

REPORT ON MACHINERY.

Port of Glasgow

Received at London Office 10.3 20 OCT 1903

No. in Survey held at Glasgow

Date, first Survey 18th March Last Survey 6-10-1903

Reg. Book.

(Number of Visits 37)

Tons ^{Gross} _{Net}

When built 1903

Sup^d on the S.S. "Elidir"

Master J. Williams, Built at Ayr By whom built Ailsa S. B. Co.

Engines made at Glasgow By whom made Ross & Duncan when made 1903

Boilers made at Glasgow By whom made Ross & Duncan when made 1903

Registered Horse Power _____ Owners G. W. D. Assheton Smith Port belonging to Barnsrow

Nom. Horse Power as per Section 28 91 Is Refrigerating Machinery fitted Is Electric Light fitted

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

Dia. of Cylinders 14" 22 1/2" 37" Length of Stroke 27" Revs. per minute 106 Dia. of Screw shaft ^{as per rule} 4 1/2" Material of iron _{as fitted} 8 3/4" screw shaft

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 and non-corrosive solid fitting two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 32 1/2"

Dia. of Tunnel shaft ^{as per rule} 6 3/4" Dia. of Crank shaft journals ^{as per rule} 7 1/2" Dia. of Crank pin 7 3/8" Size of Crank webs 4 1/2" x 10 3/4" Dia. of thrust shaft under

collars 7 3/8" Dia. of screw 9-9" Pitch of screw 11-6" No. of blades 4 State whether moveable no Total surface 32 sq

No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 13 1/2" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 2 3/4" Stroke 13 1/2" Can one be overhauled while the other is at work yes

No. of Donkey Engines 3 Sizes of Pumps 4 1/2" x 3" 6 x 8" 3 x 2" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 1-2 1/4" 1-2" (1 1/2" 2" 1 1/2") In Holds, &c. no 1-2-2"

No. of bilge injections 1 sizes 3 1/2" Connected to condenser, or to circulating pump no Is a separate donkey suction fitted in Engine room & size 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

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 Bilge suction How are they protected carried thro' floors

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 before launching Is the screw shaft tunnel watertight

Is it fitted with a watertight door worked from

BOILERS, &c.— (Letter for record (T.)) Total Heating Surface of Boilers 1640.5 sq Is forced draft fitted no

No. and Description of Boilers 1 Single-ended Working Pressure 170 lbs Tested by hydraulic pressure to 340 lbs

Date of test 22-8-03 Can each boiler be worked separately Area of fire grate in each boiler 49.8 sq No. and Description of safety valves to

each boiler 2 Direct spring Area of each valve 5.41 sq Pressure to which they are adjusted 175 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 15" Mean dia. of boilers 13-6" Length 10-0" Material of shell plates steel

Thickness 1 1/8" Range of tensile strength 27-32 Are they welded or flanged no Descrip. of riveting: cir. seams L. D. P. long. seams D. B. S. P.

Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 1/2" 3 3/4" Lap of plates or width of butt straps 16 3/4"

Per centages of strength of longitudinal joint rivets 87.2 Working pressure of shell by rules 176 lbs Size of manhole in shell 16 x 12"

Size of compensating ring No. Heils No. and Description of Furnaces in each boiler 3 Morrison's Material steel Outside diameter 41 1/4"

Length of plain part ^{top} 6-5" _{bottom} Thickness of plates ^{top} 1" _{bottom} Description of longitudinal joint weld No. of strengthening rings

Working pressure of furnace by the rules 183 lbs Combustion chamber plates: Material steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 2 3/32"

Pitch of stays to ditto: Sides 8 x 8" Back 8 x 8" Top 8 x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 170 lbs

Material of stays iron Diameter at smallest part 2.04 sq Area supported by each stay 64 sq Working pressure by rules 242 lbs End plates in steam space:

Material steel Thickness 3/4" Pitch of stays 15 x 16 1/2" How are stays secured nuts & washers Working pressure by rules 179 lbs Material of stays steel

Diameter at smallest part 4.68 sq Area supported by each stay 247 sq Working pressure by rules 189 lbs Material of Front plates at bottom steel

Thickness 3/4" Material of Lower back plate steel Thickness 3/4" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 304 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates steel Thickness: Front 3/4" Back 1/2" Mean pitch of stays 9-8"

Pitch across wide water spaces 14" Working pressures by rules 182 & 175 lbs Girders to Chamber tops: Material iron Depth and

thickness of girder at centre 6 1/2" x 2" Length as per rule 27.5" Distance apart 8" Number and pitch of Stays in each 2-8"

Working pressure by rules 177 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 _____

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 _____

If not, state whether, and when, one will be sent? In a Report also sent on the Hull of the Ship?



DONKEY BOILER— No. *One* Description *Vertical brass tube.*
 Made at *Port Dinorwic*. By whom made *Port Dinorwic Dry Dock & Boiler Works* when made *1903* Where fixed *In stokehold.*
 Working pressure *100 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate *1738* Fire grate area *9.65* Description of safety valves *Direct Spring.*
 No. of safety valves *One* Area of each *3.14* Pressure to which they are adjusted *100 lbs* If fitted with easing gear, *yes*. If steam from main boilers can enter the donkey boiler *no*. Dia. of donkey boiler *4'6"* Length *9'6"* Material of shell plates *steel* Thickness *7/16"* Range of tensile strength *27-32*. Descrip. of riveting long. seams *Lap. D. R.* Dia. of rivet holes *3/4"* Whether punched or drilled *drilled* Pitch of rivets *2 3/4"*
 Lap of plating *3 5/8"* Per centage of strength of joint *72.7* Rivets *22.7* Thickness of shell crown plates *9/16"* Radius of do. *5'-0"* No. of Stays to do. *4*.
 Dia. of stays. *1 5/8" eff.* Diameter of furnace Top *3'-6 1/2"* Bottom *3'-11 3/8"* Length of furnace *4'-0"* Thickness of furnace plates *9/16"* Description of joint *weld.* Thickness of furnace crown plates *1 1/2"* Stayed by *4 stays & cambers* Working pressure of shell by rules *128 lbs*
 Working pressure of furnace by rules *160 lbs* Diameter of uptake *1'-0"* Thickness of uptake plates *7/16"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *2 Top end bolts & nuts, 2 Bottom end bolts & nuts, 2 Main bearing bolts & nuts, 1 set of Feed & Bilge pump valves, 6 boiler tubes, 6 condenser tubes, set of firebars, an assortment of iron, bolts, &c.*

The foregoing is a correct description,

Loss & Duncan Manufacturer.

Dates of Survey while building
 During progress of work in shops— *1903: March 18, 24, 26. April 1, 6, 9, 15, 17, 23. May 5, 19, 22, 26, 29. June 23, 25, 30. July 2, 6*
 During erection on board vessel— *13, 16, 30. August 4, 7, 11, 14, 15, 17, 22, 24, 28. Sep 1, 3, 8, 14, 24. Oct 6*
 Total No. of — *27* Is the approved plan of main boiler forwarded herewith *yes*
 " " " donkey " " " *yes.*

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

The materials have been tested, & the work carried out under special survey, both material and workmanship being of good quality. on completion this machinery was securely fastened on board, & tried under steam with satisfactory results.

*In my opinion this machinery is eligible for classification with record of **L.M.C. 10.03.***

It is submitted that this vessel is eligible for THE RECORD **L.M.C. 10.03.**

Sms
20.10.03.
R.L.
20.10.03

Certificate (if required) to be sent to
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee... £ 1 : : : When applied for,
 Special £ 13 : 13 : : 16.10.1903
 Donkey Boiler Fee £ : : : When received, 24/10/03
 Travelling Expenses (if any) £ : : : 21/10/03

A. J. Bassett
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Glasgow 19 OCT 1903*

Assigned *+ L.M.C. 10.03*
 When fee is paid
 MACHINERY CERTIFICATE
 WRITTEN 27/10/07

