

REPORT ON MACHINERY.

No. 27590

Received at London Office

WED. 7 APR 1909

Report 1st April 1909 When handed in at Local Office 5/4/1909 Port of Glasgow
Survey held at Glasgow Date, First Survey 5th June 1908 Last Survey 1st April 1909
the S. S. "Pangan" (Number of Visits 56)

Built at Glasgow By whom built Barclay Curle & Co (18476) Tons { Gross 3487.07
Net 2223.08
When built 1909

By whom made Barclay Curle & Co (18476) when made 1909
By whom made Do when made 1909

Owners East Asiatic S. S. Co Ltd Port belonging to Copenhagen
Horse Power 326 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

S, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3
as per rule 13.25 Material of screw shaft Steel
as fitted 13.46

Cylinders 21 1/2, 36 1/2, 62 Length of Stroke 42 Revs. per minute 76 Dia. of Screw shaft 13 1/2
Is the after end of the liner made water tight

Is the liner in more than one length are the joints burned Yes If the liner does not fit tightly at the part
If two

bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive
If fitted, is the shaft lapped or protected between the liners Length of stern bush 4-8

as per rule 11.48 Dia. of Crank shaft journals as per rule 12.05 Dia. of Crank pin 12 1/2 Size of Crank webs 18 1/2 x 8 1/4 Dia. of thrust shaft under
as fitted 11 7/8 as fitted 12 1/2

12 1/2 Dia. of screw 16.9 Pitch of Screw 15-0 No. of Blades 4 State whether moveable No Total surface 85 sq ft
Feed pumps 2 Diameter of ditto 4 1/2 Stroke 21 Can one be overhauled while the other is at work Yes

Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 21 Can one be overhauled while the other is at work Yes
Donkey Engines 3 Sizes of Pumps 4, 6, 10 No. and size of Suctions connected to both Bilge and Donkey pumps
In Holds, &c. No 1 hold 2 @ 3" No 2 hold 2 @ 3" No 3 hold 2 @ 3" Tunnel well 1 @ 2 1/2"

Engine Room 3-3" 1-2 1/2" in dry tank 1-3" independent
Bilge Injections 1 sizes 7" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 1 1/2-3"

Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes
Are the valves or Cocks both

Are the Discharge Pipes above or below the deep water line above
Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

How are they protected
Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes
of examination of completion of fitting of Sea Connections 18.2.09 of Stern Tube 18.2.09 Screw shaft and Propeller 18.2.09

Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform
Manufacturers of Steel William Beardmore & David Colville

ERS, &c.—(Letter for record 8.5) Heating Surface of Boilers 5551.5 Is Forced Draft fitted No No. and Description of Boilers 3 single ended
Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 30.11.08 No. of Certificate 9649

each boiler be worked separately Yes Area of fire grate in each boiler 58.74 sq ft No. and Description of Safety Valves to
boiler double spring loaded Area of each valve 5.9 Pressure to which they are adjusted 205 lbs Are they fitted with easing gear Yes

Least distance between boilers or uptakes and bunkers or woodwork 2-0 Mean dia. of boilers 14-0 Length 10-6 Material of shell plates Steel
Range of tensile strength 28/32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams 0. Riv.

seams T.R.O.B.S. Diameter of rivet holes in long. seams 1 1/16 Pitch of rivets 9 Lap of plates or width of butt straps 19 1/2
percentages of strength of longitudinal joint rivets 89.2 Working pressure of shell by rules 201 lbs Size of manhole in shell 16" x 12"

of compensating rings 3.5 x 2.6 x 1 1/4 No. and Description of Furnaces in each boiler 3 Dightons Material Steel Outside diameter 3.8 3/4
Thickness of plates crown 19 Description of longitudinal joint weld No. of strengthening rings 1

Working pressure of furnace by the rules 211 Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom 7/8
h of stays to ditto: Sides 8 x 8 Back 8 x 7 1/4 Top 8 1/4 x 7 1/2 If stays are fitted with nuts or riveted heads No Working pressure by rules 210 End plates in steam space:

Material of stays Steel Area at smallest part 1.73 Area supported by each stay 64 Working pressure by rules 211 Material of stays Steel
Thickness 1 3/32 Pitch of stays 17 1/4 x 1 1/2 How are stays secured riveted 9 Working pressure by rules 210 Material of Front plates at bottom Steel

at smallest part 5.05 Area supported by each stay 250 Working pressure by rules 210 Material of Front plates at bottom Steel
Thickness 7/8 Material of Lower back plate Steel Thickness 7/8 Greatest pitch of stays 14 1/4 x 8 Working pressure of plate by rules 200

meter of tubes 3 1/4 Pitch of tubes 4 3/8 x 4 1/2 Material of tube plates Steel Thickness: Front 7/8, 9/16 Back 25/32 Mean pitch of stays 10
ch across wide water spaces 14 1/4 Working pressures by rules 218 lbs Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 9 x 2 @ 3/4 Length as per rule 30 3/2 Distance apart 8 3/4 Number and pitch of stays in each 3 @ 9 1/2
Working pressure by rules 213 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
Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

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
Foundation
W637-0210

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. *None* 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

Valves No. of Safety Valves Area of each Pressure to which they are adjusted Date of adjustment

If fitted with easing 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

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:—2 connecting rod top end bolts & nuts; 2 connecting rod bottom end bolts & nuts; 2 main bearing bolts; 1 set of coupling bolts; 1 set of feed and pump valves; a quantity of assorted bolts & nuts; iron of various sizes; spare tail shaft; spare cast iron propeller etc.

The foregoing is a correct description,

FOR BARCLAY, CURLE & CO., LTD.

Charles Randolph Smith Director

Manufacturer.

Dates of Survey while building

During progress of work in shops— 1908 June 5. 13. 16. 22. July 7. 29. Aug 12. 13. 17. 23. 26. 28. 31. Sep 8. 19. 21. 25. 28.

During erection on board vessel— 5. 9. 13. 15. 19. 22. 26. 27. Nov 2. 14. 18. 20. 27. 30. Dec 4. 8. 9. 10. 11. 14. 17. 21. 24. 25. 1909

Total No. of visits 56.

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders 13. 10. 08 Slides 25. 9. 08 Covers 5. 10. 08 Pistons 25. 9. 08 Rods 22. 9. 08

Connecting rods 9. 10. 08 Crank shaft 19. 9. 08 Thrust shaft 13. 8. 08 Tunnel shafts 28. 8. 08 Screw shaft 10. 11. 08 Propeller 27. 11. 08

Stern tube 27. 11. 08 Steam pipes tested 5. 3. 09 Engine and boiler seatings 18. 2. 09 Engines holding down bolts 9. 3. 09

Completion of pumping arrangements 15. 3. 09 Boilers fixed 15. 3. 09 Engines tried under steam 30. 3. 09

Main boiler safety valves adjusted 22. 3. 09 Thickness of adjusting washers Port Ble 15 7/32 Core Ble 15 1/4

Material of Crank shaft Steel Identification Mark on Do. 476 Material of Thrust shaft Steel Identification Mark on Do. 76

Material of Tunnel shafts Steel Identification Marks on Do. 747 Material of Screw shafts Steel Identification Marks on Do. 79

Material of Steam Pipes wrought iron Test pressure 600 lbs per sq in

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

The machinery has been built under special survey: the material and workmanship being good and satisfactorily tried under steam. It is submitted that above vessel will be eligible for a record of + L.M.C. 4.09 in the Register Book. The boilers are duplicates of those fitted aboard the S.S. "Band" plan of which has been forwarded.

It is submitted that this vessel is eligible for THE RECORD. + LMC 4.09

6 sec. Light.

J.R.R.

8.4.09

A.S.D.

8/4/09

The amount of Entry Fee £ 3.0.0 When applied for.

Special £ 36.6.0 5/24/09

Donkey Boiler Fee £ : : When received, 29/4/09

Travelling Expenses (if any) £ : : 30/4/09

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

Committee's Minute

GLASGOW 6 APR. 1909

TUE MAY 26 1914

Assigned + LMC 4.09

MACHINERY CERTIFICATE WRITTEN

FRI. MAR. 26 1915



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Glasgow.

(The Surveyors are requested not to write on or below the space for Committee's Minute.)