

REPORT ON MACHINERY.

No. 26092

Received at London Office

TUE MAY 5 - 1914
WED. JUL. 1 1914.

Date of writing Report 1-5-1914 When handed in at Local Office 4-5-1914 Port of Sunderland
No. in Survey held at Sunderland Date, First Survey 3rd Nov 1913 Last Survey 29 Apr 1914
Reg. Book. June 13 1914 (Ant)
(Number of Visits 3145=36 Gross 812 Net 603)

Master A. Jensen Built at Antwerp By whom built Antwerp Engineering Co Ltd (Ant 70) When built 1914
Engines made at Sunderland By whom made Mac Lell & Pollock Ltd (No 250) when made 1914
Boilers made at Sunderland By whom made Mac Lell & Pollock Ltd (No 250) when made 1914
Registered Horse Power _____ Owners J. Lauritzen Port belonging to Esbjerg
Nom. Horse Power as per Section 28 81 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 13", 21", 35" Length of Stroke 27 Revs. per minute _____ Dia. of Screw shaft 8.55" Material of screw shaft Steel
Is the screw shaft fitted with a continuous liner the whole length of the stern tube no liners Is the after end of the liner made water tight
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 2'-11"
Dia. of Tunnel shaft 6.7" Dia. of Crank shaft journals 7.09" Dia. of Crank pin 7 1/4" Size of Crank webs 10 7/8 x 4 3/8 Dia. of thrust shaft under
collars 7 1/4" Dia. of screw 18'-9" Pitch of Screw 10'-0" No. of Blades 4 State whether moveable No Total surface 42.5 sq ft
No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 14" Can one be overhauled while the other is at work yes
No. of Bilge pumps 2 Diameter of ditto 2 1/2" Stroke 14" Can one be overhauled while the other is at work yes
No. of Donkey Engines Two Sizes of Pumps For 5 1/4 x 3 1/2 x 5 Ballast 6 x 7 x 7 No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room Three of 2" In Holds, &c. Fore hold 2 of 2 Aft hold 2 of 2 4 1 of 2 1/2 in Kell.
No. of Bilge Injections One size 3" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes, 2 1/4"
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 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 9-5-14 of Stern Tube 9-5-14 Screw shaft and Propeller 9-5-14
Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Main deck level

BOILERS, &c.—(Letter for record S) Manufacturers of Steel John Spencer & Sons Ltd
Total Heating Surface of Boilers 1410 sq ft Is Forced Draft fitted No No. and Description of Boilers Two single ended marine
Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 16-3-14 & 22-4-14 No. of Certificate 3199 & 3208
Can each boiler be worked separately Yes Area of fire grate in each boiler 22 sq ft No. and Description of Safety Valves to
each boiler two direct spring Area of each valve 3.970 sq in Pressure to which they are adjusted 180 lbs. Are they fitted with easing gear Yes
Smallest distance between boilers or uptakes and bunkers or woodwork 7" Mean dia. of boilers 9'-6" Length 9'-6" Material of shell plates Steel
Thickness 2 1/2" Range of tensile strength 28.5-32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams WR
long. seams WBSTR Diameter of rivet holes in long. seams 1" Pitch of rivets 5.05" Lap of plates or width of butt straps 10 3/8"
Per centages of strength of longitudinal joint rivets 82.3 Working pressure of shell by rules 181 Size of manhole in shell 16 x 12"
plate 80.19 No. and Description of Furnaces in each boiler 2 Weighton form Material Steel Outside diameter 2'-9 3/4"
Length of plain part top 26 x 28 x 2 1/2" Thickness of plates crown 3 1/2" Description of longitudinal joint welded No. of strengthening rings _____
bottom _____ Working pressure of furnace by the rules 223 Combustion chamber plates: Material Steel Thickness: Sides 7/8" Back 3/2" Top 5/8" Bottom 13/16"
Pitch of stays to ditto: Sides 7 1/2 x 8 1/2" Back 9 1/2 x 8 1/2" Top 10 x 7" If stays are fitted with nuts or riveted heads Nuts in use Working pressure by rules 181
Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 75.40" Working pressure by rules 183 End plates in steam space: _____
Material Steel Thickness 3 1/2" Pitch of stays 18 1/2 x 12 1/2" How are stays secured W N & wash Working pressure by rules 181 Material of stays Steel
Diameter at smallest part 4 1/2" Area supported by each stay 228.0" Working pressure by rules 187 Material of Front plates at bottom Steel
Thickness 3 1/2" Material of Lower back plate Steel Thickness 3 1/2" Greatest pitch of stays 13 x 8 1/2" Working pressure of plate by rules 274
Diameter of tubes 3 1/4" Pitch of tubes 4 1/2 x 4 3/8" Material of tube plates Steel Thickness: Front 3 1/2" Back 13/16" Mean pitch of stays 11 1/8"
Pitch across wide water spaces 13 1/2 x 10" Working pressures by rules 184 Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre 2 @ 6 1/4 x 1 1/2" Length as per rule 1-11 1/2" Distance apart 10" Number and pitch of stays in each 2 @ 7"
Working pressure by rules 187 Superheater of Steam chest; how connected to boiler Independent Can the superheater be shut off and the boiler worked
separately Yes Diameter of flues 2 1/2" Thickness of shell plates 3 1/2" Material Steel 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 2 Area of safety valves to superheater 1.770 Are they fitted with easing gear Yes

VERTICAL DONKEY BOILER— *33* 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	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:— 1 Propeller, 2 Top & 2 bottom end bolts & nuts, 2 main bearing bolts & nuts, 1 set coupling bolts, 1 set feed & bilge pump valves, 1 set piston springs, various sizes of bolts & nuts & rod iron, 1 feed check valve, 6 gage glasses, 6 boiler tubes, 12 condenser tubes & ferrules, 2 safety valve springs, 1 live. sp. rod, 1 slide valve spindle, 1 set air & live. sp. valves, spare jacking & 1 set fire bars.

The foregoing is a correct description,
MAC COLL & POLLOCK LTD. Manufacturer.

Dates of Survey while building	During progress of work in shop	1913. Nov. 3. 11. 12. 18. 24 Dec. 11. 22. 23 Jan. 16. 21. 22. 26 Feb. 9. 13. 17. 18. 19
	During erection on board vessel	24. 27. Mar. 3. 13. 16. 19. 24. 26 Apr. 1. 7. 16. 22. 24. 29 May 9, 30. June 4, 6, 13.
Total No. of visits		31 + 5 = 36

Dates of Examination of principal parts	Cylinders	16-1-14	Slides	24-3-14	Covers	22-4-14	Pistons	9-2-14	Rods	19-3-14	
Connecting rods	27-2-14	Crank shaft	10-12-13	Thrust shaft	22-4-14	Tunnel shafts	22-4-14	Screw shaft	7-4-14	Propeller	26-3-14
Stern tube	7-4-14	Steam pipes tested	35 * 31.14	Engine and boiler seatings	30-5-14	Engines holding down bolts	30-5-14				
Completion of pumping arrangements	13-6-14	Boilers fixed	30-5-14	Engines tried under steam	13-6-14						
Main boiler safety valves adjusted	13-6-14	Thickness of adjusting washers	P. P & S 5/16" S. P. 5/16" S. 1/4"								
Material of Crank shaft	Steel	Identification Mark on Do.	3500ATP	Material of Thrust shaft	Steel	Identification Mark on Do.	9274KH.				
Material of Tunnel shafts	Steel	Identification Marks on Do.	9206KH.	Material of Screw shafts	Steel	Identification Marks on Do.	9206KH.				
Material of Steam Pipes	Steel, lapwelded.	Test pressure	540 lbs.								

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The materials and workmanship are good
 The machinery has been made under special survey and forwarded to Antwerp to be fitted in the vessel. Surveyors advised at that port.

The engines & boilers have now been fitted on board in a satisfactory manner & together with the auxiliary machinery tried under working conditions and found good and eligible, in my opinion, to have the record of + L.M.C. 6-14.

It is submitted that this vessel is eligible for **THE RECORD + L.M.C. 6.14.**

The amount of Entry Fee	£ 1	TOTAL	£ 19.14
Special	£ 8.2	When received.	£ 18.6.14
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

J.P.R. *J.W.D.*
 Jewish Davis, *Arthur Palmer*
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. JUL. 3-1914**

Assigned *+ L.M.C. 6.14*
 MACHINERY CERTIFICATE WRITTEN.



Certificate (if required) to be sent to the Surveyors and registered not to write on or below the space for Committee's Minute.