

REPORT ON MACHINERY.

No. 8400.

Received at London Office

Date of writing Report *9th Dec 1922* When handed in at Local Office *15th Dec 1922* Port of *Dundee* SAT. 16 DEC. 1922

No. in Survey held at *Dundee* Date, First Survey *6th Sept. 1921* Last Survey *9th December 1922*
Reg. Book. on the *H.M. BRITISH COMMANDER* (H to 282) (Number of Visits *84*)

Master *By whom built Caledon Shipbuilding & Engineering Co. When built 1922*
Engines made at *Manchester* By whom made *Metropolitan-Vickers Electrical Co. Ltd* when made *1922*
Boilers made at *Dundee* By whom made *Caledon S & Eng Co. Ltd. (No 452)* when made *1922*
NOMINAL Registered Horse Power *643.* Owners *British Tanker Co Ltd* Port belonging to *London*
Shaft Horse Power at Full Power *3200* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

URBINE ENGINES, &c.—Description of Engines *Rateau Impulse H.P. & L.P.* No. of Turbines *2*
Diameter of Rotor Shaft Journals, H.P. *✓* L.P. *✓* Diameter of Pinion Shaft *✓*
Diameter of Journals *✓* Distance between Centres of Bearings *See Manchester Report* Diameter of Pitch Circle *✓*
Diameter of Wheel Shaft *✓* Distance between Centres of Bearings *✓* Diameter of Pitch Circle of Wheel *✓*
Width of Face *✓* Diameter of Thrust Shaft under Collars *19"* Diameter of Tunnel Shaft *as per rule 14.5 ✓*
No. of Screw Shafts *one* Diameter of same *as per rule 16.78 ✓* Diameter of Propeller *18'-6"* Pitch of Propeller *17'-6"*
(NO LINER. VICKERS O.G.) *as fitted 19.44" ✓*
No. of Blades *4* State whether Moveable *Yes* Total Surface *102 sq* 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 *3125* Propeller *73-75*

ARTICULARS 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.
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For particulars of Turbines see Manchester Report No 5010.

No. and size of Feed pumps *1 H.P. 9 1/2 x 7 x 2 1/2 + 1 Rotary Pump*
No. and size of Bilge pumps *1 Electric driven double pump 6 x 6. Bilge connections to General Service pump 6 x 4 x 6 + Ballast Pump 10 x 12 x 10*
No. and size of Bilge suction in Engine Room *3 @ 3 1/2. 2 @ 3 1/2 in oil Bilge. Cofferdam between S. B. tanks in Machy space 2 @ 3 1/2*
In Holds, &c. after Cofferdam 1 Steam ejector @ 4. Pump Room 2 @ 4. Forward
Forward 1 @ 4. Forward Cargo Hold 2 @ 3. Forward Pump Room 1 @ 3. Above Fore Peak Tank top 1 @ 3. Cargo oil tanks 2 each @ 10
No. of Bilge Injections *1* sizes *11* Connected to condenser, or to circulating pump *C.P. ✓* Is a separate Donkey Suction fitted in Engine Room & size *Yes. 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 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*
That 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 *No tunnel* Is it fitted with a watertight door *✓* worked from *✓*

BOILERS, &c.—(Letter for record *(S)*) Manufacturers of Steel *Bechtel & Co. Ltd, South Durham, Scottish I.T.S. Ltd, Glasgow, T.S. & S. Co. Ltd, Glasgow.*
Total Heating Surface of Boilers *8256 sq* Is Forced Draft fitted *Yes* No. and Description of Boilers *Two Single ended multibular*
Working Pressure *200 lbs* Tested by hydraulic pressure to *350 lbs* Date of test *27-1-22* No. of Certificate *993*
Can each boiler be worked separately *Yes* Area of fire grate in each boiler *Old fired* No. and Description of Safety Valves to *✓*
Each boiler *Two spring loaded* Area of each valve *11' 0" x 11' 0"* Pressure to which they are adjusted *205 lbs* Are they fitted with easing gear *Yes*
Smallest distance between boilers or uptakes and bunkers *14"* Mean dia. of boilers *15'-10 3/32"* Length *12'-0"* Material of shell plates *Steel*
Thickness *1 1/32"* Range of tensile strength *30-34 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *L.D.R.*
Long. seams *D.W. Straps T.R.* Diameter of rivet holes in long. seams *1 3/8"* Pitch of rivets *9 1/4"* Lap of plates *20 1/8"* width of butt straps *20 1/8"*
Per centages of strength of longitudinal joint *85.9* Working pressure of shell by rules *201 lbs* Size of manhole in shell *16 x 12"*
Size of compensating ring *34 x 35 x 1 1/32"* No. and Description of Furnaces in each Boiler *4 Corrugated* Material *Steel* Outside diameter *41 3/4"*
Length of plain part *top 9 1/16"* Thickness of plates *bottom 9 1/16"* Description of longitudinal joint *Weld* No. of strengthening rings *None*
Working pressure of furnace by the rules *205* Combustion chamber plates: Material *S* Thickness: Sides *1 1/16"* Back *3/4"* Top *1 1/16"* Bottom *1 3/16"*
Pitch of stays to ditto: Sides *9 1/4 x 8 1/2"* Back *8 1/4 x 8"* Top *9 x 8 1/2"* If stays are fitted with nuts or riveted heads *Riveted heads* Working pressure by rules *201*
Material of stays *Steel* Area at smallest part *1' 7 3/4 x 2' 0 3/4* Area supported by each stay *86* Working pressure by rules *232* End plates in steam space *✓*
Material *Steel* Thickness *1 9/32"* Pitch of stays *21 x 17 1/4 x 15"* How are stays secured *S.N.T.W.* Working pressure by rules *200* Material of stays *Steel*
Area at smallest part *7.06* Area supported by each stay *362.257 3/5* Working pressure by rules *200* Material of Front plates at bottom *Steel*
Thickness *1* Material of Lower back plate *Steel* Thickness *15/16"* Greatest pitch of stays *14 1/4 x 8 1/4"* Working pressure of plate by rules *252*
Diameter of tubes *3 1/4"* Pitch of tubes *14 1/2 x 14 1/2"* Material of tube plates *Steel* Thickness: Front *1"* Back *7/8"* Mean pitch of stays *11 1/4"*
Pitch across wide water spaces *14 1/4"* Working pressures by rules *202* Girders to Chamber tops: Material *Steel* Depth and *✓*
Thickness of girder at centre *9 x 1 1/2"* Length as per rule *32.625* Distance apart *9* Number and pitch of stays in each *3 @ 8 1/2"*
Working pressure by rules *204* 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 *✓*

W351-0058

SUPERHEATER. Type *Donkey* Date of Approval of Plan *See attached Certs* IN Position Tested by Hydraulic Pressure to *600 lbs*
Date of Test *21-3-22* 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 *210 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: *Turbine & Gearing spare parts as per Manchester Report.*
1 screw shaft, 4 propeller blades, 1 set of propeller blade studs & nuts, 1 set of coupling bolts & nuts, 24 condenser tubes, 30 Ferrules, 1 set of Pads for Michel Thrust, 6 boiler tubes (plain) 1 clay tube. 3 main & 3 auxiliary check valves. Spare parts & valves for Lucas Pumps (Lead & Air). Spare valves for General Service, Ballast & Bilge pumps. Assorted nuts, bolts & washers.

The foregoing is a correct description,

THE CALEDON SHIPBUILDING & ENGINEERING CO LD

Manufacturer.

Dates of Survey while building
During progress of work in shops - *1921* SEPT. 6. 19. 23. OCT. 19. NOV. 1. 4. DEC. 1. 5. 12. 23. 30. *1922* JAN. 6. 9. 14. 20. 24. 25. 27. FEB. 2. 9. 10. 14. 18.
During erection on board vessel - *1922* FEB. 24. 27. 28. MAR. 2. 4. 6. 4. 16. 21. APR. 11. 24. MAY 4. 11. 15. 19. 23. 26. JUN. 16. 19. 21. 23. 24. 30. JUL. 3. 10. 13. 14. AG. 2. 8. 14. 2.
Total No. of visits *84* Is the approved plan of main boiler forwarded herewith *Yes*
" " " donkey " " " *Yes*

Dates of Examination of principal parts - Casings - Rotors - Blading - Gearing -
Rotor shaft - Thrust shaft *28-2-22* Tunnel shafts *28-2-22* Screw shaft *30-6-22* Propeller *30-6-22*
Stern tube *30-6-22* Steam pipes tested *27-4, 15-9, 21-9, 18-10-27/10* Engine and boiler seatings *23-6-22* Engines holding down bolts *12-9-22*
Completion of pumping arrangements *7-12-22* Boilers fixed *22-9-22* Engines tried under steam *7-12-22*
Main boiler safety valves adjusted *5-12-22* Thickness of adjusting washers *P. P. 1/16. S. 1/16. S. P. 1/16. S. 1/32. F. P. 3/8. S. 1/32.*
Material and tensile strength of Rotor shaft - *Manchester Report* Identification Mark on Do. -
Material and tensile strength of Pinion shaft - " " Identification Mark on Do. -
Material of Wheel shaft - Identification Mark on Do. - Material of Thrust shaft *LLOYD'S NO 917* Identification Mark on Do. *LLOYD'S NO 917*
Material of Tunnel shafts *L* Identification Marks on Do. *L.H.M. 30-6-22* Material of Screw shafts *L* Identification Marks on Do. *L.H.M. 30-6-22*
Material of Steam Pipes *L.W. 1 Seamless 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. *These Engines & Boilers have been built under Special Survey and in accordance with the Rules and approved Plans; the materials and workmanship are sound & good; they have been fitted on board in an efficient manner, tried under working conditions and found satisfactory and are eligible in our opinion to be classed with record of + L.M.C. 12-22 and the notation "Fitted for oil fuel 12-22. F.P. above 150°F."*

It is submitted that this vessel is eligible for

THE RECORD. + L.M.C. 12.22. F.D. O.G. 643. N.H.P.

"Fitted for oil fuel" 12.22. F.P. above 150°F.

2 Steam Turbines geared to one Screw shaft.

The amount of Entry Fee ... £ : 0 :
Special ... £ 76 : 18 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, Dec. 15. 19. 22
When received, 20. 12. 22

J. Selles for self & J.H. Mackintosh.
Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 29 DEC. 1922

Committee's Minute

Assigned

+ L.M.C. 12.22

F.D. O.G.

Fitted for oil fuel 12.22
F.P. above 150°F.



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