

Rpt. 4a.

## REPORT ON MACHINERY

Sld. N° 28199

Hd. No. 15897

Received at London Office SAT. 24 SEP. 1921

Date of writing Report 8<sup>th</sup> July 1921 When handed in at Local Office

23: 9: 10 Port of WEST HARTLEPOOL

No. in Survey held at West Hartlepool

Date, First Survey 23<sup>rd</sup> Oct. 1919 Last Survey 10<sup>th</sup> July 1921

Reg. Book.

19969 on the S.S. "Karonga"

N° 942

(Number of Visits 154)

Gross 6600

Net 4200

Master Built at Sunderland By whom built Wear Shipyard of Wm Gray When built

Engines made at West Hartlepool By whom made Central Marine Engine Works Ltd when made 1921

Boilers made at ditto By whom made ditto when made 1921

Registered Horse Power 722 721. Owners Ellerman &amp; Bucknall S.S. Co. Port belonging to London

Shaft Horse Power at Full Power 3500 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

## TURBINE ENGINES, &amp;c.—Description of Engines Double reduction geared turbines No. of Turbines 2.

Diameter of Rotor Shaft Journals, H.P. 4 1/2" L.P. 5 1/2" Diameter of Pinion Shaft 1<sup>st</sup> red. H.P. 6" 2<sup>nd</sup> red. 13 1/2"  
Diameter of Journals 4 1/2" 10 1/2" Distance between Centres of Bearings 1<sup>st</sup> red. 2-2 1/2" 2<sup>nd</sup> red. 6-1 1/2" Diameter of Pitch Circle 1<sup>st</sup> red. H.P. 7.431" 2<sup>nd</sup> red. 16.62"  
Diameter of Wheel Shaft 15 1/2" Distance between Centres of Bearings 6-7" Diameter of Pitch Circle of Wheel 1<sup>st</sup> red. 56.68" 2<sup>nd</sup> red. 84.579"  
Width of Face 1<sup>st</sup> red. 15.2" 2<sup>nd</sup> red. 4.38 1/2" Diameter of Thrust Shaft under Collars 15 1/2" Diameter of Tunnel Shaft as per rule 14.07  
No. of Screw Shafts one Diameter of same as per rule 15.25 as fitted 16 1/2" Diameter of Propeller 17-9" Pitch of Propeller 15-9" wheels.  
No. of Blades 4 State whether Moveable yes Total Surface 114 sq. ft. 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 3417.2441 Propeller 88.

## PARTICULARS OF BLADING.

	Effective HEIGHT OF BLADES.	H. P. (Impulse) DIAMETER AT TIP. NO. OF ROWS.	L. P. (Reaction) HEIGHT OF BLADES. DIAMETER AT TIP. NO. OF ROWS.	ASTERN. HEIGHT OF BLADES. DIAMETER AT TIP. NO. OF ROWS.
1ST EXPANSION	1 1/4"	2-7 1/2" 2-8 1/2" 2	2-8 1/2" 2-8 1/2" 4	1 1/4" 1 1/8" 2-7 1/2" 2-8 1/2" 2 impulse H.P.
2ND	1 1/8"	2-8 1/2" 2-8 1/2" 1	2-9 5/8" 2-9 5/8" 4	1 1/8" 1 1/8" 3-7 1/2" 4-3-8 1/2" 2 impulse
3RD	1 1/8"	2-8 1/2" 2-8 1/2" 1	2-11 1/4" 2-11 1/4" 4	1 1/8" 1 1/8" 2-11 1/2" 1 reaction
4TH	1 1/8"	2-8 1/2" 2-8 1/2" 1	3-9 9" 3-9 9" 2	1 1/8" 1 1/8" 3-0 1/2" 1
5TH	1 1/8"	2-8 1/2" 2-8 1/2" 1	3-11 3/4" 3-11 3/4" 2	1 1/8" 1 1/8" 3-1 5/8" 1
6TH	2 1/2"	2-8 1/2" 2-8 1/2" 1	4-0 3/8" 4-0 3/8" 1	2 1/8" 2 1/8" 3-1 5/8" 1
7TH	2 1/2"	2-8 1/2" 2-8 1/2" 1	4-1 8/8" 4-1 8/8" 1	2 1/8" 2 1/8" 3-1 5/8" 1
8TH	2 1/2"	2-8 1/2" 2-8 1/2" 1	4-3 6/8" 4-3 6/8" 1	2 1/8" 2 1/8" 3-1 5/8" 1

No. and size of Feed pumps See list of pumps attached.  
No. and size of Bilge pumps 9 10 11 6 3/4" 4" 5-8 1/4" 4" 5-8 1/4" 4" 5-8 1/4"  
No. and size of Bilge suction in Engine Room Five of 3 1/2" One of 3 1/2" in each cofferdam. Three of 2" in oil wells.  
in tunnel. In Holds, &c. Two of 3 1/2" in each hold. One of 3"

No. of Bilge Injections one sizes 11" Connected to condenser, or to circulating pump C.P. & separate Donkey Suction fitted in Engine Room & size 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 4 1/2"  
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 see ship report Is it fitted with a watertight door YES worked from upper platform

## BOILERS, &amp;c.—(Letter for record S.) Manufacturers of Steel J. Spencer &amp; Sons Ltd

Total Heating Surface of Boilers 8946 sq. ft. Forced Draft fitted yes No. and Description of Boilers Three single ended.  
Working Pressure 225 lbs Tested by hydraulic pressure to 450 lbs Date of test 22-9-20 No. of Certificate 3582  
Can each boiler be worked separately yes Area of fire grate in each boiler 76.85 sq. ft. No. and Description of Safety Valves to  
each boiler 2 direct spring Area of each valve 11.04 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 12" Mean dia. of boilers 16-4 1/2" Length 12-6 Material of shell plates Steel  
Thickness 1 1/8" Range of tensile strength 28/30 Are the shell plates welded or flanged yes Descrip. of riveting: cir. seams J.R.L.  
long. seams J.R. & B.S. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 23 1/2"  
Per centages of strength of longitudinal joint plates 90.4 Working pressure of shell by rules 227 Size of manhole in shell 16 1/2" x 20 1/2"  
Size of compensating ring 2-9 x 3-1 x 1 1/8" No. and Description of Furnaces in each Boiler 4 Deightons Material Steel Outside diameter 3-9 1/2"  
Length of plain part Thickness of plates 2 1/2" Description of longitudinal joint welded No. of strengthening rings  
Working pressure of furnace by the rules 235 Combustion chamber plates: Material Steel Thickness: Sides 23/32 Back 23/32 Top 23/32 Bottom 1"  
Pitch of stays to ditto: Sides 9 x 8 3/8 Back 9 1/8 x 7 3/4 Top 9 x 8 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 226  
Material of stays Steel Diameter at smallest part 2 1/4" Area supported by each stay 12 1/2 x 7 1/4 Working pressure by rules 225 End plates in steam space  
Material Steel Thickness 1 1/4" Pitch of stays 19 x 16 How are stays secured Nuts Working pressure by rules 226 Material of stays Steel  
Diameter at smallest part 6.65" Area supported by each stay 19 x 16 Working pressure by rules 227 Material of Front plates at bottom Steel  
Thickness 1 1/2" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 15 1/2 x 7 1/4 Working pressure of plate by rules 236  
Diameter of tubes 2 1/2" Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates Steel Thickness: Front 1 3/32 Back 1 1/16 Mean pitch of stays 11 1/4 x 7 1/2"  
Pitch across wide water spaces 14" Working pressures by rules 234 Girders to Chamber tops: Material Steel Depth and  
thickness of girder at centre 10 1/4 x 1 3/4 Length as per rule 36 1/2 Distance apart 8 1/2 Number and pitch of stays in each Three 9"  
Working pressure by rules 230 Steam dome: description of joint to shell none % 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



