

REPORT ON MACHINERY

No. 24189

Received at London Office

WED. 18 AUG 1909

Date of writing Report 17. 8. 1909 When handed in at Local Office 14. 8. 1909 Port of Sunderland
 No. in Survey held at Sunderland Date, First Survey 24th Oct. 1908 Last Survey 12th Aug. 1909
 Reg. Book. on the 45. Monitoria (Number of Visits 75)
 Master G. Robson Built at Sunderland By whom built Wm & Osbourne Graham When built 1909
 Engines made at Sunderland By whom made North Eastern Marine Eng^g Co L^d when made 1909
 Boilers made at Sunderland By whom made ditto when made 1909
 Registered Horse Power Owners The Ericsson Shipping Co L^d Port belonging to Newcastle
 Nom. Horse Power as per Section 28 197 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Inverted triple Expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 21, 33, 56" Length of Stroke 36" Revs. per minute 66 Dia. of Screw shaft as per rule 11" Material of Iron
 as fitted 12" screw shaft
 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 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 4' 1 1/2"
 Dia. of Tunnel shaft as per rule 10 1/2" Dia. of Crank shaft journals as per rule 10 1/2" Dia. of Crank pin 10 1/2" Size of Crank webs 16 1/2 x 6 1/2" Dia. of thrust shaft under
 collars 10 1/2" Dia. of screw 16' 0" Pitch of Screw 15' 6" No. of Blades 4 State whether moveable no Total surface 71 ft²
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 18" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps Balls 6 1/2 x 9 1/2 Feds 5 1/2 x 3 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3 of 3 In Holds, &c. 2 of 3 Main hold 2 of 2 aft hold
3 holds + tunnel well

No. of Bilge Injections 1 sizes 5 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 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 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 18. 6. 09 of Stern Tube 18. 6. 09 Screw shaft and Propeller 9. 8. 09
 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 & Sons
 Total Heating Surface of Boilers 2940 ft² Is Forced Draft fitted no No. and Description of Boilers 2 S.E. Cyl^d Mult^l
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 7. 5. 09 No. of Certificate 27 6 3
 Can each boiler be worked separately yes Area of fire grate in each boiler 35 ft² No. and Description of Safety Valves to
 each boiler 2 spring Area of each valve 3.9 ft² 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 18" Mean dia. of boilers 12.9 1/2" Length 10' 0" Material of shell plates steel
 Thickness 1 1/2" Range of tensile strength 28 1/2/32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams dr. lap.
 long. seams dr. d. & s. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 2 3/4" Lap of plates or width of butt straps 18 1/2"
 Per centages of strength of longitudinal joint rivets 90.6 Working pressure of shell by rules 183.7 lbs Size of manhole in shell 16 x 12"
 plate 86.4
 Size of compensating ring flanged No. and Description of Furnaces in each boiler 2 Brighton Material steel Outside diameter 45 3/8"
 Length of plain part top — Thickness of plates crown 17/32 Description of longitudinal joint weld No. of strengthening rings —
 bottom —
 Working pressure of furnace by the rules 180.3 lbs Combustion chamber plates: Material steel Thickness: Sides 3/4" Back 3/4" Top 3/4" Bottom 13/16"
 Pitch of stays to ditto: Sides 11 1/2 x 8 1/2" Back 10 3/4 x 9 1/2" Top 11 x 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 192.7 lbs
 Material of stays steel Diameter at smallest part 2 1/4" Area supported by each stay 101.15 ft² Working pressure by rules 186.8 lbs End plates in steam space:
 Material steel Thickness 1 1/4" Pitch of stays 23 x 17" How are stays secured dr. nut & wash Working pressure by rules 180.9 lbs Material of stays steel
 Diameter at smallest part 7.24 ft² Area supported by each stay 39.1 ft² Working pressure by rules 192.5 lbs Material of Front plates at bottom steel
 Thickness 13/16" Material of Lower back plate steel Thickness 15/16" Greatest pitch of stays 14 1/4 x 9 3/4" Working pressure of plate by rules 203.7 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 3/4 x 4 1/2" Material of tube plates steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 11 1/4 x 9 1/2"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 184.9 lbs Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 8 3/4 x 1 1/2" Length as per rule 2' 6" Distance apart 11" Number and pitch of stays in each 2 - 8 1/2"
 Working pressure by rules 184.4 lbs 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 —

VERTICAL DONKEY BOILER—Manufacturers of Steel

No.	Description	When made	Where fixed
Made at	By whom made		
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
If fitted with easing gear	If steam from main boiler 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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
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:— 1 set connecting rod bolts + nuts. two main bearing bolts + nuts. 1 set coupling bolts + nuts. 1 set feed + bblg pump valves. propeller + shaft. nuts bolts + assorted iron

NORTH EASTERN MARINE ENGINEERING CO. LTD

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building	During progress of work in shops—	1908: Oct. 24. 30. Nov. 1. 6. 10. 13. 17. 20. 25. Dec. 2. 7. 9. 21. 31.	1909: Jan. 6. 13. 15. Feb. 5. 6. 8. 10. 12. 15. 18. 19. 22. 23. 26. Mar. 1. 2. 4. 5. 8. 11. 13. 18.
	During erection on board vessel—	22. 23. 30. Apr. 1. 2. 3. 6. 15. 17. 20. 23. 26. 27. 28. 29. 30. May 3. 5. 7. 11. 13. 17. 19. 21. 24. 26. 28. June 3. 10. 16. 18. 19. July 6. 9. 14. 15. Aug 5. 9. 12.	
	Total No. of visits	75.	

Is the approved plan of main boiler forwarded herewith ☒

" " " donkey " " " ☒

Dates of Examination of principal parts—	Cylinders 13.5.09	Slides 11.5.09	Covers 28.4.09	Pistons 11.6.09	Rods 13.5.09
Connecting rods	13.5.09	Crank shaft 11.5.09	Thrust shaft 13.5.09	Tunnel shafts 19.5.09	Screw shaft 6.7.19
Propeller	13.5.09	Stern tube 18.6.09.	Steam pipes tested 9.8.09.	Engine and boiler seatings 6.8.09.	Engines holding down bolts 6.8.19.
Completion of pumping arrangements	5.8.09.	Boilers fixed 6.8.09.	Engines tried under steam 14.8.09		
Main boiler safety valves adjusted	14.8.09.	Thickness of adjusting washers	P.B. 1 1/2" a 1/2" S.B. 1 3/4" a 1/2"		
Material of Crank shaft	Iron	Identification Mark on Do. 63211	Material of Thrust shaft	Steel	Identification Mark on Do. 4423KH
Material of Tunnel shafts	Iron	Identification Marks on Do. 57416	Material of Screw shafts	Iron.	Identification Marks on Do. 6594N
Material of Steam Pipes	Copper.		Test pressure	360 lbs	

General Remarks (State quality of workmanship, opinions as to class, &c. Machinery and boilers built under Special Survey. Materials and workmanship good. Engines + boilers examined under steam + found satisfactory. The donkey boiler now fitted in this vessel was originally fitted in the S/Ladywood Messrs Osborne Graham 18" H" 13". after a service of about 3 1/2 months it was removed + stored at the works of Messrs G. Clark + Co. It has now been examined, tested under steam + its safety valves adjusted to 83 lbs + found satisfactory.

In our opinion this vessel is eligible for the record of L.M.C. 8.09. D.B. made 1907. fitted 1909. + subject to the D.B. being surveyed in 1911.

It is submitted that this vessel is eligible for THE RECORD. + LMC 8.09

NDB 04. fitted 09. - 80 lbs. HED. 18/8/09

APR 18.8.09

RW Coomber + J.Y. Chindlay
Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee	£ 2 :	When applied for,
Special	£ 29 :	14.8.09
Donkey Boiler Fee	£ :	When received,
Travelling Expenses (if any) £	:	27.8.09

Committee's Minute

Assigned

FRI 20 AUG 1909

+ L.M.C. 8.09

D.B. 07 refitted 09.

MACHINERY CERTIFICATE
WRITTEN.



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Foundation