

REPORT ON MACHINERY.

Port of Null WED. 4 APR 1900
 No. in Survey held at Null Date, first Survey June 30/99 Last Survey Mar. 28th 1900
 Reg. Book. 03 on the Steel Steamer Bengo (Number of Visits 28) Tons { Gross 2889 Net 1871
 Master Null Built at Null By whom built Carli & Co When built 1889
 Engines made at Null By whom made Carli & Co when made 1889
 Moulders made at Null By whom made Carli & Co when made 1900
 Registered Horse Power 480 Owners Empresa Nacional Port belonging to Litton
 Is Refrigerating Machinery fitted Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Compound No. of Cylinders Three No. of Cranks Three
 Dia. of Cylinders 32" 42" 80" Length of Stroke 48 Revs. per minute 1439 Dia. of Screw shaft 15.16 Lgth. of stern bush 15.16
 Dia. of Tunnel shaft 14.5 Dia. of Crank shaft journals 14.5 Dia. of Crank pin 14.5 Size of Crank webs 15 Dia. of thrust shaft under
 Dia. of screw 1 1/4 Pitch of screw 1 1/2 No. of blades 14 3/4 State whether moceable Yes Total surface as per 1st entry
 of Feed pumps Diameter of ditto Stroke Can one be overhauled while the other is at work
 of Bilge pumps Diameter of ditto Stroke Can one be overhauled while the other is at work
 of Donkey Engines Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room In Holds, &c.
 of bilge injections sizes Connected to condenser, or to circulating pump Is a separate donkey suction fitted in Engine room & size
 all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible
 all connections with the sea direct on the skin of the ship Are they Valves or Cocks
 they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the discharge pipes above or below the deep water line
 they each fitted with a discharge valve always accessible on the plating of the vessel Are the blow off cocks fitted with a spigot and brass covering plate
 at pipes are carried through the bunkers How are they protected
 all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times
 the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges
 when were stern tube, propeller, screw shaft, and all connections examined in dry dock Is the screw shaft tunnel watertight
 Is fitted with a watertight door worked from

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 7600 sq ft Is forced draft fitted Yes
 and Description of Boilers Two 50lb Indica Cyl Boilers Working Pressure 170lb Tested by hydraulic pressure to 240lb
 of test 10/12/1900 Can each boiler be worked separately Yes Area of fire grate in each boiler 114 sq ft No. and Description of safety valves to
 boiler Two Spring loaded Area of each valve 14.19 sq in Pressure to which they are adjusted 165lb Are they fitted with easing gear Yes
 Nearest distance between boilers or uptakes and bunkers or woodwork 24" Mean dia. of boilers 14.6" Length 17.9" Material of shell plates Steel
 Thickness 1 1/2" Range of tensile strength 296-326 Are they welded or flanged Yes Descrip. of riveting: cir. seams all in top long. seams all in top
 Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/2" Lap of plates or width of butt straps 18 1/4"
 Percentages of strength of longitudinal joint 92 1/2% Working pressure of shell by rules 196lb Size of manhole in shell 16" x 12"
 of compensating ring 31" diam x 1 1/2" No. and Description of Furnaces in each boiler 6 in steam Material Steel Outside diameter 42"
 Thickness of plain part 9 1/2" Thickness of plates 9 1/2" Description of longitudinal joint welded No. of strengthening rings 4
 Working pressure of furnace by the rules 179lb Combustion chamber plates: Material Steel Thickness: Sides 9 1/2" Back 9 1/2" Top 9 1/2" Bottom 2 1/2"
 of stays to ditto: Sides 7 1/2" Back 7 1/2" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 191lb
 Diameter of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 7 1/2" x 7 1/2" Working pressure by rules 207lb End plates in steam space:
 Material Steel Thickness 1 1/2" Pitch of stays 17" x 15" How are stays secured all nut Working pressure by rules 235lb Material of stays Steel
 Diameter at smallest part 2 1/2" Area supported by each stay 17" x 15" Working pressure by rules 201lb Material of Front plates at bottom Steel
 Thickness 2 1/2" Material of Lower back plate Yes Thickness Yes Greatest pitch of stays Yes Working pressure of plate by rules Yes
 Diameter of tubes 5 1/2" Pitch of tubes 5 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 2 1/2" Back 1 1/2" Mean pitch of stays 10 1/2" x 9 1/2"
 across wide water spaces 14 1/2" Working pressures by rules 170lb Girders to Chamber tops: Material Steel Depth and
 Breadth of girder at centre 10" x 2" Length as per rule 42" Distance apart 7 1/2" Number and pitch of Stays in each Four 7 1/2"
 Working pressure by rules 205lb Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked
 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
 strengthened 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

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

strength Descrip. of riveting long. seams Dia. of donkey boiler Length Material of shell plates Thickness Range of tensile

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:—

EARLE'S
SHIPBUILDING & ENGINEERING CO. LIMITED

The foregoing is a correct description,
J. A. Yearn Manufacturer.

ACTG. GENERAL MANAGER.
Dates of Survey while building
During progress of work in shops - - - 1899: Jun 30. July 12. 18. 27 Aug 14. 4. 28 Sep. 14. 21. Oct 9. 25 Nov 8. 20 Dec 13. 18
During erection on board vessel - - - 1900: Jan 12. 23 Feb. 1. 8. 10. 12. 14. 19 Mar 14. 22. 22. 29. 28.
Total No. of visits 28

Is the approved plan of main boiler forwarded herewith

donkey " " "

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

Note Owing to the Propeller shaft not having been drawn and examined at this time the safety valve have only been adjusted to the old working pressure of 150 lbs. The crank thrust and journal shafting have been examined and the signs found to be as stated in this report.

The Owners Ship Engineer states that the Owners will make application to have the increased working pressure of 170 lbs when the Propeller shaft has been examined.

For other particulars see Report attached.

The Boiler was constructed under Mr Hamilton Survey.

The main Boilers of this vessel have been constructed under special survey in accordance with the approved tracing and satisfactorily tested by hydraulic pressure. They have now been placed on board and securely fastened. They are now in our opinion in safe working condition and the case is respectfully submitted in the certification + N.B. 3. 1900 in the Register Book

It is submitted that this vessel is eligible for THE RECORD BS 3.00 and notation of NB 3.00. NHP 480. 7600 HS. 2289S. *Expense limit.*

The amount of Entry Fee... £ 14 : 13
Special ... £ 14 : 13
Donkey Boiler Fee ... £
Travelling Expenses (if any) £

When applied for, 30/3/1900
When received, 12/3/02

J.S. 4.4.00
C.M. 4.4.00
James Bruce Thos. Robertson
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
Assigned + NB 3.00 B.S. 3.00 Subject

