

## REPORT ON MACHINERY.

No. 11683

Received at London Office TUE AUG 28 1923

Date of writing Report 19 When handed in at Local Office 25. 8. 1923 Port of Middlesbrough  
 No. in Survey held at Glasgow & Middlesbrough Date, First Survey 12<sup>th</sup> January 1921 Last Survey 24<sup>th</sup> August 1923  
 Reg. Book. on the Steel Screw Steamer "LONDON SHIPPER" (S.S. N<sup>o</sup> 20) Gross Tons {  
 Net Tons {  
 Master Built at Middlesbrough By whom built J. Furness & Co. Ltd When built 1923  
 Engines made at Clydebank By whom made John Brown & Co. Ltd (173/20) when made 1922  
 Boilers made at Middlesbrough By whom made Richardson Westgarth & Co. Ltd (2546) when made 1922  
 Registered Horse Power Rule 1010 1004 Owners Port belonging to  
 Shaft Horse Power at Full Power 5000 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes

See Glasgow Report N<sup>o</sup> 42291

TURBINE ENGINES, &c.—Description of Engines Brown Curtis S. R. geared Turbines No. of Turbines 2  
 Diameter of Rotor Shaft Journals, H.P. 7½ to 14 L.P. 10 to 18 Diameter of Pinion Shaft H.P. & L.P. 9" with 3" hole  
 Diameter of Journals 9" with 3" hole Distance between Centres of Bearings H.P. & L.P. 3-14" Diameter of Pitch Circle 10.012"  
 Diameter of Wheel Shaft 17 to 25" Distance between Centres of Bearings 7-14" Diameter of Pitch Circle of Wheel 144.21"  
 Width of Face 50" Diameter of Thrust Shaft under Collars 17½" Diameter of Tunnel Shaft as per rule 15.44"  
 as fitted 16"  
 No. of Screw Shafts one Diameter of same as per rule 16.5" Diameter of Propeller 18'-9" Pitch of Propeller 17'-3"  
 as fitted 17½"  
 No. of Blades 4 State whether Moveable no Total Surface 118 Diameter of Rotor Drum, H.P. — L.P. — Astern —  
 Thickness at Bottom of Groove, H.P. — L.P. — Astern — Revs. per Minute at Full Power, Turbine 1270 Propeller 88

## PARTICULARS OF BLADING.

	H. P.			L. P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION .....									
2ND " .....									
3RD " .....									
4TH " .....									
5TH " .....									
6TH " .....									
7TH " .....									
8TH " .....									

No. and size of Feed pumps Twin feed pumps 13½ x 10 x 26: Aux feed 9 x 6 x 10 8 ply: 3 Forced lubrication 8 x 9 x 18 single  
 No. and size of Bilge pumps One 6 x 6 x 6 8 ply: Two Ballant 9 x 11 x 10 (one sanitary 6 x 6 x 6 8 ply)  
 No. and size of Bilge suction in Engine Room 4 @ 3½" and one 2½" in duct keel  
 In Holds, &c. 2 @ 3½" in Nos 1, 2 & 3 holds and fore & after deep

Tanks: one 3½ in N<sup>o</sup> 4 hold: Tunnel well 1 @ 2½  
 No. of Bilge Injections 1 sizes 14" Connected to condenser, or to circulating pump yes 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 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 (duct keel) 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  
 Is the Screw Shaft Tunnel watertight see hull report Is it fitted with a watertight door yes worked from shutter deck

BOILERS, &c.—(Letter for record (S) 13168) Manufacturers of Steel Messrs John Spencer & Sons Ltd  
 Total Heating Surface of Boilers 13360 Is Forced Draft fitted yes No. and Description of Boilers 4 single ended  
 Working Pressure 190 Tested by hydraulic pressure to 335 Date of test 11.8.22 & 19.9.22 No. of Certificate 6276 & 6277  
 Can each boiler be worked separately yes Area of fire grate in each boiler 81½ No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 12.56 Pressure to which they are adjusted 195 lb Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 2'-6" Internal dia. of boilers 17'-6" Length 12'-0" Material of shell plates steel  
 Thickness 1 3/16 Range of tensile strength 29-33 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 Riv lap  
 long. seams D. Butt - T. Riv Diameter of rivet holes in long. seams 1½ Pitch of rivets 10 3/8 Lap of plates or width of butt straps 22 3/8  
 Per centages of strength of longitudinal joint rivets 85.4 Working pressure of shell by rules 201 lb Size of manhole in shell 16" x 12"  
 plates 85.5 Size of compensating ring 10 3/8 x 1 1/8 No. and Description of Furnaces in each Boiler 4 Dighton Material steel Outside diameter 46 3/4  
 Length of plain part top 5" crown 5" Description of longitudinal joint Weld No. of strengthening rings —  
 bottom 8" bottom 8"  
 Working pressure of furnace by the rules 215 Combustion chamber plates: Material steel Thickness: Sides 23/32 Back 23/32 Top 11/16 Bottom 15/16  
 Pitch of stays to ditto: Sides 10 5/8 x 8 1/2 Back 10 5/8 x 8 Top 10 1/4 x 8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 193  
 Material of stays steel Diameter at smallest part 2.03 Area supported by each stay 90.3 Working pressure by rules 202 End plates in steam space  
 Material steel Thickness 1 3/16 Pitch of stays 20 1/2 x 16 3/4 How are stays secured nuts & washers Working pressure by rules 190 Material of stays steel  
 Diameter at smallest part 7.24 Area supported by each stay 344 Working pressure by rules 219 Material of Front plates at bottom steel  
 Thickness 15/16 Material of Lower back plate steel Thickness 29/32 Greatest pitch of stays 15" x 8" Working pressure of plate by rules 196  
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates steel Thickness: Front 1 1/4 Back 27/32 Mean pitch of stays 19 1/2 x 9  
 Pitch across wide water spaces 14 1/4 x 9 Working pressures by rules 195 lb Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9" x 2" Length as per rule 32 1/2 Distance apart 10 1/4 Number and pitch of stays in each 3 @ 8"  
 Working pressure by rules 194 Steam dome: description of joint to shell none % of strength of joint — Diameter —  
 Thickness of shell plates — Material — Description of longitudinal joint — Diameter of rivet holes — Pitch of rivets —  
 Working pressure of shell by rules — Crown plates: Thickness — How stayed —



SUPERHEATER. Type *Schmidt* Date of Approval of Plan *2-3-21* Tested by Hydraulic Pressure to *400 lb*

Date of Test *25.9.22 & 4.10.22* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *yes*

Diameter of Safety Valve *one 2 1/2" dia direct spring* Pressure to which each is adjusted *197 lb* Is Easing Gear fitted *yes*

IS A DONKEY BOILER FITTED? *no* If so, is a report now forwarded? *—*

SPARE GEAR. State the articles supplied:— *Two bolts & nuts for each size of Rotor gear wheel bearings and pinion bearings: One set of coupling bolts for each size: Bolts & nuts for gear case joints & turbine casing joints: One set bearing bushes each, for gear wheel shaft, rotor & pinion shafts: One half set of packing rings for each gland of rotor shaft: one set of pads for Michell thrust & turbine thrust: One set of liners for adjusting block: One set each of feed & bilge pump valves: One set of lubricating oil pump valves: one bucket & rod for lubricating oil pump: One escape valve spring for each size: assorted bolts, nuts & iron: one C. Iron propeller: one screw shaft: one air pump bush & valve: One circulating pump impeller & shaft: One set of safety valve springs: one set feed check valves*  
*See also Glasgow Report No 42291*

The foregoing is a correct description,  
*HARDSONS WESTGARTH & Co., Ltd.* Manufacturer.

Dates of Survey while building	During progress of work in shops --	1921. Jan 12 16 Sept 9 28 Oct 25 Nov 10 30 Dec 2 9 13 20 (1922) Jan 1 13 20 Feb 2 9 13 17 22 Mar 3 10 14 20 24 27 30 Apr 3 6 13 14 15 17 21 25 28 31 May 1 6 8 15 19 23 29 (1923) Jan 5 9 10 12 19 22 26 Feb 8 9 14 18 24 Mar 5 7 8 12 22 29 Apr 5 16 17 18 24
	During erection on board vessel ---	31 May 4 6 13 14 15 17 21 25 28 31 Dec 1 6 8 15 19 23 29 (1923) Jan 5 9 10 12 19 22 26 Feb 8 9 14 18 24 Mar 5 7 8 12 22 29 Apr 5 16 17 18 24
	Total No. of visits	<i>104</i>

Dates of Examination of principal parts—Casings *Feb 10.5.22* Rotors *Feb 25.10.22* Blading *Feb 25.10.22* Gearing *25.10.22*

Rotor shaft *Feb 25.10.22* Thrust shaft *Feb —* Tunnel shafts *7.10.22* Screw shaft *7.10.22* Propeller *24.10.22*

Stern tube *24.10.22* Steam pipes tested *20.9.22* Engine and boiler seatings *13.12.21* Engines holding down bolts *15.12.22*

Completion of pumping arrangements *19.4.23* Boilers fixed *26.1.23* Engines tried under steam *yes*

Main boiler safety valves adjusted *19.4.23 & 24.4.23* Thickness of adjusting washers *PB 3-17/64 CB 3-24/64 SB 3-25/64 For B 3-13/32*

Material and tensile strength of Rotor shaft *S.M. Steel 34 to 38 tons* Identification Mark on Do. *384-385-25.10.22*

Material and tensile strength of Pinion shaft *Nickel steel* Identification Mark on Do. *1573-1572-25.10.22*

Material of Wheel shaft *S.M. Steel* Identification Mark on Do. *254-25.10.22* Material of Thrust shaft *Ing steel* Identification Mark on Do. *6121 N*

Material of Tunnel shafts *Ing steel* Identification Marks on Do. *6319* Material of Screw shafts *iron* Identification Marks on Do. *6319*

Material of Steam Pipes *Lap welded steel* Test pressure *570 lb*

Is an installation fitted for burning oil fuel *yes* Is the flash point of the oil to be used over 150°F. *yes*

Have the requirements of Section 49 of the Rules been complied with *yes*

Is this machinery a duplicate of a previous case *yes* If so, state name of vessel *S.S. London Merchant; P.M. No 11598*

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been built under special survey. The materials and workmanship are sound and good. The machinery has been satisfactorily fitted on board, examined under steam & all found satisfactory. The machinery is in a good and safe working condition and under the usual slight in our opinion to have the notation of LMC-8.23 and "Fitted for oil fuel 8.23 F.P. above 150°F"*

Note:— *The vessel is fitted with electric light and wireless.*

The amount of Entry Fee	£ 6 - 0 - 0	When applied for,
Special	£ 90 - 5 - 0	<i>27.8.1922</i>
Donkey Boiler Fee	£ — : —	When received,
Travelling Expenses (if any)	£ — : —	<i>20.8.23</i>

Committee's Minute *FRI AUG 31 1923*

Assigned *+ L.M.C. 8.23 F.D. C.L. Lined for oil fuel 8.23 F.P. above 150°F*

*Wm Morrison & C. E. Hicks*  
Engineer Surveyors to Lloyd's Register of Shipping.

