

REPORT ON MACHINERY.

Port of Newcastle-on-Tyne

Received at London Office APR 6 1906

No. in Survey held at Newcastle-on-Tyne

Date, first Survey Nov. 25

Last Survey April 2nd 1906

Reg. Book.

(Number of Visits 24)

94 (Sub) on the Steel ss. Mersey.

Gross 1087

Net 395

When built 1906

Master G. Arnold Built at Newcastle

By whom built Swan, Hunter & Wigham Richardson & Co

Engines made at Newcastle

By whom made Swan, Hunter & Wigham Richardson & Co when made 1906

Boilers made at Newcastle

By whom made Swan, Hunter & Wigham Richardson & Co when made 1906

Registered Horse Power

Owners Lancashire & Yorkshire Ry Co Port belonging to Goole

Nom. Horse Power as per Section 28 342

Is Refrigerating Machinery fitted No.

Is Electric Light fitted Yes.

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

Dia. of Cylinders 23, 38, 62, Length of Stroke 42, Revs. per minute 98, Dia. of Screw shaft as per rule 13.04, Material of Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liner, Is the after end of the liner made water tight in the propeller boss No, If the liner is in more than one length are the joints burned Yes, 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 Yes, If two liners are fitted, is the shaft lapped or protected between the liners Yes, Length of stern bush 4'-6"

Dia. of Tunnel shaft as per rule 11.475, Dia. of Crank shaft journals as per rule 12.052, Dia. of Crank pin 12.4, Size of Crank webs 7.8x19, Dia. of thrust shaft under collars 12.2, Dia. of screw 14'-3", Pitch of screw 16'-0", No. of blades 4, State whether moveable Not, Total surface 654

No. of Feed pumps 3, Diameter of ditto 1 at 3.75", Stroke 24", Can one be overhauled while the other is at work Yes

No. of Bilge pumps One, Diameter of ditto 2 at 7", Stroke 24", Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3, Sizes of Pumps 9"x10"x10" - 4"x4"x5", No. and size of Suctions connected to both Bilge and Donkey pumps 1 1/2" Inspirator

In Engine Room 3, each 2 1/2", In Holds, &c. Two 2 1/2" in No 2 & 3 holds.

No. of bilge injections One sizes 7", Connected to condenser, or to circulating pump No, Pump a separate donkey suction fitted in Engine room & size Yes 2 1/2"

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 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 Bilge Pipes, How are they protected boxed in wood

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 When building the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes, worked from Top platform

BOILERS, &c.— (Letter for record 2) Total Heating Surface of Boilers 5026, Is forced draft fitted Yes

No. and Description of Boilers 2, S.E. Cylindrical multitubular Working Pressure 180 lbs, Tested by hydraulic pressure to 360 lbs

Date of test 23/2/06, Can each boiler be worked separately Yes, Area of fire grate in each boiler 72, No. and Description of safety valves to each boiler Spring loaded, 2, Area of each valve 110, Pressure to which they are adjusted 185 lbs, Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 3'-0", Mean dia. of boilers 15'-0 3/8", Length 11'-7 1/2", Material of shell plates Steel

Thickness 1 3/16", Range of tensile strength 28 3/4-32, Are they welded or flanged No, Descrip. of riveting: cir. seams Double lap, long. seams treble, 10 BS

Diameter of rivet holes in long. seams 1 1/4", Pitch of rivets 8 3/8", Lap of plates or width of butt straps 18 3/8"

Per centages of strength of longitudinal joint rivets 89.2, Working pressure of shell by rules 180 lbs, Size of manhole in shell 17" x 13"

Size of compensating ring 9" x 1 3/16", No. and Description of Furnaces in each boiler 4 (Brighton Suspension), Material Steel, Outside diameter 3'-9"

Length of plain part top 1 1/2", Thickness of plates crown 1/2", Description of longitudinal joint welded, No. of strengthening rings Yes

Working pressure of furnace by the rules 184 1/2, Combustion chamber plates: Material Steel, Thickness: Sides 11/16", Back 11/16", Top 11/16", Bottom 29/32"

Pitch of stays to ditto: Sides 8" x 10", Back 9" x 10", Top 9" x 10", If stays are fitted with nuts or riveted heads Nuts, Working pressure by rules 180 lbs

Material of stays Iron, Area at smallest part 2.36, Area supported by each stay 90, Working pressure by rules 197 1/2, End plates in steam space:

Material Steel, Thickness 1 3/4", Pitch of stays 18 x 15 1/2", How are stays secured 10 1/4 nuts, Working pressure by rules 183 1/2, Material of stays Steel

Area at smallest part 5.05, Area supported by each stay 282.5, Working pressure by rules 184 1/2, Material of Front plates at bottom Steel

Thickness 3/32", Material of Lower back plate Steel, Thickness 7/8", Greatest pitch of stays 12 1/4", Working pressure of plate by rules 181 1/2

Diameter of tubes 2 1/2", Pitch of tubes 3 3/4", Material of tube plates Steel, Thickness: Front 25/32", Back 11/16", Mean pitch of stays 9 3/8"

Pitch across wide water spaces 13 1/2", Working pressures by rules 280 lbs, Girders to Chamber tops: Material Steel, Depth and thickness of girder at centre 10 1/2" x 1 1/4", Length as per rule 2'-10 1/4", Distance apart 9", Number and pitch of Stays in each Two, 10"

Working pressure by rules 182, Superheater or Steam chest; how connected to boiler Yes, Can the superheater be shut off and the boiler worked separately Yes

Diameter Yes, Length Yes, Thickness of shell plates Yes, Material Yes, Description of longitudinal joint Yes, Diam. of rivet holes Yes

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

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

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

DONKEY BOILER— No. ✓ Description ✓

Made at _____ By whom made _____ When made _____ Where fixed _____
 Working pressure tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____
 No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____
 Dia. of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____
 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:— *Two top end bolts & nuts, two connecting rod bottom end bolts & nuts, two main bearing bolts, one set of coupling bolts, one set of feed & bilge pump valves, quantity of bolts & nuts assorted, Iron of various sizes.*

The foregoing is a correct description,
 FOR SWAN, HUNTER & WIGHAM RICHARDSON
R.A. Wintourley Manufacturer.

Dates of Survey while building
 During progress of work in shops - - 1905. Nov. 25. Dec. 1, 15, 22, 28. 1906. Jan. 5, 15, 24, 25, 31. Feb. 12, 14, 19, 23, 27. Mar. 1, 14, 16, 20, 21, 22, 26, 30. Apr. 2.
 During erection on board vessel - -
 Total No. of visits 24.

Is the approved plan of main boiler forwarded herewith *Yes.* (Red for donkey) " " " donkey " " " ✓

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

The machinery and boilers for this vessel have been constructed under Special Survey. The materials & workmanship good & efficient.

Engines and boilers examined under steam, and found in satisfactory working order. All safety valves adjusted under steam.

In my opinion this vessel is now eligible to have the record of + LMC 4.06.

The Report on the Electric Light Installation will be forwarded on the receipt of same from the builders.

Please see Secretary's letter E. March 27th 1906, respecting bilge pumps for this vessel.

It is submitted that this vessel is eligible for THE RECORD *H.L.M.C. 4.06. F.D. ELEC. LIGHT.*

The amount of Entry Fee... £ 3 : :
 Special ... £ 37 : 2 :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 5 APR 1906
 When received, 6/4/06

H.G. Dearden
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 6 APR 1906**

Assigned *+ LMC 4.06 F.D. Elec light*

Certificate (if required) to be sent to Newcastle-on-Tyne.

The Surveyors are requested not to write on or below the space for Committee's Minute.

