

REPORT ON MACHINERY.

No. 4463/

Received at London Office 5 MAY 1925

Date of writing Report *2nd May 1925* When handed in at Local Office *4.5.1925* Port of *Glasgow*
 No. in Survey held at *Blydebank* Date, First Survey *22.9.24* Last Survey *15th May 1925*
 Reg. Book. on the *Steel twin screw steamer "85" Julius* (Number of Visits)
 Master *Blydebank* Built at *Blydebank* By whom built *John Brown & Co. Ltd.* Tons { Gross *1885* Net *780*
 Engines made at *Blydebank* By whom made *John Brown & Co. Ltd.* When built *1925*
 Boilers made at *do* By whom made *do* when made *1925*
 Registered Horse Power *4350* Owners *Great Western Railway* Port belonging to *London*
 Shaft Horse Power at Full Power *4350* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *yes*
NHP = 819

URBINE ENGINES, &c.—Description of Engines *S. R. F. Compound Parsons* No. of Turbines *4*
 Diameter of Rotor Shaft Journals, H.P. *5"* L.P. *6 1/2"* Diameter of Pinion Shaft *5" with 2" hole*
 Diameter of Journals *5"* Distance between Centres of Bearings *36"* Diameter of Pitch Circle *6.6415"*
 Diameter of Wheel Shaft *9 1/4"* Distance between Centres of Bearings *44"* Diameter of Pitch Circle of Wheel *74.3423"*
 Width of Face *20" total* Diameter of Thrust Shaft under Collars *9 1/8"* Diameter of Tunnel Shaft as per rule *8.226"*
 No. of Screw Shafts *2 hollow* as per rule *9.242"* Diameter of Propeller *9'-0"* as fitted *8 1/2"*
 No. of Blades *4* State whether Moveable *no* Total Surface *28 1/2* Pitch of Propeller *8'-9"*
 Thickness at Bottom of Groove, H.P. *✓* L.P. *✓* Astern *✓* Diameter of Rotor Drum, H.P. *18"* L.P. *34" astern 25"*
 Revs. per Minute at Full Power, Turbine *2800* Propeller *250*

ARTICULARS 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.
ST EXPANSION	<i>Impulse</i>			<i>2</i>	<i>2 7/8"</i>		<i>29 1/2"</i>		<i>4</i>	<i>2. P. Impulse</i>				<i>2</i>
ND	<i>3/4"</i>	<i>19 1/2"</i>		<i>6</i>	<i>2 7/8"</i>		<i>30 1/2"</i>		<i>3</i>	<i>1 1/2"</i>	<i>28"</i>			<i>2</i>
RD	<i>1 1/16"</i>	<i>20 1/2"</i>		<i>6</i>	<i>1 15/16"</i>		<i>37 1/2"</i>		<i>2</i>	<i>2 1/2"</i>	<i>29 1/4"</i>			<i>1</i>
TH	<i>1 1/16"</i>	<i>20 5/8"</i>		<i>6</i>	<i>2 1/2"</i>		<i>39"</i>		<i>2</i>	<i>2 3/8"</i>	<i>30 1/4"</i>			<i>1</i>
TH	<i>1 7/8"</i>	<i>21 3/4"</i>		<i>6</i>	<i>3 1/16"</i>		<i>40 3/4"</i>		<i>2</i>	<i>2 5/8"</i>	<i>30 1/4"</i>			<i>1</i>
TH	<i>2 5/8"</i>	<i>23 1/4"</i>		<i>6</i>	<i>3 3/4"</i>		<i>41 1/2"</i>		<i>1</i>	<i>3 1/8"</i>	<i>30 1/4"</i>			<i>1</i>
TH					<i>4 1/2"</i>		<i>43"</i>		<i>1</i>					
TH					<i>5 1/2"</i>		<i>45"</i>							
TH	<i>10 9/16"</i>	<i>1 13 1/2"</i>								<i>1 each 2. P. impulse</i>				<i>3</i>

o. and size of Feed pumps *1-13 1/2" x 10" x 24" direct acting. 1-1 1/2" x 8" x 8" simplex. 1-6" x 6" x 6" Duplex. 2-Downcomer pumps.*
 o. and size of Bilge pumps *1-7" x 8" x 8" simplex, 1-6" x 6" x 6" Duplex. 2-Downcomer pumps.*
 o. and size of Bilge suction in Engine Room *4-2 1/2"*

In Holds, &c. *1-2 1/2" in each 74. T. comp. airman's*

o. of Bilge Injections *2 sizes 9 1/2"* Connected to *circulating pump* *yes* Is a separate Donkey Suction fitted in Engine Room & size *yes 2 1/2"*
 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 *none* How are they protected *✓*
 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 *Main deck.*

BOILERS, &c.—(Letter for record *87*) Manufacturers of Steel *D. Colville & Sons.* 45B
 Total Heating Surface of Boilers *9300 1/2* Is Forced Draft fitted *yes* No. and Description of Boilers *4 Single ended*
 Working Pressure *230* Tested by hydraulic pressure to *395* Date of test *19.1.25* No. of Certificate *16704. 16710*
 Can each boiler be worked separately *yes* Area of fire grate in each boiler *27" full* No. and Description of Safety Valves to *✓*
 Is boiler *2-S. L. High life* Area of each valve *4.9"* Pressure to which they are adjusted *235* Are they fitted with easing gear *yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *Well clear* Mean dia. of boilers *14'-4"* Length *12'-0"* Material of shell plates *S. ✓*
 Thickness *1 7/8"* Range of tensile strength *29-33* Are the shell plates welded or flanged *no* Descrip. of riveting: cir. seams *T. R. V. ✓*
 g. seams *T. R. V. B. S. ✓* Diameter of rivet holes in long. seams *1 1/2"* Pitch of rivets *10 1/8"* Lap of plates or width of butt straps *21 1/2"*
 Percentages of strength of longitudinal joint rivets *85.38* Working pressure of shell by rules *230* Size of manhole in shell *16" x 12"*
 plates *86.0*

No. and Description of Furnaces in each Boiler *3. main* Material *S* Outside diameter *43 1/2"*
 Length of plain part *✓* Thickness of plates *1 1/16"* Description of longitudinal joint *weld* No. of strengthening rings *none*
 Working pressure of furnace by the rules *232* Combustion chamber plates: Material *S* Thickness: Sides *43"* Back *64"* Top *64"* Bottom *8"*
 Ch of stays to ditto: Sides *8 1/2" x 7 1/2"* Back *8 7/8" x 7 1/2"* Top *8" x 8"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *246*
 Material of stays *Iron* Diameter at smallest part *1 5/8"* Area supported by each stay *61"* Working pressure by rules *280* End plates in steam space *✓*
 Material *S* Thickness *1 1/4"* Pitch of stays *17" x 20"* How are stays secured *T. N.* Working pressure by rules *233* Material of stays *S. ✓*
 Diameter at smallest part *2 1/16"* Area supported by each stay *348"* Working pressure by rules *230* Material of Front plates at bottom *S. ✓*
 Thickness *55/64"* Material of Lower back plate *S* Thickness *2 1/32"* Greatest pitch of stays *13 1/2" x 7 3/4"* Working pressure of plate by rules *236*
 Diameter of tubes *2 1/2"* Pitch of tubes *3 5/8"* Material of tube plates *S* Thickness: Front *55/64"* Back *13/16"* Mean pitch of stays *9 7/8"*
 Ch across wide water spaces *13 1/2"* Working pressures by rules *246* Girders to Chamber tops: Material *S* Depth and *20*
 Thickness of girder at centre *9 1/4" x 1 1/2"* Length as per rule *32 3/4"* Distance apart *8"* Number and pitch of stays in each *3 28"*
 Working pressure by rules *250* 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 *Material* 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 Lifting Gear fitted _____

IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded? ☒

SPARE GEAR. State the articles supplied:— *As per Rules and attached list.*

John Brown & Company, Limited.

The foregoing is a correct description,

Interdun
Glydebank Secretary.

Manufacturers.

Dates of Survey while building { During progress of work in shops - - 1924 Sept. 22-25 Oct. 6-16 21-23 29 Nov. 3-5-13-19-27 Dec. 3-5-11-19-30.
During erection on board vessel - - 1925 Jan. 8-12-19-22-27-29 Feb. 3-5-6-9-11-13-16-17-23-26 Mar. 3-5-9-11-13-19-23-26-30 Apr. 2-6-9-14-16.
Total No. of visits 53.

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

Dates of Examination of principal parts—Casings 17-2-25 Rotors 19-3-25 Blading 9-3-25 Gearing 9-3-25

Rotor shaft 9-3-25 Thrust shaft 23-2-25 Tunnel shafts 26-2-25 Screw shaft 11-2-25 Propeller 9-2-25

Stern tube 9-2-25 Steam pipes tested 3-2-25 Engine and boiler seatings 22-1-25 Engines holding-down bolts 30-3-25

Completion of pumping arrangements 27-4-25 Boilers fired 11-3-25 Engines tried under steam 1-5-25

Main boiler safety valves adjusted 27-4-25 Thickness of adjusting washers " " For P 19" S 2 1/4" " P 25" S 3 1/4"

Material and tensile strength of Rotor shaft *Steel 35 to 37* Identification Mark on Do. 1810, 1811, 1812, 1

Material and tensile strength of Pinion shaft *Steel 35 to 37* Identification Mark on Do. 610, 611, 612, 6

Material of Wheel shaft *Steel* Identification Mark on Do. 626, 627, 876. 8

Material of Tunnel shafts *S* Identification Marks on Do. 867, 874, 864, 876. 8

Material of Screw shafts *S* Identification Marks on Do. 753. 7

Material of Steam Pipes *Steel* Test pressure 690 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 Engines and boilers of the*

vessel have been built under special survey in accordance with

the approved plans, and the Society's Rules and requirements

the materials and workmanship are good, they have been

securely fitted on board, and satisfactorily tried under steam

and in my opinion eligible for the record + L.M.C. 5-25

and notation fitted for oil fuel F.P. above 150°F.

(Screw shafts no liners, O.F. fitted)

The amount of Entry Fee ... £ 6 : - When applied for, 5/57 21-

Special ... £ 115 : 19 When received, 10/5 13-

Donkey Boiler Fee ... £ : : Travelling Expenses (if any) £ : :

Committee's Minute *GLASGOW 5-MAY 1925*

Assigned *+ LMC 5-25*

Fitted for oil fuel 5-25 F.P. above 150°F.

John Brown & Company, Limited.

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