

## REPORT ON MACHINERY.

Port of WEST HARTLEPOOL

MON. SEP 9, 1901

No. in Survey held at West Hartlepool Date, first Survey 4<sup>th</sup> March Last Survey 6<sup>th</sup> Sep 1901  
 eg. Book. 16 on the S.S. "Dalarne" (Number of Visits 53)  
 Master J. P. Nilsson Built at West Hartlepool By whom built B. Gray & Co. Ltd. Tons { Gross 2321  
 Engines made at West Hartlepool By whom made Central Marine Engine Works when made 1901  
 Boilers made at Do By whom made Do when made 1901  
 Registered Horse Power 170 Owners Rederiaktiebolaget "Dalarne" Port belonging to Kelsingborg  
 Nom. Horse Power as per Section 28 194 Is Refrigerating Machinery fitted No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 21.32.56 Length of Stroke 36 Revs. per minute 65 Dia. of Screw shaft as per rule 11.79  
 Dia. of Tunnel shaft as per rule 9.77 Dia. of Crank shaft journals as per rule 10.25 Dia. of Crank pin 10.5 Size of Crank webs 14.6 Dia. of thrust shaft under  
 collars 10.5 Dia. of screw 14.3 Pitch of screw 14.6 No. of blades 4 State whether moveable No Total surface 634  
 No. of Feed pumps 2 Diameter of ditto 3 Stroke 24 Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 3½ Stroke 24 Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 2 Sizes of Pumps 3½ x 5 & 8 x 8 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Four, two 3½ & two 2¾ In Holds, &c. Five, two 2¾ in each hold & one  
2½ in the after well.  
 No. of bilge injections 1 sizes 5 Connected to condenser, or to circulating pump Pump Is a separate donkey suction fitted in Engine room & size Yes 3"  
 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 None  
 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 26.8.01 Is the screw shaft tunnel watertight Yes  
 Is it fitted with a watertight door Yes worked from Upper platform

BOILERS, &c.—(Letter for record (2)) Total Heating Surface of Boilers 3014 Is forced draft fitted No  
 No. and Description of Boilers Two Single ended Stub Working Pressure 160 Tested by hydraulic pressure to 320  
 Date of test 14.6.01 Can each boiler be worked separately Yes Area of fire grate in each boiler 364 No. and Description of safety valves to  
 each boiler Two Spring Area of each valve 7.04 Pressure to which they are adjusted 165 Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 13" Mean dia. of boilers 18.0 Length 10.0 Material of shell plates Steel  
 Thickness 1" Range of tensile strength 27-30 Are they welded or flanged Both Descrip. of riveting: cir. seams Lap double long. seams Butt laps  
 Diameter of rivet holes in long. seams 1½ Pitch of rivets 4½ Lap of plates or width of butt straps 16½"  
 Per centages of strength of longitudinal joint 87.8 Working pressure of shell by rules 161.7 Size of manhole in shell 16 x 12  
 Size of compensating ring Flanged No. and Description of Furnaces in each boiler 2 Plain Material Steel Outside diameter 3'9"  
 Length of plain part 6.2 Thickness of plates ¾ Description of longitudinal joint Bevel No. of strengthening rings ½  
 Working pressure of furnace by the rules 166 Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 5/8 Top 5/8 Bottom ¾  
 Pitch of stays to ditto: Sides 10x8 Back 9¼ Top 9 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 162  
 Material of stays Steel Diameter at smallest part 1.5 Area supported by each stay 83 Working pressure by rules 171 End plates in steam space:  
 Material Steel Thickness 1½ Pitch of stays 18½ x 17 How are stays secured By nut Working pressure by rules 160.2 Material of stays Steel  
 Diameter at smallest part 2.53 Area supported by each stay 314 Working pressure by rules 160.6 Material of Front plates at bottom Steel  
 Thickness 1½ Material of Lower back plate Steel Thickness 1½ Greatest pitch of stays 14" Working pressure of plate by rules 219  
 Diameter of tubes 3¼ Pitch of tubes 4½ Material of tube plates Steel Thickness: Front 1½ Back 5/8 Mean pitch of stays 9"  
 Pitch across wide water spaces 14½ Working pressures by rules 166 Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 8 x 1¼ Length as per rule 2.4 Distance apart 8" Number and pitch of Stays in each Two 9" pitch  
 Working pressure by rules 178 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 -



DONKEY BOILER— No. 1 Description Blake Patent  
Made at *Kiddale* By whom made *Richardson & Co. Ltd.* When made 1901 Where fixed *St. Rollox*  
Working pressure 80 tested by hydraulic pressure to 160 No. of Certificate 2530 Fire grate area 204 Description of safety valves *Spring*  
No. of safety valves 2 Area of each 7.04 Pressure to which they are adjusted 80 lb If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler 7.0 Length 15.0 Material of shell plates *Steel* Thickness  $\frac{15}{32}$  Range of inside strength 27.32 Descrip. of riveting long. seams *Lap double* Dia. of rivet holes  $\frac{15}{16}$  Whether punched or drilled *Drilled* Pitch of rivets 3"  
Lap of plating  $\frac{1}{8}$  Per centage of strength of joint Rivets 83.4 Plates 63.4 Thickness of shell crown plates  $\frac{15}{32}$  Radius of dome *Semi* No. of Stays to do. —  
Dia. of stays. — Diameter of furnace Top 2.6 Bottom 6.6 Length of furnace 6.0 Thickness of furnace plates  $\frac{19}{32}$  Description of joint *Lap single* Thickness of furnace crown plates  $\frac{1}{2}$  Stayed by *1 3/4 off top 9 3/4 pitch* Working pressure of shell by rules 87.8  
Working pressure of furnace by rules 80 lb Diameter of uptake 2 3/4 Thickness of uptake plates  $\frac{7}{8}$  Thickness of water tubes  $\frac{5}{16}$

SPARE GEAR. State the articles supplied:— *Propeller & Propeller Shaft, 2 main bearing bolts & nuts, 2 top end bolts & nuts, 2 bottom end bolts & nuts, 1 set of shaft coupling bolts & nuts, 1 set of feed pump valves, 1 set of bilge pump valves, Spring for D.P. piston nuts, bolts & givers.*

The foregoing is a correct description,

FOR THE CENTRAL MARINE ENGINE WORKS,

Manufacturer of Main Engines & Boilers only

(W. Gray & Co. Ltd.)

Dates of Survey while building  
During progress of work in shops—  
During erection on board vessel—  
Total No. of visits

*W. M. James* DIRECTOR. 1901. Mar. 4. 19. 21. Apr. 3. 10. 15. 18. 19. 22. 23. 26. 29. 30. May 7. 9. 11. 13. 14. 15. 20. 21. 21. June 3. 4. 5. 7. 11. 12. 14. 20. 24. 25. 26. July 3. 9. 10. 12. 13. 16. 17. 18. 22. 23. 25. 31. Aug. 2. 16. 19. 22. 26. 29. Sept. 2. 6. 53  
Is the approved plan of main boiler forwarded herewith *Yes*  
" " " donkey " " " *No*

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

Material of screw shaft *Steel* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No*  
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 *No*  
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 *No* If two liners are fitted, is the shaft lapped or protected between the liners *No*

The machinery has been specially surveyed during construction the material and workmanship good and renders the vessel eligible in my opinion to have the Record + LMC 9.01 in the Register Book of the Society.

It is submitted that this vessel is eligible for THE RECORD. + LMC 9.01

C.M.  
9.9.01

9.9.01

The amount of Entry Fee. £ 2 :  
Special .. .. £ 29 :  
Donkey Boiler Fee .. .. £ :  
Travelling Expenses (if any) £ :  
When applied for, 7.9.19.01  
When received, 7.9.19.01

Committee's Minute

TUES. SEP 10 1901

Assigned

+ LMC 9.01

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



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Lloyd's Register Foundation

MACHINERY CERTIFICATE  
WRITTEN

Certificate (if required) to be sent to W. Hartlepool.