

REPORT ON MACHINERY.

No. 1338

Received at London Office

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of writing Report 27th Oct 1921 When handed in at Local Office 27th Oct 1921 Port of NAGASAKI.
 in Survey held at NAGASAKI. Date, First Survey 5th Feb. 1920, Last Survey 4th October 1921
 (Number of Visits 94)
 on the Steel Screw Steamer "BENGAL MARU".
 Built at Nagasaki, By whom built Mitsubishi Zosen Kaisha, Ltd., When built 1921
 Lines made at Nagasaki. By whom made Mitsubishi Zosen Kaisha, Ltd., when made 1921
 Owners made at Nagasaki. By whom made Mitsubishi Zosen Kaisha, Ltd., when made 1921
 Registered Horse Power 490 Owners Nippon Yusen Kabushiki Kaisha, Port belonging to Tokio.
 Is Refrigerating Machinery fitted for cargo purposes / Is Electric Light fitted yes

GINES, &c.—Description of Engines Triple Expansion. No. of Cylinders 3 No. of Cranks 3
 No. of Cylinders 26 1/2" x 44 1/2" x 75" Length of Stroke 48" Revs. per minute 81 Dia. of Screw shaft 15.23" Material of screw shaft Steel
 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
 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
 are fitted, is the shaft lapped or protected between the liners / Length of stern bush 6'-6 1/2"
 Dia. of Tunnel shaft 13.74" Dia. of Crank shaft journals 14.427" Dia. of Crank pin 15" Size of Crank web 22 9/16" x 9 1/2" Dia. of thrust shaft under
 bars 14 3/4" Dia. of screw 18'-3" Pitch of Screw 19'-9" No. of Blades 4 State whether moveable yes Total surface 96.8 sq. ft.
 No. of Feed pumps 2 Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 5" Stroke 24" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 4 Sizes of Pumps 1 8" S.S. 7" x 5" x 7" No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 3'-3 1/2" 2 Feed 9 1/2" x 21" x 7" In Holds, &c. No. 1 Hold 2-3 1/2" No. 2 Hold 2-3 1/2" 2-3 1/2"
 for Cross bunker, No. 3 Hold 2-3 1/2" No. 4 Hold 2-3 1/2" Tunnel well 1-2 1/2"
 No. of Bilge Injections 1 sizes 8" Connected to condenser or to circulating pump yes 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 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
 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 Bridge Deck

MILERS, &c.—(Letter for record S.) Manufacturers of Steel William Beardmore Co.,
 Total Heating Surface of Boilers 6498.9 Is Forced Draft fitted yes No. and Description of Boilers 3 single ended Cylindrical.
 Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 11-8-20 No. of Certificate 105
 Can each boiler be worked separately yes Area of fire grate in each boiler 54.312 sq. ft. No. and Description of Safety Valves to
 each boiler 2 spring loaded Area of each valve 9.6211 sq. in. 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 2'-9" Mean dia. of boilers 14'-0" Length 11'-6" Material of shell plates steel
 Thickness 1 7/16" Range of tensile strength 28 to 32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R.
 No. of rivets 92.5 % Working pressure of shell by rules 233 lbs Size of manhole in shell 12" x 16"
 Descrip. of riveting: long. seams T R D B S Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 9 7/8" Lap of plates or width of butt straps 22"
 Percentages of strength of longitudinal joint 84.8 % Working pressure of shell by rules 233 lbs Size of manhole in shell 12" x 16"
 Size of compensating ring 32 1/2" x 36 1/2" x 1 7/16" No. and Description of Furnaces in each boiler 3 Morison Material steel Outside diameter 3'-9 1/4"
 Length of plain part 9 Description of longitudinal joint Welded No. of strengthening rings /
 Thickness of plates 16 Working pressure of furnace by the rules 217 lbs Combustion chamber plates: Material steel Thickness: Sides 11/16" Back 11/16" Top 1 1/16" Centre 15" Bottom 16"
 Pitch of stays to ditto: Sides 8 3/4" x 7 1/2" Back 8 1/2" x 9" Top 1 1/4" x 9 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 210 lbs
 Material of stays steel Area at smallest part 2.03 Area supported by each stay 76.5 Working pressure by rules 238 lbs End plates in steam space:
 Material steel Thickness 1 3/32" Pitch of stays 18" x 20" How are stays secured Nuts & Washers Working pressure by rules 214 lbs Material of stays steel
 Area at smallest part 7.76 Area supported by each stay 360 Working pressure by rules 221 Material of Front plates at bottom steel
 Thickness 3/4" x 9/16" doubling Material of Lower back plate steel Thickness 16 Greatest pitch of stays 14 1/2" Working pressure of plate by rules 226 lbs
 Diameter of tubes 3 1/2" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 8 7/8"
 Pitch across wide water spaces 15 3/4" Working pressures by rules 216 lbs Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 10 1/4" x 7/8" Length as per rule 32.0625 Distance apart 11 1/2" Number and pitch of stays in each 3 @ 7 1/4"
 Working pressure by rules 214 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 /

SUPERHEATER. Type / Date of Approval of Plan / Tested by Hydraulic Pressure to /
 Date of Test / Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler /
 Diameter of Safety Valve / Pressure to which each is adjusted / Is Easing Gear fitted /

IS A DONKEY BOILER FITTED?

No

If so, is a report now forwarded? /

SPARE GEAR. State the articles supplied:— As per Rules and in addition.

1 H.P. 1 M.P. 1 L.P. Valve Spindle, 2 H.P. 2 M.P. 2 L.P. eccentric rods, straps and bolts, 1 set of packing rings for each piston, 1 set of metallic packing for each piston rod and Valve spindle, 1 complete set of top and bottom connecting rod brasses, 1/4 of total number of junk ring bolts, 1 Air pump rod, 1/30 of total number of condenser tubes, 1/20 of condenser ferrules, 1 set of cylinderescape valves and springs, 2 propeller blades, 1 propeller shaft, 1 stern bush. 1 manhole door for boiler etc.,

The foregoing is a correct description,

NAGASAKI WORKS, MITSUBISHI ZOSEN KAISHA, LTD.

T. Kobayashi for GENERAL MANAGER

Manufacturer.

1920. Dates of Survey while building: During progress of work in shops - Feb. 5, 9, 19, 20, 22, Mar. 3, 4, 9, 11, 15, 18, 19, Apr. 10, 13, 15, 26, 27, 29, May 10, 11, 14, 15, 18, 19, 21, 25, 26, 29, 31, June 1, 3, 7, 11, 14, 15, 16, 17, 19, 21, 22, 24, 26, July 5, 6, 20, 26, Aug. 4, 9, 11, 19, 21, 26, 28, Sep. 1, 3, 6, 9, 13, 15, 17, 20, 21, 22, 28, Oct. 11, 12, 14, 15, 16, 18, 19, 22, 25, 27, 29, 30, Nov. 5, 11, 15, 20, 22, 26, 27, 30, Dec. 1, 2, 3, 4, 5, 18, Apr. 6, May 3, Oct. 3, 4. Total No. 94.

Dates of Examination of principal parts: Cylinders 14-10-20, Slides 11-10-20, Covers 14-10-20, Pistons 11-11-20, Rods 5-11-20, Connecting rods 11-11-20, Crank shaft 5/7/20, Thrust shaft 6-7-20, Tunnel shafts 4-8-20, Screw shaft 29-10-20, Propeller 11-11-20, Stern tube 9-8-20, Steam pipes tested 6-4-21, Engine and boiler seatings 15-11-20, Engine's holding down bolts 26-11-20, Completion of pumping arrangements 23-5-21, Boilers fixed 20-11-20, Engines tried under steam 4-10-21, Completion of fitting sea connections 15-11-20, Stern tube 5-11-20, Screw shaft and propeller 11-11-20, Main boiler safety valves adjusted 3-10-21, Thickness of adjusting washers Look nuts,

Material of Crank shaft steel, Identification Mark on Do. No. 177W, Material of Thrust shaft steel, Identification Mark on Do. No. 177W, Material of Tunnel shafts steel, Identification Marks on Do. No. 177W, Material of Screw shafts steel, Identification Marks on Do. No. 177W, Material of Steam Pipes Steel, Test pressure 600 lbs.

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 duplicate of a previous case Yes If so, state name of vessel Estern Crown, Report No. 1275

General Remarks (State quality of workmanship, opinions as to class, &c.)

These Engines and Boilers have been constructed under Special Survey in accordance with the Rules, and of good material and workmanship. They have been securely fitted on board, and have been satisfactorily tried under steam.

The machinery of this vessel is eligible, in my opinion, for the record of LMC 5.2 in the Register Book.

Mean Speed on trial 14.895 knots. Light load.

It is submitted that this vessel is eligible for THE RECORD.

+ L.M.C. - 10.21. F.D. C.L.

Handwritten signature and date 20/12/21.

Table with 2 columns: Description and Amount. Includes Entry Fee (£50.00), Special Fee (£781.00), Donkey Boiler Fee, and Travelling Expenses.

Committee's Minute Assigned

FRI. DEC. 23 1921

Handwritten signature and date + L.M.C. 10.21



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Certificate (if required) to be sent to Nagasaki Office. The Surveyors are requested not to write on or below the space for Committee's Minute.