

REPORT ON MACHINERY.

Port of *West Hartlepool*

Received at London Office **SAT. 18 JAN 1908**

No. in Survey held at *Hartlepool*

Date, first Survey *23rd May*

Last Survey *Jan 8th 1908*

Reg. Book.

7th Sup. on the

S/S "Nora"

(Number of Visits *93*)

Gross *3906*
Net *2539*
When built *1907*

Master *W. S. James*

Built at *Newcastle*

By whom built *R. Stephenson & Co Ltd*

Engines made at *Hartlepool*

By whom made *Richardsons Welfarth & Co Ltd*

when made *1907-8*

Boilers made at *Hartlepool*

By whom made *Richardsons Welfarth & Co Ltd*

when made *1907-8*

Registered Horse Power

Owners *W. J. Symonds, T. Samuel & Co Ltd*

Port belonging to *Cardiff*

Com. Horse Power as per Section 28 *314*

Is Refrigerating Machinery fitted for cargo purposes *No*

Is Electric Light fitted *No*

ENGINES, &c.—Description of Engines

Direct Acting Triple Expansion

No. of Cylinders *Three*

No. of Cranks *3*

Dia. of Cylinders *25-40-67*

Length of Stroke *45*

Revs. per minute *60*

Dia. of Screw shaft

as per rule *3.58* Material of *S. Iron*
as fitted *14 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 *4'-10"*

Dia. of Tunnel shaft

as per rule *11.99*

Dia. of Crank shaft journals

as per rule *12.589*

as fitted *12 3/4*

Dia. of Crank pin *13*

Size of Crank webs *8x25*

Dia. of thrust shaft under

collars *13*

Dia. of screw *16-9*

Pitch of Screw *16-6*

No. of Blades *4*

State whether moveable *No*

Total surface *88.9 sq. ft.*

No. of Feed pumps *2*

Diameter of ditto *3"*

Stroke *27"*

Can one be overhauled while the other is at work *Yes*

No. of Bilge pumps *2*

Diameter of ditto *3 3/4"*

Stroke *27"*

Can one be overhauled while the other is at work *Yes*

No. of Donkey Engines *2*

Sizes of Pumps *6x4 1/2 x 9x10"*

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *3 - 3 1/2" dia.*

In Holds, &c. *no 1 Hold 2-3 1/2" no 2 Hold 2-3 1/2" no 3 Hold*

No. of Bilge Injections *One* size *5"*

Connected to condenser, or to circulating pump *Circulating 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 *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 *Yes*

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 *No*

How are they protected *Yes*

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 *20/11/07*

of Stern Tube *2.12.07*

Screw shaft and Propeller *3.12.07*

Is the Screw Shaft Tunnel watertight *Yes*

Is it fitted with a watertight door *Yes*

worked from *Cylinder platform*

BOILERS, &c.—(Letter for record *S.*)

Manufacturers of Steel *John Spencer & Sons Ltd*

Total Heating Surface of Boilers *4849 sq. ft.*

Is Forced Draft fitted *No*

No. and Description of Boilers *Two, Cylindrical Single ended*

Working Pressure *166 lbs per sq. in.*

Tested by hydraulic pressure to *330 lbs.*

Date of test *20/9/1907*

No. of Certificate *3120*

Can each boiler be worked separately *Yes*

Area of fire grate in each boiler *56.5 sq. ft.*

No. and Description of Safety Valves to

each boiler *Two, spring loaded*

Area of each valve *7.07 sq. in.*

Pressure to which they are adjusted *170 lbs per sq. in.*

Are they fitted with easing gear *Yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *1'-7"*

Mean dia. of boilers *16'-0"*

Length *10'-6"*

Material of shell plates *Steel*

Thickness *17/32*

Range of tensile strength *28.5/31.75*

Are the shell plates welded or flanged *No*

Descrip. of riveting: cir. seams *D.R. Lap*

long. seams *T.R.D.B.S.*

Diameter of rivet holes in long. seams *17/32*

Pitch of rivets *7/8"*

Lap of plates or width of butt straps *17/2"*

Per centages of strength of longitudinal joint

rivets *90.5*

Working pressure of shell by rules *171 lbs.*

Size of manhole in shell *16 1/2" x 13"*

Material *Steel*

Size of compensating ring *30x29x17/32*

No. and Description of Furnaces in each boiler *3, Bull.*

Material *Steel*

Outside diameter *46 1/2"*

Length of plain part *top* *Yes*

bottom

Thickness of plates *top* *3 9/16"*

bottom

Description of longitudinal joint *Welded*

No. of strengthening rings *Surf.*

Working pressure of furnace by the rules *190.5*

Combustion chamber plates: Material *Steel*

Thickness: Sides *9/16"*

Back *19/32"*

Top *9/16"*

Bottom *13/16"*

Working pressure by rules *194 lbs.*

Pitch of stays to ditto: Sides *7/8" x 7/8"*

Back *5/8" x 7/8"*

Top *7/8" x 7/8"*

If stays are fitted with nuts or riveted heads *Nuts*

Working pressure by rules *171 lbs.*

End plates in steam space:

Material of stays *Iron*

Diameter at smallest part *1 1/2"*

Area supported by each stay *8 1/2" x 7 1/2"*

Working pressure by rules *165.3*

Material of stays *Steel*

Material of Front plates at bottom *Steel*

Material *Steel*

Thickness *15/16"*

Pitch of stays *16 1/2" x 15 1/4"*

How are stays secured *D.N.W.*

Working pressure by rules *194.5*

Material of Front plates at bottom *Steel*

Diameter at smallest part *2 1/2"*

Area supported by each stay *16 1/2" x 15 1/4"*

Working pressure by rules *194.5*

Material of Front plates at bottom *Steel*

Thickness *13/16"*

Material of Lower back plate *Steel*

Thickness *3/4"*

Diameter of tubes *3 1/4"*

Pitch of tubes *12 1/2" x 4 3/8"*

Material of tube plates *Steel*

Thickness: Front *7/8"*

Back *3/4"*

Mean pitch of stays *8 1/8"*

Working pressure of plate by rules *166.5*

Pitch across wide water spaces *14 3/16"*

Working pressures by rules *166 lbs.*

Girders to Chamber tops: Material *Steel*

Depth and

thickness of girder at centre *7 1/2" x 1 3/4"*

Length as per rule *2'-6 1/2"*

Distance apart *7 1/8"*

Working pressure by rules *174.5*

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:—

Two top end bolts & nuts, 2 Bottom end bolts & nuts, Two main bearing bolts & nuts, spare coupling bolts & nuts, spare feed & bilge pump valves, assorted iron bolts & nuts, (See letter Hwc. 23.1.08)

The foregoing is a correct description,

FOR RICHARDSONS, WESTGARTH & CO. LIMITED.

Manufacturer.

ASSISTANT GENERAL MANAGER.

Dates of Survey while building	During progress of work in shops—	1907 May 23, 24, 25, June 5, 11, 12, 14, 27, July 2, 5, 9, 11, 12, 15, 16, 18, 20, 22, 24, 29, 31, Aug. 1, 2, 12, 13, 14, 15, 16, 19, 21, 22, 26, 28, 29, 30, Sept. 2, 3, 5, 6, 9, 11, 13, 14
	During erection on board vessel—	18, 19, 20, 23, 24, 25, 27, 28, 30, Oct. 1, 4, 5, 7, 8, 10, 11, 12, 15, 16, 17, 18, 19, 24, 25, 29, 31, Nov. 1, 5, 7, 8, 11, 12, 13, 14, 15, 18, 20, 28, 29, 30, Dec. 2, 3, 4, 5, 6, 9, 10, 11
	Total No. of visits	93

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—	Cylinders 11/10/07	Slides 11/10/07	Covers 11/10/07	Pistons 12/11/07	Rods 28/9/07
Connecting rods 28/9/07	Crank shaft 17/10/07	Thrust shaft 19/8/07	Tunnel shafts 6/12/07	Screw shaft 11/9/07	Propeller 18/7/07
Stern tube 8/11/07	Steam pipes tested 9/12/07	Engine and boiler seatings 2/12/07	Engines holding down bolts 9/12/07		
Completion of pumping arrangements 11/12/07	Boilers fixed 11/12/07	Engines tried under steam 11/12/07			
Main boiler safety valves adjusted 11/12/07	Thickness of adjusting washers	Port boiler 6 1/32	Star boiler 5 9/32		
Material of Crank shaft Steel	Identification Mark on Do. 4587	Material of Thrust shaft Steel	Identification Mark on Do. 4587		
Material of Tunnel shafts Steel	Identification Marks on Do. 4587	Material of Screw shafts S. Iron	Identification Marks on Do. 4587		
Material of Steam Pipes Wrought Iron	Test pressure 600 lbs per sq. in.				

General Remarks

(State quality of workmanship, opinions as to class, &c. Workmanship good.)

The machinery and boilers of this vessel have been constructed under Special Survey and placed on board in accordance with the Society's Rules. They are now in our opinion in safe working condition and the case is respectfully submitted for the notation LMC 1.08 in the Register Book.

It is submitted that this vessel is eligible for the RECORD Lmb 1.08.

24.1.08

24.1.08

The amount of Entry Fee	£ 3 : 14	When applied for	17 JAN 1908
Special	£ 25 : 14	When received	13/1/08
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		

Committee's Minute

FRI. 24 JAN 1908

Assigned

+ Lmb 1.08

MACHINERY CERTIFICATE WRITTEN.



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Certificate (if required) to be sent to