

REPORT ON MACHINERY.

Port of MIDDLESBROUGH-ON-TEES.Received at London Office THUR. 2 MAR 1899No. in Survey held at Stockton
Reg. Book.Date, first Survey 28th July 1898 Last Survey 21st Feb. 1899.(Number of Visits 46)Tons { Gross 2937.48
Net 1860.15When built 1899.Master J. Garson Built at StocktonBy whom built Ropner & SonEngines made at Stockton

By whom made

Blair & Coy Ldwhen made 1899.Boilers made at Stockton

By whom made

Blair & Coy Ldwhen made 1899.Registered Horse Power 210Owners Britain S. S. Coy LdPort belonging to LondonNom. Horse Power as per Section 28 256.Is Electric Light fitted no.ENGINES, &c.—Description of Engines Triple ExpansionNo. of Cylinders ThreeNo. of Cranks ThreeDiameter of Cylinders 23", 38" & 62 1/2"Length of Stroke 42"Revolutions per minute 58

Diameter of Screw shaft

as per rule 11.59"

Diameter of Tunnel shaft

as fitted 12"Diameter of Crank shaft journals 12 1/2"Diameter of Crank pin 13"

Size of Crank webs

as fitted 20" x 8 1/2" B.Diameter of screw 16'-0"Pitch of screw 14'-0"No. of blades 4.State whether moveable not.Total surface 78 sq. ftNo. of Feed pumps 2.Diameter of ditto 3"Stroke 30"Can one be overhauled while the other is at work yesNo. of Bilge pumps 2.Diameter of ditto 4 1/2"Stroke 30"Can one be overhauled while the other is at work yesNo. of Donkey Engines twoSizes of Pumps 9" x 10" & 6" x 4" & 6"

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

Three Centre 3 1/2" wings 3" dia. In Holds, &c. For 1 will one 3 1/2" diameterMain shaft Holds two each 3" dia. Tunnel well 2 1/2" dia.No. of bilge injections 1sizes 7"Connected to condenser, or to circulating pump yesIs a separate donkey suction fitted in Engine room & size yes 4"Are all the bilge suction pipes fitted with roses yesAre the roses in Engine room always accessible yesAre the sluices on Engine room bulkheads always accessible noneAre all connections with the sea direct on the skin of the ship yesAre they Valves or Cocks bothAre they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yesAre the discharge pipes above or below the deep water line aboveAre they each fitted with a discharge valve always accessible on the plating of the vessel yesAre the blow off cocks fitted with a spigot and brass covering plate yesWhat pipes are carried through the bunkers noneHow are they protected —Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times yesAre the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges yesWhen were stern tube, propeller, screw shaft, and all connections examined in dry dock on 11th Nov.Is the screw shaft tunnel watertight apparentlyIs it fitted with a watertight door yesworked from upper platform.

OILERS, &c.—

(Letter for record)

(S) Total Heating Surface of Boilers 3900 sq. ftIs forced draft fitted noNo. and Description of Boilers 2. A. E. MultitubularWorking Pressure 160 lbsTested by hydraulic pressure to 320 lbsDate of test 27.10.98Can each boiler be worked separately yesArea of fire grate in each boiler 52.8 sq. ft

No. and Description of safety valves to

each boiler two d. a. springArea of each valve 7.06 sq. in.Pressure to which they are adjusted 165 lbs

Are they fitted

with easing gear yesSmallest distance between boilers or uptakes and bunkers or woodwork no side outMean diameter of boilers 15'-0"Length 10'-0"Material of shell plates steelThickness 1 1/2"Description of riveting: circum. seams under d. r. lap long. seams d. butt str.Diameter of rivet holes in long. seams 1 1/4"Pitch of rivets one row 8 3/8"Lap of plates & width of butt straps 6 1/2" & 19 1/4"

Per centages of strength of longitudinal joint

plate 85Working pressure of shell by rules 174 lbsSize of manhole in shell 14" x 13"Size of compensating ring 21" x 27" x 1 1/2"No. and Description of Furnaces in each boiler 3 RibbedMaterial steelOutside diameter 43"Length of plain part 3'-6"Thickness of plates 3 1/2"Description of longitudinal joint weldedNo. of strengthening rings —Working pressure of furnace by the rules 175 lbsCombustion chamber plates: Material steelThickness: Sides 7/16"Back 7/16"Top 4/16"Bottom 15/16"Pitch of stays to ditto: Sides 9 1/2" x 9 5/8"Back 9 1/2" x 9"Top 9 1/2" x 9 1/4"If stays are fitted with nuts or riveted heads 9 nutsWorking pressure by rules 174 lbsMaterial of stays steelDiameter at smallest part 1 9/16"Area supported by each stay 93.8 sq. in.Working pressure by rules 183 lbs

End plates in steam space:

Material steelThickness 1 1/8"Pitch of stays 20" x 18 1/2"How are stays secured d. nutsWorking pressure by rules 161 lbsMaterial of stays steelDiameter at smallest part 2 7/8"Area supported by each stay 370 sq. in.Working pressure by rules 175 lbsMaterial of Front plates at bottom steelThickness 1"Material of Lower back plate steelThickness 1 1/8"Greatest pitch of stays 14"Working pressure of plate by rules 211 lbsDiameter of tubes 3 1/4"Pitch of tubes 4 1/2" x 4 5/8"Material of tube plates steelThickness: Front 1"Back 1 1/2"Mean pitch of stays 9 1/8"Pitch across wide water spaces 14 3/4"Working pressures by rules 176 lbsGirders to Chamber tops: Material steel

Depth and

thickness of girder at centre 7" x 1 1/2"Length as per rule 26 1/4"Distance apart 9 1/4"Number and pitch of Stays in each 2. 9 1/2"Working pressure by rules 178 lbsSuperheater 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 —

Lloyd's Register

Foundation

DONKEY BOILER— Description *Merediths Patent*
 Made at *Nottingham* By whom made *Riley Bros* When made *27.1.99* Where fixed *Stoke hole*
 Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *881* Fire grate area *28 sq ft* Description of safety valves *d. spring*
 No. of safety valves *2* Area of each *7.03 sq ft* Pressure to which they are adjusted *90 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *7'-6"* Length *16'-0"* Material of shell plates *steel* Thickness *1/2"*
 Description of riveting long. seams *treb. riv. lap* Diameter of rivet holes *15/16"* Whether punched or drilled *dr.* Pitch of rivets *4 1/4"*
 Lap of plating *6 1/2"* Per centage of strength of joint *82.8* Rivets *77.9* Thickness of shell crown plates *1/2"* Radius of do. *disregard* Stays to do. *—*
 Dia. of stays. *—* Diameter of furnace Top *5'-0"* Bottom *6'-5"* Length of furnace *36"* Thickness of furnace plates *3/4"* Description of joint *lap* Thickness of furnace crown plates *1/16"* Stayed by *disregard* Working pressure of shell by rules *100 lbs*
 Working pressure of furnace by rules *123 lbs* Diameter of uptake *3"* Thickness of uptake plates *19/32"* Thickness of water tubes *5/16"* B. F. C. Ch *2 1/2* Stays *8 1/2"*

SPARE GEAR. State the articles supplied:— *Top and bottom end bolts & nuts. Main bearing bolts & nuts. Coupling bolts and nuts. Feed, bilge and donkey pump valves. Propeller.*

The foregoing is a correct description,
 FOR BLAIR & CO., LIMITED. Manufacturer. of Engines & Main boilers.
W. Eschellby.

Dates During progress of work in shops— *1899 July 23 Aug 3 11 23 25 Sept 6 13 29 Oct 12 19 26 27 Nov 2 2 7 11 13 21 23 31 Dec 1 3 5 6 9 12 14 22 1899 Jan 6 9 12 17 19 23 26 27 Feb 1 3 6*
 of Survey while building During erection on board vessel— *9 9 10 12 15 20 21*
 Total No. of visits *Forty-six*

General Remarks (State quality of workmanship, opinions as to class, &c.)
These engines and boilers have been built under special survey and are of good workmanship and materials, they have been well and securely fitted on board the vessel and were on completion tried under steam at moorings with satisfactory results.
This vessels machinery is now in my opinion in a good and efficient working condition and eligible to be noted:—
L.M.C. 2.99. — in the Societys Register. —

It is submitted that
 this vessel is eligible for
 THE RECORD. L.M.C. 2.99.

A.C.H.
2.3.99.

R.S.
3.3.99

The amount of Entry Fee. £ *2* : *0* : *0* When applied for.
 Special £ *32* : *16* : *0* *28.2.1899*
 Donkey Boiler Fee £ : : When received, *28.2.1899*
 Travelling Expenses (if any) £ : : *28.2.1899*

Committee's Minute *FRI. 3 MAR 1899*
 Assigned *2.99*

John Sanderford
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.