

REPORT ON MACHINERY.

No. 27590

Received at London Office

WED. 7 APL 1909

Report 1st April 1909 When handed in at Local Office 5/4/1909 of 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 (No 476) Tons { Gross 3487.07
Net 2223.08
When built 1909
By whom made Barclay Curle & Co (No 476) when made 1909
Do Do when made 1909
Horse Power Owners East Asiatic S.S. Co Ltd Port belonging to Copenhagen
Power as per Section 28 326 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3
Cylinders 21 1/2, 36 1/2, 62 Length of Stroke 42 Revs. per minute 76 Dia. of Screw shaft as per rule 13.25 Material of screw shaft Steel
as fitted 13.46

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

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

Shaft tunnel shaft 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 16 1/2 x 8 1/4 Dia. of thrust shaft under
as fitted 4 7/8 as fitted 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, 5, 6, 8, 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" hand 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"
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

connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks both
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 above
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

Pipes are carried through the bunkers none How are they protected Yes
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 18-3-09
Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from top platform

ERS, &c.—(Letter for record S. Y. Manufacturers of Steel William Beardmore & David Colville
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
Thickness 1 1/4 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 7/16 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 15"
plate 85.4

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 plain part top 19 Description of longitudinal joint weld No. of strengthening rings 1
bottom 32

Working pressure of furnace by the rules 211 Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 7/8 Bottom 7/8
No. 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 216 End plates in steam space:

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

Thickness 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

Diameter 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 Back 25/32 Mean pitch of stays 10
each 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 in 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 pipes; 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. 22. 26. 28. 31. Sep 8. 19. 21. 25. 29. |
| | During erection on board vessel— | 5. 9. 13. 18. 19. 22. 26. 27. Nov 2. 10. 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 " " " donkey " " " "

| | | | | | |
|--|----------------------|--------------------------------|--------------------------------------|-------------------------------------|------------------------|
| 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 |
| 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 | Propeller 27. 11. 08 |
| Completion of pumping arrangements | 15. 3. 09 | Boilers fixed 15. 3. 09 | Engines tried under steam 30. 3. 09 | | |
| Main boiler safety valves adjusted | 23. 3. 09 | Thickness of adjusting washers | Port Ble (P 7/32) 5/32 | Core Ble (P 7/32) 5/32 | Star Ble (P 7/32) 5/32 |
| Material of Crank shaft | Steel | Identification Mark on Do. | 476 | Material of Thrust shaft | Steel |
| Material of Tunnel shafts | Steel | Identification Marks on Do. | 7421 | Material of Screw shafts | Steel |
| Material of Steam Pipes | Wrought iron | Test pressure | 600 lbs per sq | Identification Marks on Do. | 76 27 79 |

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. + L.M.C. 4.09

6.00 Light.

J.P.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 | When received, | 5/24/09 |
| Donkey Boiler Fee | £ : | | |
| Travelling Expenses (if any) | £ : | | 29/4/09 |

A. S. Thomas
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute

GLASGOW 6 APR. 1909

TUE. MAY. 26. 1914

Assigned + L.M.C. 4.09

MACHINERY CERTIFICATE WRITTEN

FRI. MAR. 26. 1915



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Glasgow.

Certificate (if required) to be sent to

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