Overview of Chuo Line Rapid Service Series E233 Railcars

Concept

Implementing customer suggestions

- Reducing service disruptions
- Providing service-related information
- Improving usability for senior citizens and female passengers
- Cleaner air
- Wider seats
- Orange color is the Chuo Line “brand”.
- Customers like stainless steel cars.

Base

Suggestions implemented

Using the technology developed for the series E231

- Train information management equipment
- On-board amenities to increase passenger comfort (automatic air-conditioning and information provision)
- Automatic announcements
- Use of parts that require less maintenance

Cars that are not liable to fail (reducing service disruptions)

- Backups of main equipment fitted
  - Train can still carry on running even if one out of a pair fails.

Increasing the comfort and usability of cars, paying particular attention to senior citizens, females and the physically impaired

- Using Universal Design and improving accessibility for all
  - Height of luggage racks and hand straps each lowered by 50 mm around priority seating
  - Priority seating areas clearly marked
  - Braille used on doors
  - Floor of the train lowered to reduce the step between the train and the platform, from 80 mm to 30 mm.

- Women-only car created (designated as such only in the morning)
  - Height of luggage racks and hand straps each lowered by 50 mm since women are shorter than men.

- Air conditioning and wider seats for extra comfort
  - Air purifiers installed
  - Seats widened from 430 mm to 460 mm

External appearance

Comparison of new and old models

Series | E233 | 210
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Number of cars | 10 or 6+4 (6M4T) | 10 or 6+4 (6M4T)
Body | stainless steel | steel
Maximum speed (car performance) | 120 km/h | 100 km/h
Control method | VVF inverter control AC induction motor | chopper control DC motor

Enhanced resilience of train body

Transmission and calculation part of monitor equipment

Control equipment for closing doors

Safety device (ATS-P)

Brake controller (in lead car)

Motor-driven air compressor

Auxiliary power unit

Main circuit (compared to the conventional series E231, electric motor car proportion is larger (6M4T))

Pantograph (also 2 on 4-car trains)

Cars that are not liable to fail

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  - Train can still carry on running even if one out of a pair fails.

Improved information displays and technical performance of cars

- Wide range of information for passengers
  - Inside the train: LCD displays to provide passengers with service-related information and news
  - On the outside of the train: full-color train destination displays (also for various different types of train)

- Reduced travel times from faster acceleration and deceleration
- Stainless steel wider-bodied cars to ease congestion
  - Bright and refreshing orange line on the body of the train

Priority seating area

Postcard questionnaire

20,000 Chuo Line (rapid service) passengers (44% response rate)

Group interviews

93 passengers in Chuo Line areas

Internet survey

Inside Chuo Line (rapid service) trains

In-train survey

Approximately 1,000 Chuo Line (rapid service) passengers

Series 201