

# REPORT ON MACHINERY.

No. 28638

Received at London Office

Date of writing Report 17<sup>th</sup> Jan. 1915 When handed in at Local Office 7/7 1915 Port of Hull.  
 No. in Survey held at Hull. Date, First Survey Jan 18<sup>th</sup> Last Survey June 10<sup>th</sup> 1915  
 Reg. Book. on the H.M.S. "ASTER." EARLE CO. 12 NO 615. (Number of Visits 6)

Master Built at Hull. By whom built Charles Co. Ltd. Tons } Gross  
 Engines made at Hull. By whom made Charles Co. Ltd. when made 1915. } Net  
 Boilers made at Hull. By whom made Charles Co. Ltd. when made 1915.  
 Registered Horse Power Owners Admiralty. Port belonging to Hull.

Com. Horse Power as per Section 28 393 334. Is Refrigerating Machinery fitted for cargo purposes ✓. Is Electric Light fitted yes.

ENGINES, &c.—Description of Engines Triple Expansion. No. of Cylinders 3. No. of Cranks 3.  
 Dia. of Cylinders 23"-37"-61" Length of Stroke 27" Revs. per minute 10.7 Dia. of Screw shaft 11 1/8" Material of S 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 yes.  
 Is the propeller boss yes. If the liner is in more than one length are the joints burned ✓. 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 ✓. If two liners are fitted, is the shaft lapped or protected between the liners ✓. Length of stern bush 3'-3 1/2"

Dia. of Tunnel shaft as per rule 10.018" as fitted 10 3/8" Dia. of Crank shaft journals as per rule 10.51" as fitted 11 1/8" Dia. of Crank pin 11 1/8" Size of Crank web 16 1/2 x 7 1/2" Dia. of thrust shaft under collars 11 1/8" Dia. of screw 9'-6" Pitch of Screw 12'-6" No. of Blades 3. State whether moveable yes. Total surface 34 9

No. of Feed pumps 2 Diameter of 10" Stroke 29" Can one be overhauled while the other is at work yes.  
 No. of Bilge pumps 3 Diameter of 10" Stroke 15" Can one be overhauled while the other is at work yes.  
 No. of Donkey Engines One Sizes of Pumps 6 1/2 x 4 1/2 x 10" No. and size of Suctions connected to Three Fire Bilge and Donkey pumps

In Engine Room Two 2 1/2" in each Boiler room. ONE 2 1/2" in Auxiliary ENGINE ROOM. In Holds, &c. Two peak Ballast 3 1/2" Cable locker 2 1/2" Heavy  
using Stores 2 1/2" Provision Store 2 1/2" Officers Stores 2 1/2" Captain's stores 2 1/2" Tunnel 2 1/2" after peak Ballast 2 1/2"

No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump yes. Is a separate Donkey Suction fitted in Engine room & size yes 4"

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 ✓

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 & Aux Steam, Exhaust from Windlass, Heaters Steam, Steaming engine Steam. How are they protected Steel & wood casings.

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 28.4.15 of Stern Tube 28.4.15 Screw shaft and Propeller 25.5.15.  
 Is the Screw Shaft Tunnel watertight yes. Is it fitted with a watertight door yes worked from Main deck.

BOILERS, &c.—(Letter for record S). Manufacturers of Steel Colville & Sons, Ipswich & Sons.  
 Total Heating Surface of Boilers 6880 Is Forced Draft fitted yes. No. and Description of Boilers 2 Single-ended.

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test For 2 29.4.15 No. of Certificate AFT. 3075 For 2 3077.

Can each boiler be worked separately yes. Area of fire grate in each boiler 92.5 No. and Description of Safety Valves to each boiler 2 Spring. Area of each valve 11.045 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 12 3/16" Mean dia. of boilers 15'9" Length 11'0" Material of shell plates S.  
 Thickness 1 1/2" Range of tensile strength 31.9 to 35. Are the shell plates welded or flanged ✓ Descrip. of riveting: cir. seams FOR L.

long. seams RODB. Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 8 1/2" Lap of plates or width of butt straps 20 3/8"  
 Per centages of strength of longitudinal joint 96 Working pressure of shell by rules 207. Size of manhole in shell 16 x 12"

Size of compensating ring 10 1/4 x 1 1/2" No. and Description of Furnaces in each boiler 4 Morrison's Material S. Outside diameter 44 3/4"  
 Length of plain part top 7" Thickness of plates bottom 7/16" Description of longitudinal joint welded. No. of strengthening rings ✓

Working pressure of furnace by the rules 196. Combustion chamber plates: Material S. Thickness: Sides 21/32" Back 21/32" Top 5/8" Bottom 13/16"  
 Pitch of stays to ditto: Sides 9 1/2 x 8" Back 9 x 8 1/2" Top 9 1/2 x 7 1/2" If stays are fitted with nuts or riveted heads Nuts. Working pressure by rules 182 lbs.

Material of stays S. Diameter at smallest part 1.76 Area supported by each stay 76.5 Working pressure by rules 184. End plates in steam space: Material S. Thickness 31/32" Pitch of stays 15 x 15" How are stays secured Nuts. Working pressure by rules 186. Material of stays S.

Diameter at smallest part 4.56 Area supported by each stay 225 Working pressure by rules 210 Material of Front plates at bottom S.  
 Thickness 57/64" Material of Lower back plate S. Thickness 13/16" Greatest pitch of stays 13 x 9" Working pressure of plate by rules 182.

Diameter of tubes 2 1/2" Pitch of tubes 3 1/2 x 3 1/2" Material of tube plates S. Thickness: Front 57/64" Back 7/8" Mean pitch of stays 8 3/4"  
 Pitch across wide water spaces 12 1/2" Working pressures by rules 182. Girders to Chamber tops: Material S. Depth and thickness of girder at centre 7 3/8 x 11 1/2" Length as per rule 28 27/32 Distance apart 7 1/2" Number and pitch of stays in each 2 at 9 1/2"

Working pressure by rules 187. 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

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



IS A DONKEY BOILER FITTED?

no.

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— Two each top and bottom end Connecting  
rod bolts and nuts, two main bearing bolts and nuts, one  
set of coupling bolts and nuts, one set each feed and  
bidge pump valves, iron of various sizes, a quantity of  
assorted bolts & nuts etc. Other spare gear put on board,  
verified, and found as per specification.

The foregoing is a correct description,

FOR EARLE'S SHIPBUILDING &  
ENGINEERING COMPANY, LIMITED.

*J. B. Down*  
SECRETARY.

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1915: Jan 18. 27. Feb 3. 18. 22. 24. Mar 1. 9. 10. 11. 15. 16. 17. 23. 26. 29. 30. Apr 1. 7. 8. 9. 12. 13. 14. 15. 16. 19  
During erection on board vessel - - 20. 21. 22. 23. 26. 27. 28. 29 May 3. 4. 5. 6. 8. 10. 11. 12. 13. 15. 17. 19. 20. 21. 22. 23. 25. 27. 28. 31  
Total No. of visits 61

Is the approved plan of main boiler forwarded herewith

Yes

Dates of Examination of principal parts—Cylinders 12. 4. 15. Slides 12. 4. 15. Covers 12. 4. 15. Pistons 15. 4. 15. Rods 26. 4. 15.  
Connecting rods 26. 4. 15. Crank shaft 26. 3. 15. Thrust shaft 26. 3. 15. Tunnel shafts 9. 4. 15. Screw shaft 16. 4. 15. Propeller 22. 5. 15.  
Stern tube 21. 4. 15. Steam pipes tested 20. 5. 15. Engine and boiler seatings 28. 4. 15. Engines holding down bolts 13. 5. 15.  
Completion of pumping arrangements 9. 6. 15. Boilers fixed 10. 5. 15. Engines tried under steam 27. 5. 15.  
Main boiler safety valves adjusted 27. 5. 15. Thickness of adjusting washers FBsv 1 1/4" PV 1 3/32" ABsv 1 3/32" PV 7/8"  
Material of Crank shaft Steel Identification Mark on Do. 4037 G.A.H. Material of Thrust shaft Steel Identification Mark on Do. 4037 G.A.H.  
Material of Tunnel shafts Steel Identification Marks on Do. 4037 G.A.H. Material of Screw shafts Steel Identification Marks on Do. 4037 G.A.H.  
Material of Steam Pipes Steel Test pressure 540 lbs. hyd. pressure

Is an installation fitted for burning oil fuel

Is the flash point of the oil to be used over 150° F.

Have the requirements of Section 49 of the Rules been complied with

Is this machinery duplicate of a previous case No. If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. The engines & boilers of this vessel have been constructed under special survey in accordance with the Rules. The materials and workmanship are sound & good. The Boiler tested by hydraulic pressure and with the engines secured on board and tested under steam they are now in good order and safe working condition and respectfully submitted as being eligible in my opinion to be classed with the notation of LMC in the Register book.

It is submitted that  
this vessel is eligible for  
THE RECORD. + LMC 6.15. F.D.

The amount of Entry Fee ... £ : : When applied for, 11/6/1915  
Special ... £ 80 : - :  
Donkey Boiler Fee ... £ : : When received, 19/6/1915  
Travelling Expenses (if any) £ : : £33/7/- 19/6/1915

Committee's Minute TUE JUL 13, 1915

Assigned

LMC 6.15

Engine Surveyor to Lloyd's Register of British & Foreign Shipping.



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Foundation