

# How do we ensure railway safety?

Ever since JR East began operations in 1987, safety has always been our number one management priority; today we are promoting an initiative based plan called Safety Plan 21. In order to become the safest railway in the world, we have set a goal of zero accident fatalities or injuries for customers and zero accident fatalities for personnel.

## Safety Plan 21

Safety Plan 21 is a five-year plan (FY 1999 to 2003) built around the following core principles; maintaining safety equipment, tightening safety standards, appropriately responding to change, and reemphasizing safety awareness. Based on this plan, we are working to increase the safety of the railway system throughout JR East Group. We plan to invest nearly 400 billion yen over the five years to upgrade our safety equipment, thus living up to both our corporate mission and the expectations of our passengers.

### Minimizing railway accidents

In 1987, the first year JR East in business had 376 accidents. In FY 2002, there were 111 accidents—this is the lowest level to date and represents a nearly 70% decrease since 1987.

### Safety measures to prevent accidents at railroad crossings

There were 40 railroad-crossing accidents in FY 2002, the lowest number in our history. This is clear evidence of our all-out effort to eliminate crossing accidents using advanced safety equipment such as crossing-obstruction detectors and two-stage crossing gates.



"Two stage crossing gates" reduce accidents

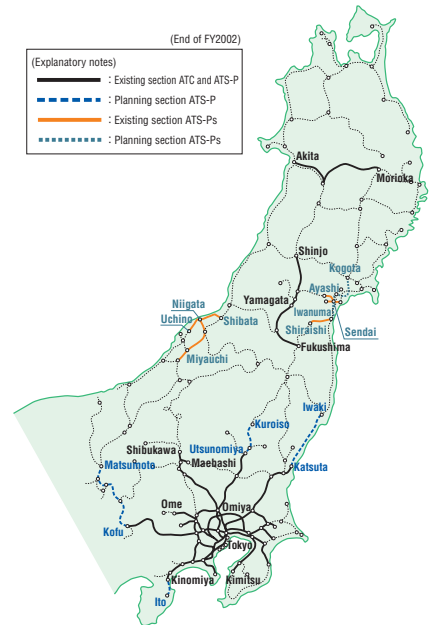
## Ensuring railcar operation safety

### Providing ATS-P and ATS-Ps systems

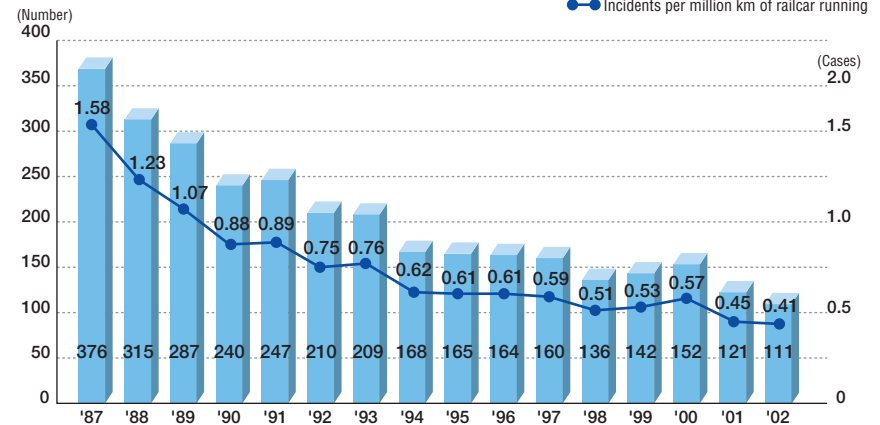
JR East uses the automatically controlled ATC system (Automated railcar control system), which monitors railcar speed, and the ATS system (Automated railcar stop system), which stops trains automatically when an emergency stop signal is activated.

We are currently preparing to introduce the ATS-P system (with highly developed safety features) along 100 km of track in the Tokyo metropolitan area, and to install ATS-Ps designed to suit local conditions in the Sendai and Niigata areas. We are also planning to introduce the digital ATC on the *Keihin Tohoku* Line in FY 2003, and on the *Yamanote* Line in FY 2005. Digital ATC uses digital technology to provide smooth railroad operation.

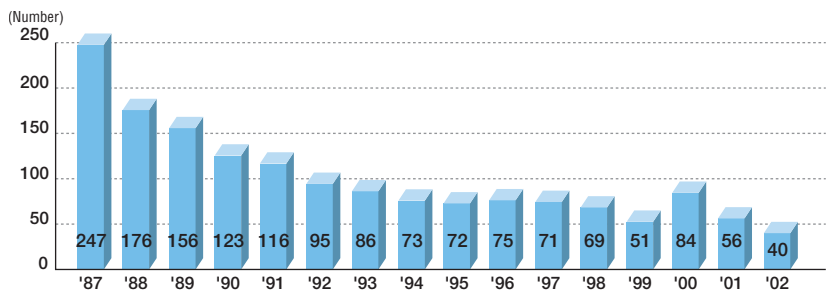
### Plan for ATS-P and ATS-Ps



### Numbers of railway accidents



### Numbers of accidents at crossings



## Safety-technology developments

### Systematized maintenance

We are in the process of adopting ATOS (Autonomous Decentralized Transport Operation Control System) as the standard operation control system for major railway lines in the Tokyo metropolitan area. With this system a worker uses a handheld terminal to designate a section of track needing maintenance. The system automatically prevents trains from approaching the designated section. In areas where ATOS is not yet available, we are currently testing a system to allow the operation status of each train to be confirmed via mobile terminal.



The ATOS command center provides centralized control for all designated trains

### Research on derauling

In order to prevent train derailments, we work to improve methods of managing rolling stock and facilities, and of evaluating safety. To be more specific, we conduct test runs with actual trains to calibrate contact points between wheels and rails on a regular basis, and measure the various forces generated between surfaces. We also study derailment mechanics with the help of computer simulation.



Test runs provide data on contact points between wheels and rails and other information

### Research on gale warnings

To prevent derailment and rolling of trains in gale force winds, JR East has formulated regulations on train operation during such conditions. Under existing regulations, however, once a warning is issued, train operations continue to be regulated until thirty minutes after the all clear is given. In order to improve the system, we are now developing a gale warning protocol that activates operating regulations 30 minutes prior to the time gale force winds are predicted to hit.

## Learning from past to prevent future accidents

In April 2002 we revised regulations on reporting and categorizing accidents in an effort to more clearly identify accident causes and other transportation hazards. We established a new structure for factors that may not cause accidents directly but could be identified as contributing and preventable.

In November 2002 we established the Accident History Exhibition Hall at the JR East General Training Center. The exhibition hall is designed to impress employees with the gravity of accidents and strengthen their resolve to prevent them. Through safety education facilities like this, we create a climate of learning from past accidents to preventing those in future.



The Accident History Exhibition Hall shows important records



Conducting disaster preparedness training

## Preparedness plans of major disasters

JR East is working to establish a structure under which all group companies are prepared to cope smoothly with major disasters—such as an earthquake measuring over 6 on the Japanese scale (IX on Mercalli scale).

In the disaster-training manual currently being compiled, the top priority is always on passenger safety and rescue. On September 1st 2002, we conducted comprehensive disaster training exercises with approximately 12,000 participants.

Furthermore, in response to the Great Hanshin Earthquake in 1995, we have been reinforcing viaducts, station buildings and other railway facilities. Future plans include ongoing earthquake retrofitting. Since viaduct pillars were damaged in the earthquake centered offshore near Miyagi Prefecture on May 26th 2003, we will be reinforcing all viaducts on the *Toboku Joetsu Shinkansen* Line (approximately 15,000 structures).