

REPORT ON MACHINERY.

No. 10328

27th March 1919

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of writing Report 12.3.1919 When handed in at Local Office 12.3.1919 Port of Middlesbrough
 in Survey held at Stockton-on-Tees Date, First Survey 19.6.18 Last Survey 4 April 1919
 Book. 39 on the Steel Screw Steamer "Cairngowan" (Number of Visits 6875) (S.S. N^o 320) Tons } Gross 5295
Melling Built at Sunderland By whom built Sunderland S.P. Co } Net 3257
 When built 1919
 Lines made at Stockton By whom made Messrs Blair & Lim (N^o 1894) when made 1919
 Owners Cairn Line of Steamers Ltd Port belonging to Newcastle
 Horse Power as per Section 28 518.517 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Tri-compound No. of Cylinders 3 No. of Cranks 3
 of Cylinders 27-44-73 Length of Stroke 48 Revs. per minute 77 Dia. of Screw shaft as per rule 14.7 Material of Ing Steel
as fitted 15.5 screw shaft }
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight
 Is the propeller boss yes If the liner is in more than one length are the joints burned in one If the liner does not fit tightly at the part
 on the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive tight fit If two
 are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 5'-14"
 of Tunnel shaft as per rule 13.33 Dia. of Crank shaft journals as per rule 14.0 Dia. of Crank pin 14.5 Size of Crank webs 28x9 Dia. of thrust shaft under
as fitted 13.5 as fitted 14.2 14.5 28x9 28x9 28x9
 of Feed pumps 2 Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work yes
 of Bilge pumps 2 Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work yes
 of Donkey Engines 3 Sizes of Pumps Ballast 10 1/2 x 14 x 24 2 @ 9 1/2 x 7 x 18 No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 4 @ 3 1/2 In Holds, &c. 2 @ 3 1/2 in each hold, except aftermost
 of Bilge Injections 1 sizes 13" Connected to centrifugal circulating pump yes Is a separate Donkey Suction fitted in Engine room & size yes - 3 1/2
 Are the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices on Engine room bulkheads always accessible none
 all connections with the sea direct on the skin of the ship yes except main Are they Valves or Cocks both
 Are they sized 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 above
 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
 How are they protected wood ceiling
 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 Is it worked from top platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Messrs John Spencer & Sons Ltd
 Heating Surface of Boilers 7668 Is Forced Draft fitted yes No. and Description of Boilers 3 single ended
 Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 16th Dec 1918 No. of Certificate 5952
 Can each boiler be worked separately yes Area of fire grate in each boiler 63.3 No. and Description of Safety Valves to
 boiler 2 direct spring Area of each valve 9.62 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes
 Least distance between boilers or uptakes and bunkers or woodwork 7'-0" Mean dia. of boilers 15'-6" Length 11'-6" Material of shell plates steel
 Thickness 1 1/4" Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 R. lap
5 Rivets per pitch Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 19 1/2 x 1 1/2 in
 Percentages of strength of longitudinal joint rivets 88.3 Working pressure of shell by rules 182 Size of manhole in end 16" x 12"
 plate 85.64
 of compensating ring Flanged No. and Description of Furnaces in each boiler 3 Deighton Material steel Outside diameter 50 3/4"
 Thickness of plates 12" Description of longitudinal joint Weld No. of strengthening rings 1
 Working pressure of furnace by the rules 188 Combustion chamber plates: Material steel Thickness: Sides 23/32" Back 11/16" Top 23/32" Bottom 23/32"
 of stays to ditto: Sides 10 5/8" x 9 1/4" Back 10 1/4" x 8 3/4" Top 10 5/8" x 9 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180
 Material of stays steel Area at smallest part 2.31 Area supported by each stay 98.5 Working pressure by rules 211 End plates in steam space:
 Material steel Thickness 1 1/2" Pitch of stays 21 1/2" How are stays secured 8 3/4" x 3/32 washers Working pressure by rules 191 Material of stays steel
 Area at smallest part 8.29 Area supported by each stay 467 Working pressure by rules 185 Material of Front plates at bottom steel
 Thickness 31/32" Material of Lower back plate steel Thickness 27/32" Greatest pitch of stays 13 5/8" x 8 3/4" Working pressure of plate by rules 187
 Diameter of tubes 2 3/4" Pitch of tubes 4" x 3 7/8" Material of tube plates steel Thickness: Front 31/32" Back 3/4" Mean pitch of stays 9 1/2"
 Working pressures by rules 181 Girders to Chamber tops: Material steel Depth and
 Thickness of girder at centre 10" x 1 1/2" Length as per rule 35 2/16" Distance apart 10 5/8" Number and pitch of stays in each 3 @ 9 1/4"
 Working pressure by rules 188 Steam dome: description of joint to shell none % of strength of joint —
 Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet holes —
 Working pressure of shell by rules — Crown plates — Thickness — How stayed —

SUPERHEATER. Type — Date of Approval of Plan — Tested by Hydraulic Pressure to —
 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler —
 Pressure to which each is adjusted — Is Easing Gear fitted —

15-3-1919



