

REPORT ON MACHINERY.

No. 65782

SAT. MAR. 20. 1914

Date of writing Report 13th Mar. 1914 When handed in at Local Office 17. 3. 1914

Received at London Office

No. in Survey held at Newcastle

Date, First Survey 7th Aug 1912 Last Survey 13th Mar. 1914

NEWCASTLE-ON-TYNE.

Reg. Book.

on the S. S. "San Yefeiino"

(Number of Visits 101)

Master

Built at Newcastle

By whom built Palmes' Co

Tons

Gross 6430

Net 3921

When built 1914

Engines made at Newcastle

By whom made Palmes' Co

when made 1914

Boilers made at Newcastle

By whom made Palmes' Co

when made 1914

Registered Horse Power

Owners

Eagle Oil Transport Co Ltd. Port belonging to London

Nom. Horse Power as per Section 28 554

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted yes

ENGINES, &c.—Description of Engines

Quadruple Expansion

No. of Cylinders 4

No. of Cranks 4

Dia. of Cylinders 24"-35"-50 $\frac{1}{2}$ "-73"

Length of Stroke 51"

Revs. per minute 75

Dia. of Screw shaft

as per rule 15.06"

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

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 yes

If two

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

Length of stern bush 5'-3"

Dia. of Tunnel shaft

as per rule 13.45"

Dia. of Crank shaft journals

as per rule 14.12"

Dia. of Crank pin 14 $\frac{1}{2}$ "Size of Crank webs 20 $\frac{3}{4}$ "x9 $\frac{3}{4}$ "

Dia. of thrust shaft under

collars 14 $\frac{1}{2}$ "

Dia. of screw 18'-6"

Pitch of Screw 16'-3"

No. of Blades 4

State whether moveable yes

Total surface 108 $\frac{1}{2}$ sq

No. of Feed pumps 2

Diameter of ditto 4 $\frac{3}{4}$ "

Stroke 24"

Can one be overhauled while the other is at work yes

No. of Bilge pumps 2

Diameter of ditto 4 $\frac{1}{2}$ "

Stroke 24"

Can one be overhauled while the other is at work yes

No. of Donkey Engines 2

Sizes of Pumps 10"x12"x12" & 8"x6"x8"

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

In Engine Room None 3 $\frac{1}{2}$ "In Holds, &c. Two in bunkers 3 $\frac{1}{2}$ "

No. of Bilge Injections 1

sizes 12"

Connected to condenser, or to circulating pump yes

Is a separate Donkey Suction fitted in Engine room & size yes 9"

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 Both

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

Dates of examination of completion of fitting of Sea Connections 28-1-14

of Stern Tube 28-1-14

Screw shaft and Propeller 2-2-14

Is the Screw Shaft Tunnel watertight none

Is it fitted with a watertight door

worked from

BOILERS, &c.—(Letter for record R.)

Manufacturers of Steel J. Spence & Sons & Palmes' Co

Total Heating Surface of Boilers 7734 sq

Is Forced Draft fitted yes

No. and Description of Boilers 3- single-ended

Working Pressure 220 lbs

Tested by hydraulic pressure to 440 lbs

Date of test 26-9-13

No. of Certificate 8564

Can each boiler be worked separately yes

Area of fire grate in each boiler 57 sq

No. and Description of Safety Valves to

each boiler Two, Spring

Area of each valve 7.07 sq

Pressure to which they are adjusted 225 lbs

Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 26"

Mean dia. of boilers 15'-6"

Length 11'-9"

Material of shell plates Steel

Thickness 1 $\frac{9}{16}$ "

Range of tensile strength 32-35

Are the shell plates welded or flanged no

Descrip. of riveting: cir. seams 2-Lap

long. seams 3-B.S. & Pin

Diameter of rivet holes in long. seams 1 $\frac{19}{32}$ "Pitch of rivets 9 $\frac{3}{8}$ "Lap of plates or width of butt straps 22 $\frac{1}{2}$ "

Per centages of strength of longitudinal joint

rivets 101

plate 83

Working pressure of shell by rules 258 lbs

Size of manhole in shell 16" x 12"

Size of compensating ring 36 $\frac{1}{4}$ " x 32 $\frac{1}{4}$ " x 1 $\frac{9}{16}$ "

No. and Description of Furnaces in each boiler 3, Sights

Material Steel

Outside diameter 48"

Length of plain part

top 23 $\frac{1}{2}$ "

crown 32"

Description of longitudinal joint Welded

No. of strengthening rings

Working pressure of furnace by the rules 248 lbs

Combustion chamber plates: Material Steel

Thickness: Sides 1 $\frac{1}{16}$ "Back 1 $\frac{1}{16}$ "Top 1 $\frac{1}{16}$ "Bottom 1 $\frac{3}{32}$ "Pitch of stays to ditto: Sides 8 $\frac{1}{4}$ " x 7 $\frac{1}{2}$ "Back 7 $\frac{1}{8}$ " x 7 $\frac{1}{2}$ "Top 8 $\frac{3}{8}$ " x 7 $\frac{3}{8}$ "

If stays are fitted with nuts or riveted heads nuts

Working pressure by rules 254 lbs

Material of stays Steel

Diameter at smallest part 2.03"

Area supported by each stay 61.76 sq

Working pressure by rules 245 lbs

End plates in steam space

Material Steel

Thickness 1 $\frac{1}{8}$ "Pitch of stays 16 $\frac{1}{2}$ " x 16"

How are stays secured 8, N. & W.

Working pressure by rules 226 lbs

Material of stays Steel

Diameter at smallest part 7.24"

Area supported by each stay 264 sq

Working pressure by rules 275 lbs

Material of Front plates at bottom Steel

Thickness 1 $\frac{1}{16}$ "

Material of Lower back plate Steel

Thickness 3 $\frac{1}{32}$ "

Greatest pitch of stays 14"

Working pressure of plate by rules 250 lbs

Diameter of tubes 2 $\frac{1}{2}$ "Pitch of tubes 3 $\frac{3}{4}$ " x 3 $\frac{3}{4}$ "

Material of tube plates Steel

Thickness: Front 1 $\frac{1}{16}$ "Back 2 $\frac{9}{32}$ "Mean pitch of stays 8 $\frac{1}{16}$ "Pitch across wide water spaces 13 $\frac{1}{2}$ "

Working pressures by rules 236 lbs

Girders to Chamber tops: Material Steel

Depth and

thickness of girder at centre 9 $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "Length as per rule 32 $\frac{1}{2}$ "Distance apart 8 $\frac{3}{8}$ "Number and pitch of stays in each 3-7 $\frac{3}{8}$ "

Working pressure by rules 233 lbs

Superheater or Steam chest; how connected to boiler none

Can the superheater be shut off and the boiler worked

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

How stayed

stiffened with rings

Distance between rings

Working pressure by rules

End plates: Thickness

How stayed

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

Working pressure of end plates

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Area of safety valves to superheater

Are they fitted with easing gear

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No.	Description	By whom made	When made	Where fixed
Made at	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area
Working pressure	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Description of Safety
Valves	If fitted with easing 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
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:— 2 top-end, 2 bottom-end + 2 main-bearing bolts + nuts
 1 set of coupling bolts, 1 set of feed + bilge pump valves, 1 set of rings for
 each piston, a quantity of assorted bolts nuts + washers, a screw shaft, a propeller boss,
 2 propeller blades, a slide valve spindle, a pair of crank pin bushes, 1 eccentric sheave + strap.
 The foregoing is a correct description, 1 air pump rod, 2 safety valve springs.
 J.F. Manufacturer.

Dates of Survey while building
 During progress of work in shops — 1912 Aug. 7-15-16-21-26-27-28-29. Sep. 3-9-10-16-21-25-26 Oct. 10-15-28-29. Nov. 5-6-13-27. Dec. 5-16-17-18.
 During erection on board vessel — 1913 Jan. 7-9-16-17-24-30. Feb. 4-10-12-14-24. Mar. 5-6-7-11-21. Apr. 1-4-7-17-28. May 6-14-20-29. Jun. 3-13. Jul. 10-25.
 Total No. of visits Aug. 7-19-20-21-22-27-29. Jan. 3-13. Jul. 10-25. Aug. 7-19-20-21-22-27-29. Sep. 20-24-19-26-29. Oct. 1-2-17-24-30.
 Nov. 5-14. Dec. 2-8-1914. Jan. 16-26-28-30. Feb. 2-9-25. Is the approved plan of main boiler forwarded herewith yes
 Mar. 5-9-10-12-13. 101 visits

Dates of Examination of principal parts—Cylinders 27-11-12 Slides 9-1-13 Covers 8-8-12 Pistons 15-10-12 Rods 9-1-13
 Connecting rods 27-11-12 Crank shaft 5-3-13 Thrust shaft 1-4-13 Tunnel shafts 17-10-13 Screw shaft 2-10-13 Propeller 26-1-14
 Stern tube 17-12-12 Steam pipes tested 9-2-14 Engine and boiler seatings 28-1-14 Engines holding down bolts 5-3-14
 Completion of pumping arrangements 10-3-14 Boilers fixed 5-3-14 Engines tried under steam 10-3-14
 Main boiler safety valves adjusted 10-3-14 Thickness of adjusting washers PB. $P\frac{3}{4}S\frac{5}{16}$ SB. $P\frac{1}{2}S\frac{9}{16}$ FB. $P\frac{3}{4}S\frac{3}{4}$
 Material of Crank shaft Steel Identification Mark on Do. XX 3-13 Material of Thrust shaft Steel Identification Mark on Do. XX 4-13
 Material of Tunnel shafts Steel Identification Marks on Do. XX 10-13 Material of Screw shafts Steel Identification Marks on Do. XX 10-13
 Material of Steam Pipes Steel Test pressure 660 lbs

General Remarks (State quality of workmanship, opinions as to class, &c. The engines & boilers of this vessel have been constructed under special survey & the materials & workmanship are found to be good. The engines have been tried under steam & the safety valves adjusted at the working pressure. The boilers have been fitted for burning oil fuel on the Wallsend-Howden system and the special requirements for low-flash oil have been complied with, but the vessel is going to sea under coal. The approved plan of oil burning arrangement is forwarded herewith. A report on the electric installation will be forwarded when received from the Electricians. The machinery is now in good & safe working condition & eligible in my opinion to have the notation of +LMC 3-14 fitted for low-flash oil fuel 3-14. It is submitted that this vessel is eligible for THE RECORD. + LMC 3.14. F.D.

The amount of Entry Fee .. £ 3 0 0 When applied for, MAR 27 1914
 Special .. £ 47 14 0
 Donkey Boiler Fee .. £ ✓ : ✓ :
 Travelling Expenses (if any) £ ✓ : ✓ :
 When received, 4/4/14

Committee's Minute TUE. MAR. 31. 1914

Assigned

+ LMC 3.14. F.D.

Noted for low flash oil 3.14

Thomas Field J.W.D. 28/3/14
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.