

REPORT ON MACHINERY.

No. 397

Port of Calcutta

Received at London Office

DATE 30 JUN 1919

No. in Survey held at Calcutta

Date, first Survey

Last Survey

19

Book. 18 on the (TWIN) S.S. "PRINCESS"

(Number of Visits)

Surveyor A. Lee

Built at Kiel

By whom built Hd. Krupp Akt. Ges.

Tons { Gross 8684
Net 6099
When built 5002

Range of gines made at Kiel

By whom made Do.

when made 1905

Ch of rivets gers made at Kiel

By whom made Do.

when made 1905

Registered Horse Power 800

Owners British Gov.

Port belonging to

Descriptn. Horse Power as per Section 28 1225

Is Refrigerating Machinery fitted for cargo purposes Yes

Is Electric Light fitted Yes

GINES, &c.—Description of Engines Quadruple, inverted, surface condensing No. of Cylinders 4 Pair set No. of Cranks 4

No. of Cylinders 23 3/8, 34 7/8, 50 3/8, 73 13/16 Length of Stroke 53 13/16 Revs. per minute 114 Dia. of Screw shaft as per rule 15 7/8 Material of screw shaft steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight

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

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

shafts are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush Yes

No. of Tunnel shaft as per rule 12 3/32 Dia. of Crank shaft journals as per rule 12 9/32 Dia. of Crank pin 15 3/16 Size of Crank webs 10 Dia. of thrust shaft under

bars 14 3/4 Dia. of screw 14 3/4 Pitch of Screw 20.3 No. of Blades 4 State whether moveable Yes Total surface 85.23 sq. ft.

No. of Feed pumps 2 Diameter of ditto 4.45 Stroke 2.2 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 4 Diameter of ditto 4.45 Stroke 2.2 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 4 Sizes of Pumps 10 1/2 x 12 x 16 No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 4 off 4 1/2" Dia. In Holds, &c. Two

No. of Bilge Injections 2 sizes 8.45 Connected to condenser or circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes, 4 1/2"

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 or below the deep water line Both

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

How are the pipes carried through the bunkers Bilge + tank pipes How are they protected Iron casing

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

Is there any examination of completion of fitting of Sea Connections Yes of Stern Tube Yes Screw shaft and Propeller Yes

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Two worked from Main deck or E.R. platform

MANUFACTURERS, &c.—(Letter for record) Manufacturers of Steel (1614672153) G.L. Rybak

Total Heating Surface of Boilers 11452 Is Forced Draft fitted Yes No. and Description of Boilers 3 D.E. out. multitubular and 1 single ended

Working Pressure 213 lbs. Tested by hydraulic pressure to 305 lbs. Date of test P.B. 24/4/19 S.B. 3/5/19 No. of Certificate 120

Can each boiler be worked separately Yes Area of fire grate in each boiler 99 sq. ft. No. and Description of Safety Valves to

each boiler 4 for double ended Area of each valve 12.56 Pressure to which they are adjusted 213 lbs. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 4 1/2" Mean dia. of boilers 14.4 1/2" Length 11.3 1/2" Material of shell plates

Thickness 1 1/2" Range of tensile strength — Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Double & Joints

Long. seams Quad. Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 1" 4" Lap of plates or width of butt straps 2.6"

Percentages of strength of longitudinal joint 88 Working pressure of shell by rules 234.6 Size of manhole in shell 11" x 15 1/2"

Is there any compensating ring 45 3/8" x 36 3/8" No. and Description of Furnaces in each boiler Three C.F. Material steel Outside diameter 41 1/2"

Length of plain part 4" Thickness of plates 3 3/4" Description of longitudinal joint Weld No. of strengthening rings None

Working pressure of furnace by the rules 264 lbs. Combustion chamber plates: Material — Thickness: Sides 5/8" Back 3/4" Top 5/8" Bottom 3/4"

Thickness of stays to ditto: Sides 7 1/2" x 4 1/2" Back — Top — If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 240

Material of stays — Diameter at smallest part 1 5/8" Area supported by each stay 56.25 Working pressure by rules 321 End plates in steam space:

Material — Thickness 1.25" Pitch of stays 15 3/4" x 15 1/2" How are stays secured D. nutted Working pressure by rules 300 lbs. Material of stays —

Diameter at smallest part 4.44" Area supported by each stay 241.6 Working pressure by rules 218 Material of Front plates at bottom

Thickness 7/8" Material of Lower back plate — Thickness 1" Greatest pitch of stays 4" x 8" Working pressure of plate by rules —

Diameter of tubes 2 1/4" Pitch of tubes 4" Material of tube plates — Thickness: Front 1 1/4" Back 1" Mean pitch of stays 8"

Distance across wide water spaces — Working pressures by rules — Girders to Chamber tops: Material — Depth and

Thickness of girder at centre 12 1/2" x 2 1/4" Length as per rule — Distance apart 4" Number and pitch of stays in each Six, 4" pitch

Working pressure by rules — 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

Thickness — Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —

Are the stays 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 —

Lloyd's Register
W508-0055
W508-0056

VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description				
Made at	By whom made		When made	Where fixed	
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area	Description of Safety
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted	Date of adjustment	
If fitted with casing gear	If steam from main boilers can enter the donkey boiler		Dia. of donkey boiler	Length	
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams		
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating	Per centage of strength of joint	Rivets Plates
Working pressure of shell by rules	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	
Working pressure of furnace by rules	Thickness of furnace crown plates		Stayed by		
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey		

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

 Manufacturer.

Dates of Survey while building	During progress of work in shops - -	Total No. of visits	Is the approved plan of main boiler forwarded herewith		
	During erection on board vessel - -				
Dates of Examination of principal parts—Cylinders Slides Covers Pistons Rods					
Connecting rods	Crank shaft	Thrust shaft	Tunnel shafts	Screw shaft	Propeller
Stern tube	Steam pipes tested	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.	Material of Thrust shaft	Identification Mark on Do.		
Material of Tunnel shafts	Identification Marks on Do.		Material of Screw shafts	Identification Marks on Do.	
Material of Steam Pipes	Test pressure				

General Remarks (State quality of workmanship, opinions as to class, &c.)
The machinery and boilers of this vessel have been examined, scantlings ascertained. They are now in good condition, and eligible in my opinion for the favourable consideration of the Committee.

The amount of Entry Fee..	£	:	:	When applied for,
Special				19...
<i>aux.</i> Donkey Boiler Fee	Rs. 1500/-			When received,
Travelling Expenses (if any) £				June 19 1900

Thomas W. C. Napier
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute FRI. JAN. 2 - 1900
 Assigned *see later report.*

Certificate (if required) to be sent to _____
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

