

REPORT ON MACHINERY.

FRI. 3 JUN 1898

Port of Belfast

Received at London Office

No. in Survey held at Belfast Date, first Survey Nov 30 1896 Last Survey May 30 1898
Reg. Book. " (Number of Visits 52)

on the Steel Twin Screw Steamer Sado Maru Tons ^{Gross} 5894 _{Net} 3748

Master James B Murray Built at Belfast By whom built Worlman Clark & Co Ltd When built 1898

Engines made at Belfast By whom made Worlman Clark & Co Ltd when made 1898

Boilers made at " By whom made " when made 1898

Registered Horse Power 550 Owners Nippon Yusen Kaisha Port belonging to Tokio

Nom. Horse Power as per Section 28 554

DETAILS, &c. — Description of Engines Twin Expansion Twin Screws No. of Cylinders Six

Diameter of Cylinders 20 : 3 3/2 : 56 Length of Stroke 48" Revolutions per minute 80 Diameter of Screw shaft ^{as per rule} 11 1/2" _{as fitted} 12 3/4"

Diameter of Tunnel shaft ^{as per rule} 10 9/16" _{as fitted} 12" Diameter of Crank shaft journals 12 1/2" Diameter of Crank pin 12 1/2" Size of Crank webs 8 1/2" x 16 1/2"

Diameter of screws 15" 0" Pitch of screw 18" 0" No. of blades 4 State whether moveable Yes Total surface 71° each propeller

No. of Feed pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Four Sizes of Pumps See other side No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Three 3 1/2" In Holds, &c. Two 3 1/2" wing suction in each of Nos 1 2 3 4 & 5 holds, and 3 1/2" port & starboard Tunnel well suction.

No. of bilge injections 2 sizes 7" Connected to condenser, or to circulating pump See 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 No

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Larger valves smaller 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 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 Forward bilge suction How are they protected Strong wooden casing

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Before launch Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Upper Eng Rm platform.

BOILERS, &c. — (Letter for record S) Total Heating Surface of Boilers 9271 Natural Draught

No. and Description of Boilers Two double & two single ended Working Pressure 200 lb Tested by hydraulic pressure to 400 lb

Date of test 3-11-97 Can each boiler be worked separately Yes Area of fire grate in each boiler ^{104.5 sq. ft.} 52.25 sq. ft. No. and Description of safety valves to each boiler Two Cochran's Area of each valve ^{9.62 sq. ft.} 4.91 sq. ft. Pressure to which they are adjusted 205 lb Are they fitted with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork Several feet Mean diameter of boilers 13' 6"

Length 14' 0" 10' 0" Material of shell plates Steel Thickness 1 1/16" Description of riveting: circum. seams Ends double long seams Double straps Open rivets

Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10" x 5" Lap of plates or width of butt straps 2 1/4" x 1 1/4" wide

Per centages of strength of longitudinal joint ^{91.5} 85 Working pressure of shell by rules 220 lb Size of manhole in shell 16 x 12

Size of compensating ring 2' 8" x 2' 11" 1/16" No. and Description of Furnaces in each boiler 6 Morrison Material Steel Outside diameter 42 1/2"

Length of plain part ^{top} 19 1/32" _{bottom} Thickness of plates ^{bottom} 19 1/32" Description of longitudinal joint Welded No. of strengthening rings —

Working pressure of furnace by the rules 223 Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 3/4"

Pitch of stays to ditto: Sides 7/8" Back 7/8" Top 7/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 266

Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 50.7 Working pressure by rules 233 End plates in steam space: Material Steel Thickness 1 1/16" Pitch of stays 15" max How are stays secured Double nuts Working pressure by rules 238 Material of stays Steel

Diameter at smallest part 2 1/2" Area supported by each stay 197 Working pressure by rules 223 Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 2 3/32" Greatest pitch of stays As app. Working pressure of plate by rules 200

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 29/32" Back 1 3/16" Mean pitch of stays 8 7/8"

Pitch across wide water spaces 14 1/4" Working pressures by rules 200 lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre ^{doubly} 29/32" ^{40 7/8 D.E.} 40 7/8 D.E. ^{25 7/8 S.E.} 25 7/8 S.E. Distance apart 7 1/8 D.E. 7 1/8 S.E. Number and pitch of Stays in each Four at 7 1/8" Three at 6"

Working pressure by rules 200 lb Superheater or Steam chest; how connected to boiler — Can the superheater be shut off and the boiler worked separately —

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

If stiffened 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 —



