

REPORT ON MACHINERY.

No. 46750

Date of writing Report 19 27 When handed in at Local Office 10 6 1927 Port of Glasgow
 No. in Survey held at Glasgow Date, First Survey 20 April 1926 Last Survey 7 June 1927
 Reg. Book. 1083 on the T. S. S. EMPRESS OF AUSTRALIA (Number of Visits 19)
 Master ✓ Built at Stettin By whom built Vulcanwerke A. G. When built 1914
 Engines made at Glasgow By whom made The Fairfield S. B. & E. C. Ld. when made 1927
 Boilers made at Glasgow By whom made The Fairfield S. B. & E. C. Ld. when made 1927
 Horse Power 3603 Owners Canadian Pacific Ry. Co. Port belonging to London
 Horse Power at Full Power 21,000 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

NE ENGINES, &c.—Description of Engines Parsons Reaction, Single Induction of Turbines 6
 of Rotor Shaft Journals, H.P. ✓ L.P. 9 1/2 Diameter of Pinion Shaft H.P. 6 1/2-3; L.P. 8 1/2-4
 of Journals H.P. 6 1/2-3; L.P. 8 1/2-4 Distance between Centres of Bearings 2'-11 1/4"
 of Wheel Shaft 18 3/4" Distance between Centres of Bearings 7'-9" Diameter of Pitch Circle H.P. 10.0694 L.P. 12.8546
 Face 4'-0" ✓ Diameter of Thrust Shaft under Collars 18 7/8" Diameter of Pitch Circle of Wheel 144.1855
 New Shafts 2 ✓ CL Diameter of same as per rule 18.89 ✓ Diameter of Tunnel Shaft as per rule 17.43 ✓
 as fitted 19 1/4 ✓ Diameter of Propellers 17'-6" Pitch of Propellers 17'-4" ✓
 State whether Moveable No. ✓ Total Surface 112.5 ✓ Diameter of Rotor Drum, H.P. L.P. 56 ✓
 at Bottom of Groove, H.P. L.P. 1 1/2 ✓ Astern 11 1/8 ✓ Revs. per Minute at Full Power, Turbine 1450 Propeller 127 ✓

CULARS OF BLADING.

H.P. & M.P.

L.P.

ASTERN.

HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
4 1/4	5'-4 1/2	2	5 1/4	5'-6 1/2	2	4 1/4	3'-10 1/4	3
5 1/4	5'-6 1/2	2	6 3/8	5'-9 1/4	2	L.P. 3 1/4	5'-3 1/4	2
6 3/8	6'-1	2	8 1/2	6'-4 1/2	1	3	4-3	2
10 1/4	6'-7	1	11 1/2	6'-7	1	4 1/4	4-5 1/2	2
11 1/2	6'-7	1	11 1/2	6'-7	1	6	4-9	2
11 1/2	6'-7	1	11 1/2	6'-7	1	6	4-9	2

Size of Feed pumps 4 Main 17 x 12 1/2 x 28" Main 1 Auxiliary 10 1/2 x 8 x 22" Water
 Size of Bilge pumps 1- 275 x 275 x 350" 1- 330 x 220 x 350" 1- 180 x 220 x 440" 1- 9 x 10 x 10 1/2 x 10 x 12 x 12"
 Size of Bilge suction in Engine Room See Hamburg F.E. Report No. 15069
 In Holds, &c. See Hamburg F.E. Report No. 15069

Re Injections 2 sizes 15" Connected to condenser, or to circulating pump C.P. ✓ Is a separate Donkey Suction fitted in Engine Room & size as shown Rpt.
 Bilge suction pipes fitted with roses Yes ✓ Are the roses in Engine room always accessible Yes ✓
 Connections with the sea direct on the skin of the ship Yes ✓ Are they Valves or Cocks Both ✓
 Raised 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 ✓
 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 ✓
 Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes ✓
 Large Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes ✓
 Low Shaft Tunnel watertight Yes ✓ Is it fitted with a watertight door Yes ✓ worked from Bridge and Deck ✓

RS, &c.—(Letter for record ✓) Manufacturers of Steel W. B. & Co. Ld. 6 D 8 1 S B.
 Heating Surface of Boilers 38075 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers 6 D 8 1 S B. Cyl. 7 ft.
 Pressure 220 lb. Tested by hydraulic pressure to 300 lb. Date of test No. of Certificate
 Boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to

Area of each valve Pressure to which they are adjusted Are they fitted with easing gear
 Distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Material of shell plates
 Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams
 Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps
 Strength of longitudinal joint Working pressure of shell by rules Size of manhole in shell
 Sensating ring No. and Description of Furnaces in each Boiler Material Outside diameter
 Main part Thickness of plates crown bottom Description of longitudinal joint No. of strengthening rings
 Pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom
 Stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules End plates in steam space
 Stays Diameter at smallest part Area supported by each stay Working pressure by rules Material of stays
 Thickness Pitch of stays How are stays secured Working pressure by rules Material of Front plates at bottom
 Smallest part Area supported by each stay Working pressure by rules Working pressure of plate by rules
 Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules
 Tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays
 Wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and
 of girder at centre Length as per rule Distance apart Number and pitch of stays in each
 Pressure by rules Steam dome: description of joint to shell % of strength of joint Diameter
 of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets
 Pressure of shell by rules Crown plates: Thickness How stayed

W1086-0162

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SUPERHEATER.

Type

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

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR.

State the articles supplied:

Studs & nuts for rotor pinion & gear shaft bearing caps, coupling bolts
and size nuts, both for turbine & gear end joints, 2 oil circulating thermostats, 2 each H.P. & L.P.
bearings, 9 pinion bearings, 2 main gear shaft bearings, 2 oil circulating thermostats, 2 each H.P. & L.P.
for H.P. & L.P. turbine & main thrust blocks, set of main & auxiliary rollers & casters for main & auxiliary
fuel, rollers, & lugs for roller relief springs for H.P. & L.P. turbines, main & auxiliary fuel, rollers & lugs
for H.P. & L.P. turbines, 1 H.P. pinion, 1 L.P. pinion, 1 main gear shaft
shaft, blocking, shrouding & packing for H.P. & L.P. rotors, 1 propeller shaft & coupling, 1 propeller
8 blades, 18 main rollers for main bearings, and quantity of other gear.

The foregoing is a correct description.

FAIRFIELD SHIPBUILDING AND
ENGINEERING CO., LIMITED.

Manufacturer.

Dates of Survey while building
During progress of work in shops - 1926 Apr 20-22-27-30 May 4-6-10-13-14-19-21-25-28 Jun 7-9-14-16-18-21-23-25-29 July 2-7-9-12-14-27-30 Aug 3-6-9-11-13-16-17-18-20-22-24-26-29
During erection on board vessel - 4-7-9-10-13-14-15-16-17-20-22-23-24-27-29-30 (1927) Jan 7-10-12-14-17-19-21-24-25-27-28-31 Feb 2-3-4-7-8-9-10-11-14-15-16-17-18-21-22-23-24-25-26-27-28-29-30
Total No. of visits 34-7-9-11-14-15-16-17-18-21-22-23-24-25-28-29-30 Apr 4-5-6-7-11-13-14-15-19-20-21-22-26-27-28-29 May 2-3-6-9-10-12-16-18-19-20
(191)
Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts - Casings 2.10.26/30.12.26 Rotors 2.12.26/15.1.27 Blading 7.12.26/27.1.27 Gearing 25.11.26/15.1.27
Rotor shafts 15.2.27 Thrust shafts 5.11.26 Tunnel shafts 3.11.26 Screw shafts 23.11.26 Propellers 1.12.26
Stern tube 3.12.26 Steam pipes tested 14.10.26/10.5.27 Engine and boiler seatings 12.1.27/27.1.27 Engines holding down bolts 14.8.27/30.1.27
Completion of pumping arrangements 6/6/27 Boilers fixed 18.5.27 Engines tried under steam 7/6/27
Main boiler safety valves adjusted 28.4.27/31.5.27 Thickness of adjusting washers 19.4.27/11.5.27
Material and tensile strength of Rotor shafts S.M.S. 30.6/31.1 Tons Identification Mark on Do. 99D. 100
Material and tensile strength of Pinion shafts Nickel Steel 45.7/47.0 Tons Identification Mark on Do. 43E. 44E. 45E. 46E. 47E. 48E. 49E. 50E. 51E. 52E. 53E. 54E. 55E. 56E. 57E. 58E. 59E. 60E. 61E. 62E. 63E. 64E. 65E. 66E. 67E. 68E. 69E. 70E. 71E. 72E. 73E. 74E. 75E. 76E. 77E. 78E. 79E. 80E. 81E. 82E. 83E. 84E. 85E. 86E. 87E. 88E. 89E. 90E. 91E. 92E. 93E. 94E. 95E. 96E. 97E. 98E. 99E. 100E.
Material of Wheel shafts S.M.S. Identification Mark on Do. 50D. 51D. 52D. 53D. 54D. 55D. 56D. 57D. 58D. 59D. 60D. 61D. 62D. 63D. 64D. 65D. 66D. 67D. 68D. 69D. 70D. 71D. 72D. 73D. 74D. 75D. 76D. 77D. 78D. 79D. 80D. 81D. 82D. 83D. 84D. 85D. 86D. 87D. 88D. 89D. 90D. 91D. 92D. 93D. 94D. 95D. 96D. 97D. 98D. 99D. 100D.
Material of Tunnel shafts S.M.S. Identification Mark on Do. 51D. 52D. 53D. 54D. 55D. 56D. 57D. 58D. 59D. 60D. 61D. 62D. 63D. 64D. 65D. 66D. 67D. 68D. 69D. 70D. 71D. 72D. 73D. 74D. 75D. 76D. 77D. 78D. 79D. 80D. 81D. 82D. 83D. 84D. 85D. 86D. 87D. 88D. 89D. 90D. 91D. 92D. 93D. 94D. 95D. 96D. 97D. 98D. 99D. 100D.
Material of Screw shafts S.M.S. Identification Marks on Do. 30D. 31D. 32D. 33D. 34D. 35D. 36D. 37D. 38D. 39D. 40D. 41D. 42D. 43D. 44D. 45D. 46D. 47D. 48D. 49D. 50D. 51D. 52D. 53D. 54D. 55D. 56D. 57D. 58D. 59D. 60D. 61D. 62D. 63D. 64D. 65D. 66D. 67D. 68D. 69D. 70D. 71D. 72D. 73D. 74D. 75D. 76D. 77D. 78D. 79D. 80D. 81D. 82D. 83D. 84D. 85D. 86D. 87D. 88D. 89D. 90D. 91D. 92D. 93D. 94D. 95D. 96D. 97D. 98D. 99D. 100D.
Material of Steam Pipes Steel Test pressure 660 lb/sq. in.

Is an installation fitted for burning oil fuel

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 a duplicate of a previous case

If so, state name of vessel

General Remarks

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

This machinery has been constructed under special survey in accordance with the Rules. The materials and workmanship employed in its manufacture, as far as can be seen are sound and good. Together with the boilers, it has been fitted on board the above vessel in satisfactory manner and found satisfactory under working conditions. The vessel is eligible in O.W. opinion to have French + L.M.C. 6.27 + NE+B 6.27. T.S. (CL) 6.27. + fitted for oil fuel 5.22. F.P. above 150°F.

The amount of Entry Fee

£

When applied for,

14 JUN 1927

Special

£

Donkey Boiler Fee

£

When received,

17.8.27

Travelling Expenses (if any)

£

Committee's Minute

GLASGOW 14 JUN 1927

Assigned

+ LMC 6.27.

+ NE+B 6.27

CERTIFICATE WRITTEN

FRI 24 JUN 1927
FRI 29 JUL 1927

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