

# REPORT ON MACHINERY.

No. 23409  
md. No. 5209  
THUR. 12 SEP 1907

Port of Sunderland.

Received at London Office

No. in Survey held at Sunderland Date, first Survey 2<sup>nd</sup> June 1907 Last Survey 20<sup>th</sup> August 1907  
 Reg. Book. 84 on the Steel screw steamer BALTIC SEA (md.) 16<sup>th</sup> July (Number of Visits, 2 1907)  
 Master J. Stephen Built at Stockton By whom built Camp Taylor & Co. Tons { Gross 2152.37  
 Engines made at Sunderland By whom made N.E. Marine Eng<sup>y</sup> Co. Ltd. when made 1904 Net 1311.34  
 Boilers made at Sunderland By whom made N.E. Marine Eng<sup>y</sup> Co. Ltd. when made 1904 When built 1904  
 Registered Horse Power \_\_\_\_\_ Owners Finland-London Steamship Co. Ltd. Port belonging to \_\_\_\_\_  
 Nom. Horse Power as per Section 28 210 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

**ENGINES, &c.**—Description of Engines Triple Expansion (Inverted) No. of Cylinders Three No. of Cranks Three  
 Dia. of Cylinders 21-35-54 Length of Stroke 39 Revs. per minute 65 Dia. of Screw shaft as per rule 12.57 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  
 in 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 Rubber solution at intervals Length of stern bush 4-3  
 Dia. of Tunnel shaft as per rule 10.15 Dia. of Crank shaft journals as per rule 10.65 Dia. of Crank pin 10.3 Size of Crank webs 6 1/8 x 16 1/4 Dia. of thrust shaft under  
 collars 10 3/4 Dia. of screw 15-6 Pitch of Screw 16-0 No. of Blades four State whether moceable no Total surface 44  
 No. of Feed pumps Two Diameter of ditto 3 Stroke 21 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps Two Diameter of ditto 3 1/2 Stroke 21 Can one be overhauled while the other is at work yes  
 No. of Donkey Engines Two Duplex Sizes of Pumps 6 x 4 x 9 1/2 and 5 x 3 x 4 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room Two 3" wings Two Centre suction } one 3" In Holds, &c. 3, 3" after hold, 2, 3" fore hold.  
1, 3" in Tunnel.  
 No. of Bilge Injections yes sizes 4 Connected to condenser, or to circulating pump no 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 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 \_\_\_\_\_  
 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 Aug 25/07 of Stern Tube Aug 14/07 Screw shaft and Propeller 16/8/07  
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top platform

**BOILERS, &c.**—(Letter for record S.) Manufacturers of Steel J. Spencer & Son Ltd., & Beighton & Co. Ltd.  
 Total Heating Surface of Boilers 3248 Is Forced Draft fitted no No. and Description of Boilers Two, single ended, Cyl<sup>s</sup> / Multi.  
 Working Pressure 160 lb. Tested by hydraulic pressure to 320 lb. Date of test 25/7/07 No. of Certificate 2642  
 Can each boiler be worked separately yes Area of fire grate in each boiler 42 No. and Description of Safety Valves to  
 each boiler Two, direct spring Area of each valve 4.91 Pressure to which they are adjusted 165 lb. Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 12" (Rule Mean dia. of boilers 13-1/16) Length 10-0 Material of shell plates steel  
 Thickness 3/16 Range of tensile strength 28 3/4 to 52 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams lap DR.  
 long. seams DR Diameter of rivet holes in long. seams 1 1/8 Pitch of rivets 4 1/8 Lap of plates or width of butt straps 16  
 Per centages of strength of longitudinal joint rivets 86.44 Working pressure of shell by rules 161.5 lb. Size of manhole in shell end plate 16x12  
 plate 86.5 Size of compensating ring flange No. and Description of Furnaces in each boiler Three plain Material steel Outside diameter 38 3/4  
 Length of plain part top 5-4 3/8 Thickness of plates crown 2 1/2 Description of longitudinal joint Weld No. of strengthening rings \_\_\_\_\_  
 bottom 3-2 Working pressure of furnace by the rules 166 lb. Combustion chamber plates: Material steel Thickness: Sides 3/4 Back 1/16 Top 3/4 Bottom 13/16  
 Pitch of stays to ditto: Sides 8 1/2 x 13 Back 9 1/2 x 10 Top 8 1/2 x 3 + 12 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 161 lb.  
 Material of stays steel Diameter at smallest part 1 1/8 Area supported by each stay 10, 11 1/2 Working pressure by rules 161 lb. End plates in steam space:  
 Material steel Thickness 1 1/4 Pitch of stays 24 1/2 x 18 How are stays secured BY + W Working pressure by rules 160.1 lb. Material of stays steel  
 Diameter at smallest part 2.86 Area supported by each stay 440 Working pressure by rules 170 lb. Material of Front plates at bottom steel  
 Thickness 3/4 Material of Lower back plate steel Thickness 2 1/2 Greatest pitch of stays 14 1/4 x 10 Working pressure of plate by rules 162 lb.  
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/4 x 4 1/2 Material of tube plates steel Thickness: Front 3/4 Back 3/4 Mean pitch of stays 10 1/8  
 Pitch across wide water spaces 14 1/2 Working pressures by rules 164.9 lb. Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 8 1/2 x 2 Length as per rule 30 7/16 Distance apart 12, 13 Number and pitch of stays in each Two 8 1/2  
 Working pressure by rules 165 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  
 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 \_\_\_\_\_

1699-0063

**VERTICAL DONKEY BOILER—** Manufacturers of Steel *See separate report.*

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 \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— 2 connecting rod top end bolts & nuts 2, bottom end do 2 main bearing bolts & nuts, 1 set of coupling bolts & nuts, 1 set of feed & high pressure valves a quantity of assorted bolts & nuts *See of various sizes, 1 spare propeller*

The foregoing is a correct description,  
**NORTH EASTERN MARINE ENGINEERING CO. LTD.**  
*Walton Heath, Surrey* Manufacturer.

Dates of Survey while building: During progress of work in shops - June 24, 28, July 2, 4, 8, 10, 12, 14, 17, 20, 24, 25, 26, 27, 30, Aug. 2, 7, 9, 12, 13, 15, 16, 17, 20.  
 During erection on board vessel - July 16, 26 August 1, 12, 14, 27, 28, 29, 30  
 Total No. of visits 24 (Std) 9 (Indb) Is the approved plan of main boiler forwarded herewith *yes.*

Dates of Examination of principal parts—Cylinders	24/31/12/13/1	Slides	13/8 15/8	Covers	1/8	Pistons	12/8	Rods	24/7 9/8
Connecting rods	12/9 9/8	Crank shaft	4/10 17/26 27/31/31	Thrust shaft	1/8 2/8 12/8	Tunnel shafts	7/8 9/8	Screw shaft	20/7 1/8
Stern tube	20/7 31/7	Steam pipes tested	21.8.07	Engine and boiler seatings	12/8/07	Engines holding down bolts	22.8.07		
Completion of pumping arrangements	23.8.07	Boilers fixed	20.8.07	Engines tried under steam	23.8.07				
Main boiler safety valves adjusted	23.8.07	Thickness of adjusting washers	P.F. 5/16, P.A. 1/4, S.F. 1/4, S.R. 5/16						
Material of Crank shaft	steel	Identification Mark on Do.	468 D AB	Material of Thrust shaft	steel	Identification Mark on Do.	5202 N WC		
Material of Tunnel shafts	steel	Identification Marks on Do.	4860 RL 733	Material of Screw shafts	steel	Identification Marks on Do.	465 D AB		
Material of Steam Pipes	Copper			Test pressure			400 lbs		

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*The Machinery of this Vessel has been constructed under special survey the material & workmanship sound & good, the Boilers & Steam pipes have been subjected to hydraulic pressure as required by the Rules, the Machinery worked well at the movements & the safety valves have been adjusted under steam to their working pressure.*

*This Vessel is eligible to have the Notation*  
**\* LMC 8.07** in the Register Book

The amount of Entry Fee..	£ 2 :	When applied for,	23.8.1907
Special .. ..	£ 30 : 10 :	When received,	31.8.07
Donkey Boiler Fee .. ..	£ :		
Travelling Expenses (if any) £	:		

*It is submitted that this vessel is eligible for*  
**THE RECORD + LMC 8.07**  
*W. W. Coumber*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
 Assigned **FR. 13 SEP 1907**  
*+ LMC 8.07*



FLAT (If B GARE) State thick way of B Write 'Shower Stroke' opposite its corresponding letter. DOU Len and thick POOP RAIS BRID FORE LENC manu Plate Has FRA REVI Bot Low Bow Top Rig Sail Eq Num Cert 316 316 316 316 316 323

Certificate (if required) to be sent to

The Surveyors are requested not to write on or below the space for Committee's Minute.

MACHINERY CERTIFICATE WRITTEN.