

REPORT ON MACHINERY.

No. 20,180

Port of Hull

Received at London Office **SAT. 20 JUN 1908**

No. in Survey held at Hull & Goole Date, first Survey June 5/07 Last Survey June 11th 1908.

Reg. Book. 78 Suff on the Steel S. K. Towhee (Number of Visits 57) Tons { Gross 199 Net 63

Master Built at Goole By whom built The Goole S. B. & R. Co. Ltd When built 1908

Engines made at } By whom made } when made 1908
Boilers made at } Hull By whom made } Messrs Earle's Co. Ltd when made 1908

Registered Horse Power Owners Kelaall Brothers & Beeching Ltd. Port belonging to Hull

Tom. Horse Power as per Section 28 55 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 12" - 21" - 33" Length of Stroke 21" Revs. per minute 105 Dia. of Screw shaft as per rule 6.7" Material of screw shaft Steel
 as fitted 7.75"
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube No Is the after end of the liner made water tight
Yes Separate liners 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 No Length of stern bush 35 1/2"
 Dia. of Tunnal shaft as per rule 5.74" Dia. of Crank shaft journals as per rule 6" Dia. of Crank pin 6.5" Size of Crank webs 12 1/2" x 4 1/2" Dia. of thrust shaft under
 tunnel as fitted 6.5" as fitted 6.5" Dia. of Crank pin 6.5" State whether moveable No Total surface 26 sq ft
 collars 6.5" Dia. of screw 8'-9" Pitch of Screw 9'-6" to 10'-6" No. of Blades 4 State whether moveable No Total surface 26 sq ft
 No. of Feed pumps 1 Diameter of ditto 2 1/2" Stroke 10" Can one be overhauled while the other is at work
 No. of Bilge pumps 1 Diameter of ditto 2 1/2" Stroke 10" Can one be overhauled while the other is at work
 No. of Donkey Engines One Sizes of Pumps 4 1/2" x 2 3/4" x 4" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room One 2", One 2 1/2" In Holds, &c. One 2" to hold, Two 2" to tanks
and ejector suction from all parts of ship
 No. of Bilge Injections 1 sizes 3 1/2" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 2 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 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 Iron 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 25.4.08 of Stern Tube 25.4.08 Screw shaft and Propeller 25.4.08
 Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door Yes worked from Yes

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Messrs Beardmore Co
 Total Heating Surface of Boilers 900 sq ft Is Forced Draft fitted No No. and Description of Boilers One Cyl. Multi
 Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test 22.4.08 No. of Certificate 1641
 Can each boiler be worked separately Yes Area of fire grate in each boiler 24 1/2 sq ft No. and Description of Safety Valves to
 each boiler Two Spring Area of each valve 3.14 sq ft Pressure to which they are adjusted 165 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 11 1/2" Mean dia. of boilers 10'-6" Length 9'-6" Material of shell plates Steel
 Thickness 37/32" Range of tensile strength 28-32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams L. D.
 long. seams D. B. S. D. C. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 5 3/8" Lap of plates or width of butt straps 11 1/2"
 Per centages of strength of longitudinal joint rivets 86.7% Working pressure of shell by rules 161 lbs Size of manhole in shell 16" x 12"
 plate 80.2%
 Size of compensating ring 30" x 28" x 3/2" No. and Description of Furnaces in each boiler Two plain Material Steel Outside diameter 2'-10"
 Length of plain part top 6-4 1/2" Thickness of plates crown 31" Description of longitudinal joint Welded No. of strengthening rings 0
 bottom 6-4 1/2" bottom 32"
 Working pressure of furnace by the rules 176 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 31/32" Top 5/8" Bottom 5/8"
 Pitch of stays to ditto: Sides 8 1/2" x 8 1/2" Back 10" x 9" Top 8 1/2" x 7 1/2" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 164 lbs
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 72.25 sq in Working pressure by rules 195 lbs End plates in steam space:
 Material Steel Thickness 7/8" Pitch of stays 15 x 15 How are stays secured D. N. Working pressure by rules 161 lbs Material of stays Steel
 Diameter at smallest part 2 5/8" Area supported by each stay 225 sq in Working pressure by rules 195 lbs Material of Front plates at bottom Steel
 Thickness 7/8" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays 14" x 9" Working pressure of plate by rules 191 lbs
 Diameter of tubes 3" Pitch of tubes 4 5/8" x 4 3/8" Material of tube plates Steel Thickness: Front 7/8" Back 1 1/8" Mean pitch of stays 9"
 Pitch across wide water spaces 14" Working pressures by rules 160 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 7 1/4" x 7 1/2" Length as per rule 2'-2" Distance apart 7 1/2" Number and pitch of stays in each Two 8 1/2"
 Working pressure by rules 246 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked
 separately Yes Diameter Length Thickness of shell plates Material Description of longitudinal joint Welded Diam. of rivet
 holes 1 1/8" 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 Yes
 Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear Yes

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		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 circulating, feed, and bilge pump valves, and a quantity of assorted bolts nuts etc.

The foregoing is a correct description,

Manufacturer.

F. J. Palethorpe

Dates of Survey while building

During progress of work in shops—	1907: Jun 5, 12, 17, 19, 22, 26, 29, Jul 4, 8, 17, 23, 30, Aug 20, 23, 30, Sep 4, 9, 12, 19, 24, Oct 10, 18, 28, Nov 1, 26.
During erection on board vessel—	Dec 4, 13, 16, 1908: Jan 6, Feb 4, 6, 10, 19, Mar 2, 9, 12, 17, 19, 25, 31, Apr 15, 22, 24, 25, 28, 29, 30, May 1, 5, 7, 15.
Total No. of visits	57

Is the approved plan of main boiler forwarded herewith No

Dates of Examination of principal parts—Cylinders 2 3 08 Slides 15 4 08 Covers 9 6 08 Pistons 12 9 07 Rods 12 9 07

Connecting rods 19 9 07 Crank shaft 25 4 08 Thrust shaft 14 1 08 Tunnel shafts Screw shaft 25 4 08 Propeller 25 4 08

Stern tube 25 4 08 Steam pipes tested 29 4 08 Engine and boiler seatings 25 4 08 Engines holding down bolts 1 5 08

Completion of pumping arrangements 11 6 08 Boilers fixed 1 5 08 Engines tried under steam 1 5 08

Main boiler safety valves adjusted 1 5 08 Thickness of adjusting washers $\frac{5}{16}$ $\frac{11}{32}$

Material of Crank shaft *Steel* Identification Mark on Do. *1936 ATG* Material of Thrust shaft *Steel* Identification Mark on Do. *114*

Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts *Steel* Identification Marks on Do. *114*

Material of Steam Pipes *Solid drawn Copper* Test pressure *400 lbs*

General Remarks (State quality of workmanship, opinions as to class, &c. *The engines and boiler of this vessel have been constructed under special survey in accordance with the Rules, 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 *LMC 6.08 in the Register Book.*

These engines boiler are similar to those fitted on the Hull Report No. 19510 1/2 Tern

It is submitted that this vessel is eligible for THE RECORD + LMC 6.08.

The amount of Entry Fee... £ 1 : : : When applied for, 19.6.1908

Special ... £ 8 . 5 : : : When received, 29.8

Donkey Boiler Fee ... £ : : : 1.9.08

Travelling Expenses (if any) £ : 6 : 4 : : : 19...

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

Committee's Minute

Assigned

TUES. 23 JUN 1908

+ LMC 6.08

MACHINER: OFFICER WRITTE.



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Certificate (if required) to be sent to Hull

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