

REPORT ON MACHINERY.

No. 14213

Received at London Office

THU. OCT. 23. 1913

Date of writing Report 20. 10. 1913 When handed in at Local Office 22. 10. 1913 Port of Leith

No. in Survey held at Leith Date, First Survey 17th June, 1913 Last Survey 16th October, 1913
 Reg. Book. S/S LINARES (Yard No. 97) (Number of Visits 14) Tons ^{Gross} 93.6 _{Net} 59.6

Master J. Juan xbo. Built at Leith By whom built J. Juan xbo. When built 1913

Engines made at Stockholm By whom made J. & C. Y. Bolanderis Co Ltd when made 1913

Boilers made at Brake By whom made Stockholm when made 1913

Registered Horse Power 80 Owners Companhia de Cabotagem de Pernambuco Port belonging to Pernambuco

Nom. Horse Power as per Section 28 80 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Bolanderis 2 stroke cycle, reversible No. of Cylinders 2 No. of Cranks 2

Dia. of Cylinders 330 mm Length of Stroke 340 mm Revs. per minute 325 Dia. of Screw shaft 4.52 Material of screw shaft Scraper
 as per rule 4.52 as fitted 4.58

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 21"

Dia. of Tunnel shaft 4.18 Dia. of Crank shaft journals 4.4 Dia. of Crank pin 4.4 Size of Crank webs 4.4 Dia. of thrust shaft under collars 4.4 Dia. of screw 5 1/16 Pitch of Screw 36 5/8 No. of Blades 3 State whether moveable No Total surface 7.58 sq

No. of Feed pumps 1 Diameter of ditto 4 Stroke 4 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 1 Diameter of ditto 4 Stroke 4 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 1 Sizes of Pumps 1-2" bore No. and size of Suctions connected to both Bilge and Donkey pumps 2-2" bore

In Engine Room 1-2" bore In Holds, &c. 2-2" bore

No. of Bilge Injections 1 sizes 1/2" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes

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 Yes

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks 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 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 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 3/9/13 of Stern Tube 3/9/13 Screw shaft and Propeller 4/9/13

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Yes

BOILERS, &c.—(Letter for record) Manufacturers of Steel

Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers

Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate

Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to each boiler Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates

Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams

long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Per centages of strength of longitudinal joint Working pressure of shell by rules Size of manhole in shell

Size of compensating ring No. and Description of Furnaces in each boiler Material Outside diameter

Length of plain part Thickness of plates Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules End plates in steam space:

Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules Material of stays

Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of Front plates at bottom

Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom Working pressure of plate by rules

Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules Mean pitch of stays

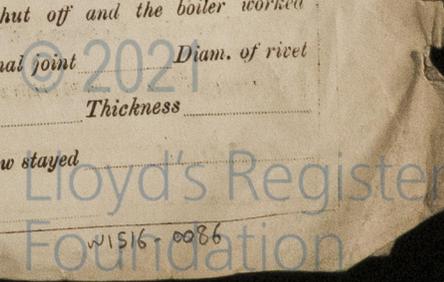
Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each

Working pressure by rules Superheater or Steam chest; how connected to boiler 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 holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If 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



VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description			When made	Where fixed
Made at	By whom made		Date of test		No. of Certificate
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 Bottom end & 2 Top end Bolts & nuts, 2 Main Bearing bolts, 1 set coupling bolts, 1 set Bilge pump valves, assorted nuts & bolts & rod iron. 1 set cylinder cover studs. 1 Propeller & propeller shaft complete 1 set circulating pump valves. 2 Hot bulbs, 2 Fuel pumps complete 2. Bottom end brasses etc

The foregoing is a correct description,

John Crane & Co. Manufacturer.

Dates of Survey while building	1913 June 17, 28.	1913 Sept. 3, 4, 8, 11, 16, 18, 22, 23, 27. Oct. 2, 4, 9, 13, 15, 16.
During progress of work in shops		
During erection on board vessel		
Total No. of visits	16	

Is the approved plan of main boiler forwarded herewith	✓
" " " donkey " " "	✓
Dates of Examination of principal parts—Cylinders	✓
Slides	✓
Covers	✓
Pistons	✓
Rods	✓
Connecting rods	✓
Crank shaft	✓
Thrust shaft	✓
Tunnel shafts	17/6 28/4/13
Screw shaft	17/6 28/6 3/9/13
Propeller	3, 4/9/13
Stern tube	3/9/13
Exhaust Steam pipes tested	4/10/13
Engine and boiler seatings	3/9/13
Engines holding down bolts	16, 23/9/13
Completion of pumping arrangements	9/10/13
Boilers fixed	✓
Engines tried under steam	9/10/13, 13/10/13
Main boiler safety valves adjusted	✓
Thickness of adjusting washers	✓
Material of Crank shaft	✓
Identification Mark on Do.	LLOYD'S 3524 WDH
Material of Thrust shaft	✓
Identification Mark on Do.	LLOYD'S 3524 WDH
Material of Tunnel shafts	✓
Identification Marks on Do.	LLOYD'S 3524 WDH
Material of Screw shafts	✓
Identification Marks on Do.	LLOYD'S 3524 WDH
Material of Steam Pipes	✓
Test pressure	100 lbs (Spare shafts 3535)

General Remarks (State quality of workmanship, opinions as to class, &c. Please see Stockholm Report N° 1295)

These engines have now been fitted on board in accordance with the rules. The fuel tanks have been tested & found satisfactory & fitted with drip trays & drains. The exhaust pipes have been tested to 100 lbs (Please see Secretary's letter Luth 6/10/13 re temporary fuel tanks)

The compressed air reservoirs are stated to have been tested by the maker, & a certificate received through the Stockholm Surveyors is now forwarded.

The engines have been tried & found to work well, ahead & astern. The maximum revolutions at full power was 323pm ahead & 315pm astern & the lowest revolutions which could be maintained for manœuvring purposes 222 per minute.

The speed of the vessel at full power, on 4'-0 1/2" mean draft was 7.97 knots.

The machinery of this vessel is eligible in my opinion to be classed + LMC 10.13

It is submitted that this vessel is eligible for THE RECORD. + LMC 10.13. (Annual Survey)

H. Dennis, Esq. Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee	£ 1	When applied for,	20/10/13
Special - (Charter at Stockholm)		When received,	7-11-13
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

Committee's Minute
Assigned
+ L.M.C 10.13
oil engines

MACHINERY CERTIFICATE WRITTEN



Certificate (if required) to be sent to the Surveyors on or below the space for Committee's Minute. (The Surveyors are requested not to write on or below the space for Committee's Minute.)