

## REPORT ON MACHINERY.

No. 12656

Port of WEST HARTLEPOOL

Received at London Office

11th Dec. 29

1905

No. in Survey held at West Hartlepool Date, first Survey 21<sup>st</sup> Feb'y 1905 Last Survey 10<sup>th</sup> June 1905  
 Reg. Book. 120 on the Steel Steamer "Cambyses" (Number of Visits 62) Tons { Gross 3184.00  
 Net 2045.04  
 Master J. J. W. Simmons Built at West Hartlepool By whom built W. Gray & Co. Ltd When built 1905  
 Engines made at West Hartlepool By whom made Central Marine & Works when made 1905  
 Boilers made at West Hartlepool By whom made Central Marine & Works when made 1905  
 Registered Horse Power 191 Owners Robertson & Co. Port belonging to West Hartlepool  
 Nom. Horse Power as per Section 28 191 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple Compound No. of Cylinders Three No. of Cranks Three  
 Dia. of Cylinders 24 1/2" 40" 45" Length of Stroke 42" Revs. per minute 65 Dia. of Screw shaft 13 1/2" Material of W. Iron  
 as per rule 13 1/2" as fitted 13 1/2" screw shaft  
 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 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  
 liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 55"  
 Dia. of Tunnel shaft 11 1/2" as per rule 11 1/2" as fitted 11 1/2" Dia. of Crank shaft journals 12 1/2" as per rule 12 1/2" as fitted 12 1/2" Dia. of Crank pin 12 1/2" Size of Crank webs 19 1/2" Dia. of thrust shaft under  
 collars 12 1/2" Dia. of screw 16 1/2" Pitch of screw 15 1/2" No. of blades 4 State whether moveable No Total surface 86 sq ft  
 No. of Feed pumps Two Diameter of ditto 3 1/2" Stroke 26" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Two Diameter of ditto 4" Stroke 26" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps 10 1/2" 6 1/2" 4" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Three 3 1/2" In Holds, &c. Eight 3" 1 1/2" 1"  
 No. of bilge injections Two sizes 6 1/2" Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size 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 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 Below  
 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 None  
 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  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock Nov 2004 Is the screw shaft tunnel watertight Yes  
 Is it fitted with a watertight door Yes worked from Up Staircase

BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers 44204 sq ft Is forced draft fitted No  
 No. and Description of Boilers Two 4 cyl Endless Cyl boiler Working Pressure 180 lb Tested by hydraulic pressure to 360 lb  
 Date of test 17/5/05 Can each boiler be worked separately Yes Area of fire grate in each boiler 56 sq ft No. and Description of safety valves to  
 each boiler Two Spring Area of each valve 0.29 sq Pressure to which they are adjusted 185 lb Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 18 1/2" Mean dia. of boilers 15 1/2" Length 10 1/2" Material of shell plates Steel  
 Thickness 1 1/2" Range of tensile strength 37.5 Are they welded or flanged Both Descrip. of riveting: cir. seams None long. seams Butt  
 Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 9" Lap of plates or width of butt straps 19 1/2"  
 Per centages of strength of longitudinal joint 85.12 Working pressure of shell by rules 180 lb Size of manhole in shell 16" 12"  
 Size of compensating ring Hanged No. and Description of Furnaces in each boiler 3 Iron, compound Material Steel Outside diameter 45 7/8"  
 Length of plain part 8" Thickness of plates 1 1/2" Description of longitudinal joint Welded No. of strengthening rings Welded  
 Working pressure of furnace by the rules 181 lb Combustion chamber plates: Material Steel Thickness: Sides 1 1/2" Back 1 1/2" Top 1 1/2" Bottom 1 1/2"  
 Pitch of stays to ditto: Sides 8 1/2" Back 9 1/2" Top 9 1/2" If stays are fitted with nuts or riveted heads None Working pressure by rules 181 lb  
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 9 1/2" 5" Working pressure by rules 193 lb End plates in steam space:  
 Material Steel Thickness 1 1/2" Pitch of stays 22 1/2" How are stays secured Welded Working pressure by rules 180 lb Material of stays Steel  
 Diameter at smallest part 3 1/2" Area supported by each stay 32 1/2" 19 1/2" Working pressure by rules 185 lb Material of Front plates at bottom Steel  
 Thickness 1" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 15 1/2" Working pressure of plate by rules 180 lb  
 Diameter of tubes 3 1/2" Pitch of tubes 4 1/2" Material of tube plates Steel Thickness: Front 1" Back 2 1/2" Mean pitch of stays 9"  
 Pitch across wide water spaces 16 1/2" Working pressures by rules 189 lb Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 8 1/2" 1 1/2" Length as per rule 30" Distance apart 8" Number and pitch of Stays in each Two 9"  
 Working pressure by rules 185 lb Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked  
 separately None Diameter None Length None Thickness of shell plates None Material None Description of longitudinal joint None Diam. of rivet  
 holes None Pitch of rivets None Working pressure of shell by rules None Diameter of flue None Material of flue plates None Thickness None  
 If stiffened with rings None Distance between rings None Working pressure by rules None End plates: Thickness None How stayed None  
 Working pressure of end plates None Area of safety valves to superheater None Are they fitted with easing gear None

© 2020

Lloyd's Register  
Foundation



**DONKEY BOILER—** No. *One* Description *Cylindrical* *Vertical*  
 Made at *Hockley* By whom made *J. Hudson & Co. Ltd* When made *1905* Where fixed *Main Deck*  
 Working pressure *160 lb* tested by hydraulic pressure to *160 lb* No. of Certificate *3334* Fire grate area *33 sq ft* Description of safety valves *Two lifting*  
 No. of safety valves *Two* Area of each *8.29* Pressure to which they are adjusted *82 lb* If fitted with easing gear *No* If steam from main boilers can  
 enter the donkey boiler *No* Dia. of donkey boiler *10.0* Length *10.0* Material of shell plates *Steel* Thickness *17/32* Range of tensile  
 strength *27-32* Descrip. of riveting long. seams *Stitch* Dia. of rivet holes *1 1/16* Whether punched or drilled *Drilled* Pitch of rivets *1 1/2*  
 Lap of plating *6 1/2* Per centage of strength of joint *100* Thickness of shell *17/32* Radius of do. *24* No. of Stays to do. *24*  
 Dia. of stays *2 1/4* Diameter of furnace Top *36* Bottom *19* Length of furnace *6.7* Thickness of furnace plates *2 1/2* Description of  
 joint *Double butt* Thickness of furnace crown plates *17/32* Stayed by *Diagonal stays* Working pressure of shell by rules *85 lb*  
 Working pressure of furnace by rules *88 lb* Diameter of tubes *3 1/2* Thickness of tube plates *2 1/2* Thickness of water tubes *7/16*

**SPARE GEAR.** State the articles supplied:— *Two lift and hold. Two lifting and hold. Two main bearing bolts*  
*One set coupling bolts. One set feed pump valves. One set bridge pump valves. One set each*  
*main & donkey check valves. One set for fuel pump. One set for fuel pump. One 1/2 length crank shaft*  
*Roller. One 1/2 length crank shaft*

The foregoing is a correct description,

*Wm. Borrowman* Manufacturer.

Dates of Survey while building  
 During progress of work in shops— *1905. Feb. 21, 23. Mar. 10, 15, 16, 17, 20, 21, 22, 23, 27, 28, 29, 30, 31. Apr. 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 17, 18, 19, 20, 26, 27, 28. May*  
 During erection on board vessel— *1, 2, 3, 4, 5, 6, 9, 11, 12, 15, 16, 17, 18, 19, 22, 23, 24, 25, 30. June 1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. July 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Aug. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Sept. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Oct. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Nov. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31. Dec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31.*  
 Total No. of visits *62.*

Is the approved plan of main boiler forwarded herewith *Yes*

" " " donkey " " "

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

*Workmanship good.*

*The Machinery and Boilers of this steamer*  
*have been constructed under special survey, and placed on*  
*board in accordance with the Society's Rules. They are now in*  
*my opinion in safe working condition, and the case is*  
*respectfully submitted for the certification + L M C. 6. 05.*  
*in the Register Books.*

*The upper main steam pipes have been tested to 450*  
*lb per square inch and with bend test found good.*

*It is submitted that*  
*this vessel is eligible to*  
*remain as CLASS 1 + L M C. 6. 05.*

The amount of Entry Fee. £ *2*  
 Special " " £ *34*  
 Donkey Boiler Fee " " £ *1*  
 Travelling Expenses (if any) £ *1*

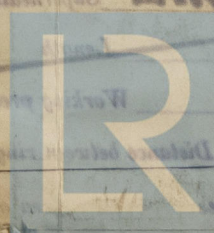
When applied for, *28. 6. 05*  
 When received, *28. 6. 05*

*James Jones*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 30 JUN 1905

Assigned



© 2020  
 Lloyd's Register  
 Foundation

MACHINERY CERTIFICATE  
 WRITTEN

West Hartlepool

Certificate (if required) to be sent to

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