

YACHT. REPORT ON MACHINERY.

No. ~~4126~~
5705

Port of Leith

WED. 25 JUN 1902

Received at London Office

No. in Survey held at Leith Date, first Survey Apr 29/01 Last Survey June 27th 1902
Book. (Number of Visits 37)

on the S. S. Surf Tons Gross 498.70 Net 215.76
Owner R. Patterson Built at Leith By whom built Messrs Hawthorn & Co Ltd When built 1902

Machinery made at Leith By whom made Messrs Hawthorn & Co Ltd when made 1902
Boilers made at Leith By whom made Messrs Hawthorn & Co Ltd when made 1902

Registered Horse Power 123.5 HP Owners Francis & Lambert Esq Port belonging to
Horse Power as per Section 28 123.5 HP Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Surf. Condensing No. of Cylinders 3 No. of Cranks 3
Diameter of Cylinders 16" - 26" - 42" Length of Stroke 27" Revs. per minute 120 Dia. of Screw shaft 8 1/2" Lgth. of stern bush 2-10 1/2"
Dia. of Tunnel shaft 7 3/4" Dia. of Crank shaft journals 8 1/2" Dia. of Crank pin 8 1/2" Size of Crank webs 6" thick Dia. of thrust shaft under
cranks 9 1/4" Dia. of screw 9'-10" Pitch of screw 13'-3" No. of blades 4 State whether moveable No Total surface 29.5 sq ft
No. of Feed pumps 2 Diameter of ditto 3" Stroke 14" Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 14" Can one be overhauled while the other is at work Yes
No. of Donkey Engines Two Sizes of Pumps 6" x 4" x 6" and 3 1/2" x 2" x 4" No. and size of Suctions connected to both Bilge and Donkey pumps
Engine Room 1 direct from donkey 2 1/2" from donkey or engine 2 1/2" In Holds, &c. 1-2 1/2" in stokehold 1-2 1/2" aft 1-2 1/2"
Main hold 1-2 1/2" in fore hold
No. of bilge injections 1 sizes 5" Connected to condenser, or to circulating pump As pump is a separate donkey suction fitted in Engine room & size 2 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 Yes
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 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
How are pipes at pipes are carried through the bunkers Ward deck & window pipes How are they protected wood 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
Were stern tube, propeller, screw shaft, and all connections examined in dry dock When fitting Is the screw shaft tunnel watertight Yes
Is it fitted with a watertight door Yes worked from upper gratings

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 2238 sq ft Is forced draft fitted No
No. and Description of Boilers 2 Multitubular Cylindrical Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs
Date of test 19/3/02 Can each boiler be worked separately Yes Area of fire grate in each boiler 40 sq ft No. and Description of safety valves to
each boiler 2 Spring loaded Area of each valve 49 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes
Greatest distance between boilers or uptakes and bunkers or woodwork 8 1/2" Mean dia. of boilers 11' 9 3/32" Length 9'-0" Material of shell plates Steel
Thickness 1 1/32" Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams DR Lap long. seams TR DBS
Diameter of rivet holes in long. seams 1 1/32" Pitch of rivets 6 7/8" Lap of plates or width of butt straps 1'-3 1/8"
Percentages of strength of longitudinal joint: rivets 87.5% Working pressure of shell by rules 184 lbs Size of manhole in shell 16" x 12"
plate 85.6% No. and Description of Furnaces in each boiler 2 Morrison's Material Steel Outside diameter 3'-6"
Length of plain part: top 17/32 bottom 17/32 Description of longitudinal joint welded No. of strengthening rings —
Working pressure of furnace by the rules 194 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 5/8" Top 3/8" Bottom 1 1/16"
Pitch of stays to ditto: Sides 9" x 5 1/4" Back 9" x 5 1/4" Top 8 1/4" x 8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 182 lbs
Material of stays Steel Diameter at smallest part 1 7/8" Area supported by each stay 72.25 sq in Working pressure by rules 210 lbs End plates in steam space:
Material Steel Thickness 1" Pitch of stays 16" How are stays secured Drub them Working pressure by rules 185 lbs Material of stays Steel
Diameter at smallest part 5.27" Area supported by each stay 256 sq in Working pressure by rules 205 lbs Material of Front plates at bottom Steel
Thickness 1 1/32" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 14" Working pressure of plate by rules 250 lbs
Diameter of tubes 3 1/4" Pitch of tubes 4 3/8" x 4 7/8" Material of tube plates Steel Thickness: Front 1 1/32" Back 1 1/16" Mean pitch of stays 11"
Pitch across wide water spaces 15" Working pressures by rules 181.5 lbs Girders to Chamber tops: Material Steel Depth and
Thickness of girder at centre 6" x 2" Length as per rule 2'-2 3/16" Distance apart 8" Number and pitch of Stays in each 2 - 8 1/4"
Working pressure by rules 185 lbs 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 —
Are they 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 —



W319-0093

DONKEY BOILER— No. *me* Description *Cross patent*
 Made at *Lynne* By whom made *Davey Paxman & Co* When made *1901* Where fixed *Torquay*
 Working pressure *100 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate *474* Fire grate area *8.8 sq* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *3.97* Pressure to which they are adjusted *100* If fitted with easing gear *Yes* If steam from main boiler
 enter the donkey boiler *No* Dia. of donkey boiler *4'-0"* Length *9'-4"* Material of shell plates *Steel* Thickness *7/16"* Range of te
 strength *27/32* Descrip. of riveting long. seams *Double Butts* Dia. of rivet holes *3/4"* Whether punched or drilled *drilled* Pitch of rivets *3"*
 Lap of plating *8 1/2"* Per centage of strength of joint Rivets *93%* Thickness of shell crown plates *1/2"* Radius of do. *6'-0"* No. of Stays to do. *3*
 Dia. of stays *1 1/2"* Diameter of furnace Top *3'-4 1/4"* Bottom *3'-4 1/4"* Length of furnace *2'-0"* Thickness of furnace plates *7/16"* Descripti
 joint *Welded* Thickness of furnace crown plates *1/2"* Stayed by *Dished* Working pressure of shell by rules *120*
 Working pressure of furnace by rules *135 lbs* Diameter of uptake *12"* Thickness of uptake plates *9/16"* Thickness of water tubes *1/2"*

SPARE GEAR. State the articles supplied: *2 Main bearing bolts 2 Top end bolts 2 Bottom end bolts 2 bottom
 end trusses 1 set air pump valves 1 set air pump valves 100 furnace bars
 1 set ludge pump valves 1 set feed pump valves 1 set donkey pump valves
 1 set of coupling bolts 1 set piston springs for each piston 1 eccentric strap 12 Coude
 tubes & 24 ferrules 6 plain boiler tubes 1 safe
 value spring 1 escape valve spring*
 The foregoing is a correct description,
 HAWTHORNS & CO., LIMITED, Manufacturer.
 James Newman

Dates of Survey while building
 During progress of work in shops: *Sept 25/01 26/01 27/01 28/01 29/01 30/01 1.11.11.13.15.20.25.27 Dec 10. 16. 19. 27. 31/01. Jan 5*
 During erection on board vessel: *14. 17. 23 Feb 4. 11. 17. 24. March 7. 17. April 1. 9. 16. 26. May 13. 25. 26.*
 Total No. of visits *37*
 Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " *Yes*

General Remarks (State quality of workmanship, opinions as to class, &c.)
 Material of screw shaft *Steel* 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 *Yes*
 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
 non-corrosive *Yes* If two liners are fitted, is the shaft lapped or protected between the liners *Yes*

The engines & boiler of this vessel have been constructed under special survey & the materials & workmanship are sound & good. The engines have been tried under steam & the boiler safety valves adjusted to the working pressure.
 The Machinery of this vessel is now in good & safe working condition & eligible in my opinion to have the notation of + LMC. 6.02
 A report on the electric installation will be forwarded when received from the electricians

It is submitted that this vessel is eligible for THE RECORD - L M C 6.02 Elec. Light.
 P.H.
 25.6.02

The amount of Entry Fee £ : :
 Special £ 18 12 : :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 When applied for, 23rd June 1902
 When received, 27.6.02
 H. O. L. Thornton + Thomas Field
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute WED. 25 JUN 1902
 Assigned + L M C 6.02
 MACHINERY CERTIFICATE WRITTEN 25.6.02
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