

Rpt. 4.

## REPORT ON MACHINERY.

TUE. APR. 10. 1912  
No. 7286

Date of writing Report

19

When handed in at Local Office

13 3 10 14 Port of

Received at London Office

THU. MAR. 14. 1912

MIDDLESBROUGH CH. TEES.

No. in Survey held at  
Reg. Book.

Stockton-on-Tees

Date, First Survey

11 Mar. 1911

Last Survey

30 Mar. 1912

on the

Steel Screw Steamer *Shakespear*

(S.S. No. 490)

Gross 3466  
Net 2779

Master

Built at

Sunderland

By whom built

J. L. Thompson &amp; Sons Ltd

When built

1912

Engines made at

Stockton

By whom made

Messrs Blair &amp; Co Ltd (No. 1736)

when made

1912

Boilers made at

Stockton

By whom made

Messrs Blair &amp; Co Ltd

when made

1912

Registered Horse Power

Owners *Shakespear Shipping Co Ltd*

Port belonging to

London

Nom. Horse Power as per Section 28

294

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

no

ENGINES, &amp;c.—Description of Engines

Tri-compound

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

24-40-65

Length of Stroke

42

Revs. per minute

60

Dia. of Screw shaft

as per rule 12.57  
as fitted 14 1/2

Material of screw shaft

by steel

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 in one

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

tight fit

liners are fitted, is the shaft lapped or protected between the liners

Length of stern bush

5-1

Dia. of Tunnel shaft

as per rule 11.84  
as fitted 12 1/2

Dia. of Crank shaft journals

as per rule 12.43  
as fitted 13

Dia. of Crank pin

13 1/2

Size of Crank webs

24-8 1/2

Dia. of thrust shaft under

collars

13 1/2

Dia. of screw

17-0

Pitch of Screw

16-6

No. of Blades

4

State whether moveable

no

Total surface

82 sq

No. of Feed pumps

2

Diameter of ditto

3 1/2

Stroke

30

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

4 1/2

Stroke

30

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

2

Sizes of Pumps

Ballast 9x8 duplex  
Feed 5x6 duplex

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

In Engine Room

3 @ 3 1/2

In Holds, &amp;c.

2 @ 3 1/2 in each hold

Tunnel well 1 @ 2 1/2

No. of Bilge Injections

1

size

6 1/2

Connected to condenser, or to circulating pump

yes

Is a separate Donkey Suction fitted in Engine room &amp; 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 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 the Discharge Pipes above or below the deep water line

yes

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates

yes

Are the Blow Off Cocks fitted with a spigot and brass covering plate

yes

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel

yes

How are they protected

wood ceiling

What pipes are carried through the bunkers

For hold suction

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

29-1-12

Screw shaft and Propeller

26.2.12

Is the Screw Shaft Tunnel watertight

yes

Is it fitted with a watertight door

yes

worked from

Top platform

BOILERS, &amp;c.—(Letter for record)

(3)

Manufacturers of Steel

Messrs John Spencer &amp; Sons

Total Heating Surface of Boilers

4490

Is Forced Draft fitted

no

No. and Description of Boilers

Two single ended

Working Pressure

180

Tested by hydraulic pressure to

360

Date of test

21.2.12

No. of Certificate

4829

Can each boiler be worked separately

yes

Area of fire grate in each boiler

64 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

Are they fitted with easing gear

yes

Smallest distance between boilers or plates and bunkers or woodwork

2-0

Mean dia. of boilers

15-6

Length

10-9

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 lap

long. seams

2 Riv

Diameter of rivet holes in long. seams

1 1/2

Pitch of rivets

9 1/2

Emp. of plates or width of butt straps

19 1/2 x 1 1/2

Per centages of strength of longitudinal joint

rivets 87.0  
plate 85.83

Working pressure of shell by rules

184

Size of manhole in shell

16 x 12

Material steel Outside diameter

46 3/8

Size of compensating ring

7 1/2 x 1 1/2

No. and Description of Furnaces in each boiler

3 medium

Material steel

Outside diameter

46 3/8

No. of strengthening rings

1

Length of plain part

top 1/2  
bottom 1/2

Thickness of plates

crown 3/16  
bottom 1/2

Working pressure of furnace by the rules

190

Combustion chamber plates: Material

steel

Thickness: Sides

1/2

Back

1/2

Top

1/2

Bottom

1/2

Working pressure by rules

180

Pitch of stays to ditto: Sides

8 5/8 x 10

Back

9 1/2 x 9 1/2

Top

9 1/2 x 9 1/2

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

202

End plates in steam space:

Material of stays

steel

Diameter at smallest part

1 1/2

Area supported by each stay

88.8

Working pressure by rules

185

Material of stays

steel

Thickness

1 1/2

Pitch of stays

Diameter at smallest part

7.24

Area supported by each stay

389

Working pressure by rules

193

Material of Front plates at bottom

steel

Thickness

1 1/2

Greatest pitch of stays

14 1/2

Working pressure of plate by rules

Pitch across wide water spaces

14 1/2

Working pressures by rules

181

Girders to Chamber tops: Material

steel

Depth and

thickness of girder at centre

7 1/2 x 1 1/2

Length as per rule

29

Distance apart

9 1/2

Number and pitch of stays in each

Working pressure by rules

185

Superheater or Steam chest; how connected to boiler

none

Can the superheater be shut off and the boiler worked

yes

Diam. of rivet

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

End plates: Thickness

How stayed

Are they fitted with easing gear

yes

Working pressure of end plates

Area of safety valves to superheater

Will 20063

Lloyd's Register

Foundation



## VERTICAL DONKEY BOILER—

Manufacturers of Steel

Sec. Sld Rpt. No. 25206

No.	Description	When made	Where fixed
Made at	By whom made	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of test	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
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 connecting rods top and bottom end bolts and nuts, two main bearing bolts one set of coupling bolts one set of feed and bilge pump valves iron and bolts of various sizes, one screw shaft and one propeller.

The foregoing is a correct description.

FOR LEAN		Manufacturer.
SECRETARY.		
Dates of Survey while building	During progress of work in shops	11.1.12
	During erection on board vessel	12.1.12
Total No. of visits		32

Dates of Examination of principal parts	Cylinders	11.1.12	Slides	11.1.12	Covers	23.1.12	Pistons	18.1.12	Rods	18.1.12	
Connecting rods	18.1.12	Crank shaft	22.1.12	Thrust shaft	2.1.12	Tunnel shafts	22.1.12	Screw shaft	14.2.12	Propeller	12.2.12
Stern tube	5.2.12	Steam pipes tested	1.3.12	Engine and boiler seatings	2.4.12	Engines holding down bolts	29.2.12				
Completion of pumping arrangements	5.3.12	Boilers fixed	5.3.12	Engines tried under steam	5.3.12						
Main boiler safety valves adjusted	5.3.12	Thickness of adjusting washers	P. 3/8	P. 1/2	Star P. 3/8						
Material of Crank shaft	By Steel Identification Mark on Do.	6717	Material of Thrust shaft	By Steel Identification Mark on Do.	8595						
Material of Tunnel shafts	By Steel Identification Marks on Do.	8595	Material of Screw shafts	By Steel Identification Marks on Do.	6717						
Material of Steam Pipes	solid drawn copper (6 1/2" x 5/8")	Test pressure	400 lbs								

**General Remarks** (State quality of workmanship, opinions as to class, &c.) To complete the survey, the donkey boiler requires to be fitted on board, secured in place &c. Engine spare gear to be examined: the tunnel made watertight and fitted with a watertight door. It is proposed to have this done at Sunderland. The surveyors have been advised. 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 were tested by hydraulic pressure, and the engines and main boilers examined under steam and all found satisfactory.

The machinery is now in a good and safe working condition and eligible in my opinion to have the notation of \*LMC 3.12 with a date, when the survey has been completed.

The Survey has now been satisfactorily completed as above.

The amount of Entry Fee	£ 2-0-0	When applied for	6.4.12
Special	£ 34-14-0	When received	13.4.12
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

Committee's Minute  
Assigned

WED. APR. 10. 1912

Wm Morrison Lewis & Davis  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.