

## REPORT ON MACHINERY.

No. 62442

Date of writing Report 30<sup>th</sup> May 1912 When handed in at Local Office 1<sup>st</sup> June 1912 Port of Newcastle on Tyne  
 No. in Survey held at Newcastle Date, First Survey 1<sup>st</sup> Sept 1911 Last Survey 20<sup>th</sup> May 1912  
 Reg. Book. 149 on the Machinery of the S.S. Shwedagon (Number of Visits 47)  
 Master Built at Newcastle By whom built Armstrong Whitworth & Co. Tons { Gross 3391  
 Engines made at Newcastle By whom made Wallend Shipway & Eng. Co. When built 1912  
 Boilers made at " By whom made " when made 1912  
 Registered Horse Power 199 Owners Indo-Burmah Petroleum Co. Port belonging to Rangoon  
 Nom. Horse Power as per Section 28 199 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted Yes

## ENGINES, &amp;c.—Description of Engines

Triple No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 19", 31" & 51" Length of Stroke 36" Revs. per minute 83 Dia. of Screw shaft 11.665" as per rule 11.665" as fitted 12.25" Material of screw shaft steel  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube no liner 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'-1"  
 Dia. of Tunnel shaft as per rule 9.58" Dia. of Crank shaft journals as per rule 10.06" Dia. of Crank pin 10 3/4" Size of Crank webs 18 1/4" X 10" Dia. of thrust shaft under collars 10 3/4" Dia. of screw 14-3" Pitch of Screw 12'-6" No. of Blades 4 State whether moveable no Total surface 66 5/8"  
 No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 17" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 17" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 2 Sizes of Pumps 10" X 10" X 10" No. and size of Suctions connected to both Bilge and Donkey pumps 3 of 3 1/2"  
 In Engine Room 3 of 3 1/2" In Holds, &c. oil cargo pumps  
 No. of Bilge Injections 1 sizes 7" Connected to condenser, or to circulating pump no 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 none 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 2/4/12 of Stern Tube 2/4/12 Screw shaft and Propeller 2/4/12  
 Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door worked from

## BOILERS, &amp;c.—(Letter for record)

Manufacturers of Steel J. Spencer & Sons  
 Total Heating Surface of Boilers 3470 Is Forced Draft fitted no No. and Description of Boilers 2 single-ended  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 14/12/11 No. of Certificate 8247  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 50.3 No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 7.068 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 4'-9" Mean dia. of boilers 12'-11" Length 11'-6" Material of shell plates steel  
 Thickness 1/8" Range of tensile strength 29 1/2"-33 1/2" tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d. lap  
 long. seams T.T. & butt Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 1/4" Lap of plates or width of butt straps 17 1/16"  
 Per centages of strength of longitudinal joint 88.8 Working pressure of shell by rules 204 lbs Size of manhole in shell 16" X 12"  
 Size of compensating ring flanged No. and Description of Furnaces in each boiler 2 Leightons Material steel Outside diameter 51"  
 Length of plain part top Thickness of plates bottom 5/8" Description of longitudinal joint welded No. of strengthening rings 1  
 Working pressure of furnace by the rules 197.5 lbs Combustion chamber plates: Material steel Thickness: Sides 2 1/32" Back 2 1/32" Top 2 1/32" Bottom 1 1/16"  
 Pitch of stays to ditto: Sides 9 1/4" X 7 1/8" Back 9 1/4" X 8 1/4" Top 8 1/4" X 7 1/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 194.5 lbs  
 Material of stays iron Diameter at smallest part 2.03 Area supported by each stay 76.4 Working pressure by rules 199 lbs End plates in steam space: steel  
 Thickness 1 1/4" Pitch of stays 18" X 20" How are stays secured d. nuts Working pressure by rules 193 lbs Material of stays steel  
 Diameter at smallest part 7.28 Area supported by each stay 342 Working pressure by rules 210 lbs Material of Front plates at bottom steel  
 Thickness 1" Material of Lower back plate steel Thickness 3/32" Greatest pitch of stays 15" X 9" Working pressure of plate by rules 212 lbs  
 Diameter of tubes 3" Pitch of tubes 4 1/4" X 4" Material of tube plates steel Thickness: Front 1" Back 25/32" Mean pitch of stays 8" X 8 1/2"  
 Pitch across wide water spaces 13 3/4" Working pressures by rules 190 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 1/4" X 1 1/2" Length as per rule 33 1/2" Distance apart 8 1/2" Number and pitch of stays in each 3, 7 1/8"  
 Working pressure by rules 186 lbs Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked separately Yes Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet  
 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 Yes



# 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	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 bolts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of feed & bilge pump valves, 1 set of piston springs for each piston, a quantity of assorted bolt nuts & iron propeller shaft, feed & bilge pump plungers, top & bottom end brasses &c.

The foregoing is a correct description,

FOR THE WALLSEND SLIPWAY & ENGINEERING CO. LIMITED.

Manufacturer.

Dates of Survey while building	During progress of work in shops	1911 Sep. 1. 7. 14. 29. Oct. 2. 4. 17. 23. 25. 31. Nov. 1. 6. 7. 13. 15. 16. 17. 20. 22. 24. 27. Dec. 2. 9. 5. 6. 11. 14. 19. 22.
	During erection on board vessel	Jan. 15. 24. 26. Feb. 9. 15. 21. Mar. 8. Apr. 2. 4. 18. 19. 24. 25. 30. May. 6. 8. 9. 20.
	Total No. of visits	47
	Is the approved plan of main boiler forwarded herewith	Yes

Dates of Examination of principal parts—	Cylinders	6/11/11	Slides	24/11/11	Covers	16/11/11	Pistons	6/11/11	Rods	2/10/11	
Connecting rods	25/10/11	Crank shaft	22/11/11	Thrust shaft	24/11/11	Tunnel shafts	5/12/11	Screw shaft	24/11/12	Propeller	26/11/12
Stern tube	8/3/12	Steam pipes tested	19/4/12	Engine and boiler seatings	4/4/12	Engines holding down bolts	24/4/12				
Completion of pumping arrangements	20/5/12	Boilers fixed	24/4/12	Engines tried under steam	9/5/12						
Main boiler safety valves adjusted	9/5/12	Thickness of adjusting washers	std. P 1 1/2" S 3/8" Port P 1 3/4" S 7/16"								
Material of Crank shaft	steel	Identification Mark on Do.	5/12/11	Material of Thrust shaft	steel	Identification Mark on Do.	5/12/11				
Material of Tunnel shafts	steel	Identification Marks on Do.	5/12/11	Material of Screw shafts	steel	Identification Marks on Do.	24/11/12				
Material of Steam Pipes	Solid drawn copper	Test pressure	360 lbs.								

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

The machinery of this vessel has been built under special survey, the materials used are good, and the workmanship is satisfactory, it has been properly fitted on board and secured, and the engines have been tried under full power. In my opinion this vessel is eligible to have the record of L.M.C. 5, 12.

The vessel is fitted with an oil fuel installation on the Wallsend improved steam system in accordance with the Rules.

It is submitted that this vessel is eligible for THE RECORD. + LMC 5.12.

Fitted for liquid fuel 5.12.

The amount of Entry Fee	£ 2 :	When applied for,
Special	£ 29. 17 :	JUN 1 1912
Donkey Boiler Fee	£ 2 : 2 :	When received,
Travelling Expenses (if any)	£ :	6. 6. 12

Committee's Minute

TUE. JUN. 4--1912

Assigned

L.M.C. 5.12  
Fitted for liquid fuel 5.12

Charles Cooper  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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Foundation