

Rpt. 4.

## REPORT ON MACHINERY.

No. 25806

NEWCASTLE-ON-TYNE.

63930

Date of writing Report

19

When handed in at Local Office

23-1-13 Port of

Received at London Office

FRI. JAN. 21 1913

No. in Survey held at

Hull

Date, First Survey

Feb. 16<sup>th</sup>

Last Survey

Jan. 17 1913.

Reg. Book.

apt 55 on the

Steel screw steamer

Hargreave

CLAN MACKELLAR

(Number of Visits

79

Master

Built at

Newcastle

By whom built

Northumbrian &amp; B. Co. Ltd

Tons

Gross 4863

Net 3108

When built

1913

Engines made at

Hull

By whom made

Charles &amp; Co. Ltd

when made

1913

Boilers made at

Hull

By whom made

Charles &amp; Co. Ltd

when made

1913

Registered Horse Power

Owners

J. G. Harrison &amp; Co.

Port belonging to

London

Nom. Horse Power as per Section 28

601

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

yes

ENGINES, &amp;c.—Description of Engines

Triple Expansion

No. of Cylinders

Three

No. of Cranks

Three

Dia. of Cylinders

28"-46 1/2"-78"

Length of Stroke

54"

Revs. per minute

65

Dia. of Screw shaft

as per rule 16 1/2"

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

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

yes

If two

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

yes

Length of stern bush

71"

Dia. of Tunnel shaft

as per rule 14 1/2"

Dia. of Crank shaft journals

as per rule 15 1/2"

Dia. of Crank pin

15 1/2"

Size of Crank webs

23x10"

Dia. of thrust shaft under

collars

collars

15 1/2"

Dia. of screw

19'-0"

Pitch of Screw

19'-0"

No. of Blades

4

State whether moveable

yes

Total surface

1034

No. of Feed pumps

two

Diameter of ditto

4 1/2"

Stroke

30"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

two

Diameter of ditto

4 1/2"

Stroke

30"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

three

Sizes of Pumps

Two 9" 5/8" x 10" deep 10" x 10" x 10"

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

In Engine Room

Four 3 1/2" one 2 1/2" in tunnel well two 2 1/2" in dry tank

In Holds, &amp;c.

3 of 3 1/2" one in couch

hold &amp; 2 of 3 1/2" in deep tank

No. of Bilge Injections

one size 6"

Connected to condenser, or to circulating pump

pump

Is a separate Donkey Suction fitted in Engine room &amp; size

yes 3 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

none

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

Forward suction

How are they protected

wood casings

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

26-11-12

of Stern Tube

24-12-12

Screw shaft and Propeller

31-12-12

Is the Screw Shaft Tunnel watertight

yes

Is it fitted with a watertight door

yes

worked from

top platform

BOILERS, &amp;c.—(Letter for record

2)

Manufacturers of Steel

J. G. Colville &amp; Sons

Total Heating Surface of Boilers

8340<sup>sq</sup>

Is Forced Draft fitted

yes

No. and Description of Boilers

Three single ended

Working Pressure

200 lbs

Tested by hydraulic pressure to

400 lbs

Date of test

17-12-12

No. of Certificate

1951

Can each boiler be worked separately

yes

Area of fire grate in each boiler

62.5<sup>sq</sup>

No. and Description of Safety Valves to

each boiler

Two spring loaded

Smallest distance between boilers or uptakes and bunkers or woodwork

3'-0"

Mean dia. of boilers

18 1/2"

Length

12'-0"

Material of shell plates

steel

Thickness

1 1/2"

Range of tensile strength

29-32

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

double

long. seams

J.R.D.B.

Diameter of rivet holes in long. seams

1 1/2"

Pitch of rivets

10 1/4"

Lap of plates or width of butt straps

22 1/8"

Per centages of strength of longitudinal joint

rivets 85.6

plate 85.3

Working pressure of shell by rules

235 lbs

Size of manhole in shell

12" x 16"

Size of compensating ring

9 1/2" x 1 1/2"

No. and Description of Furnaces in each boiler

3 Deighton

Material

steel

Outside diameter

46 3/4"

Length of plain part

top 7 1/2"

Thickness of plates

crown 7 1/2"

Description of longitudinal joint

welded

No. of strengthening rings

yes

Working pressure of furnace by the rules

228

Combustion chamber plates: Material

steel

Thickness: Sides

3/4"

Back

1 1/16"

Top

1 1/16"

Bottom

15/16"

Pitch of stays to ditto: Sides

8 1/2" x 9"

Back

7 3/4" x 7 3/4"

8 3/4" x 7 3/4"

stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

235

Material of stays

iron

Diameter at smallest part

1.76

Area supported by each stay

59<sup>sq</sup>

Working pressure by rules

200

End plates in steam space:

yes

Material

steel

Thickness

1 3/16"

Pitch of stays

17 1/2" x 15"

How are stays secured

D. H.

Working pressure by rules

238

Material of stays

steel 26-30

Diameter at smallest part

6.23

Area supported by each stay

262.5<sup>sq</sup>

Working pressure by rules

229

Material of Front plates at bottom

steel

Thickness

15/16"

Greatest pitch of stays

16 3/4" x 7"

Thickness

15/16"

Material of Lower back plate

steel

Thickness

15/16"

Working pressure of plate by rules

200

Diameter of tubes

2 1/2"

Pitch of tubes

3 3/8" x 3 3/4"

Material of tube plates

steel

Thickness: Front

15/16"

Back

7/8"

Mean pitch of stays

7 7/8"

Pitch across wide water spaces

13"

Working pressures by rules

226 lbs

Girders to Chamber tops: Material

steel

Depth and

thickness of girder at centre

9 1/2" x 1 1/2"

Length as per rule

32 9/16"

Distance apart

8 3/4"

Working pressure by rules

204

Superheater or Steam chest; how connected to boiler

yes

Can the superheater be shut off and the boiler worked

separately

yes

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

yes

Distance between rings

Working pressure by rules

End plates: Thickness



## Rpt. 58

Date of issue  
 No. in  
 Reg. Book  
 Master  
 Engines  
 Boilers  
 Registered  
**MULTI**  
 Letter for

The foregoing is a correct description,  
J. L. Schaefer Manufacturer.

Dates of Examination of principal parts—Cylinders 7-10-12 Slides 7-10-12 Covers 7-10-12 Pistons 6-11-12 Rods 6-11-12  
Connecting rods 6-11-12 Crank shaft 7-10-12 Thrust shaft 27-11-12 Tunnel shafts 2-1-13 Screw shaft 10-12-12 Propeller 10-12-12  
Stern tube 25-11-12 Steam pipes tested 10-11-13 Engine and boiler seatings 24-12-13 Engines holding down bolts 9-1-13  
Completion of pumping arrangements 11-1-13 Boilers fixed 9-1-13 Engines tried under steam 25 morning 11-1-13  
Main boiler safety valves adjusted 11-1-13 Thickness of adjusting washers 1 1/2, 1 1/4, 1 1/2, 1 1/4, 1 1/2, 1 1/4, 1 1/2, 1 1/4, 1 1/2, 1 1/4  
Material of Crank shaft Steel Identification Mark on Do. 5240AB Material of Thrust shaft Steel Identification Mark on Do. 2989W  
Material of Tunnel shafts Steel Identification Marks on Do. 2989WDM Material of Screw shafts Steel Identification Marks on Do. 4266  
Material of Steam Pipes Solid drawn steel Test pressure 100 lbs. span 2269 lbs.

**General Remarks** (State quality of workmanship, opinions as to class, &c.) The machinery for this vessel has been constructed under special survey in accordance with the approved plans & rules of this Society, the materials & workmanship are good. The boilers have been tested by hydraulic pressure to 400 lbs & found sound & tight. The engines & boilers have been properly fitted & secured on board & the safety valves adjusted under steam. In my opinion the vessel will be eligible for the record & A. M. C. with distinction when the survey has been completed.

To complete the survey The Donkey boiler requires to be secured in place, the mountings completed reconnected up, and its safety valves adjusted, The train Engines require to be tried under full power, the train Boiler safety valves tested for accumulation & the water tight door to tunnel tested.

The donkey boiler has been secured & its safety valves adjusted, the engines have been tried under full power, main safety valves tested for accumulation & tunnel door tested; record of survey  $\times$  L.M.C 3, 13

The amount of Entry Fee	.. £ 3 0	:	:	When applied for,	23-1-1913
Special	.. .. £ 5-0	:	:		
Donkey Boiler Fee	.. .. £	:	:	When received,	4/4/1913
Travelling Expenses (if any)	£	:	:		

*Frank A. Sturges & Co. Surveyors*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute  
FRI, MAR 28 1913  
Assigned  
+ Lm 63.13