

Rpt. 4a.  
 Date of writing Report *21<sup>st</sup> Aug 1919* When handed in at Local Office *21<sup>st</sup> Aug 1919* Port of *New York N.Y.*  
 No. in Survey held at *Schenectady N.Y.* Date, First Survey *21<sup>st</sup> Aug 1919* Last Survey *21<sup>st</sup> Aug 1919*  
 Reg. Book. *101* (Number of Visits *38*)  
 on the *STEEL STEAMER "HARRIS"* Gross *570* Tons Net *342*  
 Master *Edwin* Built at *Chicago* By whom built *American* When built *1917*  
 Engines made at *Schenectady N.Y.* By whom made *General Electric Co.* when made *1919*  
 Boilers made at *Chicago* By whom made *Chicago* when made *1919*  
 Registered Horse Power *2500* Owners *not for R.R.* Port belonging to *Chicago*  
 Shaft Horse Power at Full Power *2500* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *no*

**TURBINE ENGINES, &c.**—Description of Engines *Grand turbine 13579* No. of Turbines *One*  
 Diameter of Rotor Shaft Journals, H.P. *8"* L.P. *4"* Diameter of Pinion Shaft *4"*  
 Diameter of Journals *4.10"* Distance between Centres of Bearings *4.28"* Diameter of Pitch Circle *4.57.888"* L.S.P. *11.442"*  
 Diameter of Wheel Shaft *14"* Distance between Centres of Bearings *4.50.62 1/2"* Diameter of Pitch Circle of Wheel *4.54.056"*  
 Width of Face *20.44* Diameter of Thrust Shaft under Collars *13.25"* Diameter of Tunnel Shaft *as per rule 12.48"* as fitted *12.625"*  
 No. of Screw Shafts *one* Diameter of same *as per rule 14"* as fitted *14.5"* Diameter of Propeller *17'-0"* Pitch of Propeller *13'-9"*  
 No. of Blades *4* State whether Moveable *no* Total Surface *98.8 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 *3234* Propeller *90*

**PARTICULARS OF BLADING.**

	ACTIVE H.P.			L.P.			ACTIVE ASTERN.		
	HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	7.5 - 1.25	2' - 11 1/2"	2				8.125 - 1.5	2' - 2"	2
2ND	6.25	3' - 9"	1				3.375	2' - 3"	1
3RD	1.25	3' - 10 1/2"	1						
4TH	2.5	4' - 0"	1						
5TH	6.0	4' - 2"	1						
6TH									
7TH									
8TH									

No. and size of Feed pumps *Two 10" x 6" x 24"* ✓  
 No. and size of Bilge pumps *Two 12" x 8 1/2" x 12" and 10" x 12" x 12"* ✓  
 No. and size of Bilge suction in Engine Room *Two 3 1/2" dia, thrust pieces 1-2 1/2", fire room 2-3 1/2"*  
 In Holds, &c. *No 1 Two 3 1/2", No 2 2 1/2"; No 3 Two 3 1/2"; No 4 one 3 1/2"; No 5 one 3 1/2"; Tunnel well one 3 1/2"* ✓  
 No. of Bilge Injections *one* sizes *10"* Connected to condenser, or to circulating pump *pump* 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* ✓  
 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 *Upper engine platform* ✓  
 SEE REPORT 5.

**BOILERS, &c.**—(Letter for record *S*) Manufacturers of Steel  
 Total Heating Surface of Boilers *8700* Is Forced Draft fitted *yes* No. and Description of Boilers *3 Watertube Boilers*  
 Working Pressure *200* Tested by hydraulic pressure to *✓* Date of test *✓* No. of Certificate *✓*  
 Can each boiler be worked separately *✓* Area of fire grate in each boiler *✓* No. and Description of Safety Valves to each boiler *✓*  
 Area of each valve *✓* Pressure to which they are adjusted *✓* Are they fitted with easing gear *✓*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *✓* Mean dia. of boilers *✓* Length *✓* Material of shell plates *✓*  
 Thickness *✓* Range of tensile strength *✓* Are the shell plates welded or flanged *✓* Descrip. of riveting: cir. seams *✓*  
 long. seams *✓* Diameter of rivet holes in long. seams *✓* Pitch of rivets *✓* Lap of plates or width of butt straps *✓*  
 Per centages of strength of longitudinal joint *✓* Working pressure of shell by rules *✓* Size of manhole in shell *✓*  
 rivets *✓* plates *✓*  
 Size of compensating ring *✓* 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 Lower back plate *✓* Thickness *✓* Greatest pitch of stays *✓* Working pressure of plate by rules *✓*  
 Diameter of tubes *✓* Pitch of tubes *✓* 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 *✓* 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 Yoster Date of Approval of Plan In New York office Tested by Hydraulic Pressure to 400 lbs  
 Date of Test 2/5/19 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" Pressure to which each is adjusted 300 lbs. Is Easing Gear fitted yes

IS A DONKEY BOILER FITTED? no If so, is a report now forwarded?

**SPARE GEAR.** State the articles supplied:— Two bolts and nuts or studs for each rotor bearing, gear and pinion bearings; one set of coupling bolts for each size used; 20 of total number of bolts and nuts for each gear joint and turbine casing joint; two chronometers for oil circulating system; one complete set of bearing bushes for rotor, pinion and gear shafts; complete set of packing sleeves for turbine head and diaphragm; two main thrust shoes; one set of thrust rings for turbine; one set of feed pump valves; one set of ludge pump valves; one set of lubricating oil pump valves; one bucket and rod for lubricating oil pump; one emergency governor complete, quantity of assorted bolts, studs and nuts, bars and plates of mild steel; one high speed pinion shaft; one propeller; 14 boiler tubes, 15 hipples, 15 hand hole doors; 37 condenser tubes; one set of boiler feed check valves and two safety valve springs.

The foregoing is a correct description,

General Electric Co. Manufacturer.  
per S. Berg

Dates of Survey while building  
 During progress of work in shops -- 5.4.19: 11.4.19: 1.5.19: 21.4.19: 23.4.19: 12.5.19  
 During erection on board vessel --- July 2, 8, 15, 21, 24. Aug 7, 11, 13, 21.  
 Total No. of visits 38. Is the approved plan of main boiler forwarded herewith no  
 " " " donkey " " "

Dates of Examination of principal parts—Casings 5.4.19 Rotors 21.4.19 Blading 1.5.19 Gearing 23.4.19

Rotor shaft 1.5.19 Thrust shaft 2/5/19 Tunnel shafts 2/5/19 Screw shaft 4/4/19 Propeller 4/4/19

Stern tube 17/6/19 Steam pipes tested 21/7/19 Engine and boiler seatings 7/4/19 Engines holding down bolts 15/7/19

Completion of pumping arrangements 13/8/19 Boilers fixed 2/5/19 Engines tried under steam 13/8/19

Main boiler safety valves adjusted 7/8/19 Thickness of adjusting washers lock nuts

Material and tensile strength of Rotor shaft Steel 80,000 lbs. 27" finishing Identification Mark on Do. WT

Material and tensile strength of Pinion shaft " 85,000 " Identification Mark on Do. WT

Material of Wheel shaft Steel Identification Mark on Do. WT Material of Thrust shaft steel Identification Mark on Do. T.H.

Material of Tunnel shafts steel Identification Marks on Do. T.H. Material of Screw shafts steel Identification Marks on Do. T.H.

Material of Steam Pipes 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 yes If so, state name of vessel S. Casper & previous vessels.

**General Remarks** (State quality of workmanship, opinions as to class, &c. These engines have been constructed under Special Survey in accordance with the approved plans. The materials and workmanship are sound and good. The engines have been forwarded to Hog Island to be fitted on board.

~~... the boiler and machinery of the vessel has been examined and found to be in conformity with the approved plans. It is submitted that the vessel is ready for service.~~

The amount of Entry Fee ... £ 1/2 Special 250.00 When applied for, 19  
 Donkey Boiler Fee ... £ 1/2 When received, 23/9/19  
 Travelling Expenses (if any) £ 1/2

Committee's Minute New York SEP - 9 1919  
 Assigned + L.M.C. 8.19 Subject

