

## REPORT ON MACHINERY.

No. 70403

Received at London Office **SAL 3 NOV 1917**  
 Date of writing Report **27. 10. 1917** When handed in at Local Office **2 - NOV 1917** Port of **NEWCASTLE ON TYNE**  
 No. in Survey held at **South Shields** Date, First Survey **25 Sept. 1917** Last Survey **19 Oct. 1917**  
 Reg. Book. on the **Steel screw steamer "Mecklenburg"** (Number of Visits **15**)  
 Master **Liibec** Built at **Liibec** By whom built **Schiffsw. V. Henry Koch** Tons **3** Gross **3** Not **3**  
 Engines made at **Altona** By whom made **J. F. Ahrens** when made **1904**  
 Boilers made at **Altona** By whom made **J. F. Ahrens** when made **1904**  
 Registered Horse Power **117** Owners **Leith, Hull & Hamburg Steamship Co Ltd** Port belonging to **Leith**  
 Nom. Horse Power as per Section 28 **140** 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 **17" 28 3/8" 45 1/4"** Length of Stroke **32 1/2"** Revs. per minute **99** Dia. of Screw shaft **9 9/16"** Material of **Steel**  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube **no** Is the after end of the liner made water tight **no**  
 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 **3' 7"**  
 Dia. of Tunnel shaft **8 3/8"** Dia. of Crank shaft journals **8 3/4"** Dia. of Crank pin **8 3/4"** Size of Crank webs **10 5/8" x 5 1/8"** Dia. of thrust shaft under collars **8 7/8"** Dia. of screw **11 1/4"** Pitch of Screw **2 1/4"** No. of Blades **4** State whether moveable **no** Total surface **36.8 sq ft**  
 No. of Feed pumps **2** Diameter of ditto **2 7/8"** Stroke **15 1/2"** Can one be overhauled while the other is at work **yes**  
 No. of Bilge pumps **2** Diameter of ditto **2 1/2"** Stroke **15 1/2"** Can one be overhauled while the other is at work **yes**  
 No. of Donkey Engines **3** Sizes of Pumps **Bestall duplex 7 1/2" x 8 1/2" x 10"** No. and size of Suctions connected to both Bilge and Donkey pumps **1 each side of hold**  
 In Engine Room **2 off E.R. well 3" dia** **Feed Dk. duplex 6 1/2" x 4 1/2" x 6"** In Holds, &c. **1 each side of hold**  
 No. of Bilge Injections **1** sizes **5 1/8"** Connected to condenser, or to circulating pump **C.P.** Is a separate Donkey Suction fitted in Engine room & size **yes 3"**  
 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 **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 **1 each dk pipe - 4 sounding pipes** How are they protected **Cased in**  
 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 - altered to non return valves**  
 Dates of examination of completion of fitting of Sea Connections **5.6.10. Oct 17** of Stern Tube **5-10. Oct 17** Screw shaft and Propeller **5-10. Oct 17**  
 Is the Screw Shaft Tunnel watertight **yes** Is it fitted with a watertight door **yes** worked from **Top platform**

**BOILERS, &c.—(Letter for record)** **2 SB - 24-21** Manufacturers of Steel **SAF**  
 Total Heating Surface of Boilers **1210 sq ft** Is Forced Draft fitted **no** No. and Description of Boilers **Two S.E. Cyl. Multi**  
 Working Pressure **165 lb** Tested by hydraulic pressure to **245 lb 250 lb** Date of test **10.10.17 - 19.10.17** No. of Certificate **SAF**  
 Can each boiler be worked separately **yes** Area of fire grate in each boiler **30 sq ft** No. and Description of Safety Valves to **Value lifted. ring on before**  
 Each boiler **2 direct Spring** Area of each valve **5.9 sq in** Pressure to which they are adjusted **190 lb** Are they fitted with easing gear **yes**  
 Smallest distance between boilers or uptakes and bunkers or woodwork **about 9"** Mean dia. of boilers **11.5"** Length **9-10'** Material of shell plates **Steel**  
 Thickness **1 1/16"** Range of tensile strength **26.67-30.48** Are the shell plates welded or flanged **no** Descrip. of riveting: cir. seams **J.R.S.E**  
 Long. seams **T.R.D.B.S** Diameter of rivet holes in long. seams **1 3/32"** Pitch of rivets **7 1/2"** Lap of plates or width of butt straps **16 1/8"**  
 Percentages of strength of longitudinal joint **83.5%** Working pressure of shell by rules **202 lb** Size of manhole in shell **5 3/4" x 11 1/8"**  
 Size of compensating ring **8 7/8"** No. and Description of Furnaces in each boiler **Two Corrugated** Material **Steel** Outside diameter **39 3/8"**  
 Length of plain part **top 1 1/2"** Thickness of plates **bottom 1 1/2"** Description of longitudinal joint **welded** No. of strengthening rings **Corrugated**  
 Working pressure of furnace by the rules **192 lb** Combustion chamber plates: Material **Steel** Thickness: Sides **7/8"** Back **7/8"** Top **7/8"** Bottom **3/8"**  
 Pitch of stays to ditto: Sides **7 7/8" x 1 1/4"** Back **7 1/4" x 1 1/4"** Top **7 7/8" x 1 1/4"** If stays are fitted with nuts or riveted heads **yes** Working pressure by rules **180 lb**  
 Material of stays **Steel** Diameter at smallest part **1 1/2"** Area supported by each stay **7 7/8" x 1 1/4"** Working pressure by rules **180 lb** End plates in steam space: **Material S. (?)** Thickness **5/16"** Pitch of stays **16.4 x 13.8** How are stays secured **J-nuts** Working pressure by rules **207** Material of stays **Steel**  
 Diameter at smallest part **1 3/16"** Area supported by each stay **3.8 x 16.4** Working pressure by rules **225 lb** Material of Front plates at bottom **Steel**  
 Thickness **5/16"** Material of Lower back plate **Steel** Thickness **5/16"** Greatest pitch of stays **10.6 x 7.25** Working pressure of plate by rules **182 lb**  
 Diameter of tubes **3 1/4"** Pitch of tubes **8.66 (16.5)** Material of tube plates **Steel** Thickness: Front **5/16"** Back **5/16"** Mean pitch of stays **8.66**  
 Pitch across wide water spaces **14 1/4"** Working pressures by rules **180 lb** Girders to Chamber tops: Material **Steel** Depth and thickness of girder at centre **7 1/4" x 3 1/2"** Length as per rule **23 3/4"** Distance apart **6 3/4"** Number and pitch of stays in each **2 off 6 1/2" pitch**  
 Working pressure by rules **250 lb** 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 **How stayed**  
 Stiffened with rings **Distance between rings** Working pressure by rules **End plates: Thickness**  
 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 \_\_\_\_\_  
 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:— Spare solid crank shaft, two top end bolts & nuts, two bottom end bolts & nuts, spare main bearing bolts & nuts, spare Coupling bolts & nuts, spare feed & bilge pump valves, spare bottom end brass, assorted iron bolts & nuts and for  
 Various stores—

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building  
 During progress of work in shops —  
 During erection on board vessel —  
 Total No. of visits

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders \_\_\_\_\_ Slides \_\_\_\_\_ Covers \_\_\_\_\_ Pistons \_\_\_\_\_ Rods \_\_\_\_\_  
 Connecting rods \_\_\_\_\_ Crank shaft \_\_\_\_\_ Thrust shaft \_\_\_\_\_ Tunnel shafts \_\_\_\_\_ Screw shaft \_\_\_\_\_ Propeller \_\_\_\_\_  
 Stern tube \_\_\_\_\_ Steam pipes tested \_\_\_\_\_ Engine and boiler seatings \_\_\_\_\_ Engines holding down bolts \_\_\_\_\_  
 Completion of pumping arrangements \_\_\_\_\_ Boilers fixed \_\_\_\_\_ Engines tried under steam \_\_\_\_\_  
 Main boiler safety valves adjusted \_\_\_\_\_ Thickness of adjusting washers \_\_\_\_\_  
 Material of Crank shaft \_\_\_\_\_ Identification Mark on Do. \_\_\_\_\_ Material of Thrust shaft \_\_\_\_\_ Identification Mark on Do. \_\_\_\_\_  
 Material of Tunnel shafts \_\_\_\_\_ Identification Marks on Do. \_\_\_\_\_ Material of Screw shafts \_\_\_\_\_ Identification Marks on Do. \_\_\_\_\_  
 Material of Steam Pipes S.D. Copper annealed, and Test pressure 360lb found no evidence of weakness

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

Examination of Machinery and Boilers with the view of Classification with notification 10.17. being made in the Register Book.

Now done Vessel dry docked. The propeller examined found efficient. (Tip off one blade) Sea Connections opened out examined, overhauled and put into good order as far as necessary— outside fastenings in order.

Tail Shaft, drawn, skinned up in lathe & examined, refitted new Cast iron Caden lock fitted to suit. outer gland white metal renewed & gland replaced as before. rubber face on outer nut turned up to suit.

Tunnel, Thrust, and Crank shafts opened out examined & adjusted, Crank Shaft lip white metal in lower halves of main Bearing renewed.

Cylinders, pistons and Slide Valves, opened out, examined, overhauled and adjusted. L.p. piston rod renewed. Valve gear generally overhauled and adjusted.

Condenser examined— Air & Circulating, feed and Bilge pumps examined. new Bilge feed Rams fitted. Ballast donkey pump opened out, examined, a separate 3" dia Bilge

The amount of Entry Fee £ \_\_\_\_\_ When applied for, \_\_\_\_\_  
 Special £ 30 \_\_\_\_\_  
 Donkey Boiler Fee £ \_\_\_\_\_ When received, \_\_\_\_\_  
 Travelling Expenses (if any) £ \_\_\_\_\_ 7-12-1917

Leonard & Shallcross

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

Committee's Minute

TUE NOV. 13 1917

Assigned

L 1017



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Lloyd's Register Foundation



## of Meeklenburg

Suction pipe lead from Ballast pump. main suction pipe to oil well in Engine Room. now return Valve fitted to branch pipe on pump - Condenser tested under head of water found satisfactory -

Thrust-Carriage adjusting screws renewed -

A number of minor Engine Room repairs effected

Steam Steering & Landing Engines overhauled. minor repairs effected -

Main Boilers Opened out, Cleaned, Sealed, Examined, found generally in good Condition - plain tubes renewed. a few broken screw stays renewed - Boilers tested under hydraulic pressure with Satisfactory results - The boiler Scantlings were compared as far as practicable with the plan, and found to compare favourably. there being no material wastage of the plates & stays - Test holes drilled in combustion chambers and thickness found efficient - Mountings overhauled, examined - The diameters of the Shafting are slightly below rule requirements for a working pressure of 180 lbs on the boiler as approved - as it would appear that the pressure to which the Safety Valves have previously been loaded <sup>was 170 lbs</sup> they have now been adjusted to lift at that pressure, namely one hundred and seventy pounds per square inch - In my opinion the machinery is now safe for this pressure -

It is Submitted that this Vessel is now eligible for the Notification L. M. C. 10. 17. to be made in the Register Book with record of T. S. 10. 17. working pressure not to exceed 170 lbs <sup>sq. in.</sup>

Leonard L. Shallcross.