

Rpt. 4.

REPORT ON MACHINERY.

No. 10374.

SUNDERLAND RPT. No. 27540

Date of writing Report

19

When handed in at Local Office

13/5/1919

Received at London Office

JULY 1919

No. in Survey held at

Stockton-on-Tees

Date, First Survey

11 Dec. 18

Last Survey

6 May 1919

Reg. Book.

on the

Steel Screw Steamer BRETWALDA

(S.S. No. 321)

Gross 5293

Net 3274

Master

Peterson

Built at

Sunderland

By whom built

Sunderland S.B. Co

When built

1919

Engines made at

Stockton

By whom made

Messrs Blair & Co Ltd (No. 1904)

when made

1919

Boilers made at

Stockton

By whom made

Messrs Blair & Co Ltd (No. 1898)

when made

1919

Registered Horse Power

Owners

Hall Bros & Co Ltd

Port belonging to

Newcastle

Nom. Horse Power as per Section 28

378.517

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

yes

ENGINES, &c.—Description of Engines

Tri-compound

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

27-44-73

Length of Stroke

48

Revs. per minute

77

Dia. of Screw shaft

as per rule 14.7

Material of

Ing 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

Is the propeller boss

yes

If the liner is in more than one length are the joints burned in one

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

tight fit

If two

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

yes

Length of stern bush

5'-14"

Dia. of Tunnel shaft

as per rule 13.33

Dia. of Crank shaft journals

as per rule 14.0

Dia. of Crank pin

14.5

Size of Crank webs

28"x9"

Dia. of thrust shaft under

Collars

14.7

Dia. of screw

17'-6"

Pitch of Screw

16'-6"

No. of Blades

4

State whether moveable

no

Total surface

98.2 sq ft

No. of Feed pumps

2

Diameter of ditto

4"

Stroke

24"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

4"

Stroke

24"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

3

Sizes of Pumps

Ballast 10.5"x14"x24"

Feed 20"x9.5"x7"x18"

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

In Engine Room

4 @ 3.5"

In Holds, &c. 2 @ 3.5" in each hold, except aftermost

where one @ 3.5": Tunnel with one @ 3"

No. of Bilge Injections

1 size 13"

Connected to

condenser

to circulating pump

yes

Is a separate Donkey Suction fitted in Engine room & size

yes - 3.5"

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

main below

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

That pipes are carried through the bunkers

Suctions to forward holds

How are they protected

wood ceiling

yes

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

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

Messrs John Spencer & Sons Ltd

Hudders

Total Heating Surface of Boilers

7668

Is Forced Draft fitted

yes

No. and Description of Boilers

3 single ended

Working Pressure

185

Tested by hydraulic pressure to

360

Date of test

15th April 1919

Can each boiler be worked separately

yes

Area of fire grate in each boiler

63.3

No. and Description of Safety Valves to

each boiler

2 direct spring

Area of each valve

9.62

Pressure to which they are adjusted

185

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

7'-0"

Mean dia. of boilers

15'-6"

Length

11'-6"

Material of shell plates

steel

Thickness

1 1/4"

Range of tensile strength

28-32

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

2 R. lap.

g. seams

2 B-3 Riv.

Diameter of rivet holes in long. seams

1 1/2"

Pitch of rivets

9 1/2"

Lap of plates or width of butt straps

19 1/2"

15 in

1 1/2 out

Percentages of strength of longitudinal joint

rivets 88.3

plate 85.64

Working pressure of shell by rules

182

Size of manhole in

end 16"x12"

Type of compensating ring

flanged

No. and Description of Furnaces in each boiler

3 Dighton

Material

steel

Outside diameter

50 3/8"

Length of plain part

top 12"

Thickness of plates

crown 12"

bottom 32"

Description of longitudinal joint

Weld

No. of strengthening rings

yes

Working pressure of furnace by the rules

188

Combustion chamber plates: Material

steel

Thickness: Sides

2 3/32"

Back

1 1/16"

Top

2 3/32"

Bottom

2 3/32"

Pitch of stays to ditto: Sides

10 5/8"x9 1/4"

Back

10 1/4"x8 3/4"

Top

10 5/8"x9 1/4"

Are stays fitted with nuts or riveted heads

nuts

Working pressure by rules

180

Material of stays

steel

Area at smallest part

2.31

Area supported by each stay

98.5

Working pressure by rules

211

End plates in steam space:

Material

steel

Material

steel

Thickness

1 1/2"

Pitch of stays

21 3/4"

How are stays secured

nuts & 3/32 washers

Working pressure by rules

191

Material of stays

steel

Area at smallest part

8.29

Area supported by each stay

467

Working pressure by rules

185

Material of Front plates at bottom

steel

Thickness

3/32"

Material of Lower back plate

steel

Thickness

2 3/32"

Greatest pitch of stays

13 5/8"x8 3/4"

Working pressure of plate by rules

187

Diameter of tubes

2 3/4"

Pitch of tubes

4"x3 3/8"

Material of tube plates

steel

Thickness: Front

3/32"

Back

3/4"

Mean pitch of stays

9 3/8"

Pitch across wide water spaces

13 5/8"

Working pressures by rules

181

Girders to Chamber tops: Material

steel

Depth and

thickness of girder at centre

10"x1 1/4"

Length as per rule

35 3/8"

Distance apart

10 5/8"

Number and pitch of stays in each

3 @ 9 1/4"

Working pressure by rules

188

Steam dome: description of joint to shell

none

% of strength of joint

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet holes

Working pressure of shell by rules

Crown plates

Thickness

How stayed

ERHEATER. Type

Date of Approval of Plan

Tested by Hydraulic Pressure to

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Pressure to which each is adjusted

Is Easing Gear fitted

No

Thick-

ness

How

stayed

ERHEATER. Type

IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— Two each of connecting rod top-end, bottom-end and main bearing bolts and nuts: 3 crank shaft & 3 tunnel shaft coupling bolts & nuts: one set each of feed and bilge pump valves: 3 each of main & donkey check valves: one set each of H.P. & M.P. cam bottom piston rings; assorted bolts & nuts; iron of various sizes; one cast iron propeller and minor gear

The foregoing is a correct description,
FOR BLAIR & CO., LIMITED

FOR BLAIR & CO., LIMITED

Geo W. Atkinson

Manufacturer.

Dates of Survey while building	During progress of work in shops --	1918. Dec 4. 6. 9. 10. 11. 13. 17. 19. 20. 23. 30. 1919. Jan 6. 8. 10. 13. 15. 17. 20. 22. 23. 24. 27. 29. 30. 31. Feb. 3. 6.
	During erection on board vessel ---	7. 10. 12. 13. 14. 17. 19. 21. 24. 25. 27. 28. Mar 3. 5. 6. 7. 10. 11. 13. 17. 19. 21. 24. 25. 28. 31. Apr 1. 3. 9. 10. 14. 15. 17. 23. 24. 25.
	Total No. of visits	29. May 1. 2. 6. 67 77 Is the approved plan of main boiler forwarded herewith <u>no</u> ✓

Old. Mar 27. May 8. 9. 13. 14. 26. 27. 28. 30 June 2.

Is the approved plan of main boiler forwarded herewith no ✓

“ “ “ donkey “ none “ “

Dates of Examination of principal parts—Cylinders 22.1.19 Slides 12.2.19 Covers 20.1.19 Pistons 20.1.19 Rods 10.2.19
Connecting rods 17.2.19 Crank shaft 30.1.19 Thrust shaft 29.1.19 Tunnel shafts 13.2.19 Screw shaft 17.3.19 Propeller 17.3.19
Stern tube 5.3.19 Steam pipes tested Gls. 28.10.18 Engine and boiler seatings 27.3.19 Engines holding down bolts 29.4.19
Completion of pumping arrangements 6.5.19 & 30.5.19 Boilers fixed 6.5.19 Engines tried under steam 6.5.19
Completion of fitting sea connections 27.3.19 Stern tube 27.3.19 Screw shaft and propeller 14.4.19
Main boiler safety valves adjusted 6.5.19 Thickness of adjusting washers P. Blr s - $\frac{1}{32}$: 6. Blr s - $\frac{1}{2}$: Star Blr s - $\frac{1}{32}$
Material of Crank shaft *Ing Steel* Identification Mark on Do. 7175 Material of Thrust shaft *Ing Steel* Identification Mark on Do. 7175
Material of Tunnel shafts *Ing Steel* Identification Marks on Do. 7175 Material of Screw shafts *Ing Steel* Identification Marks on Do. 7175
Material of Steam Pipes *Lap welded Steel* ✓ 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 yes ✓ If so, state name of vessel Standard A

General Remarks (State quality of workmanship, opinions as to class, &c. *Survey to be completed in accordance with*)

The machinery of this vessel has been built under Special Survey in accordance with the Rules and the specification. The materials and workmanship are good and entitle the vessel to the Record of ∇ L.M.Cb, 19, with a date, when the survey has been completed.

Sunderland 2-6-19 all the items in the attached letter have satisfactorily attended to and completed.

It is submitted that
this case is covered for
TILM 1100-1 + LMC 619 FD

Bel

12.6.19

The amount of Entry Fee	...	£	3	:	0	:	9	When applied for, same £0 4/6/19
Special	...	£	45	:	18	:	7	18/6/19.....19/19
Donkey Boller Fee	...	£		:	0	:	0	When received, £3 23/6/19
Travelling Expenses (if any)	£			:		:		£4 18/6/19 paid 20/10/19

Committee's Minute

FRI. 20 JUN. 1949

Assigned

5 JUN. 1979
+ Lm 6.19

Wm Morrison & L. Davis
Engineer Surveyor to Lloyd's Register of Shipping.

Engineer Surveyor to Lloyd's Register of Shipping.



Lloyd's Register
Foundation