

REPORT ON MACHINERY

No. 23382
53381.

FRI. 16 AUG 1907

Port of Sunderland

Received at London Office

Aug 8 Aug 1907

Survey held at Sunderland
Book on the Steel Screw Steamer "Delia"

Date, first Survey March of Last Survey July 1907

(Number of Visits 27)

Gross Tons
Net Tons
When built 1904

Built at Newcastle By whom built Wood, Skinner & Co. Ltd.

Machinery made at Sunderland By whom made N.E. Marine Eng' Co. Ltd. when made 1904

Boilers made at Sunderland By whom made N.E. Marine Eng' Co. Ltd. when made 1904

Registered Horse Power 141 Owners Port belonging to

Horse Power as per Section 28 141 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

No. of Cylinders 14-28-46 Length of Stroke 33 Revs. per minute 50 Dia. of Screw shaft 10 1/4 Material of screw shaft Iron

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

the propeller boss — 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

shafts are fitted, is the shaft lapped or protected between the liners shaft works in oil, cedar oil Length of stern bush 5-9

No. of Tunnel shaft 1 Dia. of Crank shaft journals 9 1/4 Dia. of Crank pin 9 3/8 Size of Crank webs 5 1/2 x 1 1/2 Dia. of thrust shaft under

bars 9 3/8 Dia. of screw 13-0 Pitch of Screw 13-0 No. of Blades four State whether moveable no Total surface 52 1/2

No. of Feed pumps Two Diameter of ditto 2 3/4 Stroke 15 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 3 Stroke 15 Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Sizes of Pumps 6x7x9 & 5x3 1/2 x 5 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room Three 2 1/2 In Holds, &c. M.H. Two 2 1/2 A.H. Three 2 1/2

Number of Bilge Injections one sizes 3 1/2 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 no

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

Are all pipes carried through the bunkers rod like pipe How are they protected strong wood casing

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

Results of examination of completion of fitting of Sea Connections 26-6-07 / 8-8-07 of Stern Tube 24/7 Screw shaft and Propeller 24/7

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Top platform

Suppliers, &c.—(Letter for record S) Manufacturers of Steel J. Spencer & Sons Ltd, & Beighton & Co. Ltd.

Total Heating Surface of Boilers 2304 Is Forced Draft fitted no No. and Description of Boilers One single ended, cyl. vert.

Working Pressure 180 lb. Tested by hydraulic pressure to 360 lb. Date of test 14/5/04 No. of Certificate 2614

Can each boiler be worked separately — Area of fire grate in each boiler 60.5 No. and Description of Safety Valves to

each boiler Two direct spring Area of each valve 11.04 Pressure to which they are adjusted 185 lb. Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 15 (Rule Mean dia. of boilers 15 3/4) Length 10-6 Material of shell plates steel

Thickness 1 3/8 Range of tensile strength 28 1/2 to 32 ton Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Lap & R.

Long. seams DRS-TR Diameter of rivet holes in long. seams 1 9/32 Pitch of rivets 8 1/16 Lap of plates or width of butt straps 18 3/4

Percentages of strength of longitudinal joint rivets 85.5 Working pressure of shell by rules 208 lb. Size of manhole in shell end plate 16 x 12

Size of compensating ring flanged No. and Description of Furnaces in each boiler Three Beighton Material steel Outside diameter 4 1/2

Length of plain part top — Thickness of plates crown 3/32 Description of longitudinal joint Weld No. of strengthening rings —

Working pressure of furnace by the rules 198 lb. Combustion chamber plates: Material steel Thickness: Sides 2 1/32 Back 5/8 Top 2 1/32 Bottom 4/8

Pitch of stays to ditto: Sides 8 1/4 x 8 1/2 Back 8 x 8 Top 8 1/4 x 8 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 210 lb.

Material of stays steel Diameter at smallest part 1 1/8 Area supported by each stay 64.71 sq. ft. Working pressure by rules 184 lb. End plates in steam space:

Material steel Thickness 1 1/32 Pitch of stays 22 3/4 x 20 1/8 How are stays secured DN + W Working pressure by rules 204 lb. Material of stays steel

Diameter at smallest part 5 1/32 Area supported by each stay 460 Working pressure by rules 214 lb. Material of Front plates at bottom steel

Thickness 3/32 Material of Lower back plate steel Thickness 1/8 Greatest pitch of stays 15 x 8 Working pressure of plate by rules 183 lb.

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates steel Thickness: Front 29/32 Back 1 1/16 Mean pitch of stays 10 1/16

Pitch across wide water spaces 14 1/2 Working pressures by rules 253 lb. Girders to Chamber tops: Material steel Depth and

Thickness of girder at centre 8 x 1 3/4 Length as per rule 29 9/16 Distance apart 8 1/2 Number and pitch of stays in each Two 8 1/4

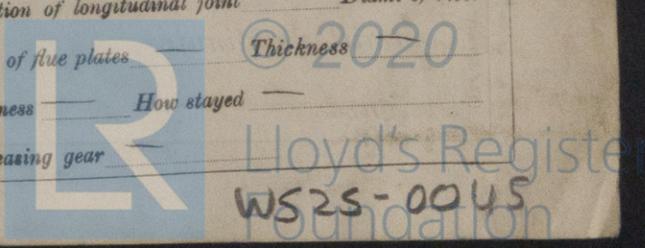
Working pressure by rules 208 lb. Superheater or Steam chest; how connected to boiler — Can the superheater be shut off and the boiler worked

separately — Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet

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

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 —



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. *One* Description *Please see attached sheet.*
 Made at _____ By whom made _____ When made _____ Where fixed *Stockholm*
 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:— *Crank shaft - propeller shaft, propeller, two top end, two bottom end, two main bearings & one set coupling bolts, feed & tilge valves, air & live pump rods, slide rod, some hammers, piston springs, anorbed bolts & nuts, a few bars of iron & other small gear.*

The foregoing is a correct description,
NORTH EASTERN MARINE ENGINEERING CO. LTD.
W. G. G. G. G. G. Manufacturer.

Dates of Survey while building
 During progress of work in shops - 1907 - *March 19, April 12, May 1, 9, 13, 14, June 2, 10, 12, 14, 17, 19, 23, 28, July 1, 3, 10, 15, 16, 18, 20, 24, 25, 27*
 During erection on board vessel - *June 22 - Aug 6-8*
 Total No. of visits *27*

Is the approved plan of main boiler forwarded herewith *yes*
 " " " donkey " " *no*
 Dates of Examination of principal parts—Cylinders *1/7* Slides *16/7* Covers *24/7* Pistons *10/7* Rods *24/7*
 Connecting rods *4/8, 28/7, 4/7* Crank shaft *27/3, 4/10, 10/7* Thrust shaft *15/7, 18/7* Tunnel shafts *11/7, 17/7* Screw shaft *4/5, 7/18* Propeller *10/7*
 Stern tube *17/6, 28/6* Steam pipes tested *27/7* Engine and boiler seatings *22-6-07* Engines holding down bolts *24/7*
 Completion of pumping arrangements *27/7 - 8-8-07* Boilers fixed *24/7* Engines tried under steam *27/7*
 Main boiler safety valves adjusted *27/7* *X-8-07* Thickness of adjusting washers *7/8*
 Material of Crank shaft *steel* Identification Mark on Do. *464 D AB* Material of Thrust shaft *steel* Identification Mark on Do. *517 JM*
 Material of Tunnel shafts *steel* Identification Marks on Do. *537 JM, 656 JM, 471 JM* Material of Screw shafts *Iron* Identification Marks on Do. *455 D AB*
 Material of Steam Pipes *Copper, cold drawn, 4 1/2 bore No 6 mf.* 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 Boiler & Steam pipes have been subjected to hydraulic pressure test as required by Rule the Machinery worked satisfactorily at the Moorings & the safety valves have been adjusted under steam to their working pressure

This vessel is eligible in our opinion to have the Notation
X LMC 8.07 in the Register Book.

It is submitted that this vessel is eligible for **THE RECORD.** *LMC 8.07*

The amount of Entry Fee £ *2* : : When applied for.
 Special £ *21* : *3* : : *2.8.1907*
 Donkey Boiler Fee £ : : :
 Travelling Expenses (if any) £ : : : *87 87 1907*

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

Committee's Minute **TUES. 20 AUG. 1907**
 Assigned *L.M.C. 8.07*



Certificate (if required) to be sent to _____
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

ant 23/11/28
 MACHINERY CERTIFICATE WRITTEN.