

REPORT ON MACHINERY.

No. 15906

TUE. AUG. 2 1921

Received at London Office

Date of writing Report 19 When handed in at Local Office 28th July 1921 Port of West Hartlepool

No. in Survey held at West Hartlepool Date, First Survey 30th July 1920. Last Survey 22nd July 1921. Reg. Book. on the Steel Screw Steamer "Percarrow" (Number of Visits)

Master Built at West Hartlepool By whom built Jervies' O.B. & D.O. Ld. When built 1921

Engines made at Hartlepool By whom made Richardson, Westport & Co. Ld. when made 1921

Boilers made at Hartlepool By whom made Richardson, Westport & Co. Ld. when made 1921

Registered Horse Power Owners R. B. Chellaw Port belonging to Salmouth

Nom. Horse Power as per Section 28 402 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes.

ENGINES, &c. — Description of Engines Triple Expansion (Inverted Cycle) No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 25 1/2 - 42 - 70 Length of Stroke 48 Revs. per minute 65 Dia. of Screw shaft as per rule 14 1/2 as fitted 14 1/2 Material of screw shafts 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 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 Yes

If two liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 4-10 1/4

Dia. of Tunnel shaft as per rule 12.87 as fitted 13 Dia. of Crank shaft journals as per rule 13.53 as fitted 13 5/8 Dia. of Crank pin 14 Size of Crank webs 8 1/2 x 20 1/2 Dia. of thrust shaft under collars 14 1/2

Dia. of screw 14 1/2 Pitch of Screw 14 1/2 No. of Blades 4 State whether moveable No Total surface 93 5/8

No. of Feed pumps Two Diameter of ditto 3 1/4 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two Diameter of ditto 3 3/4 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Four Sizes of Pumps one 6 1/2 x 14 x 6 Duplex one 10 x 14 x 7 one 5 1/2 x 6 x 6 Ballcock No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 3 1/2 dia. one 2 1/2 main eng direct In Holds, &c. Two in each hold 3 1/2 + tunnel 2 1/2

No. of Bilge Injections one size 4 Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room of 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 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 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

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Cylinders Grating

BOILERS, &c. — (Letter for record S) Manufacturers of Steel J. Spencer & Sons Ld. & Leeds Forge Co. Ld.

Total Heating Surface of Boilers 6656 1/2 Is Forced Draft fitted No No. and Description of Boilers 3 Single Ended, Cyl. & Mant.

Working Pressure 180 lb Tested by hydraulic pressure to 360 lb Date of test 23/12/20 No. of Certificate 3591

Can each boiler be worked separately Yes Area of fire grate in each boiler 55.6 sq ft. No. and Description of Safety Valves to each boiler No, Direct Spring Area of each valve 4.07 sq 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 24 Mean dia. of boilers 15-3 Length 11-0 Material of shell plates steel

Thickness 1 1/2 Range of tensile strength 28 1/2 to 32 1/2 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Lap & R. long. seams DTS-TR Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 8 3/8 Lap of plates or width of butt straps 1 1/2 x 1 1/2 x 3/2

Per centages of strength of longitudinal joint rivets 84.9 plate 85.45 Working pressure of shell by rules 182 lb Size of manhole in shell 13 x 16 1/2

Size of compensating ring 4 3/4 x 1 1/2 No. and Description of Furnaces in each boiler 3 Suspension Material steel Outside diameter 48 1/4

Length of plain part top 4 1/2 bottom — Thickness of plates crown 19 bottom 32 Description of longitudinal joint Welded. No. of strengthening rings —

Working pressure of furnace by the rules 193.8 lb Combustion chamber plates: Material steel Thickness: Sides 19 Back 19 Top 19 Bottom 13

Pitch of stays to ditto: Sides 1/2 x 8 1/4 Back 8 1/4 x 8 Top 1/2 x 8 1/4 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 185 lb

Material of stays steel Area at smallest part 1 3/8 Area supported by each stay 8 1/4 x 8 Working pressure by rules 180 lb End plates in steam space: Material steel Thickness 1 1/2 Pitch of stays 14 x 20 1/4 How are stays secured 5N Working pressure by rules 180 lb Material of stays steel

Area at smallest part 6.66 Area supported by each stay 14 x 21 Working pressure by rules 194 lb Material of Front plates at bottom steel

Thickness 1/2 Material of Lower back plate steel Thickness 2 1/2 Greatest pitch of stays 14 x 8 Working pressure of plate by rules 189 1/2 lb

Diameter of tubes 3 1/2 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates steel Thickness: Front 1 1/2 Back 2 1/2 Mean pitch of stays 11 3/2 x 9 3/8

Pitch across wide water spaces 14 1/2 Working pressures by rules 182 1/2 lb Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8 1/4 x 1 3/4 Length as per rule 31 1/2 Distance apart 8 1/2 Number and pitch of stays in each Three 1/2

Working pressure by rules 181 lb Steam dome: description of joint to shell — % of strength of joint —

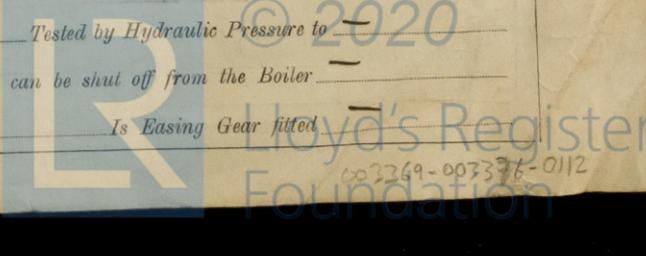
Diameter — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet holes —

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

SUPERHEATER. Type — Date of Approval of Plan — Tested by Hydraulic Pressure to 2020

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 —



IS A DONKEY BOILER FITTED? No. If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

2 con rod top end bolts & nuts, 2 con rod bottom end bolts & nuts, 2 main bearing bolts & nuts, 1 set coupling bolts & nuts, 2 feed & 2 lube pump valves, 1 set piston rings for HP piston & 24 spring lines, 120 assorted bolts & nuts, 6 iron bars assorted, 1 cast iron propeller, 1 main & 1 donkey check valve, 6 boiler tubes, 6 condenser tubes 12 ferrules, 1 ton fire bars, assorted studs, 6 gauge glasses 12 rings, Crank shaft gauge.

The foregoing is a correct description, FOR RICHARDSONS, WESTGARTH & CO. LIMITED.

S. S. Huxley
GENERAL MANAGER
(HARTLEPOOL WORKS)

Manufacturer:

Dates of Survey while building: During progress of work in shops - 1920. July 30, Aug. 12, 13, 17, 18, 20, 21, Sept. 8, 20, 23, 27, 28, 29, Oct. 4, 6, 11, 14, 15, 18, 21, Nov. 2, 4, 5, 9, 22, 23, 24, 25, 30, Dec. 1, 7, 8, 10, 13. During erection on board vessel - 16, 20, 22, 24, 29, 1921. Jan. 10, 13, 14, 17, 19, 20, 27, 31, Feb. 1, 3, 4, 7, 11, 14, 16, 18, 21, 22, 24, 25, Mar. 7, 8, 9, 10, 14, 16, 17, 22, 30, Apr. 1, 5, 6, 11, 15. Total No. of visits 79. Is the approved plan of main boiler forwarded herewith Yes.

Dates of Examination of principal parts—Cylinders 6/10/20 Slides 3/12/20 Covers 21/2/21 Pistons 18/8/20 Rods 30/7/20 Connecting rods 14/1/20 Crank shaft 13/1/20 Thrust shaft 17/1/20 Tunnel shafts 20/1/20 Screw shaft 14/1/21 Propeller 7/3/21 Stern tube 14/2/21 Steam pipes tested 5-4-21 Engine and boiler seatings 22-3-21 Engines holding down bolts 22-3-21 Completion of pumping arrangements 22-4-21 Boilers fixed 22-3-21 Engines tried under steam 6-4-21 Completion of fitting sea connections 6-4-21 Stern tube 9-3-21 Screw shaft and propeller 22-3-21 Main boiler safety valves adjusted 6-4-21 Thickness of adjusting washers: Port Bolts 5 3/8", Centre " 5 7/16", Star " 5 3/8". Material of Crank shaft steel Identification Mark on D. (L4 21/8 621/8) Material of Thrust shaft steel Identification Mark on D. (L4 21/8 621/8) Material of Tunnel shafts steel Identification Marks on D. (L4 21/8 621/8) Material of Screw shafts steel Identification Marks on D. (L4 21/8 621/8) Material of Steam Pipes Main Steam Steel, Aux Steam Copper Test pressure 540 lbs per sq in (main) 360 lbs aux. 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 "Penkeep"

General Remarks (State quality of workmanship, opinions as to class, &c. An evaporator fitted, the shell of which was tested to 50 lbs, and the coils to 400 lbs per square inch by hydraulic pressure. This vessel's machinery has been built and installed under Special Survey and in accordance with the Rules. The materials and workmanship are good. On completion it was tried under full steam, found satisfactory, and is eligible in my opinion to have notation of **L.M.C.** 7.21.

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 7.21 C.L.

Reh
9/8/21
GRZ

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

The amount of Entry Fee ... £ 5 : 0 : 0 When applied for, 29/7/21
Special ... £ 85 : 6 : 0
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When received, 6-8-21

Alfred & Robert Raeth Miller
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute THE 9 AUG. 1921
Assigned + L.M.C. 7.21 C.L.

MACHINERY CERT
WRITTEN

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