

# Visit Us through Rail. Tech. Avalanche

**Sakai, Hiroyuki**  
 Editor, Rail. Tech. Avalanche

As you might know, a lot of facilities and equipment to develop and improve railway technologies are with us in the premises of Railway Technical Research Institute. Let me provide you with brief opportunities to easily visit us even when you are still at your desk. We will walk you step by step throughout the premises by requesting that you kindly check pages, where "Visit Us through Rail. Tech. Avalanche" appears, all the time when "Railway Technology Avalanche" is at you. It is a simple manner to find our facilities without actually coming over to us in Tokyo, Japan, that is possibly quite distant from your current location. See photos with short explanation, and enjoy your private visit to us through "Visit Us through Rail. Tech. Avalanche." The trip to us is always available whenever you decide to set off on it. As the first spot during the tour, we take you on sightseeing at the High-Speed Rolling Stock Test Stand. Hope you take an interesting look at the facilities.

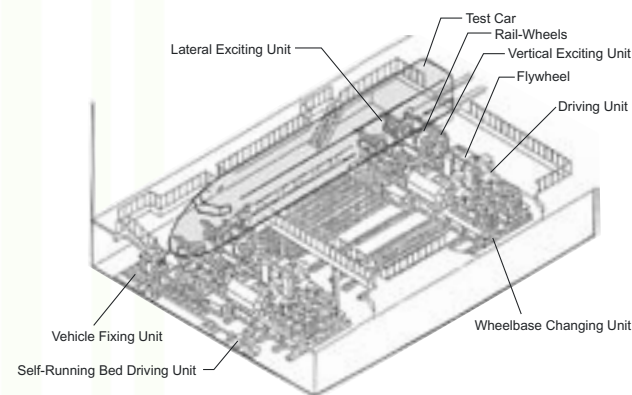
## HIGH-SPEED ROLLING STOCK TEST STAND

**Outline.** The high-speed rolling test stand is used to test the kinetic characteristics and drive control performance of railway vehicles placed on the rail-wheels.

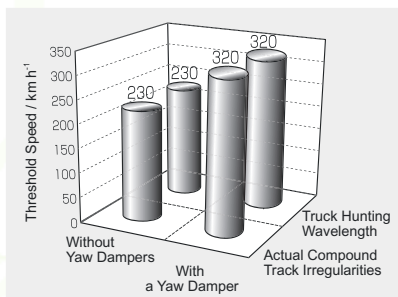
**Functions.** The high-speed rolling stock test stand, which is only one testing machine of its kind in Japan, is used to test the control performance and kinetic characteristics of actual railway vehicles, including running stability, sine-wave-frequency responses, and ride comfort against vibration up to the speed of 500 km h<sup>-1</sup>, with actual track irregularities input. The lateral force equivalent to excessive centrifugal and cross wind force can be applied to the carbody. By using this test stand, it is possible to measure detailed characteristics of rolling stock without actually running it on a main line, and perform damper/spring tuning tests and other tests under pessimum conditions that cannot be reproduced on lines in service.

**Table 1. Major Dimensions**

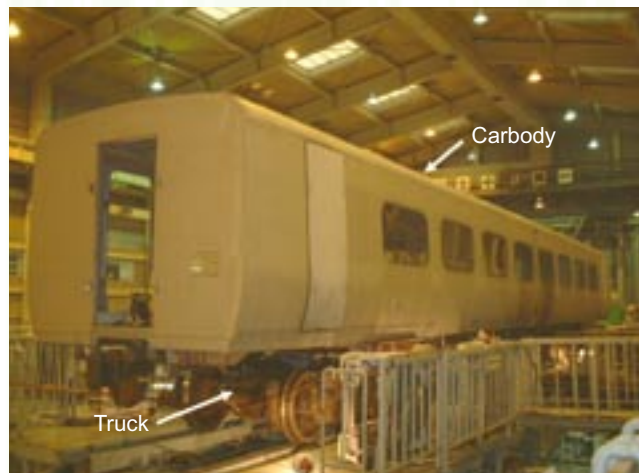
Maximum speed	500 km h <sup>-1</sup>
Maximum longitudinal force	200 kN
Gauge	1000 mm to 1676 mm
Maximum equivalent inertia mass	16 × 10 <sup>4</sup> kN set <sup>-1</sup>
Maximum axle load	200 kN
Wheel base	1600 mm to 3500 mm
Rail wheel diameter	1500 mm
Maximum additional carbody load	40 kN
Rail wheel displacement	Vertical, 0.1 Hz to 25 Hz, the maximum displacement ± 12 mm; Lateral, 0 Hz to 15 Hz, the maximum displacement ± 30 mm; Rolling, 0.1 Hz to 10 Hz, the maximum angle ± 11 mrad



**Figure 1.** Effect of exciting conditions on the threshold hunting speed.



**Figure 2.** View of test apparatus.



**Figure 3.** High-speed rolling stock test stand.

Publisher:  
 Tanaka, Hiroshi  
 Deputy General Manager, Information & International Affairs  
 Division

All your inquiries on the article(s) published in this newsletter to International Affairs at [www-admin@rtri.or.jp](mailto:www-admin@rtri.or.jp) will absolutely be welcome. If you can kindly electronically give us the information on your name, title as well as regular-mail and e-mail addresses so as to make the handling for air-mailing the rest of the newsletters to you easier for us to properly and correctly

perform without any difficulty, we would be highly appreciative.  
 Editor:  
 Sakai, Hiroyuki, PhD  
 Deputy Manager, International Affairs  
 Phone, +81-42-573-7258; Fax, +81-42-573-7356;  
 E-mail, [www-admin@rtri.or.jp](mailto:www-admin@rtri.or.jp)