

REPORT ON MACHINERY.

No. 13752

Port of

West Hartlepool

Received at London Office

THUR. 23 JUL 1909

No. in Survey held at

Hartlepool

Date, first Survey

9th Dec. 1908 Last Survey 22nd July, 1909.

(Number of Visits 88)

Reg. Book.

16 suff. on the

S/S "ARMSTOR"

Master

E. M. Smith

Built at

West Hartlepool

By whom built

J. W. S. B. & D. D. C. & L^{td}

Tons

Gross 2993.78

When built

1909.

Engines made at

Hartlepool

By whom made

Richardsons Newarth & Co^l L^{td}

when made

1909

Boilers made at

Hartlepool

By whom made

Richardsons Newarth & Co^l L^{td}

when made

1909

Registered Horse Power

Owners

R. H. Holman

Port belonging to

London.

Nom. Horse Power as per Section 28

290

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

No

ENGINES, &c.—Description of Engines

Direct Acting Triple Expansion

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

23 1/2 - 38 - 64

Length of Stroke

42

Revs. per minute

65

Dia. of Screw shaft

as per rule 13.72

Material of

S. Iron

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

No

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

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

No

Length of stern bush

4'-8"

Dia. of Tunnel shaft

as per rule 11.61

Dia. of Crank shaft journals

as per rule 12.12

Dia. of Crank pin

12 1/2"

Size of Crank webs

7 1/2 x 24 1/2"

Dia. of thrust shaft under

collars

No. of Feed pumps

2

Diameter of ditto

2 3/4"

Stroke

27"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

2

Diameter of ditto

3 3/4"

Stroke

27"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

2

Sizes of Pumps

6" x 4" x 6"

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

In Engine Room

3 - 3" diam.

In Holds, &c.

6 - 3" diam.

No. of Bilge Injections

One sizes 5"

Connected to condenser, or to circulating pump

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

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

Dates of examination of completion of fitting of Sea Connections

2/6/09.

of Stern Tube

8/6/09

Screw shaft and Propeller

9/6/09.

Is the Screw Shaft Tunnel watertight

Yes

Is it fitted with a watertight door

Yes

worked from

Cylinder platform.

BOILERS, &c.—(Letter for record (S))

Manufacturers of Steel

John Spencer & Sons.

Total Heating Surface of Boilers

4488 sq ft

Is Forced Draft fitted

No

No. and Description of Boilers

2 Cylindrical Single Sueder

Working Pressure

180 lbs

Tested by hydraulic pressure to

360 lbs

Date of test

28/4/09

No. of Certificate

3162

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

48.65 sq ft

No. and Description of Safety Valves to

each boiler

2, Spring loaded

Area of each valve

5.94 sq ft

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

2'-2"

Mean dia. of boilers

16'-6"

Length

10'-6"

Thickness

1 1/4"

Range of tensile strength

28/32 Tons

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

D.P. LAP.

long. seams

T.R.D.B.S.

Diameter of rivet holes in long. seams

1 1/4"

Pitch of rivets

8 1/2"

Length of plates or width of butt straps

18"

Per centages of strength of longitudinal joint

rivets 85.8

plate 85.3

Working pressure of shell by rules

181.5 lbs

Size of manhole in shell

16 1/2" x 13"

Size of compensating ring

31 x 29 1/2 x 1 1/4"

No. and Description of Furnaces in each boiler

3

Built

Material

Steel

Length of plain part

top

bottom

Thickness of plates

crown 3 9/16"

Description of longitudinal joint

Welded

No. of strengthening rings

Yes

Working pressure of furnace by the rules

198.5

Combustion chamber plates: Material

Steel

Thickness: Sides

1 9/32"

Back

1 9/32"

Top

1 9/32"

Bottom

7/8"

Pitch of stays to ditto: Sides

8" x 8"

Back

8 1/4" x 8"

Top

8" x 8"

If stays are fitted with nuts or riveted heads

Material of stays

Steel

Diameter at smallest part

1 3/8"

Area supported by each stay

8 1/4" x 8"

Working pressure by rules

180.5

End plates in steam space:

Material

Steel

Thickness

3 1/32"

Pitch of stays

5 1/2" x 5 1/8"

How are stays secured

D.N. & W.

Working pressure by rules

180.5

Material of stays

Steel

Diameter at smallest part

2 3/8"

Area supported by each stay

5 1/2" x 5 1/8"

Working pressure by rules

187

Material of Front plates at bottom

Steel

Thickness

7/8"

Material of Lower back plate

Steel

Thickness

1 3/16"

Greatest pitch of stays

3 1/4" x 8 1/4"

Working pressure of plate by rules

187 lbs

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/2" x 4 3/8"

Material of tube plates

Steel

Thickness: Front

7/8"

Back

3/4"

Mean pitch of stays

8 3/4" x 11 1/4"

Pitch across wide water spaces

1 1/4"

Working pressures by rules

181 lbs

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

Working pressure by rules

189.5

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

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

Yes

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Yes

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Yes

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Yes

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Yes

Working pressure of end plates

VERTICAL DONKEY BOILER—

Manufacturers of Steel

As per report attached.

No. *One* Description *Cylindrical Single Ended*
 Made at *Stockton* By whom made *Mrs. Ludron & Co. Ltd* When made *1909* Where fixed *Stoffehol*
 Working pressure *100* tested by hydraulic pressure to *200* Date of test *7/5/09* No. of Certificate *4263* Fire grate area *26.5* Description of Safety
 Valves *Spring loaded* No. of Safety Valves *2* Area of each *5.94* Pressure to which they are adjusted _____ Date of adjustment _____
 If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* 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 _____
 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 _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— *One propeller, two top end bolts, two bottom end bolts, two main bearing bolts, set of coupling bolts, one set of feed and help pump valves, a quantity of assorted bolts & nuts.*

The foregoing is a correct description,
 For RICHARDSONS, WATCARTH & CO. LIMITED.

Manufacturer.

As per report attached. Assistant General Manager
 Dates of Survey while building
 During progress of work in shops— *1908. Dec. 9, 10, 11, 15, 22, 29, 30. 1909 Jan. 5, 6, 8, 11, 13, 14, 15, 16, 18, 19, 20, 21, 22, 25, 26, 27, Feb. 1, 3, 4, 5, 8, 9, 10, 12, 15, 16, 18, 19, 22, 23, 24, 26.*
 During erection on board vessel— *Mar. 1, 2, 4, 8, 9, 11, 12, 15, 16, 18, 19, 22, 24, 25, 26, 29, 31. Apr. 1, 2, 5, 6, 7, 14, 15, 19, 23, 26, 27, 30. May 10, 12, 19, 24, 25, 26, 27. June 2, 9, 10, 14, 15, 17, 18, 21.*
 Total No. of visits *88.* Is the approved plan of main boiler forwarded herewith *Yes.*

Dates of Examination of principal parts—Cylinders *7/4/09* Slides *16/4/09* Covers *13/5/09* Pistons *6/4/09* Rods *16/4/09*
 Connecting rods *26/3/09* Crank shaft *24/3/09* Thrust shaft *26/2/09* Tunnel shafts *11/6/09* Screw shaft *12/5/09* Propeller *5/4/09*
 Stern tube *27/5/09* Steam pipes tested *15/6/09* Engine and boiler seatings *8/6/09* Engines holding down bolts *14/6/09*
 Completion of pumping arrangements *17/6/09* Boilers fixed *17/6/09* Engines tried under steam *17/6/09*
 Main boiler safety valves adjusted *17/6/09* Thickness of adjusting washers *P.W. Boils P.V. 1/32 Star. Boiler S.V. 9/32*
 Material of Crank shaft *Soft Steel* Identification Mark on Do. *4771* Material of Thrust shaft *Soft Steel* Identification Mark on Do. *4771*
 Material of Tunnel shafts *Soft Steel* Identification Marks on Do. *4771* Material of Screw shafts *S. Iron* Identification Marks on Do. *4771*
 Material of Steam Pipes *Lap-welded Wrought Iron* Test pressure *600 lbs per sq. in.*

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

The Machinery and Boilers of this Vessel have been constructed under Special Survey and placed on board in accordance with the Society's Rules. They are now in my opinion in safe working condition and the case is respectfully submitted for the notation **L.M.C. 7-09.**

It is submitted that
 this vessel is eligible for
 THE RECORD.

+ LMC 7.09

29-7-09.

DRR

The amount of Entry Fee. £ *2 : 0 : 0* When applied for.
 Special £ *34 : 10 : 0* 26-7-1909
 Donkey Boiler Fee £ *36 : 10 : 0* When received,
 Travelling Expenses (if any) £ : : *27-7-1909*

Committee's Minute

Assigned

FRI. 30 JUL 1909

+ LMC 7.09

MACHINERY CERTIFICATE
 WRITTEN.

Art Copy 27/12/12



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Lloyd's Register
 Foundation

Certificate (if required) to be sent to West Hartlepool

Sign

No.

Whet
 For

Bro

Num

Num

Rigg

Stern

Build

Galle

Head

Frame

ves

Num

Num

and

Total to

to 1

No. of

Engines.

One

No. of

Shafts.

One

Under

Space

Turret

Foreca

Bridge

Poop o

Side H

Deck 1

Chart

Spaces

Sect

1894

Excess

Deduct

NOTE.—

Bridg

No. of

Name,

Turn

and

Reck

Mo

Dated

30 (65