

## REPORT ON MACHINERY.

No. 8734

Received at London Office 24 APR 1922

Date of writing Report 18<sup>th</sup> April 22 When handed in at Local Office 19 Port of Belfast  
 No. in Survey held at Belfast Date, First Survey 17<sup>th</sup> Jan 1921 Last Survey 13<sup>th</sup> April 1922  
 Reg. Book. P.S. British Workman (Number of Visits 83)  
 on the Master Built at Belfast By whom built Workman Clark & Co. Ltd. When built 1922  
 Engines made at Belfast By whom made when made  
 Boilers made at By whom made when made  
 Registered Horse Power 605 NHP Owners British Tanker Coy Ltd. Port belonging to London  
 Shaft Horse Power at Full Power 2750 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

## TURBINE ENGINES, &amp;c.—Description of Engines Double Reduction Gear Lumberton Turbines 2.

Diameter of Rotor Shaft Journals, H.P. 4 1/2" L.P. 5 1/2" Diameter of Pinion Shafts 4 1/2" & 10 1/2"  
 Diameter of Journals 4 1/2" & 10 1/2" Distance between Centres of Bearings 26 1/2" & 74" Diameter of Pitch Circle 6' 6 1/2" & 16' 8 1/2" L.P. 9' 8 1/2"  
 Diameter of Wheel Shaft 17 1/2" to 15 1/2" Distance between Centres of Bearings 73 1/2" Diameter of Pitch Circle of Wheel 103' 16"  
 Width of Face 38" Diameter of Thrust Shaft under Collars 17 1/2" & 17 3/4" Diameter of Tunnel Shaft as per rule 13' 6 1/2"  
 No. of Screw Shafts 1 (16 liners) Diameter of same as per rule 16' 2" as fitted 17' 1/2" Diameter of Propeller 19' 2" Pitch of Propeller 17' 6"  
 No. of Blades 4 State whether Moveable Yes Total Surface 96 sq ft 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 H.P. 3700 L.P. 2500 Propeller 70

## PARTICULARS OF BLADING.

	H.P.			L.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.
2 <sup>ND</sup> EXPANSION	16 1/2"	17 3/8"	6	2' 6"	2' 6"	4	2' 9"	2' 9"	1
3 <sup>RD</sup>	1 1/2"	18 1/4"	6	2' 7 1/2"	2' 7 1/2"	4	2' 10"	2' 10"	1
4 <sup>TH</sup>	1 3/4"	19 1/8"	5	2' 8 1/2"	2' 8 1/2"	4	2' 11 1/2"	2' 11 1/2"	1
5 <sup>TH</sup>	2"	20"	5	3' 6 1/2"	3' 6 1/2"	2	2' 11 1/2"	2' 11 1/2"	1
6 <sup>TH</sup>	2 1/2"	21 1/8"	5	3' 8 1/2"	3' 8 1/2"	2	2' 11 1/2"	2' 11 1/2"	1
7 <sup>TH</sup>	1 <sup>ST</sup> AHEAD EXPAN <sup>N</sup> - IMPULSE WHEEL - 2 ROWS BUCKETS - 28" MEAN DIA.			3' 9 1/2"	3' 9 1/2"	1	L.P. ASTERN		
8 <sup>TH</sup>	H.P. ASTERN			3' 10 1/2"	3' 10 1/2"	1	1 <sup>ST</sup> EXP <sup>N</sup> - IMPULSE WHEEL - 2 ROWS BUCKETS		
9 <sup>TH</sup>	" ONE IMPULSE WHEEL - 2 ROWS BUCKETS - 28" MEAN DIA.			4' 0 1/2"	4' 0 1/2"	1	40" MEAN DIA.		
				4' 2 1/2"	4' 2 1/2"	1			

No. and size of Feed pumps } See other sheet  
 No. and size of Bilge pumps }  
 No. and size of Bilge suction in Engine Room 5-3 1/2"

In Holds, &amp;c. 1-4" 3-3"

No. of Bilge Injections 1 sizes 11" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine Room & size 1-3 1/2"  
 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 side 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 Both  
 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 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 Is it fitted with a watertight door worked from

## BOILERS, &amp;c.—(Letter for record S)

Manufacturers of Steel Societe Metallurgique des Longs Ranges, Aschew-Botte

Total Heating Surface of Boilers 8296 sq ft Forced Draft fitted Yes No. and Description of Boilers 3 Single End, Cyl. Ends  
 Working Pressure 200 lbs Tested by hydraulic pressure to 350 lbs Date of test 24-11-21 No. of Certificate 805  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 698 sq ft No. and Description of Safety Valves to each boiler 2 Donkey Pump Area of each valve 11' 0 1/2" Pressure to which they are adjusted 205 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 12" Main dia. of boilers 16' 0" Length 12' 0" Material of shell plates Steel  
 Thickness 1 1/2" Range of tensile strength 28-32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap & abut  
 long, seams 10 Butte Lub diameter of rivet holes in long, seams 1 1/2" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 2 1/2"  
 rivets 85' 7" Working pressure of shell by rules 203 lbs Size of manhole in shell 16" x 12"  
 plates 85' 8"  
 Size of compensating ring and Description of Furnaces in each Boiler 4-Beighten material Steel Outside diameter 42 1/2"  
 Length of plain part top 8" Thickness of plates bottom 3 1/2" Description of longitudinal joint Weld No. of strengthening rings  
 Working pressure of furnace by the rules 214 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/4" Back 3/4" Top 3/4" Bottom 1 1/2"  
 Pitch of stays to ditto: Sides 8 x 7 1/2" Back Various Top 8 x 7 1/2" If stays are fitted with nuts or riveted heads Vute on Mangum stays only by rules 202 lbs  
 Material of stays Steel at smallest part 45 1/2 x 2 1/2" supported by stay 64 1/2" Working pressure by rules 205 lbs End plates in steam space  
 Material Steel Thickness 1 1/2" Pitch of stays 18 1/2 x 22 1/2" How are stays secured Vute & Mangum Working pressure by rules 201 lbs Material of stays Steel  
 Diameter at smallest part 7' 8 1/2" Area supported by stay 42 1/2 sq ft Working pressure by rules 205 lbs Material of Front plates at bottom Steel  
 Thickness 1" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 15" Working pressure of plate by rules 218 lbs  
 Diameter of tubes 3" Pitch of tubes 4 1/2" Material of tube plates Steel Thickness: Front 1" Back 3/4" Mean pitch of stays 22 1/2 x 8 1/2"  
 Pitch across wide water spaces 14" Working pressure by rules 262 lbs Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 9 1/2" x (4 x 2) Length as per rule 34 1/2" Distance apart 9' 4" Number and pitch of stays in each 3-7 1/2"  
 Working pressure by rules 203 lbs Steam dome: description of joint to shell % 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 ☒ Tested by Hydraulic Pressure to *1000 lbs*  
 Date of Test *28-12-21* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *Yes*  
 Diameter of Safety Valve *1 1/2* Pressure to which each is adjusted *200 lbs* Is Easing Gear fitted *Yes*  
 IS A DONKEY BOILER FITTED? *Yes* If so, is a report now forwarded? *Yes*  
 SPARE GEAR. State the articles supplied:— *See other sheet*



The foregoing is a correct description,  
 FOR WORKMAN, CLARK & CO., LIMITED,

Manufacturer.

Dates of Survey while building { During progress of work in shops - - } *17<sup>th</sup> June 1921 & 13<sup>th</sup> April 1922*  
 { During erection on board vessel - - }  
 Total No. of visits *83* Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*  
 Dates of Examination of principal parts—Casings *27-1-22* Rotors *27-1-22* Blading *14-2-22* Gearing *28-2-22*  
 Rotor shaft *23-1-22* Thrust shaft *23-12-22* Tunnel shafts *23-12-22* Screw shaft *23-12-22* Propeller *23-12-22*  
 Stern tube *23-12-22* Steam pipes tested *13-3-22* Engine and boiler seatings *8-2-22* Engines holding down bolts *8-2-22*  
 Completion of pumping arrangements *4-4-22* Boilers fixed *10-2-22* Engines tried under steam *4-4-22*  
 Main boiler safety valves adjusted *4-4-22* Thickness of adjusting washers *8-11-22*  
 Material and tensile strength of Rotor shaft *I. Steel 34-38 tons* Identification Mark on Do. *3946 D.M. 12*  
 Material and tensile strength of Pinion shaft *- - 41-45 tons* Identification Mark on Do. *3946 D.M. 12*  
 Material of Wheel shaft *I. Steel* Identification Mark on Do. *L.R. 4846 M.B. 21* Material of Thrust shaft *do* Identification Mark on Do. *LLOYDS P.T. 23-12*  
 Material of Tunnel shafts *do* Identification Marks on Do. *do* Material of Screw shafts *do* Identification Marks on Do. *do*  
 Material of Steam Pipes *S.A. Steel* Test pressure *600 lbs*  
 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 *No* If so, state name of vessel *✓*

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship and the materials are of good description, and on trial under steam in Belfast Lough, the machinery worked satisfactorily. In my opinion, it is eligible for record + L.M.C. 4-22 with notation "Forced Draft" Electric Light, and "Fitted for oil fuel F.P. above 150°F."

It is submitted that this vessel is eligible for THE RECORD + L.M.C. - 4.22. F.D. ~~22~~ 605 Fitted for Oil Fuel, 4.22, F.P. above 150°F. 2 steam turbines geared to one screw shaft.

The amount of Entry Fee ... £ *6 -* When applied for, *19-4-22*  
 Special ... £ *105-5-0*  
 Donkey Boiler Fee ... £ : : When received, *27-5-22 W.M.*  
 Travelling Expenses (if any) £ : :

*R. F. Beumidg*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI APR. 28 1922

2 MACHINERY CERTS  
 WRITTEN.

Assigned

+ L.M.C. 4.22 F.D.

Fitted for oil fuel 4.22  
 F.P. above 150°F.



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