

REPORT ON MACHINERY

No. 74157

Received at London Office

FRI 4 MAR 1921

Date of writing Report 19 When handed in at Local Office 28/2/1921 Port of NEWCASTLE-ON-TYNE
 No. in Survey held at Newcastle on Tyne Date, First Survey 18th March 1920 Last Survey 24th Feb 1921
 Reg. Book. Contract No 357/5 CHRISTIANSBORG (Number of Visits 25)
 on the
 Master Built at By whom built Koninklijke Maats de Schelde When built
 Engines made at Wallsend on Tyne By whom made The Parsons Marine Steam Turbine Co Ltd when made 1921
 Boilers made at By whom made [Contract No. 189] when made
 Registered Horse Power Owners Port belonging to
 Shaft Horse Power at Full Power 1350 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

TURBINE ENGINES, &c. Description of Engines Impulse Reaction Turbines, Double Reduction Gear No. of Turbines 2
 Diameter of Rotor Shaft Journals, H.P. 3 1/2" L.P. 4 1/2" Diameter of Pinion Shaft Primary 3" Secondary 7"
 Diameter of Journals Primary 3" Secondary 7" Distance between Centres of Bearings Primary 1' 5" Secondary 3' 6"
 Diameter of Wheel Shaft Journals 1' 0" Distance between Centres of Bearings 4' 0" Diameter of Pitch Circle Primary 6' 8 5/8" Secondary 11' 7 3/8"
 Width of Face Primary 7" Secondary 1' 6 1/2" Diameter of Thrust Shaft under Collars Diameter of Pitch Circle of Wheel Primary 47' 7 1/8" Secondary 85' 0 5/8"
 No. of Screw Shafts ONE Diameter of same as per rule as fitted Diameter of Propeller Pitch of Propeller
 No. of Blades State whether Moveable Total Surface Diameter of Rotor Drum, H.P. 13 1/4" L.P. 16 1/2" 27" astern L.P. 22"
 Thickness at Bottom of Groove, H.P. 1" L.P. 1" Astern 1" Revs. per Minute at Full Power, Turbines 3,500 Propeller 70

PARTICULARS OF BLADING.

	H. P.			L. P.			HP & LP ASTERNS.		
	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	7/8"	14 3/4"	10	1st 1 1/8"	1'-9 7/8"	4	HP Ast: 2 Row Wheel.		
2ND	1 1/16"	16 3/8"	8	2nd 2 3/16"	1'-10 7/8"	4	Eff: height, = 1", 1 1/2", 2"		
3RD	1 3/16"	20 1/8"	5	3rd 2 3/16"	2'-0 1/8"	4	LP Ast: eff: height, = 1 3/16", 1 1/4", 2 3/16"		
4TH	1 1/16"	20 5/8"	5	4th 1 7/8"	2'-6 3/4"	2	1st 7/8"	1'-11 3/4"	1
5TH	1 3/8"	21 1/4"	5	5th 2 3/8"	2'-7 3/4"	2	2nd 1 1/4"	2'-0 1/2"	1
6TH				6th 2 3/8"	2'-8 1/2"	1	3rd 1 3/4"	2'-1 1/2"	1
7TH				7th 3 1/8"	2'-10 3/4"	1	4th 1 3/4"	2'-1 1/2"	1
8TH				8th 3 1/8"	3'-0"	1	5th 1 3/4"	2'-1 1/2"	1
				10th 4 1/2"	3'-0"	1			
				11th 4 1/2"	3'-0"	1			

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 rivets Working pressure of shell by rules Size of manhole in shell
 plates
 Size of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter
 top crown
 Length of plain part Thickness of plates bottom Description of longitudinal joint No. of strengthening rings
 bottom
 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

W437-0012

W437-0013

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
1 1/2	100 lbs	
2	120 lbs	
2 1/2	140 lbs	
3	160 lbs	
3 1/2	180 lbs	
4	200 lbs	
4 1/2	220 lbs	
5	240 lbs	
5 1/2	260 lbs	
6	280 lbs	
6 1/2	300 lbs	
7	320 lbs	
7 1/2	340 lbs	
8	360 lbs	
8 1/2	380 lbs	
9	400 lbs	
9 1/2	420 lbs	
10	440 lbs	
10 1/2	460 lbs	
11	480 lbs	
11 1/2	500 lbs	
12	520 lbs	
12 1/2	540 lbs	
13	560 lbs	
13 1/2	580 lbs	
14	600 lbs	
14 1/2	620 lbs	
15	640 lbs	
15 1/2	660 lbs	
16	680 lbs	
16 1/2	700 lbs	
17	720 lbs	
17 1/2	740 lbs	
18	760 lbs	
18 1/2	780 lbs	
19	800 lbs	
19 1/2	820 lbs	
20	840 lbs	
20 1/2	860 lbs	
21	880 lbs	
21 1/2	900 lbs	
22	920 lbs	
22 1/2	940 lbs	
23	960 lbs	
23 1/2	980 lbs	
24	1000 lbs	
24 1/2	1020 lbs	
25	1040 lbs	
25 1/2	1060 lbs	
26	1080 lbs	
26 1/2	1100 lbs	
27	1120 lbs	
27 1/2	1140 lbs	
28	1160 lbs	
28 1/2	1180 lbs	
29	1200 lbs	
29 1/2	1220 lbs	
30	1240 lbs	
30 1/2	1260 lbs	
31	1280 lbs	
31 1/2	1300 lbs	
32	1320 lbs	
32 1/2	1340 lbs	
33	1360 lbs	
33 1/2	1380 lbs	
34	1400 lbs	
34 1/2	1420 lbs	
35	1440 lbs	
35 1/2	1460 lbs	
36	1480 lbs	
36 1/2	1500 lbs	
37	1520 lbs	
37 1/2	1540 lbs	
38	1560 lbs	
38 1/2	1580 lbs	
39	1600 lbs	
39 1/2	1620 lbs	
40	1640 lbs	
40 1/2	1660 lbs	
41	1680 lbs	
41 1/2	1700 lbs	
42	1720 lbs	
42 1/2	1740 lbs	
43	1760 lbs	
43 1/2	1780 lbs	
44	1800 lbs	
44 1/2	1820 lbs	
45	1840 lbs	
45 1/2	1860 lbs	
46	1880 lbs	
46 1/2	1900 lbs	
47	1920 lbs	
47 1/2	1940 lbs	
48	1960 lbs	
48 1/2	1980 lbs	
49	2000 lbs	
49 1/2	2020 lbs	
50	2040 lbs	
50 1/2	2060 lbs	
51	2080 lbs	
51 1/2	2100 lbs	
52	2120 lbs	
52 1/2	2140 lbs	
53	2160 lbs	
53 1/2	2180 lbs	
54	2200 lbs	
54 1/2	2220 lbs	
55	2240 lbs	
55 1/2	2260 lbs	
56	2280 lbs	
56 1/2	2300 lbs	
57	2320 lbs	
57 1/2	2340 lbs	
58	2360 lbs	
58 1/2	2380 lbs	
59	2400 lbs	
59 1/2	2420 lbs	
60	2440 lbs	
60 1/2	2460 lbs	
61	2480 lbs	
61 1/2	2500 lbs	
62	2520 lbs	
62 1/2	2540 lbs	
63	2560 lbs	
63 1/		

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

SPARE GEAR. State the articles supplied:—

2 Bunches for Main Gear Wheel Bearings.	3 Complete Graphite Rings for H.P. Turbine Flange.	6 Adjusting Block Pads with Pins
2 " " Secondary Pinion Shaft Bearings	3 Springs	4 " " Liners (in halves)
2 " " Primary " " "	1 " for Aspmall Governor	41 Studs & nuts (various sizes)
2 " " H.P. Turbine Bearings	2 " " Relief Valve on L.P. Turbine	38 Bolts " " (" ")
2 " " L.P. " " "	1 " " " " " H.P. "	8 Lap bolts (" ")
		5 Collar Studs (" ")

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building	During progress of work in shops --	Mar 18. Apr 16-23. May 5. Jun 17. Aug 10-14. Sep 3. 10. 14. 16. Oct 18. 20. 22. Nov 11. 16. 22. 25. Dec 3. 16. Jan 27. Feb 15. 24.
	During erection on board vessel ---	
	Total No. of visits	25

Is the approved plan of main boiler forwarded herewith ☒

Is the approved plan of main boiler forwarded herewith. ✓

Dates of Examination of principal parts—Casings 9-20 Rotors 9-20 Blading 9-20 Gearing 9-20

Rotor shaft 8/20-9/20 Thrust shaft ✓ 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 15/2/11

Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓

Material and tensile strength of Rotor shaft *Forged steel 34 to 38 tons.* Identification Mark on Do. *10.*

Material and tensile strength of Pinion shaft	Nickel Steel. 40 to 45 tons.	Identification Mark on Do.	10
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Material of Wheel shaft Forged Steel. Identification Mark on Do. 10.20.L.45. Material of Thrust shaft ☒ Identification Mark on ☒

Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts ✓ Identification Marks on

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. ✓

If so state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c.) The engines of this vessel were

When's Paper & the material of which he was bound. All the letters in the

1891

board, & then examined under steam at the satisfaction of the local

considered that the Machinery, in our opinion will be improved to have record

with date, marked in the Society's Register Book.

The amount of Entry Fee	\$		When applied for,	
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H.entr. Kluwe

Donker, Boiler Etc. When received

Travelling Expenses (if any) *13/57 21/11/11*

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