

Std. No. 28188

pt. 4a.

REPORT ON MACHINERY

New No. 74751
THE 20 SEP. 1921

Date of writing Report *Sept 15th* 1921 When handed in at Local Office *Sept 16th* 1921 Port of *NEWCASTLE-ON-TYNE*
No. in Survey held at *Malloend-on-Tyne* Date, First Survey *March 9th 1920* Last Survey *Sept 15th 1921*
Regr. No. *29951* on the *steel screw steamer "Sandtown Castle"* (Number of Visits *97*)
Master *Short Bros* Built at *Switzerland* By whom built *Short Bros* When built *1921*
Engines made at *Malloend-on-Tyne* By whom made *North Eastern Marine Eng. & Lim* when made *1921*
Boilers made at *"* By whom made *"* when made *1921*
Registered Horse Power *"* Owners *Union Castle Mail S.S. Co. Lim* Port belonging to *London*
Shaft Horse Power at Full Power *3200* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*
HP for Recs 642 NHP.

URBINE ENGINES, &c.—Description of Engines *Brown Curtis geared Turbines* No. of Turbines *3*
Diameter of Rotor Shaft Journals, H.P. *3 IP=4 1/2 L.P. 8"* Diameter of Pinion Shaft *HP=IP=4 1/2 LP=5"-2 1/2" Pinion 11"*
Diameter of Journals *HP=IP=4 1/2 LP=5"* Distance between Centres of Bearings *HP=IP=7.07 LP=12.426 2 1/2"=14.704"*
Diameter of Wheel Shaft *IP=11 2 1/2"=16"* Distance between Centres of Bearings *IP=5.8 2 1/2"=6.4 1/2"* Diameter of Pitch Circle of Wheels *IP=52.918 2 1/2"=115.467"*
Width of Faces *IP=14.12 2 1/2"=2.8"* Diameter of Thrust Shaft under Collars *15 1/2" Rule size = 14.7"* Diameter of Tunnel Shaft as per rule *14.03"*
Runs in oil *Yes* Diameter of same as per rule *16.27"* Diameter of Propeller *18-6"* Pitch of Propeller *17-9"*
No. of Screw Shafts *One* Diameter of same as per rule *16.58"* Diameter of Propeller *18-6"* Pitch of Propeller *17-9"*
No. of Blades *4* State whether Moveable *Yes* Total Surface *106.655* Diameter of Rotor Drum, H.P. *"* L.P. *"* Astern *"*
Thickness at Bottom of Groove, H.P. *"* L.P. *"* Astern *"* Revs. per Minute at Full Power, Turbine *HP=3600 LP=2050* Propeller *74*

ARTICULARS OF BLADING.

	H. P.			L. P.			HP. 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 stage	1 3/8" x 1 1/8"	20 1/2" x 21"	2	3 1/8"	48 1/2"	1-1st stage	2 1/8", 2 1/2", 3 1/2"	31 1/2", 32 1/2", 33 1/2"	3-1st stage
2ND "	1 1/8" x 2 1/8"	20 1/8" x 21 1/8"	2	3 1/8"	49 1/2"	1-2nd stage	1 3/8", 1 3/4", 1 7/8"	55 1/2", 56 1/2", 57 1/2"	3-1st stage
3RD "	1 1/8" x 3 1/8"	20 1/8" x 21 1/8"	2	4 1/8"	50 1/2"	1-3rd stage	1 3/8", 1 3/4", 1 7/8"	55 1/2", 56 1/2", 57 1/2"	3-1st stage
4TH stage	1 1/8" x 3 1/8"	20 1/8" x 21 1/8"	2	4 1/8"	51 1/2"	1-4th stage	1 3/8", 1 3/4", 1 7/8"	55 1/2", 56 1/2", 57 1/2"	3-1st stage
5TH "	1 1/8" x 3 1/8"	20 1/8" x 21 1/8"	1	4 1/8"	52 1/2"	1-5th stage	1 3/8", 1 3/4", 1 7/8"	55 1/2", 56 1/2", 57 1/2"	3-1st stage
6TH "	1 1/8" x 3 1/8"	20 1/8" x 21 1/8"	1	4 1/8"	53 1/2"	1-6th stage	1 3/8", 1 3/4", 1 7/8"	55 1/2", 56 1/2", 57 1/2"	3-1st stage
7TH "	1 1/8" x 3 1/8"	20 1/8" x 21 1/8"	1	4 1/8"	54 1/2"	1-7th stage	1 3/8", 1 3/4", 1 7/8"	55 1/2", 56 1/2", 57 1/2"	3-1st stage
8TH "	1 1/8" x 3 1/8"	20 1/8" x 21 1/8"	1	4 1/8"	55 1/2"	1-8th stage	1 3/8", 1 3/4", 1 7/8"	55 1/2", 56 1/2", 57 1/2"	3-1st stage

No. and size of Feed pumps *2-10 1/2" x 8" x 21" and one auxiliary pump 8" x 5 1/2" x 8"*
No. and size of Bilge pumps *1-6" x 6" x 15"*
No. and size of Bilge suction in Engine Room *5-3 1/2"*

Suctions. Tunnel well one 3". In Holds, &c. *Stools nos 1.2.3.5+6 each have 2-3 1/2"*
No. of Bilge Injections *One* sizes *12"* Connected to condenser, or to circulating pump *Yes* Is a separate Donkey Suction fitted in Engine Room & size *Yes 3 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 *Both*
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*
What pipes are carried through the bunkers *None* How are they protected *Yes*
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 *Upper platform.*

BOILERS, &c.—(Letter for record *S.*) Manufacturers of Steel *John Spencer*
Total Heating Surface of Boilers *7860* Is Forced Draft fitted *Yes* No. and Description of Boilers *3 single ended*
Working Pressure *220 lbs* Tested by hydraulic pressure to *385 lbs* Date of test *21.1.21* No. of Certificate *9520*
Can each boiler be worked separately *Yes* Area of fire grate in each boiler *56.375 sq ft* No. and Description of Safety Valves to each boiler *2 Spring loaded* Area of each valve *8.29 sq in* Pressure to which they are adjusted *225 lbs* Are they fitted with easing gear *Yes*
Smallest distance between boilers or uptakes and bunkers or woodwork *1-0"* Mean dia. of boilers *15-3* Length *12-10* Material of shell plates *steel*
Thickness *1 1/2"* Range of tensile strength *28-32 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *D. Lap*
long. seams *Double welded* Diameter of rivet holes in long. seams *1 1/32"* Pitch of rivets *10 1/2"* Lap of plates or width of butt straps *1-10 1/2"*
Per centages of strength of longitudinal joint rivets *85.18* Working pressure of shell by rules *234 lbs* Size of manhole in shell *16" x 12"*
plates *85.41* Size of compensating ring *Plunged* No. and Description of Furnaces in each Boiler *3 horizontal* Material *steel* Outside diameter *3-8 1/2"*
Length of plain part top *"* crown *2 1/2"* Description of longitudinal joint *Welded* No. of strengthening rings *"*
bottom *"* thickness of plates *3/32"* Working pressure of furnace by the rules *231* Combustion chamber plates: Material *steel* Thickness: Sides *3/4"* Back *3/4"* Top *3/4"* Bottom *1 1/8"*
Pitch of stays to ditto: Sides *9 1/2" x 8 1/2"* Top *9 1/2" x 8 1/2"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *245.5*
Material of stays *steel* Diameter at smallest part *2.36"* Area supported by each stay *81.5 sq in* Working pressure by rules *263* End plates in steam space *steel*
Material *steel* Thickness *1 1/8"* Pitch of stays *18 1/2" x 22 1/2"* How are stays secured *Double welded* Working pressure by rules *228 lbs* Material of stays *steel*
Diameter at smallest part *9.62"* Area supported by each stay *416 sq in* Working pressure by rules *218 lbs* Material of Front plates at bottom *steel*
Thickness *1 1/8"* Material of Lower back plate *steel* Thickness *3/32"* Greatest pitch of stays *14 1/2" x 8 1/2"* Working pressure of plate by rules *236 lbs*
Diameter of tubes *3"* Pitch of tubes *4 1/2" x 4 1/2"* Material of tube plates *steel* Thickness: Front *1 1/8"* Back *3/32"* Mean pitch of stays *8 1/2"*
Pitch across wide water spaces *14 1/2" x 8 1/2"* Working pressures by rules *254 lbs* Girders to Chamber tops: Material *steel* Depth and thickness of girder at centre *11" x (2x1)"* Length as per rule *3-6"* Distance apart *8 1/2"* Number and pitch of stays in each *3-9 1/2"*
Working pressure by rules *244.2* Steam dome: description of joint to shell *None* % 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 *"*

