

REPORT ON MACHINERY.

No. 28184.

Date of writing Report

19

When handed in at Local Office

27 OCT 1921

Port of

Received at London Office

SUNDERLAND

FRI 28 OCT 1921

No. in Survey held at

SUNDERLAND

Date, First Survey

June 5 '20

Last Survey

11 Oct

1921

Reg. Book.

36029 on the new steel S/S "ZELO"

(Number of Visits 46)

Gross	2809 2294
Net	1819 1347

Master

Built at Sunderland

By whom built S. I. Austin & Son, Ltd.

When built

1921

Engines made at

Sunderland

By whom made

Richardson's Westgarth & Co. (Nº 2133)

When made

1921

Boilers made at

do

By whom made

do

do

when made

1921

Registered Horse Power

Owners Pelton & Co. Ltd. (R. S. Gardiner & J. Reay)

Port belonging to

Newcastle

Nom. Horse Power as per Section 28

300

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

24, 40, 65

Length of Stroke

42"

Revs. per minute

70

Dia. of Screw shaft

as per rule 12"

Material of screw shaft

S. Iron

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

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

Length of stern bush

4-6 1/2

Dia. of Tunnel shaft

as per rule 11-8 3/4"

Dia. of Crank shaft journals

as per rule 12-4"

Dia. of Crank pin

13

Size of Crank web

24 1/2 x 7 1/8

Dia. of thrust shaft under

collars

12 5/8"

Dia. of screw

15-6"

Pitch of Screw

17-6"

No. of Blades

4

State whether moveable

No

Total surface

75 sq ft

No. of Feed pumps

2

Diameter of ditto

3"

Stroke

27"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

3 1/2"

Stroke

27"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

4

Sizes of Pumps

20 3/4 x 8, 10 1/4 x 4 1/2, 7, 10 1/4 x 6

and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

3 @ 3"

In Holds, &c. No. 1 hold, - 2 @ 3". No. 2 hold, - 2 @ 3".

No. of Bilge Injections

1

size

5"

Connected to condenser, or to circulating pump

C.P.

Is a separate Donkey Suction fitted in Engine room & 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

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

none

How are they protected

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

MILERS, &c.—(Letter for record

S)

Manufacturers of Steel

John Spencer & Sons, Ltd.

Total Heating Surface of Boilers

4670 sq ft

Is Forced Draft fitted

no

No. and Description of Boilers

Two S.E. Marine

Working Pressure

180

Tested by hydraulic pressure to

360

Date of test

30-11-20

No. of Certificate

3736

Can each boiler be worked separately

yes

Area of fire grate in each boiler

72.5 sq ft

No. and Description of Safety Valves to

each boiler

Two, spring loaded

Area of each valve

8.29 sq ft

Pressure to which they are adjusted

185

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

2'-0"

Mean dia. of boilers

16'-3"

Length

10'-11 1/2"

Material of shell plates

S

Thickness

1 1/4"

Range of tensile strength

28.9 to 32 tons

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

D.R. lap.

g. seams

T.R. D.B.S.

Diameter of rivet holes in long. seams

1 1/2"

Pitch of rivets

9 5/16"

Lap of plates or width of butt straps

1 1/2"

end

Percentages of strength of longitudinal joint

rivets 86.4

plate 85.9

Working pressure of shell by rules

180.1

Size of manhole in shell

16 x 12

No. of compensating ring

1

No. and Description of Furnaces in each boiler

Four plain

Material

S

Outside diameter

3'-7"

Length of plain part

top 85-25"

bottom 82"

Thickness of plates

crown 13"

bottom 16"

Description of longitudinal joint

weld

No. of strengthening rings

Working pressure of furnace by the rules

184

Combustion chamber plates: Material

S

Thickness: Sides

11"

Back

23"

Top

11"

Bottom

Pitch of stays to ditto: Sides

9 1/2 x 9 1/4"

Back

9 1/2 x 9 1/4"

Top

9 1/2 x 9 1/4"

If stays are fitted with nuts or riveted heads

nuts inside

Working pressure by rules

183

Material of stays

S

Area at smallest part

203 sq ft

Area supported by each stay

89 sq ft

Working pressure by rules

205

End plates in steam space:

Material

S

Thickness

1 1/4"

Pitch of stays

17 x 22"

How are stays secured

D.N.W.

Working pressure by rules

181

Material of stays

S

Area at smallest part

7.24 sq ft

Area supported by each stay

374 sq ft

Working pressure by rules

201.3

Material of Front plates at bottom

S

Thickness

25"

Material of Lower back plate

S

Thickness

29"

Greatest pitch of stays

15" 14"

Working pressure of plate by rules

189

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/4 x 4 1/2"

Material of tube plates

S

Thickness: Front

25"

Back

25"

Mean pitch of stays

11"

Depth and

Pitch across wide water spaces

14 1/4"

Working pressures by rules

191.5

Girders to Chamber tops: Material

S

Depth and

Thickness of girder at centre

9 x 1 1/2"

Length as per rule

2-8"

Distance apart

9 3/4"

Number and pitch of stays in each

2 @ 9 1/8"

Working pressure by rules

181.4

Steam dome: description of joint to shell

none

% of strength of joint

Material

S

Thickness of shell plates

S

Material

S

Description of longitudinal joint

S

Diam. of rivet holes

S

No. of rivets

S

Working pressure of shell by rules

S

Crown plates

S

Thickness

S

How stayed

S</

IS A DONKEY BOILER FITTED?

yes

If so, is a report now forwarded?

yes

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 iron and bolt various sizes.

The foregoing is a correct description.
RICHARDSONS, WESTGARTH & CO., LTD.

Alfred Harrison

DIRECTOR

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1920. June 5. 29. July 19. 27. 30. Aug 12. Sep. 2. 20. Oct. 5. 20. 22. 26. 29. Nov. 12. 16. 19. 22. 25. }
{ During erection on board vessel - - - Dec. 1. 7. 8. 9. 15. 16. 1921. Jan. 11. 17. 18. 27. Feb. 2. 13. 14. 17. 24. 26. 27. Oct. 4. 6. 7. 8. 11 }
Total No. of visits 44

Is the approved plan of main boiler forwarded herewith

yes

" " " donkey " " " yes

Dates of Examination of principal parts—Cylinders 12-11-20 Slides 30-11-20 Covers 1-12-20 Pistons 22-11-20 Rods 5-10-20

Connecting rods 5-10-20 Crank shaft 12-4-20 Thrust shaft 22-10-20 Tunnel shafts 22-11-20 Screw shaft 9-12-20 Propeller 23-2-20

Stern tube 12-4-21 Steam pipes tested 14&17-9-21 Engine and boiler seatings 21-2-21 Engines holding down bolts 26-9-21

Completion of pumping arrangements 7-10-21 Boilers fixed 26-9-21 Engines tried under steam 27-9-21

Completion of fitting sea connections 21-2-21 Stern tube 8-9-21 Screw shaft and propeller 8-9-21

Main boiler safety valves adjusted 27-9-21 Thickness of adjusting washers $Pov. \text{ Inbr. } - P \frac{13}{16}, S \frac{3}{8}, \text{ Starts boiler } P \frac{5}{16}$

Material of Crank shaft *Sup. Steel* Identification Mark on Do. 6174 A.B. Material of Thrust shaft *Sup. Steel* Identification Mark on Do. 2133 E

Material of Tunnel shafts *trap iron* Identification Marks on Do. 2391 E.W.R. Material of Screw shafts *trap iron* Identification Marks on Do. 2391 E

Material of Steam Pipes *Solid drawn copper* Test pressure 400 lbs per sq"

Is an installation fitted for burning oil fuel yes Is the flash point of the oil to be used over 150°F. yes

Have the requirements of Section 49 of the Rules been complied with yes

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.)

The Materials and Workmanship are good.
The Machinery has been built under Special Survey and is eligible in our opinion for classification and the records + L.M.C. 10, 21 and fitted for oil fuel 10, F.P. above 150°F.

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. - 10.21. C.L.

Fitted for Oil Fuel 10.21. F.P. above 150°F.

L.G. 31/10/21. *Paul*

The amount of Entry Fee ... £ 5: :
Special ... £ 70: 0 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 5 OCT 1921
When received, 19. 11. 1921

Committee's Minute

Assigned

FRI. 4 NOV. 1921

+ L.M.C. 10.21. C.L.

Fitted for oil fuel 10.21
F.P. above 150°F.

Ed. W. Fuller and S. C. Davis.

Engineer Surveyors to Lloyd's Register of Shipping.

CERTIFICATE WRITTEN

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