

REPORT ON MACHINERY.

Port of

Belfast

Received at London Office

MON 5 SEP 1898

No. in Survey held at
Reg. Book.

on the

S.S. "Bay State"

Date, first Survey July 24. 1897 Last Survey Aug. 31. 1898

(Number of Visits 30)

Tons

Gross 6824

Net 4368

When built 1898

Master S. Walters

Built at

Belfast

By whom built

Harland & Wolff

Engines made at

Belfast

By whom made

Harland & Wolff

when made 1898

Boilers made at

Belfast

By whom made

Harland & Wolff

when made 1898

Registered Horse Power 755

Owners

Bay State Steamship Co. Ltd.

Port belonging to

Liverpool

Nom. Horse Power as per Section 28

755

White Diamond Steamship Coy. Ltd.

ENGINES, &c.— Description of Engines *Turn Screw Triple Expansion* No. of Cylinders *Six*

Diameter of Cylinders *23½ - 39 - 66"* Length of Stroke *48"* Revolutions per minute *75* Diameter of Screw shaft *as per rule 13½"*

Diameter of Tunnel shaft *as fitted 13½"* Diameter of Crank shaft journals *13½"* Diameter of Crank pin *14½"* Size of Crank webs *20" x 10"*

Diameter of screw *15" - 9"* Pitch of screw *20" - 9"* No. of blades *Three* State whether moveable *Yes* Total surface *61½ sq ft.*

No. of Feed pumps *Two* Diameter of ditto *4½"* Stroke *28"* Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *Two* Diameter of ditto *5"* Stroke *28"* Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *Two* Sizes of Pumps *12" x 6" x 9" Cameron* No. and size of Suctions connected to both Bilge and Donkey pumps *6" x 4" x 6" Duplex Worthington*

In Engine Room *Three - 3½"* In Holds, &c. *Thirteen - 3½"*

No. of bilge injections *Two* sizes *8"* Connected to condenser, or to circulating pump *Pump* Is a separate donkey suction fitted in Engine room & size *Yes - 3½"*

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 *below* the deep water line *Yes - Exposed*

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 *Fore Hold Suctions* How are they protected *Wood Casings*

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 launching* the screw shaft tunnels watertight *Stated so*

Is it fitted with a watertight doors *Yes* worked from *Upper platform Engine Room*

BOILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *12692 sq ft.*

No. and Description of Boilers *Two D.E. & Two S. Ended. Cyl.* Working Pressure *192 lbs* Tested by hydraulic pressure to *384 lbs*

Date of test *27-5-98* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *8.8. 116½ ft.* No. and Description of safety valves to each boiler *2. 8. 116½ ft.*

each boiler *2. 8. 116½ ft.* Area of each valve *S. 8. 3½ diam* Pressure to which they are adjusted *192 lbs* Are they fitted with easing gear *Yes*

Smallest distance between boilers on uptakes and bunkers or woodwork *About 8"* Mean diameter of boilers *15' - 0"*

Length of plain part *10' - 3"* Material of shell plates *Steel* Thickness *1½"* Description of riveting: circum. seams *Double Rivet* long. seams *Double Rivet*

Diameter of rivet holes in long. seams *1½"* Pitch of rivets *10"* Lap of plates or width of butt straps *20"*

Per centages of strength of longitudinal joint *89.6* Working pressure of shell by rules *221 lbs* Size of manhole in shell *16" x 12"*

Size of compensating ring *2' 4" x 2' 3" x 1½"* No. and Description of Furnaces in each boiler *Two - Morrison* Material *Steel* Outside diameter *46 ¾"*

Length of plain part *top 1' 5" bottom 1' 5"* Thickness of plates *5"* Description of longitudinal joint *Weld* No. of strengthening rings *5*

Working pressure of furnace by the rules *215 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *1½"* Back *1½"* Top *1½"* Bottom *1½"*

Pitch of stays to ditto: Sides *8" x 7½"* Back *8" x 7½"* Top *8" x 8"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *192 lbs*

Material of stays *Steel* Diameter at smallest part *1½"* Area supported by each stay *43"* Working pressure by rules *192 lbs* End plates in steam space: Material *Steel* Thickness *1"* Pitch of stays *1½" x 16"* How are stays secured *Nuts & Washers* Working pressure by rules *192 lbs* Material of stays *Steel*

Diameter at smallest part *5 ¾"* Area supported by each stay *280 sq in* Working pressure by rules *212 lbs* Material of Front plates at bottom *Steel*

Thickness *4½"* Material of Lower back plate *Steel* Thickness *4½"* Greatest pitch of stays *13 ¾"* Working pressure of plate by rules *192 lbs*

Diameter of tubes *3"* Pitch of tubes *4 ¼" x 4 ¼"* Material of tube plates *Steel* Thickness: Front *5"* Back *5"* Mean pitch of stays *8 ½"*

Pitch across wide water spaces *14 ¼"* Working pressures by rules *192 lbs* Girders to Chamber tops: Material *Iron* Depth and thickness of girder at centre *6 ½" x 1 ¾" Suspension B.C.* Length as per rule *3' - 5 ¾" B.C.* Distance apart *8 ¾"* Number and pitch of Stays in each *Four - 8" S.C.*

Working pressure by rules *192 lbs* Superheater or Steam chest; how connected to boiler *✓* Can the superheater be shut off and the boiler worked separately *✓*

Diameter *200 lbs* Length *5' 8"* Thickness of shell plates *5"* Material *Steel* Description of longitudinal joint *Weld* Diam. of rivet holes *1½"*

Pitch of rivets *10"* Working pressure of shell by rules *221 lbs* Diameter of flue *16"* Material of flue plates *Steel* Thickness *5"*

If stiffened with rings *Distance between rings* Working pressure by rules *End plates: Thickness* How stayed *Yes*

Working pressure of end plates *Area of safety valves to superheater* Are they fitted with easing gear *Yes*

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 easing gear _____ If steam from main boiler _____
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 _____
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 propeller blades, & set studs for one blade; set crank pin braces; eccentric straps & bolts; two slide valve spindles; air pump rod & screw valves; centrifugal pump spindle & ~~rod~~ escape valve & spring; condenser tubes & ferrules; boiler tubes; safety valve spring for main & donkey boilers, and all gear to our Requirements additional.*

The foregoing is a correct description,

Harland & Wolff Ltd. Manufacturer.

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

Dates of Survey while building
During progress of work in shops - *Feb 24 March 25 Apr 22 Dec 1 March 15 Apr 18-19-23-27 May 2-3-4-5-11-27*
During erection on board vessel - *June 1-20-23-28 July 1-6-8-27 Aug 1-3-4-6-9-18-31*
Total No. of visits *30.*

The machinery of this vessel has been constructed under Special Survey, and is of good material and workmanship. It has been securely fitted on board, and on trials, worked satisfactorily under steam. In our opinion, it is eligible for record of Survey + L.M.C. 8-98. E.L. in the Register Book.

The electric light installation is by Messrs' W.H. Allen & Co. A report will be forwarded in the course of a few days.

The approved plans of the pumping arrangements, main boilers, and three forging reports on the crank, tunnels, propeller shafts, and the connecting rods are appended.

It is submitted that
this vessel is eligible for
THE RECORD.

+ L.M.C. 8.98 Elec Light.

5/9/98

Certificate (if required) to be sent to _____

The amount of Entry Fee. £ *3* : - :
Special £ *57* : *15* :
Donkey Boiler Fee £ : :
Travelling Expenses (if any) £ : :
When applied for, *14 Sep 98*
When received, *3 Sep 98*

Committee's Minute

TUES, 6 SEP 1898

Assigned

+ L.M.C. 8.98

R. J. B. Baveridge
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

HULL CERTIFICATE
WRITTEN.



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Foundation