

REPORT ON MACHINERY.

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Date of writing Report 19-4-1917 When handed in at Local Office 19-4-1917 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 14 May '15 Last Survey 18-4-1917

Reg. Book. No. 84 on the new steel S/S "MADRONO" Master Built at Newcastle By whom built Palmers Ltd (S/S No 846) When built 1917

Engines made at Sunderland By whom made George Rank Ltd (No 1034) when made 1917

Boilers made at Sunderland By whom made George Rank Ltd (No 1034) when made 1917

Registered Horse Power Owners Port belonging to

Nom. Horse Power as per Section 28 498 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 26 1/2, 44, 73 Length of Stroke 48 Revs. per minute 65 Dia. of Screw shaft as per rule 14.76 Material of screw shaft as fitted 14 7/8 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

in the propeller boss yes If the liner is in more than one length are the joints burned If the liner does not fit tightly at the part

between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 5-0

Dia. of Tunnel shaft as per rule 13.214 Dia. of Crank shaft journals as per rule 13.818 Dia. of Crank pin 14 Size of Crank webs 2 1/4 x 8 1/8 Dia. of thrust shaft under

collars 14 7/8 Dia. of screw 17-10 1/2 Pitch of Screw 16-4 No. of Blades 4 State whether moveable no Total surface 97 sq ft

No. of Feed pumps two Diameter of ditto 9 1/8 x 7 Stroke 21 Can one be overhauled while the other is at work yes pumps by Black & Hepburn

No. of Bilge pumps two Diameter of ditto 4 1/2 Stroke 26 Can one be overhauled while the other is at work yes

No. of Donkey Engines two Sizes of Pumps 9 & 10 x 10, 7 1/2 & 5 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room three @ 3 1/2 In Holds, &c. Cargo hold - 2 @ 2 1/2 connected to forward ballast pump only.

No. of Bilge Injections 1 sizes 8 Connected to condenser, or to circulating pump b.p. Is a separate Donkey Suction fitted in Engine room & size yes, 4

Are all 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

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 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

What pipes are 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

Dates of examination of completion of fitting of Sea Connections of Stern Tube 7-3-17 Screw shaft and Propeller 9-3-17

Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door Inchy off worked from

BOILERS, &c.—(Letter for record 3) Manufacturers of Steel John Spence & Sons limited & David White & Sons limited.

Total Heating Surface of Boilers 7212 sq ft Is Forced Draft fitted yes No. and Description of Boilers three single ended marine

Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 25-10-16 No. of Certificate 3368

Can each boiler be worked separately yes Area of fire grate in each boiler 58 sq ft No. and Description of Safety Valves to

each boiler two, direct spring Area of each valve 9.62 sq ft Pressure to which they are adjusted 185 Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 1-10 Mean dia. of boilers 15-0 Length 11-7 1/8 Material of shell plates steel

Thickness 1 1/2 Range of tensile strength 29 1/2-33 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams DR

long. seams WBS, TR Diameter of rivet holes in long. seams 1 5/16 Pitch of rivets 9 7/8 Lap of plates or width of butt straps 20

Per centages of strength of longitudinal joint rivets 92.7 plate 86 Working pressure of shell by rules 182 Size of manhole in shell do in ends only after

Size of compensating ring 8 1/4 x 1 1/4 No. and Description of Furnaces in each boiler 3 Dighton Bond Material steel Outside diameter 4-1

Length of plain part top bottom Thickness of plates crown bottom 3 1/4 5 1/4 Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 186 Combustion chamber plates: Material steel Thickness: Sides 1 1/16 Back 2 3/32 Top 3/4 Bottom 1 1/16

Pitch of stays to ditto: Sides 9 3/4 x 10 3/4 Back 10 x 9 1/2 Top 10 1/2 x 9 1/2 If stays are fitted with nuts or riveted heads nuts in use Working pressure by rules 185

Material of stays steel Diameter at smallest part 2.03 sq ft Area supported by each stay 95 sq ft Working pressure by rules 192 End plates in steam space:

Material steel Thickness 1 1/32 Pitch of stays 23 x 21 How are stays secured W N Working pressure by rules 182 Material of stays steel

Diameter at smallest part 8.29 Area supported by each stay 482 sq ft Working pressure by rules 190 Material of Front plates at bottom steel

Thickness 1 5/16 Material of Lower back plate steel Thickness 1 Greatest pitch of stays 17 1/8 x 9 7/8 Working pressure of plate by rules 182

Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 5/8 Material of tube plates steel Thickness: Front 1 5/16 Back 3/4 Mean pitch of stays 9 1/2

Pitch across wide water spaces 13 1/2 Working pressures by rules 185 Girders to Chamber tops: Material steel Depth and

thickness of girder at centre 2 @ 9 1/4 x 1 1/8 Length as per rule 36 Distance apart 9 1/8 Number and pitch of stays in each 2 @ 10 1/4

Working pressure by rules 183 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked

separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear



