

# REPORT ON MACHINERY.

No. 28403.  
WHL 22 DEC 1909

Date of writing Report 19 When handed in at Local Office 20/12/1909 Port of Glasgow  
No. in Survey held at Glasgow Date, First Survey 18th Jan 1909 Last Survey Dec. 16th 1909  
Reg. Book. 6 Sup. on the T. S. S. "Mecklenburgs" (Number of Visits 58)  
Master Built at Glasgow By whom built Fairfield & B. & C. Ltd Tons { Gross Net }  
Engines made at Glasgow By whom made Fairfield & B. & C. Ltd when made 1909  
Boilers made at do By whom made do when made 1909  
Registered Horse Power Owners J. J. Maat. Zealand Port belonging to Flushing  
Nom. Horse Power as per Section 28 1130 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Triple No. of Cylinders 8 No. of Cranks 8  
Dia. of Cylinders 28-43 1/2-49-49 Length of Stroke 33 Revs. per minute 175 Dia. of Screw shaft as per rule 4 1/2 as fitted 4 1/2 Material of screw shaft steel  
Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liners 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 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 6-4 1/2 7 3/8-4 1/2  
Dia. of Tunnel shaft as per rule 13 1/2 Dia. of Crank shaft journals as per rule 13 1/2 Dia. of Crank pin 14 Size of Crank webs 9 7/8 Dia. of thrust shaft under  
collars 13 1/2 Dia. of screw 11-6 Pitch of Screw 15-9 No. of Blades 3 State whether moveable Yes Total surface 45-5  
No. of Feed pumps 2 Diameter of ditto 7-7 1/2 Stroke 27 Can one be overhauled while the other is at work Yes Wing  
No. of Bilge pumps 2 Diameter of ditto 8 1/2 Stroke 15 Can one be overhauled while the other is at work Yes  
No. of Donkey Engines 8 Sizes of Pumps 8 1/2 x 16, 8 1/2 x 22 x 15, 11 x 22 x 15 No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room 2-2 1/2 Boiler Room 2-2 1/2 In Holds, &c. 1-2 1/2 each hold  
Tunnel 2 1/2  
No. of Bilge Injections 7 sizes 10 Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 3  
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  
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  
Dates of examination of completion of fitting of Sea Connections 7 of Stern Tube 7 Screw shaft and Propeller 14/12/09  
Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top grating.

OILERS, &c.—(Letter for record (6)) Manufacturers of Steel David Colville & Son  
Total Heating Surface of Boilers 19458 Is Forced Draft fitted Yes No. and Description of Boilers Four Double Ended  
Working Pressure 190 Tested by hydraulic pressure to 380 lbs Date of test 28/10/09, 13/7/09 No. of Certificate 9887 10056  
Can each boiler be worked separately Yes Area of fire grate in each boiler 133-5 No. and Description of Safety Valves to  
each boiler Cockburn Triple Area of each valve 12-56 Pressure to which they are adjusted 194 lbs Are they fitted with easing gear Yes  
Smallest distance between boilers or uptakes and bunkers or woodwork 26-12 Mean dia. of boilers 14-6 Length 20-0 Material of shell plates steel  
Thickness 1 3/32 Range of tensile strength 34-6-38 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 9 x 7 Lap  
long. seams J. B. S. Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 8 1/2 Lap of plates or width of butt straps 18 1/4  
Per centages of strength of longitudinal joint rivets 92 plate 85-3 Working pressure of shell by rules 216 lbs Size of manhole in shell 16 x 12  
Size of compensating ring Flanged No. and Description of Furnaces in each boiler 6 Morrison (Suspension) Bulb Material steel Outside diameter 44 7/8  
Length of plain part top Thickness of plates crown 3 1/2 Description of longitudinal joint weld No. of strengthening rings  
bottom Working pressure of furnace by the rules 200 Combustion chamber plates: Material steel Thickness: Sides 19/32 Back Top 19/32 Bottom 7/8  
Pitch of stays to ditto: Sides 7 7/8 Back Top 7 7/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 195  
Material of stays steel Diameter at smallest part 1 1/4 Area supported by each stay 63 Working pressure by rules 190 End plates in steam space:  
Material steel Thickness 1 Pitch of stays 15 x 15 1/2 How are stays secured 2 nuts Working pressure by rules 193 Material of stays steel  
Diameter at smallest part 3 9/16 Area supported by each stay 220 Working pressure by rules 190 Material of Front plates at bottom steel  
Thickness 3/32 Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules  
Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 5/8 Material of tube plates steel Thickness: Front 3 3/32 Back 2 3/32 Mean pitch of stays 9 3/16  
Pitch across wide water spaces 13 Working pressures by rules 200 lbs Girders to Chamber tops: Material steel Depth and  
thickness of girder at centre 8 1/2 x 3/4 x 2 Length as per rule 2-7 1/2 Distance apart 7 7/8 Number and pitch of stays in each 6-7 7/8  
Working pressure by rules 190 Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked  
separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet  
holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness  
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



# VERTICAL DONKEY BOILER—

Manufacturers of Steel

None.

No.	Description	When made	Where fixed
Made at	By whom made		
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
If fitted with easing gear	If steam from main boilers can enter the donkey boiler	Dia. of donkey boiler	Length
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
Working pressure of furnace by rules	Thickness of furnace crown plates	Stayed by	Dates of survey
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	

SPARE GEAR. State the articles supplied:— Pair top end & pair bottom end brasses each side, 1 HP & 2 LP valve spindles, 1 HP valve rods complete, set of safety valve springs, etc., & the bolts & nuts required by the Rules.

The foregoing is a correct description,  
THE FAIRFIELD SHIPBUILDING CO., LIMITED.  
Manufacturers.

Dates of Survey while building  
During progress of work in shops— 1909 Jan 18. 22. 27 Feb 8. 14. 22. 24 Mar 1. 9. 22. 26 April 1. 5. 14. 22 May 6. 10. 12. 14. 19  
During erection on board vessel— 21. 24. 29. 31. June 1. 4. 10. 14. 24. 28 July 12. 13. 14. 30 Aug 10. 13. 18. 30 Sep 9. 23 Oct 4. 6. 19  
Total No. of visits 51

Is the approved plan of main boiler forwarded herewith Yes

" " " donkey " " " none

Dates of Examination of principal parts—Cylinders 14/7/09 Slides 14/6/09 Covers 14/6/09 Pistons 14/6/09 Rods 14/6/09  
Connecting rods 14/6/09 Crank shaft 14/7/09 Thrust shaft 24/6/09 Tunnel shafts 30/7/09 Screw shaft 4/10/09 Propeller 4/10/09  
Stern tube 4/10/09 Steam pipes tested 14. 18. 24. 31/5/09 Engine and boiler seatings 26/10/09 Engines holding down bolts 22/11/09  
Completion of pumping arrangements 4/11/09 Boilers fixed 12/11/09 Engines tried under steam 16/12/09  
Main boiler safety valves adjusted 7/12/09 Thickness of adjusting washers 14/32, 7/32, 1/16, 1/32, 1/64, 1/128, 1/256, 1/512, 1/1024, 1/2048, 1/4096, 1/8192, 1/16384, 1/32768, 1/65536, 1/131072, 1/262144, 1/524288, 1/1048576, 1/2097152, 1/4194304, 1/8388608, 1/16777216, 1/33554432, 1/67108864, 1/134217728, 1/268435456, 1/536870912, 1/1073741824, 1/2147483648, 1/4294967296, 1/8589934592, 1/17179869184, 1/34359738368, 1/68719476736, 1/137438953472, 1/274877906944, 1/549755813888, 1/1099511627776, 1/2199023255552, 1/4398046511104, 1/8796093022208, 1/17592186044416, 1/35184372088832, 1/70368744177664, 1/140737488355328, 1/281474976710656, 1/562949953421312, 1/1125899906842624, 1/2251799813685248, 1/4503599627370496, 1/9007199254740992, 1/18014398509481984, 1/36028797018963968, 1/72057594037927936, 1/144115188075855872, 1/288230376151711744, 1/576460752303423488, 1/1152921504606846976, 1/2305843009213693952, 1/4611686018427387904, 1/9223372036854775808, 1/18446744073709551616, 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