

REPORT ON MACHINERY.

Port of Belfast

Received at London Office MON. 21 OCT 1895

No. in Survey held at Belfast

Date, first Survey 3rd June 1895 Last Survey 11th Oct 1895

Reg. Book.

(Number of Visits 8)

80 on the New Boilers for S. S. Maharaja

Tons } Gross 1666
Net 1046

Master _____ Built at Belfast By whom built Harland & Wolff Ltd When built 1899

Engines made at Glasgow By whom made D. Rowan when made 1899

Boilers made at Belfast By whom made Harland & Wolff Ltd when made 1895

Registered Horse Power 207 Owners Asiatic Steam Nav. Co (Lim) Port belonging to Liverpool

Nom. Horse Power as per Section 28 959 Cal Class +100AS LMC 3,92 Red 5,95
55 No 3-4.92

ENGINES, &c. — Description of Engines _____ No. of Cylinders _____

Diameter of Cylinders _____ Length of Stroke _____ Revolutions per minute _____ Diameter of Screw shaft _____
as per rule _____ as fitted _____

Diameter of Tunnel shaft _____ Diameter of Crank shaft journals _____ Diameter of Crank pin _____ Size of Crank webs _____
as fitted _____

Diameter of screw _____ Pitch of screw _____ No. of blades _____ State whether moveable _____ Total surface _____

No. of Feed pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____

No. of Bilge pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____

No. of Donkey Engines _____ Sizes of Pumps _____ No. and size of Suctions connected to both Bilge and Donkey pumps _____
In Engine Room _____ In Holds, &c. _____

No. of bilge injections _____ sizes _____ Connected to condenser, or to circulating pump _____ Is a separate donkey suction fitted in Engine room & size _____

Are 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 _____

Are all connections with the sea direct on the skin of the ship _____ Are they Valves or Cocks _____

Are 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 _____

Are 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 _____

What pipes are carried through the bunkers _____ How are they protected _____

Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times _____

Are 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 it fitted with a watertight door _____ worked from _____

BOILERS, &c. — (Letter for record S) Total Heating Surface of Boilers 4406 ^{sq ft}

No. and Description of Boilers Two double ended Working Pressure 80 lb Tested by hydraulic pressure to 160 lb

Date of test 18.9.95 Can each boiler be worked separately _____ Area of fire grate in each boiler 60 ^{sq ft} No. and Description of safety valves to each boiler Two Cockburn's Area of each valve 15.9 ^{sq in} Pressure to which they are adjusted _____ Are they fitted with easing gear _____

Smallest distance between boilers or uptakes and bunkers or woodwork _____ Mean diameter of boilers 12.0 ⁱⁿ

Length 15' 4" Material of shell plates steel Thickness 5/8" Description of riveting: circum. seams Double riveted; long seams Double straps double riv.
was done

Diameter of rivet holes in long. seams 7/8" Pitch of rivets 3.41 Lap of plates or width of butt straps 9 1/2"

Per centages of strength of longitudinal joint _____ Working pressure of shell by rules 85 lbs Size of manhole in shell 16" x 12"

Size of compensating ring 2.6 x 2.2 x 5/8" No. and Description of Furnaces in each boiler 4 Morrison's Material Steel Outside diameter 3.8"

Length of plain part _____ Thickness of plates _____ Description of longitudinal joint welded No. of strengthening rings _____

Working pressure of furnace by the rules 15.7 Combustion chamber plates: Material Steel Thickness: Sides 1/2" Back _____ Top 9/16" Bottom 5/8"

Pitch of stays to ditto: Sides 9" Back _____ Top 9 x 9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 95

Material of stays Steel Diameter at smallest part 1 1/8" Area supported by each stay 85 1/2 ^{sq in} Working pressure by rules 93.6 End plates in steam space: Material steel Thickness 1/16" Pitch of stays 18" How are stays secured double nut Working pressure by rules 82 Material of stays steel

Diameter at smallest part 1 1/16" Area supported by each stay 280 ^{sq in} Working pressure by rules 95 Material of Front plates at bottom steel

Thickness 1/16" Material of Lower back plate _____ Thickness _____ Greatest pitch of stays as appri Working pressure of plate by rules 80

Diameter of tubes 3" Pitch of tubes 4 1/4" Material of tube plates steel Thickness: Front 1/16" Back 5/8" Mean pitch of stays 10 5/8"

Pitch across wide water spaces 1.3 Working pressures by rules 80 lb Girders to Chamber tops: Material wrot. iron Depth and thickness of girder at centre 8 1/4" x 1 3/4" Length as per rule 3.7 3/4 Distance apart 9 1/2 Number and pitch of Stays in each four at 9"

Working pressure by rules 82 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

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. _____

Plates _____

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 foregoing is a correct description,
Harland Wolff & Co. Manufacturer.

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

The two main boilers described above have been made under special survey & in accordance with the approved photo print. They have been tested as required by the Rules, & furnace fronts, uptakes, & boiler mountings have been fitted.

New main steam pipes are being made in Glasgow, & the Surveyors at port have been advised.

The boilers have been sent from here to Liverpool where they are to be shipped for Calcutta to be there fitted on board. A letter has been written to the Calcutta Surveyors advising them of this.

The approved tracing & the invoice note for the boiler plates are enclosed herewith.

The vessel will in my opinion be eligible for the record + *10.10.95* when these boilers shall have been satisfactorily fitted on board, & the safety valves adjusted to the working pressure.

The Surveyors
 Dear Sir
 The two
 S. & W. Bla
 have been
 Messrs M
 to be R
 2 lbs &

Certificate (if required) to be sent to _____

The amount of Entry Fee.. £ 5 : 5 : When applied for,
 Special £ 8 : 8 : 18th Oct 1895
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : : When received, 5.11.1895

E. J. R.
 6
 A. L. Jones
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

TUES. APR 28 1896

FRI. MAY 1 1896

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 Foundation

Committee's Minute
 Assigned *Not for Com*

To Mr Hill to note + advise Cal. 25/10/95
AS 24/10/95