

REPORT ON MACHINERY.

Port of Glasgow

Received at London Office **MUN 5 SEP 1898**

No. in Survey held at Glasgow Date, first Survey 28. February Last Survey 25. August 1898
Reg. Book. (Number of Visits 24)

on the S.S. "ACHROITE" Tons { Gross 1195.88
Net 709.62
Master P. Walsh Built at Glasgow By whom built J. Shearer & Sons When built 1898

Engines made at Glasgow By whom made Muir & Houston when made 1898

Boilers made at Glasgow By whom made Muir & Houston when made 1898

Registered Horse Power _____ Owners W. Robertson Port belonging to Glasgow

Nom. Horse Power as per Section 28 123 Is Electric Light fitted Yes.

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

Diameter of Cylinders 17" 27 1/2" 44" Length of Stroke 33 Revolutions per minute 80 Diameter of Screw shaft as per rule 8.7"
as fitted 9"

Diameter of Tunnel shaft as per rule 7.87" Diameter of Crank shaft journals 8 1/2" Diameter of Crank pin 8 1/2" Size of Crank webs 5 3/4 x 14 3/4"
as fitted 8 1/4"

Diameter of screw 11 1/4" Pitch of screw 14 1/4" No. of blades 4 State whether moveable no Total surface 44"

No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 16 1/2" Can one be overhauled while the other is at work yes.

No. of Bilge pumps 2 Diameter of ditto 3" Stroke 16 1/2" Can one be overhauled while the other is at work yes.

No. of Donkey Engines One Sizes of Pumps 5 x 12 & 1-7/2 Pulsometer and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 4 - 2 1/2" In Holds, &c. After hold 2 - 2 1/2", Fore hold 2 - 2 1/2"

No. of bilge injections 1 sizes 4" Connected to condenser, or to circulating pump pump Is a separate donkey suction fitted in Engine room & size yes

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 valves & 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 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

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 before launch Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from upper platform

BOILERS, &c.— (Letter for record (5)) Total Heating Surface of Boilers 2040 sq. ft. Is forced draft fitted no.

No. and Description of Boilers one Single Ended multitubular Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs

Date of test 13/7/98 Can each boiler be worked separately ✓ Area of fire grate in each boiler 61 sq. ft. No. and Description of safety valves to
each boiler 1 - 3" double spring Area of each valve 7.068" Pressure to which they are adjusted 165 lbs Are they fitted
with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 13" Mean diameter of boilers 15.0"

Length 10.6" Material of shell plates steel Thickness 1 1/8" Description of riveting: circum. seams lap, double long. seams butt, treble.

Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 7 3/4" Lap of plates or width of butt straps 18"

Per centages of strength of longitudinal joint rivets 93.0 Working pressure of shell by rules 164 lbs Size of manhole in shell 12" x 16"
plate 84.7

Size of compensating ring McNeil's No. and Description of Furnaces in each boiler 3 plain Material steel Outside diameter 46"

Length of plain part top 6.0 Thickness of plates crown 49/64 Description of longitudinal joint welded. No. of strengthening rings none
bottom 6.8 bottom 49/64

Working pressure of furnace by the rules 212 lbs Combustion chamber plates: Material steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 7/8"

Pitch of stays to ditto: Sides 8 x 8" Back 8 x 8" Top 8 x 7 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 191 lbs

Material of stays steel Diameter at smallest part 1 1/8" Area supported by each stay 64" Working pressure by rules 181 lbs End plates in steam space:
Material steel Thickness 7/8" Pitch of stays 15 x 15" How are stays secured nuts Working pressure by rules 165 lbs Material of stays steel

Diameter at smallest part 2 5/16" Area supported by each stay 225" Working pressure by rules 194 Material of Front plates at bottom steel

Thickness 3/4" Material of Lower back plate steel Thickness 3/4" Greatest pitch of stays 13" Working pressure of plate by rules 166 lbs

Diameter of tubes 3 1/2" Pitch of tubes 4 3/4 x 4 3/4" Material of tube plates steel Thickness: Front 7/8 x 3/4" Back 3/4" Mean pitch of stays 9 1/2"

Pitch across wide water spaces 14 1/2" Working pressures by rules 228 lbs Girders to Chamber tops: Material iron Depth and
thickness of girder at centre 8 x 2 1/4" Length as per rule 36" Distance apart 7 1/2" Number and pitch of Stays in each 3 - 8"

Working pressure by rules 191 lbs 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 ✓

REPORT ON MACHINERY

DONKEY BOILER— Description *one vertical, 3 cross tubes.*
 Made at *Glasgow* By whom made *Hume & Co* When made *1898* Where fixed *in stokehold*
 Working pressure *80* tested by hydraulic pressure to *160 lbs* No. of Certificate *4675* Fire grate area *17 sq ft* Description of safety valves *Pakut Spring*
 No. of safety valves *1* Area of each *9.62* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *5.6* Length *13.0* Material of shell plates *steel* Thickness *7/16*
 Description of riveting long seams *lap, double* Diameter of rivet holes *15/16* Whether punched or drilled *drilled* Pitch of rivets *3/4*
 Lap of plating *5* Per centage of strength of joint Rivets *82.4* Plates *71.1* Thickness of shell crown plates *5/8* Radius of do. *4.6* No. of Stays to do. *none*
 Dia. of stays *✓* Diameter of furnace Top *4.4* Bottom *4.10* Length of furnace *5.3* Thickness of furnace plates *9/16* Description of joint *lap* Thickness of furnace crown plates *5/8* Stayed by *uptake only* Working pressure of shell by rules *104 lbs*
 Working pressure of furnace by rules *90 lbs* Diameter of uptake *15* Thickness of uptake plates *1/2* Thickness of water tubes *7/16*

SPARE GEAR. State the articles supplied:— *2 Connecting rod top end bolts, 2 bottom end bolts, 2 main bearing bolts, 1 set coupling bolts, 1 set feed & bilge pump valves, etc.*

The foregoing is a correct description,
Mur & Stronach Manufacturer.

Dates of Survey while building
 During progress of work in shops: *1898: Feb. 28, Mar. 7, 11, 15, Apr. 8, 21, 25, May. 7, 14, 26, June. 20, 30.*
 During erection on board vessel: *July. 13, 14, 22, 26, 27, Aug. 1, 4, 12, 17, 18, 22, 25.*
 Total No. of visits *24*

General Remarks (State quality of workmanship, opinions as to class, &c.)
ENGINES—Length of stern bush *3.0* Diameter of crank shaft journals *as per rule 8.38* as fitted *8 1/2* Diameter of thrust shaft under collars *8 1/2*
BOILERS—Range of tensile strength *28-32* Are they welded or flanged *✓* **DONKEY BOILERS**—No. *1* Range of tensile strength *27-32*
 Is the approved plan of main boiler forwarded herewith *Yes* Is the approved plan of donkey boiler forwarded herewith *Yes*

The Engines & Boilers of this vessel have been constructed under special survey and securely fastened on board, & the material & workmanship is of good quality.
 In my opinion the machinery of this vessel is eligible to be classed in the Register Book & to have a record of **+L.M.C. 8.98.**

Glasgow

It is submitted that
 this vessel is eligible for
THE RECORD. + *L.M.C. 8.98* & *Acc. Light.*
JA
5/9/98

The amount of Entry Fee . . . £ *2* : : :
 Special £ *18.9* : : :
 Donkey Boiler Fee £ : : :
 Travelling Expenses (if any) £ : : :
 When applied for, *31.8.18.98*
 When received, *24.10.98*

Committee's Minute **TUES. 6 SEP 1898**
 Assigned *+ L.M.C. 8.98* & *Acc. Light.*
 J.W. Dimmock
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
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Form No. 1A. The Surveyors are requested not to write on or below the space for Committee's Minute. Write "Sheer Stroke" opposite its corresponding letter.