

Rpt. 4.

## REPORT ON MACHINERY.

W649-0049

No. 14582.  
SAT. FEB. - 1. 1913

Received at London Office

Date of writing Report 25 Jan 1913 When handed in at Local Office 28 Jan 1913 Port of West Hartlepool  
 No. in Survey held at West Hartlepool Date, First Survey 24 August Last Survey 27 Jan 1913  
 Reg. Book. on the Steel Steamer Cyrena (Number of Visits )

Master Built at West Hartlepool By whom built W. Hay & Co Tons { Gross  
 Engines made at West Hartlepool By whom made Central Marine & Works when made 1913  
 Boilers made at West Hartlepool By whom made Central Marine & Works when made 1913  
 Registered Horse Power Owners Anglo Saxon Petroleum Co. Ltd Port belonging to London  
 Nom. Horse Power as per Section 28 270 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Compound No. of Cylinders Three No. of Cranks Three  
 Dia. of Cylinders 22" 36" 60" Length of Stroke 39" Revs. per minute 65 Dia. of Screw shaft 11.25 Material of Steel  
 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 52"  
 Dia. of Tunnel shaft as per rule 11.41 Dia. of Crank shaft journals as per rule 11.41 Dia. of Crank pin 11 1/2" Size of Crank webs 16 1/2" x 7" Dia. of thrust shaft under  
 collars 11 1/2" Dia. of screw 14 1/2" Pitch of Screw 15:0 No. of Blades 4 State whether moveable No Total surface 64 sq ft  
 No. of Feed pumps Three Diameter of ditto 3" Stroke 28" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps Three Diameter of ditto 3 1/2" Stroke 28" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Three Sizes of Pumps 4:6 & 8:8 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Three 3" In Holds, &c. Four 2 1/2" from donkey engine  
Fitted in special pump room  
 No. of Bilge Injections Five sizes 5" 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 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 Steam to Cyrena How are they protected Wood Cased  
 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 25/11/12 of Stern Tube 3/12/12 Screw shaft and Propeller 3/12/12  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Yes

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. Spencer Sons  
 Total Heating Surface of Boilers 3605 Is Forced Draft fitted Yes No. and Description of Boilers Two Single Ended  
 Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 13/12/12 No. of Certificate 3811  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 43 sq ft No. and Description of Safety Valves to  
 each boiler Two Spring Area of each valve 8.29 sq in 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 5:7" Mean dia. of boilers 18:0" Length 11:0" Material of shell plates Steel  
 Thickness 1 1/8" Range of tensile strength 27-30 Are the shell plates welded or flanged Both Descrip. of riveting: cir. seams Yes  
 long. seams all shop rivets Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 1/2" Lap of plates or width of butt straps 16 1/4"  
 Per centages of strength of longitudinal joint as per rule 18.02 Working pressure of shell by rules 184 lb Size of manhole in shell 16" x 12"  
 Size of compensating ring Hanged No. and Description of Furnaces in each boiler Three Single Material Steel Outside diameter 38 1/2"  
 Length of plain part top 12" bottom 12" Thickness of plates top 1 1/2" bottom 1 1/2" Description of longitudinal joint Welded No. of strengthening rings One  
 Working pressure of furnace by the rules 195 lb Combustion chamber plates: Material Steel Thickness: Sides 10 1/16" Back 10 1/16" Top 10 1/16" Bottom 12 1/16"  
 Pitch of stays to ditto: Sides 8 1/2" x 1 1/2" Back 9 1/2" x 1 1/2" Top 8 1/2" x 1 1/2" If stays are fitted with nuts or riveted heads Both Working pressure by rules 181 lb  
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 8 1/2" x 1 1/2" Working pressure by rules 192 lb End plates in steam space:  
 Material Steel Thickness 1 1/2" Pitch of stays 17" How are stays secured all rivets Working pressure by rules 185 lb Material of stays Steel  
 Diameter at smallest part 2 1/2" Area supported by each stay 17" x 17" Working pressure by rules 180 lb Material of Front plates at bottom Steel  
 Thickness 1 1/16" Material of Lower back plate Steel Thickness 1 1/16" Greatest pitch of stays 15 1/2" Working pressure of plate by rules 180 lb  
 Diameter of tubes 2 1/2" Pitch of tubes 34" Material of tube plates Steel Thickness: Front 1 1/16" Back 1 1/16" Mean pitch of stays 7 1/2"  
 Pitch across wide water spaces 23 1/2" Working pressures by rules 185 lb Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 8 1/2" x 1 1/2" Length as per rule 20 1/2" Distance apart 8" Number and pitch of stays in each Two 8 1/2"  
 Working pressure by rules 191 lb Superheater or Steam chest; how connected to boiler 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  
Yes 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



VERTICAL DONKEY BOILER— Manufacturers of Steel *As per Report attached hereto*

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	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:— *The top end bolts. The bottom end bolts. The main bearing bolts. One set coupling bolts. One set dead pump valves. One set Bridge pump valves. One set of Pressure piston springs. Propeller shaft. Propeller. Fair win and fair bottom end runner, piston rod, valve spindle, Air Rod. Circulating Rod. Bolts. nuts.*

FOR THE CENTRAL MARINE ENGINE WORKS.  
(W. GRAY & Co., Ltd.)

The foregoing is a correct description,

Manufacturer.

*John Williams*

Dates of Survey while building	During progress of work in shops --	1912 Aug. 21-22-23-26-27 Sept. 2-11-12-16-17-18-20-21-22-25-26-27-30 Oct. 2-3-4-14-20-21-22-23-24 Nov. 1-4-5-6-7-8-10-11-12-14-15-18-19-20-21-22-25-26-29 Dec. 2-3
	During erection on board vessel --	1913 Jan. 4-7-9-10-15-18-20-21-22-23-24-27
	Total No. of visits	73.

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

" " " donkey " " "

Dates of Examination of principal parts—Cylinders	20/11/12	Slides	20/11/12	Covers	20/11/12	Pistons	20/11/12	Rods	13/11/12
Connecting rods	11/11/12	Crank shaft	14/11/12	Thrust shaft	14/11/12	Tunnel shafts	-	Screw shaft	19/11/12
Propeller	27/9/12	Stern tube	22/11/12	Steam pipes tested	19/12/12	4/1/13	Engine and boiler seatings	3/12/12	Engines holding down bolts
Engines holding down bolts	4/12/12	Completion of pumping arrangements	22/1/13	Boilers fixed	21/1/13	Engines tried under steam	21/1/13		
Main boiler safety valves adjusted	21/1/13	Thickness of adjusting washers	P 9/16 S 19/32	P 11/16 S 23/32					
Material of Crank shaft	Steel	Identification Mark on Do.	5269	Material of Thrust shaft	Steel	Identification Mark on Do.	5269		
Material of Tunnel shafts	Steel	Identification Marks on Do.	5269	Material of Screw shafts	Steel	Identification Marks on Do.	5269		
Material of Steam Pipes	Steel	Test pressure	600 lb						

**General Remarks** (State quality of workmanship, opinions as to class, &c. *Workmanship good.**Trap on air locks tested to 400 lb and body to 50 lb.*

*This vessel is fitted to burn Liquid Fuel by Myers Patent. The fuel pumping arrangement being in accordance with the Photo Paint approved when tested at Mornings all worked well. Coal can also be burnt.*

*The Machinery and Boilers of this Steam launch 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 Notification, + L.M.C. 1-13, (Fitted for oil fuel) in the Register Book. (Machinery All).*

*It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 1.13.*

*Fitted for oil fuel 1.13. F.P. above 150°F.*

The amount of Entry Fee	£ 2	When applied for,	31.1.13
Special	£ 33	When received,	4/2/13
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

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

Committee's Minute

Assigned

FRIED 74013

*+ Home 1.13**Fitted for oil fuel 1.13**F.P. above 150°F*

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Lloyd's Register

Foundation

Committee's Minute

Assigned

Rpt. 5b.