

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. Chapelton on the Single Screw Steamer NASH LIGHT (Number of Visits 11)
 Gross Tons 2576
 Net Tons 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
Walsby & Sons
 Boilers made at Renfrew By whom made Balcock & 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" 22 2" 48" 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" 48" 2" 48" Diameter of Pitch Circle of Wheel 1 1/2" 56.348.2" 68.200"
 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"
 as fitted 11"
 No. of Screw Shafts 1 Diameter of same as per rule 11.97" Diameter of Propeller 15.9" Pitch of Propeller 15.6"
 as fitted 13 Con. lines
 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

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.
1ST EXPANSION	1/2" = 1 1/2"	27 1/2" = 28 1/2"	2	1 1/8"	28 7/8"	1	H.P.		
2ND	5/8"	27 7/8"	1	1 7/8"	28 7/8"	1	1 1/6" = 2 1/8"	28 1/6" = 29 1/6"	2
3RD	5/8"	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 1/4"	38 1/4"	1	3 1/2"	30 1/2"	1

and size of Feed pumps 2. Steam 8" Water 6" Stroke 18" (one main + one auxiliary) ✓
 and size of Bilge pumps 1. Steam 10" Water 12 1/2" Stroke 18" 1 Port 1 aft
 and size of Bilge suction in Engine Room 4. 3 1/2" bore. 1 Port 1 aft

In Holds, &c. No 1 hold 3" bore 1 Port 1 aft No 2 hold 3" bore 1 Port 1 aft
 No 3 hold 3" bore 1 Port 1 aft Jurnal well 3" bore 1 aft
 No. of Bilge Injections 1 sizes 9" Connected to condenser, or to circulating pump Yes 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 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 Yes 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

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Balcock & Wilson, Stewart & Lloyd.
 Heating Surface of Boilers 5326 sq ft Forced Draft fitted No No. and Description of Boilers 2 Balcock & Wilson
 Working Pressure 180 Tested by hydraulic pressure to 360 lbs Date of test 24 June 1920 No. of Certificate 16
 Can each boiler be worked separately Yes Area of fire grate in each boiler 84 1/2 sq No. and Description of Safety Valves to each 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
 Greatest 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 1/4" 1 1/2" Range of tensile strength 24/28 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams BR Lap
 cir. seams BR Lap with inner butt straps 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" x 7"
 Percentages of strength of longitudinal joint plates 77.5 Working pressure of shell by rules 210 Size of manhole in shell 15" x 11"
 Description 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 top ✓ Thickness of plates crown ✓ Description of longitudinal joint ✓ No. of strengthening rings ✓
 bottom ✓ bottom ✓
 Working pressure of furnace by the rules ✓ Combustion chamber plates: Material ✓ Thickness: Sides ✓ Back ✓ Top ✓ Bottom ✓
 Attachment 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 lower back plate Steel Thickness 1 1/2" Greatest pitch of stays ✓ Working pressure of plate by rules ✓
 Diameter of tubes 3 1/8" 1 3/4" Pitch of tubes 2 3/4" + 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 1/4" Material Steel Description of longitudinal joint ✓ Diameter of rivet holes ✓ Pitch of rivets ✓
 Working pressure of shell by rules ✓ Crown plates: Thickness ✓ How stayed ✓

10, 17, 20, 26
 19. Jul. 5, 9, 11
 Visits 40

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? Yes If so, is a report now forwarded? Yes

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 pump 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 -- During erection on board vessel --
 Total No. of visits 11 1919 Sept 9, 1920 Feb 2, Mar 31, April 14, May 6, June 14, 24, July 8, 17, 20, 27

Is the approved plan of main boiler forwarded herewith? Yes

Is the approved plan of main boiler forwarded herewith? Yes

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

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 6/15/20 Steam pipes tested 8. 7. 20 Engine and boiler seatings 14. 6. 20 Engines holding down bolts

Completion of pumping arrangements 19. 6. 20 Boilers fixed 14. 6. 20 Engines tried under steam 20. 21. 7. 20

Main boiler safety valves adjusted 180 lbs. Thickness of adjusting washers S.S. $\frac{19}{32}$ " S.P. $\frac{17}{32}$ " P.S. $\frac{1}{8}$ " P.P. $\frac{1}{16}$ "

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

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

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

Material of Tunnel shafts Bo Identification Marks on Do. E 4 R Material of Screw shafts Bo Identification Marks on Do. E 4

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? Yes If so, state name of vessel Submarine Eo New Grapes

General Remarks (State quality of workmanship, opinions as to class, &c.) The boilers of this vessel made by Babcock Wilcox & Co Ltd (see the Rpt No 39307) have been tested by hydrostatic 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. $\frac{19}{16}$ " P. $\frac{7}{8}$ ". The turbine machinery built by the British Westinghouse Eo & 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 of L.M.C 7.20

The amount of Entry Fee £ 2. 11 When applied for, 22 July 1920
 Installation Fee £ 14. 2. 11
 Special ...
 Donkey Boiler Fee ...
 Travelling Expenses (if any) ...
 When received, 24/7/20

J. M. B. A. Compton
 Engineer Surveyor to Lloyd's Register of Shipping.

FRI. AUG. 16 1920

Committee's Minute

Assigned + L.M.C 7.20 subject Water tube boilers

CERTIFICATE WRITTEN
 FRI. OCT. 15 1920
 TUE. NOV. 23 1920
 Lloyd's Register Foundation

Certificate (if required) to be sent to... (The Surveyors are requested not to write on or below the space for Committee's Minute.)