

# REPORT ON MACHINERY.

No. 33675

Received at London Office *Wed Feb 25<sup>th</sup> 1914*

Writing Report

19

When handed in at Local Office

*23/2* to *14* Port of *Glasgow*

SAT. NOV. 14. 1914

Survey held at

Date, First Survey *12/11/13*

Last Survey *16/21*

1914

on the *Twin S/S "Badora"*

(Number of Visits *13*)

Gross Tons

Net Tons

When built *1914*

Built at *Dumbarton*

By whom built *Wm. Denny & Bros.*

when made *1914*

made at *Dumbarton*

By whom made *Denny & Co.*

when made *1914*

made at *do.*

By whom made *do.*

rated Horse Power

Owners *Rivers Steam Navigation Co.*

Port belonging to *Calcutta*

Horse Power as per Section 28 *64*

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

ENGINES, &c.—Description of Engines *Compound, Twin Screw* No. of Cylinders *2* No. of Cranks *1 each Eng*

No. of Cylinders *16* Length of Stroke *21"* Revs. per minute *as per rule* Dia. of Screw shaft *5 3/8"* Material of screw shaft *Steel*

screw shaft fitted with a continuous liner the whole length of the stern tube *no liners* Is the after end of the liner made water tight

propeller boss *-* If the liner is in more than one length are the joints burned *-* If the liner does not fit tightly at the part

the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *-* If two

are fitted, is the shaft lapped or protected between the liners *-* Length of stern bush *2'-1"*

Tunnel shaft *as per rule* Dia. of Crank shaft journals *as per rule* Dia. of Crank pin *5 3/4"* Size of Crank webs *11 1/2 x 4"* Dia. of thrust shaft under

*5 3/4"* Dia. of screw *6'-0"* Pitch of Screw *8'-0"* No. of Blades *3* State whether moceable *no* Total surface *13.5 sq ft*

Feed pumps *2* Diameter of ditto *3 1/2"* Stroke *8"* Can one be overhauled while the other is at work *yes*

Bilge pumps *1 (Gross Eng)* Diameter of ditto *3 1/2"* Stroke *8"* Can one be overhauled while the other is at work *-*

Donkey Engines *Two* Sizes of Pumps *5 1/4 - 3 1/2 x 5 duplex* No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room *In Holds, &c.*

Bilge Injections *sizes* Connected to condenser, or to circulating pump *Is a separate Donkey Suction fitted in Engine room & size*

Are 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*

How are they protected

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

Is examination of completion of fitting of Sea Connections *of Stern Tube* *Screw shaft and Propeller*

Screw Shaft Tunnel watertight *Is it fitted with a watertight door* *worked from*

MANUFACTURERS, &c.—(Letter for record *7*) Manufacturers of Steel *Wm. Beardmore & Co. Ltd.*

Heating Surface of Boilers *1150 sq ft* Is Forced Draft fitted *yes* No. and Description of Boilers *One single ended*

Working Pressure *130 lbs.* Tested by hydraulic pressure to *260 lbs.* Date of test *2.2.14* No. of Certificate *12528*

Can each boiler be worked separately *-* Area of fire grate in each boiler *38 sq ft* No. and Description of Safety Valves to

each boiler *2 direct spring* Area of each valve *6.49 sq in* Pressure to which they are adjusted *Are they fitted with easing gear*

Least distance between boilers or uptakes and bunkers or woodwork *Mean dia. of boilers 11'-10 3/8"* Length *10'-0 1/8"* Material of shell plates *steel*

Thickness *13/16"* Range of tensile strength *28,320 tons* Are the shell plates welded or flanged *no* Descrip. of riveting: cir. seams *DR lap*

seams *DIBS-TR* Diameter of rivet holes in long. seams *4/8"* Pitch of rivets *6"* Lap of plates or width of butt straps *13"*

Percentages of strength of longitudinal joint *rivets 91.5* Working pressure of shell by rules *144 lbs.* Size of manhole in shell *14" x 13"*

Area of compensating ring *34 x 34 x 13/16* No. and Description of Furnaces in each boiler *2 Deighton* Material *steel* Outside diameter *44 3/4"*

Thickness of plain part *top* Thickness of plates *bottom* Description of longitudinal joint *welded* No. of strengthening rings *-*

Working pressure of furnace by the rules *140* Combustion chamber plates: Material *steel* Thickness: Sides *9/16"* Back *9/16"* Top *9/16"* Bottom *4/8"*

Working pressure of stays to ditto: Sides *8 1/2 x 9* Back *8 7/8 x 8 5/8* Top *9 1/2 x 8* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *143*

Material of stays *Iron* Area *(2 1/2 ton min)* Diameter at smallest part *1 1/4"* Area supported by each stay *46 sq in* Working pressure by rules *130* End plates in steam space:

Material *Steel* Thickness *15/16"* Pitch of stays *18 x 17 1/2* How are stays secured *DN & W* Working pressure by rules *130* Material of stays *steel*

Area at smallest part *4 9/16 sq in* Area supported by each stay *320* Working pressure by rules *159* Material of Front plates at bottom *steel*

Thickness *25/32* Material of Lower back plate *steel* Thickness *23/32* Greatest pitch of stays *13 3/4"* Working pressure of plate by rules *132*

Working pressure of tubes *23/24* Pitch of tubes *3 3/4 x 3 3/4* Material of tube plates *steel* Thickness: Front *25/32* Back *13/16"* Mean pitch of stays *7 1/2"*

Working pressure across wide water spaces *13 3/4* Working pressures by rules *280* Girders to Chamber tops: Material *steel* Depth and

Thickness of girder at centre *2 plates 7 1/2 x 3/4* Length as per rule *30"* Distance apart *9 1/2"* Number and pitch of stays in each *3 of 8"*

Working pressure by rules *142* 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

*-* 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 *-*

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

(Sgd) Sunny & Co.

Manufacturer.

Dates of Survey while building	During progress of work in shops - - -	1913. Nov. 12-19-26. Dec. 4-11-19-30.	1914. Jan. 14-22-30. Feby. 2-12-16
		During erection on board vessel - - -	
	Total No. of visits	13.	

Is the approved plan of main boiler forwarded herewith

“ “ “ donkey “ “ “

Dates of Examination of principal parts—Cylinders 4-12-13 Slides 30-1-14 Covers 4-12-13 Pistons 14-1-14 Rods 14-1-14  
 Connecting rods 4-12-13 Crank shaft 12-2-14 Thrust shaft 12-2-14 Tunnel shafts 14-1-14 Screw shaft 19-12-13 Propeller 19-12-13  
 Stern tube 19-12-13 Steam pipes tested (one) 16-2-14 Engine and boiler seatings Engines holding down bolts

Completion of pumping arrangements Boilers fixed Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

Material of Crank shaft Identification Mark on Do. and Material of Thrust shaft steel Identification Mark on Do.

Material of Tunnel shafts steel Identification Marks on Do. 784 H Material of Screw shafts steel Identification Marks on Do.

Material of Steam Pipes (one) Iron Test pressure 390 lbs " "

Is an installation fitted for burning oil fuel Is the flash point of the oil to be used over 150° F.

Have the requirements of Section 49 of the Rules been complied with

Is this machinery duplicate of a previous case If so, state name of vessel

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

The engines and boilers of this vessel have been constructed under special survey in accordance with the rules and approved plans enclosed.

Materials and workmanship are good.

This machinery is being shipped to Calcutta. When it has been fitted on board; safety valves adjusted; engines tried under steam and arrangements made for protecting the intermediate shafts and for giving access to bearings of same, the vessel will be eligible to have the notation +LMC (with date)

Certificate (if required) to be sent to Glasgow.

The amount of Entry Fee ... £	1	:	0	:	When applied for,
<sup>2</sup> / <sub>3</sub> Special ... £	6	:	18	:	24/2 1914
Donkey Boiler Fee ... £	:	:	:	:	When received,
Travelling Expenses (if any) £	:	:	:	:	26/2 1914

(Sgd) Harry Clarke.

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute

TUE NOV 17 1914

Assigned



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