

REPORT ON MACHINERY.

Port of Aberdeen

Received at London Office WED. 2 AUG 1905

Survey held at Aberdeen Date, first Survey 14th Nov. 1904 Last Survey 31st July 1905

on the S.S. "Ballochbuie" (Number of Visits 60)

J. Falconer Built at Aberdeen By whom built John Guthrie Lorry & Co. Ltd. When built 1905

made at Aberdeen By whom made J. & A. Abernethy & Co. when made 1905

made at --- By whom made --- when made 1905

rated Horse Power 115 Owners The Aberdeen Lime Co. Ltd. Port belonging to Aberdeen

Horse Power as per Section 28 153.09 Is Refrigerating Machinery fitted Is Electric Light fitted

Engines, &c. — Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3

Cylinders 18-29-48 Length of Stroke 33 Revs. per minute Dia. of Screw shaft 9.99 as per rule 10 as fitted 10 Length of stern bush 42
Tunnel shaft 8.95 as per rule 9.405 as fitted 9.2 Dia. of Crank shaft journals 9.2 as fitted 9.2 Dia. of Crank pin 9.2 Size of Crank webs 15.5 Dia. of thrust shaft under 9.2 Dia. of screw 12-0 Pitch of screw 13-6 No. of blades 4 State whether moceable Total surface 46

Feed pumps 2 Diameter of ditto 3.25 Stroke 18 Can one be overhauled while the other is at work Yes

Bilge pumps 2 Diameter of ditto 3.25 Stroke 18 Can one be overhauled while the other is at work Yes

Donkey Engines 2 Sizes of Pumps Feed 6x4x6 } duplex Ballast 8x8x10.5 No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 30ft 3" In Holds, &c. No 1, 2 & 3 holds 2-3' in each

Injection Well 1-3"

Water injections 1 sizes 4.2 Connected to condenser or to circulating pump C.P. Is a separate donkey suction fitted in Engine room & size Yes, 3"

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

Connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both

Painted 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

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

Pipes are carried through the bunkers Bilge & wing tank suction for fore hold How are they protected Strong wood casing

Pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes

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

With a watertight door Yes worked from Top platform

Engines, &c. — (Letter for record Z) Total Heating Surface of Boilers 2491.5 Is forced draft fitted

Description of Boilers One Cylindrical Multi-tubular Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs

Can each boiler be worked separately Area of fire grate in each boiler 73 No. and Description of safety valves to 2: Spring loaded

Area of each valve 4.04 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Distance between boilers or uptakes and bunkers or woodwork No side bunkers dia. of boilers 16-0 Length 10-6 Material of shell plates S

Range of tensile strength 27-32 Are they welded or flanged Descrip. of riveting: cir. seams D.F. lap long. seams D. 3/2 straps

Rivet holes in long. seams 1 1/16 Pitch of rivets 8 3/4 & 4 3/8 Lap of plates or width of butt straps 1-4

of strength of longitudinal joint rivets 85.6 plate 85.0 Working pressure of shell by rules 182 lbs Size of manhole in shell 16 x 12

Insulating ring McNeil's No. and Description of Furnaces in each boiler 4 Morrison's Material S Outside diameter 44

Main part top Thickness of plates crown 9 bottom 7 1/16 Description of longitudinal joint Weld No. of strengthening rings 5 wings 23 centres 32

Pressure of furnace by the rules 200 lbs Combustion chamber plates: Material S Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 5/8 & 3/2

as to ditto: Sides 8 1/2 x 8 Back 7 1/2 x 8 1/2 Top 8 1/2 x 4 If stays are fitted with nuts or riveted heads Nuts & Washers Working pressure by rules 186.8

Stays 5 Diameter at smallest part 1 5/8 Area supported by each stay 68 Working pressure by rules 232 lbs End plates in steam space:

Thickness 1 1/16 Pitch of stays 14 1/2 x 15 1/2 How are stays secured D. 3/2 Nuts & Washers Working pressure by rules 195 lbs Material of stays S

smallest part 2 3/4 Area supported by each stay 241.25 Working pressure by rules 186 lbs Material of Front plates at bottom S

Material of Lower back plate S Thickness 1 1/16 + 5/8 Greatest pitch of stays 15 x 4 1/2 Working pressure of plate by rules 230 lbs

Tubes 3 1/4 Pitch of tubes 4 1/2 Material of tube plates S Thickness: Front 1 3/16 Back 1 3/16 Mean pitch of stays 9 x 11 1/4

Spaces wide water spaces 15 Working pressures by rules F. 190 B 229 Girders to Chamber tops: Material S Depth and

girder at centre 8 1/2 x 1 5/8 Length as per rule 30.56 Distance apart 4 Number and pitch of Stays in each 2: 8 1/2

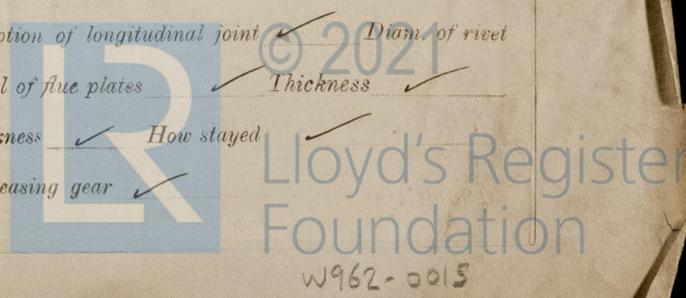
Pressure by rules 246 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

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

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

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



DONKEY BOILER— No. *one* Description *Cochrans patent*
 Made at *Annan* By whom made *Cochran & Co* When made *1905* Where fixed *Star^d Side Stakehold*
 Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *4534* Fire grate area *15 1/2* Description of safety valves *Spring loaded*
 No. of safety valves *2* Area of each *4.9* Pressure to which they are adjusted *93 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *5-6* Length *12-3* Material of shell plates *Steel* Thickness *7/16* Range of tensile strength *27-32* Descrip. of riveting long. seams *double* Dia. of rivet holes *25/32* Whether punched or drilled *drilled* Pitch of rivets *2 5/8*
 Lap of plating *3 1/2* Per centage of strength of joint Rivets *90.9* Plates *90.2* Thickness of shell crown plates *13/32* Radius of do. *2-9* No. of Stays to do. *none*
 Dia. of stays. *✓* Radius Diameter of furnace Top *2-3* Bottom *✓* Length of furnace *✓* Thickness of furnace plates *1/2* Description of joint *rivetted* Thickness of furnace crown plates *1/2* Stayed by *✓* Working pressure of shell by rules *103 lbs*
 Working pressure of furnace by rules *111 lbs* Diameter of ^{tubes} plates *2 1/2* Thickness of ^{tube} plates *19/32 & 23/32* Thickness of ^{stay} tubes *1/4*

SPARE GEAR. State the articles supplied:— *2 Top end, 2 bottom end, 2 Main bearing & 1 set of coupling bolts & nuts; 1 set of air, circulating, feed & bilge pump valves; 1 set of jointing bolts; 2 eccentric strap bolts & nuts; 1 safety valve spring, 6 condenser tubes; assorted bolts & nuts - viz of various sizes*

The foregoing is a correct description,

Manufacturer.

James Abernethy & Co

Dates of Survey while building
 During progress of work in shops— ¹⁹⁰⁴ Nov. 17, 23 Dec. 5, 22 ¹⁹⁰⁵ Jan. 9, 16, 24, 26 Feb. 1, 10, 14, 18, 21, 24, 29, 31 April 6, 10, 14
 During erection on board vessel— *25, 28, May 2, 4, 5, 8, 9, 10, 11, 15, 16, 17, 22, 24, 27, 29, 30, June 1, 2, 5, 6, 8, 16, 21, 23, 30, July 3, 5, 7*
 Total No. of visits *11, 14, 20, 21, 22, 24, 25, 26, 31 = 60* Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " *No*

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

Material of screw shaft *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 *✓*
 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 *Red-White Lead-Boiled oil* If two liners are fitted, is the shaft lapped or protected between the liners *✓*

The engines and boilers of this vessel have been built in accordance with the approved plan of boiler, the Secretary's letters, and otherwise in conformity with the Rules, the material and workmanship are good, after being fitted on board the engines were tried under steam at the ^{with satisfactory results} moorings, which in my opinion entitles them to the rotation + L.M.C. 4.05

Damage stated to have been caused by the feed water in the boiler being pumped overboard while the water was being circulated in raising steam on the 20th July 1905. Copy of damage report attached.

The following damage repairs efficiently carried out:— The seams at furnace mouths, lower seams of front and back tube plates, and the seams of Combustion Chamber side plates recaulked, the plain tubes reexpanded at each end and the stay tubes recaulked, the nuts removed from the centre lower through stay and screw stays the stays recaulked & nuts refitted. On completion of repairs the boiler tested by hydraulic pressure to 240 lbs and found tight the safety valves readjusted under steam to 185 lbs.

The amount of Entry Fee... £ 2 : 0 :
 * Special ... £ 22 : 19 :
 * Special damage fee ... £ 1 : 15 :
 Travelling Expenses (if any) £
 * Damage fee paid by Owners 31/7/05

When applied for.

1-8-1905

When received.

21-8-05

James C. Turpin
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

Assigned

FRI. 4 AUG 1905

+ LMC 7.05

MACHINERY CERTIFICATE WRITTEN.



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Certificate (if required) to be sent to the Surveyors and not to be sent to the Committee's Minute.