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As already introduced in the last number of *"Railway Technology Avalanche*," you can see us by turning over to the page in which *"Visit Us through Rail. Tech. Avalanche*" appears whenever receiving the newsletter issued not on a regular basis but opportunely to mention the current state of railway technologies developed by Railway Technical Research Institute. Through this page, you can casually drop by our facilities furnished in the institute. Therefore, please find a few minutes and then join the brief tour planned only for you in the premises of the institute. At this time, let us take you to the Pantograph Testing Machine. Enjoy your time with us!

PANTOGRAPH TESTING MACHINE

Outline. The pantograph testing machine is used for measurement and performance tests as given in Table 1.

Table 1. What Can Be Performed with the Pantograph Testing Machine

Measurement of pantograph compliance characteristics
Measurement of contact loss rate (up to 300 km h^{-1})
Endurance test
Current sending test (up to 400 A)

Features. The pantograph testing machine consists of a pantograph vibrating table and a rotary disk with a 10-m long steel trolley wire installed along its circumference. The rotary disk and the pantograph under test are independently vibrated to simulate changes in the height of the trolley wire and vibration of rolling stock for tests at 300 km h^{-1} with the pantograph passing a current up to 400 A.

Table 2. Major Dimensions

-Rotary disk	
Speed	Peripheral speed 35 to 300 km h^{-1}
Lateral motion	Amplitude ±200 mm, period about 30 s
Vertical motion	Amplitude, maximum ±35 mm (depending on the frequency); frequency, 0 to 17 Hz
Unevenness of trolley wire	Wavelength, 10 steps from 100 to 500 mm; wave height, 5 steps from p-p 0.5 to 5.0 mm
-Pantograph vibrating table	
Maximum load	300 kg
Maximum lift	1600 mm
Vertical motion	Amplitude, maximum ±35 mm (depending on the frequency); frequency, 0.5 to 10 Hz
Longitudinal motion	Amplitude, maximum ±5 mm; frequency, 3 to 25 Hz
-Current capacity	100, 200, 300, and 400 A at 100 V (AC or DC optional)

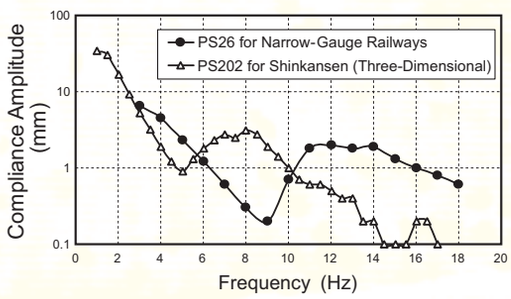

Figure 1. Appearance. Most of the pantographs used by Japan Railway companies are tested on this pantograph testing machine, which is only one of its kind in Japan, to confirm the basic performance at the developmental stage. This testing machine also enables tests against impacts and under accident-simulating conditions which cannot be reproduced in field tests.

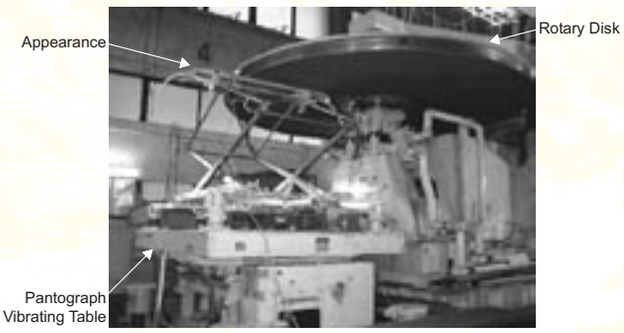

Figure 2. An Example of the Measurement of Pantograph Compliance Amplitude.

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