

REPORT ON MACHINERY.

No. 78934

Received at London Office 16/5/16

Date of writing Report 16/5/16 When handed in at Local Office 16/5/16 Port of London
 No. in Survey held at 2nd Date, First Survey July 16th 1915 Last Survey 2nd May 1916
 Reg. Book. on the Juan S. S. San Carlos (No. 44) (Number of Visits 12)
 Master Built at Cadix By whom built Sociedad Espanol de Cast. Naval When built 1916
 Engines made at 2nd By whom made 2nd when made 1916
 Boilers made at 2nd By whom made 2nd when made 1916
 Registered Horse Power Owners Port belonging to
 Shaft Horse Power at Full Power 1750 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

TURBINE ENGINES, &c.—Description of Engines Juan Screw Geared No. of Turbines 4
 Diameter of Rotor Shaft Journals, H.P. 3 3/8" L.P. 4 1/32" Diameter of Pinion Shaft 3"
 Diameter of Journals 3" Distance between Centres of Bearings 12 3/4" Diameter of Pitch Circle 4.55"
 Diameter of Wheel Shaft 7 3/32" Distance between Centres of Bearings 2' 5" Diameter of Pitch Circle of Wheel 73.3"
 Width of Face 19 2 3/32" Diameter of Thrust Shaft under Collar 7" Diameter of Tunnel Shaft as per rule 6 1/2"
 No. of Screw Shafts 2 Diameter of same as per rule 7 1/2" as fitted 7 1/2" Diameter of Propeller 7' 11" Pitch of Propeller 7' 3"
 No. of Blades 3 State whether Moveable No Total Surface 22 # Diameter of Rotor Drum, H.P. 12 5/8" L.P. 23 5/8" Astern 15 3/4"
 Thickness at Bottom of Groove, H.P. 2 1/2" L.P. 2 1/2" Astern 2 1/2" Revs. per Minute at Full Power, Turbine 3520 Propeller 220

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	23/32"	2. 0 23/32"	1	23/32"	2. 1 1/16"	2	23/32"	2. 2 1/16"	1
2ND	3/32"	2. 1 3/32"	1	7/8"	2. 1 3/8"	2	3/32"	2. 2 23/32"	1
3RD	1 1/32"	2. 1 5/16"	1	1 1/8"	2. 1 23/32"	2	1 1/32"	2. 2 5/16"	1
4TH	1/2"	1. 1 5/8"	9	1 3/32"	2. 2 13/32"	2	13/32"	1. 4 9/16"	3
5TH	23/32"	1. 2 1/32"	9	13/4"	2. 3 3/32"	2	13/16"	1. 5 1/32"	3
6TH	5/8"	1. 5 1/32"	6	2 3/16"	2. 3 23/32"	2	1 19/32"	1. 6 23/32"	3
7TH	27/32"	1. 5 3/32"	6	2 1/2"	2. 5"	2	1 19/32"	1. 6 23/32"	3
8TH	1 1/8"	1. 5 23/32"	6	3 3/8"	2. 6 1/16"	4			

No. and size of Feed pumps Two 8" Cyl. 6" Pump 21" Stroke
 No. and size of Bilge pumps Two 6" Cyl. 6" Pump 6"
 No. and size of Bilge suction in Engine Room 3 at 2 1/2"
 In Holds, &c. 12 at 2 1/2"

No. of Bilge Injections One sizes 6" Connected to condenser, or to circulating pump 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 Bolt
 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
 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 Yes Is it fitted with a watertight door Yes worked from

BOILERS, &c.—(Letter for record S) Manufacturers of Steel John Spencer & Co.
 Total Heating Surface of Boilers 4480 Is Forced Draft fitted Yes No. and Description of Boilers Two Single Ended
 Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 24. 4. 16 No. of Certificate 1147
 Can each boiler be worked separately Yes Area of fire grate in each boiler 54 # No. and Description of Safety Valves to each boiler 2 Spring loaded Area of each valve 9.6 # Pressure to which they are adjusted 11" Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 11" Mean dia. of boilers 13 9/16" Length 11' 6" Material of shell plates Steel
 Thickness 13/16" Range of tensile strength 29 3/4 - 33. Are the shell plates welded or flanged No Descrip. of riveting: cir. seams 8.8.2 ap
 long. seams 8.8.8. Butts Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/2" Lap of plates or width of butt straps 18 1/2"
 Per centages of strength of longitudinal joint rivets 90% plates 85.3% Working pressure of shell by rules 204 lb Size of manhole in shell 16" x 12"
 Size of compensating ring 9 1/2" x 13/16" No. and Description of Furnaces in each Boiler 3 Single ended Material Steel Outside diameter 42 1/8"
 Length of plain part top 19 1/4" bottom 19 1/4" Thickness of plates crown 1 1/32" bottom 1 1/32" Description of longitudinal joint Weld No. of strengthening rings
 Working pressure of furnace by the rules 194 lb Combustion chamber plates: Material Steel Thickness: Sides 1 1/16" Back 2 1/32" Top 1 1/16" Bottom 1 1/16"
 Pitch of stays to ditto: Sides 9 1/2" x 9" Back 8 7/8" Top 9 1/2" x 9" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 188 lb
 Material of stays Steel Diameter at smallest part 2.03 # Area supported by each stay 79.0 # Working pressure by rules 188 lb End plates in steam space
 Material Steel Thickness 1 1/4" Pitch of stays 19 1/2" x 19" How are stays secured 8 Nuts Working pressure by rules 187 lb Material of stays Steel
 Diameter at smallest part 7.84 # Area supported by each stay 361 # Working pressure by rules 225 lb Material of Front plates at bottom Steel
 Thickness 29/32" Material of Lower back plate Steel Thickness 29/32" Greatest pitch of stays 13 1/2" x 8 7/8" Working pressure of plate by rules 274 lb
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates Steel Thickness: Front 4 3/32" Back 3/4" Mean pitch of stays 9 5/8"
 Pitch across wide water spaces 13 1/2" Working pressures by rules 184 lb Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 10" x 14" Length as per rule 33.6" Distance apart 9" Number and pitch of stays in each Two at 9 1/2"
 Working pressure by rules 183 lb Steam dome: description of joint to shell V % of strength of joint Diameter 2020
 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

SUPERHEATER. Type ✓ Date of Approval of Plan ✓ Tested by Hydraulic Pressure to ✓

Date of Test

Diameter of Safety Valve

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR.

SPARE GEAR. State the articles supplied:— One complete Lubrication bearing of each size, 4 thrust-pads
100 Condenser tubes & ferrules, 1 Steam trap + 2 Propellers, no set of coupling bolts & nuts
25 Flue Boiler tubes + 5 Stay tubes, no set of feed, bidge & ballast-pump valves and
seats, a quantity of assorted, bolts nuts & wire, no air pump bucket and rod
valves & seats complete for forced lubricating pump

The foregoing is a correct description,

*Dates
of Survey
while
building*

Dates of Survey while building	During progress of work in shops - -	1915 Mar 16-17 June 22. 23 Oct. 4. 5-6. 1916 April 24-25-29 May 1-2
	During erection on board vessel - - -	
	Total No. of visits	

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Casings June 22 Rotors May 9 " " " donkey " " " Blading May 1 Gearing May 2

Rotor shaft May 2 Thrust shaft GN-5 Tunnel shafts GN-5 Screw shaft GN-5 Propeller GN-5

Stern tube *GW. 5-* Steam pipes tested Engine and boiler seatings Engines holding down bolts

Completion of pumping arrangements	Boilers fixed	Engines tried under steam
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<i>Main boiler safety valves adjusted</i>	—	<i>Thickness of adjusting washers</i>
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Material and tensile strength of Rotor shaft Steel - 36 lbs Identification Mark on Do. E M-S

Material and tensile strength of Pinion shaft Steel 30 Mn Identification Mark on Do. EHS

Material of Wheel shaft Steel Identification Mark on Do. E.M.S. Material of Thrust shaft Steel Identification Mark on Do. E.M.S.

Material of Tunnel shafts Steel Identification Marks on Do. E M S. Material of Screw shafts Steel Identification Marks on Do. E M. S.

[illegible]

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 S. S. Santa Clara

General Remarks (State quality of workmanship, opinions as to class, &c. These figures & Borders have been constructed under Special Survey and in accordance with the Board's rules and the approved plans. The material and workmanship are good and in my opinion the vessel will be eligible for the record Φ L.M.C. with date when the machine has been placed on board & satisfactorily tried under steam.

The Machinery will be fitted aboard at Cadiz

The amount of Entry Fee	13	10.	£	3	:	0	:	When applied for,
Donkey Boiler Fee	19	4.	£	74	:	4	:	20/5/1916
Travelling Expenses (if any)			£	63	:	8	:	When received,
								19

Committee's Minute 1 FRI. 28. SEP. 1917

Assigned

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