

REPORT ON MACHINERY.

No. 6908.
WED. 22 JUN. 1921

Received at London Office

of writing Report 11. 5 19 21 When handed in at Local Office 12. 5 19 21 Port of Sydney, N.S.W.

in Survey held at Sydney, N.S.W.

Date, First Survey 27. 10. 20. Last Survey 22. 2. 19 21.

on the T.S.S. "MARELLA" EX WAHEHE

(Number of Visits 22. 19. 4. 21. Gross Net

Master Mortimer Built at Hamburg By whom built Reihersg. Schiffs. w. When built 1914.

Engines made at Hamburg By whom made " when made 1914

Boilers made at " By whom made " when made 1914

Registered Horse Power Owners Burns Philp & Co. Ltd. Port belonging to London.

om. Hors. Power as per Section 28 1111.0 Is Refrigerating Machinery fitted for cargo purposes Yes. Is Electric Light fitted Yes.

GINES, &c.—Description of Engines Twin Screw Quadruple. No. of Cylinders 8 No. of Cranks 8

dia. of Cylinders 22 5/16 33 7/16 49 7/16 + Length of Stroke 49 7/16 Revs. per minute 74 Dia. of Screw shaft as per rule 14.6 as fitted 15.74 Material of screw shaft Mild Steel

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

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 6-6 3/4

Dia. of Tunnel shaft as per rule 13.0 as fitted 13 2/16 Dia. of Crank shaft journals as per rule 13.65 as fitted 14 2/16 Dia. of Crank pin 14 7/16 Size of Crank webs 24 3/4 Dia. of thrust shaft under

collars 14 3/8 Dia. of screw 17 4/16 Pitch of Screw 22-3 3/4 No. of Blades 4 State whether moveable Yes Total surface 99.0 sq. ft.

No. of Feed pumps 1 Diameter of ditto 4 3/4 Stroke 23 5/8 Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 1 Diameter of ditto 5 1/8 Stroke 23 5/8 Can one be overhauled while the other is at work Yes.

No. of Donkey Engines Five Sizes of Pumps See other Side. No. and size of Suctions connected to both Bilge and Donkey pumps

in Engine Room Six 2 3/2 Strokehold 4 2 3/2 In Holds, &c. 2, 3 1/2 in each Hold.

One 3 1/2 in each hold between Tunnels, one 3 1/2 to aft Peak.

No. of Bilge Injections 2 sizes 8" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room & size 2 2 3/2

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

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both Valves and 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 BOTH.

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 Bilge, Steam Fire Ex, + detectors How are they protected Wood + Steel Iron Casings.

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 Shell Deck.

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Krupp Essen.

Total Heating Surface of Boilers 15403 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers 3, Double Ended, Scotch.

Working Pressure 227 lbs. Tested by hydraulic pressure to when new. Date of test See Later No. of Certificate

Can each boiler be worked separately Yes Area of fire grate in each boiler 101.7 sq. ft. No. and Description of Safety Valves to

each boiler 3 Direct Spring 4 1/8 Area of each valve 13.4 sq. in. Pressure to which they are adjusted 227 lbs. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 14" fitted Baffle plates Mean dia. of boilers 15-1" Length 21-0" Material of shell plates Steel

Thickness 1.65 Range of tensile strength - 29.2 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seamscentre, treble, double

ong. seams Butt Straps Diameter of rivet holes in long. seams 1.69 Pitch of rivets 13 1/8 + 6.56 Lap of plates or width of butt straps 28 3/4 x 1.65

Per centages of strength of longitudinal joint rivets. 102% plate. 87% Working pressure of shell by rules 263 lbs. Size of manhole in shell 15 3/4 x 11 7/8

Size of compensating ring 37 3/4 x 33 3/8 x 1.37 No. and Description of Furnaces in each boiler 6, Marison Material Steel Outside diameter 45 3/4

Length of plain part top. 708 bottom. 708 Thickness of plates crown. 708 Description of longitudinal joint Welded. No. of strengthening rings

Working pressure of furnace by the rules 237. Combustion chamber plates: Material Steel Thickness: Sides 32 Back 1 3/16 Top 32 Bottom 1 3/16

Pitch of stays to ditto: Sides 8 1/16 x 7 7/8 Back Top 8 1/16 x 7 7/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 315

Material of stays Steel Area at smallest part 203 sq. in. Area supported by each stay 68 sq. in. Working pressure by rules 258 End plates in steam space:

Material Steel Thickness 1 1/16 Pitch of stays 15 3/4 x 15 3/4 How are stays secured 2N+W: Working pressure by rules 250 Material of stays Steel

Area at smallest part 8.29 Area supported by each stay 248 sq. in. Working pressure by rules 307 Material of Front plates at bottom Steel

Thickness 1 3/4 Material of Lower back plate Steel Thickness 1 3/4 Greatest pitch of stays Double end. Working pressure of plate by rules 250

Diameter of tubes 3 Ex Pitch of tubes 4 21/64 x 4 13/64 Material of tube plates Steel Thickness: Front 1 9/64 Back 1 3/16 Mean pitch of stays 8 1/16

Pitch across wide water spaces 14.17 Working pressures by rules 296 lbs. Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 14 1/4 x 2 15/16 Length as per rule 4.5 1/2 Distance apart 7 7/8 Number and pitch of stays in each 5 2 8 1/16

Working pressure by rules 266 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

UPERHEATER. 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

1010-612516-600510

IS A DONKEY BOILER FITTED? No.

If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied:— 4 Top end bolts, 2 bottom end bolts, 2 Main Beam bolts, one set Coupling bolts, 1 air Pump Rod, 1 bottom end brass, 1 Top end brass, 1 Thrust shaft, one set Piston Springs for each Cylinder of one Engine, 2 Propeller Blades, one right one left, one set Feed Pump Valves, one set Bilge Pump Valves, 2 Main Boiler Escape Safety Valve Springs, Main Boiler Tubes, Condenser Tubes, Assorted Iron &c.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building
During progress of work in shops --
During erection on board vessel --
Total No. of visits

Is the ~~approved~~ plan of main boiler forwarded herewith

Yes.

Dates of Examination of principal parts—Cylinders 28.10.20 Slides 3.11.20 Covers 28.10.20 Pistons 3.11.20 Rods 8.11.20 Connecting rods 8.11.20 Crank shafts 9.11.20 Thrust shafts 9.11.20 Tunnel shafts 11.11.20 Screw shafts 14.12.20 Propeller 14.12.20 Stern tube 14.12.20 Steam pipes tested 16.10.19 Engine and boiler seatings 10.12.20 Engines holding down bolts 9.11.20 Completion of pumping arrangements ✓ Boilers fixed ✓ Engines tried under steam 24.12.20 Completion of fitting sea connections 27.10.20 Stern tubes 14.12.20 Screw shaft and propeller 14.12.20 Main boiler safety valves adjusted 23.12.20 Thickness of adjusting washers ✓ Material of Crank shafts Steel Identification Mark on Do. 569.615 ✓ Material of Thrust shafts Steel Identification Mark on Do. 3.14. ✓ Material of Tunnel shafts Steel Identification Marks on Do. 620 & 628 ✓ Material of Screw shafts Steel Identification Marks on Do. 3.14. ✓ Material of Steam Pipes Steel, tested by B.T. London Test pressure 450 lbs 16.10.19 In Log Book 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. These Engines and Boilers have been completely and carefully surveyed, Section 48 of the Rules has been complied with, in accordance with instructions contained in your Cablegram and Letter H. 27.10.20. The machinery was built under Germanischer Lloyd Survey, and appears to be of High Quality and good finish. In Engine Room

Two Independent Bilge Suctions, now fitted and connected to Starboard and Port Steam Donkeys, direct, each 3½" bore, none former Evaporators, two, each now fitted with a Reducing nozzle none formerly, each has one Safety Valve 2½" diameter, and the Log Book shows B.T. London tested coils to 300 lbs and casings to 43 lbs per square inch, on 16.10.19 and 27.10.19. The Main Steam Pipe arrangement is a good one, straight steel pipes with Expansion joints and stop Valves well anchored on Main Boilers, the Log Book shows these pipes tested by B.T. in London to 450 lbs on 16.10.19.

The amount of Entry Fee ... £ 6 : 0 : When applied for, Special ... £ 20 : 0 : 12.5.1921 Donkey Boiler Fee ... £ ✓ : : When received, Travelling Expenses (if any) £ ✓ : : 23.6.1921

A. C. Heron.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 10 FEB. 1922

TUE. 20 FEB. 1922

Assigned

FRI. MAY. 19 1922

2.

T.S.S. "MARELLA"

pt. 9a.

Port of Sydney, N.S.W.

Continuation of Report No. 6908, dated 11 May 1921, on the

16.10.19, also the Port Main Boiler 15.10.19, Centre 23.10.19 and Starboard 27.10.19 by Hydraulic Pressure to 200 lbs per sq in the presence of Board of Trade Surveyor. The Main Boilers three in number double ended Scotch now opened out with all mountings adrift and found in good condition. Manholes of ample strength and a good fit, at some previous time some Electric welding has been done in all back ends Saddle plates at corners and Tube plates and Furnace top back landings all now good. The Centric Combustion Chambers in each Main Boiler, see plan, were fitted with two girders only, with large Radius at corners but did not meet our Rules, all three Chamber tops now fitted with two extra girders. The workmanship on Boilers appears to be good in all respects. The Boilers are well and securely fastened in vessel.

All mountings examined and found in good order. There are two independent Vertical Feed Donkey Pumps, 13½" x 10" x 27", Sucks from Boilers, Sea, double bottoms Heater and Condenser and discharges to Boilers; Heater and overboard.

One Ballast Pump, Vertical Duplex 9½" x 10½" x 9½" Sucks from Double Bottoms, Bilges, and Sea, Discharges to Main & Auxiliary Condensers and overboard, Bilge Valves are Non Return. Also Sucks and discharges from Rolling Tanks. Two General Service Donkeys Vertical Duplex 9½" x 6" x 9½" Sucks from Sea, all Bilges, (independent Bilge Suctions now fitted) and double bottoms, and discharges to Wash Deck, Sanitary and overboard, Bilge Suctions Non Return. Two Davit Pumps are fitted, forward one draws from Fore Peak and Sea, and discharges overboard, and aft Pump draws from Sea and all Bilges and discharges overboard.

One Steam Injector, draws from No 6 double bottom Fresh Water Feed, and discharges to Boilers only. The main Discharges are below deep load line and each is fitted with a Stop Valve on Vessels side and a shut off Pinch gate Valve in addition, examined in Dry Dock and found in good order. Marks not found on Propeller Shafts (all other shafting stamped may be on ends in Muff Couplings) Propeller shafts draw outwards.

See Sydney Report No. 6746.

The Tests for Boiler Steel are noted on Boiler Blue Print now forwarded. This, copied from Original Blue Print on board and the actual Scanlings checked and compared with plan.