

# REPORT ON MACHINERY.

Port of Newcastle-on-Tyne

Received at London Office 28 III 1910

No. in Survey held at South Shields

Date, first Survey 16 July 1910 Last Survey 23 July 1910

Reg. Book.

on the S.S. Indian Prince

(Number of Plates 26)

Master

Built at So. Shields

By whom built J. Readhead & Sons Ltd

Tons <sup>Gross</sup> 2846  
<sub>Net</sub> 1775  
When built 1910

Engines made at South Shields

By whom made J. Readhead & Sons Ltd

when made 1910

Boilers made at South Shields

By whom made J. Readhead & Sons Ltd

when made 1910

Registered Horse Power

Owners Prince Line Ltd.

Port belonging to Newcastle

Nom. Horse Power as per Section 28 389

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

## ENGINES, &c.—Description of Engines Triple Expansion

No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 25"-42"-69" Length of Stroke 45" Revs. per minute

Dia. of Screw shaft 13 3/4" Material of screw shaft Iron

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

in the propeller boss Yes If the liner is in more than one length are the joints burned ✓

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 ✓

If two

liners are fitted, is the shaft lapped or protected between the liners ✓

Length of stern bush 4'-11"

Dia. of Tunnel shaft 12 1/4" Dia. of Crank shaft journals 13 1/4"

Dia. of Crank pin 14" Size of Crank webs 9 x 18" Dia. of thrust shaft under

collars 14 1/2" Dia. of screw 17'-0" Pitch of Screw 16'-6"-18'-6" No. of Blades 4 State whether moveable No Total surface 85 sq ft

No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 33" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 33" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 4 Sizes of Pumps 7 1/2 x 10 1/4 x 10" + 7 1/2 x 5 x 10" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Port, 3" dia. Centre, 3" dia. Starboard, 3" dia. In Holds, &c. 2 in each hold, 1 in

Starboard wing 3" dia. & 1 Port wing 3" dia. Tunnel Wall 2 1/2" dia.

No. of Bilge Injections 1 sizes 5 1/2" Connected to condenser, or to circulating pump, Pump Is a separate Donkey Suction fitted in Engine room & size Yes 3 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 ✓

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 Above

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 None How are they protected ✓

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

Dates of examination of completion of fitting of Sea Connections 25-5-10 of Stern Tube 13-5-10 Screw shaft and Propeller 7-6-10

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top Platform

## BOILERS, &c.—(Letter for record Y) Manufacturers of Steel J. Spencer Ltd

Total Heating Surface of Boilers 5268 Is Forced Draft fitted Yes No. and Description of Boilers 2 S.E. Cyl Mult?

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 26-5-1910 No. of Certificate 7978

Can each boiler be worked separately Yes Area of fire grate in each boiler 62.53 No. and Description of Safety Valves to

each boiler 2 Spring loaded Area of each valve 11.045 Pressure to which they are adjusted 180 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 2'-0" Mean dia. of boilers 15'-4 3/8" Length 11'-8 3/4" Material of shell plates Steel

Thickness 1 3/8" Range of tensile strength 100,000 lbs Are the shell plates welded or flanged No Descrip. of riveting: cir. seams d.p. lap

long. seams d.p. d.b.a. Diameter of rivet holes in long. seams 1 7/16" Pitch of rivets 4 7/16" Lap of plates or width of butt straps 1'-9 1/8"

Per centages of strength of longitudinal joint 89% Working pressure of shell by rules 203 lbs Size of manhole in shell 16" x 12" in back

Size of compensating ring Flanged No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 3'-11 3/4"

Length of plain part top 14" Thickness of plates bottom 32" Description of longitudinal joint ✓ No. of strengthening rings ✓

Working pressure of furnace by the rules 197.9 Combustion chamber plates: Material Steel Thickness: Sides 1 3/16" Back 1 3/16" Top 1 3/16" Bottom 1"

Pitch of stays to ditto: Sides 11 1/8 x 10 1/2" Back 11 3/16 x 10 1/4" Top 11 1/4 x 9 3/4" If stays are fitted with nuts or riveted heads No Working pressure by rules 195 lbs

Material of stays Iron Diameter at smallest part 3.09 Area supported by each stay 116.8 sq" Working pressure by rules 198 lbs End plates in steam space:

Material Steel Thickness 1 3/8" Pitch of stays 22 5/8 x 21 3/8" How are stays secured D.N. & W. Working pressure by rules 182 lbs Material of stays Steel

Diameter at smallest part 8 1/8" Area supported by each stay 467 sq" Working pressure by rules 188 lbs Material of Front plates at bottom Steel

Thickness 1 1/8" Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays 14 1/2" Working pressure of plate by rules 193

Diameter of tubes 2 1/2" Pitch of tubes 3 1/2" Material of tube plates Steel Thickness: Front 1 5/16" Back 7/8" Mean pitch of stays 9 9/16"

Pitch across wide water spaces 1'-1 1/2" Working pressures by rules 198 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 8" x 2" Length as per rule 30 9/16" Distance apart 11 3/4" Number and pitch of stays in each 2" x 9 3/4"

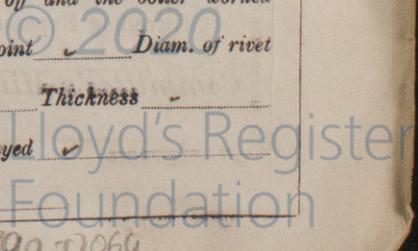
Working pressure by rules 187 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked

separately ✓ Diameter ✓ Length ✓ Thickness of shell plates ✓ Material ✓ Description of longitudinal joint ✓ Diam. of rivet

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

If 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 ✓



**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 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 \_\_\_\_\_ 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:— 2 Top End, 2 Bottom End, & 2 Main Bearing Bolts & Nuts, 1 set coupling bolts, 1 set of feed & bilge pump valves, 1 propeller shaft, Assorted bolts, nuts & iron 1/2 crank shaft, 1 eccentric strap, 1 slide valve spindle, 1 air pump rod.

The foregoing is a correct description,  
*John Headhead* Manufacturer.

1910  
 Dates of Survey while building: During progress of work in shops - Feb. 16, Mar. 17, Apr. 5, 7, 8, 13, 19, 20, 27, May 4, 12, 13, 19, 25, 26, Jun. 1, 7, 16, 20, 28, 30, Jul 7, 13, 18, 21, 23  
 During erection on board vessel -  
 Total No. of visits 26  
 Is the approved plan of main boiler forwarded herewith Yes  
 " " " donkey " " " Yes

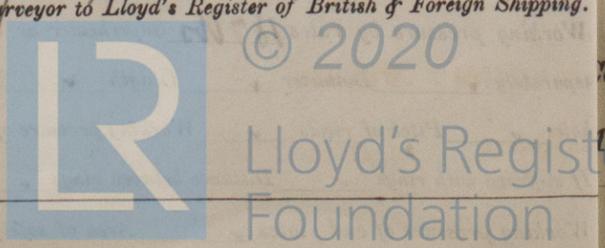
Dates of Examination of principal parts—Cylinders 13-4-10 Slides 5-4-10 Covers 13-4-10 Pistons 5-4-10 Rods 5-4-10  
 Connecting rods 7-4-10 Crank shaft 4-5-10 Thrust shaft 7-4-10 Tunnel shafts 27-4-10 Screw shaft 4-5-10 Propeller 27-5-10  
 Stern tube 25-5-10 Steam pipes tested 20-6-10 Engine and boiler seatings 7-6-10 Engines holding down bolts 16-6-10  
 Completion of pumping arrangements 7-7-10 Boilers fixed 14-6-10 Engines tried under steam 23-7-1910  
 Main boiler safety valves adjusted 8-7-10 Thickness of adjusting washers Main Port 2 1/2", Star 3/8", Donkey 3/8"  
 Material of Crank shaft Steel Identification Mark on Do. W.D.H. N° 2486 Material of Thrust shaft Steel Identification Mark on Do. CM. 12-5-10  
 Material of Tunnel shafts Steel Identification Marks on Do. CM. 12-5-10 Material of Screw shafts Iron Identification Marks on Do. CM. 12-5-10  
 Material of Steam Pipes Solid Drawn Copper Test pressure 350 lbs

**General Remarks** (State quality of workmanship, opinions as to class, &c.) The Engines & Boilers of this vessel have been constructed under special survey and the machinery tried under steam & the safety valves of main & donkey boilers adjusted to their working pressure.  
 The material & workmanship are sound & good & the working of main & auxiliary machinery satisfactory in every way.  
 The machinery is now in good order & safe working condition and eligible in my opinion to have notation of \* L.M.C. 7-1910

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 7-10  
 F.D.  
 28/7/10  
 C.J. Morris Mance  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee..	£ 3 : 0 :	When applied for,	27 JUL 1910
Special .. .. .	£ 39 : 9 :	When received,	30.7.1910
Donkey Boiler Fee .. .	£ 2 : 2 :		
Travelling Expenses (if any) £	: : :		

Committee's Minute  
 Assigned  
 FRI. 29 JUL 1910  
 Thmc 7. 10



NEWCASTLE ON TYNE

FLAT PL...  
 SHELF...  
 DOUBLIN...  
 POOP SID...  
 SHORT B...  
 FORECAST...  
 Man...  
 manufact...  
 Plates, Pl...  
 Has the...  
 FRAME...  
 REVERS...  
 LOWER M...  
 Bowsprit...  
 Topmasts...  
 Rigging...  
 Sails...  
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 13115...  
 13116...  
 13124...  
 63813...  
 63812...  
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 45468...  
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