

REPORT ON MACHINERY.

No. 66111

Received at London Office **FRI. MAY 22, 1914**

Date of writing Report **19th May 1914** When handed in at Local Office **MAY 21 1914** Port of **NEWCASTLE-ON-TYNE.**

No. in Survey held at **Newcastle** Date, First Survey **19th Feb 1913** Last Survey **14th May 1914**

Reg. Book **4** Upon the Machinery of the **S.S. "Orla"** (Number of Visits **65**) Tons { Gross **4033** Net **2536**

Master **By whom built** **Tyne S. S. B. Co. Ltd** When built **1914**

Engines made at **Newcastle** By whom made **A. E. Marine Eng. Co. Ltd** when made **1914**

Boilers made at **"** By whom made **"** when made **1914**

Registered Horse Power **355** Owners **A. Bergvall** Port belonging to **Christiania**

Is Refrigerating Machinery fitted for cargo purposes **Is Electric Light fitted**

Engines, &c.—Description of Engines **Triples** No. of Cylinders **3** No. of Cranks **3**

Dia. of Cylinders **25", 41", 68"** Length of Stroke **45"** Revs. per minute **66** Dia. of Screw shaft **13.9"** Material of screw shaft **iron**

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 **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**

Are two liners are fitted, is the shaft lapped or protected between the liners **Yes** Length of stern bush **5'-0"**

Dia. of Tunnel shaft **12.4"** Dia. of Crank shaft journals **13"** Dia. of Crank pin **13 1/4"** Size of Crank webs **8 1/2" x 26"** Dia. of thrust shaft under rollers **13 1/4"**

Dia. of screw **17'-0"** Pitch of Screw **17'-0"** No. of Blades **4** State whether moveable **no** Total surface **90^{sq} ft**

No. of Feed pumps **2** Diameter of ditto **3 1/2"** Stroke **24"** Can one be overhauled while the other is at work **Yes**

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

No. of Donkey Engines **2** Sizes of Pumps **8" x 10" x 10 1/2" / 7 1/2" x 5" x 6"** No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room **4 of 3 1/2"** In Holds, &c. **2 of 3 1/2" in No. 1, 2 & 3 holds & 2 of 2 3/4" in No. 4 hold, 1 of 3 1/2" & 1 of 2 1/4" in tunnel**

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

How are they protected **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**

Boilers, &c.—(Letter for record **S**) Manufacturers of Steel **J. Spencer & Sons**

Total Heating Surface of Boilers **574.2** Is Forced Draft fitted **no** No. and Description of Boilers **3 single-ended**

Working Pressure **180 lbs** Tested by hydraulic pressure to **360 lbs** Date of test **29/10/13** No. of Certificate **8579**

Can each boiler be worked separately **Yes** Area of fire grate in each boiler **45^{sq} ft** No. and Description of Safety Valves to each boiler **2 direct spring**

Area of each valve **4.9** 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 **2'-0"** Mean dia. of boilers **13'-9 3/4"** Length **10'-6"** Material of shell plates **steel**

Thickness **1 3/32"** Range of tensile strength **28 3/4-32 tons** Are the shell plates welded or flanged **no** Descrip. of riveting: cir. seams **d. r. lap**

Long. seams **d. r. d. butt** Diameter of rivet holes in long. seams **1 3/16"** Pitch of rivets **8 3/4"** Lap of plates or width of butt straps **18"**

Percentages of strength of longitudinal joint rivets **86.7** Working pressure of shell by rules **182.3 lbs** Size of manhole in shell **16" x 12"**

Plate **86.4** No. and Description of Furnaces in each boiler **3 Brightons** Material **steel** Outside diameter **40"**

Length of plain part **flanged** Thickness of plates **4 1/2"** Description of longitudinal joint **welded** No. of strengthening rings **no**

Working pressure of furnace by the rules **188 lbs** Combustion chamber plates: Material **steel** Thickness: Sides **2 3/32"** Back **2 3/32"** Top **2 3/32"** Bottom **1 7/8"**

Pitch of stays to ditto: Sides **10 1/2" x 9 3/4"** Back **10" x 9 1/2"** Top **10 1/2" x 9 3/4"** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **180.5 lbs**

Material of stays **steel** Diameter at smallest part **2.03** Area supported by each stay **98.4** Working pressure by rules **185 lbs** End plates in steam space:

Material **steel** Thickness **1 3/8"** Pitch of stays **24" x 19 3/4"** How are stays secured **d. nuts** Working pressure by rules **185 lbs** Material of stays **steel**

Diameter at smallest part **8.29** Area supported by each stay **47.4** Working pressure by rules **182 lbs** Material of Front plates at bottom **steel**

Thickness **1"** Material of Lower back plate **steel** Thickness **2 3/32"** Greatest pitch of stays **14 1/2" x 9 1/2"** Working pressure of plate by rules **188 lbs**

Diameter of tubes **3 1/4"** Pitch of tubes **4 3/8" x 6 1/2"** Material of tube plates **steel** Thickness: Front **1"** Back **3/4"** Mean pitch of stays **8 7/8"**

Pitch across wide water spaces **14 1/2"** Working pressures by rules **182 lbs** Girders to Chamber tops: Material **steel** Depth and thickness of girder at centre **8 3/4" x 1 1/4"**

Length as per rule **30"** Distance apart **10 1/2"** Number and pitch of stays in each **2 of 9 3/8"**

Working pressure by rules **187 lbs** Superheater or Steam chest; how connected to boiler **none** Can the superheater be shut off and the boiler worked separately **Yes**

Diameter **Yes** Length **Yes** Thickness of shell plates **Yes** Material **Yes** Description of longitudinal joint **Yes** Diam. of rivet **Yes**

Pitch of rivets **Yes** Working pressure of shell by rules **Yes** Diameter of flue **Yes** Material of flue plates **Yes** Thickness **Yes**

Are they stiffened with rings **Yes** Distance between rings **Yes** Working pressure by rules **Yes** End plates: Thickness **Yes** How stayed **Yes**

Working pressure of end plates **Yes** Area of safety valves to superheater **Yes** Are they fitted with easing gear **Yes**

Lloyd's Register Foundation W1109-0177

IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

*Two top end & 2 bottom end bolts, 2 main bearing bolts
1 set of coupling bolts, 1 set of feed & bilge pump valves
a quantity of assorted bolts nuts & iron, 1 cast iron propeller
1 set of air pump valves & minor parts.*

The foregoing is a correct description,

Wm THE NORTH EASTERN MARINE ENGINEERING CO. LD

S. T. Harrison Secy, ⁴ ~~10~~ Manufacturer.

Dates of Survey while building
(During progress of work in shops --) *1913 Feb 19, Apr 3, 25, May 2, 5, 16, 20, 21, 22, 26, 27, Jun 2, 3, 4, 10, 11, 13, 17, 18, Jul 4, 7, 9, 10, 25*
(During erection on board vessel ---) *28, 31, Aug 7, 13, 20, 25, Sep 2, 3, 8, 11, 17, 24, 26, Oct 3, 16, 20, 22, Dec 16, 22, 29, 30, Jan 7, 13, 14, 15, 16, 19, Feb 6, 10, Mar 5, 10, 18, 26, Apr 3, 6, 15, 17, 29, May 5, 11, 13, 14*
Total No. of visits *66* Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *17/4/13* Slides *19/1/14* Covers *4/6/13* Pistons *19/2/14* Rods *8/9/13*
Connecting rods *2/5/13* Crank shaft *7/8/13* Thrust shaft *9/1/13* Tunnel shafts *11/6/13* Screw shaft *22/10/13* Propeller *2/9/13*
Stern tube *10/3/14* Steam pipes tested *9/9/13* Engine and boiler seatings *6/4/14* Engines holding down bolts *17/4/14*
Completion of pumping arrangements *20/5/14* Boilers fixed *17/4/14* Engines tried under steam *5/5/14*
Main boiler safety valves adjusted *5/5/14* Thickness of adjusting washers *P.P. 1 1/2" S. 1 1/2" C.P. 1 3/4" S. 1 1/2" S.P. 1 1/2" S. 3/8"*
Material of Crank shaft *Steel* Identification Mark on Do. *25/8/13* Material of Thrust shaft *Steel* Identification Mark on Do. *10/7/13*
Material of Tunnel shafts *iron* Identification Marks on Do. *17/4/13* Material of Screw shafts *iron* Identification Marks on Do. *16/2/14*
Material of Steam Pipes *Soft welded iron* Test pressure *540 lbs*
Is an installation fitted for burning oil fuel *no* 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? *Yes* If so, state name of vessel *S.S. "Kuel"*

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 for the record of L.M.C. 5, 14.
A superheating installation on Schmidt's system has been fitted & tested as required.*

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 5, 14.

J.W.D. 27/5/14
A.R.S.

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

The amount of Entry Fee ... £ *3* : : : When applied for, **MAY 15 1914**
Special ... £ *37* : *15* : : :
Donkey Boiler Fee ... £ : : : When received,
Travelling Expenses (if any) £ : : : **MAY 18 1914**

FRI. MAY 22. 1914

Committee's Minute
Assigned *+ L.M.C. 5, 14*

MACHINERY CERTIFICATE WRITTEN

NEWCASTLE-ON-TYNE.

Certificates (if required) to be sent to

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