

## REPORT ON MACHINERY.

No. 12964.

Received at London Office

Date of writing Report

10

When handed in at Local Office

11. 3. 1922. Port of

Aberdeen

14 MAR. 1922

No. in Survey held at  
Reg. Book.

Aberdeen

Date, First Survey

13. 12. 1920.

Last Survey

16. 2. 1922.

on the

Steel S. S.

"DRACO" No. 680.

(Number of Visits 66.)

Gross 2014.50

Net 1137.27

When built 1922.

Master

Built at Aberdeen.

By whom built

Hall Russell &amp; Co. Ltd.

Engines made at

Aberdeen.

By whom made

Hall Russell &amp; Co. Ltd. No. 680.

when made

1922

Boilers made at

Aberdeen.

By whom made

ditto

ditto No. 680.

when made

1922

Registered Horse Power

291.

Owners Ellerman's Wilson Line Ltd.

Port belonging to

Hull.

Horse Power as per Section 28

291.

Is Refrigerating Machinery fitted for cargo purposes

no.

Is Electric Light fitted

yes.

ENGINES, &amp;c.—Description of Engines

Triple expansion.

No. of Cylinders

3.

No. of Cranks

3.

Dia. of Cylinders

14 3/4, 30 3/2, 53"

Length of Stroke

36"

Revs. per minute

94

Dia. of Screw shaft

as per rule 11.262 1/2

Material of

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

1 length

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

no space.

If two

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

yes.

Length of stern bush

4' 6"

Dia. of Tunnel shaft

as per rule 10.03

as fitted 10 3/4"

Dia. of Crank shaft journals

as per rule 10.53

as fitted 10 3/8"

Dia. of Crank pin

10 3/8"

Size of Crank webs

14" x 6 3/4"

Collars

10 3/8"

Dia. of screw

13' 9"

Pitch of Screw

12' 9"

No. of Blades

4

State whether moceable

no.

Total surface

607

No. of Feed pumps

2. WEIR

Diameter of ditto

6" x 8"

Stroke

21"

Can one be overhauled while the other is at work

yes.

No. of Bilge pumps

2.

Diameter of ditto

3"

Stroke

20"

Can one be overhauled while the other is at work

yes.

No. of Donkey Engines

Two

Sizes of Pumps

BALLAST 4" x 4" x 8"

GENSER 6" x 4" x 6"

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

In Engine Room

4

of 2 1/2"

TUNNEL WELL 1 of 2 1/2"

In Holds, &amp;c.

No. I HOLD. 2 of 2 1/2"

No II HOLD. 2 of 2 1/2"

No III HOLD. 2 of 2 1/2"

No. of Bilge Injections

1. sizes

5 1/2"

Connected to condenser, or to circulating pump

C.P.

Is a separate Donkey Suction fitted in Engine room &amp; size

yes 2 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

none.

Are all connections with the sea direct on the skin of the ship

yes.

Are they Valves or Cocks

Both valves &amp; cocks.

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

Cocks from Nos 1 &amp; 2 Holds.

How are they protected

strong wood casing

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 upper grating in engine room.

BOILERS, &amp;c.—(Letter for record (7))

Manufacturers of Steel Steel Cy of Scotland Ltd. W. Beardmore &amp; Co. Ltd.

Total Heating Surface of Boilers

44107

Is Forced Draft fitted

yes.

No. and Description of Boilers

Two, cyl., mult. single ended.

Working Pressure

225 lbs.

Tested by hydraulic pressure to

390 lbs

Date of test

29. 4. 21

No. of Certificate

1008.

Can each boiler be worked separately

yes.

Area of fire grate in each boiler

56.7

No. and Description of Safety Valves to

each boiler

Area of each valve

4.04 sq"

Pressure to which they are adjusted

230 lbs.

Are they fitted with easing gear

yes.

Smallest distance between boilers or uptakes and bunkers or woodwork

NO SIDE BUNKER

dia. of boilers

13' 9"

Length

12' 6"

Material of shell plates

S.

Thickness

1 1/2"

Range of tensile strength

28-32

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

d. r. lap.

Long. seams

double straps

Diameter of rivet holes in long. seams

1 3/8"

Pitch of rivets

9 1/2" - 4 1/2" lap of plates or

width of butt straps

20" x 1 1/4" out.

Per centages of strength of longitudinal joint

rivets 85.6

plate 85.3

Working pressure of shell by rules

224.4 lbs

Size of manhole in shell

16" x 12"

Size of compensating ring

40" x 31" RECT.

No. and Description of Furnaces in each boiler

3. Beighton

Material

S.

Outside diameter

44 3/4"

Length of plain part

top 3"

Thickness of plates

bottom 3/16"

Description of longitudinal joint

weld.

No. of strengthening rings

yes.

Working pressure of furnace by the rules

253.

Combustion chamber plates: Material

S.

Thickness: Sides

1/16"

Back

1/16"

Top

3/4"

Bottom

1/16"

Pitch of stays to ditto: Sides

9 3/8" x 1 1/2"

Back

9" x 1 1/2"

Top

9 1/2" x 8 3/8"

If stays are fitted with nuts or riveted heads

nuts.

Working pressure by rules

231.

Material of stays

S.

Area at smallest part

2.25 sq in

Area supported by each stay

69.95 sq"

Working pressure by rules

242.

End plates in steam space:

Material

S.

Thickness

1 3/2"

Pitch of stays

18 1/2" x 18"

How are stays secured

d. r. w.

Working pressure by rules

233.

Material of stays

S.

Area at smallest part

4.235 sq"

Area supported by each stay

333 sq"

Working pressure by rules

226.

Material of Front plates at bottom

S.

Thickness

1 1/16"

Material of Lower back plate

S.

Thickness

3 1/2"

Greatest pitch of stays

14 1/2" x 8 3/8"

Working pressure of plate by rules

231.

Diameter of tubes

2 1/2"

Pitch of tubes

3 3/4" x 3 7/16"

Material of tube plates

S.

Thickness: Front

1 1/16"

Back

1 3/16"

Mean pitch of stays

9 1/2" FULL.

Pitch across wide water spaces

13 1/2"

Working pressures by rules

F. 238.

Girders to Chamber tops: Material

S.

Depth and

thickness of girder at centre

1 1/8" x 1 3/4"

Length as per rule

34 7/16"

Working pressure by rules

226.

Steam dome: description of joint to shell

NONE.

% of strength of joint

yes.

Diameter

yes.

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet holes

yes.

Pitch of rivets

yes.

Working pressure of shell by rules

yes.

Crown plates

Thickness

yes.

How stayed



IS A DONKEY BOILER FITTED? No.

If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied:— Two top & two bottom end bolts & nuts; 2 main bearings and 1 set coupling bolts & nuts; one set each, three Bilge pump valves; 1 each, main and donkey check valve; 1 each, bottom end brasses; 1 piston rod, with brasses & bolts; 3 junkie bolts; 1 ecc. strap, rod & valve spindle, & valve complete; 1 set piston rings; 1 escape valve spring each size; 1 Impeller shaft for circulating pump; 5 condenser tubes, & 20 ferrules; 2 safety valve springs; 5 boiler tubes. 1 Cast iron propeller, bored and keyed way bolts and nuts assorted, and iron of various sizes.

The foregoing is a correct description,

FOR HALL, RUSSELL & CO., LTD.

James Hunter

DIRECTOR.

Manufacturers of Main Engines & Boilers.

Dates of Survey while building { During progress of work in shops - - Dec. 13. 1920 Jan. 15. 26 Feb. 25 Mar. 1. 9. 16. 18. 23 - Apr. 29 - May 4. 6. 9. 12. 20. 24. 30 - June. 2. 6. 10. 14. 16. 18. 22. 24. 28  
During erection on board vessel - - July. 6. 29 - Aug. 2. 3. 4. 5. 8. 11. 14. 18. 19. 22. 23. 25. 30 - Sept. 1. 2. 5. 6. 9. 12. 16. 21. 24 - Oct. 3. 6. 14. 17. 24 - Nov. 5. 8. 15. 24. 30 -  
Total No. of visits 66/ Dec. 4. 13. 19. 21 - 1922 Feb. 14. 16/ Is the approved plan of main boiler forwarded herewith yes. ✓

Dates of Examination of principal parts—Cylinders 22. 6. 21 Slides 12. 5. 21 Covers 28. 6. 21 Pistons 28. 6. 21 Rods 28. 6. 21

Connecting rods 6. 6. 21 Crank shaft 30. 5. 21 Thrust shaft 22. 6. 21 Tunnel shafts 22. 6. 21 Screw shaft 22. 6. 21 Propeller 30. 5. 21.

Stern tube 24. 5. 21 Steam pipes tested 9. 9. 21. Engine and boiler seatings 18. 8. 21 Engines holding down bolts 18. 8. 21

Completion of pumping arrangements 30. 8. 21 Boilers fixed 16. 9. 21. Engines tried under steam 16. 2. 22.

Completion of fitting sea connections 28. 6. 21 Stern tube 2. 6. 21. Screw shaft and propeller 28. 6. 21.

Main boiler safety valves adjusted 24. 11. 21 Thickness of adjusting washers Port Boiler  $P 32^{\circ} S 7/16^{\circ}$  Starboard Boiler  $P 32^{\circ} S 7/16^{\circ}$

Material of Crank shaft steel. Identification Mark on Do. Material of Thrust shaft steel. Identification Mark on Do. 1366A. 1367A

Material of Tunnel shafts steel. Identification Marks on Do. 1368A. 1369A Material of Screw shafts STEEL. Identification Marks on Do. 1340A.

Material of Steam Pipes Steel. Solid drawn 4" bore.  $\frac{1}{2}$ " thick Test pressure 645 lbs per sq inch ✓

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 no. If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c. These Engines and Boilers, have been

constructed under Special Survey, and in accordance with the Secretary's letter the Rules, and approved plans. The materials, and workmanship are good.

When completed and properly fitted on board, they were tried under at full power for four consecutive hours at sea, the results being in every way satisfactory.

An electric light installation has been fitted on board a report on which is forwarded herewith.

It is submitted that this vessel is eligible for THE RECORD.

L. M. C. - 2. 22. F. D. C. L.

MACHINERY CERT. WRITTEN.

Ans. 17/3/22.

The amount of Entry Fee ... £ 4 : : When applied for,  
Special ... £ 68 : 13 : 13. 3 1922  
Donkey Boiler Fee ... £ : : When received,  
Travelling Expenses (if any) £ : : 6/3/22

Committee's Minute TUE. 21 MAR. 1922

Assigned L. M. C. 2. 22

F. D. C. L.

Ridley Howell.  
Engineer Surveyor to Lloyd's Register of Shipping.



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