

Rpt. 4.

REPORT ON MACHINERY.

No. 6609

Received at London Office M.I.N. 9 JAN 1911
MIDDLESBROUGH-ON-TEES.

Date of writing Report 6/1/11

When handed in at Local Office 11th Jan 1911

Port of

No. in Survey held at

Stockton-on-Tees

Date, First Survey 11th June 1910

Last Survey 3rd July 1911

Reg. Book.

on the

Steel Screw Steamer "Watermouth"

(S.S.N. 612)

Tons { Gross 446.14

Net 276.01

Master

J. West

Built at

Thornaby

By whom built

Richardson Dicks & Co

When built 1911

Engines made at

Stockton

By whom made

Messrs Blair & Co Ltd (No. 1686)

when made 1911

Boilers made at

Stockton

By whom made

Messrs Blair & Co Ltd

when made 1911

Registered Horse Power

Owners

Messrs Anning Bros Ltd

Port belonging to Cardiff

Nom. Horse Power as per Section 28 445

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted no

ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 25-42-68

Length of Stroke 45

Revs. per minute 62

Dia. of Screw shaft

as per rule 13.96

Material of screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes

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 —

Length of stern bush 5'-2"

Dia. of Tunnel shaft

as per rule 12.46

Dia. of Crank shaft journals

as per rule 13.08

Dia. of Crank pin 14 1/2"

Size of Crank webs 27 1/2" x 9 1/2"

Dia. of thrust shaft under

collars 14 1/2"

Dia. of screw 17'-0"

Pitch of Screw 18'-0"

No. of Blades 4

State whether moveable no

Total surface 97 sq

No. of Feed pumps 2

Diameter of ditto 3 1/4"

Stroke 33

Can one be overhauled while the other is at work yes

No. of Bilge pumps 2

Diameter of ditto 3 1/4"

Stroke 33

Can one be overhauled while the other is at work yes

No. of Donkey Engines 3

Sizes of Pumps

Ballast 12 x 10

Fuel (Wain) 7 x 9 1/2 x 21

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

In Engine Room 3 @ 3 1/2" x dry tank one @ 3"

In Holds, &c. 2 @ 3 1/2" = 2 @ 3 1/2" ; 8" x 2 hold = 2 @ 3 1/2" x

2 @ 2 1/2" ; 8" x 3 hold = 2 @ 3" x 2 @ 2 1/2" ; 8" x 4 = 1 @ 3" x 2 @ 2 1/2" ; Tunnel with one @ 2 1/2"

No. of Bilge Injections 1

sizes 6 1/4"

Connected to condenser, or to circulating pump yes

Is a separate Donkey Suction fitted in Engine room & size yes - 4"

Are all the bilge suction pipes fitted with roses yes

Are the roses in Engine room always accessible yes

Are the sluices in Engine room bulkheads always accessible none

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 4 or 5 hold suction

How are they protected wood casing

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

Dates of examination of completion of fitting of Sea Connections 12.9.10

of Stern Tube 12.9.10

Screw shaft and Propeller 18.11.10

Is the Screw Shaft Tunnel watertight see hull Rpt

Is it fitted with a watertight door yes

worked from top platform

BOILERS, &c.—(Letter for record (S))

Manufacturers of Steel

Messrs J. Hume & Sons

(Howdens)

Total Heating Surface of Boilers 6670

Is Forced Draft fitted yes

No. and Description of Boilers 2 Single ended

Working Pressure 180 lbs

Tested by hydraulic pressure to 360 lbs

Date of test 28.9.10

No. of Certificate 4503

Can each boiler be worked separately yes

Area of fire grate in each boiler 62 1/2 sq

No. and Description of Safety Valves to

each boiler 2 direct spring

Area of each valve 8.29

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 6 ft

Mean dia. of boilers 16'-1 1/2"

Length 41'-9"

Material of shell plates steel

Thickness 1 1/2"

Range of tensile strength 28-32

Are the shell plates welded or flanged no

Descrip. of riveting: cir. seams 2 Riv laps

long. seams 2B-3 Riv

Diameter of rivet holes in long. seams 1 7/8"

Pitch of rivets 9 1/2"

Lap of plates or width of butt straps 20 1/2 x 1 1/2"

Per centages of strength of longitudinal joint

rivets 99.1

plate 84.84

Working pressure of shell by rules 180 lbs

Size of manhole in shell 16" x 12"

Size of compensating ring 7 1/2" x 1 1/2"

No. and Description of Furnaces in each boiler 3 Brighton

Material steel

Outside diameter 49 1/2"

Length of plain part

top 19

Thickness of plates

bottom 32

Description of longitudinal joint welded

No. of strengthening rings

Working pressure of furnace by the rules 190

Combustion chamber plates

Material steel

Thickness: Sides 3 1/2"

Back 1 1/2"

Top 2 3/4"

Bottom 7/8"

Pitch of stays to ditto: Sides 9" x 11"

Back 9 1/2" x 9 1/4"

Top 9 1/2" x 10"

If stays are fitted with nuts or riveted heads nuts

Working pressure by rules 185 lbs

Material of stays steel

Diameter at smallest part 1.59

Area supported by each stay 95

Working pressure by rules 188

End plates in steam space:

Material steel

Thickness 1 3/4"

Pitch of stays 18 1/2" x 22"

How are stays secured nuts & washers

Working pressure by rules 193

Material of stays steel

Diameter at smallest part 3.64

Area supported by each stay 397.75

Working pressure by rules 189

Material of Front plates at bottom steel

Thickness 1 1/4"

Material of Lower back plate steel

Thickness 1"

Greatest pitch of stays 13 1/2" x 9 1/2"

Working pressure of plate by rules 274

Diameter of tubes 2 1/2"

Pitch of tubes 3 3/8" x 3 5/8"

Material of tube plates steel

Thickness: Front 3 1/2"

Back 1 1/4"

Mean pitch of stays 8 1/2"

Pitch across wide water spaces 13 1/2"

Working pressures by rules 184 lbs

Girders to Chamber tops: Material steel

Depth and

thickness of girder at centre 8 1/2" x 13 1/4"

Length as per rule 2'-8"

Distance apart 9 1/2"

Number and pitch of stays in each 2 @ 10"

Working pressure by rules 189

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

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

VERTICAL DONKEY BOILER—

Manufacturers of Steel

See Middlesbrough Report No 6435

No. _____ Description _____
 Made at _____ By whom made _____ When made _____ Where fixed _____
 Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safety
 Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____
 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 _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Plates _____
 Working pressure of shell by rules _____ 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 _____
 Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Radius of do. _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— Two each of con. rod top end, bottom end and main bearing bolts and nuts; one set of coupling bolts and nuts; one set fuel and bidge pump valves; assorted bolts and nuts; iron of various sizes; one tail end shaft and one cast iron propeller.

The foregoing is a correct description,

Geo. Nettleship Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1910. June 1, July 1, 7, 14, 18, 20, 22, 26, 28, Aug. 2, 4, 8, 11, 14, 25, Sept. 1, 6, 8, 9, 12, 13, 14, 15, 16, 19, 21, 22, 26, 27, 30.
 { During erection on board vessel -- 1910. 10. 22, 24, 28, 31, Nov. 5, 12, 10, 28, 1911. Jan. 7.
 Total No. of visits 51
 Is the approved plan of main boiler forwarded herewith yes

Dates of Examination of principal parts—Cylinders 26.7.10 Slides 5.7.10 Covers 8.9.10 Pistons 16.9.10 Rods 16.9.10
 Connecting rods 16.9.10 Crank shaft 15.9.10 Thrust shaft 2.8.10 Tunnel shafts 8.9.10 Screw shafts 23.9.10 Propeller 27.9.10
 Stern tube 12.9.10 Steam pipes tested 25.11.10 Engine and boiler seatings 12.9.10 Engines holding down bolts 28.11.10
 Completion of pumping arrangements 12.12.10 Boilers fixed 30.11.10 Engines tried under steam 12.12.10
 Main boiler safety valves adjusted 12.12.10 Thickness of adjusting washers P.Rh P.V. = $\frac{5}{16}$ S.V. = $\frac{13}{32}$ S.Rh P.V. = $\frac{3}{8}$ f. S.V. = $\frac{3}{8}$ f.
 Material of Crank shaft In Steel Identification Mark on Do. 6593 Material of Thrust shaft In Steel Identification Mark on Do. 7423-N
 Material of Tunnel shafts In Steel Identification Marks on Do. 7423-N Material of Screw shafts In Steel Identification Marks on Do. 7423-N
 Material of Steam Pipes solid drawn copper (7" x $\frac{5}{8}$ " + 5" x $\frac{5}{8}$ ") Test pressure 400 lbs.

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery of this vessel has been built under special survey. The materials and workmanship are sound and good. The boilers and main steam pipes have been tested by hydraulic pressure and the engines and boilers have been examined under steam at a wharf and all found satisfactory.

The machinery of this vessel is now in a good and safe working condition and eligible in my opinion to have the notation of S.L.M.C. - 1.11 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 1.11.

F.D.

J.W.D. 9/1/11

APR

N.H.P. = 445

The amount of Entry Fee £ 3-0-0 When applied for, 22.12.10
 Special £ 42-5-0
 Donkey Boiler Fee £ ✓ : : When received, 31.12.10
 Travelling Expenses (if any) £ ✓ : :
 Committee's Minute
 Assigned

W. Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

TUE. 10 JAN 1911

+ L.M.C. 1.11
 F.D.



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MACHINERY CERTIFICATE
 DATED

Certificate (if required) to be sent to Middlesbrough

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