

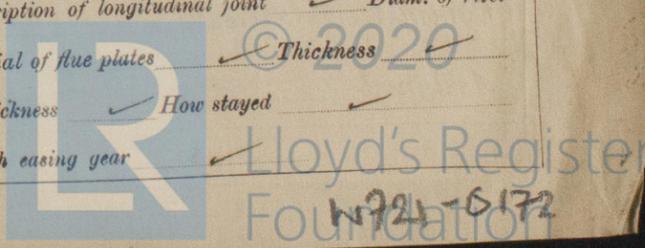
REPORT ON MACHINERY. No. 26835

Received at London Office 6 NOV. 1916

Report of writing Report 30th Oct 1916 When handed in at Local Office 31st Oct 1916 Port of H Sunderland
 Date, First Survey 8 Jan. 15 Last Survey 24th Oct 1916
 No. in Survey held at H Sunderland (Number of Visits)
 eg. Book. 5 Upon the Machinery of the S.S. Lightfoot Tons { Gross 1875 Net 1104
 Master W. H. Metcalfe Built at H Sunderland By whom built J. Crown & Sons Ltd. When built 1916
 Engines made at H Sunderland By whom made North Eastern Marine Eng. Co. Ltd. when made 1916
 Boilers made at " By whom made " when made 1916
 Registered Horse Power Owners Witherington & Everett Port belonging to Newcastle
 Nom. Horse Power as per Section 28 199 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 20 1/2", 33", 54" Length of Stroke 39" Revs. per minute 70 Dia. of Screw shaft as per rule 11.8" Material of screw shaft as fitted 11.78" Steel
 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
 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'-0"
 Dia. of Tunnel shaft as per rule 10.3" Dia. of Crank shaft journals as per rule 10.81" Dia. of Crank pin 10 7/8" Size of Crank webs 15 3/4" x 6 3/4" Dia. of thrust shaft under
 bars 10 7/8" Dia. of screw 14'-9" Pitch of Screw 15'-6" No. of Blades 4 State whether moveable no Total surface 68 sq ft
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 21" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 21" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps 7' x 9' x 9" & 5 1/2' x 3 1/2' x 5" No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room Two of 2 1/2" & one of 4" In Holds, &c. Two of 2 1/2" in fore hold, two
 of 2 3/4" in after hold & one of 2 3/4" in tunnel well.
 No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump pumps 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 Yes
 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 28/8/16 of Stern Tube 5/10/16 Screw shaft and Propeller 5/10/16
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—(Letter for record 15) Manufacturers of Steel J. Spencer & Sons
 Total Heating Surface of Boilers 3092 Is Forced Draft fitted no No. and Description of Boilers 2 Single-ended.
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 28/8/16 No. of Certificate 3349
 Can each boiler be worked separately Yes Area of fire grate in each boiler 40 sq ft No. and Description of Safety Valves to
 each boiler 2 direct spring Area of each valve 3.97 sq in 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 13'-0" Length 10'-6" Material of shell plates Steel
 Thickness 6 3/4" Range of tensile strength 29 7/8"-33 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d. r. lap
 Long. seams d. r. d. b. Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 9 1/4" Lap of plates or width of butt straps 18 3/4"
 Percentages of strength of longitudinal joint rivets 89.5 plate 87.0 Working pressure of shell by rules 180 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring flanged No. and Description of Furnaces in each boiler 2 plain Material Steel Outside diameter 45 1/2"
 Length of plain part top 6'-1 1/8" Thickness of plates crown 5 1/4" Description of longitudinal joint welded No. of strengthening rings Yes
 bottom 6'-1 1/8" Thickness of plates bottom 1 1/4" Working pressure of furnace by the rules 181 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/4" Back 25/32" Top 3/4" Bottom 15/16"
 Pitch of stays to ditto: Sides 11 1/8" x 8 1/2" Back 10 7/8" x 10 1/4" Top 11" x 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lbs
 Material of stays Steel Diameter at smallest part 2.79" Area supported by each stay 138 sq in Working pressure by rules 182 lbs End plates in steam space:
 Material Steel Thickness 1 1/4" Pitch of stays 22 x 18 How are stays secured d. n. w. Working pressure by rules 183 lbs Material of stays Steel
 Diameter at smallest part 6.78" Area supported by each stay 396 sq in Working pressure by rules 180 lbs Material of Front plates at bottom Steel
 Thickness 3/4" Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays 14.75" Working pressure of plate by rules 182 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 3/4" x 4 1/4" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 10.6"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 192 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 9' x 1 1/2" Length as per rule 30.2" Distance apart 11" Number and pitch of stays in each 2 of 8 1/2"
 Working pressure by rules 180 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
 holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes
 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



IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *Pl. Rpt. 3623*

SPARE GEAR. State the articles supplied:—

*Two top end & 2 bottom end bolts, 2 main bearing
1 set of coupling bolts, 1 set of feed & bilge pumps
valves, a quantity of assorted bolts nuts & iron, a
propeller & minor details!*

The foregoing is a correct description,
FOR THE NORTH EASTERN MARINE ENGINEERING CO. LD

Geo. D. Green Manufacturer.
Manager.

Dates of Survey while building
(During progress of work in shops) *1915 Jan 8, 11 Mar 19, Jul 5, 1916 Feb 7, 24 Mar 7, 14, 23 Apr 4, 18, 26 May 2, 4, 12, 15, 19, 30 Jun 5, 6, 7, 10*
(During erection on board vessel) *16, 21, 30 Jul 14, 18, 26, 27, 28 Aug 1, 2, 4, 8, 9, 17, 22, 24, 25, 28, 31 Sep 7, 11, 18 Oct 5, 9, 10, 16, 21, 23, 24*
Total No. of visits *(52)* Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *25/8/16* Slides *18/7/16* Covers *26/7/16* Pistons *1/8/16* Rods *30/5/16*
Connecting rods *28/8/16* Crank shaft *16/6/16* Thrust shaft *30/6/16* Tunnel shafts *24/8/16* Screw shaft *8/8/16* Propeller *17/8/16*
Stern tube *5/6/16* Steam pipes tested *9/10/16* Engine and boiler seatings *28/8/16* Engines holding down bolts *5/10/16*
Completion of pumping arrangements *21/10/16* Boilers fixed *5/10/16* Engines tried under steam *21/10/16*
Main boiler safety valves adjusted *21/10/16* Thickness of adjusting washers *P. F. 9/32" A 3/8" P. F. 3/8" A 3/8"*

Material of Crank shaft *Steel* Identification Mark on Do. *30/6/16* Material of Thrust shaft *Steel* Identification Mark on Do. *26/7/16*
Material of Tunnel shafts *Steel* Identification Marks on Do. *24/8/16* Material of Screw shafts *Steel* Identification Marks on Do. *9/8/16*

Material of Steam Pipes *Lap welded steel* 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. *Yes*

Have the requirements of Section 49 of the Rules been complied with *Yes*

Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *P.S. "Estat Manor" Estat Manor.*

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. 10, 16.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 10. 16.

J.W.D. 6/11/16

J.P.R.

The amount of Entry Fee ... £ *2* : : When applied for.
Special ... £ *29* : *17* : - 4. NOV. 1916
Donkey Boiler Fee ... £ : : When received.
Travelling Expenses (if any) £ : : *27/11/1916* *28/9/16*

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

Committee's Minute *TUE. 7 - NOV. 1916*
Assigned *+ L.M.C. 10.16*

MACHINERY CERTIFICATE WRITTEN



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