Rpt. 4a.

REPORT ON MACHINERY.

No. 15933.

Received at London Office 9.11.21

Date of writing Report 20 Aug 1921 When handed in at Local Office 3rd Nov 1921. Port of WEST HARTLEPOOL

No. in Reg. Book. Survey held at West Hartlepool Date, First Survey 19th Novr 1919 Last Survey 29 Octr 1921. (Number of Visits 159.)

38894 on the steel screw steamer ~~"Cedarmore"~~ "PARISIANA" Tons { Gross 6640 / Net 4161.80.

Master ..... Built at West Hartlepool By whom built Irvines O.B. & D.D. Co. Ld. (Yd. 586) When built 1921

Engines made at Hartlepool By whom made Richardsons, Westgarth & Co. Ld. (H 2367 / T 193) when made 1921

Boilers made at Hartlepool By whom made Richardsons, Westgarth & Co. Ld. when made 1921

Registered Horse Power 789 Owners Furness Withy & Co. Ltd. Port belonging to Liverpool.

Shaft Horse Power at Full Power 3800. Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

TURBINE ENGINES, &c.

Description of Engines Double reduction Geared Turbines No. of Turbines Three H.P. + L.P.

Diameter of Rotor Shaft Journals, H.P. 3" — M.P. 4" L.P. 8" Diameter of Pinion Shaft 1st H.P. 7 1/4", 2nd 20 3/4", 1st L.P. 12 7/8", 2nd L.P. 20 3/4"

Diameter of Journals { Primary H.P. 8 5/8", L.P. 6" / Secondary H.P. 11", L.P. 11" } Distance between Centres of Bearings { Primary H.P. 31", L.P. 35" / Secondary H.P. 6'-5 1/2", L.P. 6'-5 1/2" } Diameter of Pitch Circle { H.P. Primary 7.927 L.P. 13.497 / H.P. Secondary 21.6385 L.P. 21.6385 }

Diameter of Wheel Shaft 16 5/8" Distance between Centres of Bearings 7'-1 3/4" Diameter of Pitch Circle of Wheel 121.4758

Width of Face Primary 8 3/4" Secondary 19" Diameter of Thrust Shaft under Collars 16" Diameter of Tunnel Shaft as per rule 14.8 / as fitted 15"

No. of Screw Shafts one Diameter of same as per rule 16.1" / as fitted 16 5/8" Continuous liner do. Diameter of Propeller 18'-9" Pitch of Propeller 19'-0"

No. of Blades four State whether Moveable no. Total Surface 114.5 ☐' Diameter of Rotor Drum, H.P. solid L.P. astern

Thickness at Bottom of Groove, H.P. — L.P. — Astern — Revs. per Minute at Full Power, Turbine H.P. 3540 L.P. 3085 Propeller 75

" " " " Normal " " H.P. 3400 L.P. 2000 " 71.6

PARTICULARS OF BLADING.

	H.P. Height of Blades	H.P. Diameter at Tip	H.P. No. of Rows	L.P. Height of Blades	L.P. Diameter at Tip	L.P. No. of Rows	Astern Height of Blades	Astern Diameter at Tip	Astern No. of Rows
1st Expansion	13/16 + 15/16"	20 7/8 + 21 1/2"	2	2 7/8"	PCD 45 — 47 7/8"	1	15/16 + 1 5/16 + 1 11/16"	31 + 31 1/2 + 32" PCD 30"	Three in M.P. Case
2nd " (HP PCD 20)	15/16 + 1 7/16"	21 + 21 3/4"	2	3"	45 — 48	1			
3rd "	1 3/16 + 1 13/16"	21 1/4 + 22"	2	3 1/4"	45 1/2 — 48 3/4	1	1 7/16 + 2 3/16 + 2 15/16"	55 1/2 + 56 3/8 + 57 1/4" PCD 54"	Three in L.P. Case
4th "	1 15/16 + 2 13/16"	24 + 25"	2	3 5/8"	45 1/2 — 49 1/8	1	3" + 3 3/4"	54 + 54 3/4"	~~Three~~ Two.
5th " (PCD 22)	2 5/8"	24 11/16"	1	4 1/8"	46 — 50 1/8	1			
6th "	2 3/4"	24 13/16"	1	4 3/4"	46 1/2 — 51 1/4	1			
7th "	21 13/16"	24 7/8"	1	5 1/2"	47 — 52 1/2	1			
8th " (MP PCD 22 1/2)	2 15/16"	25 1/4"	1	6 1/2"	47 1/2 — 54	1			
9th No. and size of Feed pumps	3 7/32"	25 7/32"	1	7 3/4"	48 — 55 3/4	1			
10th No. and size of Bilge pumps	3 5/8"	25 15/16"	1	9 1/2"	48 1/2 — 58	1			
11th No. and size of Bilge suctions in Engine Room		26 5/16"	1	10"	49 1/2 — 59 1/2	1			
12th				In Holds, &	50 — 60	1			
13th				10	50 — 60	1			

For pumps see list attached.

Bilge suctions in engine room. 4 of 3 1/2" connected to bilge & ballast pumps & four of 2" to oil transfer pump. One of 3" in tunnel two of 3 1/2" in each hold one of 3 1/2" in each deep tank.

No. of Bilge Injections one sizes 10" Connected to condenser, or to circulating pump pump 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 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.

Is the Screw Shaft Tunnel watertight see ship report Is it fitted with a watertight door yes worked from an upper grating

BOILERS, &c.

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

Total Heating Surface of Boilers 10615 ☐' Forced Draft fitted yes. No. and Description of Boilers four single ended.

Working Pressure 190 lb Tested by hydraulic pressure to 380 lb Date of test 28/10/20 No. of Certificate 3586

Can each boiler be worked separately yes. Area of fire grate in each boiler 62.5 ☐' No. and Description of Safety Valves to each boiler two direct spring Area of each valve 11.04 ☐" Pressure to which they are adjusted 195 lbs Are they fitted with easing gear yes

Smallest distance between boilers or ~~uptakes~~ and bunkers or ~~woodwork~~ 15" Mean dia. of boilers 15'-9" Length 12'-0" Material of shell plates steel

Thickness 1 11/32" Range of tensile strength 29 to 33 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D. & T.R.

long. seams D.B.S. T.R. Diameter of rivet holes in long. seams 1 11/32" Pitch of rivets 9 1/8" ~~Lap of plates or~~ width of butt straps 19 11/16"

Per centages of strength of longitudinal joint { rivets 85.8% / plates 85.3% } Working pressure of shell by rules 200.5 lb Size of manhole in shell 13 × 16 1/2"

Size of compensating ring 8 1/4 × 1 11/32" No. and Description of Furnaces in each Boiler 3. Deighton Material steel Outside diameter 49 3/4"

Length of plain part { top — / bottom — } Thickness of plates { crown 21/32" / bottom } Description of longitudinal joint Weld No. of strengthening rings —

Working pressure of furnace by the rules 215 lb Combustion chamber plates: Material steel Thickness: Sides 19/32" Back 5/8" Top 19/32" Bottom 13/16"

Pitch of stays to ditto: Sides 7 9/16" × 8 1/4" Back 8 1/4" × 8 1/16" Top 7 1/4" × 8 5/8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 192

Material of stays steel Diameter at smallest part 1 5/8" × 1 1/2" Area supported by each stay 8 1/4" × 8 1/16" Working pressure by rules 190 lb End plates in steam space

Material steel Thickness 1 5/32" Pitch of stays 16" × 19" How are stays secured DN & DNW Working pressure by rules 194 lb Material of stays steel

Diameter at smallest part 2 7/8" Area supported by each stay 16" × 19" Working pressure by rules 190 lb Material of Front plates at bottom steel

Thickness 7/8" Material of Lower back plate steel Thickness 27/32" Greatest pitch of stays 13 7/8" × 8 1/16" Working pressure of plate by rules 191 lb

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" × 4 3/8" Material of tube plates steel Thickness: Front 1" + 7/8" Back 25/32" Mean pitch of stays 10"

Pitch across wide water spaces 13" + 14 3/16" Working pressures by rules 191 lb Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9" × 1 3/4" Length as per rule 32 1/4" Distance apart 8 5/8" Number and pitch of stays in each Three 7 1/4"

Working pressure by rules 202 lb Steam dome: description of joint to shell — % of strength of joint — Diameter —

Thickness of shell plates — Material — Description of longitudinal joint — Diameter of rivet holes — Pitch of rivets —

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

Is a Report also sent on the Hull of the Ship? If not, state whether, and when, one will be sent?

Yes

Lm.11.10.—T.

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002274-002288-0187

SUPERHEATER. Type Robinson Date of Approval of Plan ..... Tested by Hydraulic Pressure to 380 lbs

Date of Test 14, 15 & 21-6-1921. Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes

Diameter of Safety Valve 2½" Pressure to which each is adjusted 200 lbs Is Easing Gear fitted yes

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

SPARE GEAR. State the articles supplied:— 2 Bolts or studs & nuts for each size rotor bearing. ditto for main gear wheel bearing. ditto for pinion bearing. 1 set coupling bolts & nuts each size ½ total no. bolts or studs & nuts for gear case joint & for each turbine case joint. 2 thermometers for oil circulating system. 1 set bearing bushes for one gear wheel shaft. for rotor and pinion shafts. ½ set packing rings or segments for each gland of rotor shafts so fitted & ½ no. of springs. Sufficient pads for one face of Michell type main thrust block. One set of pads for Michell type adjusting block for one turbine. 1 set lines for adjusting block. 1 set valves for one main feed pump. air feed pump. air pump. bilge pump. lub. oil pump & sanitary pump & oil transfer pump. 1 set seats & springs for main feed pump & seats & guards for transfer pump. 1 bucket & rod & 1 steam chest for lub. oil pumps. 1 steam chest for main feed pumps. 1 escape valve spring of each size. 4 check valves. 4 scum valves. 4 blow down valves. 1 propeller. 1 propeller shaft. Assorted bolts, nuts & iron.

The foregoing is a correct description,
FOR RICHARDSONS, WESTGARTH & CO. LIMITED.
..... Manufacturer.
L D Wright GENERAL MANAGER.
(HARTLEPOOL WORKS)

Dates of Survey while building — During progress of work in shops: 1919 Nov 19.21.25.26. Dec 2.9.11.16.17.18. 1920 Jan 8.22. Feb 13. Mch 17.29. Apr 8.14. May 13. Jun 14. July 3.8 Aug 10.16.19.20.24.26.27. Sept 1.6.10.11.13.14.15.20.23.24.27.28.29.30. Oct 1.4.5.6.7.11.14.15.20.21.28. Nov 1.2.10.11.15.26.27.30. Dec 1.2.9.13.14.15.16.17.20.21.22.29. 1921 Jany 5.6.7.11.12.13.14.17.18.19.21.25.26.28.31. Feby 3.4.8.11.14.18.21.23.24. Mch 3.4.7.9.10.15.16.17.21.23.24.31. Apr 4.5.8.11.13.14.18.21.22.25.28. May 3.11.13.20.23.24.26.27.30.31. Jun 1.7.8.14.15.21.30. July 4.5.11.12.13.18.20.21.22. Aug 11.16.17.22.24.30. Sept 6.28. Oct 7.17.19.20.27.28.29.

During erection on board vessel ---

Total No. of visits 159.

Is the approved plan of main boiler forwarded herewith yes.

" " " donkey " " " none

Dates of Examination of principal parts—Casings 12/3/20 to 26/1/21 Rotors 19/11/19 to 31/1/21 Blading 2/12/19 to 30/9/20 Gearing 19/8/20 to 3/2/21

Rotor shaft 19/11/19 to 14/4/20 Thrust shaft 29/9/20 to 15/11/20 Tunnel shafts 20/9/20 to 2/3/21 Screw shaft 24/9/20 to 21/12/20 Propeller 13/12/20

Stern tube 13/9/20 to 28/9/20 Steam pipes tested 21/Mch 14.6 & 4.7.21 Engine and boiler seatings 31-3-21 Engines holding down bolts 13/5/21

Completion of pumping arrangements 17-10-21 Boilers fixed 31-3-21 Engines tried under steam 29.10.21

Main boiler safety valves adjusted 17.8.21 Thickness of adjusting washers F.P. F 11/32" A 11/32" FS F 3/8" A 3/8" AP. F 3/8" A 3/8" A.S. F 5/16" A 3/8"

Material ~~and tensile strength of Rotor shaft~~ S M steel 34 to 38 tons per □" Identification Mark on Do. (H.P. 3794 MR 31/1/21) (M.P. 3194 MR 31/1/21) (L.P. 3194 D MR 31/1/21)

Material and tensile strength of Pinion shaft nickel steel 40 to 45 tons per □" Identification Mark on Do. (Lloyds 986 MR) (Lloyds 980 DDW) (Lloyds 988 MR) (Lloyds 982 MR)

Material of Wheel shaft steel Identification Mark on Do. (LLOYD'S 3659 D N-MR-R 148) Material of Thrust shaft steel Identification Mark on Do. (LLOYDS 5604 MR D 949 23/4/21)

Material of Tunnel shafts iron Identification Marks on Do. LLOYDS 6244 Material of Screw shafts iron Identification Marks on Do (LLoyds 6244 17/12/20) (Lloyds 6247 22/12/20)

Material of Steam Pipes Lap welded steel and iron. Test pressure 570 lbs

Is an installation fitted for burning oil fuel yes. 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. 2 Evapors Marked (1160 tot 400 ft 50 ft 31/1/21) (1178 tot 400 ft - 50 ft 10/3/21) feed tank (1181 tot 400 ft - 50 ft)

Is this machinery a duplicate of a previous case No If so, state name of vessel .....

General Remarks (State quality of workmanship, opinions as to class, &c.

The Turbine Engines & their Reduction gearing & auxiliaries have been constructed under special survey, the material & workmanship sound & good. The H.P. Casing tested to 220 lbs Hyd pressure in steam passages to 380 lbs, Nozzle Branches to 380 lbs, The M.P. casing to 130 lbs, the L.P. casing to 40 lbs, H.P. Exhaust pipes to 150 lbs the L.P. & M.P. Exhaust pipes to 50 lbs, The Condenser body to 25 lbs. The oil fuel burning gear & pumping arrangements fitted to Rule. The Boilers have been built under special Survey & tested by Hydraulic pressure to 380 lbs per sq in the whole of the Machinery has been well secured & tried under steam in the works & subsequently on board, the steam pipes have been tested in accordance with the Rules & the safety valves adjusted. Rendering this vessel Eligible in our opinion to have the Notation ✱LMC 10/21 190 lbs FD Fitted for burning oil Fuel F.P. above 150°F

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 ...	£ 6 : 0	When applied for, 7th Nov 1921
Special	£ 114 : 9	
Donkey Boiler Fee ...	£ :	When received, 31/12/1921
Travelling Expenses (if any)	£ :	

A Boyd & Robert Rae R.D. Philste
Engineer Surveyor to Lloyd's Register of Shipping.

FRI. 18 NOV. 1921 CERTIFICATE WRITTEN TUE. 13 DEC. 1921

Committee's Minute .....

Assigned + LMC 10.21 F.D. C.L. Listed for oil fuel 10.21. F.P. above 150°F

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