

REPORT ON MACHINERY.

No. 19905

Received at London Office

THU JUL 29 1920

Date of writing Report 19 When handed in at Local Office 19 Port of **NEWPORT, MON.**
 Date, First Survey **9th Sept 1919.** Last Survey **21st July 1920**
 Reg. Book. **on the Single Screw Steamer NASH LIGHT** (Number of Visits **11**) Gross **2546**
 Tons Net **1401.**
 Master **R. J. Smith** Built at **Chapelton** By whom built **The Ironmouth S B Co Ltd** When built **1920**
 Engines made at **Manchester** By whom made **B Westinghouse & Co** when made **1919**
 Boilers made at **Renfrew** By whom made **Baloch & Wilson Ltd** when made **1919**
 Registered Horse Power **✓** Owners **Bristol Channel Steamers Ltd** Port belonging to **Cardiff**
 Shaft Horse Power at Full Power **✓** Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Yes**

TURBINE ENGINES, &c.—Description of Engines **Rateau Impulse H.P. L.P.** No. of Turbines **2**
 Diameter of Rotor Shaft Journals, H.P. **4"** L.P. **4"** Diameter of Pinion Shaft **1 1/2" 3 3/4" 2" 6 3/4"**
 Diameter of Journals **1 1/2" 3 3/4" 2" 6 3/4"** Distance between Centres of Bearings **1 1/2" 2 1/2" 4 1/2"** Diameter of Pitch Circle **1 1/2" 5.99" 2" 9.92"**
 Diameter of Wheel Shaft **1 1/2" 6 3/4" 2" 11 1/2"** Distance between Centres of Bearings **1 1/2" 4 1/2" 2" 4 1/2"** Diameter of Pitch Circle of Wheel **1 1/2" 5 1/2" 2" 6 1/2" 2" 6 1/2"**
 Width of Face **1 1/2" 8 3/4" 2" 20"** Diameter of Thrust Shaft under Collars **1 1/2"** Diameter of Tunnel Shaft as per rule **10"**
 No. of Screw Shafts **1** Diameter of same as fitted **13 Con Union** Diameter of Propeller **15.9"** Pitch of Propeller **15.6"**
 No. of Blades **4** State whether Moveable **No** Total Surface **77 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 **4500** Propeller **70**

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 1/2" = 1 1/2"	27 1/2" = 28 1/2"	2	1 1/8"	28 7/8"	1	H P		
2ND	7/8"	27 7/8"	1	1 1/8"	28 7/8"	1	1 1/6" = 1 1/8"	28 1/4" = 29 1/8"	2
3RD	7/8"	27 7/8"	1	2 7/8"	29 5/8"	1	L P		
4TH	3/4"	27 3/4"	1	4 3/16"	31 3/16"	1	1 1/2"	28 3/4"	1
5TH				6 1/2"	38 1/4"	1	3 1/2"	30 1/2"	1
6TH									
7TH									
8TH									

and size of Feed pumps **2. Steam 8" Stroke 18" (one main + one auxiliary)**
 and size of Bilge pumps **1. Steam 10" Stroke 18"**
 and size of Bilge suction in Engine Room **4. 3 1/2" bore.**

In Holds, &c. **No 1 hold 3" bore 1st 1st 1st 1st 1st 1st 1st 1st 1st 1st**
No 2 hold 3" bore 1st 1st 1st 1st 1st 1st 1st 1st 1st 1st
 of Bilge Injections **1 sizes 9"** Connected to condenser, or to circulating pump **Is a separate Donkey Suction fitted in Engine Room & size 4 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 **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 pipes carried through the bunkers **Our hold bilge pipes** How are they protected **Wood casing**
 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 **Engine room top grating**

CLERS, &c.—(Letter for record **S**) Manufacturers of Steel **D. Colville & Sons, Stewart & Lloyd.**
 Heating Surface of Boilers **5326 sq ft** Forced Draft fitted **No** No. and Description of Boilers **2 Balloch & Wilson**
 Working Pressure **180** Tested by hydraulic pressure to **360 lbs** Date of test **24 June 1920** No. of Certificate **16**
 Are each boiler worked separately **Yes** Area of fire grate in each boiler **84 1/2 sq** No. and Description of Safety Valves to **Yes**
 Is boiler **2 Spring loaded** Area of each valve **3 3/8"** Pressure to which they are adjusted **180 lbs** Are they fitted with easing gear **Yes**
 Smallest distance between boilers or uptakes and bunkers or woodwork **8.0** Mean dia. of boilers **4.0** Length **13.3 1/2** Material of shell plates **Steel**
 Thickness **1 1/2" 3 1/2"** Range of tensile strength **24/28** Are the shell plates welded or flanged **No** Descrip. of riveting: cir. seams **BR Lap**
 Are seams **BR Lap with rivets** Diameter of rivet holes in long. seams **27/32** Pitch of rivets **3 1/2"** Lap of plates & width of butt straps **5 1/8" 7"**
 Centages of strength of longitudinal joint **77.5** Working pressure of shell by rules **210** Size of manhole in shell **15" x 11"**

of compensating ring **2.4 1/4" x 1.10" x 1 1/2"** No. and Description of Furnaces in each Boiler **✓** Material **✓** Outside diameter **✓**
 Length of plain part **✓** Thickness of plates **✓** Description of longitudinal joint **✓** No. of strengthening rings **✓**
 Working pressure of furnace by the rules **✓** Combustion chamber plates: Material **✓** Thickness: Sides **✓** Back **✓** Top **✓** Bottom **✓**
 Pitch of stays to ditto: Sides **✓** Back **✓** Top **✓** If stays are fitted with nuts or riveted heads **✓** Working pressure by rules **✓**
 Material of stays **✓** Diameter at smallest part **✓** Area supported by each stay **✓** Working pressure by rules **✓** End plates in steam space **✓**
 Material **✓** Thickness **✓** Pitch of stays **✓** How are stays secured **✓** Working pressure by rules **✓** Material of stays **✓**
 Diameter at smallest part **✓** Area supported by each stay **✓** Working pressure by rules **✓** Material of Front plates at bottom **✓**
 Thickness **✓** Material of **✓** Thickness **✓** Greatest pitch of stays **✓** Working pressure of plate by rules **✓**
 Diameter of tubes **3 1/2" 1 1/2"** Pitch of tubes **2 1/4" + 2 3/8"** Material of tube plates **✓** Thickness: Front **✓** Back **✓** Mean pitch of stays **✓**
 Pitch across wide water spaces **✓** Working pressures by rules **✓** Girders to Chamber tops: Material **✓** Depth and **✓**
 thickness of girder at centre **✓** Length as per rule **✓** Distance apart **✓** Number and pitch of stays in each **✓**
 Working pressure by rules **✓** Steam dome: description of joint to shell **✓** % of strength of joint **✓** Diameter **✓**
 Thickness of shell plates **3 1/2"** Material **Steel** Description of longitudinal joint **✓** Diameter of rivet holes **✓** Pitch of rivets **✓**
 Working pressure of shell by rules **✓** Crown plates: Thickness **✓** How stayed **✓**

SUPERHEATER. Type ☒ Date of Approval of Plan ☒ Tested by Hydraulic Pressure to ☒
Date of Test ☒ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler ☒
Diameter of Safety Valve ☒ Pressure to which each is adjusted ☒ Is Easing Gear fitted ☒

IS A DONKEY BOILER FITTED? ☒ If so, is a report now forwarded? ☒

SPARE GEAR. State the articles supplied:— One set parts each for bucket thrust & turbine thrust blocks, one bearing bushes each for turbine spindle, low speed gear wheel shaft, intermediate gear shaft & for pinion shaft, one spare pinion with flexible coupling, one spare rotor plungers piece one bucket & rod for lubricating pump, one escape valve spring of each rope fitted, condenser tubes & females, one impeller & shaft, one air pump rod, bucket & valves, one coupling bolts, & spares as per Rule.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1919 Sept 9, 1920 Feb 2, Mar 31, April 14, May 6, June 14, 24, July 8, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1920
During erection on board vessel -- 11
Total No. of visits 11

Is the approved plan of main boiler forwarded herewith ☒ Is the approved plan of donkey boiler forwarded herewith ☒

Dates of Examination of principal parts—Casings 28. 3. 18 Rotors 28. 3. 18 Blading 4. 4. 18 Gearing Mar 18. 19

Rotor shaft 14. 4. 19 Thrust shaft June 1918 Tunnel shafts 25. 11. 19 Screw shaft 25. 11. 19 Propeller 19. 6. 20

Stern tube 6/5/20 Steam pipes tested 8. 7. 20 Engine and boiler seatings Mar 6. 20 Engines holding down bolts

Completion of pumping arrangements 19. 6. 20 Boilers fixed Mar 6. 20 Engines tried under steam 20. 21. 7. 20

Main boiler safety valves adjusted 180 lbs. Thickness of adjusting washers S.S. $\frac{1}{16}$ " S.P. $\frac{1}{16}$ " P.S. $\frac{1}{8}$ " P.P. $\frac{1}{4}$ "

Material and tensile strength of Rotor shaft Mild steel 30.0 tons & 29.9 tons Identification Mark on Do. V599 & V400

Material and tensile strength of Pinion shaft Mild steel 42 tons 46.0 tons Identification Mark on Do. 464 & 463

Material of Wheel shaft Mild steel Identification Mark on Do. 402 Material of Thrust shaft Mild steel Identification Mark on Do. 402

Material of Tunnel shafts 40 Identification Marks on Do. 84 R Material of Screw shafts 40 Identification Marks on Do. 84

Material of Steam Pipes Lap welded steel Test pressure 520 lbs per sq in

Is an installation fitted for burning oil fuel ☒ 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 ☒ If so, state name of vessel Turbeller Ex New Grapes

General Remarks (State quality of workmanship, opinions as to class, &c. The boilers of this vessel made by

Baloch Under No 2d (see the Rpt No 39307) have been tested by hydraulics to 360 lbs per sq in examined under steam & safety valves adjusted to 180 lbs per sq in.

Donkey boiler (see the Rpt No 39326) has been fitted on board & safety valves adjusted to 100 lbs per sq in Rings S. $\frac{1}{16}$ " P. $\frac{1}{8}$ ".

The turbine machinery built by the British Westinghouse & Co. David & Sons (see Main Rpt No 4412) has been efficiently fitted on board & tried.

On the trial trip the machinery worked well with no undue heating of any part & with satisfactory results, vessel is now eligible for the Register.

Boiler fee. see the 29/11/19. 4 LMC 7.20

The amount of Entry Fee Installation £ 2. 11. 0 Special £ 14. 2. 0 Donkey Boiler Fee £ Travelling Expenses (if any) £

When applied for, 22 July 1920

When received, 24/7/20

Engineer Surveyor to Lloyd's Register of Shipping.

FRI. AUG. 16 1920

Committee's Minute

Assigned

+ LMC 7.20 } subject Water tube boilers

CERTIFICATE WRITTEN FRI. OCT. 15 1920 TUE. NOV. 23 1920

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