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1	Name of library materials and call mark	Japan Train Operation Association Magazine Z5-333
	Publication date, volume and number, etc.	March 1, 1995 Volume 37, No. 3
	Pages	Front page, Drawings, Table of contents, Pages 26-29, and Colophon
	Listed articles	Tobu Railway 9050 Series Railroad Car New type railroad car profile guide Tobu Railway 9050 Series Railroad Car
2	Received date	March 9, 1995
	June 13, 2016	

The manager of National Diet Library Users Service

ISHIWATARI, Hiroko

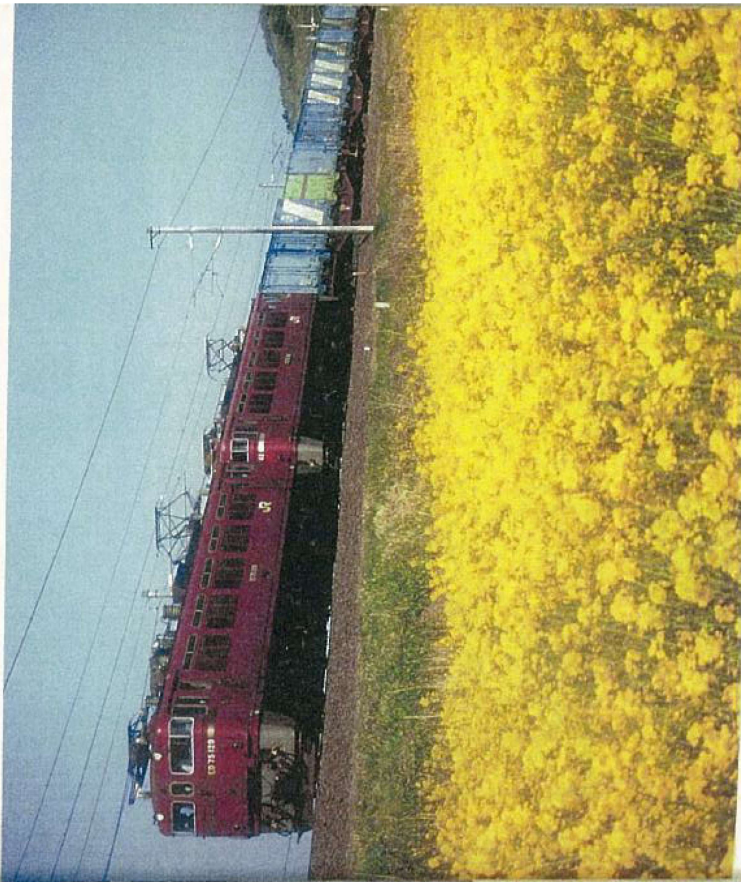
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Approved as third-class mail, March 30, 1987 March 1, 1995 (published on the first day of every month) Volume 37, No. 3

# Japan Train Operation Association Magazine March 1995

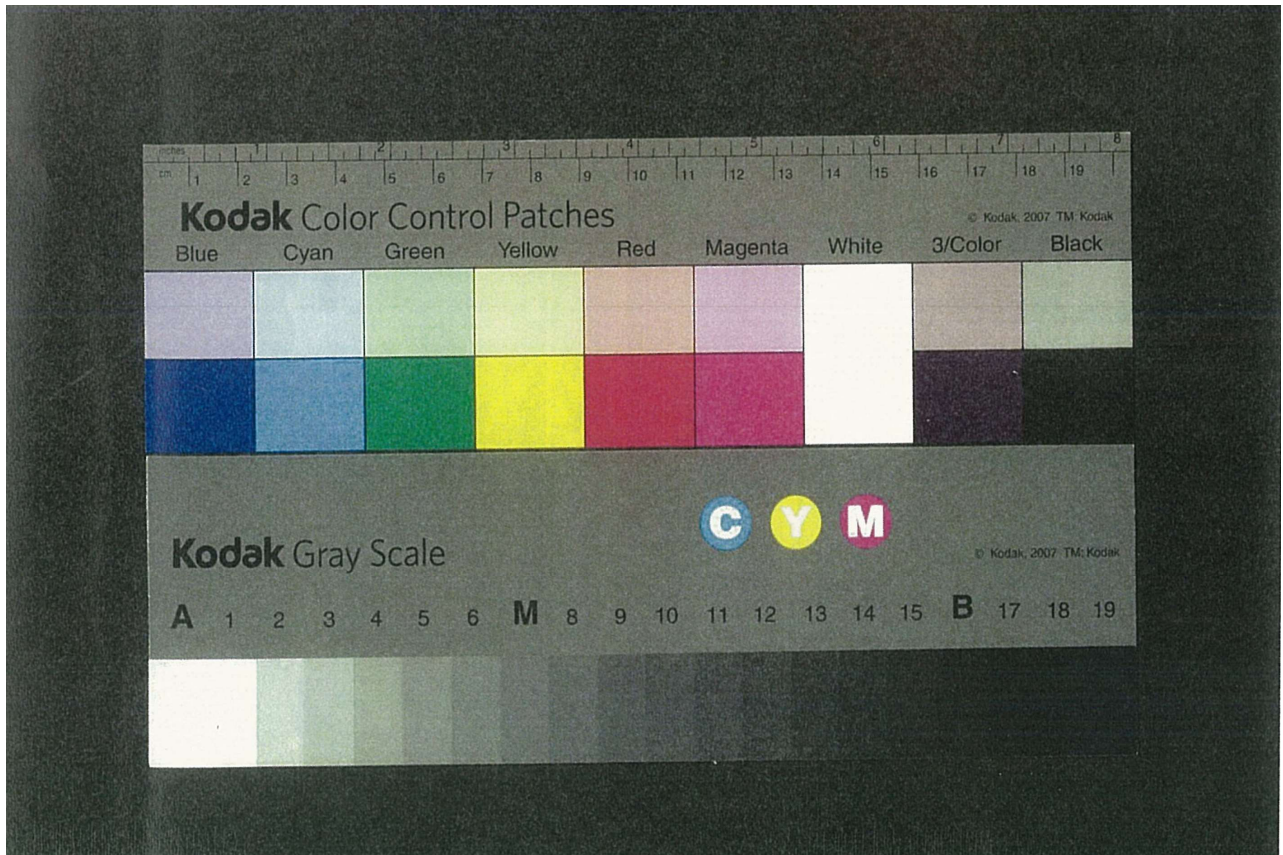
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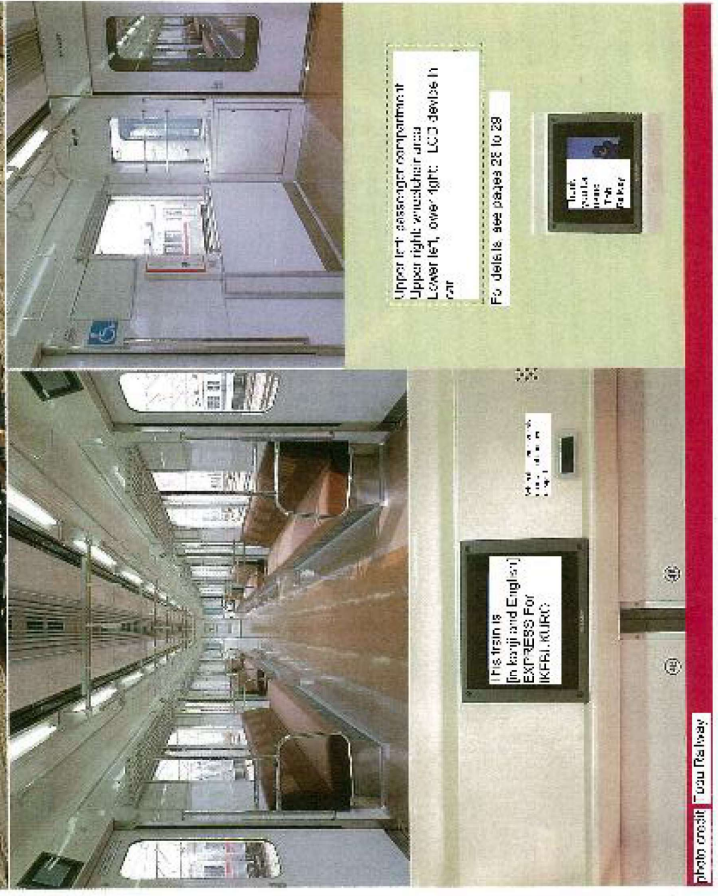
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JAPAN TRAIN OPERATION ASSOCIATION



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**Hankyu Travel Special New Year's Plan**

**A two-night, three-day stay at the Nankai Kingdom Deluxe Resort Okinawa**

put together with the "Hotel Nikko Aliviva", the just-opened Spanish style high class resort that is the talk of the town

**special attractions\* of this tour**

1. **Private jet to Okinawa** (round-trip) for up to 4 people. This is a very special service. We will provide a private jet for you to fly to Okinawa from Osaka. The flight is operated by a private jet company. The flight is operated by a private jet company. The flight is operated by a private jet company.

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**from 46,000 yen**

Departure Dates (in 1995) A total of ten departure dates to choose from. <3> to <10> as follows

April	<3> 3 (Sun)	<4> 4 (Mon)	<5> 5 (Tue)
	<6> 6 (Wed)	<7> 7 (Thu)	<8> 8 (Fri)
	<9> 9 (Sat)	<10> 10 (Sun)	<11> 11 (Mon)
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	<15> 15 (Fri)	<16> 16 (Sat)	<17> 17 (Sun)
	<18> 18 (Mon)	<19> 19 (Tue)	<20> 20 (Wed)

Unmarked dates are 46,000 yen, class marked with an asterisk\* are 51,000 yen. Also, there is an additional charge of 8,000 yen for two guests per room, and 5,000 yen for three guests per room.

The fee for a child (from 3 to 11 years old) is 1,000 yen less than the adult fee.

Choose the departure date you prefer.

Deadline for applying is **two weeks before each departure date**.

Please apply for two or more guests.

**Direct any inquiries to**

**Fankyu Travel (Ltd.) Kanaka Branch, Tanaka Building, 2-2-6 Uchi Kanca, Chiyoda-ku, Tokyo 101**  
**TEL 03-3254-1110 (direct), 03-3254-3361 (switchboard)**  
 Hours: Monday-Friday, 9:30 to 12:00 / 13:00 to 17:30 \* Closed Saturdays, Sundays, and holidays. Your understanding is requested.

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**First day / Okuma Beach**

**JAL Private Resort Okuma**

Before your stay is a white-sand beach and a spacious green lawn is dotted with stylish cottages with the view of the West Coast of the United States. The resort is a beautiful resort with a view of the beach, private sauna, and whirlpool bath. The resort is a beautiful resort with a view of the beach, private sauna, and whirlpool bath. The resort is a beautiful resort with a view of the beach, private sauna, and whirlpool bath.

**Second day / Yamanaka**

**JAL Hotel Nikko Aliviva**

This is a [illegible] deluxe hotel that has been the talk of the town. The hotel is a Spanish style, with interiors that are a beautiful resort. The hotel is a Spanish style, with interiors that are a beautiful resort. The hotel is a Spanish style, with interiors that are a beautiful resort.

**Third day**

**Visiting the popular Nankoku Kingdom "Ryukyu Winds" and "Ryukyu Village (lunch)**

The car country of the Nankoku Kingdom is a beautiful sight for [illegible] sightseeing, [illegible] for entry into the area and sightseeing, and obtained for [illegible] by and sightseeing from the resort.

**Special attractions\* of this tour**

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[Ear Day (a pun on "March 3")]  
 \* Special number on through service

==== \* Special edition =====

Through service at JR East (2)  
 Metro Tokyo Subway, aiming for attractive through service (6)  
 Mutual passenger transfer operation by our company <Sanyo Electric Railway> (12)  
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Conversation room: Considering the "Silver Seat" (11)

**New type railroad cars profile guide**  
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 Housing and Urban Maintenance Public Corporation, the model 9100 railroad car (29)  
**Workplace guidance tutorial**  
 Talk about safety devices <2> (33)  
**New traffic systems seen with illustrations, Part 53**  
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 Association news, editorial office

Frontispiece: Tobu Railway 9050 Series Railroad Car  
 Housing and Urban Maintenance Public Corporation Model 9100 Railroad Car  
 Cut: IKEDA, Moritoshi, YASUDA, Junichi

Cover: Freight Liner going through a field of rapeseed (honorable mention in cover photograph contest)  
 Picture taken by: Kochi Endo (individual member, Sendai)  
 Photo date and location: May 8, 1993, JR East Tohoku Main Line, between Kiiashirakawa and Higashishirashi  
 Camera: Nikonmat F1/Film: Fuji Chrome Bellow/Aperture: f4 to 5.6/  
 Shutter: 1/500



Housing and Urban Infrastructure Public Corporation Type 9100 train

▼ Passenger compartment (long cloth seats)

▲ Appearance

Driver's compartment

▼ Emergency through-door (for details, see pages 29-32)

▼ Passenger compartment (long seats)

Photos provided by Housing and Urban Infrastructure Public Corporation







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and a [CFC-free] cooling medium is used in order to deal with environmental problems. The GTO drive device adopts a system without a pulse transformer, for smaller size and lighter weight, and for signal transmission from the microprocessor amplifier, optical fiber is used, which offers superior noise insulation and high-voltage insulation, for better reliability. A modulation pulse number switchover system is adopted in order to reduce the unpleasant electromagnetic sounds and changes in timbre caused during pulse mode modulation upon startup. This makes it possible to suppress the transient torque fluctuations that occur when pulse mode switching is done, and produces better riding comfort as well.

Used for the main motor is a 150-kW high-output induction motor, in consideration of the high acceleration on the Tokyo Metro lines and the high travel speed on our company's lines. Also, by choosing the same VVVF devices and main motors as in the 20050 series, it has been possible to reduce the need for spare parts.

(2) Brake equipment

What is adopted for the brakes are all-electric command electromagnetic straight-through air brakes with supplementary air brakes also used for regenerative braking. Four types of brakes are provided: off valve type ordinary brakes, emergency brakes, safety brakes, and suppression brakes. They are made up of parts such as a brake controller, a brake command unit, a brake control device, an electromagnetic amplifier, and a brake relay. The brake controllers are of non-contact type, which improves operability, and a brake command unit is provided under the floor as the output unit. In the ordinary brake, normally three pressure-applying command lines are controlled by a digital command with a pure binary ON-OFF choice, providing seven levels of braking. In the emergency brake, normally two pressure-applying lines, + and -, are pulled through in reciprocation, to prevent touching together and to improve reliability. The safety brake, which normally is made up of pressure-applying circuitry, is constituted independently of the ordinary and emergency brake systems, and only if this is impossible after operation of the emergency brake does it operate automatically/independently in each car as a backup brake. For improved reliability, as brake monitoring circuitry, various circuits are provided for detection of braking failure, detection of failure

release the brake, a function for forcibly releasing the brake if it fails to be released, detection of reduction in basic air pressure, and the like.

(3) Motor-driven air compressor

What was adopted for the motor-driven air compressor is a low-noise air compressor that runs on an AC 220 V power source and employs a shim-type three-phase induction motor having easy startup control. Using a shim-type motor is meant to improve reliability and serviceability. Reliability is also improved because an after-cooler and demineralizer are both provided, and the brake is supplied with compressed air, without a drain.

(4) Auxiliary power unit

Adopted for this device is an IGBT (insulated-gate bipolar transistor) type SiV device that uses an IGBT as its main control element. It is made up of an inverter, a starter, a reactor transformer box, etc. The inverter part can be made smaller, lighter, and simpler because with the IGBT element being of the voltage drive type, the gate control power is low and the circuitry can be simplified. It can be turned on and off at high frequency and thus the output waveform is nearly a sine wave, allowing the waveform rectification circuitry to be simplified, and being a molded element, it can be built in to easily make a cooling structure. The starter is of the type in which the job of cutting off the current in an accident is done by a thyristor, so the circuit breaker is no longer responsible for blocking large currents, and therefore a small electromagnetic contactor can be used, allowing a smaller size. The magnetic noise of the transformer is reduced by inserting a filter for inverter output waveform rectification in a prior stage of the output transformer inside the reactor and transformer box.

A power receiving and supplying device is a device that supplies power only to the important loads from the normal side when due to a breakdown of an SiV device, power is supplied semi-automatically by operating a power receiving and supplying switch that is provided behind the operator's seat.

(5) Displays and automatic broadcasting equipment  
The destination displays on the front and side that display the type of train and the destination have changed from the former motor-wound type to the high-brightness LED type, for better visibility. To save energy and prolong useful life, the destination displays on the side have been given the function of automatically turning off their display between stations, where the need for such display is questionable.

As an in-car guidance device, a nine-inch liquid crystal monitor is provided above the side doors in each car; visually, they provide improved service by displaying the destination, the type of train, the stations the train will stop at, and other information.

Consideration has been given to making this monitor easy to see from the seats as well, by mounting on the lintel in sections reinforced plastic (FRP), and tilting it at an angle of 30 degrees from the vertical.

The broadcast device is of automatic broadcast type, besides the basic broadcasting of announcements about the destination, the stations where the train stops, and information about changing trains, it also broadcasts warnings when the emergency brake operates. Also, the broadcast device adopts an automatic volume control system that can vary the loudness to correspond to changes in the background noise, making it possible to make announcements at the right volume in the wheelchair area, making it possible to communicate with the crew. In this operation method, upon pressing a reporting button (with a clacker plate) in the reporting device, an emergency reporting buzzer sounds in the caller's car and in the crew compartment. Then, upon pressing a confirmation button on the report receiving device in the crew compartment, the buzzer stops, a communication display light lights up, and two-way communication can be conducted. Resetting when the conversation has ended can be done from the crew compartment.

(7) Platform cars  
A bolsterless platform car having no bolsters was made, to lighten the weight and provide maintenance-free operation. A Z-link type pulling device was adopted, to improve riding comfort.

In the axle-box suspension, two horizontal flat springs are attached above and below between the axle-box and the platform car frame, and with the proper degree of left-right rigidity, with respect to the front-rear rigidity, excellent properties can be maintained. In addition, U-shaped shock absorbing rubber can suppress front-rear and left-right rocking while maintaining high-speed stability

8. Conclusion

The 9050 series railroad car was introduced on operating rail lines in December of last year. We expect that providing passengers with these pleasant cars will enhance the image of Tobu Railway. And we hope that everyone will continue to favor us with their patronage. Finally, we wish to express our gratitude to everyone in the supervisory agencies and in related positions for their guidance

and unstinting efforts in the design and production.  
(Toshiya Yoshino, Car Section, Operation Car Department, Tobu Railway (Ltd.))

Housing and Urban Maintenance Public Corporation  
The Model 9100 Railroad Car

1. Introduction  
The Housing and Urban Maintenance Public Corporation, together with beginning operation on part of the corporation's second-period line in spring of 1995 (planned) (a 4.7-km stretch between Chiba-Newton Central station and Insei Makinohara station), has created a new type of railroad car, the model 9100 (double 8 car train, totaling 16 cars). The new car is affectionately called the "C-Flyer". The C is the first letter of Chiba-Newton, Comfortable, Clean, and Culture and the like, and "Flyer" means a rapid train or express train.

It was designed and produced to enhance the image of Chiba-Newton and to provide functions as a railroad car in the pursuit of convenience and comfort. Since the public corporation railway began operations in 1964 between Komuro and Chiba-Newton Central (4.0 km) we have worked to ensure transportation for the residents of Chiba-Newton, and in November 1992 we are beginning construction of a new line between the sections that are now in operation.

2. Basic design concept

The model 9100 railroad car was designed with the following points in mind.  
(1) Enhancing the image of Chiba-Newton  
(2) Because maintenance and other operations will be entrusted to the Hokuso Development Railway, the underfloor and other equipment will be shared with the Hokuso model 7300.

(3) Nonslip service will become possible among the Hokuso, Keisei, Toei Asakusa, and Keihin express lines.  
(4) Labor and energy will be saved, and high reliability will be achieved.  
(5) Riding comfort will be improved, and noise will be reduced.

3. Train composition and main specifications

With an eight-car 6M/2T fixed train composition, the performance is as follows.

- (1) Acceleration: 3.5 km/h/s
- (2) Deceleration: 4.0 km/h/s normally, 4.5 km/h/s in an emergency
- (3) Designed maximum speed of car: 120 km/h

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Except for the front part of the lead car and part of the frame, a lightweight all-stainless-steel structure was adopted (SUS301L, SUS304 steel) for the train body. The outer plates are given a dull finish that suppresses gloss, and there is a blue stripe on the hairline material in the edge on the side. The front part has a black and a silver metallic paint coating, and the paint on the side doors is blue in the wheelchair area and yellow in the cross-seat part, with the color of the door, indicating the functions that that car has, so as to give a vivid impression.

To convey mellowness with a feeling of speed, the front of the lead car, with ordinary steel [...]





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**\* Association news \***

1. January 10: 141st planning committee meeting held in Aoyama Metro Hall. Decision about the works for the 1994 excellent technical paper prize and excellent essay prize: 17 people in attendance.
2. January 11: March number discussion held at Tokyo Marunouchi Seyoken; 8 people in attendance.
3. January 17: Editorial committee for the April number held in the conference room of the Fukakawa general gymnasium of the Teito Rapid Transit Authority; 14 people in attendance.
4. January 27: Holding of ceremony commemorating the 36th anniversary of the founding, at Hotel International Tourism in Yaesu, Tokyo.
5. January 31: Combined funeral (Nippon Shingo (Ltc.) and Japan Railroad Operation Association) for former chairman Takeji Hayashi, who died earlier; held at Semichidani-kadou in Shinjuku-ku, Tokyo.
6. Individual in-person guidance based on railroad personnel safety measures educational guidance (event with the assistance of the Ministry of Transport), carried out with the following schedule.
  - (1) December 6: Gakunan Railway, participation by 5 people
  - (2) December 13: Arisa Railway, participation by 4 people
  - (3) December 14: Kisnu Railway, participation by 4 people

**\* Editorial Office \***

The damage caused by the "Southern Hyogo Prefecture Earthquake" (magnitude 7.2), which struck the Kinki region in the early hours of January 17, was found to increase as rescue efforts proceeded, and proved to be an unprecedented major disaster with a death toll of 5,300 people. According to an announcement by the Ministry of Transport, the damage to railroads reached a total of about 350 billion yen for the cost of recovery by 13 railroad companies, including JR West and Hanshin Electric Railway.

Our wishes for recovery go out to members who have suffered in this disaster, and our gratitude goes out to all those who have been working in the recovery efforts without rest or sleep.

When in planning this special edition on, through service we asked for an article from Sanyo Electric Railway, we were relieved to learn from newspaper reports that their special express train that came onto the Kobe Rapid Transit Line with this earthquake barely escaped damage at Okai Station, which had collapsed, and that passengers and crew took refuge safely. (Takashi Ogawa, head of editorial department)

Number of Regular Employees (current at February 1st) (compared to April)		(Compared to the previous month)	
- Total	25,578	+ 552	-23
- Breakdown			
JR	7,628	-22	+4
Private Rail	17,651	+576	-27
Others	299	-2	
- Top 5 companies			
JR: (TO) Headquarters/Tokyo district (KAN)			
Headquarters/Osaka district, (KAN) Headquarters/Naoyva			
district, (KYU) Headquarters/Kitakyushu district, (HO)			
Headquarters/Sapporo district			
Private Rail: TOKYU, Teito Rapid Transit Authority,			
SEIBU RAILWAY, Keihin Kyuko Rail, Kinetsu Railways			

- We pray for the earliest possible recovery for the companies and the employees impacted by the Kansai earthquake on January 17th.

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Japan Train Operation Association Magazine    March number    Price 485 yen (base price 470 yen)    Postage 88 yen  
 Printed February 25, 1995  
 Issued March 1, 1995  
 Publisher and editor: Mari Hayashi    Printer: Masaru Suzuki  
 Published by: Japan Train Operation Association (corporate juridical person)  
 2-5-2 Taizo, Taizo-ku, Tokyo 110  
 New Kanto Building, 9th Floor  
 Telephone NTT 03-3837-2401 (switchboard)    JR 051-7499  
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## Certification of Translation

Translator's Declaration: September 7, 2016

I, Mark Spahn, hereby declare:

That I possess advanced knowledge of the Japanese and English languages. My qualifications are as follows:

- over 35 years as a Japanese-English translator, focusing primarily on technical and legal documents, including four years in-house at the law offices of Baker & McKenzie in Tokyo
- Master's degree in Electrical Engineering/Computer Science from the University of Utah
- computer programmer at Computer Task Group
- co-author of "Japanese Kanji & Kana: A Complete Guide to the Japanese Writing System," Tuttle Publishing, 1981, 1997, 2011, 2012
- co-author of "The Kanji Dictionary" (a 47,000-entry bilingual dictionary, well known as the Spahn-Hadamitzky dictionary) Tuttle Publishing 1996, 1998, 2002.

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