

## REPORT ON MACHINERY

No. 26581

MAR 9 1916

Received at London Office

Date of writing Report

19

When handed in at Local Office - 7 DEC 1915

Port of

SUNDERLAND.

19

in Survey held at  
Book.

SUNDERLAND

Date, First Survey

13 July '15 Last Survey

(Number of Visits)

on the

Steel S.S. Alto

Tons

Gross

Net

When built 1915

ster

Built at Londonderry

By whom built North of Ireland S.B. &amp; Co. Ltd.

Engines made at

Sunderland

By whom made Richardsons, Westgarth &amp; Co. Ltd.

when made 1915

Milers made at

D.

By whom made

when made 1915

Registered Horse Power

Owners Pelton S.S. Co. Ltd.

Port belonging to Newcastle

om. Horse Power as per Section 28

243

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

Yes

GINES, &amp;c.—Description of Engines

Triple expansion

No. of Cylinders three

No. of Cranks three

Dia. of Cylinders 21 · 34 · 56

Length of Stroke 39

Revs. per minute 65

Dia. of Screw shaft

as per rule 11 · 92

Material of (1) Iron

as fitted 12 1/2" 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

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 4' 2 1/4"

Dia. of Tunnel shaft

as per rule 10 · 49

Dia. of Crank shaft journals

as per rule 11 · 02

Dia. of Crank pin 11 3/4"

Size of Crank webs 17 1/2" x 7"

Dia. of thrust shaft under

Milers 11 1/8"

Dia. of screw 14 · 9"

Pitch of Screw 15 · 3"

No. of Blades 4

State whether moveable

no

Total surface 70 · 8 sq

No. of Feed pumps 2

Diameter of ditto 2 3/4"

Stroke 24"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps 2

Diameter of ditto 3 1/2"

Stroke 24"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

two

Sizes of Pumps

11 x 13 x 12

4

6 x 4 x 6

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

In Engine Room

4 - 3"

In Holds, &amp;c. 4 - 3" x 1 - 2 1/2"

No. of Bilge Injection

One size

Connected to condenser, or to circulating pump

Pumps

separate Donkey Suction fitted in Engine room &amp; size

Yes - 3 1/2"

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

Four hold suction

How are they protected

Wood casings

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

15-11-15

of Stern Tube

1-12-15

Screw shaft and Propeller

6-12-15

Is the Screw Shaft Tunnel watertight

Yes

Is it fitted with a watertight door

Yes

worked from Top Platform Engine Room

BOILERS, &amp;c.—(Letter for record

S)

Manufacturers of Steel

John Spencer Sons

Leeds Forge

Total Heating Surface of Boilers

4164 sq

Is Forced Draft fitted

no

No. and Description of Boilers

two S.E. cyl Multi.

Working Pressure

180 lbs

Tested by hydraulic pressure to

360 lbs

Date of test

15 · 9 · 15

No. of Certificate

3314

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

54 sq

No. and Description of Safety Valves to

each boiler

two spring

Area of each valve

8 · 3 sq

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

about 10 ft

Mean dia. of boilers

14 · 9 1/2"

Length 10 · 6"

Material of shell plates

Steel

Thickness 1 7/32"

Range of tensile strength

28 · 9 to 32

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

D.R. Lap.

long. seams

T.R. D. Butts

Diameter of rivet holes in long. seams

1 3/16"

Pitch of rivets

8 1/2"

Lap of plates or width of butt straps

16"

Per centages of strength of longitudinal joint

rivets 86 · 5

plate 85 · 6

Working pressure of shell by rules

180 · 5

Size of manhole in shell

16" x 12"

Size of compensating ring

flanged

No. and Description of Furnaces in each boiler

3 Morrison

Material Steel

Outside diameter

3' 11 1/2"

Length of plain part

top

Thickness of plates

crown 19 · 5

bottom 17 · 32

Description of longitudinal joint

welded

No. of strengthening rings

✓

Working pressure of furnace by the rules

199 3/4

Combustion chamber plates: Material

Steel

Thickness: Sides

3/4"

Pitch of stays to ditto: Sides

11 1/2" x 9"

Back 10" x 8 1/2"

Top 11 1/2" x 9"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

182

Material of stays

Steel

Area at smallest part

1 · 788

Area supported by each stay

88 · 75

Working pressure by rules

181

End plates in steam space:

Material

Steel

Thickness

1 7/32"

Pitch of stays

20 7/8 x 20

How are stays secured

Dble nuts

Working pressure by rules

180

Material

Steel

Area at smallest part

7 · 24

Area supported by each stay

400 · 75

Working pressure by rules

184

Material of Front plates at bottom

Steel

Thickness

2 7/32"

Material of Lower back plate

Steel

Thickness

2 7/32"

Greatest pitch of stays

13 1/2" x 8 7/8"

Working pressure of plate by rules

188

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/2" x 4 1/4"

Material of tube plates

Steel

Thickness: Front

2 7/32"

Back

2 7/32"

Mean pitch of stays

11"

Pitch across wide water spaces

14 1/2"

Working pressures by rules

204

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

9 3/4" x 1 1/2"

Length as per rule

31 1/2"

Distance apart

11 1/2"

Number and pitch of stays in each

two of 9"

Working pressure by rules

186

Superheater or Steam chest; how connected to boiler

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

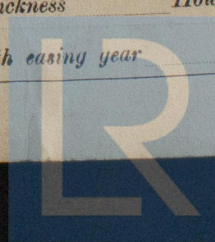
Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

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IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded? *✓*

SPARE GEAR. State the articles supplied:—

*1 C. Iron propeller; set main bearing  
set top end & set bottom end bolts; set coupling bolts; set  
pump valves; boiler main and donkey check valves.*

The foregoing is a correct description,

FOR RICHARDSONS, WESTGARTH & CO., LTD

*Fredrick Russell*

ASSISTANT MANAGER

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1915 Jul 12, Sept 8, 15, 17, 18, 27 Oct. 5, 7, 8, Nov. 5, 8, 13.  
During erection on board vessel -- 1915 Nov 15 Dec 1, 6, 18, 30, 1916 Jan 31, Feb 7, 10.  
Total No. of visits *20*

Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders 8, 9, 15 Slides 17, 9, 15 Covers 8, 9, 15 Pistons 8, 9, 15 Rods 17, 9, 15  
Connecting rods 8, 9, 15 Crank shaft 7, 10, 15 Thrust shaft 7, 10, 15 Tunnel shafts 7, 10, 15 Screw shaft 7, 10, 15 Propeller 7, 10, 15  
Stern tube 12, 11, 15 Steam pipes tested 31-1-16 Engine and boiler seatings 1-12-15 Engines holding down bolts 31-1-16  
Completion of pumping arrangements 10-2-16 Boilers fixed 31-1-16 Engines tried under steam 7-2-16  
Main boiler safety valves adjusted 7-2-16 Thickness of adjusting washers  $\frac{7-12}{32}$   
Material of Crank shaft *S* Identification Mark on Do. *LR J.T.F.* Material of Thrust shaft *S* Identification Mark on Do. *LR J.T.*  
Material of Tunnel shafts *S* Identification Marks on Do. *LR J.T.F.* Material of Screw shafts *W.I.* Identification Marks on Do. *LR J.T.*  
Material of Steam Pipes *W. Iron* Test pressure *540 lb*

Is an installation fitted for burning oil fuel *No*

Is the flash point of the oil to be used over 150°F. *✓*

Have the requirements of Section 49 of the Rules been complied with *✓*

Is this machinery duplicate of a previous case *No* If so, state name of vessel *✓*

General Remarks (State quality of workmanship, opinions as to class, &c.) *Machinery and Boilers built under Special Survey. Material & workmanship good. Boilers tested by hydraulic pressure found satisfactory. Engines & boilers dispatched to Londonderry to be refitted on board.*

*Engines and boilers securely fitted on board, and tried under steam. In my opinion, this vessel will be eligible for record + L.M.C. on completion of survey, as per copy of letter sent to Newcastle Survey Surveyors advised.*  
*R. J. Beveridge, Belfast.*

SUNDERLAND.

Certificate (if required) to be sent to.

The amount of Entry Fee ... £ *2* : - : -

Special

Donkey Boiler

Travelling Expenses (if any) £

Incurred at Belfast 11-18-0

Committee's Minute

Assigned

When applied for.

*-7. DEC 1915*

When received.

*21-12-1915*

TUE. 4 APR 1916

*+h.m.c 2.16*

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

*S. Kent.*

MACHINERY CERTIFICATE  
WRITTEN.



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