Rpt. 4a.

REPORT ON MACHINERY.

No. 16070

RED. APR. 17 1923

Received at London Office

Date of writing Report 16 April 1923 When handed in at Local Office 16 April 1923 Port of WEST HARTLEPOOL

No. in Reg. Book. 14794 Survey held at Hartlepool Date, First Survey 20 Dec 1920 Last Survey 26 Feby 1923. (Number of Visits 183.)

on the S S "LONDON IMPORTER" (H2553.T198) Tons Gross 7895 Net 4340

Master Built at Middlesbro By whom built Furness S.B. Co. Ld. When built 1923

Engines made at Hartlepool By whom made Richardsons Westgarth & Co when made 1923

Boilers made at ditto By whom made ditto when made 1923

Nominal Registered Horse Power 1004 Owners Furness Withy & Co. Ltd. Port belonging to London.

Shaft Horse Power at Full Power 5000 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

TURBINE ENGINES, &c.—Description of Engines Single red. gecared Turbines No. of Turbines 2

Diameter of Rotor Shaft Journals, H.P. 7½" L.P. 10" Diameter of Pinion Shaft 9"

Diameter of Journals 9" Distance between Centres of Bearings 3-1¼ Diameter of Pitch Circle 10.012"

Diameter of Wheel Shaft 17" Distance between Centres of Bearings 7'-1¼" Diameter of Pitch Circle of Wheel 144.21

Width of Face 50" Diameter of Thrust Shaft under Collars 17¼" Diameter of Tunnel Shaft as per rule 15.4 as fitted 16"

No. of Screw Shafts 1 continuous liner. Diameter of same as per rule 16.5" as fitted 17½" Diameter of Propeller 18'-9" Pitch of Propeller 17'-3"

No. of Blades 4 State whether Moveable no Total Surface 118.2 sq ft Diameter of Rotor Drum, H.P. ✓ L.P. ✓ astern wheels

Thickness at Bottom of Groove, H.P. ✓ L.P. ✓ Astern ✓ Revs. per Minute at Full Power, Turbine 1270 Propeller 88.

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	7/8" & 1 3/8"	57 7/8 & 58 3/8	2	2½"	74½"	1			
2ND "	2 9/32 & 1 11/32"	57 15/16 & 58 7/16	2	2 5/8"	74 1/8"	1	H.P. 29/32"	57 15/16"	1
3RD "	1 7/16"	58 7/16"	1	3 1/8"	74 1/8"	1	H.P. 1 15/32"	58 9/16"	1
4TH "	1½"	58½"	1	3¾"	74¼"	1	H.P. 2 1/32"	59 3/16"	1
5TH "	1 9/16"	58 9/16"	1	4½"	74½"	1			
6TH "	1 11/16"	58 11/16"	1	5¾"	75¼"	1	L.P. 1 5/8"	73 5/8"	1
7TH "	1 13/16"	58 13/16"	1	7"	76"	1	L.P. 2 5/8"	74 5/8"	1
8TH "	1 15/16"	58 15/16"	1	9¾"	78¼"	1	L.P. 3 5/8"	75 5/8"	1
~~No. and size of Feed pumps~~ 2	2 1/8"	59 1/8"	1	11¼"	78¼"	1			
~~No. and size of Bilge pumps~~ 11	2 5/16"	59 5/16"	1	12¼"	79 1/4 3/4"	1			
	2 9/16"	59 9/16"	1	12 3/4"	79¼"	1			

See separate list of auxiliary pumps.

No. and size of Bilge suctions in Engine Room Four of 3½ & four of 2½ in oil wells. In Holds, &c. One of 3½ in after hold & two of 3½" in other holds. One of 2½" in tunnel

No. of Bilge Injections 1 sizes 14" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine Room & size 3½"

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 below

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 Deck.

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J Spencer & Sons Ltd.

Total Heating Surface of Boilers 13168 Is Forced Draft fitted Yes No. and Description of Boilers Four single ended.

Working Pressure 190 lbs Tested by hydraulic pressure to 333 Date of test 27.9.22 No. of Certificate 3616

Can each boiler be worked separately yes Area of fire grate in each boiler 81½" sq ft

No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 12.56 □" Pressure to which they are adjusted 195 lb Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork about 2 feet. Mean dia. of boilers 17-6 Length 12-0 Material of shell plates Steel

Thickness 1 31/64 Range of tensile strength 29/33 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R. lap.

long. seams T.R. D.B.S. Diameter of rivet holes in long. seams 1½" Pitch of rivets 10⅜ ~~Lap of plates~~ or width of butt straps 22⅜

Per centages of strength of longitudinal joint rivets 85.6 plates 85.5 Working pressure of shell by rules 202 Size of manhole in shell 20½"×16½"

Size of compensating ring 3-1¾×2-8 9/16×1 5/8 No. and Description of Furnaces in each Boiler 4 Deightons 4 c.f. Material Steel Outside diameter 3'-10¾"

Length of plain part top ✓ bottom Thickness of plates crown 5/8" bottom Description of longitudinal joint welded No. of strengthening rings ✓

Working pressure of furnace by the rules 215 Combustion chamber plates: Material Steel Thickness: Sides 2 3/32" Back 23/32" C 17/16" W Top 2 3/32" C 1 7/16" W Bottom 15/16

Pitch of stays to ditto: Sides 8½×10⅝ Back 8"×10⅝" Top 8"×10¼" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 192

Material of stays Steel Area Diameter at smallest part 2.03 □" Area supported by each stay 8½×10⅝ Working pressure by rules 202 End plates in steam space

Material Steel Thickness 15/16 Pitch of stays 20½"×16½" How are stays secured D.N.+W. Working pressure by rules 190 Material of stays Steel

Area Diameter at smallest part 1.24 Area supported by each stay 20½×16¾ Working pressure by rules 219 Material of Front plates at bottom Steel

Thickness 10/16" Material of Lower back plate Steel Thickness 29/32" Greatest pitch of stays 15"×8" Working pressure of plate by rules 191

Diameter of tubes 3¼" Pitch of tubes 4½"×4½" Material of tube plates Steel Thickness: Front 1/64" Back 27/32" Mean pitch of stays 11¼"

Pitch across wide water spaces 14¼" Working pressures by rules 195 Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 9"×2" Length as per rule 32½" Distance apart 10¼ Number and pitch of stays in each Three 8"

Working pressure by rules 211 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 ✓

003307-003310-0141

SUPERHEATER. Type N.E. Marine Date of Approval of Plan Newcastle. Tested by Hydraulic Pressure to 400 lbs

Date of Test 22 & 23-3-23 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes

Diameter of Safety Valve 3" 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 & nuts of each size for rotor bearings. 2 ditto for main gear wheel bearing. 2 ditto for pinion bearing. 1 set ditto for couplings. ½ total number bolts or studs & nuts for gear case joint. ½ ditto for each turbine case joint. 2 thermometers for oil circulating system. 1 set bearing bushes for gear wheel shaft. 1 set ditto for rotor shaft. 1 set ditto for pinion shaft. ½ set packing rings or segments for each gland of rotor shafts and half number of springs fitted. Pads for one face of Michell thrust block. 1 set of pads for Michell turbine thrust block. 1 set liners for adjusting block diff. thicknesses. 1 set valves, seats and springs for 1 main feed pump. 1 set valves for aux. feed, bilge, air, lub. oil, & san. pumps. 1 steam chest for main feed, air, lub. oil pumps. 1 set rings for main feed pump buckets. 1 bucket & rod for lub. oil pumps. 1 escape valve spring of each size. 1 propeller. 1 screw shaft. 1 pinion. 1 feed & scum valve for each boiler. 1 set valves, seats & guards for transfer pump. Various spare parts for air pump & fan engine. Assorted bolts, nuts & iron.

The foregoing is a correct description,

FOR RICHARDSONS, WESTGARTH & CO. LIMITED.

L. D. Wright GENERAL MANAGER. Manufacturer.

Dates of Survey while building: During progress of work in shops; During erection on board vessel	Survey of Turbines:— ...8. 1920 Dec 30. 1921 Mar 4. 31. Apr 8. 18. 27. Nov 8. 11. 16. 17. 19. 29. Dec 12. 1922 Jany 10. 18. 23. Feby 7. 13. 22. Mch 6. 7. 10. 22. 28. Apr 10. 11. May 30. Jul 3. 11. 27. Aug 2. 18. 22. Sept 12. 22. 29. Oct 4. 13. 25. 31. Nov 10. 21. 29. Dec 8. 18. 20. 28. 1923 Jan 5. 8. 11. 15. 19. 22. Feby 2. 7. 12. 13. Survey of Boilers, Auxiliaries &c.:— E. 2553. At Mdb 1921 Dec 30 1922 Jan 25. Feby 2. 6. 17. 22. Mar 3. Apr 8. At Hpl. 1922 Mar 8. Apl 21. May 17. Jul 5. 6. 11. 14. 17. 21. 25. Aug 2. 4. 15. 18. 22. 23. 24. 25. 28. 29. 30. Sept 1. 4. 5. 6. 7. 8. 11. 12. 13. 18. 20. 22. 26. 25. 27. 28. 29. Oct 2. 3. 5. 10. 12. 13. 16. 26. 27. 31. Nov 1. 7. 13. 15. 17. 20. 24. 28. 29. Dec 1. 4. 8. 11. 12. 13. 14. 15. 18. 18. 19. 20. 21. 28. 28. 1923 Jany 3. 8. 11. 13. 16. 17. 18. 19. 23. 24. 25. 26. 29. 29. 31. Feb 1. 2. 6. 7. 7. 8. 9. 13. 14. 15. 16. 22. 22. 23. Mar 3. 9. 9. 14. 15. 19. 19. 20. 23. 24. 26. 27. 27. 28. 28.
Total No. of visits	183.

Is the approved plan of main boiler forwarded herewith yes

" " " donkey " " "

Dates of Examination of principal parts—Casings 10·1·22 – 7·11·22 Rotors 11·11·21 – 12·2·23 Blading 11·7·22 – 12·2·23 Gearing 11·7·22 – 13·2·2[3]

Rotor shaft 23·1·22 – 13·2·23 Thrust shaft 13·2·23 Tunnel shafts 13·11·22 Screw shaft 13·11·22 Propeller 27·10·22

Stern tube 13·11·22 Steam pipes tested 15·11·22 & 28·3·23. Engine and boiler seatings 12·12·22 Engines holding down bolts 3·3·23

Completion of pumping arrangements 19·3·23 Boilers fixed 8·1·23 " Engines tried under steam 5·12·23

Main boiler safety valves adjusted 27·3·23. Thickness of adjusting washers P. P $\frac{1}{4}$ S $\frac{31}{64}$" C. P $\frac{9}{32}$ S $\frac{3}{8}$" S P $\frac{19}{64}$ S $\frac{15}{32}$" F P $\frac{27}{64}$ S $\frac{15}{32}$" Superheaters P $\frac{9}{16}$" C $\frac{23}{32}$" F $\frac{39}{64}$ S $\frac{13}{32}$"

Material and tensile strength of Rotor shaft S. M. Ingot Steel 34/38 Identification Mark on Do. H.P. 6946 A.F. L.P. 6375 A.F.

Material and tensile strength of Pinion shaft Nickel Ingot Steel Identification Mark on Do. H.P. 1195 P.M.C. L.P. 6368 J.F.

Material of Wheel shaft S.M. Ing. S. Identification Mark on Do. 3806 D. 76 M.R. Material of Thrust shaft S.M. Ing. S. Identification Mark on Do. 6120 K W.

Material of Tunnel shafts Scrap Iron Identification Marks on Do. 6325 RDS Material of Screw shafts Lockfast Iron Identification Marks on Do. 6325 RDS.

Material of Steam Pipes Lap welded steel 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

Is this machinery a duplicate of a previous case yes, except boilers If so, state name of vessel "London Commerce"

General Remarks (State quality of workmanship, opinions as to class, &c.) This vessels machinery has been built and installed under Special Survey. The materials and workmanship are good. The boilers have been examined under steam and safety valves adjusted. The vessel has returned to Middlesbrough for completion.
To complete the survey the turbines & auxiliary machinery are to be examined under working conditions, the oil pumping line in tunnel to be tested, the pumping connections in tunnel & holds to be completed and spare gear to be examined on board. On completion the vessel will be eligible to have notation ✠ L.M.C. with date.

The amount of Entry Fee	£ 6 —	When applied for, 10·4·23
Special	£ 125-2.	
Donkey Boiler Fee	£	When received, 5·9·1923
Travelling Expenses (if any)	£	

Engineer Surveyor to Lloyd's Register of Shipping. R. D. Shilston

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

Committee's Minute FRI. 14 DEC. 1923 FRI. DEC. 21 1923

Assigned See Mdb. Rpt 11771