

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

FRI 28 OCT. 1921

No. in Survey held at

SUNDERLAND

Date, First Survey

June 5 '20

Last Survey

11th Oct

1921

Reg. Book.

36029 on the new steel **S/S 'ZELO'**

(Number of Visits 46)

Gross 2509 2294
Net 1819 1347

Master

Built at Sunderland

By whom built J. P. Austin & Son, Ltd. 1918

Engines made at Sunderland

By whom made Richardsons Westgarth & Co. (N^o. 2133) when made 1921

Boilers made at do

By whom made do 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 1/2

Material of screw shaft 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

in 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 4-6 1/2

Dia. of Tunnel shaft as per rule 11-8 3/8

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 moceable 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 2 @ 2 1/2 x 8, 1 @ 1 1/2 x 4 1/2, 1 @ 1 1/2 x 4 1/2, 1 @ 1 1/2 x 4 1/2

and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 3 @ 3"

In Holds, &c. N^o. 1 hold, - 2 @ 3". N^o. 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

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

MILLERS, &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 in

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 15"

Pitch of rivets 9 5/16

Lap of plates or width of butt straps 1 1/2"

end 16 x 12

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

Area of compensating ring

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

13"

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 1"

Pitch of stays to ditto: Sides 9 1/2 x 9 1/4

Back 9 1/2 x 9 1/4

Top 9 3/4 x 9 1/8

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 in

Area supported by each stay 89 sq in

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 in

Area supported by each stay 374 sq in

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 1/4"

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"

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

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet holes

Material

Working pressure of shell by rules

Crown plates

Thickness

How stayed

Superheater. Type

Date of Approval of Plan

Tested by Hydraulic Pressure to

2021

Material of Test

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

Material of Safety Valve

Pressure to which each is adjusted

Is Easing Gear fitted

2021

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, FWH 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 13. 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, 12, 1922. Aug. 25. Sep. 8, 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

Is the approved plan of donkey boiler forwarded herewith

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 1/2" to 1 1/2" Start boiler 1/16"

Material of Crank shaft: Inf. Steel Identification Mark on Do. 6174 A.B. Material of Thrust shaft: Inf. 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 Workmanships 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° Fah.

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.S. 31/10/21. [Signature]

Certificate (if required) to be sent to SUNDERLAND.

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

Ed. W. Fuller and S. C. Davis. Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute FRI. 4 NOV. 1921
Assigned: + L.M.C. 10.21. C.L. Fitted for oil fuel 10.21 F.P. above 150° F.

