-5-19

Tunnel shafts

14-5-19

Screw shaft

14-5-19

Propeller

16-4-19

Stern tube

16-4-19

Steam pipes tested

19-9-19

Engine and boiler seatings

18-4-19

Engines holding down bolts

29-8-19

Completion of pumping arrangements

1-9-20

Boilers fired

21-8-19

Engines tried under steam

19-8-19

Main boiler safety valves adjusted

19-8-20

Thickness of adjusting washers

11-15-19

Material and tensile strength of Rotor shaft

Steel 39.4 - 22.5

38.0 - 24.0

Identification Mark on Do.

620 BT 734

Material and tensile strength of Pinion shaft

Steel 44.4 - 25.5

43.9 - 22.0

Identification Mark on Do.

452 BT 459 BT 45

Material of Wheel shaft

Steel

Identification Mark on Do.

LL1885

Material of Thrust shaft

do

Identification Mark on Do.

do

Material of Tunnel shafts

do

Identification Marks on Do.

do

Material of Screw shafts

do

Identification Marks on Do.

do

Material of Steam Pipes

Solid Drawn Steel

Test pressure

650 lbs

Is an installation fitted for burning oil fuel

Yes

Is the flash point of the oil to be used over 150°F.

Yes

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

Yes

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.)

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship, and the materials are of good description and on trials in Belfast Lough, the machinery worked satisfactorily with the exception of the Emergency Oil Engine, on the Poop, which is due made right on arrival at Liverpool. The Surveyors have been advised accordingly, as per copy of letter appended. When this has been favourably reported upon, in my opinion this vessel will be eligible for renewal of L.M.C. 9-20, with notation "Electric Light & Fitted for Oil Fuel F.P. above 150°F."

The amount of Entry Fee

£

3

When applied for,

Special

£

71-8-6

When received,

Donkey Boiler Fee

£

✓

Travelling Expenses (if any)

£

✓

When received,

2/11/20

R. F. Beven

Engineer Surveyor to Lloyd's Register of Shipping.

TUE. DEC. 14 1920

Committee's Minute

FRI. SEP. 24 1920

Assigned

MACHINERY CERT.
WRITTEN+ L.M.C. 9.20
Subject.Lised for oil fuel 9.20.
SP above 150°F.

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