

## REPORT ON MACHINERY.

Port of Barrow in Furness

Received at London Office

17 MAR 92

No. in Survey held at  
Reg. Book.

Barrow

Date, first Survey 4<sup>th</sup> Sept 1891 Last Survey 11<sup>th</sup> Mar 1892

(Number of Visits 55)

on the Twin S S BinnieTons { Gross 100057  
Net 59462

When built 1892

Master Jones Built at Barrow By whom built Naval Constr & Armk Co LtdEngines made at Barrow By whom made Naval Constr & Armk Co Ltd when made 1892Boilers made at Barrow By whom made " " " " when made 1892Registered Horse Power 160 Owners London County Council Port belonging to London

Nom. Horse Power as per Section 28 150

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

Diameter of Cylinders 15", 23", 35" Length of Stroke 24" Revolutions per minute 110 Diameter of Screw shaft as per rule 6.6

Diameter of Tunnel shaft as fitted 6.578" Diameter of Crank shaft journals 7.4" Diameter of Crank pin 7.2" Size of Crank webs 14.5" x 5"

Diameter of screw 8.8" Pitch of screw 10.6" No. of blades 4 State whether moveable No Total surface 22.3 sq ft

No. of Feed pumps one Diameter of ditto 3" Stroke 12" Can one be overhauled while the other is at work ✓

No. of Bilge pumps one Diameter of ditto 3" Stroke 12" Can one be overhauled while the other is at work ✓

No. of Donkey Engines 2 Sizes of Pumps 10" x 10", 4.3" x 10" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 2, 2.5" Tunnel 1, 2.5" In Holds, &c. 1, 2.5" under each sludge compartment

and 1, 6" suction in forward and after Ballast tanks

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

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 Yes

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 Top Platform

OILERS, &c.— (Letter for record (S) ) E 11/9/91 Total Heating Surface of Boilers 2803 sq ft

No. and Description of Boilers Two Cylindrical Multitubular Working Pressure 150 Tested by hydraulic pressure to 300

Date of test 27/2/92 Can each boiler be worked separately Yes Area of fire grate in each boiler 54 sq ft No. and Description of safety valves to each boiler Two Spring

Area of each valve 7.07" Pressure to which they are adjusted 150 lb Are they fitted with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 10" Mean diameter of boilers 12.2"

Length 10.0" Material of shell plates Steel Thickness 1" Description of riveting: circum. seams Lap triple Rivet long. seams D.B. Strap Rivet

Diameter of rivet holes in long. seams 1.32" Pitch of rivets 7" Lap of plates or width of butt straps Butt straps 15.5"

Percentage of strength of longitudinal joint 89.1 Working pressure of shell by rules 151.8 Size of manhole in shell 16 x 12

Size of compensating ring 35 x 2 1/2 x 1" No. and Description of Furnaces in each boiler Three, 7000 lbs Material Steel Outside diameter 3.2"

Length of plain part top 7.6" Thickness of plates bottom 7.6" Description of longitudinal joint Welded No. of strengthening rings —

Working pressure of furnace by the rules 162.3 Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 5/8"

Pitch of stays to ditto: Sides 8" Back 8" Top 8, 7" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 170.8

Material of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 64" Working pressure by rules 153.7 End plates in steam space: Material Steel Thickness 3/4" Pitch of stays 15 x 14 How are stays secured Nuts Working pressure by rules 200 Material of stays Steel

Diameter at smallest part 2 3/4" Area supported by each stay 210" Working pressure by rules 159.8 Material of Front plates at bottom Steel

Thickness 3/4" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 16" Working pressure of plate by rules 221

Diameter of tubes 3 1/4" Pitch of tubes 4 3/8" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 8 3/4"

Pitch across wide water spaces 13 1/2" Working pressures by rules 196.6 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7" x 1 1/4" Length as per rule 25 1/2" Distance apart 7" Number and pitch of Stays in each Two 8"

Working pressure by rules 194.0 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 ✓

Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓

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 *None*

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 casing 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:— *Vessel for river service spare gear not supplied.*

**FOR NAVAL CONSTRUCTION & ARMAMENTS CO. LD.**

*Am J*

*Aldamson*

The foregoing is a correct ~~description~~ *MANUFACTURER'S*

Manufacturer.

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

*The Engines and Boilers of this vessel have been constructed under special survey, the material and workmanship employed are of the best description, the main steam pipes were tested by hydraulic pressure to twice the working pressure and found tight and sound.*

*The Machinery of this vessel is in good order and safe working condition, and in my opinion eligible to be notified in the Register Book* **LMC 392**

*It is submitted that this vessel is eligible for THE RECORD + LMC 392*  
*Chf. 17 3 92*

Certificate (if required) to be sent to

The amount of Entry Fee. £ 2 : 0 : When applied for,  
Special .. .. £ 22 : 10 : *18 Mar 92*  
Donkey Boiler Fee .. .. £ : :  
Travelling Expenses (if any) £ *18 Mar 92*

**MACHINERY CERTIFICATE**  
**WRITTEN.**

Committee's Minute

Assigned

**18 MAR 1892**

*+ LMC 3, 92*

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



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Foundation