

REPORT ON MACHINERY.

No. 24441

Port of Sunderland

Received at London Office **WED. 11 MAY 1910**

No. in Survey held at Sunderland Date, first Survey 7 Sept '09 Last Survey 22 April 1910

Reg. Book. on the Steel Screw Steamer "Largo" (Number of Visits 32)

Master Built at Sunderland By whom built S. P. Austin & Son Ltd Tons } Gross }
Net } When built 1910

Engines made at Sunderland By whom made G. Clark Ltd when made do

Boilers made at do By whom made do when made do

Registered Horse Power _____ Owners _____ Port belonging to _____

Nom. Horse Power as per Section 28 193 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Vertical Triple No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 20 1/2 33 54 Length of Stroke 39 Revs. per minute 65 Dia. of Screw shaft as per rule 11.65 Material of cast steel
as fitted 12 screw shaft

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 1/2

Dia. of Tunnel shaft as per rule 10.31 Dia. of Crank shaft journals as per rule 10.83 Dia. of Crank pin 11 Size of Crank webs 16 1/2 x 1/2 Dia. of thrust shaft under

collars 11 3/4 Dia. of screw 14-6 Pitch of Screw 16-6 No. of Blades 4 State whether moveable no Total surface 59.5

No. of Feed pumps Two Diameter of ditto 2 3/4 Stroke 22 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 3 1/2 Stroke 22 Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps 10x12 1/2 5 1/2 x 3 1/2 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room four 3" dia. In Holds, &c. Two in each 3" dia + one in tunnel

No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump Pumps Is a separate Donkey Suction fitted in Engine room & size yes 5" dia.

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 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

Dates of examination of completion of fitting of Sea Connections 9-2-10 of Stern Tube 9-2-10 Screw shaft and Propeller 6-4-10

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. Spencer & Son Newburn Steel Works

Total Heating Surface of Boilers 2905 Is Forced Draft fitted no No. and Description of Boilers Two single end multitubular

Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 4-3-10 No. of Certificate 2813

Can each boiler be worked separately yes Area of fire grate in each boiler 49 sq No. and Description of Safety Valves to

each boiler two direct spring Area of each valve 6.49 sq 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 ft Mean dia. of boilers 12-9 1/2 Length 10-6 Material of shell plates steel

Thickness 1 1/2 Range of tensile strength 84-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams OT Lap

long. seams OT Lap Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 7 1/4 Lap of plates or width of butt straps 16 5/8

Per centages of strength of longitudinal joint rivets 97.5 Working pressure of shell by rules 180 lb Size of manhole in shell end 16 x 13

Size of compensating ring end dished No. and Description of Furnaces in each boiler 3 plain Material steel Outside diameter 39"

Length of plain part top 75.25 Thickness of plates crown 4 1/2 Description of longitudinal joint weld No. of strengthening rings —

bottom 64 Working pressure of furnace by the rules 186 Combustion chamber plates: Material steel Thickness: Sides 22-23 Back 22-23 Top 22-23 Bottom 15

Pitch of stays to ditto: Sides 9 1/2 x 9 1/2 Back 9 x 10 1/4 Top 8 1/2 x 10 1/4 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182

Material of stays steel Diameter at smallest part 1 1/2 Area supported by each stay 97 sq Working pressure by rules 189 End plates in steam space:

Material steel Thickness 1 1/2 Pitch of stays 18 1/4 19 1/8 How are stays secured to nuts Working pressure by rules 182 Material of stays steel

Diameter at smallest part 7/8 Area supported by each stay 335 Working pressure by rules 188 Material of Front plates at bottom steel

Thickness 1 3/16 Material of Lower back plate steel Thickness 3/2 Greatest pitch of stays 15 Working pressure of plate by rules 185

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 4 1/2 4 1/2 Material of tube plates steel Thickness: Front 1 1/8 Back 3/2 Mean pitch of stays 10.2

Pitch across wide water spaces 1 1/2 Working pressures by rules 262 lb Girders to Chamber tops: Material steel Depth and

thickness of girder at centre 8 1/4 1 1/4 Length as per rule 29 5/16 Distance apart 10 1/4 Number and pitch of stays in each two 8 1/2

Working pressure by rules 188 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 _____

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VERTICAL DONKEY BOILER— Manufacturers of Steel

No. *Appendix* Description *Appendix*
 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 _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— *Propeller, 2 each bolts & nuts for top & bottom ends and main bearings, set of coupling bolts & nuts, valves for all pumps, springs for safety and escape valves, bolts, nuts, & iron assorted sundries etc.*

The foregoing is a correct description,

James C. Clark Manufacturers

Dates of Survey while building
 During progress of work in shops— *1909 Sept. 7, 14, 22, Oct. 5, 11, 25, Nov. 4, 12, 24, 30, Dec. 7, 23.*
 During erection on board vessel— *1910 Jan. 5, 13, 20, 25, Feb. 18, 9, 18, Mar. 3, 4, 9, 15, 18, 21, 31, Apr. 3, 6, 7, 14, 22.*
 Total No. of visits *(32)*

Is the approved plan of main boiler forwarded herewith *yes*
 " " " donkey " " " *yes*

Dates of Examination of principal parts—Cylinders *20.1.10* Slides *5.1.10* Covers *5.1.10* Pistons *5.3.10* Rods *24.11.09*
 Connecting rods *24.11.09* Crank shaft *20.1.10* Thrust shaft *20.1.10* Tunnel shafts *9.3.10* Screw shaft *21.3.10* Propeller *18.3.10*
 Stern tube *1-2.10* Steam pipes tested *7.4.10* Engine and boiler seatings *31.3.10* Engines holding down bolts *12.4.10*
 Completion of pumping arrangements *14-4-10* Boilers fixed *12.4.10* Engines tried under steam *4-4-10*
 Main boiler safety valves adjusted *14-4-10* Thickness of adjusting washers *all 3/8"*
 Material of Crank shafts *4690* Identification Mark on Do. *KH* Material of Thrust shafts *1791* Identification Mark on Do. *KH*
 Material of Tunnel shafts *1839 KH, 3429 PA, 1806 KH* Identification Marks on Do. *3452 PA* Material of Screw shafts *5702* Identification Marks on Do. *KH*
 Material of Steam Pipes *Leadless Copper & lengths 4' dia x 6' long.* Test pressure *400 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c.)

The above machinery has been constructed under special survey, the material & workmanship found good & efficient, fitted & tested in accordance with the rules & eligible in my opinion for classification with record of + LMC 4.10.

It is submitted that this vessel is eligible for THE RECORD. + LMC 4.10

E. J. Stoddart
 12.5.10

The amount of Entry Fee. £ 2 : 0 :
 Special £ 28 : 19 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 When applied for, *25.5.10*
 When received, *5.5.10*

E. J. Stoddart
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned *FRI. 13 MAY 1910*
+ L.M.C. 4.10.



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