

REPORT ON MACHINERY.

No. 24893

TUES. FEB 19 1907

Port of Glasgow

Received at London Office

19

No. in Survey held at
Reg. Book.

Dumbarton

Date, first Survey 26th July 06 Last Survey 8th Feb 1907

(Number of Visits)

on the

S.S. "Culina"

Master

Built at

Dumbarton

By whom built

Tom Denny & Co

Tons } Gross
Net

When built 1907

Engines made at

Dumbarton

By whom made

Denny & Co

when made

1907

Boilers made at

Dumbarton

By whom made

Denny & Co

when made

1907

Registered Horse Power

Owners

British India P. & O. Co Ltd

Port belonging to

Nom. Horse Power as per Section 28

760

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

yes

ENGINES, &c.—Description of Engines

Triple expansion

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 33" 33½" 86" Length of Stroke 60" Revs. per minute 75 Dia. of Screw shaft as per rule 17½" Material of screw shaft as fitted 17½" 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 — If two liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 5' 11½"

Dia. of Tunnel shaft as per rule 16¾" Dia. of Crank shaft journals as per rule 17½" Dia. of Crank pin 17½" Size of Crank webs 11½" 2-7" Dia. of thrust shaft under collars 17½" Dia. of screw 19½" Pitch of Screw 21-3" No. of Blades 4 State whether moveable yes Total surface 120 ft²

No. of Feed pumps 2 Diameter of ditto 5½" Stroke 30" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 5½" Stroke 30" Can one be overhauled while the other is at work yes

No. of Donkey Engines 4 Sizes of Pumps 8x6x8, 4½x2½x4 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 7 in 3½" In Holds, &c. two in each hold 3½" two in tunnel 2½"

No. of Bilge Injections 1 sizes 10" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size yes 3½"

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 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 for bilge How are they protected wood casing

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 18/12/06 of Stern Tube 18/12/06 Screw shaft and Propeller 19/12/06

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

BOILERS, &c.—(Letter for record)

Manufacturers of Steel

Lange & Dunlop & Co

Total Heating Surface of Boilers 10920 Is Forced Draft fitted yes No. and Description of Boilers 4, P.E. return tube

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 14/12/06 No. of Certificate 8668

Can each boiler be worked separately yes Area of fire grate in each boiler 66.5 ft² No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 9.62" Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 15" Mean dia. of boilers 15-6" Length 11-6" Material of shell plates steel

Thickness 1 1/16" Range of tensile strength 28-32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double long. seams Sub butts Diameter of rivet holes in long. seams 1 1/32" Pitch of rivets 9 3/4" Lap of plates width of butt straps 21 3/4"

Per centages of strength of longitudinal joint rivets 89.5 plate 84.9 Working pressure of shell by rules 200 lbs Size of manhole in shell 16 1/2"

Size of compensating ring 34"x24"x1 7/16 No. and Description of Furnaces in each boiler 3 horizontal Material steel Outside diameter 4-3 3/4"

Length of plain part top V bottom Thickness of plates crown 5/8 bottom Description of longitudinal joint well No. of strengthening rings 12

Working pressure of furnace by the rules 196 Combustion chamber plates: Material steel Thickness: Sides 9/16 Back 9/16 Top 9/16 Bottom 15/16

Pitch of stays to ditto: Sides 8"x7 1/2" Back 7 1/2"x7 3/4" Top 7 1/2"x7 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182

Material of stays iron Diameter at smallest part 1.69" Area supported by each stay 60" Working pressure by rules 210 End plates in steam space:

Material steel Thickness 1" Pitch of stays 17"x15" How are stays secured 2 nuts Working pressure by rules 200 lbs Material of stays steel

Diameter at smallest part 5-4/16" Area supported by each stay 17"x15" Working pressure by rules 212 Material of Front plates at bottom steel

Thickness 3/8" Material of Lower back plate steel Thickness 13/16" Greatest pitch of stays 14" Working pressure of plate by rules 180 lbs

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates steel Thickness: Front 13/16 Back 13/16 Mean pitch of stays 7 1/2"

Pitch across wide water spaces 13 1/2 Working pressures by rules 180 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8"x1 1/2" Length as per rule 29" Distance apart 8" Number and pitch of stays in each (3) 8"

Working pressure by rules 190 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 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

MECHANICAL 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 _____ 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 & nuts, 2 Bottom end bolts & nuts, 1 set of coupling bolts & nuts, 2 main bearing bolts & nuts, 7 feed & bilge pump valves, 1 propeller shaft & 2 blades, piston pumps & rings for each engine, iron, bolts & nuts assorted.

The foregoing is a correct description,

W. J. P. G. Manufacturer.

Dates of Survey while building { During progress of work in shops - - } 1906 July 26 Sep. 18, 20, 25 Oct. 11, 16 Nov. 5, 21 Dec. 10, 14, 19 1907 Jan. 9, 18, 21, 25, 30
 { During erection on board vessel - - } Feb. 7, 8
 Total No. of visits 18

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

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 19/12/06 Slides 19/12/06 Covers 19/12/06 Pistons 19/12/06 Rods 19/12/06
 Connecting rods 19/12/06 Crank shaft 19/12/06 Thrust shaft 19/12/06 Tunnel shafts 19/12/06 Screw shaft 19/12/06 Propeller 19/12/06
 Stern tube 19/12/06 Steam pipes tested 21/1/07 Engine and boiler seatings 19/12/06 Engines holding down bolts 18/1/07
 Completion of pumping arrangements 7/2/07 Boilers fixed 9/1/07, 18/1/07 Engines tried under steam 5/2/07
 Main boiler safety valves adjusted 7/2/07 Thickness of adjusting washers $P 3 \frac{1}{32}$, $C.S. \frac{3}{16}$, $S.S. \frac{1}{32}$, $F.S.A. \frac{1}{32}$
 Material of Crank shaft *steel* Identification Mark on Do. Material of Thrust shaft *steel* Identification Mark on Do.
 Material of Tunnel shafts *steel* Identification Marks on Do. Material of Screw shafts *steel* Identification Marks on Do.
 Material of Steam Pipes Test pressure *200 lb. per sq. in.*

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

These Engines & Boilers have been built under Survey. The materials & workmanship are of good description and in the opinion of the undersigned eligible to be noted in the Register Book. **L.M.C. 2.07.**

It is submitted that this vessel is eligible for THE RECORD **L.M.C. 2.07. ED. ELEC. LIGHT.**

W. J. P. G.
 19.2.07
 19.2.07

The amount of Entry Fee.. £ 3 : : When applied for, _____
 Special £ 58 : : _____
 Donkey Boiler Fee £ : : When received, _____
 Travelling Expenses (if any) £ : : 207 2/07

Committee's Minute

Assigned

Glasgow 18 FEB 1907

L.M.C. 2.07.

MACHINERY CERTIFICATE
 WRITTEN 18.2.07

A. McLean & James Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

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