

REPORT ON MACHINERY.

No. 15901

Received at London Office

Date of writing Report

19

When handed in at Local Office

23rd Sept. 1910

Port of Greenock

No. in Survey held at

Greenock

Date, First Survey

22nd Dec. 1909

Last Survey

22nd Sept. 1910

Reg. Book.

on the

SCREW STEAMER "HIGHLAND GLEN."

(Number of Visits

71)

Gross

7343

Net

4616

Master

Built at

Port Glasgow

By whom built

Russell & Co.

When built

1910

Engines made at

Greenock

By whom made

Rankin & Blackmore

when made

1910

Boilers made at

Greenock

By whom made

Rankin & Blackmore

when made

1910

Registered Horse Power

Owners

Nelson Line (London) Ltd.

Port belonging to

London

Nom. Horse Power as per Section 28

837

Is Refrigerating Machinery fitted for cargo purposes

Yes

Is Electric Light fitted

Yes

ENGINES, &c.—Description of Engines

Triple expansion

No. of Cylinders Three

No. of Cranks Three

Dia. of Cylinders

31" - 51" - 86"

Length of Stroke

54"

Revs. per minute

78

Dia. of Screw shaft

as per rule 17.16

Material of

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

-

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

If two

liners are fitted, is the shaft lapped or protected between the liners

Length of stern bush

42"

Dia. of Tunnel shaft

as per rule 16.03

Dia. of Crank shaft journals

as per rule 16.03

Dia. of Crank pin

17.8"

Size of Crank webs

11" x 29"

Dia. of thrust shaft under

collars

17.8"

Dia. of screw

19.0"

Pitch of Screw

19.6"

No. of Blades

4

State whether moveable

Yes

Total surface

124 Sq. ft.

No. of Feed pumps

2

Diameter of ditto

9"

Stroke

26"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

2

Diameter of ditto

4.5"

Stroke

32"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

Four

Sizes of Pumps

1.5, 2.5, 3.5, 4.5

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

STOKEHOLD

Dia. 3.5"

In Holds, &c.

NO. 1 HOLD

Dia. 3.5"

NO. 2 HOLD

Dia. 3.5"

NO. 3 HOLD

3.5" dia. CROSS BUNKER

Dia. 3.5"

NO. 4 HOLD

Dia. 3.5"

NO. 5 HOLD

Dia. 3.5"

TUNNEL WELL

Dia. 2.5"

No. of Bilge Injections

1

sizes

9"

Connected to condenser, or to circulating pump

Is a separate Donkey Suction fitted in Engine room

of size

Yes

3.5"

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

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

Hold Suctions

How are they protected

Cased in

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

Dates of examination of completion of fitting of Sea Connections

2/7/10

of Stern Tube

2/7/10

Screw shaft and Propeller

2/7/10

Is the Screw Shaft Tunnel watertight

Yes

Is it fitted with a watertight door

Yes

worked from

Upper platform

BOILERS, &c.—(Letter for record \$)

Manufacturers of Steel

S. Colville & Sons

Total Heating Surface of Boilers

9864 sq. ft.

Is Forced Draft fitted

Yes

No. and Description of Boilers

Four cylindrical

Multi Single end

No. of Certificate

976

Working Pressure

210 lb

Tested by hydraulic pressure to

420 lb

Date of test

2/7/10

No. of Certificate

976

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

75 sq. ft.

No. and Description of Safety Valves to

each boiler

2 Direct spring loaded

Area of each valve

12.56 sq. in.

Pressure to which they are adjusted

215 lb

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

14"

Mean dia. of boilers

16' 6"

Length

12' 0"

Material of shell plates

Steel

Thickness

1 1/2"

Range of tensile strength

30 to 33 tons

Are the shell plates welded or flanged

No

Descrip. of riveting

cir. seams

Lap Double and

Double riveted

long. seams

2 1/2" Butt Lap

Diameter of rivet holes in long. seams

1 3/4"

Pitch of rivets

10" 5"

Lap of plates or width of butt straps

1' 11 1/2"

Per centages of strength of longitudinal joint

rivets 91.4%

plate 83.4%

Working pressure of shell by rules

228 lb

Size of manhole in shell

16" x 12"

Size of compensating ring

31 1/2" x 27 1/2" x 1 1/2"

No. and Description of Furnaces in each boiler

4 Morrison's

Material

Steel

Outside diameter

44 1/4"

Length of plain part

top 4' 10"

Thickness of plates

bottom 5"

Description of longitudinal joint

Weld

No. of strengthening rings

None

Working pressure of furnace by the rules

228 lb

Combustion chamber plates

Material Steel

Thickness

Sides 5"

Back 5"

Top 16"

Bottom 16"

Pitch of stays to ditto

Sides 3/4" x 8"

Back 3/4" x 8"

Top 10 1/2" x 6"

If stays are fitted with nuts or riveted heads

Nuts

Working pressure by rules

215 lb

Material of stays

Steel

Diameter at smallest part

1 1/2"

Area supported by each stay

63"

Working pressure by rules

227 lb

End plates in steam space

Material

Steel

Thickness

1 1/2"

Pitch of stays

14" x 18"

How are stays secured

Double nuts

Working pressure by rules

208 lb

Material of stays

Diameter at smallest part

3"

Area supported by each stay

306"

Working pressure by rules

247 lb

Material of Front plates at bottom

Steel

Thickness

3/8"

Material of Lower back plate

Steel

Thickness

8"

Greatest pitch of stays

15 1/2"

Working pressure of plate by rules

208 lb

Diameter of tubes

2 1/2"

Pitch of tubes

3 1/2" x 3 1/2"

Material of tube plates

Steel

Thickness

Front 13"

Back 13"

Mean pitch of stays

8"

Pitch across wide water spaces

13 1/4"

Working pressures by rules

282 lb

370 lb

Girders to Chamber tops

Material Steel

Depth and

thickness of girder at centre

Working pressure by rules

245 lb

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

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No.	Description				
Made at	By whom made		When made	Where fixed	
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment	
If fitted with easing gear	If steam from main boilers can enter the donkey boiler			Dia. of donkey boiler	Length
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams		
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating	Per centage of strength of joint	Rivets Plates
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays	
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates	Description of joint	
Working pressure of furnace by rules	Thickness of furnace crown plates	Stayed by			
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey		

SPARE GEAR. State the articles supplied:— 1 Crank shaft 1 Propeller shaft 2 C.S. Propeller Blades, 1 set Cross
Bushes, 1 set Crank pin Bushes, 1 set Main Bearing Bushes, 1 set Packing Ring for each piston & all auxiliary
pumps, 6 Junk Ring Bolts, Air pump Bucket & Rod, Centrifugal pump shaft & Impeller, 2 Each main Bearing, Crank
pin & crosshead Bolt, 1 set Coupling Bolts, 1 Air pump Headwater Leaf Guard, 1 set Air pump valves, 1 set Feed & Relief
pump valves, 1 set Springs of each sign. Boiler tubes Condenser tubes
Spare valves for auxiliary pumps. Iron Brass bolts etc etc.

The foregoing is a correct description,

Paulin Matheson Manufacturer.

Dates of Survey while building	During progress of work in shops—	1902 Dec. 22, 1903 Jan. 10, 13, 17, 19, 25, 31, Feb. 1, 5, 8, 10, 12, 16, 18, 22, 25, Mar. 1, 2, 4, 7, 9, 11, 16, 17, 22, 24, 25, 29, Apr. 6, 8, 13, 15, 19
	During erection on board vessel—	21, 25, 28, 29, Mar. 5, 9, 11, 15, 16, 17, 25, 30, June 9, 10, 15, 18, 20, 28, July 2, 6, 21, 22, 25, 27, Aug. 1, 3, 6, 9, 13, 16, 22, 27, Sept. 1, 5, 6, 14, 17, 22
	Total No. of visits	71

Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders 17/9/10 Slides 15/6/10 Covers 17/9/10 Pistons 20/6/10 Rods 20/6/10
Connecting rods 14/2/10 Crank shaft 13/5/10 Thrust shaft 25/6/10 Tunnel shafts 29/6/10 Screw shaft 20/6/10 Propeller 20/6/10
Stern tube 20/6/10 Steam pipes tested *See Gls. Report* Engine and boiler seatings 25/4/10 Engines holding down bolts 9/8/10
Completion of pumping arrangements 5/9/10 Boilers fixed 1/9/10 Engines tried under steam 14/9/10
Main boiler safety valves adjusted 1/9/10 Thickness of adjusting washers *STAR BOILER CENTRE BOILER PORT BOILER AUX. BOILER*
Material of Crank shaft *Steel* Identification Mark on Do. 954 Material of Thrust shaft *Steel* Identification Mark on Do. 965
Material of Tunnel shafts *Steel* Identification Marks on Do. 964, A-Q Material of Screw shafts *Steel* Identification Marks on Do. 964
Material of Steam Pipes *Wrot. Iron* Test pressure 630 lbs

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

The Engines and Boilers of this vessel have been built under special
survey and the materials and workmanship are good. When completed
they were examined under steam and found to work satisfactorily.

The machinery throughout is now in good and efficient condition
and eligible in my opinion to have the record of **LMC**
9, 10. marked in the Society's Register Book.

It is submitted that
this vessel is eligible for
THE RECORD + LMC 9.10.
3 SB (FD) 1 Aux SB.

The amount of Entry Fee	£ 3	When applied for,	10/10/10
Special	£ 61 13	When received,	13/10/10
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

Wm. K. Austin
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **GLASGOW 25 OCT. 1910**

Assigned + LMC 9, 10.

MACHINERY CERTIFICATE

WRITTEN

27/10/10



© 2020

Lloyd's Register
Foundation

Certificate (if required) to be sent to

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