

REPORT ON MACHINERY.

No. 34050

Received at London Office

WED. JUN. 3-1914

Date of writing Report

19

When handed in at Local Office

28.5. 1914 Port of Glasgow

No. in Survey held at
Reg. Book.

Clydebank

Date, First Survey

3. 7. 1911

Last Survey

14. 5. 1914

on the

Steel quadruple screw Aquitania

Master J.W. Turner

Built at

Clydebank

By whom built

John Brown & Co. Ltd.

When built

1914

Engines made at

Clydebank

By whom made

do

when made

1914

Boilers made at

do

By whom made

do

when made

1914

Registered Horse Power

Owners

Cunard S.S. Co. Ltd.

Port belonging to Liverpool

Nom. Horse Power as per Section 28

9408

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

yes

ENGINES, &c.—Description of Engines

Triple expansion Turbine

No. of Cylinders

4

No. of Cranks

—

Dia. of Cylinders

1-10 9/16" 2-10 1/4"

Length of Stroke

—

Revs. per minute

190

Dia. of Screw shaft

—

Material of

steel

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

11' 10 1/2"

Dia. of Tunnel shaft

as per rule approved

Dia. of Crank shaft journals

as per rule approved

Dia. of Crank pin

—

Size of Crank webs

—

Dia. of thrust shaft under

—

collars

2 1/4" - 11"

Dia. of screw

16' 6"

Pitch of Screw

15' 3"

No. of Blades

4

State whether moveable

yes

Total surface

103 sq ft

No. of Feed pumps

12

Diameter of ditto

18 1/2" - 13"

Stroke

2 1/2"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

4 duplex

Diameter of ditto

8' - 9"

Stroke

8"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

see separate list

Suctions of Pumps

—

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

—

In Engine Room

1 of 4" in each ER. 1 of 3 1/2" to each wing compartment

In Holds, &c.

Condenser Rooms

1 of 4" in each. Tunnels

5 of 4" and

1 of 3 1/2" to each centre bossing. Boiler Rooms nos 1-2+3. 2 of 3 1/2" + 2 of 3" in each. No. 4. 2 of 3 1/2". Chain locker 1 of 3 1/2". Holds nos 1-2+3. 1 of 3 1/2" in each.

No. of Bilge Injections

4 sizes

2 1/2"

Connected to condenser, or to circulating pump

circ. pp

Is a separate Donkey Suction fitted in Engine room & size

yes

4" in Anter

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

see separate approved plans

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

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

What pipes are carried through the bunkers

Ash ejector pipes

How are they protected

water tight steel 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

16. 4. 13

of Stern Tube

16. 4. 13.

Screw shaft and Propeller

16. 4. 13.

Is the Screw Shaft Tunnel watertight

yes

Is it fitted with a watertight door

yes

worked from Bulkhead Deck.

—

BOILERS, &c.—(Letter for record

S. (T.)

Manufacturers of Steel

B. Colville & Sons

—

Total Heating Surface of Boilers

138596 sq ft

Forced Draft fitted

yes

No. and Description of Boilers

21 double ended

—

Working Pressure

195 lbs

Tested by hydraulic pressure to

390 lbs

Date of test

16. 4. 12-8. 5. 12-7. 7. 12

No. of Certificate

11529-11577-11664

11730-11774-11861

11922-11956-12032

Can each boiler be worked separately

yes

Area of fire grate in each boiler

168.6 sq ft

No. and Description of Safety Valves to

—

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

11"

Mean dia. of boilers

17' 8"

Length

22' 0"

Material of shell plates

steel

Thickness

1 1/2"

Range of tensile strength

31/35 tons

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

DR+TR lap

—

Long. seams

DBS-TR

Diameter of rivet holes in long. seams

1 5/8"

Pitch of rivets

10 1/2"

Lap of plates or width of butt straps

23 1/2"

—

Percentages of strength of longitudinal joint

rivets 92

plate 84.5

Working pressure of shell by rules

228 lbs

Size of manhole in shell

16 x 12

—

Size of compensating ring

40 1/2 x 36 3/8"

No. and Description of Furnaces in each boiler

8 Morrison

Material steel

Outside diameter

49 3/4"

—

Length of plain part

top

Thickness of plates

crown

2 1/2"

Description of longitudinal joint

welded

No. of strengthening rings

—

Working pressure of furnace by the rules

217

Combustion chamber plates: Material

steel

Thickness: Sides

19/32"

Back

21/32"

Top

19/32"

Bottom

13/16"

—

Pitch of stays to ditto: Sides

8 1/4" x 7 1/2"

Back

9 1/4" x 7 1/2"

Top

8 1/4" x 7 1/2"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

198

—

Material of stays

Iron

Diameter at smallest part

1 1/8"

Area supported by each stay

62 sq in

Working pressure by rules

208

End plates in steam space:

—

Material steel

Thickness

1 5/8"

Pitch of stays

16 1/2" x 17 1/2"

How are stays secured

DN + W

Working pressure by rules

206

Material of stays

steel

—

Diameter at smallest part

2 7/8"

Area supported by each stay

290 sq in

Working pressure by rules

232

Material of Front plates at bottom

steel

—

Thickness

2 9/32"

Material of Lower back plate

—

Thickness

—

Greatest pitch of stays

—

Working pressure of plate by rules

—

—

Diameter of tubes

2 1/2"

Pitch of tubes

3 3/4" x 3 3/4"

Material of tube plates

steel

Thickness: Front

25/32"

Back

13/16" + 7/8"

Mean pitch of stays

9 3/8"

—

Pitch across wide water spaces

13 1/2"

Working pressures by rules

198

Girders to Chamber tops: Material

steel

Depth and

—

Thickness of girder at centre

2 plates 8 3/8" x 3/4"

Length as per rule

30"

Distance apart

8 1/4"

Number and pitch of stays in each

3 of 7 1/2"

—

Working pressure by rules

VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description	Made at	By whom made	When made	Where fixed
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area	Description of
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment	
If fitted with casing 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 Plates
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays	
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	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:— Propeller shaft. 8 lower half main bearing bushes - 18 coupling bolts. Feed check valve chest & 12 valves - 12 safety valve springs. Feed bilge pumps 1 off for each size Pump liner, rod & bucket, piston rod, set of valves & seats. Air pumps bucket rod, piston rod, head & foot valves. Circulating pumps Impeller & spindle, set main bearing brasses, set pump spindle bushes Connecting rod - piston, & piston rod. Valve spindle. Assorted iron bolts & nuts etc.

The foregoing is a correct description,

John Brown & Company, Limited

Dates of Survey while building { During progress of work in shops - - -
During erection on board vessel - - -
Total No. of visits 222

See continuation sheet attached.

Is the approved plan of main boiler forwarded herewith ☒ yes

" " " donkey " " " ☐ no

Dates of Examination of principal parts— Turbine Casings 26.2.12 Cylinders 14.10.13 Slides — Covers — Pistons — Rods —

Connecting rods — Rotor Crank shaft 6.5.12 6 Thrust shaft — Tunnel shafts 29.3.12 6 Screw shaft 5.9.12 6 Propellers 31.3.13

Stern tube 16.12.12 Steam pipes tested 12.9.12 6 Engine and boiler seatings 16.4.13 Engines holding down bolts 10.2.14

Completion of pumping arrangements 9.4.14 Boilers fixed 23.10.13 Engines tried under steam 12.5.14

Main boiler safety valves adjusted 18.3.14 6 Thickness of adjusting washers see below.

Material of Rotor Crank shaft steel Identification Mark on Do. 409 Material of Thrust shaft — Identification Mark on Do. —

Material of Tunnel shafts steel Identification Marks on Do. 409 Material of Screw shafts steel Identification Marks on Do. 409

Material of Steam Pipes Iron & steel Test pressure 585 lbs

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

Pumps. 2 Avelly fed duplex 11-7 1/2 x 15. Hotwell 4 of 12-14 x 26. Ballast 2 duplex 10-12 x 10. Wash Deck & Fore 2 duplex 10-11 x 10. Stone Lloyd Hydraulic 1 of 19-6 x 21. etc.

Safety Valve rings. No 1 Boiler Room. PFB. PEV 3/4. PAV 5/16. SFV 5/16. SAV 3/8. FCB. PEV 3/2. PAV 3/8. SFV 5/16. SAV 1/4. FSB. PEV 1/4. PAV 3/4. SFV 3/2. SAV 1/2. PAB. PEV 3/2. PAV 1/4. SFV 5/16. SAV 1/4. ACB. PEV 1/4. PAV 5/16. SFV 1/4. SAV 5/16. SAB. PEV 5/16. PAV 3/2. SFV 5/16. SAV 1/4.

No 2 Boiler Room. PFB. PEV 3/4. PAV 1/4. SFV 3/2. SAV 3/2. CFB. PEV 1/4. PAV 1/4. SFV 5/16. SAV 1/4. SFB. PEV 3/2. PAV 1/2. SFV 5/16. SAV 1/4. PAB. PEV 5/16. PAV 5/16. SFV 3/2. SAV 1/4. CAB. PEV 3/2. PAV 1/4. SFV 3/4. SAV 1/4. SAB. PEV 1/4. PAV 1/2. SFV 3/2. SAV 3/2.

No 3 Boiler Room. PFB. PEV 3/8. PAV 3/2. SFV 3/4. SAV 3/4. CFB. PEV 1/4. PAV 5/16. SFV 5/16. SAV 5/16. SFB. PEV 3/8. PAV 3/4. SFV 3/8. SAV 3/2. PAB. PEV 3/2. PAV 3/4. SFV 5/16. SAV 3/2. CAB. PEV 3/4. PAV 5/16. SFV 3/2. SAV 3/2. SAB. PFB 1/4. PAV 1/4. SFV 1/4. SAV 3/4.

No 4 Boiler Room. PFB. PEV 5/16. PAV 5/16. SFV 3/4. SAV 3/2. CB. PEV 3/4. PAV 5/16. SFV 3/4. SAV 5/16. SB. PEV 3/4. PAV 5/16. SFV 3/4. SAV 5/16.

This vessel is fitted with 4 turbines (Parsons type) each driving a line of shafting direct and arranged in compound (in pairs) or triple expansion. An astern turbine is fitted on each line of shafting. The machinery has been constructed under special survey in accordance with the rules and plans and has been run working satisfactorily under steam. Materials and workmanship are good. To complete the survey a balance piston and chamber require to be fitted to the (see continuation sheet)

The amount of Entry Fee .. £ 3 : 0 : 0 When applied for.

Special £ 203. 17 : 28.5.14

Donkey Boiler Fee £ : : When received.

Travelling Expenses (if any) £ : : 1/6. 14

Committee's Minute **GLASGOW** 2-JUN.1914 FRI. JUN. 5-1914

Assigned + L.M.C. 5.14 subject re

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

LR-FAF-TB11-89 1/2 F.D.

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G.S.S. Aquitania

the change valve in centre engine room. The fuel and air tanks for diesel engine driving auxiliary dynamo approved, tested, fitted on board and engine run working. Electric light wiring to complete. Liverpool Surveyors advised.

Subject to this ^{being} done the vessel will be eligible in my opinion to be classed + LMC. 5-14.

Harry Clarke.

RETAIN

Dates of Survey of Machinery :-

1911- July 3.27.31. Aug 29. Sept 4.7.14.28. Oct 6.17.30. Nov 13.20.27.29. Dec 7.8.15.

1912- Jan 11.12.15.19.23.31. Feb 1.2.6.7.14.21.26.28. Mar 1.5.11.18.20.22.25.26.29. Apr 1.11.16.26.29.

May 6.8.14.20.21.27.29. June 4.12.19.21.26.28. July 4.5.9.10. Aug 1.14.21.26.27.29.

Sept 2.5.9.12.16.19.26. Oct 2.4.16.22. Nov 1.8.13.14.21.28. Dec 4.9.13.16.20.24.27.

1913- Jan 8.16.20.24.28. Feb 4.5.7.14.21.25.27. Mar 6.10.12.14.18.21.25.27.31. Apr 4.9.10.14.16.21.24.29.

May 8.12.14.15.21.26.28. June 2.9.11.18.22. July 1.9.14.15.30. Aug 7.11.13.18.20.25.26.29.

Sept 4.8.12.15.17.22.25. Oct 1.3.6.7.9.11.15.17.23.27.30. Nov 3.6.7.10.12.17.19.21.24.27. Dec 1.2.5.9.12.17.19.24.29.

1914- Jan 7.13.15.19.21.23.27.30. Feb 3.4.5.10.16.23.25.26. March 2.4.6.9.16.18.20.23.26.30.

April 1.6.9.15.17.22. May 1.5.6.12.13.14.

Total = 222.

For Endorsement see Liv. Rpt 71457.