

REPORT ON MACHINERY.

SEP 17 1901

Port of GlasgowNo. in Survey held at GlasgowDate, first Survey 12 Octr '00Received at London Office 7 Sept 01

g. Book.

(Number of Visits 52)on the Screw Steamer Kumano MaruTons { Gross 4655.40
Net 2880.82Master Hawell Built at Glasgow. By whom built Fairfield Shipbuilding Co. Ltd. When built 1901Engines made at Glasgow By whom made Fairfield Shipbuilding Co. Ltd. when made 1901Machinery made at Glasgow By whom made Fairfield Shipbuilding Co. Ltd. when made 1901Registered Horse Power 650 Owners Nippon Yusen Kaisha Ltd. Port belonging to TokioHorse Power as per Section 28 788 Is Refrigerating Machinery fitted Yes for ship use Is Electric Light fitted YesGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks ThreeNo. of Cylinders 31-51-85 Length of Stroke 54 Revs. per minute 90 Dia. of Screw shaft 16 1/2 as per rule 16 1/2 as fitted 16 1/2 Lgth. of stern bush 5'6"No. of Tunnel shaft 1 as per rule 16 1/2 as fitted 16 1/2 Dia. of Crank shaft journals 16 1/2 as per rule 16 1/2 as fitted 16 1/2 Dia. of Crank pin 16 1/2 Size of Crank webs 31 1/2 x 11 1/2 Dia. of thrust shaft underbars 16 1/2 Dia. of screw 14'6" Pitch of screw 22'0" No. of blades 4 State whether moveable Yes Total surface 86 sq. ft.No. of Feed pumps 2 Diameter of ditto 5 1/2 Stroke 27 Can one be overhauled while the other is at work Yes Keis Feed pumpsNo. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 27 Can one be overhauled while the other is at work Yes 2 (12' x 9' x 24')No. of Donkey Engines 3 Sizes of Pumps 8' x 6' x 8' (10' x 2 1/2' x 12') (10' x 2 1/2' x 12') No. and size of Suctions connected to both Bilge and Donkey pumpsEngine Room Four 3 1/2' dia. In Holds, &c. No. 1 Hold: 2-3 1/2' dia. No. 2 Hold: 2-3 1/2' dia.No. of bilge injections 1 sizes 16" Connected to condenser, or to circulating pump Is a separate donkey suction fitted in Engine room & size Yes 4 1/2"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 Yesall connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Boththey 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 Abovethey 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 Yesat pipes are carried through the bunkers Area Suctions How are they protected By casingall pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yesthe bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yeswhen were stern tube, propeller, screw shaft, and all connections examined in dry dock New vessel Is the screw shaft tunnel watertight Yesif fitted with a watertight door Yes worked from Top platform in engine roomBoilers, &c.— (Letter for record \$) Total Heating Surface of Boilers 14940 sq. ft. Is forced draft fitted Noand Description of Boilers 4: Cyl. 1: 20' dia. 1: 20' dia. 2: 20' dia. 2: 20' dia. Working Pressure 185 lb. Tested by hydraulic pressure to 370 lb.No. of test 9/5/01 Can each boiler be worked separately Yes Area of fire grate in each boiler 125 sq. ft. No. and Description of safety valves toboiler 3: Direct Spring Area of each valve 10'32" Pressure to which they are adjusted 190 lb. Are they fitted with easing gear Yesleast distance between boilers or uptakes and bunkers or woodwork About 4' Mean dia. of boilers 15'6" Length 18'0" Material of shell plates Steelthickness 1 1/2" Range of tensile strength 27-32 tons Are they welded or flanged No Descrip. of riveting: cir. seams Top: Double Butt long. seams Dble Butt Shaps.number of rivet holes in long. seams 1 1/2" Pitch of rivets 10" Lap of plates or width of butt straps 20"percentages of strength of longitudinal joint rivets 84% Working pressure of shell by rules 212 lb. Size of manhole in shell 16' x 12'of compensating ring Rangea Ring No. and Description of Furnaces in each boiler 6: Mouson's Material Steel Outside diameter 50 1/2"length of plain part top 7'0" Thickness of plates bottom 5'8" Description of longitudinal joint Weld. No. of strengthening rings partial atworking pressure of furnace by the rules 200 lb. Combustion chamber plates: Material Steel Thickness: Sides 3/4" Back 3/4" Top 3/4" Bottom 3/4"No. of stays to ditto: Sides 7 1/2' x 7 1/2' Back 8' x 7 1/2' If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 187 lb.material of stays Steel Diameter at smallest part 1 3/4' x 1 1/2' Area supported by each stay 62' x 44' Working pressure by rules 185 lb. End plates in steam space:material Steel Thickness 1 1/8" Pitch of stays 15' x 15' How are stays secured Dble nuts Working pressure by rules 252 lb. Material of stays Steelnumber at smallest part 2 3/8" Area supported by each stay 225" Working pressure by rules 213 lb. Material of Front plates at bottom Steelthickness 3/8" Material of Lower back plate Steel Thickness 3/8" Greatest pitch of stays 9 1/2" Working pressure of plate by rules 187 lb.number of tubes 34' Pitch of tubes 4 1/2' x 4 1/2' Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9 1/2"No. across wide water spaces 14 1/2" Working pressures by rules 223 lb. 228 lb. Girders to Chamber tops: Material Steel Depth andthickness of girder at centre 4' x 13' Length as per rule 22' Distance apart 8' Number and pitch of Stays in each 5: 7 1/2'working pressure by rules 266 lb. Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler workedseparately Yes

Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

strengthened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

DONKEY BOILER—		No.	Description		
Made at	By whom made		When made	Where fixed	
Working pressure	tested by hydraulic pressure to	No. of Certificate	Fire grate area	Description of safety valves	
No. of safety valves	Area of each	Pressure to which they are adjusted	If fitted with easing gear	If steam from main boiler	No. in Reg. Book
enter the donkey boiler	Dia. of donkey boiler	Length	Material of shell plates	Thickness	Range of strength
Descrip. of riveting long. seams	Dia. of rivet holes	Whether punched or drilled	Pitch of rivets		
Lap of plating	Per centage of strength of joint	Rivets	Thickness of shell crown plates	Radius of do.	No. of Stays to do.
Dia. of stays.	Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates	Descrip. Engines m
joint	Thickness of furnace crown plates	Stayed by	Working pressure of shell by rules		Boilers m
Working pressure of furnace by rules	Diameter of uptake	Thickness of uptake plates	Thickness of water tubes		Registered

SPARE GEAR. State the articles supplied:— 3 crank shaft, 1 Propeller shaft, 1 Piston Rod 2 shoes, 10 Thrust Shoes, 2 Eccentric Rods & Straps, 1 set crank pin Bushes, 1 set main Bearing Bushes, 1 set crosshead Bushes, 2 Slide Spindles, piston Rings, 1 propeller Beads, 1 Brass Stem Bush, Air pump rod Bushes and list of other gear required & the Rules.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building
 During progress of work in shops— 1901. Oct. 23. Nov. 19. 21. Dec. 10. 12. 14. 17. 1901. Jan. 8. 11. 17. 23. Feb. 8. 11. Mar. 2. 29. 29. Apr. 1. 6. 12. 17. 19. 23. 29. 30. May. 9. 13. 14. 17. 22. 23. 27. 31. Jun. 4. 10. 11. 17. 24. 26. 27. 29. 30. Aug. 7. 20. 23. 28. 30. Sep. 2. 5. 6. 7. Is the approved plan of main boiler forwarded herewith
 Total No. of visits 52.

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

Material of screw shaft Scrap Iron 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 Yes
 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 non-corrosive If two liners are fitted, is the shaft lapped or protected between the liners

The Engines and Boilers of this vessel have been built under Special Survey and the materials and workmanship are good and completed May were examined on a full power trial in the and found to work satisfactorily.

The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of L. M. C. 9. 01. marked in the Register Book.

It is submitted that this vessel is eligible for

THE RECORD + LMC 9. 01. Etc. light

The amount of Entry Fee. £ 3 : : When applied for, 11/9/01.
 Special £ 59 8 : :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : : When received, 12/9/01.

Committee's Minute Glasgow, 18 SEP. 1901

Assigned

+ LMC 9. 01.

MACHINERY CERTIFICATE
 WRITTEN. 18/9/01



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