

## REPORT ON MACHINERY.

No. 63484

FRI. JAN. - 3. 1913

Date of writing Report

19

When handed in at Local Office

19

Port of

Received at London Office

NEWCASTLE-ON-TYNE.

No. in Survey held at  
Reg. Book.

Newcastle

Date, First Survey

13<sup>th</sup> Nov. 1911

Last Survey

26<sup>th</sup> Dec 1912

On (Sgt) on the

Steel Screw Steamer "San Eduardo"

(Number of Visits)

120

Master

Built at

Newcastle

By whom built

Swan Hunter &amp; Wigham Richardson

Tons

Gross 6249 6225

Engines made at

Newcastle

By whom made

Swan Hunter &amp; Wigham Richardson

When made

1912

Boilers made at

Do

By whom made

Do

when made

Do

Registered Horse Power

Owners

Eagle Oil Transport Co. Ltd.

Port belonging to

London

Nom. Horse Power as per Section 28

486

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

Yes

## ENGINES, &amp;c.—Description of Engines

Inverted triple expansion

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

27.45 75

Length of Stroke

48

Revs. per minute

67

Dia. of Screw shaft

as per rule 15.17

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

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

Yes

Length of stern bush

5' 1"

Dia. of Tunnel shaft

as per rule 13.36

as fitted

nil

Dia. of Crank shaft journals

as per rule 14.25

as fitted

14.8

Dia. of Crank pin

14.8

Size of Crank webs

22.5 x 9

Dia. of thrust shaft under

collars

14.8

Dia. of screw

18.9

Pitch of Screw

18.0

No. of Blades

4

State whether moveable

Yes

Total surface

102 sq

No. of Feed pumps

2

Diameter of ditto

8"

Stroke

21"

Can one be overhauled while the other is at work

Weir

No. of Bilge pumps

2

Diameter of ditto

4.5"

Stroke

26"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

3

Sizes of Pumps

8 x 5.5

10 x 8

9 x 8

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

In Engine Room

3.7 3.2

In Holds, &amp;c.

oil tanks

No. of Bilge Injections

2

sizes

12"

Connected to condenser, or to circulating pump

pump

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

Yes

3.5"

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

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

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

What pipes are carried through the bunkers

Yes

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

Dates of examination of completion of fitting of Sea Connections

30.10.12

of Stern Tube

30.10.12

Screw shaft and Propeller

30.10.12

Is the Screw Shaft Tunnel watertight

Yes

Is it fitted with a watertight door

Yes

worked from

Yes

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

Manufacturers of Steel

J. Spencer &amp; Sons

Total Heating Surface of Boilers

6368

Is Forced Draft fitted

No

No. and Description of Boilers

3 S.E. Cyl. - Multi

Working Pressure

180 lb

Tested by hydraulic pressure to

360 lb

Date of test

1.11.12

No. of Certificate

8402

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

73 sq

No. and Description of Safety Valves to

each boiler

2 Spring Patent

Area of each valve

7.06

Pressure to which they are adjusted

185 lb

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

2.7 1/2"

Mean dia. of boilers

16.6 1/2"

Length

11.0

Material of shell plates

Steel

Thickness

1 7/8"

Range of tensile strength

29 3/4/33

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

d. 7 lap

long. seams

6 x d. 7.5

Diameter of rivet holes in long. seams

1 1/2"

Pitch of rivets

10 1/4"

Lap of plates or width of butt straps

22 1/2"

Per centages of strength of longitudinal joint

rivets 89.6

plate 85.3

Working pressure of shell by rules

199.4 lb

Size of manhole in shell

16 x 12"

Size of compensating ring

10 x 1 1/4"

No. and Description of Furnaces in each boiler

3 Dighton

Material

Steel

Outside diameter

52 1/2"

Length of plain part

top 1 1/2"

Thickness of plates

bottom 1 1/2"

Description of longitudinal joint

weld

No. of strengthening rings

Yes

Working pressure of furnace by the rules

214 lb

Combustion chamber plates: Material

Steel

Thickness: Sides

5/8"

Back

5/8"

Top

5/8"

Bottom

1"

Pitch of stays to ditto: Sides

7 1/2"

Back

7 1/2"

Top

7 1/2"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

218 lb

Material of stays

Iron

Diameter at smallest part

2.03"

Area supported by each stay

59.06

Working pressure by rules

248 lb

End plates in steam space:

Material

Steel

Thickness

1 1/2"

Pitch of stays

16 x 18"

How are stays secured

d. nut

Working pressure by rules

206 lb

Material of stays

Steel

Diameter at smallest part

6.1"

Area supported by each stay

2.88

Working pressure by rules

220 lb

Material of Front plates at bottom

Steel

Thickness

1"

Material of Lower back plate

Steel

Thickness

7/8"

Greatest pitch of stays

as per plan

Working pressure of plate by rules

186 lb

Diameter of tubes

3"

Pitch of tubes

4 1/2 x 4 1/2"

Material of tube plates

Steel

Thickness: Front

1 1/2"

Back

1 3/8"

Mean pitch of stays

12 3/4 x 8 1/2"

Pitch across wide water spaces

13 3/4"

Working pressures by rules

239 lb

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

9 x 1 7/8"

Length as per rule

33"

Distance apart

7 1/2"

Number and pitch of stays in each

3 - 7 1/2"

Working pressure by rules

180 lb

Superheater or Steam chest; how connected to boiler

Yes

Can the superheater be shut off and the boiler worked

separately

Yes

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

holes

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 Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment	
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	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:— 2 Top End bolts, 2 Bottom end bolts, 2 main bearing bolts, 1 set of coupling bolts, one propeller shaft, 4 propeller blades, 1 slide valve spindle, 1 set of valves & seats for waste pumps, 1 set of Bilge pump valves & seats, 1 set of Piston rings for each cylinder, Assorted bolts & nuts, bar & shaft iron.

FOR The foregoing is a correct description,  
SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

Manufacturer.

Dates of Survey while building	During progress of work in shops	During erection on board vessel	Total No. of visits
1911 Nov. 13, 17, 22, 24, 30, Dec. 6, 13, 19, 22, 27, Jan. 8, 10, 12, 16, 22, 24, 26, 31, Feb. 6, 12, 15, 19, 22, 26, 28	1911 Nov. 13, 17, 22, 24, 30, Dec. 6, 13, 19, 22, 27, Jan. 8, 10, 12, 16, 22, 24, 26, 31, Feb. 6, 12, 15, 19, 22, 26, 28	1911 Mar. 5, 6, 7, 12, 13, 14, 15, 22, 25, 28, Apr. 13, 14, 15, 17, 19, 22, 25, 26, 29, 30, May 1, 2, 5, 7, 9, 14, 15, 16, 20, 22, 23, 29, 30, Jun. 3, 4, 6, 7, 10, 11, 13, 14, 17, 20, 21, Jul. 1, 2, 3, 5, 15, 18, 22, 23, Aug. 7, 8, 9, 20, 29, Sep. 2, 3, 10, 16, 19, 20, 23, 24, 26, Oct. 2, 8, 10	120

Dates of Examination of principal parts—Cylinders	Slides	Covers	Pistons	Rods
1.5.12	30.4.12	15.4.12	16.4.12	12.2.12
Connecting rods	Crank shaft	Thrust shaft	Tunnel shafts	Screw shaft
12.2.12	27.2.12	6.5.12	✓	7.5.12
Propeller	7.5.12			
Stern tube	23.9.12	Steam pipes tested	18.12.12	Engine and boiler seatings
30.10.12	Engines holding down bolts	17.12.12		
Completion of pumping arrangements	24.12.12	Boilers fixed	17.12.12	Engines tried under steam
24.12.12	Thickness of adjusting washers	14.12.12	SV 3/8", H 1/2", PV 7/8", SV 7/8", 7/4", AA PV 7/8", SV 7/8"	
Main boiler safety valves adjusted	24.12.12	Material of Crank shaft	Steel	Identification Mark on Do.
1255 H 1/2"	Material of Thrust shaft	Steel	Identification Mark on Do.	1255 H 1/2"
Material of Tunnel shafts	✓	Identification Marks on Do.	✓	Material of Screw shafts
Steel	✓	Test pressure	540 lbs	✓

General Remarks (State quality of workmanship, opinions as to class, &c.) The Machinery of this vessel has been constructed under special survey, the workmanship and materials used are both of good quality, the Engines have been tried under steam with oil fuel burning and worked satisfactorily.

The oil fuel installation is of the Wallend type and has been fitted in accordance with the Rules.

To complete the survey a steam jet requires to be fitted in the upcast ventilator of the Oil Fuel Pump Room, and the induced draught fan tried under steam, this will be done at Griddalebro's the surveyors of which port have been so advised.

We beg to recommend that this vessel is eligible in our opinion to have the record **L M C. 12.12** in the Register Book when the survey as above noted is completed & also the Record Fitted for Liquid Fuel.

The amount of Entry Fee	£ 3 : 0	When applied for,	JAN 2 1913
Special	£ 44 : 6	When received,	4.1.1913
Donkey Boiler Fee	£ . . .		
Travelling Expenses (if any)	£ . . .		

Committee's Minute  
Assigned  
+ L.M.C. 12.12  
Fitted for low pressure oil fuel