

REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES

THUR. 8 OCT 1896

Received at London Office

18

No. in Survey held at Stockton-on-TeesDate, first Survey 16th JulyLast Survey 24th Sept 1896

Reg. Book.

(Number of Visits 28)on the Screw Steamer "Collingwood"Tons { Gross 2394
Net 1527When built 1896Master Aikman Built at StocktonBy whom built Richardson Duck & Co.Engines made at Stockton-on-Tees

By whom made

Blair & Co. Ltd.when made 1896Boilers made at Stockton-on-Tees

By whom made

Blair & Co. Ltd.when made 1896

Registered Horse Power

Owners S. S. Chamberlain & Co. Ltd.

Port belonging to

LondonNom. Horse Power as per Section 28 246

(Engine manager)

ENGINES, &c.— Description of Engines Triple Expansion No. of Cylinders Three

Diameter of Cylinders 22½"-37"-61" Length of Stroke 42" Revolutions per minute 58 Diameter of Screw shaft 10.8" as per rule 10.8" as fitted 12.3"

Diameter of Tunnel shaft 11½" Diameter of Crank shaft journals 12" Diameter of Crank pin 12½" Size of Crank webs 19½"x8½" built

Diameter of screw 16'0" Pitch of screw 16'0" No. of blades 4 State whether moveable No Total surface 73 sq. ft.

No. of Feed pumps 2 Diameter of ditto 3" Stroke 30" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4½" Stroke 30" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps (4"x9") (7½"x9") No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four: 3" dia. under boiler, one 3" dia. In Holds, &c. Fore Hold: Two 3" dia. main Hold

Two 3" dia. After Hold: Two 3" dia. Tunnel well & peak: one 2½" dia.

No. of bilge injections 2 sizes ½" Connected to condenser, or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes: 4" dia.

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 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 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 new vessel Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Top platform in engine room

OILERS, &c.— (Letter for record S.) Total Heating Surface of Boilers 3448 sq. ft.

No. and Description of Boilers 2: byo. mult. Single ended Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs

Date of test 25/8/96 Can each boiler be worked separately Yes Area of fire grate in each boiler 52 sq. ft. No. and Description of safety valves to

each boiler 2: direct spring Area of each valve 7.06" Pressure to which they are adjusted 165 lbs Are they fitted

with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork About 18" Mean diameter of boilers 14'6½"

Length 10'0" Material of shell plates Steel Thickness 1½" Description of riveting: circum. seams Lap Double long. seams D. B. Butt Shape

Diameter of rivet holes in long. seams 1½" Pitch of rivets 8½" 4½" Lap of plates or width of butt straps 1'4"

Per centages of strength of longitudinal joint rivets 90.6 Working pressure of shell by rules 170 lbs Size of manhole in shell 17" x 13"

Size of compensating ring 31 x 24 x 1½" No. and Description of Furnaces in each boiler 3: corrugated Material Steel Outside diameter 3'8"

Length of plain part 7'6" Thickness of plates 1½" Description of longitudinal joint Welded No. of strengthening rings ✓

Working pressure of furnace by the rules 170 lbs Combustion chamber plates: Material Steel Thickness: Sides ¾" Back ¾" Top ¾" Bottom ¾"

Pitch of stays to ditto: Sides 7½" x 7½" Back 7½" x 7½" Top 7½" x 7½" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 182 lbs

Material of stays Iron Diameter at smallest part 1½" Area supported by each stay 56" Working pressure by rules 175 lbs End plates in steam space:

Material Steel Thickness 1½" Pitch of stays 15" x 15" How are stays secured On the nut & washers Working pressure by rules 185 lbs Material of stays Steel

Diameter at smallest part 2½" Area supported by each stay 225" Working pressure by rules 177 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 12" Working pressure of plate by rules 240 lbs

Diameter of tubes 3¼" Pitch of tubes 4½" x 4½" Material of tube plates Steel Thickness: Front 1" Back 1½" Mean pitch of stays 9½"

Pitch across wide water spaces 14" Working pressures by rules 195 lbs 286 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 7" x 1½" Length as per rule 27½" Distance apart 4½" Number and pitch of Stays in each 3: 7½"

Working pressure by rules 174 lbs 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 ✓

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 ✓

DONKEY BOILER— Description *Cylindrical Mult. Single ended with 2 plain furnaces*
Made at *Stockton* By whom made *J. Hudson & Co. Ltd* When made *30/7/98* Where fixed *In Stockton*
Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *1323* Fire grate area *22* # Description of safety valves *Direct Sp*
No. of safety valves *2* Area of each *4.9* Pressure to which they are adjusted *95 lbs* If fitted with easing gear *Yes* If steam from main boiler
enter the donkey boiler *No.* Diameter of donkey boiler *8' 6"* Length *8' 0"* Material of shell plates *Steel* Thickness *1 1/2"*
Description of riveting long. seams *Lap = Quadruple* Diameter of rivet holes *13/16"* Whether punched or drilled *Drilled* Pitch of rivets *4"* * * * These particulars
Lap of plating *6 5/8"* Per centage of strength of joint Rivets *94* Thickness of shell *1 1/2"* Radius of do. plates *11"* No. of Stays to do. *15* Signal Letters (if any)
Dia. of stays *2 1/2"* Diameter of furnace Top *2' 6"* Bottom *14 1/2"* Length of furnace *5' 9"* Thickness of furnace plates *7/16"* Description
joint *Welded* Thickness of furnace crown plates *1/2"* Stayed by *1 1/2"* Stay plates *9 x 9"* Working pressure of shell by rules *9*
Working pressure of furnace by rules *99 lbs* Diameter of tubes *3"* Thickness of tubes *7/16"* Thickness of water tubes *5/16"* 10 5 8 7 8

SPARE GEAR. State the articles supplied:— *Propeller, 2 main Bearing Bolts, 2 Crank
pin Bolts, 2 Crosshead Bolts, 1 set Coupling Bolts, 1 set Piston
1 set Feed & Bilge pump valves, 6 Junk ring Bolts, Bolts must
be of granular sizes.*

*The foregoing is a correct description,
FOR BLAIR & CO., LIMITED. Manufacturers of main Engines & Boilers.*

H. Borrie

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

Dates of Survey while building
During progress of work in shops *1896 July 16 18 21 24 28 29 31 Aug 1 4 6 11 13 24 25 29 31 Sep 3 4*
During erection on board vessel *1896 Sep 8 9 9 11 14 14 17 21 23 24*
Total No. of visits *Twenty-eight*

*The engines and boilers of this vessel have been
built under Special Survey and the materials and work-
manship are good. When fitted on board they were tried
under full steam and worked satisfactorily.*

*The Machinery throughout is now in good and
working condition and eligible in my opinion to have
the record of L.M.C. 9, 96. marked in the Society's Record
Book.*

*It is submitted that
this vessel is eligible for
THE RECORD + L.M.C. 9, 96.*

H.S.

8.10.96

Certificate (if required) to be sent to

The amount of Entry Fee. £ *2* : *0* : *0* When applied for, *6-10-1896*
Special £ *32* : *6* : *0* When received, *4-10-1896*
Donkey Boiler Fee £ : :
Travelling Expenses (if any) £ : :
Committee's Minute *FRI. 9 OCT 1896*

Assigned

+ L.M.C. 9, 96

MACHINERY CERTIFICATE
WRITTEN.

R. Austin
Engineer Surveyor to Lloyd's Register of British & Foreign



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Lloyd's Register
Foundation
win Nye, s
24th Septemb
139w) - 55420 - 1000-9-95

VES

Official Number.

No., Date, and Port of

Whether British or Foreign Built.

British

Number of Decks

Number of Masts

Rigged

Stern

Build

Galleries

Lead

Framework and description of vessel

Number of Bulkheads

Number of water ballast and their capacity in tons

Number of quarter the depth at side amidships to bottom

Description.

Inverted Direct Action Triple Expansion Condensing Engines

Boilers.

Number

Iron or Steel

Pressure when loaded

Gross Tonnage

Net Tonnage

Deck

Spaces above the Ton

Space or spaces between I

oop

Forecastle

House

Other closed-in spaces, if any

Access of Hatch

Gross Tonnage

Functions, as per Contra

Registered Tonnage

Name of Master

Owners

Residence, and Description

Steamship