

REPORT ON MACHINERY.

104

Port of Middlesboro-on-Tees

2 JUL 1890

Received at London Office

No. 104

No. in Survey held at Stockton-on-Tees Date, first Survey 21st Dec^r 1890 Last Survey 26th June 1890

Reg. Book.

(Number of Visits 25)

on the Screw Steamer Darlington

Tons ^{Gross} 2523
_{Net} 1625

Master _____ Built at Stockton By whom built Richardson Duck 1891 When built 1890

Engines made at Stockton By whom made Blair & Co^y Limited when made 1890

Boilers made at Stockton By whom made Blair & Co^y Limited when made 1890

Registered Horse Power 200 Owners Commercial S. S. Co^y Ltd Port belonging to London

Manufacturers H.P. 200
Rule H.P. 245

ENGINES, &c.—

(Triple expansion)

Description of Engines Triple expansion, Inverted, Direct Acting with 3 Cranks No. of Cylinders Three

Diam. of Cylinders 22 $\frac{1}{2}$ " - 34" - 61" Length of Stroke 42" Rev. per minute 58 Point of Cut off, High Pressure .5 Low Pressure .5

Diameter of Screw shaft 12 $\frac{1}{4}$ " Diam. of Tunnel shaft 11 $\frac{1}{2}$ " Diam. of Crank shaft journals 12" Diam. of Crank pin 12 $\frac{1}{2}$ " size of Crank webs 8 $\frac{1}{2}$ " x 19 $\frac{1}{2}$ "

Diameter of screw 16'0" Pitch of screw 15 $\frac{1}{2}$ feet No. of blades 4 state whether moveable No total surface 71 Sq. feet

No. of Feed pumps 2 diameter of ditto 3 $\frac{1}{2}$ " Stroke 30" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 diameter of ditto 4 $\frac{1}{2}$ " Stroke 30" Can one be overhauled while the other is at work Yes

Where do they pump from Engine Room, Belges, After Well, Fore Hold and Tanks.

No. of Donkey Engines Two Size of Pumps (4 $\frac{1}{2}$ x 8") (9 $\frac{1}{2}$ x 10") Where do they pump from Feed - Sea, Hotwell Tanks.

Ballast - All tanks, Engine Room, Belges, Fore Hold, Tunnel and Sea this Condenser

Are all the bilge suction pipes fitted with roses Yes Are the roses always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes

No. of bilge injections 1 and sizes 7" Are they connected to condenser, or to circulating pump Circulating pump.

How are the pumps worked By levers from the cross head of the after engine.

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 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 accessible at all times Yes

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges Yes

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Before launching

Is the screw shaft tunnel watertight ✓ and fitted with a sluice door Yes worked from Top platform in Engine room

BOILERS, &c.—

No. of Boilers Two Description Single End, Cylindrical Material Steel Letter (for record) _____

Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test 29th May 1890 (H^o 1047)

Description of superheating apparatus or steam chest None Heating surface 3740 Sq. feet

Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately ✓

No. of square feet of fire grate surface in each boiler 47 Sq. feet Description of safety valves Spring No. to each boiler Two

Area of each valve 7.06 Sq. ins Are they fitted with easing gear Yes No. of safety valves to superheater _____ area of each valve _____

Are they fitted with easing gear ✓ Smallest distance between boilers and bunkers or woodwork 14" Diameter of boilers 14'6 $\frac{3}{8}$ "

Length of boilers 10'0" description of riveting of shell long. seams DR Strap Treble circum. seams Lap Double Thickness of shell plates 1 $\frac{1}{16}$ "

Diameter of rivet holes 1 $\frac{1}{16}$ " 1 $\frac{3}{8}$ " whether punched or drilled Drilled pitch of rivets 8 $\frac{1}{4}$ " 4 $\frac{1}{2}$ " Lap of plating 6 $\frac{1}{2}$ " 1 $\frac{1}{4}$ " and 1 $\frac{1}{2}$ "

Per centage of strength of longitudinal joint 84 working pressure of shell by rules 164 lbs size of manholes in shell 16" x 12"

Size of compensating rings 28 x 24 x 1 $\frac{1}{16}$ " No. of Furnaces in each boiler Three Description of Furnaces Corrugated

Outside diameter 3'8" length 6'3" thickness of plates 3 $\frac{1}{4}$ " description of joint Welded if rings are fitted ✓

Greatest length between rings _____ working pressure of furnace by the rules 164 lbs combustion chamber plating, thickness, sides 9 $\frac{1}{16}$ " back 9 $\frac{1}{16}$ " top 9 $\frac{1}{16}$ "

Pitch of stays to ditto, sides 1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ " back 1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ " top 1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ " If stays are fitted with nuts or riveted heads None working pressure of plating by rules 160.3 lbs

Diameter of stays at smallest part 1 $\frac{1}{8}$ " working pressure of ditto by rules 138 lbs end plates in steam space, thickness 1 $\frac{1}{32}$ "

Pitch of stays to ditto 15" x 15" how stays are secured Double nut working pressure by rules 169 lbs diameter of stays at smallest part 2 $\frac{5}{8}$ " working pressure by rules 180 lbs Front plates at bottom, thickness 1" Back plates, thickness 1"

Greatest pitch of stays 12" working pressure by rules 144 lbs Diameter of tubes 3 $\frac{1}{2}$ " pitch of tubes 4 $\frac{1}{2}$ x 4 $\frac{1}{8}$ " thickness of tube plates, front 1" back 1 $\frac{1}{8}$ " how stayed Stay tubes pitch of stays 9 $\frac{1}{2}$ x 9" width of water spaces _____

Diameter of Superheater or Steam chest _____ length _____ thickness of plates _____ description of longitudinal joint _____ diam. of rivet holes _____

Pitch of rivets _____ working pressure of shell by rules _____ diameter of flue _____ thickness of plates _____ If stiffened with rings _____

Distance between rings _____ working pressure by rules _____ end plates of superheater, or steam chest; thickness _____ how stayed _____

Superheater or steam chest; how connected to boiler _____

Form No. 8-2000-1/12/89-T. 88-Copyable Ink.



DONKEY BOILER— Description *Vertical, Bestus patent.*
 Made at *Lakeshead* by whom made *Clarke Chapman & Co.* when made *3.3.90* where fixed *In Stockhold.*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *3150.* fire grate area *20 sq. feet.* description of
 valves *Spring* No. of safety valves *One* area of each *9.62 sq. ft.* if fitted with easing gear *Yes.* if steam from main boilers
 enter the donkey boiler *No* diameter of donkey boiler *6'0"* length *13'0"* description of riveting *Lap Double*
 Thickness of shell plates *1/16"* diameter of rivet holes *1/8"* whether punched or drilled *Drilled* pitch of rivets *3 3/16"* lap of plating *4 1/2"*
 per centage of strength of joint *42* thickness of crown plates *9/16"* stayed by *Six stays 1 3/8" diameter.*
 Diameter of furnace, top *2' 8"* bottom *5' 1"* length of furnace *4'0"* thickness of plates *9/16"* description of joint *Lap single*
 Thickness of furnace crown plates *9/16"* stayed by *Same as shell crown plates.* working pressure of shell by rules *94*
 Working pressure of furnace by rules *98 lbs.* diameter of uptake *11 1/2" tapered* thickness of plates *1/16"* thickness of water tubes *1/16"*

SPARE GEAR. State the articles supplied:— *3 Crank shaft, 1 Propeller, 2 Crank pin Bolts nuts*
2 Cross head Bolt nuts, 2 Main Bearing Bolt nuts, 1 Set Coupling Bolts
1 Set Piston Springs, 1 Set Feed Bilge pump valves. Bolts nuts and
Iron various sizes.

The foregoing is a correct description,
Pro Blain & Co. Ld. Manufacturers of Marine Engines & Boilers.
97, 101, Blain.

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

The Materials and Workmanship are of the best description.

The Engines and Boilers have been constructed under special survey, when fitted on board the vessel they were tried under steam and worked satisfactorily.

*The whole Machinery is now in good and efficient condition and eligible in my opinion to have the notation **L.M.C. 6.90.** marked in the Society's Register Book.*

It is submitted that the vessel is eligible to have + L.M.C. 6.90 recorded. W.A.
2-7-90

The amount of Entry Fee .. £ 2 : .. : .. received by me,
 Special £ 32 : 5 : ..
 Donkey Boiler Fee £ : : ..
 Certificate (if required) .. £ : : .. 1.4 1890
To be sent as per margin.
 (Travelling Expenses, if any, £)

Committee's Minute

FRI 4 JULY 1890

+ L.M.C. 6.90

Wm. A. Motter
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

