

> GLOSSARY

Automatic Train Control (ATC) System

ATC equipment automatically controls braking in accordance with remote speed commands that are transmitted electrically from control equipment to train through the track with instructions for the desired speed, instead of via trackside signals to the driver. Equipment in the train receives speed commands, which are indicated on the driver's panel. This is installed in Joetsu, Tohoku and Nagano Shinkansen trains and busy conventional lines. Further, JR East is making advance preparations to introduce the next generation system, Digital ATC. With this system trains will decelerate gradually after digital signals transmitted from sensors on the ground inform a following train about the position of the preceding train. Introduction of Digital ATC will enable a further shortening of the distance between trains. The new system will be installed on the Morioka-Hachinohe sector of the Tohoku Shinkansen Line in December 2002.

Liners

Liners are reserved-seat trains that run during the morning and evening commuting periods. Passengers pay a home liner charge of ¥500, or a boarding charge of ¥310 for the right to board these trains. The service was first introduced on a limited express train to Omiya in the evening commuting period, using limited express trains that were being returned to Omiya. The opportunity to reserve seats for such a small price was very popular, and the service has since been expanded to other routes. The number of trains has also been increased. The Chuo-Ome Liner, introduced in December 2001, is the first train in which all seats are reserved.

Commuter pass

A credit card-sized card, normally encoded magnetically, allowing unlimited travel between two points over a period of one, three or six months. In addition to commuter passes based on conventional magnetic stripe cards, JR East also offers the IC card *Suica* commuter pass. First introduced in November 2001, *Suica* is a contactless IC card. Passengers can pass through automatic fare collecting gate by inserting their magnetic cards into the gate, or by touching their *Suica* cards against the gate. In Japan, employers normally pay for their employees' commuter passes.

Japan Railway Construction Public Corporation (JRCC)

Established in 1964, JRCC is a government-owned corporation whose primary activity is the construction of Seibi Shinkansen (see "Shinkansen") and other national projects. Within JR East's service area, this corporation is presently building Hokuriku Shinkansen and Tohoku Shinkansen extension. JR East rents Nagano Shinkansen, which is one sector of Hokuriku Shinkansen and commenced operations in October 1997, from JRCC. JR East also rents conventional lines such as Musashino line, Keiyo line and three other lines from JRCC. The "Law for Disposal of Debts and Liabilities of the Japanese National Railways Settlement Corporation" (the "Law") was enforced in October 1998. This resulted in the liquidation of the JNRSC and the transfer of JR East shares held by JNRSC to JRCC's JNR Settlement Headquarters. In June 2002, JRCC sold all remaining shares (500 thousand) to the public.

Number of passengers

This figure includes both passengers who begin their journey at JR East stations and passengers who transfer to JR East from other railway company lines.

Operating kilometers (passenger line network)

Operating kilometers are units of measurement of the actual length of a railway line between two stations, regardless of the number of tracks along the line. Fare and charge calculations are based on this figure.

Passenger-kilometers

Passenger-kilometers are units used in measuring passenger volume. They are calculated by adding up the numbers each of which are calculated by multiplying the number of passengers that pass between two stations by the distance (in operating kilometers) between the stations.

Rolling stock kilometers

Taking into account the number of railcars on each train, rolling stock kilometers (or railcar kilometers) are precise measures of transportation capacity. They are calculated by adding up the numbers each of which are calculated by multiplying the number of railcars (excluding locomotives) that pass between two stations by the distance (in operating kilometers) between the stations.

Shinkansen

The high-speed rail system in Japan often referred to as "bullet trains." JR East operates Tohoku Shinkansen from Tokyo to Morioka, Joetsu Shinkansen from Omiya to Niigata, and Nagano Shinkansen from Takasaki to Nagano (see page 20). The operation of Tohoku Shinkansen line's sector from Morioka to Hachinohe will start on December 1, 2002. JR Central operates Tokaido Shinkansen. JR West operates Sanyo Shinkansen. Several new Shinkansen lines are now under construction or in advanced planning stages. These lines are collectively called "Seibi Shinkansen" and are covered by the Nationwide Shinkansen Railway Development Law (see page 39).

Shinkansen-conventional line through-service hybrid trains

This service is provided by specially designed trains capable of running on both Shinkansen lines and conventional lines where the track width has been broadened to standard gauge but the original narrow-gauge bridges, tunnels, stations and other facilities are used. Most railway lines in Japan are narrow-gauge, which have a rail width of 1.067 meters. The major exception is the Shinkansen network, which uses 1.435-meter-wide standard-gauge rails. Currently in Japan, through service of Shinkansen is extended to the two conventional lines between Fukushima and Shinjo and between Morioka and Akita of JR East, which are respectively called Yamagata hybrid Shinkansen and Akita hybrid Shinkansen for operational purposes. This through-service is unrelated to Seibi Shinkansen.

Track access charge

Japan Freight Railway Company (JR Freight), which was formed through the April 1987 division and privatization of JNR to conduct nationwide freight operations, does not own railway lines other than freight yards and other facilities used exclusively for freight operations. This company pays track access charge to the JR passenger railway companies, including JR East.

Advanced Train Administration and Communication System (ATACS)

This new railway system uses on-board computers and mobile communications technology to communicate by wireless rather than through track-based circuits. It is being developed as a low-cost way of achieving various control functions, including train separation control, route selection and level crossing control.