

## REPORT ON MACHINERY

No. 70065

Received at London Office WED JUL 25 1917

Date of writing Report 21st July 1917 When handed in at Local Office 21st July 1917 Port of Newcastle on Tyne

No. in Survey held at Jarrow Date, First Survey 13 Oct 1914 Last Survey 14 July 1917

Reg. Book 130 on the St Croxteth Hall (Number of Visits 5) Gross 5580 Net 3741

Master Jarrow Built at Newcastle By whom built Palmer S B & Son Ltd When built 1917

Engines made at Jarrow By whom made Palmer S B & Son Ltd When made 1917

Boilers made at Jarrow By whom made Palmer S B & Son Ltd When made 1917

Registered Horse Power 556 Owners Ellerman Lines Ltd Port belonging to Liverpool

Nom. Horse Power as per Section 28 556 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c. — Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks 3

Dia. of Cylinders 24 1/2, 42 & 73 Length of Stroke 48 Revs. per minute 77 Dia. of Screw shaft 16 1/2 Material of screw shaft 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 on 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 64

Dia. of Tunnel shaft 13 5/8 Dia. of Crank shaft journals 14 1/2 Dia. of Crank pin 14 1/2 Size of Crank web 20 3/8 x 9 1/8 of thrust shaft under collars 14 1/2 Dia. of screw 18-0 Pitch of Screw 17-9 No. of Blades 4 State whether moveable No Total surface 110 sq ft

No. of Feed pumps 2 Diameter of ditto 8 x 2 1/2 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 1/2 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 4 Sizes of Pumps 10 x 10 x 10 & 10 x 6 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps 4

In Engine Room Four 3 1/2" diameter In Holds, &c. Four 3 1/2" in No 1, 2, 3, 4 & 5

No. of Bilge Injections 1 sizes 8 1/2" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size 6"

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 to 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 forward bilge suction How are they protected Wood boxing

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 16/4, 8/5/17 of Stern Tube 16/4, 8/5/17 Screw shaft and Propeller 16/4 & 8/5/17

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Engine room platform

BOILERS, &c. — (Letter for record S) Manufacturers of Steel Spencer & Son Ltd

Total Heating Surface of Boilers 5602 sq ft Forced Draft fitted Yes No. and Description of Boiler Two, Single Ended

Working Pressure 220 lb per sq in Tested by hydraulic pressure to 440 lb Date of test 12/12/16 No. of Certificate 8918

Can each boiler be worked separately Yes Area of fire grate in each boiler 74 sq ft No. and Description of Safety Valves to each boiler Two, direct spring Area of each valve 8.29 sq in Pressure to which they are adjusted 225 lb per sq in Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 10-8" Mean dia. of boilers 15.7 3/8" Length 12-6" Material of shell plates Steel

Thickness 1 7/16" Range of tensile strength 29 1/2 to 33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams 2 R Lap

long. seams 5 R Butt Diameter of rivet holes in long. seams 1 15/32" Pitch of rivets 9 7/8" Width of butt straps 2 1/2"

Per centages of strength of longitudinal joint: rivets 85.2 plates 88.3 Working pressure of shell by rules 222 lb Size of manhole in shell 16" x 12"

Size of compensating ring Mc Nails No. and Description of Furnaces in each boiler 4 Mc Nails Material Steel Outside diameter 43 1/2"

Length of plain part top 1 1/2" Thickness of plates bottom 1 1/2" Description of longitudinal joint Welded No. of strengthening rings 1

Working pressure of furnace by the rules 239 Combustion chamber plates: Material Steel Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 7/8"

Pitch of stays to ditto: Sides 8 5/8 x 8 1/2" Back 8 7/8 x 8 3/8" Top 8 7/8 x 8 1/2" Are stays fitted with nuts or riveted heads Nuts Working pressure by rules 221

Material of stays Steel Diameter at smallest part 2 7/8" Area supported by each stay 74.4 sq in Working pressure by rules 240 End plates in steam space: Material Steel Thickness 1 3/8" Pitch of stays 22 1/4 to 17 1/8" How are stays secured Welded Working pressure by rules 221 Material of stays Steel

Diameter at smallest part 8.48" Area supported by each stay 390 sq in Working pressure by rules 226 Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 5/16" Greatest pitch of stays 14" Working pressure of plate by rules 228

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates Steel Thickness: Front 1" Back 25/32" Mean pitch of stays 9 3/8"

Pitch across wide water spaces 13" Working pressures by rules 226 lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 3/4 x 1 7/8" Length as per rule 36 1/8" Distance apart 8 5/8" Number and pitch of stays in three, 8 1/2"

Working pressure by rules 220 lb Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately Yes

Diameter 10" Length 10" Thickness of shell plates 1" Material Steel Description of longitudinal joint Welded Diam. of rivet holes 1 15/32" Pitch of rivets 9 7/8" Working pressure of shell by rules 222 lb Diameter of flue 10" Material of flue plates Steel Thickness 1"

If stiffened with rings Yes Distance between rings 10" Working pressure by rules 222 lb End plates: Thickness 1" How stayed Welded

Working pressure of end plates 222 lb Area of safety valves to superheater 8.29 sq in Are they fitted with easing gear Yes



an Auxiliary  
IS ~~A~~ ~~DONKEY~~ BOILER FITTED? *Yes*

If so, is a report now forwarded? *Yes*

SPARE GEAR. State the articles supplied:

*The top & two bottom end bolts & nuts,  
2 main bearing bolts & nuts, one set of coupling bolts & nuts,  
one set of feed & bilge pump valves, assorted bolts & nuts  
and a few bars of iron, valve spindle, eccentric strap, air  
pump rod, centrifugal pump shaft, piston rod crosshead bar,  
connecting rod & trusses for same, one set of bottom end trusses,  
propeller blades etc.*

The foregoing is a correct description,

*Palmer Shipbuilding & Iron Co. Ltd.,*

*J Kemp*

Manufacturer.

Dates of Survey while building

During progress of work in shops - -  
During erection on board vessel - -  
Total No. of visits

1914  
Oct. 13. 16. 29. Nov. 6. 19. 26. Dec. 1. 9. 11. 14. 15. Jan. 5. 13. 26. 29. Feb. 3. 12. 19. 26. Mar. 3. 16. 18. Apr. 13. May 4. 12. 16. 24. Jun. 1. 9. 13. Jul. 14. Aug. 2. 21. Sep. 11. 18. 20. Oct. 13. 26. 29. Nov. 1. 8. 17. 20. Dec. 11. 12. 19. 29. 1915  
Jan. 10. 16. 17. 26. 29. Feb. 7. 10. 16. 19. Mar. 4. 7. 13. 19. 20. 29. Apr. 2. 5. 16. May 4. 25. 31. Jun. 4. 7. 13. 19. 20. 29. Jul. 6. 10. 16. 19. Aug. 13. 20. 27. Sep. 3. 10. 17. 24. Oct. 1. 8. 15. 22. 29. Nov. 5. 12. 19. 26. Dec. 3. 10. 17. 24. 31.

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

Dates of Examination of principal parts

*14/7. 2/5. 11/9  
18/9. 4/10. 29/12. 7/2  
19/12. 1/1. 26/1. 29/3/17  
26/1. 29/3/17*  
Cylinders *10/16. 16/11/17* Slides *2/8/16* Covers *2/8/16* Pistons *26/1/17* Rods *10/10. 8/11/17*  
Connecting rods *10/10. 8/11/17* Crank shaft *13/2/17* Thrust shaft *16/1. 2/4/17* Tunnel shafts *26/1/17* Screw shaft *5/3/17* Propeller *28/3/17*  
Stern tube *19/12. 1/1. 26/1. 29/3/17* Steam pipes tested *7/6. 20/6. 29/6/17* Engine and boiler seatings *8/5/17* Engines holding down bolts *4/6. 19/6/17*  
Completion of pumping arrangements *19/7/17* Boilers fixed *4/6. 19/6/17* Engines tried under steam *10/7/17*  
Main boiler safety valves adjusted *10/7/17* Thickness of adjusting washers *SB 7/16. 7/16 PB 7/16. 5/32 Ann B 7/16*  
Material of Crank shaft *Steel* Identification Mark on Do. *7517* Material of Thrust shaft *Steel* Identification Mark on Do. *735*  
Material of Tunnel shaft *Steel* Identification Marks on Do. *725/9/30. 12/3/17* Material of Screw shafts *Steel* Identification Marks on Do. *736*  
Material of Steam Pipes *Steel* Test pressure *660 lbs per sq in*  
Is an installation fitted for burning oil fuel? *No* Is the flash point of the oil to be used over 150°F? *Yes*

Have the requirements of Section 49 of the Rules been complied with? *Yes*

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 machinery of this vessel has been constructed under special survey, the workmanship and materials are of good quality, it has been securely fitted on board and satisfactorily tried under steam. In my opinion the machinery of this vessel is now eligible for record: L.M.C. 7.17 (in red) on the register book.*

*Main & Auxiliary boiler plans, invoices for steel & steam pipe, Cooperator & forging reports now forwarded.*

It is submitted that  
this vessel is eligible for  
THE RECORD + L.M.C. 7.17 F.D.

2SB & 1 Aux SB.

The amount of Entry Fee ... £ 3 : 0 :  
Special ... £ 47 : 16 :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
When applied for, 23 JUL 1917  
When received, 2/8/17

Committee's Minute FRI AUG - 3 1917

Assigned

George Hurdock  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping



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Foundation