

# REPORT ON MACHINERY.

No. 2161

Received at London Office

of writing Report 4<sup>th</sup> Jan'y 1918 When handed in at Local Office 19 Port of Kobe MON 11 MAR 1918  
 Date, First Survey Novem: 22<sup>nd</sup> 1916 Last Survey Novem: 26<sup>th</sup> 1917  
 in Survey held at Kobe  
 on the Single Screw Steamer "Borneo Maru"  
 Tons { Gross 5856.55  
 Net 4257.7  
 When built 1917  
 Built at Kobe By whom built The Kawasaki Dryd. Co. Lim.  
 Engines made at Kobe By whom made The Kawasaki Dryd. Co. Lim. when made 1917  
 Boilers made at do By whom made do when made do  
 Registered Horse Power Owners The Osaka Shosen Kaisha Port belonging to Osaka  
 Nom. Horse Power as per Section 28 440 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks 3  
 Dia. of Cylinders 26" 43 1/2" 42" Length of Stroke 48 Revs. per minute 40 Dia. of Screw shaft as per rule 15.11 as fitted 16 Material of screw shaft Steel  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liner Is the after end of the liner made water tight  
 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 5' 5 1/4"  
 Dia. of Tunnel shaft as per rule 13.48 as fitted 13 3/4 Dia. of Crank shaft journals as per rule 14.15 as fitted 14 3/8 Dia. of Crank pin 14 3/4 Size of Crank webs 9 1/2 x 20 1/2 Dia. of thrust shaft under collars 14 3/8 Dia. of screw 14 1/2 Pitch of Screw 19.0 No. of Blades 4 State whether movable Yes Total surface 100 sq. ft.  
 No. of Feed pumps One Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work Yes (Weir feed)  
 No. of Bilge pumps Two Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Four Sizes of Pumps Bal. 10-11-12 duplex. No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Three 3 1/2" 2 Weir fed 9 1/2" x 7 x 24 In Holds, &c. Nos. 1, 3 & 4 holds, two 3 1/2"  
 One 3 1/2" to tunnel well. Small dry. 5 1/2" x 3 1/2" x 9 dup. No. 2. hold, two 4"  
 No. of Bilge Injections 1 sizes 10" Connected to condenser, or to circulating pump Air p. 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 the sluices on Engine room bulkheads always accessible None  
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Larger valves: Swaled, Cocks.  
 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 upper grating in E. Rm.

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel Steel Co of Scot. D. Colville, S.M. Durham.  
 4609 + 1132 (Ans. blr.) Wm. Beardmore, John Marshall & Co  
 Total Heating Surface of Boilers 5441 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers No. 1, 2, 3 & 4  
 Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 26<sup>th</sup> 30 June 1917 No. of Certificate 110405 TEST 400 lbs. hyd. 26-30/6/17 ALJ. R.  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 60 1/2 No. and Description of Safety Valves to each boiler Two Spring loaded Area of each valve 3 3/4" dia Pressure to which they are adjusted 205 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 14.6" Length 12.0" Material of shell plates Steel  
 Thickness 15/16" Range of tensile strength 29-32 tons Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Doub. Tw.  
 long. seams Doub. shape Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 8 3/4" x 4 3/8" Gap of plates or width of butt straps 1.75"  
 Per centages of strength of longitudinal joint rivets 95.8 Working pressure of shell by rules 209 lbs Size of manhole in shell 16 x 12"  
 treble riveted plates 84.3  
 Size of compensating ring (1/2 + flange) x 1 1/2 No. and Description of Furnaces in each boiler Three Morrison Material Steel Outside diameter 48 1/4"  
 Length of plain part top all round crown 5/8" Description of longitudinal joint Weld No. of strengthening rings  
 bottom Thickness of plates bottom 5/8"  
 Working pressure of furnace by the rules 208 lbs Combustion chamber plates: Material Steel Thickness: Sides 11/16" Back 11/16" Top 11/16" Bottom 7/8"  
 Pitch of stays to ditto: Sides 8 5/8" x 8 1/2" Back 9 x 8 1/2" Top 9 3/8" x 8 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 203 lbs  
 Material of stays Steel Area at smallest part 2.1 sq. ft Area supported by each stay 9 3/8" x 8 1/2" Working pressure by rules 230 lbs End plates in steam space:  
 Material Steel Thickness 1 5/16" Pitch of stays 19 3/4" x 20 1/2" How are stays secured Doub. nuts Working pressure by rules 201 lbs Material of stays Steel  
 Area at smallest part 10.0 sq. ft Area supported by each stay 19 3/4" x 20 1/2" Working pressure by rules 260 lbs Material of Front plates at bottom Steel  
 Thickness 13/16" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 13 1/2" at ends Working pressure of plate by rules 200 lbs  
 Diameter of tubes 3 1/4" Pitch of tubes 4 7/16" x 4 5/16" Material of tube plates Steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 8 3/4"  
 Pitch across wide water spaces 13 3/4" double Working pressures by rules 200 lbs Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 10 1/2" - 13 (2) Length as per rule 34 1/2" Distance apart 9 3/8" Number and pitch of stays in each 3 @ 8 1/2"  
 Working pressure by rules 230 lbs Steam dome: description of joint to shell % of strength of joint  
 Diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes  
 Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed  
 Tested by Hydraulic Pressure to 600 lbs

26 SUPERHEATER. Type Schmidt Date of Approval of Plan 18<sup>th</sup> Aug. 1917 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler Yes  
 Date of Test 25<sup>th</sup> Aug. 1917 Is Easing Gear fitted No.  
 Diameter of Safety Valve 3" Pressure to which each is adjusted 205 lbs

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