

# REPORT ON STEAM TURBINE MACHINERY. No. 10,134

4a.

Received at London Office 20.3.29

When handed in at Local Office 19-3-29 Port of Belfast  
 Date, First Survey 17 Aug 1928 Last Survey 5 Mar 1929  
 in Survey held at Belfast (Number of Visits 66)  
 on the STEEL TWIN SC. MONTCALM Tons Gross 16418 Net 9789  
 built at Glasgow By whom built Brown & Co. Ltd. Yard No. 464 When built 1921-22  
 Engines made at Belfast By whom made Harland & Wolff Ltd. Engine No. 8073 When made 1929  
 Boilers made at Glasgow By whom made Brown & Co. Ltd. Boiler No. 464 When made 1921  
 Shaft Horse Power at Full Power 12500 Owners Canadian Pacific Railway (Canadian Pacific Steamships Ltd (Mgmt)) Port belonging to Liverpool.  
 Indicated Horse Power as per Rule 2390 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes  
 Trade for which Vessel is intended Ocean-going

## STEAM TURBINE ENGINES, &c.—Description of Engines Parsons - reaction type

of Turbines Ahead Two Direct coupled, single reduction geared } to two propelling shafts. No. of primary pinions to each set of reduction gearing three  
 Astern Two double reduction geared }  
 Direct coupled to } Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;  
 Direct Current Generator }  
 supplying power for driving Propelling Motors, Type  
 Direct coupled, single or double reduction geared to propelling shafts.

TURBINE LOADING.	Effective HEIGHT OF BLADES.	H.P.			I.P.			L.P.			ASTERN.		
		DIAMETER AT TIP.	NO. OF ROWS.	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.	
EXPANSION	1 3/8"	21 3/8"	13	1 13/16"	29 5/8"	6	3 3/8"	50 1/4"	2	1 3/4" to 3 5/8"	40" M.D.	3 Impulse	
"	1 5/8"	21 7/8"	13	2 1/16"	30 3/8"	6	3 5/16"	51 7/8"	2	1 3/4" to 3 3/8"	48" M.D.	2 "	
"	2"	22 5/8"	13	2 7/8"	31 3/4"	6	5"	54"	2	2 5/16"	39 5/8"	2 Reaction	
"	2 3/8"	23 3/8"	13	3 1/16"	33 1/8"	6	6 3/8"	56 3/4"	2	3 1/16"	41 5/8"	2 "	
"	2 3/8"	24 3/8"	13	3 1/16"	33 5/8"	6	7 3/4"	59 1/2"	1	4 5/8"	44 1/4"	2 "	
"							9"	62"	1	4 7/8"	44 1/4"	2 "	
"							9"	62"	1	4 7/8"	44 1/4"	2 "	
"							9"	62"	1				
"							9"	62"	1				

Shaft Horse Power at each turbine { H.P. 2170 }  
 { I.P. 1990 }  
 { L.P. 2090 }  
 Revolutions per minute, at full power, of each Turbine Shaft { H.P. 2100 }  
 { I.P. 2100 }  
 { L.P. 1800 }  
 Motor Shaft diameter at journals { H.P. 6 1/4" }  
 { I.P. 6 1/4" }  
 { L.P. 8 1/2" }  
 Pitch Circle Diameter { 1st pinion 7.498" }  
 { 2nd pinion 8.783" }  
 Width of Face { 1st reduction wheel }  
 { main wheel 38" }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion }  
 { 2nd pinion }

Flexible Pinion Shafts, diameter { 1st }  
 { 2nd }  
 Pinion Shafts, diameter at bearings { External }  
 { Internal }  
 diameter at bottom of pinion teeth { 1st H.P. 6.92" }  
 { 2nd I.P. 6.92" }  
 { 3rd L.P. 8.2" }

Wheel Shafts, diameter at bearings { 1st }  
 { main 20" }  
 diameter at wheel shroud, { 1st }  
 { main 139 5/16" }  
 Generator Shaft, diameter at bearings  
 Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule  
 as fitted  
 Thrust Shaft, diameter at collars as per rule  
 as fitted  
 Tube Shaft, diameter as per rule  
 as fitted

Screw Shaft, diameter as per rule  
 as fitted  
 Is the tube screw shaft fitted with a continuous liner  
 Bronze Liners, thickness in way of bushes as per rule  
 as fitted

Thickness between bushes as per rule  
 as fitted  
 Is the after end of the liner-made watertight in the propeller boss  
 If the liner is in more than one length are the junctions 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 a 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 Gland or other appliance fitted at the after end of the tube shaft

Propeller diameter 18'-0" Pitch 17'-3" No. of Blades 3 State whether Moveable No. Total Developed Surface 82 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. of Turbines fitted with astern wheels Feed Pumps { No. and size }  
 { How driven }

Pumps connected to the Main Bilge Line { No. and size }  
 { How driven }  
 Ballast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size  
 Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room  
 In Holds, &c.

Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room  
 Bilges, No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes  
 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  
 Are all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Overboard Discharges above or below the deep water line  
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate  
 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  
 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 Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from



