

50560  
18 JUN 1970

Date of writing Report 19 When handed in at Local Office 11. 6. 1930 Port of Glasgow

No. in Survey held at Glasgow Date, First Survey 7. 9. 28 Last Survey 6th June 1930.

Reg. Book. on the Tain Screw S. S. EMPRESS OF JAPAN (Number of Visits 211) Tons { Gross 26032.28 Net 15720.35

Built at Glasgow By whom built Fairfela S.B. & E. Co. Ltd Yard No. 634 When built 1930

Engines made at do By whom made do Engine No. 634 When made 1930

Boilers made at do By whom made do Boiler No. 634 When made 1930.

Shaft Horse Power at Full Power 31009 Owners Canadian Pacific Railway Co. Port belonging to London.

Nom. Horse Power as per Rule 6475. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

Trade for which Vessel is intended Pacific.

STEAM TURBINE ENGINES, &c.—Description of Engines. *Parsons single reduction geared turbine*

*No. of Turbines* Ahead 6 } Direct coupled,  
Astern 4 } single reduction geared  
double reduction geared } to 2 propelling shafts. No. of primary pinions to each set of reduction gearing 3

direct coupled to { Alternating Current Generator ✓ phase ✓ periods per second } rated ✓ Kilowatts ✓ Volts at ✓ revolutions per minute;  
Direct Current Generator }

for supplying power for driving ✓ Propelling Motors, Type ✓

rated ✓ Kilowatts ✓ Volts at ✓ revolutions per minute. Direct coupled, single or double reduction geared to ✓ propelling shafts.

[illegible]

|                                   |  |  |  |                     |
|-----------------------------------|--|--|--|---------------------|
| Shaft Horse Power at each turbine | $\left\{ \begin{array}{l} \text{H.P. } 5200 \\ \text{I.P. } 5150 \\ \text{L.P. } 5150 \end{array} \right.$ | Revolutions per minute, at full power, of each Turbine Shaft | $\left\{ \begin{array}{l} \text{H.P. } 1490 \\ \text{I.P. } 1490 \\ \text{L.P. } 1490 \end{array} \right.$ | 1st reduction wheel |
|                                   |  |  |  |                     |
|                                   |  |  |  | main shaft 120      |

|                                  |      |    |                       |            |         |                     |               |                     |            |
|----------------------------------|------|----|-----------------------|------------|---------|---------------------|---------------|---------------------|------------|
| Rotor Shaft diameter at journals | H.P. | 9" | Pitch Circle Diameter | 1st pinion | 13-0688 | 1st reduction wheel | Width of Face | 1st reduction wheel |            |
|                                  | L.P. | 9" |                       | 2nd pinion |         | main wheel          |               | 162-1819"           | main wheel |
|                                  | L.P. | 12 |                       |            |         |                     |               | 4-11"               |            |

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings

|            |                                    |                                   |
|------------|------------------------------------|-----------------------------------|
| 1st pinion | 1-11 <sup>1</sup> / <sub>8</sub> " | 1st reduction wheel               |
| 2nd pinion |                                    | main wheel                        |
|            | 8 <sup>1</sup> / <sub>2</sub> "    | 2-7 <sup>3</sup> / <sub>8</sub> " |
|            |                                    | (1st 12' 49.22)                   |

|                                  |     |   |                                     |          |     |        |     |   |                                    |     |         |     |   |
|----------------------------------|-----|---|-------------------------------------|----------|-----|--------|-----|---|------------------------------------|-----|---------|-----|---|
| Flexible Pinion Shafts, diameter | 1st | ✓ | Pinion Shafts, diameter at bearings | External | 1st | 8 1/2" | 2nd | ✓ | diameter at bottom of pinion teeth | 1st | 12 1/2" | 2nd | ✓ |
|                                  | 2nd | ✓ |                                     | Internal | 1st | 4"     | 2nd | ✓ |                                    | 2nd | ✓       |     |   |

Wheel Shafts, diameter at bearings { 1st ✓ diameter at wheel shroud, { 1st ✓ Generator Shaft, diameter at bearings ✓  
main 24" ✓ main 13'-0 7/8" Propelling Motor Shaft, diameter at bearings ✓  
20' 2" as per rule 21' 2" as per rule ✓

Intermediate Shafts, diameter as per rule 26.1  
as fitted 21 3/8" Thrust Shaft, diameter at collars as per rule 27.2  
as fitted 22 1/2" Tube Shaft, diameter as per rule 28.1  
as fitted 23.1

Screw Shaft, diameter as per rule 21.9  
as fitted 23.1 The screw shaft fitted with a continuous liner Yes. Bronze Liners, thickness in way of bushes as per rule 1"  
as fitted 1 1/2"

as fitted 2.3 (screw) yes. as fitted 1 1/8

as per rule 3/4"

Thickness between bushes as fitted 13/16" Is the after end of the liner made watertight in the propeller boss Yes. If the liner is in more than one length are the junctions yes.

If the liner does not fit tightly at the part between the bearings in the stern tube is the space charged with yes.

made by fusion through the whole thickness of the liner ✓ If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with plastic material insoluble in water and non-corrosive ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓ Is an approved Oil Glass or other appliance fitted at the after end of the ~~lower~~ shaft No. Length of Bearing in Stern Bush next to and supporting propeller 11'-6"

Propeller, diameter 20'-0" Pitch 20'-0" No. of Blades 3 State whether Moveable Fixed Total Developed Surface 156 square feet  
If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Can the H.P. or I.P. Turbine exhaust direct to the condenser  
No. and size 4 Main (Centrifugal) 150000 lbs/hr (2 aux. Boilers)

|  |      |   |                        |            |            |                      |      |             |
|--|------|---|------------------------|------------|------------|----------------------|------|-------------|
| Condenser                              | Yes. | No. of Turbines fitted with astern wheels | 4                      | Feed Pumps | How driven | Steam Turbine        | EACH | 42.7.2      |
| Pumps connected to the Main Bilge Line |      | No. and size                              | 4 - 250 tons thro each |            |            | 1 - 190 tons per hr. |      | steam pumps |

Pumps connected to the Main Bilge Line (How driven) *Motor driven*

Ballast Pumps, No. and size *4 - 250 tons per hr each* Lubricating Oil Pumps, including Spare Pump, No. and size *6 - 10000 galls per hr*

Are two independent means arranged for circulating water through the Oil Cooler *Yes. Main engine gen service* Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Engine and Boiler Room *Pipe Pump 1 1/2" 123 1/2" 10" B. Room. 30 3/4". Passage 103. aft B. Room. 30 3/4". Gen. Room 103 1/2".*  
In Holds, &c. *Star 20 3/4". aft 103 1/2". Maindy Room 30 3/4". 6 aft. 103 1/2". Workshop 103 1/2". Refry. Room 103. Jumbels 403. Drain 403.*

Main Water Circulating Pump Direct Bilge Suctions, No. and size 2-16 bore. Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2-6 1/2 bore. AFT B. Room Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes straight tail pipes mud Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes.

Are all Sea Connections fitted direct on the skin of the ship Yes. Boiler Room Are they fitted with Valves or Cocks Yes.  
Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Overboard Discharges 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.

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel? *Yes*

What pipes pass through the bunkers? *✓*

How are they protected? *✓*

What pipes pass through the deep tanks? *✓*

Have they been tested as per rule? *✓*

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes.

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes. Is the Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes. worked from upper deck.



In accordance with the Rules and Additional.

*OR Shankar* Manufacturer.

Is the flash point of the oil to be used over 150°F. Yes. Have the requirements of the Rules for carrying and burning oil fuel been complied with Yes.  
Is this machinery a duplicate of a previous case No. If so, state name of vessel ✓

The machinery of this vessel is eligible, in our opinion, to be classed in the Register Book with notation of "L.M.C. 6-30. and Record of "Fitted for oil fuel 6-30 F.P. Above 180° F."

6 Steam turbines SR geared to 2  
ac. shafts F.D. C.L.  
S.D. 21/6/30. A.R.

Robert Rae & Geo. Munro.  
Engineer Surveyor to H.M.'s Register of Shipping.

Assigned + L.M.C. 6.30.

Fitted for oil fuel 6.30. F.P. above 150° F.