

REPORT ON MACHINERY

No. 26476

Received at London Office

SAT. JUN. 19. 1915

Date of writing Report 17.6.15

When handed in at Local Office

18.6.15 Port of

SUNDERLAND.

No. in Survey held at

SUNDERLAND.

Date, First Survey

19th October 1914

Last Survey

16.6.1915

Reg. Book.

79 on the new steel

S/S "ELFORD."

(Number of Visits 48.)

Master

Gillan

Built at

Sunderland

By whom built

W. Pickersgill & Sons Ltd (No. 189)

Tons Gross 1739

Net 1000

When built 1915

Engines made at

Sunderland

By whom made

Macdonald & Pollock Ltd (No. 257)

when made 1915

Boilers made at

Sunderland

By whom made

Macdonald & Pollock Ltd (No. 257)

when made 1915

Registered Horse Power

Owners

Sharp & Sons Ltd (Sharp & Sons)

Port belonging to Newcastle

Nom. Horse Power as per Section 28

299

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

Yes

ENGINES, &c.—Description of Engines

Triple expansion

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

22.36.60

Length of Stroke

39

Revs. per minute

70

Dia. of Screw shaft

as per rule 12.5"

Material of screw shaft

S. steel

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

No liner

Is the after end of the liner made water tight

in the propeller boss

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

4.3 3/4"

Dia. of Tunnel shaft

as per rule 10.86"

as fitted 11 1/2"

Dia. of Crank shaft journals

as per rule 11.4"

as fitted 11 3/4"

Dia. of Crank pin

11 3/4"

Size of Crank webs

10 7/8" x 7 1/2" thick

collars

11 3/4"

Dia. of screw

14.3"

Pitch of Screw

16.0"

No. of Blades

4

State whether moveable

No

Total surface

73 sq ft

No. of Feed pumps

2

Diameter of ditto

3 1/2"

Stroke

20"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

2

Diameter of ditto

3 1/2"

Stroke

20"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

3

Sizes of Pumps

20 1/2" x 5 1/2" x 15"

10 8 1/2" x 10"

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

In Engine Room

4 @ 2 1/2"

In Holds, &c.

Forward hold. - 2 @ 2 1/2"

After hold. - 2 @ 2 1/2"

Tunnel well. - 1 @ 2 1/2"

No. of Bilge Injections

1

sizes

5 1/2"

Connected to condenser, or to circulating pump

b.p.

Is a separate Donkey Suction fitted in Engine room & size

Yes. 3"

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

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

Forward hold outside

How are they protected

Under timber boards

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

16.4.15 of Stern Tube

27.4.15

Screw shaft and Propeller

27.4.15

Is the Screw Shaft Tunnel watertight

Yes

Is it fitted with a watertight door

Yes

worked from Top platform

BOILERS, &c.—(Letter for record)

S

Manufacturers of Steel

John Spencer & Sons Ltd

Total Heating Surface of Boilers

5360 sq ft

Is Forced Draft fitted

No

No. and Description of Boilers

Two single ended marine

Working Pressure

180

Tested by hydraulic pressure to

360

Dates of test

22.4.15 & 18.5.15

No. of Certificate

3294 & 3300

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

74 sq ft

No. and Description of Safety Valves to

each boiler

Two direct spring

Area of each valve

8.30"

Pressure to which they are adjusted

185

Are they fitted with easing gear

Yes

Smallest distance between boiler or uptakes and bunkers

4'-6"

Mean dia. of boilers

16'-6"

Length

10'-6"

Thickness

1 1/4"

Range of tensile strength

29.5-33

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

10R

long. seams

AB & TR

Diameter of rivet holes in long. seams

1 9/16"

Pitch of rivets

9 13/16"

Lap of plates or width of butt straps

1'-7 1/2"

Per centages of strength of longitudinal joint

rivets 87.6

plate 85.7

Working pressure of shell by rules

180

Size of manhole in shell

16' x 12"

Size of compensating ring

flange

No. and Description of Furnaces in each boiler

4 plain

Material

Steel

Outside diameter

3'-8"

Length of plain part

top 6'-2 1/2"

bottom 6'-2"

Thickness of plates

crown 7 3/8"

Description of longitudinal joint

welded

No. of strengthening rings

Working pressure of furnace by the rules

181

Combustion chamber plates: Material

Steel

Thickness: Sides

7/16"

Back

2 1/2"

Top

7/16"

Bottom

Pitch of stays to ditto: Sides

9 1/2" x 9"

Back

7 1/2" x 9 1/8"

Top

8 1/2" x 8 1/8"

If stays are fitted with nuts or riveted heads

nuts in caps

Working pressure by rules

191

Material of stays

Steel

Diameter at smallest part

1 7/8"

Area supported by each stay

75.5 sq in

Working pressure by rules

183

Material

Steel

Thickness

1 3/16"

Pitch of stays

19 7/8" x 1 7/8"

How are stays secured

N.N.

Working pressure by rules

182

Diameter at smallest part

6 1/2"

Area supported by each stay

346 sq in

Working pressure by rules

183

Material of Front plates at bottom

Steel

Thickness

7/16"

Material of Lower back plate

Steel

Thickness

2 1/2"

Greatest pitch of stays

12 3/4" x 9 1/8"

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/2" x 4 1/2" x 4 1/2"

Material of tube plates

Steel

Thickness: Front

13/16"

Back

13/16"

Mean pitch of stays

11 1/6"

Pitch across wide water spaces

13 1/2" x 9 1/2"

Working pressures by rules

235

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

2 @ 6 7/8" x 1 7/8"

Working pressure by rules

192

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

Yes

W386-0007

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No.	Description		When made		Where fixed	
Made at	By whom made		Date of test		No. of Certificate	
Working pressure	tested by hydraulic pressure to		Fire grate area		Description of St	
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	
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays		Plates
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:— Two connecting rod top and bottom end bolts and nuts. Two main bearing bolts. One set of coupling bolts. One set of feed and bilge pump valves. 1/2 set of air and circulating pump valves. 1/2 set of valves for ballast donkey. 1/2 set of valves one feed donkey. Iron and bolts of various sizes.

The foregoing is a correct description,

MAO COLL & POLLOCK LTD.

Manufacturer.

Dates of Survey while building	During progress of work in shops	During erection on board vessel	Total No. of visits	Is the approved plan of main boiler forwarded herewith
1914. Oct. 19. 29. Nov. 9. 11. Dec. 3. 8. 16. 23. 30. Jan. 6. 11. 12. 18. 21. 25. 29.	Feb. 1. 3. 9. 10. 17. 19. 24. 26. Mar. 2. 8. 10. 16. 22. 29. Apr. 8. 9. 19. 19. 22. 27. 30.	10. 12. 15. 20. 25. 31. Jun. 2. 7. 10. 16.	48	yes

Dates of Examination of principal parts	Cylinders	Slides	Covers	Pistons	Rods
9-2-15	8-3-15	26-1-15	26-1-15	18-1-15	
Connecting rods	1-2-15	Crank shaft	13-1-15	Thrust shaft	17-2-15
Tunnel shafts	1-2-15	Screw shaft	24-2-15	Propeller	24-2-15
Stern tube	18-1-15	Steam pipes tested	31-5-15	Engine and boiler seatings	22-4-15
Engines holding down bolts	20-5-15	Completion of pumping arrangements	15-6-15	Boilers fixed	2-6-15
Engines tried under steam	7-6-15	Main boiler safety valves adjusted	7-6-15	Thickness of adjusting washers	Possible both 1/2". Start br - P 7/8". S 3/8".
Material of Crank shaft	9. Steel	Identification Mark on Do.	4144 AFB	Material of Thrust shaft	9. Steel
Identification Mark on Do.	4098 AFB. 4108 AFB &	Material of Tunnel shafts	9. Steel	Identification Marks on Do.	4120 AFB
Material of Screw shafts	9. Steel	Identification Marks on Do.	4106 AFB	Material of Steam Pipes	Solid drawn copper 3 @ 4 1/2 x 5/8
Test pressure	400 lbs per square inch.				

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

When the starboard liner was under hydraulic test, a crack was found in the weld of its starboard wing from the front edge to the rivet, this was caulked, subsequently examined under steam and found tight and in my opinion the furnace is efficient and unimpaired. The attention of the Owners representative was drawn to this matter and their letter accepting same is attached hereto.

The materials and workmanship are good.

The machinery has been constructed under special survey and is eligible in my opinion for classification and the record + LMC 6.15.

It is submitted that this vessel is eligible for THE RECORD. + LMC 6.15.

The amount of Entry Fee	£ 2 : 0	When applied for,	18 JUN 1915
Special	£ 34 : 19	When received,	4/8/15
Donkey Boiler Fee	£ :		5/6/15
Travelling Expenses (if any)	£ :		

Committee's Minute

Assigned

TUE JUN. 22. 1915

+ LMC 6.15

Lewis Davis

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



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