

REPORT ON MACHINERY.

No. 50846

Port of Newcastle on Tyne

Received at London Office TUES. 15 MAY 1906

No. in Survey held at Newcastle
Reg. Book.

Date, first Survey Jan 5. 06

Last Survey 16 May 1906

(Number of Visits 26)

57 on the Steel Twin S.S. "EMPRESS"

Master

Built at Newcastle

By whom built Swan Hunter & W Richardson

Gross 1342
Tons Net 645
When built 1906

Engines made at Newcastle

By whom made Swan Hunter & W Richardson Ltd when made 1906

Boilers made at D.

By whom made D.

when made 1906

Registered Horse Power

Owners Charlottetown S. Nav Co Ltd

Port belonging to Charlottetown P.E.I.

Nom. Horse Power as per Section 28 366

Is Refrigerating Machinery fitted No

Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Triple Expansion No. of Cylinders 6 No. of Cranks 6
 Dia. of Cylinders $18\frac{1}{2}$ - $28\frac{1}{2}$ - 46 Length of Stroke 33 Revs. per minute 145 Dia. of Screw shaft as per rule 9-75 Material of Ingot Steel
 as fitted 9-3/4 screw shaft
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube No 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 painted ✓ Length of stern bush 39
 Dia. of Tunnel shaft as per rule 8-67 Dia. of Crank shaft journals as per rule 9-1 Dia. of Crank pin 9-1/4 Size of Crank webs $14 \times 5\frac{15}{16}$ Dia. of thrust shaft under
 collars 9-1/2 Dia. of screw 9-9 Pitch of screw 13-9 No. of blades 4 State whether moveable No Total surface $27\frac{1}{2}$ ft²
 No. of Feed pumps 2 Diameter of ditto 7-1/2 Stroke 21 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps One each Diameter of ditto 3-1/2 Stroke 19 Can one be overhauled while the other is at work Yes
 No. of Donkey Engines One Sizes of Pumps 4-1/2 x 8 S. Duplex No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Two 3" In Holds, &c. M Hold two 2-1/2 A.H. two 2-1/2

No. of bilge injections 1 sizes 7 Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes 3
 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 ✓
 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 Below
 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 ✓
 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
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock While building Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from Main Deck.

BOILERS, &c.—(Letter for record (R)) Total Heating Surface of Boilers 5862 ft² Is forced draft fitted Yes
 No. and Description of Boilers 2 Cylindrical Working Pressure 160 Tested by hydraulic pressure to 320
 Date of test 20-3-06 Can each boiler be worked separately Yes Area of fire grate in each boiler 774 No. and Description of safety valves to
 each boiler Two Spring Area of each valve 12-6 Pressure to which they are adjusted 165 Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 24 Mean dia. of boilers 16-4 7/8 Length 11-7 1/2 Material of shell plates S
 Thickness 1 5/16 Range of tensile strength 28 3/4 Are they welded or flanged No Descrip. of riveting: cir. seams d lap long. seams d chap
 Diameter of rivet holes in long. seams 1 7/16 Pitch of rivets 9 7/16 Lap of plates or width of butt straps 2 1/8
 Per centages of strength of longitudinal joint rivets 97 plate 84-7 Working pressure of shell by rules 182 Size of manhole in shell 16 x 12
 Size of compensating ring 9 x 1 5/16 No. and Description of Furnaces in each boiler 4 Dighton Material S Outside diameter 45 1/4
 Length of plain part top Thickness of plates crown 1/2 Description of longitudinal joint Weld No. of strengthening rings ✓
 bottom Working pressure of furnace by the rules 167 Combustion chamber plates: Material S Thickness: Sides 2 1/32 Back 2 1/32 Top 2 1/32 Bottom 2 9/32
 Pitch of stays to ditto: Sides 10 5/8 x 8 1/2 Back 10 3/4 x 8 Top 10 5/8 x 7 3/4 If stays are fitted with nuts or riveted heads Yes Working pressure by rules 166
 Material of stays Iron Diameter at smallest part 2-03 Area supported by each stay 88 Working pressure by rules 173 End plates in steam space:
 Material S Thickness 3 1/32 Pitch of stays 20 x 17 How are stays secured d & Riv'd Plate Working pressure by rules 182 Material of stays S
 Diameter at smallest part 6-1 Area supported by each stay 340 Working pressure by rules 179 Material of Front plates at bottom S
 Thickness 1 3/16 Material of Lower back plate S Thickness 2 7/32 Greatest pitch of stays as per plan Working pressure of plate by rules 160
 Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates S Thickness: Front 1 3/8 x 3 1/32 Back 3/4 Mean pitch of stays 9 3/8
 Pitch across wide water spaces 13 1/2 Working pressures by rules 184 Girders to Chamber tops: Material S Depth and
 thickness of girder at centre 10 x 1 1/4 Length as per rule 358 Distance apart 7 3/4 Number and pitch of Stays in each 2-10 5/8
 Working pressure by rules 185 Superheater or Steam chest; how connected to boiler ✓ 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 ✓

W1636-0046

DONKEY BOILER— No. 1 Description Cochran. Vertical (See attached Sheet.
Made at Annan By whom made Cochran & Co. When made 1906 Where fixed Strokehold
Working pressure 80 tested by hydraulic pressure to 160 No. of Certificate 7978 Fire grate area 8-5 Description of safety valves Spring
No. of safety valves 2 Area of each 3-4 Pressure to which they are adjusted 85 If fitted with easing gear No. If steam from main boilers enter the donkey boiler No Dia. of donkey boiler Length Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams Dia. of rivet holes Whether punched or drilled Pitch of rivets
Lap of plating Per centage of strength of joint Rivets Thickness of shell crown plates Radius of do. No. of Stays to do.
Dia. of stays. Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint Thickness of furnace crown plates Stayed by Working pressure of shell by rules
Working pressure of furnace by rules Diameter of uptake Thickness of uptake plates Thickness of water tubes

SPARE GEAR. State the articles supplied:— Crank shaft. Propeller. 2 top end, 2 bottom end. Two main bearing & one set coupling bolts, feed & bilge valve assorted bolts & nuts, a few bars of iron & other small gear.

FOR The foregoing is a correct description,
SWAN, HUNTER, & WIGHAM RICHARDSON & CO. Manufacturer.

Dates of Survey while building { During progress of work in shops - 1906. Jan 5, 9, 15, 24, 25, Feb 12, 14, 19, 27, Mar 28, 14, 19, 20, 23, 26, 28, 30, Apr 6, 7, 24, 28, May 3, 7, 10, 16.
During erection on board vessel -
Total No. of visits 26

Is the approved plan of main boiler forwarded herewith Yes
" " " donkey " " " No

General Remarks (State quality of workmanship, opinions as to class, &c.)

The material & workmanship is good.
The Machinery has been built under special survey & is eligible in our opinion for classification & the record I.M.C. 5-06

It is submitted that
this vessel is eligible for
THE RECORD I.M.C. 5-06. F.D. ELEC. LIGHT.

15.5.06.

15.5.06

The amount of Entry Fee... £ 3 : : :
Special... £ 38 : 6 : :
Donkey Boiler Fee... £ : : :
Travelling Expenses (if any) £ : : :
When applied for, 14 MAY 1906
When received, 17 MAY 1906

John H Heck & Co.
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute IUES. 15 MAY 1906

Assigned + I.M.C. 5-06

MACHINERY CERTIFICATE
WRITTEN.