

of writing Report  
in Survey held at Manchester Date, First Survey 17-11-17 Last Survey 29-8-1919  
g. Book. 19 When handed in at Local Office 19 19 Port of Manchester  
on the STEAM TURBINES and D.R. GEAR for VESSEL N<sup>o</sup> 367 (Number of Tons 43) Gross 2546  
Mosmouth SBCo Ltd Tons Net 1401  
ster Built at Chepstow By whom built E. J. & Co. When built  
ines made at Manchester By whom made B. Hestingshouse & Co. Ltd. when made 1919  
Quadruplex By whom made David Brown & Co. when made 1919  
ers made at  
stered Horse Power Owners Bush & Chamberlains Ltd Port belonging to Cardiff  
t Horse Power at Full Power 1000 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

LINE ENGINES, &c.—Description of Engines		RATEAU IMPULSE H.P. & L.P.		No. of Turbines		2	
Diameter of Rotor Shaft Journals, H.P. 4"		L.P. 4"		Diameter of Pinion Shaft		1" 3 3/4", 2" 6 3/4"	
Diameter of Journals 1" 3 3/4", 2" 6 3/4"		Distance between Centres of Bearings 1" 22", 2" 48"		Diameter of Pitch Circle		1" 5.99", 2" 9.92"	
Diameter of Wheel Shaft 1" 6 3/4", 2" 11 1/2"		Distance between Centres of Bearings 1" 48", 2" 48"		Diameter of Pitch Circle of Wheel		1" 56.345", 2" 68.215"	
Diameter of Face 1" 8 3/4", 2" 20"		Diameter of Thrust Shaft under Collars 11 1/2"		Diameter of Tunnel Shaft		as per rule. as fitted.	
Diameter of Screw Shafts		Diameter of same as per rule. as fitted.		Diameter of Propeller		Pitch of Propeller	
Diameter of Blades		State whether Moveable		Total Surface		Diameter of Rotor Drum, H.P. L.P. Astern	
Depth at Bottom of Groove, H.P. L.P.		Astern		Revs. per Minute at Full Power, Turbine		4500 Propeller 70.	

**TICULARS 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.
WHEEL EXPANSION	1" x 1 1/2"	27 1/2" x 28 1/2"	2	1 1/8"	28 1/8"	1	H.P.		
"	5/8"	27 5/8"	1	1 5/8"	28 5/8"	1	1 1/16" x 2 3/8"	28 1/6" x 29 3/8"	2
"	5/8"	27 5/8"	1	2 5/8"	29 5/8"	1			
"	5/8" x 3/4"	27 5/8" x 28 1/4"	1	4 3/16"	31 3/16"	1	L.P.		
"				6 1/4"	33 1/4"	1	1 1/16"	28 11/16"	1
"							3 1/2"	30 1/2"	1

*and size of Feed pumps*

and size of Bilge pumps

and size of Bilge suction in Engine Room

*In Holds, &c.*

*of Bilge Injections*..... sizes..... *Connected to condenser, or to circulating pump*..... *Is a separate Donkey Suction fitted in Engine Room & size*.....

*all the bilge suction pipes fitted with roses. Are the roses in Engine room always accessible*

*all connections with the sea direct on the skin of the ship..... Are they Valves or Cocks*

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

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

*it pipes are carried through the bunkers* *How are they protected.*

*all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times*

the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

he Screw Shaft Tunnel watertight..... Is it fitted with a watertight door..... worked from.....

**WILKES, &c.**—(Letter for record \_\_\_\_\_) *Manufacturers of Steel*

[illegible]

Working Pressure..... Tested by hydraulic pressure to..... Date of test..... No. of Certificate.....

[illegible]

<i>boiler</i>	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*

seams      Diameter of rivet holes in long seams      Pitch of rivets      Lap of plates or width of butt straps

centages of strength of longitudinal joint

No.	Name and Description of Furnaces in each Boiler	Material	Outside diameter
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			

No. and Description of Packages in each Lot.

Length of plain part	Thickness of plates	Description of longitudinal joint	No. of strengthening rings
10	1/2	Double butt, 1/4 inch overlap	1
12	3/4	Double butt, 1/2 inch overlap	2
14	1	Double butt, 3/4 inch overlap	3
16	1 1/4	Double butt, 1 inch overlap	4
18	1 1/2	Double butt, 1 1/4 inch overlap	5
20	1 3/4	Double butt, 1 1/2 inch overlap	6
22	2	Double butt, 1 3/4 inch overlap	7
24	2 1/4	Double butt, 2 inch overlap	8
26	2 1/2	Double butt, 2 1/4 inch overlap	9
28	2 3/4	Double butt, 2 1/2 inch overlap	10
30	3	Double butt, 2 3/4 inch overlap	11
32	3 1/4	Double butt, 3 inch overlap	12
34	3 1/2	Double butt, 3 1/4 inch overlap	13
36	3 3/4	Double butt, 3 1/2 inch overlap	14
38	4	Double butt, 3 3/4 inch overlap	15
40	4 1/4	Double butt, 4 inch overlap	16
42	4 1/2	Double butt, 4 1/4 inch overlap	17
44	4 3/4	Double butt, 4 1/2 inch overlap	18
46	5	Double butt, 4 3/4 inch overlap	19
48	5 1/4	Double butt, 5 inch overlap	20
50	5 1/2	Double butt, 5 1/4 inch overlap	21
52	5 3/4	Double butt, 5 1/2 inch overlap	22
54	6	Double butt, 5 3/4 inch overlap	23
56	6 1/4	Double butt, 6 inch overlap	24
58	6 1/2	Double butt, 6 1/4 inch overlap	25
60	6 3/4	Double butt, 6 1/2 inch overlap	26
62	7	Double butt, 6 3/4 inch overlap	27
64	7 1/4	Double butt, 7 inch overlap	28
66	7 1/2	Double butt, 7 1/4 inch overlap	29
68	7 3/4	Double butt, 7 1/2 inch overlap	30
70	8	Double butt, 7 3/4 inch overlap	31
72	8 1/4	Double butt, 8 inch overlap	32
74	8 1/2	Double butt, 8 1/4 inch overlap	33
76	8 3/4	Double butt, 8 1/2 inch overlap	34
78	9	Double butt, 8 3/4 inch overlap	35
80	9 1/4	Double butt, 9 inch overlap	36
82	9 1/2	Double butt, 9 1/4 inch overlap	37
84	9 3/4	Double butt, 9 1/2 inch overlap	38
86	10	Double butt, 9 3/4 inch overlap	39
88	10 1/4	Double butt, 10 inch overlap	40
90	10 1/2	Double butt, 10 1/4 inch overlap	41
92	10 3/4	Double butt, 10 1/2 inch overlap	42
94	11	Double butt, 10 3/4 inch overlap	43
96	11 1/4	Double butt, 11 inch overlap	44
98	11 1/2	Double butt, 11 1/4 inch overlap	45
100	11 3/4	Double butt, 11 1/2 inch overlap	46
102	12	Double butt, 11 3/4 inch overlap	47
104	12 1/4	Double butt, 12 inch overlap	48
106	12 1/2	Double butt, 12 1/4 inch overlap	49
108	12 3/4	Double butt, 12 1/2 inch overlap	50
110	13	Double butt, 12 3/4 inch overlap	51
112	13 1/4	Double butt, 13 inch overlap	52
114	13 1/2	Double butt, 13 1/4 inch overlap	53
116	13 3/4	Double butt, 13 1/2 inch overlap	54
118	14	Double butt, 13 3/4 inch overlap	55
120	14 1/4	Double butt, 14 inch overlap	56
122	14 1/2	Double butt, 14 1/4 inch overlap	57
124	14 3/4	Double butt, 14 1/2 inch overlap	58
126	15	Double butt, 14 3/4 inch overlap	59
128	15 1/4	Double butt, 15 inch overlap	60
130	15 1/2	Double butt, 15 1/4 inch overlap	61
132	15 3/4	Double butt, 15 1/2 inch overlap	62
134	16	Double butt, 15 3/4 inch overlap	63
136	16 1/4	Double butt, 16 inch overlap	64
138	16 1/2	Double butt, 16 1/4 inch overlap	65
140	16 3/4	Double butt, 16 1/2 inch overlap	66
142	17	Double butt, 16 3/4 inch overlap	67
144	17 1/4	Double butt, 17 inch overlap	68
146	17 1/2	Double butt, 17 1/4 inch overlap	69
148	17 3/4	Double butt, 17 1/2 inch overlap	70
150	18	Double butt, 17 3/4 inch overlap	71
152	18 1/4	Double butt, 18 inch overlap	72
154	18 1/2	Double butt, 18 1/4 inch overlap	73
156	18 3/4	Double butt, 18 1/2 inch overlap	74
158	19	Double butt, 18 3/4 inch overlap	75
160	19 1/4	Double butt, 19 inch overlap	76
162	19 1/2	Double butt, 19 1/4 inch overlap	77
164	19 3/4	Double butt, 19 1/2 inch overlap	78
166	20	Double butt, 19 3/4 inch overlap	79
168	20 1/4	Double butt, 20 inch overlap	80
170	20		

Working pressure of furnace by the rules	Combustion chamber plates: Material	Thickness: Sues	Back	Top	Bottom

ch of stays to ditto: Sides ..... Back ..... Top ..... If stays are fitted with nuts or riveted heads ..... Working pressure by rule

Material of stays	Diameter at smallest part	Area supported by each stay	Working pressure by rules	End plates in steel
Steel	1 1/2"	1.767	10,000	10,000
Cast iron	1 1/2"	1.767	8,000	8,000
Wrought iron	1 1/2"	1.767	8,000	8,000
Brass	1 1/2"	1.767	6,000	6,000
Copper	1 1/2"	1.767	4,000	4,000
Aluminum	1 1/2"	1.767	3,000	3,000
Lead	1 1/2"	1.767	2,000	2,000
Concrete	1 1/2"	1.767	1,000	1,000
Timber	1 1/2"	1.767	1,000	1,000
Stone	1 1/2"	1.767	1,000	1,000
Brick	1 1/2"	1.767	1,000	1,000
Reinforced concrete	1 1/2"	1.767	1,000	1,000
Steel plate	1 1/2"	1.767	1,000	1,000
Cast steel	1 1/2"	1.767	1,000	1,000
Wrought steel	1 1/2"	1.767	1,000	1,000
Aluminum alloy	1 1/2"	1.767	1,000	1,000
Brass alloy	1 1/2"	1.767	1,000	1,000
Copper alloy	1 1/2"	1.767	1,000	1,000
Lead alloy	1 1/2"	1.767	1,000	1,000
Concrete alloy	1 1/2"	1.767	1,000	1,000
Timber alloy	1 1/2"	1.767	1,000	1,000
Stone alloy	1 1/2"	1.767	1,000	1,000
Brick alloy	1 1/2"	1.767	1,000	1,000
Reinforced concrete alloy	1 1/2"	1.767	1,000	1,000
Steel plate alloy	1 1/2"	1.767	1,000	1,000
Cast steel alloy	1 1/2"	1.767	1,000	1,000
Wrought steel alloy	1 1/2"	1.767	1,000	1,000
Aluminum alloy alloy	1 1/2"	1.767	1,000	1,000
Brass alloy alloy	1 1/2"	1.767	1,000	1,000
Copper alloy alloy	1 1/2"	1.767	1,000	1,000
Lead alloy alloy	1 1/2"	1.767	1,000	1,000
Concrete alloy alloy	1 1/2"	1.767	1,000	1,000
Timber alloy alloy	1 1/2"	1.767	1,000	1,000
Stone alloy alloy	1 1/2"	1.767	1,000	1,000
Brick alloy alloy	1 1/2"	1.767	1,000	1,000
Reinforced concrete alloy alloy	1 1/2"	1.767	1,000	1,000
Steel plate alloy alloy	1 1/2"	1.767	1,000	1,000
Cast steel alloy alloy	1 1/2"	1.767	1,000	1,000
Wrought steel alloy alloy	1 1/2"	1.767	1,000	1,000
Aluminum alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Brass alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Copper alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Lead alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Concrete alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Timber alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Stone alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Brick alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Reinforced concrete alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Steel plate alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Cast steel alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Wrought steel alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Aluminum alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Brass alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Copper alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Lead alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Concrete alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Timber alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Stone alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Brick alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Reinforced concrete alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Steel plate alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Cast steel alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Wrought steel alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Aluminum alloy alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Brass alloy alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000
Copper alloy alloy alloy alloy alloy	1 1/2"	1.767	1,000	1,000

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.....

*Arch across wide water spaces*      *Working pressures by rules*      *Girders to Chamber tops: Material*

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
100			
200			
300			
400			
500			
600			
700			
800			
900			
1000			
1100			
1200			
1300			
1400			
1500			
1600			
1700			
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			
3100			
3200			
3300			
3400			
3500			
3600			
3700			
3800			
3900			
4000			
4100			
4200			
4300			
4400			
4500			
4600			
4700			
4800			
4900			
5000			
5100			
5200			
5300			
5400			
5500			
5600			
5700			
5800			
5900			
6000			
6100			
6200			
6300			
6400			
6500			
6600			
6700			
6800			
6900			
7000			
7100			
7200			
7300			
7400			
7500			
7600			
7700			
7800			
7900			
8000			
8100			
8200			
8300			
8400			
8500			
8600			
8700			
8800			
8900			
9000			
9100			
9200			
9300			
9400			
9500			
9600			
9700			
9800			
9900			
10000			

[illegible]

Working pressure of shell by rules Crown plates: Thickness How stayed

4499-5093d



**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:— One set pads each for nickel thrust and turbine thrust blocks, one set bearing bushes each for turbine spindle, low speed gear wheel shaft, intermediate gear shaft and for pinion shaft, one spare pinion with flexible coupling, one spare rotor plunge pump, one bucket and rod for lubricating pump, one escape valve, <sup>spring</sup> each size fitted, 5% condenser tubes & ferrules, one impeller and shaft, one air pump rod, bucket and valves, one set coupling bolts, assorted bolts and nuts.

The foregoing is a correct description,  
 The Metropolitan Vickers Electrical Co. Ltd.  
 formerly THE BRITISH WESTINGHOUSE ELECTRIC & MFG. CO. LTD. Manufacturer.

DAVID BROWN & SONS, (HUDD<sup>ED</sup>) LTD.

W. Child

Director.

W. Aldridge 22/9/19

ADVISED  
NEWPORT

Dates of Survey while building { During progress of work in shops -- } from Nov. 1917 to August 1919 43 visits  
 { During erection on board vessel -- }  
 Total No. of visits \_\_\_\_\_

Is the approved plan of main boiler forwarded herewith \_\_\_\_\_

" " " donkey " " "

Dates of Examination of principal parts—Casings. 28-3-18 Rotors. 28-3-18 Blading. 4-4-18 Gearing. Mar 18 62

Rotor shaft 14-4-19 Thrust shaft June 1918 Tunnel shafts Screw shaft Propeller

Stern tube 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 mild steel 30.0 tons and 29.9 tons Identification Mark on Do. U399 and U400

Material and tensile strength of Pinion shaft nickel steel 42 tons 46.0 tons Identification Mark on Do. 464 + 463

Material of Wheel shaft mild steel Identification Mark on Do. K.2. Material of Thrust shaft mild steel Identification Mark on Do. K.2.

Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Identification Marks on 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 yes. If so, state name of vessel my report N<sup>o</sup> 4268 dated 11-2-

General Remarks (State quality of workmanship, opinions as to class, &c.) These steam turbines and double reduction

gear have been built under Survey and the material tested in accordance with the Rules of this Society. The materials and workmanship, so far as can be seen, are sound and good and eligible in my opinion to be classed, in record of L.M.C.

mark on couplings.

H.P. Spindle  
LLOYDS  
SET 3  
1650

L.P. Spindle  
LLOYDS  
SET 3  
1651

Gear. Low speed shaft  
LLOYDS  
N<sup>o</sup> 2  
11-1918

The amount of Entry Fee ... £ 28 : 5 : 10 When applied for, \_\_\_\_\_  
 Special ... £ \_\_\_\_\_  
 Donkey Boiler Fee ... £ \_\_\_\_\_  
 Travelling Expenses (if any) £ \_\_\_\_\_

When received, \_\_\_\_\_

A. Campbell  
 Engineer Surveyor to Lloyd's Register of Shipping

FRI. AUG. 6 1920

FRI. OCT. 15 1920

Committee's Minute

Assigned See minute on N<sup>o</sup> 19905 TUE. NOV. 23 1920



© 2019

Lloyd's Register  
Foundation

Dear Sir

instant

Babcock

496, int

E. Finch

the esti

Type is

for the

Messrs.

The Sec

GL