

REPORT ON MACHINERY

No. 74826

Received at London Office WED 12 OCT 1921

Date of writing Report Oct 1st 1921 When handed in at Local Office Oct 11th 1921 Port of NEWCASTLE ON TYNENo. in Survey held at Malloend-on-Syne Date, First Survey Oct 22nd 1920 Last Survey Sept 24th 1921
Reg. Book. 12407 on the steam steamer "City of Paris" (Number of Visits 81)

Master Built at Malloend By whom built Swan & Hunter and Co. Ltd. When built 1921
 Engines made at Malloend By whom made The Malloend Shipway & Eng. Co. Ltd. when made 1921
 Boilers made at SO By whom made SO when made SO
 Registered Horse Power Owners City Line Lim. Mr. S. Workman Port belonging to Glasgow
 Shaft Horse Power at Full Power 6650 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

TURBINE ENGINES, &c.—Description of Engines Double Reduction Geared Turbines No. of Turbines 2
 Diameter of Rotor Shaft Journals, H.P. 5 $\frac{3}{4}$ L.P. 8" Diameter of Pinion Shaft HP=6 $\frac{1}{2}$ LP=4 $\frac{1}{2}$ 2nd Red=17"
 Diameter of Journals 6 $\frac{1}{2}$ 7 $\frac{1}{2}$ 17" Distance between Centres of Bearings 3-3" Diameter of Pitch Circle HP=10.07-LP=16.28-2nd Red=25.90-8
 Diameter of Wheel Shaft 19 $\frac{1}{2}$ " Distance between Centres of Bearings 8-6" Diameter of Pitch Circle of Wheel 139"
 Width of Face 48" Diameter of Thrust Shaft under Collars 19 $\frac{1}{2}$ " 18 Rule Diameter of Tunnel Shaft as per rule 17.8 17.13
 No. of Screw Shafts One C.L. See Note No. 21/10/21 19.08 18.5 Diameter of Tunnel Shaft as fitted 18.4
 No. of Blades 4 State whether Moveable Yes Total Surface 159 ft² Pitch of Propeller 19-6"
 Thickness at Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine HP=2910 LP=1800 Propeller 80.4

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	1 $\frac{1}{2}$	26 $\frac{1}{2}$	1		3 $\frac{1}{2}$	5-2	5		1 $\frac{1}{2}$	5-4 $\frac{1}{2}$	1	Row 1 - 1 st STAGE
2ND	1 $\frac{1}{2}$	29 $\frac{1}{2}$	1		5	5-3 $\frac{1}{2}$	5		3 $\frac{1}{2}$	5-6 $\frac{1}{2}$	1	" 2 - 2 nd STAGE
3RD	1 $\frac{1}{2}$	31 $\frac{1}{2}$	1		4 $\frac{1}{2}$	4-9 $\frac{1}{2}$	5		5 $\frac{1}{2}$	5-7 $\frac{1}{2}$	1	" 3 - 3 rd STAGE
4TH	1 $\frac{1}{2}$	33 $\frac{1}{2}$	1		6 $\frac{1}{2}$	5-1 $\frac{1}{2}$	5		5 $\frac{1}{2}$	5-8 $\frac{1}{2}$	1	" 4 - 4 th STAGE
5TH	1 $\frac{1}{2}$	35 $\frac{1}{2}$	1		9	5-3 $\frac{1}{2}$	1		2 $\frac{1}{2}$	5-4 $\frac{1}{2}$	1	HP ASTERN Row 1 - 1 st STAGE
6TH	2	37	1		9	5-6	1		3 $\frac{1}{2}$	5-5 $\frac{1}{2}$	1	" 2 - 2 nd STAGE
7TH	2 $\frac{1}{2}$	37 $\frac{1}{2}$	1									
8TH												

No. and size of Feed pumps 2 Main feed 11 $\frac{1}{2}$ x 15 $\frac{1}{2}$ x 24" One harbour feed 5 $\frac{1}{2}$ x 8 $\frac{1}{2}$ x 12"
 No. and size of Bilge pumps 2 Engine bilge pumps 15 x 6 $\frac{1}{2}$ One motor driven B.P. 9 x 8" One tunnel bilge pump 8 x 9 x 8" One ballast pump 10 x 12 x 12"
 No. and size of Bilge suction in Engine Room 2-3 $\frac{1}{2}$ " Port side. One 3 $\frac{1}{2}$ " starboard side. One 7" direct bilge suction in tunnel and two 2 $\frac{1}{2}$ " oil
 bilge suction in engine room.
 Tunnel well one 3". In Holds, &c. Holds 1, 2, 3, 4, 5, and reserve hold each 2-3 $\frac{1}{2}$ ".

No. of Bilge Injections One sizes 17" Connected to condenser or to circulating pump Yes Is a separate Donkey Suction fitted in Engine Room & size Yes 1-6"
 Are all the bilge suction pipes fitted with roses Yes or mud boxes 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 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 Yes Is it fitted with a watertight door Yes worked from shelter deck

BOILERS, &c.—(Letter for record 15765 FOR RULE) Manufacturers of Steel John Spencer
 Total Heating Surface of Boilers 16015 Is Forced Draft fitted Yes No. and Description of Boilers Fire single ended
 Working Pressure 225 lbs Tested by hydraulic pressure to 394 lbs Date of test 28.12.21 No. of Certificate 9518
 In each boiler be worked separately Yes Area of fire grate in each boiler 78.4 ft² No. and Description of Safety Valves to each boiler 2 Spring loaded Area of each valve 22.09 sq. in. Pressure to which they are adjusted 230 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 2-0" Mean dia. of boilers 16-7" Length 12-7" Material of shell plates steel
 Thickness 1 $\frac{1}{8}$ " Range of tensile strength 30-34 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams 8-2 $\frac{1}{2}$ "
 Long. seams DBS Frictioned Diameter of rivet holes in long. seams 1 $\frac{1}{8}$ " Pitch of rivets 10 $\frac{1}{4}$ " Lap of plates or width of butt straps 23 $\frac{1}{2}$ "
 Percentages of strength of longitudinal joint rivets 88.0 plates 84.8 Working pressure of shell by rules 240 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 2 $\frac{1}{2}$ " heels No. and Description of Furnaces in each Boiler 4 Deightons Material steel Outside diameter 46 $\frac{1}{2}$ "
 Length of plain part top crown 48" bottom 64" Description of longitudinal joint welded No. of strengthening rings
 Working pressure of furnace by the rules 238 Combustion chamber plates: Material steel Thickness: Sides 1 $\frac{1}{2}$ " Back 1 $\frac{1}{2}$ " Top 1 $\frac{1}{2}$ " Bottom 1"
 Pitch of stays to ditto: Sides 8 $\frac{1}{2}$ x 8" Back 8 $\frac{1}{2}$ x 8 $\frac{1}{4}$ Top 8 $\frac{1}{4}$ x 7 $\frac{1}{2}$ If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 237 lbs
 Material of stays steel Diameter at smallest part 2.13" Area supported by each stay 70 sq. in. Working pressure by rules 265 lbs End plates in steam space
 Material steel Thickness 1 $\frac{1}{2}$ " Pitch of stays 20 $\frac{1}{2}$ x 15 $\frac{1}{2}$ How are stays secured 8 nuts Working pressure by rules 225 lbs Material of stays steel
 Diameter at smallest part 7.24" Area supported by each stay 324 sq. in. Working pressure by rules 232 lbs Material of Front plates at bottom steel
 Thickness 1" Material of Lower back plate steel Thickness 1 $\frac{1}{2}$ " Greatest pitch of stays 14 $\frac{1}{2}$ " Working pressure of plate by rules 227 lbs
 Diameter of tubes 2 $\frac{3}{4}$ " Pitch of tubes 3 $\frac{1}{2}$ x 4" Material of tube plates steel Thickness: Front 1" Back 1 $\frac{1}{2}$ " Mean pitch of stays 4 $\frac{1}{2}$ "
 Pitch across wide water spaces 13 $\frac{1}{2}$ " Working pressures by rules 225 lbs Girders to Chamber tops: Material steel 20 $\frac{1}{2}$ " Depth and
 thickness of girder at centre 11 $\frac{1}{8}$ x 1 $\frac{1}{2}$ " Length as per rule 39" Distance apart 8 $\frac{1}{4}$ " Number and pitch of stays in each 4-7 $\frac{1}{2}$ "
 Working pressure by rules 225 lbs Steam dome: description of joint to shell 0% 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 *675 lbs*
Date of Test *4/3/21 and 8+13th/4/21* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *Yes*
Diameter of Safety Valve *2"* Pressure to which each is adjusted *235 lbs* Is Easing Gear fitted *hand only*

IS A DONKEY BOILER FITTED? *No* If so, is a report now forwarded? _____

SPARE GEAR. State the articles supplied:— *As enumerated on the attached list— with the addition of 2 cut steel and one bronze propeller blades. 15 plain boiler tubes. One set of feed pump valves. One set of valves for lubricating pump. One bucket & rod for the same one escape valve spring for each eye fitted. 3 thermometers for oil circulating system.*

The foregoing is a correct description,

A. Lang.

Manufacturer.

Dates of Survey while building
During progress of work in shops - *1920 Oct 22 Nov 15 23 Dec 9 13 15 23 24 29 - 1921 Jan 18 20 21 26 27 28 Feb 3 8 18 21 March 2 4 10 11 16 18 31*
During erection on board vessel - *1921 April 1 5 6 8 11 12 13 14 19 20 21 26 May 3 10 12 26 30 June 2 10 13 15 July 5 6 8 12 13 15 19 22 26 28 31*
Total No. of visits *81*

Is the approved plan of main boiler forwarded herewith *Yes*
also 7 plans showing the O.F. arrangements *None*
" " " donkey " " "

Dates of Examination of principal parts—Casings *30.5.21* Rotors *30.5.21* Blading *5.7.21* Gearing *30.5.21*
Rotor shaft *8.8.21* Thrust shaft *2.3.21* Tunnel shafts *8.2.21* Screw shaft *9.12.20* Propeller *15.12.20*
Stern tube *23.12.20* Steam pipes tested *5.4.21* Engine and boiler seatings *15.8.21* Engines holding down bolts *13.9.21*
Completion of pumping arrangements *13.9.21* Boilers fixed *13.9.21* Engines tried under steam *20.9.21*
Main boiler safety valves adjusted *20.9.21* Thickness of adjusting washers *A=1/4 F=1/32 A=1/4 F=1/32 A=1/4 F=1/32 A=1/4 F=1/32 A=1/4 F=1/32*
Material and tensile strength of Rotor shaft *S.M. Steel LP=34.6+30% HP=38.0+28% in 3"* Identification Mark on Do. *3704D.12.4.21.MR.*
Material and tensile strength of Pinion shaft *S.M. Steel LP=43.6+25% HP=44.0+28%* Identification Mark on Do. *3704D.12.4.21.MR.*
Material of Wheel shaft *steel* Identification Mark on Do. *3704D.12.4.21.MR.* Material of Thrust shaft *steel* Identification Mark on Do. *2.3.21.C.H.*
Material of Tunnel shafts *steel* Identification Marks on Do. *8.2.21.CMS* Material of Screw shafts *steel* Identification Marks on Do. *9.12.20.C.*
Material of Steam Pipes *Lap welded steel & hot iron* Test pressure *675 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 *see cooler names, stern tube and propeller seen prior to launch 23/12/20*

General Remarks (State quality of workmanship, opinions as to class, &c.) *This vessel's machinery has been constructed under special survey, and the materials and workmanship are good and in accordance with the approved plans & the requirements of the rules. On completion it was submitted to a steam trial with satisfactory results, at which time the safety valves were adjusted under steam to the working pressure. It is therefore eligible in my opinion to be classed in the R. Book, with the notation of +LME.10.21.*

The amount of Entry Fee ... £ *6 : 0 : 0*
Special ... £ *132 : 17 : 6*
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, *11.10.21*
When received, *31.10.21*

Maurice Piton
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 1 OCT. 1921

TUE. FEB. 28 1922

Assigned
MACHINERY DEPT.
WRITTEN

+ L.M.B. 9.21 F.D. C.L.
Ltd for oil fuel 9.21
L.O. above 150°F.

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Lloyd's Register
Foundation