

REPORT ON MACHINERY.

Port of *Leith*

Received at London Office **THUR 25 JUL 1895**

No. in Reg. Book. Survey held at *Kinghorn* Date, first Survey *8th February* Last Survey *8th July, 1895*
(Number of Visits *12*)

on the *Steam screw Lighter "Raith"* Tons ^{Gross} *92.01* _{Net} *49.47*
Master *John Scott & Co* Built at *Kinghorn* By whom built *John Scott & Co* When built *1895*

Engines made at *Kinghorn* By whom made *John Scott & Co* when made *1895*

Boilers made at *do* By whom made *do* when made *1895*

Registered Horse Power *20.* Owners *Hirkaldy, Leith & Glasgow S.P. Co (Lim)* Port belonging to *Hirkaldy.*
Nom. Horse Power as per Section 28

ENGINES, &c.— Description of Engines *Inverted high pressure* No. of Cylinders *1*
Diameter of Cylinder *15"* Length of Stroke *15"* Revolutions per minute *120* Diameter of Screw shaft ^{as per rule} *4"* _{as fitted}
Diameter of Tunnel shaft ^{as per rule} *None* Diameter of Crank shaft journals *4 1/2"* Diameter of Crank pin *4 1/2"* Size of Crank webs *5 1/4" x 2 3/4"*
Diameter of screw *5' 6"* Pitch of screw *8' 0"* No. of blades *3* State whether moveable *no* Total surface *8 1/2*
No. of Feed pumps *1* Diameter of ditto *2"* Stroke *15"* Can one be overhauled while the other is at work
No. of Bilge pumps *1* Diameter of ditto *2"* Stroke *15"* Can one be overhauled while the other is at work
No. of Donkey Engines *One* Sizes of Pumps *3 3/4" x 2" x 4"* No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room *One 1 1/4" dial.* In Hold, &c. *One 1 1/2" dial.*

No. of bilge injections sizes Connected to condenser, or to circulating pump Is a separate donkey suction fitted in Engine room & size *yes 1 1/4"*
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 *None*
Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *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 *Above*
Are they each fitted with a discharge valve always accessible on the plating of the vessel *no* 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*
When were stern tube, propeller, screw shaft, and all connections examined in dry dock *New vessel* Is the screw shaft tunnel watertight *None*
Is it fitted with a watertight door worked from

BOILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *165 1/2*
No. and Description of Boilers *See Donkey Boiler.* Working Pressure _____ Tested by hydraulic pressure to _____
Date of test _____ Can each boiler be worked separately _____ Area of fire grate in each boiler _____ No. and Description of safety valves to each boiler _____
Area of each valve _____ Pressure to which they are adjusted _____ Are they fitted with easing gear _____
Smallest distance between boilers or uptakes and bunkers or woodwork _____ Mean diameter of boilers _____
Length _____ Material of shell plates _____ Thickness _____ Description of riveting: circum. seams _____ long. seams _____
Diameter of rivet holes in long. seams _____ Pitch of rivets _____ Lap of plates or width of butt straps _____
Per centages of strength of longitudinal joint ^{rivets} _____ Working pressure of shell by rules _____ Size of manhole in shell _____
Size of compensating ring _____ No. and Description of Furnaces in each boiler _____ Material _____ Outside diameter _____
Length of plain part ^{top} _____ Thickness of plates ^{crown} _____ Description of longitudinal joint _____ No. of strengthening rings _____
_{bottom} _____
Working pressure of furnace by the rules _____ Combustion chamber plates: Material _____ Thickness: Sides _____ Back _____ Top _____ Bottom _____
Pitch of stays to ditto: Sides _____ Back _____ Top _____ If stays are fitted with nuts or riveted heads _____ Working pressure by rules _____
Material of stays _____ Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ End plates in steam space: _____
Material _____ Thickness _____ Pitch of stays _____ How are stays secured _____ Working pressure by rules _____ Material of stays _____
Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ Material of Front plates at bottom _____
Thickness _____ Material of Lower back plate _____ Thickness _____ Greatest pitch of stays _____ Working pressure of plate by rules _____
Diameter of tubes _____ Pitch of tubes _____ Material of tube plates _____ Thickness: Front _____ Back _____ Mean pitch of stays _____
Pitch across wide water spaces _____ Working pressures by rules _____ Girders to Chamber tops: Material _____ Depth and _____
thickness of girder at centre _____ Length as per rule _____ Distance apart _____ Number and pitch of Stays in each _____
Working pressure by rules _____ Superheater or Steam chest; how connected to boiler _____ 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 _____

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Main DONKEY BOILER— Description *One vertical cylindrical with two cross tubes.*
 Made at *Kinghorn* By whom made *John Scott & Co* When made *1895* Where fixed *Stokehold*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* ^{Date of test} *20/6/95* Fire grate area *16 sq* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *3.9 sq* Pressure to which they are adjusted *85 lbs* If fitted with easing gear *yes* If steam from *main* boilers can enter the donkey boiler
 Diameter of ~~donkey~~ boiler *6' 3"* Length *12' 0"* Material of shell plates *steel* Thickness *1/2"*
 Description of riveting long. seams *Lap, double riveted* Diameter of rivet holes *7/8"* Whether punched or drilled *drilled* Pitch of rivets *3 1/8"*
 Lap of plating *3 7/8"* Per centage of strength of joint Rivets *65.5* Plates *75.0* Thickness of shell crown plates *5/8"* Radius of do. *flat* No. of Stays to do. *7 gussets*
 Dia. of stays. Diameter of furnace Top *4' 6"* Bottom *5' 8 1/2"* Length of furnace *5' 4"* Thickness of furnace plates *19/32"* Description of joint *welded* Thickness of furnace crown plates *5/8"* Stayed by *5' 6" radius* Working pressure of shell by rules *97 lbs*
 Working pressure of furnace by rules *85 lbs* Diameter of uptake *18"* Thickness of uptake plates *1/2"* Thickness of water tubes *3/8"*
 SPARE GEAR. State the articles supplied:— *None required, a spare propeller supplied.*

The foregoing is a correct description,

Manufacturer.

John Scott & Co

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been constructed under special survey, the materials & workmanship all found & good. The engine has been tried & the boiler safety valves adjusted under steam at the working pressure.*

The machinery is now in good & safe working condition & eligible in my opinion to have the notation of +LMC 7,95

The approved boiler tracing is forwarded herewith.

It is submitted that this vessel is eligible for THE RECORD. + LMC 7.95

ARR
25.7.95

Large handwritten signature or scribble, possibly 'Lloyd's' or similar, written in blue ink.

The Surveyors are requested not to write on or below the space for Committee's Minute.

Certificate (if required) to be written to		Machinery Certificate	
		WRITTEN.	
The amount of Entry Fee..	£ 1 :- :-	When applied for,	
Special	£ 8 :- :-18.....	
Donkey Boiler Fee	£ ✓ :- :-	When received,	
Travelling Expenses (if any)	£ 1 : 16 : 6	31.7.18.95.	

Thomas Field.
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 2 AUG 1895

Assigned

+ LMC 7.95



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