

REPORT ON MACHINERY.

Port of Barrow in Furness

THURS. 5 DEC 1894

Received at London Office

No. in Survey held at Barrow
Reg. Book.Date, first Survey Jan. 22nd Last Survey Dec. 4th 1894(Number of Visits 119)on the Steel Screw Steamer Clan MackayTons { Gross 2599.6
Net 1664.86Master Roberts Built at BarrowBy whom built Harval Constn & Armnts Co. Ltd When built 1894Engines made at BarrowBy whom made Harval Constn & Armaments Co. Ltd when made 1894Boilers made at doBy whom made do when made 1894Registered Horse Power 300Owners Cayzer & Irvine & Co.Port belonging to GlasgowNom. Horse Power as per Section 28 267

ENGINES, &c.— Description of Engines Triple Expansion (3 cranks) No. of Cylinders Three

Diameter of Cylinders 23", 38", 63" Length of Stroke 42" Revolutions per minute as per rule 11.9"
Diameter of Tunnel shaft as fitted 12" Diameter of Crank shaft journals 12 1/2" Diameter of Crank pin 3" Size of Crank webs 8 x 25"

Diameter of screw 15-6" Pitch of screw 17-6" No. of blades 4 State whether moveable yes Total surface 64 #

No. of Feed pumps Two Diameter of ditto 7 x 9" Stroke 18" Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 4" Stroke 22" Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps 9 x 8" & 4 x 6" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 3 1/2" dia & Two 3" dia In Holds, &c. No 1, one 3 1/2" dia, No 2 one 3 1/2" & two 2 1/2" dia

No. of bilge injections one sizes 7" Connected to condenser, or to circulating pump g pumps 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

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

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 Bridge Deck

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 4140.2 #

No. and Description of Boilers Two Single Ended Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs

Date of test 2-8-94 Can each boiler be worked separately yes Area of fire grate in each boiler 47.34 No. and Description of safety valves to each boiler Two spring loaded (adams) Area of each valve 7.0697 Pressure to which they are adjusted 200 lbs Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean diameter of boilers 3'-6"

Length 11'-9" Material of shell plates Steel Thickness 3/8" Description of riveting: circum. seams Double & double long. seams Butts straps (Sub)

Diameter of rivet holes in long. seams 1 3/32" Pitch of rivets 9 1/4" Lap of plates or width of butt straps 20 3/8"

Per centages of strength of longitudinal joint 86.5 Working pressure of shell by rules 209 Size of manhole in shell 5' x 19 1/2"

Size of compensating ring 27 x 3-6 x 3/8 No. and Description of Furnaces in each boiler Three ribbed (Puma) Material Steel Outside diameter 3'-3"

Length of plain part top 9" bottom 9" Thickness of plates crown 9/16" bottom 1" Description of longitudinal joint welded No. of strengthening rings ✓

Working pressure of furnace by the rules 208 Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 1"

Pitch of stays to ditto: Sides 8 x 7 1/4" Back 8 3/8 x 7 1/8" Top 7 1/2 x 7 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 210

Material of stays Steel Diameter at smallest part 1.504 Area supported by each stay 58.5 Working pressure by rules 207 End plates in steam space: Material Steel Thickness 1 1/8" Pitch of stays 15 x 15" How are stays secured Nuts Working pressure by rules 235.4 Material of stays Steel

Diameter at smallest part 2 1/2" Area supported by each stay 206.25 Working pressure by rules 211 Material of Front plates at bottom Steel

Thickness 1 5/16" Material of Lower back plate Steel Thickness 7/8" Greatest pitch of stays 15" Working pressure of plate by rules

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4 x 3 5/8" Material of tube plates Steel Thickness: Front 1 1/8" Back 29/32" Mean pitch of stays 9 1/2"

Pitch across wide water spaces 14" Working pressures by rules 206.5 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 x (13 x 2) Length as per rule 28.5 Distance apart 7 1/2" Number and pitch of Stays in each 3, 7 1/2"

Working pressure by rules 229 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 ✓

DONKEY BOILER— Description *For Particulars of donkey boiler see separate Report on deck*

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____

No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____

Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____

Description of riveting long. seams _____ Diameter of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____

Lap of plating _____ Per centage of strength of joint _____ Rivets _____ 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 _____

Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____

Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *In addition to the articles required by Rule 12 junk ring Bolts, 2 Propeller blades, 1 set Ramston rings for H & J cylinders, 1 set Brasses for connecting rod of circulating pump engine 2 donkey feed valves and a number of other articles*

The foregoing is a correct description,
FOR NAVAL CONSTRUCTION & ARMAMENTS CO., LD.
 Manufacturer.

A. L. Latham

General Remarks (State ~~quantity~~ ^{MANAGING DIRECTOR} opinions as to class, &c. *This is a sister vessel to the S 3 Clan Campbell Barrow Report No 627, the Engines and Boilers have been constructed under special survey in accordance with the Rules, the material and workmanship employed are of the best description and when fitted into the vessel the machinery was tried at full speed and found to work satisfactorily.*

This vessel is fitted with Howdens System of forced draught. The main safety valves were adjusted under steam to the working pressure, but on trying the valves under forced draught the accumulation was found to be excessive viz about 25 lbs. per sq. inch with the fan running at a moderate speed, this was pointed out to the Builders and it was arranged to call the makers of the safety valves (Messrs Adams) and arrange some alteration to obviate the excessive accumulation. The vessel has now sailed for Glasgow and the surveyors have been advised copy of letter attached hereto.

*The machinery of this vessel is in good condition, and when the main safety valves have been adjusted and tried under steam eligible in my opinion to have the notation **L M C 1194** in the Register Book*

Certificate (if required) to be sent to _____

The amount of Entry Fee. £ 3 : 0 : _____ When applied for, _____

Special £ 33 : 7 : _____ 5th Dec 1894

Donkey Boiler Fee £ : : _____ When received, 10/12/94

Travelling Expenses (if any) £ : : _____

Jas Easthope
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

Assigned

FRI 7 DEC 1894 TUES. 12 DEC 1894

+ L M C 12,94



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Rep'd 7/12/94