

# REPORT ON MACHINERY

THURS. 28 JUL 1892

Port of *West Hartlepool*

Received at London Office 18

No. in Survey held at *West Hartlepool* Date, first Survey *1<sup>st</sup> Feby.* Last Survey *20 July* 1892  
 Reg. Book. on the *Screw Steamer "Birdoswald"* (Number of Visits *30*)  
 Master *J. Newton* Built at *Hartlepool* By whom built *Furness, Withy & Co.* When built *1892*  
 Engines made at *Hartlepool* By whom made *Messrs. J. Richardson & Sons* when made *1892*  
 Boilers made at *Hartlepool* By whom made *Messrs. J. Richardson & Sons* when made *1892*  
 Registered Horse Power *270* Owners *Messrs. Lunn & Maccay* Port belonging to *Newcastle*  
 Nom. Horse Power as per Section 28 *266*

ENGINES, &c.— Description of Engines *Inverted, Triple Expansion, 3 Banks* No. of Cylinders *3*  
 Diameter of Cylinders *24, 38, 64* Length of Stroke *42* Revolutions per minute *60* Diameter of Screw shaft *11.2*  
 Diameter of Tunnel shaft *10.6* Diameter of Crank shaft journals *11.25* Diameter of Crank pin *12* Size of Crank webs *17.5 x 7.5*  
 Diameter of screw *14.0* Pitch of screw *16.6* No. of blades *4* State whether moveable *no* Total surface *80 sq. ft.*  
 No. of Feed pumps *2* Diameter of ditto *2.25* Stroke *27* Can one be overhauled while the other is at work *yes*  
 No. of Bilge pumps *2* Diameter of ditto *3.25* Stroke *27* Can one be overhauled while the other is at work *yes*  
 No. of Donkey Engines *2* Sizes of Pumps *(8.5 x 7) (3.5 x 7)* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *Three, 2.5 dia* In Holds, &c. *three, Two 2.5 in hold, Two 2.5 in main hold, Two 2.5 after hold, One 2.5 after well.*  
 No. of bilge injections *one* sizes *4.5 dia* Connected to condenser, or to circulating pump *yes* as a separate donkey suction fitted in Engine room & size *yes, 4.5 dia.*  
 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  
 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 9<sup>th</sup> June 1892* Is the screw shaft tunnel watertight *yes*  
 Is it fitted with a watertight door *yes* worked from *top platform of engine room*

BOILERS, &c.— (Letter for record *(S)*) Total Heating Surface of Boilers *4012 sq. ft.*  
 No. and Description of Boilers *Two, Cyl. Mult. Single Ended* Working Pressure *160 lb.* Tested by hydraulic pressure to *320 lb.*  
 Date of test *13.5.92* Can each boiler be worked separately *yes* Area of fire grate in each boiler *48 sq. ft.* No. and Description of safety valves to  
 each boiler *Two, Spring* Area of each valve *8.29* Pressure to which they are adjusted *165 lb.* Are they fitted  
 with easing gear *yes* Smallest distance between boilers ~~or uptakes~~ and bunkers ~~or woodwork~~ *22* Mean diameter of boilers *14.9*  
 Length *10.0* Material of shell plates *Steel* Thickness *1.32* Description of riveting: circum. seams *double rivet lap* long. seams *Double butt straps*  
 Diameter of rivet holes in long. seams *1.64* Pitch of rivets *rows 8.5, 2 rows 4.4* Lap of plates ~~or width of butt straps~~ *10*  
 Percentages of strength of longitudinal joint ~~plate~~ *85.9* Working pressure of shell by rules *160 lb.* Size of manhole in shell *none*  
 Size of compensating ring *—* No. and Description of Furnaces in each boiler *3, horizontal patent* Material *steel* Outside diameter *3.62*  
 Length of plain part ~~top~~ *3* Thickness of plates ~~bottom~~ *9.6* Description of longitudinal joint *welded* No. of strengthening rings *no*  
 Working pressure of furnace by the rules *164 lb.* Combustion chamber plates: Material *steel* Thickness: Sides *1.19* Back *5* Top *1.32* Bottom *1.16*  
 Pitch of stays to ditto: Sides *8.5 x 8.5* Back *8.5 x 8.5* Top *8.5 x 8* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *163 lb.*  
 Material of stays *Steel* Diameter at smallest part *1.3* Area supported by each stay *42.8 sq. in* Working pressure by rules *161 lb.* End plates in steam space:  
 Material *Steel* Thickness *1.16* Pitch of stays *18.5 x 16.5* How are stays secured *double nuts* Working pressure by rules *160 lb.* Material of stays *steel*  
 Diameter at smallest part *2.5* Area supported by each stay *301 sq. in* Working pressure by rules *161 lb.* Material of Front plates at bottom *Steel*  
 Thickness *1.16* Material of Lower back plate *Steel* Thickness *2.7* Greatest pitch of stays *12.5* Working pressure of plate by rules *164 lb.*  
 Diameter of tubes *3.5* Pitch of tubes *4.5 x 4.5* Material of tube plates *steel* Thickness: Front *1.16* Back *1.16* Mean pitch of stays *9.5*  
 Pitch across wide water spaces *14.5* Working pressures by rules *166 lb.* Girders to Chamber tops: Material *steel* Depth and  
 Thickness of girder at centre *7.5 x 1.25* Length as per rule *28* Distance apart *8* Number and pitch of Stays in each *2, 8.5*  
 Working pressure by rules *223 lb.* 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  
 plates *—* 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 *—*



HL2367-0143

**DONKEY BOILER**— Description *Vertical, Cylindrical, 6 Cross tubes, (Steel)*  
 Made at *Stockton* By whom made *J. Hudson & Co* When made *30.3.92* Where fixed *In stock*  
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *432* Fire grate area *20 sq. ft.* Description of safety valves *Spring*  
 No. of safety valves *Two* Area of each *9.62* Pressure to which they are adjusted *85 lbs.* If fitted with casing gear *yes* If steam from main boiler enter the donkey boiler *no* Diameter of donkey boiler *6.0* Length *14.0* Material of shell plates *steel* Thickness *7/16*  
 Description of riveting long. seams *Double riv. lap* Diameter of rivet holes *13/16* Whether punched or drilled *punched* Pitch of rivets  
 Lap of plating *4 1/4* Per centage of strength of joint Rivets *72.9* Thickness of shell crown plates *1/32* Radius of do. *5.9* No. of Stays to do. *6*  
 Dia. of stays. *1 1/8* Diameter of furnace Top *4.10* Bottom *5.4* Length of furnace *6.4* Thickness of furnace plates *19/32* Description of joint *Single riv. lap* Thickness of furnace crown plates *9/16* Stayed by *6 stays 1 1/8 dia* Working pressure of shell by rules *91.9 lbs*  
 Working pressure of furnace by rules *85.3 lbs.* Diameter of uptake *14* Thickness of uptake plates *7/16* Thickness of water tubes *3/8*

**SPARE GEAR.** State the articles supplied:— *One propeller, A set of bolts & nuts for a connecting rod, main bearing, and shaft coupling, A set of valves the feed & bilge pumps, 3 sets of piston springs, A set of boiler check valves Bolts, nuts, & iron assorted.*

The foregoing is a correct description,  
 J. T. RICHARDSON & SONS, Manufacturers of Engines & Main boilers

*J. T. Richardson & Sons*

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

*Main steam pipes tested by hydraulic pressure to 320 lbs per square inch and found tight. The engines and boilers of this vessel have been constructed under Special Survey, and of a good quality of workmanship they have been tried under steam the safety valves adjusted and found to work well, and are now in safe and efficient working condition and, in my opinion, eligible to have L.R.C. 7.92 recorded in the Register of this Society. The photo. print of the main boilers accompanies this Report.*

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 7.92  
*W. Stoddart*  
 26 7.92

Certificate (if required) to be sent to

The amount of Entry Fee..	£ 2 : 0 :	When applied for,
Special .. .. .	£ 33 : 6 :	26.7.92
Donkey Boiler Fee .. .	£ :	When received,
Travelling Expenses (if any) £	:	27.7.92

*W. Stoddart*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute TUES. 2 AUG 1892  
 Assigned + L.M.C. 7.92



The Surveys are required not to write on or before the date for Committee's Minute.