

REPORT ON MACHINERY.

No. 74441

Received at London Office FRI, 24 JUN. 1921

Date of writing Report May 9th 1921 When handed in at Local Office May 9th 1921 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Wallsend-on-Tyne Date, First Survey 9th March/20 Last Survey April 28th 1921

Reg. Book. Steel Screw Steamer "Proton" (Number of Visits)

Master Built at Howdon-on-Tyne By whom built Northumbrian S.B. Co. Ltd Tons { Gross 3915 Net 2535 When built 1921

Engines made at Wallsend-on-Tyne By whom made North Eastern Marine Engrs & Linn when made 1921

Boilers made at By whom made when made 1921

Registered Horse Power Owners J. C. Christensen Port belonging to Glasgow

Nom. Horse Power as per Section 28 359 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks

Dia. of Cylinders 25-41-68 Length of Stroke 45 Revs. per minute 66 Dia. of Screw shaft 14 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 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 Length of stern bush 5-0

Dia. of Tunnel shaft 12-4 Dia. of Crank shaft journals 13-02 Dia. of Crank pin 19-4 Size of Crank webs 1-8 1/2 x 8 1/2 Dia. of thrust shaft under collars 13-4 Dia. of screw 17-0 Pitch of Screw 17-0 No. of Blades 4 State whether moveable no Total surface 90-5

No. of Feed pumps 2 Diameter of ditto 4 Stroke 2-0 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4 Stroke 2-0 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps Ballast: 7 1/2 x 8 1/2 + 0 Feed: 7 1/2 x 5 + 6 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 2-3 1/2 In Holds, &c. No. 1-2+3 and No. 4-5 2-3 1/2

No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 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 except the No. 4

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

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door No. approached from the deck down a ladder worked from

BOILERS, &c.—(Letter for record S) Manufacturers of Steel John Apley & Furnaces J. Brown

Total Heating Surface of Boilers 5760 Is Forced Draft fitted no No. and Description of Boilers 3 Single ended Multitubular

Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 30.9.20 No. of Certificate 9468

Can each boiler be worked separately Yes Area of fire grate in each boiler 49.5 No. and Description of Safety Valves to each boiler 2-2 1/2 sea Area of each valve 4.75 Pressure to which they are adjusted 185 Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 2-0 Mean dia. of boilers 14-0 Length 10-6 Material of shell plates steel

Thickness 1 1/2 Range of tensile strength 28-32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double lap

long. seams 5 B.S. Rivets Diameter of rivet holes in long. seams 1 1/16 Pitch of rivets 8 3/4 Lap of plates or width of butt straps 18

Per centages of strength of longitudinal joint rivets 86.6 Working pressure of shell by rules 180 Size of manhole in shell 16" x 12"

Size of compensating ring Flanged No. and Description of Furnaces in each boiler 3 brightons Material steel Outside diameter 40"

Length of plain part top bottom Thickness of plates crown 1 1/2 Description of longitudinal joint welded No. of strengthening rings

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

Pitch of stays to ditto: Sides 10 1/2 x 9 3/8 Back 10 1/2 x 9 3/8 Top 10 1/2 x 9 3/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180

Material of stays steel Area at smallest part 2.03 Area supported by each stay 98.4 Working pressure by rules 186 End plates in steam space:

Material steel Thickness 1 3/8 Pitch of stays 24" x 19 3/4 How are stays secured 2" x 1/4" Working pressure by rules 185 Material of stays steel

Area at smallest part 8.29 Area supported by each stay 474 Working pressure by rules 182 Material of Front plates at bottom steel

Thickness 1 Material of Lower back plate steel Thickness 3/32 Greatest pitch of stays 14 1/2 Working pressure of plate by rules 189

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

Pitch across wide water spaces 14 1/2 Working pressures by rules 182 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8 3/4" x 1 1/2" Length as per rule 30" Distance apart 10 1/2" Number and pitch of stays in each 2-9 3/8"

Working pressure by rules 188 Steam dome: description of joint to shell None % of strength of joint

Diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes

Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER. Type None Date of Approval of Plan Tested by Hydraulic Pressure to

Date of Test Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Diameter of Safety Valve Pressure to which each is adjusted Is Easing Gear fitted

on o.g. report

IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded? *-*

SPARE GEAR. State the articles supplied:— *Two top end and two bottom end bolts & nuts, 2 main bearing bolts & nuts. One set of coupling bolts & nuts. One set of feed & helge pump valves. A quantity of (100) assorted bolts & nuts. Iron of various sizes (2 lot of iron plate 1 cut of band). One dozen gauge glasses, 4 dozen mica rubber washers for the same. 1/2 set of feed donkey valves. 1/2 set of ballast donkey valves. 12 piston bolts. one cast iron propeller.*

The foregoing is a correct description,

THE NORTH EASTERN MARINE ENGINEERING Co., LTD.

J. Harrison

Manufacturer.

Secretary. *P. J. ...*

Dates of Survey while building { During progress of work in shops -- July 7. 15. 28. Aug 16. 18. 24. 25. 26. Sep 7. 23. 29. 30. Oct 4. Nov 4. 11. 24. 29. 30. Dec 15. 29. 1921. Jan 11. 14. Feb 9. Mar 17. 24. Apr 6. 28. } 1920. Mar 9. 26. 30. 31. Apr 1. 12. 13. 14. 15. May 13. 27. 31. June 1. 3. 14.

Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *11.11.20* Slides *29.9.20* Covers *29.9.20* Pistons *13.1.21* Rods *13.1.21*
Connecting rods *28.7.20* Crank shaft *12.5.20* Thrust shaft *9.3.20* Tunnel shafts *7.9.20* Screw shaft *1.6.20* Propeller *13.1.21*
Stern tube *1.6.20* Steam pipes tested *14.3.21* Engine and boiler seatings *14.3.21* Engines holding down bolts *28.4.21*
Completion of pumping arrangements *28.4.21* Boilers fixed *17.3.21* Engines tried under steam *28.4.21*
Completion of fitting sea connections *25.2.21* Stern tube *39.11.20* Screw shaft and propeller *1.6.20 - 13.1.21*
Main boiler safety valves adjusted *28.4.21* Thickness of adjusting washers *P=1 1/2 S=7/16 P=3/8 S=1/2 P=3/8 S=13/32*
Material of Crank shaft *steel* Identification Mark on Do. *L.F. 12.5.20* Material of Thrust shaft *steel* Identification Mark on Do. *L.F. 3.20*
Material of Tunnel shafts *Iron* Identification Marks on Do. *MR 7.9.20* Material of Screw shafts *Iron* Identification Marks on Do. *1.6.20 & 13.1.21*
Material of Steam Pipes *Wrought Iron & Steel & Copper* Test pressure *W. Iron & Steel 540. Copper 360*

Is an installation fitted for burning oil fuel *Yes* Is the flash point of the oil to be used over 150° F. *No yes. see Note. str 6/7/21*
Have the requirements of Section 49 of the Rules been complied with *Yes*
Is this machinery duplicate of a previous case *No* If so, state name of vessel *-*

General Remarks (State quality of workmanship, opinions as to class, &c. *This vessels machinery has been examined during construction, and the materials & workmanship are good, and in accordance with the rules requirements & the approved plans. On completion the machinery was tried under steam, and the safety valves adjusted to the working pressure with satisfactory results. The machinery is therefore eligible in our opinion to be classed with the notation of +LMC 5. 21. in the A. Book -*

Plans forwarded. *Main boilers. 2 settling tanks. arrangements of oil burning machinery. Amended Pelge & Ballast Pipe arrangements.*

It is submitted that this vessel is eligible for THE RECORD + LMC 4. 21. Fitted for oil fuel 4. 21. F.P. above 150° F.

The amount of Entry Fee ... £ 5 : :
Special ... £ 78 : 17 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 13/6/21
When received, 20/6/21

J.W.D.
30/6/21
Francis Petron & Co. L. Stewart.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute Assigned

+ L.M.C. 4. 21
Fitted for oil fuel 4. 21
F.P. above 150° F.



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