

JRTR

Japan Railway & Transport Review

Feature

50 Years of High-Speed Railways

- The Shinkansen—World Leading High-Speed Railway System
- 50 Years of Tokaido Shinkansen
- Measures Taken by JR East to Expand Shinkansen Network and Increase Train Speeds
- High-speed Rail Worldwide—Past and Future

Special Theme

- Impact of Japan's Declining Birth Rate and Aging Society on Railways
- Recovery from Great East Japan Earthquake: Full Resumption of Services on Sanriku Railway
- Transfer of Rolling Stock to Indonesia and Technical Support for Maintenance
- Outline of JR East Group Safety Plan 2018—The Sixth 5-Year Safety Plan

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Japanese shinkansen carriages. Clockwise L to R from top: Tokaido Shinkansen N700A (©Central Japan Railway Company) Series E5 Shinkansen (JR East), Series E7/W7 (JR East), Series 800 (JR Kyushu), Series N700, 100, 0, and 300 Shinkansen (©Central Japan Railway Company)

Tokaido Shinkansen Results

The 2012 statistics for the Shinkansen are.

Daily number of passengers: 410,000; Annual number of passengers: 150 million; Daily transportation capacity between Tokyo and Osaka: 320,000 (compared to 30,000 for airlines); Average delay per train: 30 seconds; Energy consumption per seat: About 12% of airlines; CO₂ emissions per seat: About 8% of airlines; Passenger fatalities or injuries: Zero.

These statistics are objective facts providing just a small glimpse of the ability and might of the Tokaido Shinkansen over the 50 years since it began operation. Renowned architect Kisho Kurokawa once said, 'It is truly wonderful that the shinkansen was built, but what is even more wonderful is that it continues to operate safely and accurately every single day.' As Shuichiro Yamanouchi explained in his book *Why do Rail Accidents Happen?*, it is no exaggeration to say that the history of railways has been a series of failures and measures to overcome such failures. Although there may also be failures on the Tokaido Shinkansen, a series of thoroughly implemented fail-safes continue to be followed to ensure that there are no passenger fatalities or injuries, even in the event of a failure. This system has continued for 50 years and its robustness and integrity are firmly maintained. Shinji Sogo and Hideo Shima may have been the fathers of the shinkansen, but many other people have been involved in the shinkansen's development and construction, seeking not merely to focus on high-speed technologies, but also filled with a strong human resolve to ensure their railway will never cause any fatalities or injuries. The above results are a testimony to this deep-seated resolve. We seek to take on and continue their philosophy with similar determination.

K. Aoki

CONTENTS

Feature: 50 Years of High-Speed Railways

The Shinkansen—World Leading High-Speed Railway System	6
50 Years of Tokaido Shinkansen History	18
Measures Taken by JR East to Expand Shinkansen Network and Increase Train Speeds	28
High-Speed Rail Worldwide—Past and Future	36

Special Theme

Impact of Japan's Declining Birth Rate and Aging Society on Railways	48
Recovery from Great East Japan Earthquake: Full Resumption of Services on Sanriku Railway	58
Transfer of Rolling Stock to Indonesia and Technical Support for Maintenance	70
Outline of JR East Group Safety Plan 2018—The Sixth 5-Year Safety Plan	76

Breakthrough in Japanese Railways 13

High-Density Transport Systems Supporting Giant Metropolis of Tokyo	84
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Another Perspective

My Nice Japanese Friends	96
--------------------------------	----

Topics	100
--------------	-----

Photostory

New Shinkansen Carriages	2, 109
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