

REPORT ON MACHINERY.

Port of Glasgow

Received at London Office 19

No. in Survey held at Paisley Date, first Survey 10 April 1901 Last Survey not held 1902.
 Reg. Book. Liverpool Steel Screw Hopper Barge No 22. (Number of Visits 45) Tons { Gross 700.57
 Net 300.58
 Master do Built at Paisley By whom built Fleming & Ferguson Ltd When built 1902
 Engines made at Paisley By whom made Fleming & Ferguson Ltd when made 1902
 Boilers made at do By whom made do do when made 1902
 Registered Horse Power _____ Owners Henry Cochrane & Harbour Board Port belonging to Liverpool.
 Nom. Horse Power as per Section 28 133 Is Refrigerating Machinery fitted No Is Electric Light fitted No.

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks 3
 Dia. of Cylinders 16 1/2, 26, 43 Length of Stroke 27 Revs. per minute 110 Dia. of Screw shaft 8 1/2 Lgth. of stern bush 36"
 Dia. of Tunnel shaft 7 1/2 Dia. of Crank shaft journals 8 1/2 Dia. of Crank pin 8 Size of Crank webs 16 1/2 Dia. of thrust shaft under collars 8 1/4 Dia. of screw 10-0" Pitch of screw 12-6" No. of blades 4 State whether moveable No Total surface 31.6 \square
 No. of Feed pumps one Diameter of ditto 2 1/4" Stroke 15" Can one be overhauled while the other is at work ✓
 No. of Bilge pumps one Diameter of ditto 2 1/4" Stroke 15" Can one be overhauled while the other is at work ✓
 No. of Donkey Engines Two Sizes of Pumps 7 x 5 x 12 (Heirs) No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room One 2 1/2" diameter In Holds, &c. Two 2 1/4" in stokehold, two 2 1/4" in fore hold and four 2 1/4" in hopper pockets.
 No. of bilge injections 1 sizes 6" Connected to circulating pump Is a separate donkey suction fitted in Engine room & size yes, 2 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 by 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 Suction pipes to hold How are they protected Hood boxing
 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 the screw shaft tunnel watertight None.
 Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.— (Letter for record 8) Total Heating Surface of Boilers 2446 \square Is forced draft fitted No
 No. and Description of Boilers Two, Single Ended Working Pressure 180 lb Tested by hydraulic pressure to 360 lb
 Date of test 17/4/02 Can each boiler be worked separately yes Area of fire grate in each boiler 40 3/4 \square No. and Description of safety valves to each boiler Two, Cockburn Area of each valve 3.90 Pressure to which they are adjusted 185 lb Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 18" Mean dia. of boilers 11-7" Length 10-0" Material of shell plates Steel
 Thickness 1" Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams Double Lap Long. seams 5 rivets
 Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 7 1/2" Lap of plates or width of butt straps 15 7/8"
 Per centages of strength of longitudinal joint rivets 87.9 Working pressure of shell by rules 187 lb Size of manhole in shell 16" x 12"
 Size of compensating ring McKeib's No. and Description of Furnaces in each boiler Two, Morrison's Material Steel Outside diameter 46 3/8"
 Length of plain part top 10" Thickness of plates crown 9/16" Description of longitudinal joint Welded No. of strengthening rings Two
 Working pressure of furnace by the rules 180 Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 5/8" Bottom 9/16"
 Pitch of stays to ditto: Sides 7 3/4" Back 7 3/4" Top 9/8 x 8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 183
 Material of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 530" Working pressure by rules 183 End plates in steam space: Material Steel Thickness 7/8" Pitch of stays 15 1/4 x 18 1/4" How are stays secured Double Nuts Working pressure by rules 180 Material of stays Steel
 Diameter at smallest part 6.50" Area supported by each stay 3310" Working pressure by rules 200 Material of Front plates at bottom Steel
 Thickness 3/4" Material of Lower back plate Steel Thickness 1 1/16" Greatest pitch of stays 13" Working pressure of plate by rules 185
 Diameter of tubes 3" Pitch of tubes 4 1/8" Material of tube plates Steel Thickness: Front 3/4" Back 1 1/16" Mean pitch of stays 8 1/4"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 206 lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8" x 1 1/2" Length as per rule 27 3/4" Distance apart 9 7/8" Number and pitch of Stays in each Two, 8"
 Working pressure by rules 190 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 _____ How stayed _____
 Working pressure of end plates _____ Area of safety valves to superheater _____ Are they fitted with easing gear _____

DONKEY BOILER— No. 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 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 _____ 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: Two top and two bottom end bolts + nuts, two main bearing bolts + nuts, one set coupling bolts + nuts, one set each of feed + bilge pump valves, one set of rings + springs for each piston, a few bars of iron, assorted bolts + nuts, one set of crank pin bushes and one circulating pump vane.

The foregoing is a correct description, _____

Manufacturer. _____

Dates of Survey while building

During progress of work in shops - -	1901: Apr. 10. 25. May. 9. 16. Jun. 19. 25. 28. Jul. 3. 7. 21. Aug. 2. 19. 26. 30. Sep. 4. 6. 13. 19. 27. Oct. 7. 8. 9. 17. 19.
During erection on board vessel - -	Nov. 6. 7. 14. 22. 26. Dec. 3. 13. 20. 27. 1902: Jan. 14. 17. 24. 29. Feb. 5. 6. 13. 17. 18. 21.
Total No. of visits	<u>45.</u>

Is the approved plan of main boiler forwarded herewith Yes.

" " " donkey " " None.

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

Material of screw shaft S. M. 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 & 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

The machinery of this vessel has been built under special survey, the material and workmanship are of good quality, it has been securely fitted on board and a full speed trial run which was in every way satisfactory.

In our opinion the machinery of this barge is now eligible for regd of L.M.C. 2.02 (in red) in register book.

This is a water vessel to Barge No. 21. Claxon report. M 19.3.11.

Boiler plans & forging report now attached, please return boiler plans when done with as there is another set of boilers under construction.

Glasgow

Certificate (if required) to be sent to _____

It is submitted that this vessel is eligible for THE RECORD. **L.M.C. 2.02**

The amount of Entry Fee.	£ 2 :	When applied for, 22/21 02
Special	£ 19 19 :	When received, 27 2/02
Donkey Boiler Fee	£ :	
Travelling Expenses (if any)	£ :	

George Murdoch James Hollison
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute Glasgow. 24 FEB. 1902

Assigned + d.M.C. 2.02.

New fee recd.

