

# REPORT ON MACHINERY.

Date of writing Report 25.3.11 When handed in at Local Office 27th Mar 11 Port of MIDDLESBROUGH-ON-TEES  
 No. in Survey held at Stockton-on-Tees Date, First Survey 12th Feb, 1910 Last Survey 21st March 1911 (Add'l)  
 Reg. Book 60 on the Steel Screw Steamer "Hunnia" (Number of Visits) 6 (S.S.N<sup>o</sup> 168)  
 Master                      Built at Newcastle By whom built Wood Skinner & Co. Lim<sup>d</sup> When built 1911  
 Engines made at Stockton By whom made Messrs Blair & Co. Lim<sup>d</sup> (No. 1699) when made 1911  
 Boilers made at Stockton By whom made Messrs Blair & Co. Lim<sup>d</sup> when made 1911  
 Registered Horse Power                      Owners Atlantic Sea Nav. Co. Ltd Port belonging to Bremer  
 Nom. Horse Power as per Section 28 225 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

**ENGINES, &c.**—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 21-35-57 Length of Stroke 39 Revs. per minute 65 Dia. of Screw shaft as per rule 12.06 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 in one 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 fits tightly  
 If two liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 4'-6"  
 Dia. of Tunnel shaft as per rule 10.57 Dia. of Crank shaft journals as per rule 11.1 Dia. of Crank pin 12" Size of Crank webs 23 1/2 x 7 1/2 Dia. of thrust shaft under collars 12" Dia. of screw 15'-0" Pitch of Screw 16'-0" No. of Blades 4 State whether moveable no Total surface 68 sq ft  
 No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 28" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 28" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 2 Sizes of Pumps Ballast 7 1/2 x 9; Fuel 4 x 8 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 2 @ 3" + 1 @ 3" in well In Holds, &c. Main & after holds 2 @ 2 3/4" each  
Aftermost hold one @ 2 1/2"; Funnel one @ 2 1/2"  
 No. of Bilge Injections 1 sizes 4 3/4 Connected to condenser or to circulating pump yes 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 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 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 Main hold How are they protected wood ceiling  
 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 1-3-11 of Stern Tube 1-3-11 Screw shaft and Propeller 10-3-11  
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Lop platform

**BOILERS, &c.**—(Letter for record (5)) Manufacturers of Steel Messrs J. Spencer & Sons  
 Total Heating Surface of Boilers 3538 Is Forced Draft fitted no No. and Description of Boilers 2 Single Ended  
 Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 24.11.10 No. of Certificate 4531  
 Can each boiler be worked separately yes Area of fire grate in each boiler 50.7 sq ft No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 7.07 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 21" Mean dia. of boilers 14'-6" Length 10'-0" Material of shell plates steel  
 Thickness 1 5/8 Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 Riv lap  
 long. seams 2 Riv Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 3/8" Lap of plates or width of butt straps 18 1/2 x 1 1/2"  
5 Rivts per pitch rivets 89.4 Working pressure of shell by rules 181 Size of manhole in shell 16" x 12"  
 Per centages of strength of longitudinal joint plate 85.9  
 Size of compensating ring 7 1/2 x 1 5/8 No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 43.8"  
 Length of plain part top 35 Thickness of plates bottom 64 Description of longitudinal joint weld No. of strengthening rings                       
 Working pressure of furnace by the rules 193 Combustion chamber plates: Material steel Thickness: Sides 1/2" Back 3/32" Top 1/2" Bottom 3/4"  
 Pitch of stays to ditto: Sides 9 1/2 x 9 1/4" Back 9 1/2 x 8 1/4" Top 9 1/4 x 9" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 185  
 Material of stays steel Diameter at smallest part 1.59 Area supported by each stay 87.87 Working pressure by rules 204 End plates in steam space: 9 x 1 long washers  
 Material steel Thickness 1 3/16 Pitch of stays 18 1/2 x 19" How are stays secured nuts Working pressure by rules 190 Material of stays steel  
 Diameter at smallest part 2.96 Area supported by each stay 323.6 Working pressure by rules 222 Material of Front plates at bottom steel  
 Thickness 1 1/2 Material of Lower back plate steel Thickness 1 1/2 Greatest pitch of stays 16 1/2 x 9 1/2" Working pressure of plate by rules 221  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2 x 4 3/8" Material of tube plates steel Thickness: Front 1 1/2 Back 1 3/8 Mean pitch of stays 10 1/2"  
 Pitch across wide water spaces 14 1/2" Working pressures by rules 187 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 7 x 1 1/2" Length as per rule 26 1/2" Distance apart 9 1/4" Number and pitch of stays in each 2 @ 9"  
 Working pressure by rules 182 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

See Middlebro' Report No 6687

No.	Description	When made	Where fixed
Made at	By whom made		
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
Working pressure of furnace by rules	Thickness of furnace crown plates	Radius of do.	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 of coupling bolts 1 set of feed & bilge pump valves. 1 set of springs for L.P. piston 1 set of springs for H.P. M.P. pistons assorted bolts nuts & iron, 1 screw shaft, 1 propeller, 2 main safety valve springs.

The foregoing is a correct description,

*Geo Nettleship* Manufacturer.

Dates of Survey while building	During progress of work in shops --	SECRETARY, 1910	Sept 4, 16, 19, 21, 23, 26, 28, 30, Oct 4, 6, 10, 11, 14, 17, 18, 20, 24, 26, 28, 31, Nov 2, 4, 9, 10, 11, 17, 24
	During erection on board vessel --	1911	July 21, Feb 15, 17, 27, Mar 1, 6, 9, 10, 14, 16, 17, 20. (Oct Nov. Mar 1. 30. Apr 7. 9)
	Total No. of visits	40 (Mak) + 3 (Nuc)	

Dates of Examination of principal parts—	Cylinders	6.10.10	Slides	14.10.10	Covers	14.10.10	Pistons	24.10.10	Rods	20.10.10	
Connecting rods	20.10.10	Crank shaft	19.10.10	Thrust shaft	12.10.10	Tunnel shafts	11.10.10	Screw shaft	1.3.11	Propeller	6.3.11
Stern tube	17.2.11	Steam pipes tested	16.3.11	Engine and boiler seatings	1.3.11	Engines holding down bolts	17.3.11				
Completion of pumping arrangements	{ 22.3.11 7.4.11	Boilers fixed	22.3.11	Engines tried under steam	22.3.11						
Main boiler safety valves adjusted	22.3.11	Thickness of adjusting washers	P.P. 5/16 f. SV-13/32; S.P. 5/16 f. SV-13/32, SV-1/2 f								
Material of Crank shaft	Eng Steel	Identification Mark on Do.	6603	Material of Thrust shaft	Eng Steel	Identification Mark on Do.	7610-N				
Material of Tunnel shafts	Eng Steel	Identification Marks on Do.	7610-N	Material of Screw shafts	iron	Identification Marks on Do.	6603				
Material of Steam Pipes	solid drawn copper	4 1/2" x 1/4"		Test pressure	400 lbs						

**General Remarks** (State quality of workmanship, opinions as to class, &c.) To complete the survey; the donkey boiler to be secured in place, mountings fitted, safety valves adjusted and boiler examined under steam. Watertight doors to fit at tunnel and in stokehold: suction pipes in tunnel to secure; separate donkey suction pipe and rose to fit and spare gear to examine. The survey is to be completed at Newcastle. The surveyors have been advised.

The machinery of this vessel has been built under Special Survey; the material and workmanship are sound and good. The boilers and main steam pipes were tested by hydraulic pressure, and the engines and main boilers were examined under steam and all found satisfactory. In my opinion the vessel will be eligible to have the notation of S.L.M.C. with date 4.11 when the survey has been completed. Newcastle 8th April 1911

The donkey boiler secured in place, mountings fitted & safety valves adjusted under steam, watertight doors fitted, suction pipes in tunnel secured, separate donkey suction pipe & rose fitted & spare gear examined. It is submitted that this vessel is eligible for THE RECORD + L.M.C.A

The amount of Entry Fee	£ 2-0-0	When applied for,	1911
Special	£ 31-5-0	When received,	1911
Donkey Boiler Fee	£ 5		
Travelling Expenses (if any)	£		

Committee's Minute WED. 19 APR 1911  
Assigned + L.M.C. 4.11  
WRITTEN COPY 10.4.11



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NEWCASTLE ON TYNE.

Certificate (if required) to be sent to

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