

Our Manned Maglev System Attains Maximum Speed Record of 581 km/h

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The maglev system running test, which was started on the Yamanashi Maglev Test Line in April 1997, has been carried out smoothly and steadily (Table 1). Many of the tests have been completed. On the basis of the test results obtained in the first three years, the Maglev Technological Practicality Evaluation Committee organized by the Ministry of Transport, favorably evaluated our technology saying that: "It is considered that the technology has paved the way for practical use of maglev railways as a super high-speed mass transit system, although there is still room for further improvements from the standpoint of long-term durability and economic efficiency."

Since 2000, we have been making further improvements through our five-year plan. To improve long-term durability, we have carried out continuous running tests. To improve economic efficiency, we have developed new technologies for cutting costs and subjected them to verification tests. In 2002, we introduced newly developed facilities and vehicles to the Maglev Test Line and confirmed that they could achieve planned performance. They are still being tested on the line.

Under these conditions, in order to attain a higher objective while continuing stable running tests, we planned to break the speed record of maglev systems and started to meet the challenge in 2003. The minimum requirement of the Maglev Test Line (total length: 18.4 km) was that it should allow for a maximum speed of 550 km/h, although there were many unknown factors in the design stage. Therefore, while the installed capacity was given a little allowance, we made necessary preparations, including improvement on

control of the power converter and bench tests on vehicle parts. From the running test data accumulated in the past, the running resistance and brake performance required were clearly known. On the basis of this knowledge, we set 580 km/h as the maximum speed at which the train could be stopped safely.

Since the reliability of our system had been proved by a long period of stable running tests, we started the test with more confidence than we had five years ago when the maximum speed of 552 km/h was attained. On December 2, 2003, we twice recorded a top speed of 581 km/h (Figure 1). This speed is considered near the limit on the 18.4 km experimental line. However, since our maglev system boasts exceptional acceleration, we felt that it could easily break the new speed record of 581 km/h if the line were extended.

There are only a few months left for the five-year plan that was started in FY 2000. We have actively tested and evaluated our maglev system. Incidentally, the cumulative running distance exceeded 400,000 km in October 2004.



Table 1. Major Developments on Yamanashi Maglev Test Line

Apr. 3, 1997	Running test started.
Dec. 24, 1997	Maximum speed of 550 km/h attained (unmanned).
May 17, 1998	Test riding started.
Apr. 14, 1999	Maximum speed of 552 km/h attained (manned).
Nov. 16, 1999	Relative speed of 1,003 km/h attained by two trains having passed each other.
Aug. 26, 2000	Cumulative running distance exceeds 100,000 km.
Jul. 26, 2003	Cumulative running distance exceeds 300,000 km and cumulative number of persons aboard test cars exceeds 50,000.
Nov. 7, 2003	Traveling distance per day reaches 2,876 km.
Dec. 2, 2003	Maximum speed of 581 km/h attained (manned).

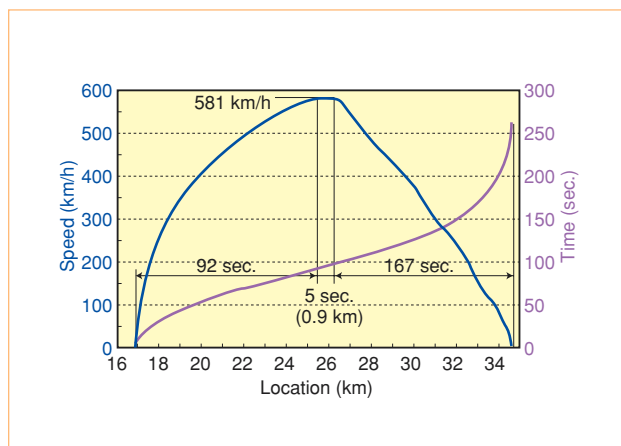


Figure 1. Running pattern during 581km/h test



Figure 2. Photograph of the running test