

## REPORT ON MACHINERY

No. 3640

Received at London Office

7 NOV 1927

Date of writing Report 19<sup>th</sup> Oct 1927 When handed in at Local Office 19<sup>th</sup> Oct 1927 Port of Bombay  
 No. in Survey held at Bombay Date, First Survey 10<sup>th</sup> March 1927 Last Survey 10<sup>th</sup> Oct 1927  
 Reg. Book. 35361 on the s/s "SOPHIE MARIE" (Number of Visits 10)  
 Master Built at Lehe-Bremerhaven By whom built Schiffbau Gesellschaft Unter-Weiser A.G. When built 1923  
 Engines made at Berlin By whom made A. Borsig G. m. b. H. when made 1923  
 Boilers made at Berlin By whom made A. Borsig G. m. b. H. when made 1923  
 Registered Horse Power Owners Jhoban Devji Shah Port belonging to Bombay  
 Nom. Horse Power as per Section 28 14-2 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple Expansion Surface Cond.<sup>3</sup> No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 17<sup>5</sup>/<sub>16</sub>—27<sup>1</sup>/<sub>2</sub>—45<sup>5</sup>/<sub>8</sub> Length of Stroke 27<sup>1</sup>/<sub>2</sub> Revs. per minute 95 Dia. of Screw shaft as per rule 9.4" Material of Steel  
 as fitted 9.4" screw shaft  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight  
 in the propeller boss yes If the liner is in more than one length are the joints burned If the liner does not fit tightly at the part  
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two  
 liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 3'-2"  
 Dia. of Tunnel shaft as per rule 8.43" Dia. of Crank shaft journals as per rule 8.85" Dia. of Crank pin 9<sup>13</sup>/<sub>16</sub>" Size of Crank webs 17<sup>13</sup>/<sub>16</sub> x 5<sup>11</sup>/<sub>16</sub>" Dia. of thrust shaft under  
 collars 8<sup>7</sup>/<sub>8</sub>" Dia. of screw 135" Pitch of Screw 133" No. of Blades 4 State whether moveable No Total surface  
 No. of Feed pumps 2 Diameter of ditto 2<sup>7</sup>/<sub>16</sub>" Stroke 13<sup>3</sup>/<sub>4</sub>" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 2<sup>7</sup>/<sub>16</sub>" Stroke 13<sup>3</sup>/<sub>4</sub>" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 Sizes of Pumps 8<sup>1</sup>/<sub>4</sub> x 14 x 7<sup>1</sup>/<sub>2</sub>—4 x 8 x 3<sup>1</sup>/<sub>2</sub>" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 3—2<sup>1</sup>/<sub>2</sub>" In Holds, &c. 4—2<sup>1</sup>/<sub>2</sub>" 1—<sup>1</sup>/<sub>2</sub>" tunnel well  
 No. of Bilge Injections 1 sizes 4<sup>1</sup>/<sub>4</sub>" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size yes—3<sup>1</sup>/<sub>4</sub>"  
 Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices on Engine room bulkheads always accessible  
 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 yes  
 What pipes are carried through the bunkers Sanding + air pipes for No 2 tank How are they protected based in  
 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 top plating in E.R.

BOILERS, &c.—(Letter for record (S) ) Manufacturers of Steel 2.S.B.  
 Total Heating Surface of Boilers 2410 ft<sup>2</sup> Is Forced Draft fitted No No. and Description of Boilers Two cylindrical multitubular  
 Working Pressure 200 lbs. Tested by hydraulic pressure to 350 lbs. Date of test 17/9/27 No. of Certificate  
 Can each boiler be worked separately yes Area of fire grate in each boiler 36 ft<sup>2</sup> No. and Description of Safety Valves to  
 each boiler Double Spring loaded Area of each valve 5.94 ft<sup>2</sup> Pressure to which they are adjusted 200 lbs. Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 10'-6<sup>3</sup>/<sub>4</sub>" Length 10'-1" Material of shell plates Steel  
 Thickness 29/32" Range of tensile strength 29/32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R.  
 long. seams R.R. Double Butt Diameter of rivet holes in long. seams 1.14" Pitch of rivets 14.3" Lap of plates or width of butt straps 22"  
 Per centages of strength of longitudinal joint rivets 129% Working pressure of shell by rules 201 lbs. Size of manhole in shell 16<sup>1</sup>/<sub>2</sub> x 12<sup>1</sup>/<sub>2</sub>"  
 plate 92% Size of compensating ring 3'-2" x 2'-10" No. and Description of Furnaces in each boiler Two corrugated Material Steel Outside diameter 3'-3<sup>3</sup>/<sub>8</sub>"  
 Length of plain part top Thickness of plates crown 17/32" Description of longitudinal joint Weld No. of strengthening rings  
 bottom Thickness of plates bottom 17/32"  
 Working pressure of furnace by the rules 195 lbs. Combustion chamber plates: Material Steel Thickness: Sides .65" Back .65" Top .65" Bottom 29/32"  
 Pitch of stays to ditto: Sides 7<sup>1</sup>/<sub>4</sub> x 6<sup>3</sup>/<sub>4</sub>" Back 7 x 7" Top 7<sup>1</sup>/<sub>2</sub> x 6<sup>3</sup>/<sub>4</sub>" If stays are fitted with nuts or riveted heads Riveted Working pressure by rules 196 lbs.  
 Material of stays Steel Area at smallest part 1.46 ft<sup>2</sup> Area supported by each stay 53 ft<sup>2</sup> Working pressure by rules 223 lbs. End plates in steam space:  
 Material Steel Thickness 1" Pitch of stays 15<sup>3</sup>/<sub>4</sub> x 13<sup>3</sup>/<sub>8</sub>" How are stays secured Double nuts Washers Working pressure by rules 215 lbs. Material of stays Steel  
 Area at smallest part 5.14 ft<sup>2</sup> Area supported by each stay 210 ft<sup>2</sup> Working pressure by rules 266 lbs. Material of Front plates at bottom Steel  
 Thickness 1<sup>1</sup>/<sub>16</sub>" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 26<sup>1</sup>/<sub>2</sub>" Working pressure of plate by rules 201 lbs.  
 Diameter of tubes 3<sup>1</sup>/<sub>4</sub>" Pitch of tubes 4<sup>1</sup>/<sub>4</sub> x 4<sup>1</sup>/<sub>8</sub>" Material of tube plates Steel Thickness, Front 1<sup>1</sup>/<sub>16</sub>" Back 1" Mean pitch of stays 10<sup>1</sup>/<sub>2</sub>"  
 Pitch across wide water spaces 14<sup>3</sup>/<sub>8</sub>" Working pressures by rules 205 lbs. Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 7" x 1<sup>1</sup>/<sub>8</sub>" Length as per rule 22<sup>5</sup>/<sub>8</sub>" Distance apart 7<sup>7</sup>/<sub>8</sub>" Number and pitch of stays in each 2-7"  
 Working pressure by rules 233 lbs. Steam dome: description of joint to shell Double riveted % of strength of joint 47%  
 Diameter 33<sup>1</sup>/<sub>2</sub>" Thickness of shell plates .66" Material Steel Description of longitudinal joint Lap S.R. Diam. of rivet holes 1<sup>1</sup>/<sub>16</sub>"  
 Pitch of rivets 2<sup>7</sup>/<sub>4</sub>" Working pressure of shell by rules 226 lbs. Crown plates Steel Thickness .64" How stayed Dished  
 SUPERHEATER. Type Smutz Date of Approval of Plan Tested by Hydraulic Pressure to 350 lbs.  
 Date of Test 17/9/27 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<sup>1</sup>/<sub>2</sub>" Pressure to which each is adjusted 205 lbs. Is Easing Gear fitted yes

W116-0097

IS A DONKEY BOILER FITTED?

No.

If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied:— Propeller shaft; propeller; one pair crank pin brasses; one pair of crosshead brasses; one valve spindle complete; one air pump rod; one air pump rod; one set each of air, feed, bilge & air pump valves; 6 coupling bolts; 2 bottom end bolts; two top end bolts; two main bearing bolts; one feed pump ram; one superheater coil; one dozen boiler tubes; one set of piston & bucket rings for the ballast & general service pumps; 1 set of injector nozzles; 4 boiler feed check valves; 1 set of piston rings for steering engine; 1 set of piston rings for the dynamo engine.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops 1927 Mar 10, 14, 31. Apr 1. May 4, Aug 27, Sept 16, 17, Oct 8, 10. During erection on board vessel - - - Total No. of visits

Is the approved plan of main boiler forwarded herewith yes.

" " " donkey " " " ✓

Dates of Examination of principal parts—Cylinders Slides Covers Pistons Rods Connecting rods Crank shaft as above Thrust shaft Tunnel shafts Screw shaft Propeller Stern tube Steam pipes tested 17/9/27. Engine and boiler seatings Engines holding down bolts Completion of pumping arrangements ✓ Boilers fixed ✓ Engines tried under steam 10th Oct 1927 Completion of fitting sea connections ✓ Stern tube ✓ Screw shaft and propeller ✓ Main boiler safety valves adjusted 10th Oct 1927. Thickness of adjusting washers Port B.C. P.V. 1 3/32 S.V. 3/32 Star B.C. P.V. 1 3/32 S.V. 13/32 Superheater safety valves each 2 1/32 Material of Crank shaft Steel Identification Mark on Do. ✓ Material of Thrust shaft Steel Identification Mark on Do. ✓ Material of Tunnel shafts Steel Identification Marks on Do. ✓ Material of Screw shafts Steel Identification Marks on Do. ✓ Material of Steam Pipes Steel ✓ Test pressure 600 lbs per sq. in. Is an installation fitted for burning oil fuel No. ✓ 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 duplicate of a previous case ✓ If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c. for classification & L.M.C. the machinery of this vessel has now been examined throughout—afloat & in dry dock. The cylinders, pistons, slides, the crank, thrust, tunnel & prop. shafts, the propeller the stern bush, the sea cocks & valves with their fastenings, the air circulating feed & bilge pumps with their valves, the condenser, the auxiliary pumps, the pumping arrangements throughout the vessel, the steering engine & steering gear, & the windlass have been opened out & examined. The Main Boilers have been examined throughout, internally & externally together with all mountings manholes etc. They were found in good condition but the safety valves were not considered suitable. New Cockburn safety valves have now been fitted to the boilers. The boilers were tested by hydraulic pressure to 350 lbs per sq. in. & were found tight & sound at that pressure. The main steam pipes were tested to 600 lbs per sq. in. with satisfactory results. The safety valves were afterwards adjusted under steam to their working pressure of 200 lbs. The Main Engines & Auxiliary Machinery were tried under steam & were found satisfactory.

As instructed in the Secy's Ltr E dated 26th May 1927, a 3 1/4" direct suction to the Engine Room bilges has now been fitted to the ballast donkey. As the tank under the boiler is used for ballast purposes, the suction valve for this tank is of the ordinary type. In accordance with the instructions contained in the Secy's Ltr E. of the 1st April 1927, special attention was given to the examination of the combustion chambers back & side plates, & the steam dome shell & crown plates. They were found in very good condition with no signs of working. The diam. of the thrust shaft is as given in the body of this report. The Machinery of this vessel is in good condition. The scantlings are in accordance with the plans submitted & in my opinion the machinery is eligible to be classed with the notations of L.M.C. 10-27 & T.S. C.L. 10-27.

The amount of Entry Fee ... Rs. 40/-/- : When applied for, 21st Oct. 1927 Special ... Rs. 850/-/- : When received, 10.1.28 Donkey Boiler Fee ... £ : Travelling Expenses (if any) Rs. 20/-/- Late visit on 10/3/27. Rs. 48/-/- Committee's Minute TUES. 15 NOV 1927

Assigned

John Houston. Engineer Surveyor to Lloyd's Register of Shipping.



© 2020

Lloyd's Register Foundation