

REPORT ON MACHINERY.

No. 23086

Received at London Office FRI. 4 NOV 1910

Date of writing Report 19 When handed in at Local Office 2-11-1910 Port of Hull

No. in Survey held at Hull & Selby Date, First Survey July 12th Last Survey 1st Nov 1910
 Reg. Book. 1910 on the Steel S.S. K. Ellen Duncan (Number of Visits 29) Tons { Gross 223
 Net 86

Master Built at Selby By whom built Messrs Bocheane & Sons When built 1910

Engines made at By whom made Messrs when made 1910

Boilers made at Hull By whom made Charles D. Holmes & Co. Ltd when made 1910

Registered Horse Power Owners J. Duncan Sons & Co. Ltd Port belonging to Liverpool

Nom. Horse Power as per Section 28 68 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 12 1/2" - 21 1/2" - 35" Length of Stroke 24 Revs. per minute 110 Dia. of Screw shaft as per rule 7.13" / as fitted 7.25" Material of steel 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 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 31"

Dia. of Plain part Thrust shaft as per rule 6.44" / as fitted 6.58" Dia. of Crank shaft journals as per rule 6.42" / as fitted 6.875" Dia. of Crank pin 6 1/8" Size of Crank webs 13" x 4 1/2" Dia. of thrust shaft under collars 6 1/2" Dia. of screw 8" - 7 1/2" Pitch of Screw 11" - 4 1/2" - 10" - 4 1/2" No. of Blades 4 State whether moveable No Total surface 30 sq ft

No. of Feed pumps 1 Diameter of ditto 2 3/8" Stroke 14 1/4" Can one be overhauled while the other is at work

No. of Bilge pumps 1 Diameter of ditto 2 3/8" Stroke 14 1/4" Can one be overhauled while the other is at work

No. of Donkey Engines One Sizes of Pumps 6" x 4 1/2" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 2" In Holds, &c. One each 2", to slush well, fish room, and forehold.

No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room of size 2 1/2" G.

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 None

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 hold suction 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 23.8.10 of Stern Tube 23.8.10 Screw shaft and Propeller 23.8.10

Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record 65) Manufacturers of Steel Phoenix & G.A.H.V. of Harde

Total Heating Surface of Boilers 1070 sq ft Is Forced Draft fitted No No. and Description of Boilers One Cyl. Multi S. End

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 12.10.10 No. of Certificate 1776

Can each boiler be worked separately Area of fire grate in each boiler 32.8 sq ft No. and Description of Safety Valves to each boiler Two Spring Area of each valve 3.97 sq in 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 10 1/2" Mean dia. of boilers 12'-6" Length 10'-0" Material of shell plates S

Thickness 1 1/8" Range of tensile strength 28-32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L.D. long. seams O.B.S.V.R. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 4" Lap of plates or width of butt straps 15"

Per centages of strength of longitudinal joint ribs 88.4 / plate 84.82 Working pressure of shell by rules 186 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 7" x 1 1/8" No. and Description of Furnaces in each boiler Two plain Material S Outside diameter 3'-7"

Length of plain part top 5'-10" / bottom 5'-10" Thickness of plates crowns 1 1/8" / bottom 1 1/8" Description of longitudinal joint Welded No. of strengthening rings 0

Working pressure of furnace by the rules 184 lbs Combustion chamber plates: Material S Thickness: Sides 3/32" Back 1/16" Top 3/32" Bottom 3/32"

Pitch of stays to ditto: Sides 9" x 10" Back 9" x 10" Top 8 1/2" x 10" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181 lbs

Material of stays S Diameter at smallest part 2.4 Area supported by each stay 110.25 Working pressure by rules 195 lbs End plates in steam space: Material S Thickness 1 1/8" Pitch of stays 17" x 17" How are stays secured O.T.W. Working pressure by rules 185 lbs Material of stays S

Diameter at smallest part 5.79 Area supported by each stay 289 Working pressure by rules 208 lbs Material of Front plates at bottom S

Thickness 7/8" Material of Lower back plate S Thickness 3/32" Greatest pitch of stays 14 1/2" x 9" Working pressure of plate by rules 194 lbs

Diameter of tubes 3 1/2" Pitch of tubes 5" x 5" Material of tube plates S Thickness: Front 2/8" Back 1/8" Mean pitch of stays 10"

Pitch across wide water spaces 15" Working pressures by rules with dble ply 248 lbs Girders to Chamber tops: Material S Depth and thickness of girder at centre 9" x 1 3/4" Length as per rule 2'-8 1/2" Distance apart 8 1/2" Number and pitch of stays in each Two - 10"

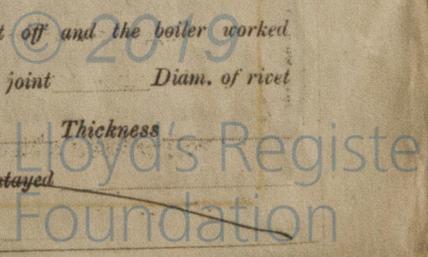
Working pressure by rules 227 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked separately

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

W241-0093



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
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
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:— *Two each top and bottom end connecting rod bolts and nuts, two main bearing bolts and nuts, one set coupling bolts and nuts, one set each air feed and bilge pump valves, a shaft impeller for circulating pump, assorted bolts nuts etc*

W. Arthur Holmes Manufacturer.

Dates of Survey while building: During progress of work in shops --- 1910: - July 12, Aug 9, 11, 15, 17, 19, 23, 25, 30, Sep 2, 7, 12, 14, 16, 20, 22, 29, 30, Oct 4, 5, 7, 12, 15, 20, 21, 24, 26, 29, Nov 1.

Dates of Examination of principal parts—Cylinders 2.9.10 Slides 29.9.10 Covers 14.9.10 Pistons 22.9.10 Rods 30.9.10
 Connecting rods 7.9.10 Crank shaft 17.8.10 Thrust shaft 23.8.10 Tunnel shafts Screw shaft 17.8.10 Propeller 17.8.10
 Stern tube 17.8.10 Steam pipes tested 21.10.10 Engine and boiler seatings 23.9.10 Engines holding down bolts 26.10.10
 Completion of pumping arrangements 29.10.10 Boilers fixed 26.10.10 Engines tried under steam 29.10.10
 Main boiler safety valves adjusted 26.10.10 Thickness of adjusting washers 5/16 5/16
 Material of Crank shaft I Identification Mark on Do. 704.2A. Material of Thrust shaft S Identification Mark on Do. 704.2B.
 Material of Tunnel shafts Identification Marks on Do. Material of Screw shaft I Identification Marks on Do. 704.2C
 Material of Steam Pipes Solid drawn Copper Test pressure 400 lbs per sq. inch.

General Remarks (State quality of workmanship, opinions as to class, &c. *The engines and boiler of this vessel have been constructed under special survey the materials and workmanship are good. The boiler tested by hydraulic pressure, and with the engines secured on board and tested under steam and found satisfactory. they are now in good order and safe working condition and respectfully submitted, as being eligible in my opinion to be classed with the notation of L.M.C. 11-10 in the Register Book*

It is submitted that this vessel is eligible for THE RECORD. + LMC 11-10.

James Barclay
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee .. £ 1 : :
 Special .. £ 10 : 4 :
 Donkey Boiler Fee .. £ : :
 Travelling Expenses (if any) £ - : 8 : 2

Committee's Minute
 Assigned
 10th NOV 1910
 MACHINERY CERTIFICATE WRITTEN



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