

REPORT ON MACHINERY.

No. 14214

Received at London Office

THU. OCT. 23. 1913

Date of writing Report 22.10.1913 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. 515 "Lindores" (Yard No. 98) (Number of Visits 15)
 Master J. Cancho Built at Leith By whom built J. Cancho Tons { Gross 93.6 Net 59.6
 Engines made at Stockholm By whom made J. & C. G. Bolinder & Co. Ltd When built 1913
 Boilers made at Swede By whom made J. & C. G. Bolinder & Co. Ltd when made 1913
 Registered Horse Power 80 Owners Companhia de Laboracao 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 Bolinders Two 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 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 21"
 Dia. of Tunnel shaft 4.5 Dia. of Crank shaft journals 4.5 Dia. of Crank pin 4.5 Size of Crank webs 4.5 Dia. of thrust shaft under collars 4.5
 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 ft
 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 1/2" 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 1/2" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size 1 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 Yes
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Locks
 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 10/10/13 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 11/9/13 of Stern Tube 11/9/13 Screw shaft and Propeller 11/9/13
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from 11/9/13

BOILERS, &c.—(Letter for record 11/9/13) Manufacturers of Steel Swede
 Total Heating Surface of Boilers 1111 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 2 - 1000 lbs pressure
 Working Pressure 1000 lbs Tested by hydraulic pressure to 1500 lbs Date of test 11/9/13 No. of Certificate 11/9/13
 Can each boiler be worked separately Yes Area of fire grate in each boiler 10 sq ft No. and Description of Safety Valves to each boiler 1 - 1000 lbs
 Area of each valve 10 sq ft Pressure to which they are adjusted 1000 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 10 ft Mean dia. of boilers 330 mm Length 10 ft Material of shell plates Steel
 Thickness 10 mm Range of tensile strength 1000 lbs Are the shell plates welded or flanged Yes Descrip. of riveting: cir. seams Yes
 long. seams Yes Diameter of rivet holes in long. seams 10 mm Pitch of rivets 10 mm Lap of plates or width of butt straps 10 mm
 Per centages of strength of longitudinal joint 100% Working pressure of shell by rules 1000 lbs Size of manhole in shell 10 in
 Size of compensating ring 10 in No. and Description of Furnaces in each boiler 1 - 1000 lbs Material Steel Outside diameter 10 in
 Length of plain part 10 ft Thickness of plates 10 mm Description of longitudinal joint Yes No. of strengthening rings 10
 Working pressure of furnace by the rules 1000 lbs Combustion chamber plates: Material Steel Thickness: Sides 10 mm Back 10 mm Top 10 mm Bottom 10 mm
 Pitch of stays to ditto: Sides 10 ft Back 10 ft Top 10 ft If stays are fitted with nuts or riveted heads Yes Working pressure by rules 1000 lbs
 Material of stays Steel Diameter at smallest part 10 mm Area supported by each stay 10 sq ft Working pressure by rules 1000 lbs End plates in steam space: 10 in
 Material Steel Thickness 10 mm Pitch of stays 10 ft How are stays secured Yes Working pressure by rules 1000 lbs Material of stays Steel
 Diameter at smallest part 10 mm Area supported by each stay 10 sq ft Working pressure by rules 1000 lbs Material of Front plates at bottom 10 in
 Thickness 10 mm Material of Lower back plate Steel Thickness 10 mm Greatest pitch of stays 10 ft Working pressure of plate by rules 1000 lbs
 Diameter of tubes 10 mm Pitch of tubes 10 ft Material of tube plates Steel Thickness: Front 10 mm Back 10 mm Mean pitch of stays 10 ft
 Pitch across wide water spaces 10 ft Working pressures by rules 1000 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 10 in
 Length as per rule 10 ft Distance apart 10 ft Number and pitch of stays in each 10
 Working pressure by rules 1000 lbs Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked separately Yes
 Diameter 10 in Length 10 ft Thickness of shell plates 10 mm Material Steel Description of longitudinal joint Yes Diam. of rivet holes 10 mm
 Pitch of rivets 10 mm Working pressure of shell by rules 1000 lbs Diameter of flue 10 in Material of flue plates Steel Thickness 10 mm
 If stiffened with rings Yes Distance between rings 10 ft Working pressure by rules 1000 lbs End plates: Thickness 10 mm How stayed Yes
 Working pressure of end plates 1000 lbs Area of safety valves to superheater 10 sq ft Are they fitted with easing gear Yes

If not, state whether, and when, one will be sent

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 Bottom end & Top end bolts & nuts, 2 Main bearing bolts, 1 set of coupling bolts, 1 set large pump valves, assorted nuts & bolts & well use. 1 Propeller & Propeller shaft complete, 1 set circulating pump valves, 2 Bottom end brasses, 2 Hot bulbs. 8 Piston rings etc.

The foregoing is a correct description,

John Crane & Co. Manufacturer.

Dates of Survey while building { During progress of work in shops - - - } 1913 June 17, 28.
 { During erection on board vessel - - - } 1913 Sept 11, 16, 18, 19, 22, 23, 27. Oct 2, 6, 10, 13, 15, 16.
 Total No. of visits 15

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 28/6/13 Screw shaft 17/6 28/6/13 Propeller 11/9/13

Stern tube 11/9/13 Exhaust Steam pipes tested 6/10/13 Engine and boiler seatings 16/9/13 Engines holding down bolts 23/9 2/10/13

Completion of pumping arrangements 10/10/13 Boilers fixed Engines tried under steam 10/10/13

Main boiler safety valves adjusted Thickness of adjusting washers

Material of Crank shaft Identification Mark on Do. _____ Material of Thrust shaft Identification Mark on Do. _____

Material of Tunnel shafts Identification Marks on Do. *LLOYDS N° 3525 W.D.H.* Material of Screw shafts Identification Marks on Do. *LLOYDS N° 3525 W.D.H.*

Material of Steam Pipes *Exhaust Iron* Test pressure 250 lbs (Spare shaft) N° 3535

General Remarks (State quality of workmanship, opinions as to class, &c. (Please see Stockholm No 1194))

These engines have now been fitted on board in accordance with the rules. The fuel tanks have been tested & found satisfactory, & fitted with drip tray & drains. The exhaust pipes have been tested to 250 lbs (Please see Secretary's letter 14th 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 were 323 ahead & 315 astern, and the lowest revolutions which could be maintained for manoeuvring purposes, 222 per minute.

The speed of the vessel at full power, on 6'-3" sea draft was 7.54 knots.

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

The amount of Entry Fee .. £ 1 : : : When applied for, _____

Special *Charged at Stockholm* 22/10/13

Donkey Boiler Fee .. £ : : : When received, _____

Travelling Expenses (if any) £ : : : 7-11-13

It is submitted that this vessel is eligible for THE RECORD + LMC. 10. 13. (Annual Survey)

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

Committee's Minute FRI. OCT. 24. 1913

Assigned + Lmb 10.13 oil engines



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

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?