

# REPORT ON MACHINERY.

No. 26957

Received at London Office TUE 17 APR. 1917

Date of writing Report 2<sup>nd</sup> April 1917 When handed in at Local Office 16<sup>th</sup> April 1917 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 11 Dec 16 Last Survey 13 April 1917  
Reg. Book. 103 (Number of Visits 31)

On the Machinery of the S.S. Cliffside Tons { Gross 4969  
Net 3737

Master Beeching Built at Sunderland By whom built J. Priestman & Co. When built 1917

Engines made at Sunderland By whom made Nath Eastern Marine Eng. Co. Ltd. when made 1917

Boilers made at " By whom made " when made 1917

Registered Horse Power " Owners Cliffside Shipping Co. (John Priestman) Port belonging to Newcastle

Nom. Horse Power as per Section 28 325 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

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

Dia. of Cylinders 25", 41", 67" Length of Stroke 45" Revs. per minute 64 Dia. of Screw shaft as per rule 14.01 Material of screw shaft Steel  
as fitted 14.18

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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 4'-8 1/2"

Dia. of Tunnel shaft as per rule 12.395" Dia. of Crank shaft journals as per rule 13.015" Dia. of Crank pin 1 3/8" Size of Crank webs 19 1/4" x 8 3/8" Dia. of thrust shaft under collars 1 3/8" Dia. of screw 17'-3" Pitch of Screw 17'-0" No. of Blades 4 State whether moveable no Total surface 94 sq ft

No. of Feed pumps 2 Diameter of ditto 3 3/4" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3 Sizes of Pumps 7' x 9' x 9", 6' x 4' x 6" x 4 1/2" x 2 3/4' x 4" No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room 3 of 3 1/2" & 1 of 3 1/2" in dry tank. In Holds, &c. 2 of 3 1/2" in each hold & 1 of 2 1/2" in tunnel well.

No. of Bilge Injections 1 sizes 4 1/2" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & 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 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

Dates of examination of completion of fitting of Sea Connections 23/1/17 of Stern Tube 20/3/17 Screw shaft and Propeller 20/3/17

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—(Letter for record B) Manufacturers of Steel J. Spencer & Sons

Total Heating Surface of Boilers 4995 Is Forced Draft fitted No No. and Description of Boilers 3 single-ended

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 10/11/16 No. of Certificate 3365

Can each boiler be worked separately Yes Area of fire grate in each boiler 38.5 No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 3.97 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 13'-4" Length 10'-6" Material of shell plates Steel

Thickness 1" Range of tensile strength 2978-33 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d. r. c.  
long. seams z. r. d. c. Diameter of rivet holes in long. seams 1 1/32" Pitch of rivets 9 7/8" Lap of plates or width of butt straps 19"

Per centages of strength of longitudinal joint plate 87.86 Working pressure of shell by rules 180 lbs Size of manhole in shell 16' x 12"

Size of compensating ring flanges No. and Description of Furnaces in each boiler 2 Dightons Material Steel Outside diameter 4 1/2"

Length of plain part top ✓ bottom ✓ Thickness of plates crown 9/16" Description of longitudinal joint welded No. of strengthening rings ✓

Working pressure of furnace by the rules 185 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/4" Back 2 5/32" Top 3/4" Bottom 1 5/16"

Pitch of stays to ditto: Sides 11 7/8" x 8 1/2" Back 11" x 10 1/8" Top 11 7/8" x 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lbs

Material of stays Steel Diameter at smallest part 2.79 Area supported by each stay 137.5 Working pressure by rules 182 lbs End plates in steam space:

Material Steel Thickness 1 9/32" Pitch of stays 23" x 18 1/8" How are stays secured d. n. s. w. Working pressure by rules 181.2 lbs Material of stays Steel

Diameter at smallest part 7.36 Area supported by each stay 417 Working pressure by rules 183 lbs Material of Front plates at bottom Steel

Thickness 3/4" Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays 14 7/8" x 10 7/8" Working pressure of plate by rules 181 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 3/4" x 4 1/2" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 10.56"

Pitch across wide water spaces 14 1/2" Working pressures by rules 182 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8" x 2 1/8" Length as per rule 30 1/2" Distance apart 11 7/8" Number and pitch of stays in each 2 of 8 1/2"

Working pressure by rules 182 lbs Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked separately ✓

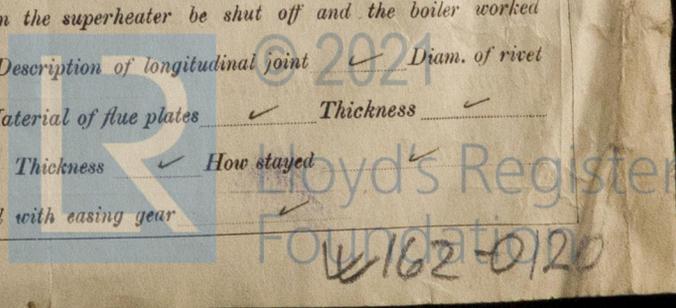
holes ✓ Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet

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 ✓

Is a Report also sent on the Hull of the Ship?



IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

*Two top & 2 bottom end bolts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of fuel & bilge pump valves, a quantity of assorted bolts nuts & iron, spare propeller & minor details.*

The foregoing is a correct description,

FOR THE NORTH-EASTERN MARINE ENGINEERING CO. LTD.

*Gus D Weir*

Manufacturer.

Dates of Survey while building: During progress of work in shops -- *Mar 2, 5, 6, 7, 9, 12, 20, 28, 29, 31*; During erection on board vessel -- *Apr 4, 11, 13*; Total No. of visits *(31)*. Manager: *W. H. C.* 1916. Dec 11. 1917. Jan 4, 9, 16, 22, 23, 25, 29. Feb 7, 8, 12, 13, 15, 19, 21, 22, 26, 28.

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

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

Dates of Examination of principal parts—Cylinders *5/3/17* Slides *15/2/17* Covers *15/2/17* Pistons *22/2/17* Rods *23/1/17* Connecting rods *23/1/17* Crank shaft *22/1/17* Thrust shaft *21/2/17* Tunnel shafts *27/3/17* Screw shaft *28/2/17* Propeller *5/3/17* Stern tube *28/2/17* Steam pipes tested *9/3/17* Engine and boiler seatings *23/1/17* Engines holding down bolts *28/3/17* Completion of pumping arrangements *13/4/17* Boilers fixed *28/3/17* Engines tried under steam *31/3/17* Main boiler safety valves adjusted *31/3/17* Thickness of adjusting washers *P.P. 1 3/32, S. 3/8, C.P. 1 3/32, S. 3/8, S.P. 1 3/32, S. 3/8*

Material of Crank shaft *Steel* Identification Mark on Do. *9/3/17* Material of Thrust shaft *Steel* Identification Mark on Do. *7/3/17* Material of Tunnel shafts *Steel* Identification Marks on Do. *7/3/17* Material of Screw shafts *Steel* Identification Marks on Do. *12/3/17*

Material of Steam Pipes *Steel* Test pressure *540 lbs.*

Is an installation fitted for burning oil fuel *no* Is the flash point of the oil to be used over 150°F.

Have the requirements of Section 49 of the Rules been complied with

Is this machinery duplicate of a previous case  If so, state name of vessel

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

*The machinery of this vessel has been built under special survey, the materials used are good, and the workmanship is satisfactory, it has been properly fitted on board and secured, and the engines have been tried under steam. In my opinion this vessel is eligible for the record of L.M.C. 4, 17.*

*A dynamo suitable for a wireless installation has been fitted on board.*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 4, 17. *J.W.D. 18/4/17*

The amount of Entry Fee ... £ *3* : : When applied for, *16 APR 1917*  
Special ... £ *36:5* : :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
*28/4/17*

*Charles Cooper*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *FRI 20 APR 1917*  
Assigned *+ L.M.C. 4:17*

MACHINERY CERTIFICATE WRITTEN



SUNDERLAND

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