

# REPORT ON MACHINERY.

No. 4154

TUE 30 JUL 1918

Received at London Office

Surveying Report  
 Survey held at **MANCHESTER** Date, First Survey **7 June 1917** Last Survey **22 July 1918**  
 on the **STEAM TURBINES (RATEAU TYPE) S.S. ASSIOUT** Gross Tons **4215** Net **2633**  
 Built at **Londonbury** By whom built **Worth & Ireland S/B Co.** When built **1918**  
 Made at **Manchester** By whom made **British Westinghouse S.T.M. Co.** when made **1918**  
 Made at **Pasley** By whom made **H. F. Crossley & Co.** when made **1918**  
 Horse Power **516 448 HP for fans** Owners **Moss Steamship Co.** Port belonging to **Liverpool**  
 Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Yes**

**ENGINE ENGINES, &c.** Description of Engines **IMPULSE TURBINES** with DOUBLE REDUCTION GEAR No. of Turbines **1 HP & 1 LP**  
 Rotor Shaft Journals, H.P. **4 1/2** L.P. **4 1/2** Diameter of Pinion Shaft **5 3/4**  
 Journals **PINION 6** Distance between Centres of Bearings **2' 6"** Diameter of Pitch Circle **7' 4 1/2"**  
 Wheel Shaft **INTERMEDIATE SHAFT 3 1/2** Distance between Centres of Bearings **5' 0 1/2"** Diameter of Pitch Circle of Wheel **8' 9' 6 1/2"**  
 Diameter of Thrust Shaft under Collars **15"** Diameter of Tunnel Shaft **13' 5"**  
 Shafts **ONE** Diameter of same as per rule **14' 7"** Diameter of Propeller **17' 3"** Pitch of Propeller **18' 9' 18' 0"**  
 State whether Moveable **No** Total Surface **90 sq. ft.** Diameter of Rotor Drum, H.P. L.P. Astern  
 Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine **3000** Propeller **70**

**BLADES OF BLADING.**

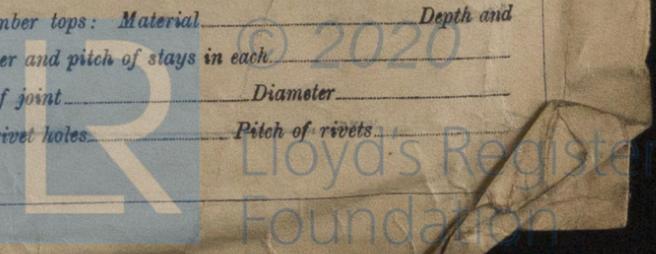
H.P.			L.P.			ASTERN.		
HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1 1/2" AND 1 3/4"	3' 2"	2	1 1/2"	3' 2"	1	1" AND 2 1/4"	3' 2"	2 in H.P. cylinder
1 3/8"	3' 2"	1	2 1/8"	3' 2"	1	2"	3' 2"	1 - LP
1"	3' 2"	1	2 5/8"	3' 2"	1	4"	3' 2"	1 - LP
5/8"	3' 2"	1	4 3/8"	3' 2"	1			
1 1/8"	3' 2"	1	6 3/8"	3' 2"	1			
			8 1/4"	3' 2"	1			
			10 5/8"	3' 2"	1			

Feed pumps **Two - 10 1/2 x 8 1/2 x 21" (Independent)**  
 Bilge pumps **Out off Lubricating gear to 15" stroke, Ballast 9 x 11 x 10" General 8 x 6 x 8"**  
 Bilge suction in Engine Room **4 - 3 1/2"**  
 In Holds, &c. **8 - 3 1/2"**

Injections **out** sizes **9"** Connected to condenser, or to circulating pump **Pump** Is a separate Donkey Suction fitted in Engine Room & size **7/8 - 3 1/2"**  
 Bilge suction pipes fitted with roses **Yes** Are the roses in Engine room always accessible **Yes**  
 Connections with the sea direct on the skin of the ship **Yes** Are they Valves or Cocks **Both**  
 Pipes 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**  
 Pipes 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**  
 Pipes are carried through the bunkers **Fore hold suction** How are they protected **Wood Casings**  
 Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times **Yes**  
 Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges **Yes**  
 Shaft Tunnel watertight **Yes** Is it fitted with a watertight door **Yes** worked from **Top platform Engine Room**

**STEEL, &c.** (Letter for record) Manufacturers of Steel **La Glasgow Report No 37779**  
 Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers  
 Pressure Tested by hydraulic pressure to Date of test No. of Certificate  
 Boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to  
 Area of each valve Pressure to which they are adjusted Are they fitted with easing gear  
 Distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates  
 Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams  
 Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps  
 Working pressure of shell by rules Size of manhole in shell  
 No. and Description of Furnaces in each Boiler Material Outside diameter  
 Thickness of plates Description of longitudinal joint No. of strengthening rings  
 Combustion chamber plates: Material Thickness: Sides Back Top Bottom Working pressure by rules  
 Stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules End plates in steam space  
 Diameter at smallest part Area supported by each stay Working pressure by rules Material of stays  
 Thickness Pitch of stays How are stays secured Working pressure by rules Material of Front plates at bottom  
 Area supported by each stay Working pressure by rules Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules  
 Material of tube plates Thickness: Front Back Mean pitch of stays  
 Working pressures by rules Girders to Chamber tops: Material Depth and  
 Length as per rule Distance apart Number and pitch of stays in each  
 Steam dome: description of joint to shell % of strength of joint Diameter  
 Description of longitudinal joint Diameter of rivet holes Pitch of rivets  
 Crown plates: Thickness How stayed

0500-THM



STEAM TURBINES REPORT No 4154

See Manufacture Report C. 836, 12-1-18

SUPERHEATER. Type Schmidt's Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to 600

Date of Test 26-11-17 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler   
 Diameter of Safety Valve 1-2" Pressure to which each is adjusted 187 lbs Is Easing Gear fitted

IS A DONKEY BOILER FITTED? Yes If so, is a report now forwarded? See Sheffield

SPARE GEAR. State the articles supplied:— Turbines - 2 bearing trasses, one trust bearing

1 set brass strips for diaphragm & spindle glands, one oil pump (Roto pump),  
2 Springs for relief valves, 57 condenser tubes and ferrules, centrifugal pump  
and shaft. Dual air pump rod, piston rod, steam valve chest, valves etc.

Reduction gear, 2 high speed shaft bushes, one intermediate shaft bush, one low speed  
bush, one high speed pinion complete, coupling keys

Miscellaneous bolts & nuts for all parts.  
1 Circulating pump impeller, sets of valves, springs & valves of steam oil pump.  
1 Piston Rod & Valve Oil Pump and pump rods.

The foregoing is a correct description.

for The British Westphalia Electric Co. Manufacturer.

Sets of lead balls  
 1 Filled caps for oil  
 2 Filter bushes for  
 2 Backer feed chest  
 Spare gear for the  
 5% Condenser tubes,  
 100 Furnace Trass  
 1 Spare Rod oil pump

Dates of Survey while building  
 During progress of work in shops -- 7-13-27 June 3<sup>rd</sup> Sept. 1-12-20 Oct. 25. Nov. 18. Dec. various other dates to 22 July 1918  
 During erection on board vessel --- 1918: Jan 25 Feb 13, 27 March 28 April 22 May 6, 23, 28 Aug 6, 14, 21, Oct 9, 10 Nov: 12, 12, 13  
 Total No. of visits 20 Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Casings 3/9-1-12-20/10-20/11/7 Rotors 1-20/10. 20/11. 18/12/17 Blading 1/10. 20/10. 18/12/17 Gearing 16/3-18  
 Rotor shaft 7-13-27/6/17, 20/11/17 Thrust shaft 16/3/18 Tunnel shafts 11-9-18 Screw shaft 12-10-17 Propeller 23-1-18

Stern tube 23-5-18 Steam pipes tested 14-8-18 2-10-18 Engine and boiler seatings 28-5-18 Engines holding down bolts 9-1-18  
 Completion of pumping arrangements 14-11-18 Boilers fixed 9-10-18 Engines tried under steam 13-11-18

Main boiler safety valves adjusted 13-11-18 Thickness of adjusting washers 8-12/32

Material and tensile strength of Rotor shaft Super Steel 33.6 tons Identification Mark on Do. LR  
 Material and tensile strength of Pinion shaft Nickel steel 40 tons per sq. inch: 23% Identification Mark on Do. (1.19)

Material of Wheel shaft 5% Nickel Steel Identification Mark on Do. (J.P.) Material of Thrust shaft Forg. Steel Identification Mark on Do. (1.19)

Material of Tunnel shafts W. Iron Identification Marks on Do. LLOYDS R.J.B 11-9-18 Material of Screw shafts W. Iron Identification Marks on Do. (1.19)

Material of Steam Pipes W. Iron Test pressure 540 lbs  
 Is an installation fitted for burning oil fuel No Is the flash point of the oil to be used over 150°F.

Have the requirements of Section 49 of the Rules been complied with   
 Is this machinery a duplicate of a previous case No If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) The steam turbines had been under special survey, the materials and workmanship so far as seen and found and good and eligible in my opinion to be classed with this Society with record of L.M.C.

Steam trials of the turbines and gear complete were carried out at Westinghouse Works, the results being satisfactory.

The machinery has now been shipped to Londonderry.

Double reduction gear made by the Power Plant Co. of West Dra

Mechanism had been securely fitted on board, and satisfactorily tried under

in Lough Foyle, in my opinion it is eligible for record L.M.C., 1918, provided

boards for Main Thrust Block (Nickel) and the propeller

See Self's Report No 8056

Assigned FRI. 10. JAN. 1919  
+ L.M.C. 11. 18.  
S.D.

The amount of Entry Fee	3	0	0
Special	1/6	7	11
Donkey Boiler Fee	1/4	7	6
Travelling Expenses (if any)		17	8
Defunct Expenses			
Committee's Minute			

When applied for, from mech. Sec. held down 73/8/18  
 When received, 37.14.20d. 1918  
 Applied for 18-11-18  
 Received 18-11-18  
 Engineer Surveyor to Lloyd's Register of Shipping  
A. Campbell  
Sea-connections examined in detail  
consequent upon the vessel touching  
Lough Foyle on trial trip.