

REPORT ON MACHINERY

No. 28223

Date of writing Report 19 When handed in at Local Office 3rd Dec 1921 Port of Sunderland
 No. in Survey held at Sunderland Date, First Survey Dec 30th 1920 Last Survey Dec 1st 1921
 Reg. Book. on the S/S 'BRITISH CHANCELLOR' (Number of Visits 78)

Master Sunderland Built at Sunderland By whom built Mr Jas. Laing & Sons Ltd
 Engines made at Sunderland By whom made Messrs G. Clark Ltd (1123) When built 1921
 Boilers made at Sunderland By whom made Messrs G. Clark Ltd (1123) when made 1921
 Registered Horse Power 3200 Owners British Tanker Co Ltd when made 1921
 Shaft Horse Power at Full Power 3200 Is Refrigerating Machinery fitted for cargo purposes No Port belonging to London
N.H.P. for Fee 642 Is Electric Light fitted Yes

TURBINE ENGINES, &c. Description of Engines Parsons Turbines 5th Red. 4th Rev. No. of Turbines 2
 Diameter of Rotor Shaft Journals, H.P. 4 1/2 L.P. 5 1/2 Diameter of Pinion Shaft 4 1/2 (H.P. only)
 Diameter of Journals 4 1/2 Distance between Centres of Bearings 2-2 3/4 Diameter of Pitch Circle TURBINE PINIONS: H.P. 6.662, L.P. 9.886
 Diameter of Wheel Shaft MAIN 15 1/2 Distance between Centres of Bearings MAIN WHEEL SHAFT 6-1 1/2 Diameter of Pitch Circle of Wheel MAIN 103.805
 Width of Face MAIN WHEEL 2-2 1/4 Diameter of Thrust Shaft under Collars 16 Diameter of Tunnel Shaft as per rule 14-1
 No. of Screw Shafts 1 Diameter of same as per rule 16-55 Diameter of Propeller 19-0 Pitch of Propeller 17-9
 No. of Blades 3 State whether Moveable YES Total Surface 1089 Diameter of Rotor Drum, H.P. 27 1/2-25 3/4 L.P. 38 Astern LP 37 1/2
 Thickness at Bottom of Groove, H.P. 1 1/2 L.P. 2 3/8 Astern LP 1 1/2 Revs. per Minute at Full Power, Turbine H.P. 3970 LP 2686 Propeller 73

ARTICULARS OF BLADING.

EFFECTIVE H.P.				NOMINAL L.P.				EFFECTIVE ASTERN.			
ST	EXPANSION	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 st	EXPANSION	1 st ROT 1 1/2	2-6 3/4	ONE	2 1/2	2-6 1/2	4	H.P. 1 st ROT 1 1/2	2-5 1/4	1	H.P.
2 nd	"	" 1 1/2	2-6 3/4	"	3 1/2	2-7 1/2	4	" 2 nd ROT 2 1/2	2-6 3/4	1	1 st CYL
3 rd	"	" 1 1/2	2-6 3/4	"	3 1/2	2-9 1/4	4	LP 1 st ROT 1 1/2	3-5 5/8	1	2 nd ROT
4 th	"	" 1 1/2	2-6 3/4	"	4 1/2	3-8 1/2	2	" 2 nd ROT 2 1/2	3-7 1/2	1	1 st CYL
5 th	"	" 2 1/2	2-6 3/4	"	6 3/8	3-10 3/4	1	NOMINAL HEIGHT	2-9	1	L.P.
6 th	"	" 2 1/2	2-6 3/4	"	6 3/8	4-2 3/4	1	1 1/2	2-10	1	REACT
7 th	"	" 2 1/2	2-6 3/4	"	6 3/8	4-2 3/4	1	2 1/2	2-11 1/2	1	NOM.
8 th	"	" 2 1/2	2-6 3/4	"	6 3/8	4-2 3/4	1	2 1/2	2-11 1/2	1	HEIGHT
9 th	"	" 2 1/2	2-6 3/4	"	6 3/8	4-2 3/4	1	2 1/2	2-11 1/2	1	BLADES

No. and size of Feed pumps 1 1/2 in 9 1/2 x 7 x 2 1/2 Vent 1st act. 1. 2 1/2 Dreadnaught Electrically driven Centrifugal
 No. and size of Bilge pumps 2, 2 1/2 in 12
 No. and size of Bilge suction in Engine Room 3 @ 3 1/2, 1 @ 3 in each oil well

Tank top and pump cover hatches In Holds, &c. 2 @ 8" in each cargo hold, 3 @ 2 1/2 to forward dunnage

No. of Bilge Injections 1 sizes 1 1/2 Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine Room & size 4 1/2 3/4
 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 & below
 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
 Are all pipes carried through the bunkers None How are they protected None
 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 None Is it fitted with a watertight door Engines aft worked from None

BOILERS, &c. (Letter for record 5) Manufacturers of Steel Spencer & Sons
 Heating Surface of Boilers 8256 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3 Single Ended
 Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 23.8.21, 26.8.21, 31.8.21 No. of Certificates 3772, 3773, 3774
 Are all boilers worked separately Yes Area of fire grate in each boiler at burning only No. and Description of Safety Valves to each boiler 2 Spring Valves
 Area of each valve 11.04 sq ft Pressure to which they are adjusted 205 lbs Are they fitted with easing gear Yes
 Test distance between boilers or uptakes and bunkers or woodwork 18" for 15" diam. of boilers 16-0 Length 12-0 Material of shell plates S
 Thickness 1 1/2 Range of tensile strength 28-32 Are the shell plates welded or flanged Yes Descrip. of riveting: cir. seams lap 1 1/2
 seams lap 1 1/2 Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 9 5/8 Lap of plates or width of butt straps 2 1/4
 Attachments of strength of longitudinal joint 89 Working pressure of shell by rules 202 Size of manhole in shell 16 x 12
 Compensating ring 8 1/2 x 1 1/2 No. and Description of Furnaces in each Boiler 4 Dighton Material S Outside diameter 41 5/8

Thickness of plates 35 Description of longitudinal joint Welded No. of strengthening rings None
 Working pressure of furnace by the rules 203 Combustion chamber plates: Material S Thickness: Sides 3/4 Back 3/4 Top 3/4 Bottom 1 1/2
 of stays to ditto: Sides 10 x 9 1/2 Back 9 1/2 x 7 1/2 Top 9 x 10 If stays are fitted with nuts or riveted heads Yes Working pressure by rules 200
 of stays S Diameter at smallest part 2.03 Area supported by each stay 96.8 Working pressure by rules 219 End plates in steam space S
 Thickness 1 1/2 Pitch of stays 19 x 23 How are stays secured by nuts Working pressure by rules 201 Material of stays S
 at smallest part 7.66 Area supported by each stay 437 Working pressure by rules 212 Material of Front plates at bottom S
 of stays 1 1/2 Material of Lower back plate S Thickness 1 1/2 Greatest pitch of stays 15 1/2 Working pressure of plate by rules 210
 of tubes 3 1/2 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates S Thickness: Front 1 1/2 Back 1 1/2 Mean pitch of stays 11 1/4 x 8 3/4
 cross, wide water spaces 14 1/4 Working pressures by rules 201 Girders to Chamber tops: Material S Depth and 20 1/2
 of girder at centre 8 1/2 x 1 1/4 Length as per rule 31 3/8 Distance apart 9" Number and pitch of stays in each 2, 10"
 of pressure by rules 204 Steam dome: description of joint to shell None % of strength of joint None Diameter None
 of shell plates None Material None Description of longitudinal joint None Diameter of rivet holes None Pitch of rivets None
 of pressure of shell by rules None Crown plates: Thickness None How stayed None

SUPERHEATER. Type *Optimum* Date of Approval of Plan *✓* Tested by Hydraulic Pressure to *400 lbs*
 Date of Test *16.9.21, 20.9.21* 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 *205 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: *2 Bolts or studs, nuts for each side Motor bearing, 5% total oil each turbine casing joint, 1 set bearing bushes for Motor, 1 set pads for thrust, 1 set pads for thrust main shaft, 2 bolts or studs, 1 set bearing bushes for each side gear bearing, 5% total oil between studs, nuts each gear case joint, 1 set bearing bushes low speed gear wheel shaft, 1 set bearing bushes pinion shaft, 10% oil cooler tubes with packing, flanges, 1 set coupling bolts, nuts (main) 3 main check valves, 1 propeller shaft, Impeller & shaft line pump, 1 set dry air pumps 2nd, bucket, valves, 3 Propeller valves, 1 set valves lub oil pump, 1 bucket, 2nd lub oil pump, 1 H.P. & 1 L.P. pinions complete with pinion comp., 24 condenser tubes, 1 boiler tube, 3 aux check valves, 1 set large pump valves, 1 set feed pump valves, 1 set valves opening each side fitted, assorted bolts, nuts, 2 iron various & 1 set carbon rings & springs for H.P. & L.P. Motor shaft gland.*
 The foregoing is a correct description,

OR GEORGE CLARK LIMITED

Manufacturer.

Dates of Survey while building: During progress of work in shops -- *1920. Dec. 20. 1921. Jan. 6. 12. 14. 18. 25. Feb. 1. 4. 14. 15. 17. 23. Mar. 4. 8. 16. 22. 30. Apr. 8. 11. 12. 13. 14. 19. 27. 29.*
 During erection on board vessel -- *4.6.12. 18. 20. 27. 30. 31. June 3. 6. 17. 20. 28. July 1. 5. 12. 15. 19. 20. 22. 28. 29. Aug. 4. 8. 17. 23. 26. 31. Sep. 7. 8. 12. 16. 19. 20. 27.*
 Total No. of visits *78* Is the approved plan of main boiler forwarded herewith? *YES*

Dates of Examination of principal parts: Casings *22.7.21* Rotors *16.3. 22.7.21* Blading *6.6. 15.7.21* Gearing *5.7. 4.8.*
 Rotor shaft *6.6. 21* Thrust shaft *15.7.21* INTER Tunnel shaft *6.5.21* Screw shaft *31.5.21* Propeller *27.4.21*
 Stern tube *15.7.21* Steam pipes tested *29.9. 5. 2.11.21* Engine and boiler seatings *20.7.21* Engines holding down bolts *3.10.21*
 Completion of pumping arrangements *3.10.21* Boilers fixed *17.10.21* Engines tried under steam *25.11.21*
 Main boiler safety valves adjusted *25.11.21* Thickness of adjusting washers *P.B. P. 7/8 3/8 STAR B. P. 7/8 5/8 For P.B. P. 7/8 5/8*
 Material and tensile strength of Rotor shafts *Ingot Steel 35.0 tons* Identification Mark on Do. *1123 GAH*
 Material and tensile strength of Pinion shafts *Nickel Steel 40 4 45 tons* Identification Mark on Do. *1123 GAH*
 Material of Wheel shaft *Ingot Steel* Identification Mark on Do. *1123 GAH* Material of Thrust shaft *Ingot Steel* Identification Mark on Do. *1123 GAH*
 Material of *INTER* Tunnel shaft *Ingot Steel* Identification Marks on Do. *1123 GAH* Material of Screw shafts *Ingot Steel* Identification Marks on Do. *1123 GAH*
 Material of Steam Pipes *Iron* 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? *YES* If so, state name of vessel *"BRITISH COLONEL"*

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. On completion it was tried under working conditions and found satisfactory. The oil burning installation was also tried under working conditions with satisfactory results. It renders the vessel eligible in my opinion to have record of F.L.M.C. 12.21 Fitted for burning oil fuel F.P. above 150°F.

It is submitted that this vessel is eligible for THE RECORD.

F.L.M.C. - 12.21 F.D. 642 N.H.P.

Fitted for Oil fuel, 12.21, F.P. above 150°F. 2 steam turbines geared to one screw shaft.

The amount of Entry Fee ... £ 6 :
 Special ... £ 107 : 2 :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : :

When applied for,

1 DEC 1921

When received,

16.12.21

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

+ L.M.C. 12.21

Fitted for oil fuel 12.21 F.P. above 150°F.



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