

## REPORT ON MACHINERY.

11,259

Port of ShullReceived at London Office TUES. 24 AUG 1897No. in Survey held at ShullDate, first Survey Mar. 17<sup>th</sup>Last Survey Aug 7<sup>th</sup>

1897

Reg. Book.

108 on the Iron Steam Trawler Indian Empire(Number of Visits 21)Tons { Gross 182  
Net 65Master Shull Built at Shull By whom built Cook William Bemmell When built 1897Engines made at Shull By whom made Chas & Holmes & Co when made 1897Boilers made at Shull By whom made Chas & Holmes & Co when made 1897Registered Horse Power 60 Owners Cargill & Hawking & Co Port belonging to ShullNom. Horse Power as per Section 28 64Is Electric Light fitted ✓ENGINES, &c.—Description of Engines Simple Compound No. of Cylinders Three No. of Cranks ThreeDiameter of Cylinders 13" 21" 34" Length of Stroke 24 Revolutions per minute 110 Diameter of Screw shaft as per rule 6.35Diameter of Tunnel shaft as per rule 6.0 Diameter of Crank shaft journals 6.50 Diameter of Crank pin 6.50 Size of Crank webs 9.4 1/4Diameter of screw 8.6 Pitch of screw 10.6 6 11.6 No. of blades 4 State whether moveable no Total surface 2609 ftNo. of Feed pumps one Diameter of ditto 2 1/2 Stroke 13 1/4 Can one be overhauled while the other is at work ✓No. of Bilge pumps one Diameter of ditto 2 1/2 Stroke 13 1/4 Can one be overhauled while the other is at work ✓No. of Donkey Engines one Sizes of Pumps 2 1/2 - 5 No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room one 2 In Holds, &c. one 2Direct suction in the Engine Bilge & hold and discharge on deckNo. of bilge injections one sizes 3 1/2 Connected to condenser, or to circulating pump no Is a separate donkey suction fitted in Engine room & size 4 gallonAre 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 bothAre 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 aboveAre 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 yesWhat pipes are carried through the bunkers suction to forward How are they protected wood casedAre all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times yesAre the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges yesWhen were stern tube, propeller, screw shaft, and all connections examined in dry dock now new Is the screw shaft tunnel watertight no tunnelIs it fitted with a watertight door ✓ worked from ✓BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 1087 sq ft Is forced draft fitted noNo. and Description of Boilers one cyl<sup>re</sup> Shull Working Pressure 170 lb Tested by hydraulic pressure to 240 lbDate of test 24/7/97 Can each boiler be worked separately ✓ Area of fire grate in each boiler 254 sq ft No. and Description of safety valves toeach boiler two spring loaded Area of each valve 3.98 sq ft Pressure to which they are adjusted 175 lb Are they fittedwith easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 7 Mean diameter of boilers 11.6Length 9.6 Material of shell plates steel Thickness 1 Description of riveting: circum. seams all in lap long. seams all shop 3/4Diameter of rivet holes in long. seams 1 1/32 Pitch of rivets 7 Lap of plates or width of butt straps 15Per centages of strength of longitudinal joint 88.74 % Working pressure of shell by rules 173 lb Size of manhole in shell 16.12Size of compensating ring 6.1 No. and Description of Furnaces in each boiler two Holmes Material steel Outside diameter 44Length of plain part top 15 Thickness of plates crown 19/32 Description of longitudinal joint welded No. of strengthening rings 4Working pressure of furnace by the rules 172 lb Combustion chamber plates: Material steel Thickness: Sides 2 1/32 Back 9/16 Top 9/16 Bottom 2 1/32Pitch of stays to ditto: Sides 7 3/4 Back 7 3/8 Top 7 7/8 If stays are fitted with nuts or riveted heads no Working pressure by rules 176 lbMaterial of stays steel Diameter at smallest part 1 1/2 Area supported by each stay 7 3/8 - 7 1/2 Working pressure by rules 245 lb End plates in steam space:Material steel Thickness 1 Pitch of stays 15 3/4 How are stays secured all nut Working pressure by rules 190 lb Material of stays steelDiameter at smallest part 2 1/32 Area supported by each stay 15 3/4 Working pressure by rules 191 lb Material of Front plates at bottom steelThickness 27/32 Material of Lower back plate steel Thickness 13/16 Greatest pitch of stays 12 Working pressure of plate by rules 170 lbDiameter of tubes 3 3/4 Pitch of tubes 4 3/4 Material of tube plates steel Thickness: Front 27/32 Back 19/16 Mean pitch of stays 9 1/2Pitch across wide water spaces 14 Working pressures by rules 170 lb Girders to Chamber tops: Material iron Depth andthickness of girder at centre 7 3/4 - 13 1/4 Length as per rule 29 3/16 Distance apart 7 1/8 Number and pitch of Stays in each 7 1/2Working pressure by rules 187 lb Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler workedseparately ✓ Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivetholes ✓ 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 ✓

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HVL414-0277



DONKEY BOILER— Description *No Donkey Boiler*

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:— *The top end bolts. Two bottom end bolts. One main  
bearing bolts. One set coupling bolts. One set feed pump valves. One set Bilge  
pump valves. One set Check valves. Safety Valve spring &c*

*The vessel efficient with mast and sail as a steamer.*

The foregoing is a correct description,

*Charles D Holmes* Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1897: Mar 17, 26 Apr 7, 15, 28 May 4, 14, 21, 25, June 3, 11, 18, 25, 29 July 5, 7, 9, 12, 20  
During erection on board vessel - - Aug 6, 7  
Total No. of visits 21

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

*The Machinery and Boiler of this Steam Steamer  
have been constructed under special survey and placed on board  
in accordance with the Society's Rules. They are now in my  
opinion in safe working condition and the case is respectfully  
submitted for the Notification + L.M.C. 8.97. in the Register Book.*

It is submitted that  
this vessel is eligible for  
THE RECORD. + L.M.C. 8.97.

*J.E.S.*  
24.8.97

The amount of Entry Fee. £ 1 : - : - When applied for, 23/8/97  
Special . . . . . £ 9 : 12 : - 18/97  
Donkey Boiler Fee . . . . . £ - : - : - 21.8/97  
Travelling Expenses (if any) £ - : - : - 30/8/97  
MACHINERY CERTIFICATE WRITTEN.

*James Innes*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI 27 AUG 1897

Assigned

+ L.M.C. 8.97



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