

## REPORT ON MACHINERY.

Mar. No. 6128  
Stat. No. 24352

Received at London Office

SAT. 19 FEB 1910

Date of writing Report

10

When handed in at Local Office

18. 2. 10 Port of Sunderland.

No. in Survey held at Sunderland.

Date, First Survey 1<sup>st</sup> Sept. 1909 Last Survey 10<sup>th</sup> Feb. 1910

Reg. Book.

on the

S/S "Benbrook"

(Number of Visits 3)

Tons { Gross 3839.68  
Net 2882.00

Master

Built at Middlesbrough

By whom built Craig Taylor &amp; Co. Ltd

When built 1909-10

Engines made at Sunderland.

By whom made H. E. M. Eng. Co. Ltd

when made 1909-10

Boilers made at

By whom made

when made 1909-10

Registered Horse Power

Owners

Hoult &amp; Co. Ltd

Port belonging to

Liverpool

Nom. Horse Power as per Section 28 342.

Is Refrigerating Machinery fitted for cargo purposes

No.

Is Electric Light fitted

No.

ENGINES, &amp;c.—Description of Engines

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 24" 40" 66" Length of Stroke 45" Revs. per minute 65

Dia. of Screw shaft

as per rule 13.8

Material of screw shaft

S.

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

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

Yes.

Length of stern bush 4' 9"

Dia. of Tunnel shaft

as per rule 12.11

Dia. of Crank shaft journals

as per rule 12.72

Dia. of Crank pin 13"

Size of Crank webs 9 1/2" x 8" Dia. of thrust shaft under

collars 13"

Dia. of screw 14" 8"

Pitch of Screw 17" 5"

No. of Blades 4

State whether moveable

f. Total surface 94"

No. of Feed pumps 2

Diameter of ditto 3 1/2"

Stroke 2 ft.

Can one be overhauled while the other is at work

Yes.

No. of Bilge pumps 2

Diameter of ditto 4"

Stroke 2 ft.

Can one be overhauled while the other is at work

Yes.

No. of Donkey Engines 3 - as Static Sizes of Pumps 2 - 1/2" x 5" x 6" + 1. 1 1/2" x 11" x 10 1/2" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 3 of 3 1/2"

In Holds, &amp;c. 2 of 3 1/2" in each Compartment

No. of Bilge Injections 1

sizes 4 1/2"

Connected to condenser, or to circulating pump

C.D.

Is a 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

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

2.1.10

of Stern Tube

25.1.10

Screw shaft and Propeller

25.1.10

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 5.)

Manufacturers of Steel

J. Spencer &amp; Sons Ltd

Total Heating Surface of Boilers 5604

Is Forced Draft fitted

No.

No. and Description of Boilers

3

B.E.

Working Pressure 180 lbs.

Tested by hydraulic pressure to

360 lbs.

Date of test

3/12/09

No. of Certificate

2797

Can each boiler be worked separately

Yes.

Area of fire grate in each boiler

45 sq.

No. and Description of Safety Valves to

each boiler 2 Spring

Area of each valve

4.9 sq.

Pressure to which they are adjusted

185

Are they fitted with easing gear

Yes.

Smallest distance between boilers or uptakes and bunkers or woodwork

18"

Mean dia. of boilers

13' 9"

Length

11 ft.

Material of shell plates

B

Thickness 1 3/4"

Range of tensile strength

28 1/2 - 32

Are the shell plates welded or flanged

No.

Descrip. of riveting: cir. seams

27.7 x 10

Long. seams 7 butts

Diameter of rivet holes in long. seams

1 3/16"

Pitch of rivets

8 3/4"

Lap of plates or width of butt straps

1' 6"

Percentages of strength of longitudinal joint

rivets 85.4

plate 86.4

Working pressure of shell by rules

187.

Size of manhole in shell

2nd.

16" x 12"

Size of compensating ring

flanged.

No. and Description of Furnaces in each boiler

3 plain

Material

S.

Outside diameter

3' 5 1/2"

Length of plain part

top 6' 8"

bottom

Thickness of plates

crown 7/16"

bottom 1/2"

Description of longitudinal joint

laced.

No. of strengthening rings

Yes.

Working pressure of furnace by the rules

182

Combustion chamber plates: Material

S.

Thickness: Sides

3/8"

Back

3/4"

Top

23/32"

Bottom

1 1/16"

Pitch of stays to ditto: Sides

13" x 11"

Back

10 1/4" x 10 1/4"

Top

8" x 10"

If stays are fitted with nuts or riveted heads

nuts.

Working pressure by rules

180

Material of stays

S.

Diameter at smallest part

2.1"

Area supported by each stay

94 1/2 sq.

Working pressure by rules

180

End plates in steam space:

Material

S.

Thickness

1 1/16"

Pitch of stays

22 1/2" x 19 1/2"

How are stays secured

2. nuts.

Working pressure by rules

181.

Material of stays

S.

Diameter at smallest part

8.48"

Area supported by each stay

446.8 sq.

Working pressure by rules

196

Material of Front plates at bottom

S.

Thickness

3/4"

Material of Lower back plate

S.

Thickness

3/8"

Greatest pitch of stays

14" x 10 1/2"

Working pressure of plate by rules

188

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/2" x 4 1/2"

Material of tube plates

B

Thickness: Front

3/4"

Back

3/4"

Mean pitch of stays

9 1/2" x 9"

Pitch across wide water spaces

14 1/2"

Working pressures by rules

192

Girders to Chamber tops: Material

S.

Depth and

thickness of girder at centre

8" x 2"

Length as per rule

30 1/2"

Working pressure by rules

182.

Superheater or Steam chest; how connected to boiler

Yes.

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 in superheater

Are they fitted with easing gear

Yes.

Working pressure by rules

End plates: Thickness

How stayed

Working pressure by rules

End plates: Thickness

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Working pressure by rules

End plates: Thickness

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Working pressure of end plates

Area of safety valves in superheater

Are they fitted with easing gear

Yes.

Working pressure by rules

End plates: Thickness

How stayed

Working pressure by rules

# VERTICAL DONKEY BOILER—

Manufacturers of Steel

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	Stayed by	Dates of survey
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	

SPARE GEAR. State the articles supplied:— 1 Set top and bottom end bolts & nuts. two main bearing bolts & nuts. 1 Set Coupling bolts. one set feed & bilge pump valves. propeller, nuts bolts & assorted iron

The foregoing is a correct description,

NORTH EASTERN MARINE ENGINEERING CO LTD

Manufacturers of Main Engines & Boilers

Dates of Survey while building	During progress of work in shops -	1909- Sept 1. 6. 17. 24. 27. 30	Oct. 5. 6. 14. 15. 19. 25	Nov. 3. 8. 11. 12. 15. 24. 25. 26. 29
	During erection on board vessel -	Dec. 1. 2. 3. 8. 9. 10. 14	1910- Jan 5. 24. 25. 28. 31	Feb. 2.
Total No. of visits		37		

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

Dates of Examination of principal parts—Cylinders	27. 9. 09	Slides	8. 11. 09	Covers	8. 11. 09	Pistons	14. 11. 09	Rods	14. 11. 09
Connecting rods	8. 11. 09	Crank shaft	12. 11. 09	Thrust shaft	1. 12. 09	Tunnel shafts	1. 10. 09	Screw shaft	24. 11. 09
Stern tube	24. 11. 09	Steam pipes tested	28. 1. 10	Engine and boiler seatings	24. 1. 10	Engines holding down bolts	31. 1. 10		
Completion of pumping arrangements	2. 2. 10	Boilers fixed	31. 1. 10	Engines tried under steam	2. 2. 10				
Main boiler safety valves adjusted	2. 2. 10	Thickness of adjusting washers	P.B. p. 5 3/16	C.B. p. 3/16	5 3/16	S.B. p. 3/16	5 3/16		
Material of Crank shaft	S	Identification Mark on Do.	27. 9. 09	Material of Thrust shaft	B	Identification Mark on Do.	14. 12. 09		
Material of Tunnel shafts	S	Identification Marks on Do.	14. 12. 09	Material of Screw shafts	S	Identification Marks on Do.	14. 12. 09		
Material of Steam Pipes	Copper	Test pressure	360 lbs						

General Remarks (State quality of workmanship, opinions as to class, &c. Machinery and boilers built under Special Survey. Materials & workmanship good. Engines & boilers examined under full steam found satisfactory. In our opinion this vessel is eligible for the record of L.M.C. 2/10 in the Register Book.

Date of build of Machinery to be 1910

APPR 1.3.10

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 2.10.

The amount of Entry Fee	£ 3	When applied for.	18 Feb 1910
Special	£ 37. 2	When received	18 Feb 1910
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

Committee's Minute

Assigned

TUES. 1 MAR 1910

+ L.M.C. 2.10



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