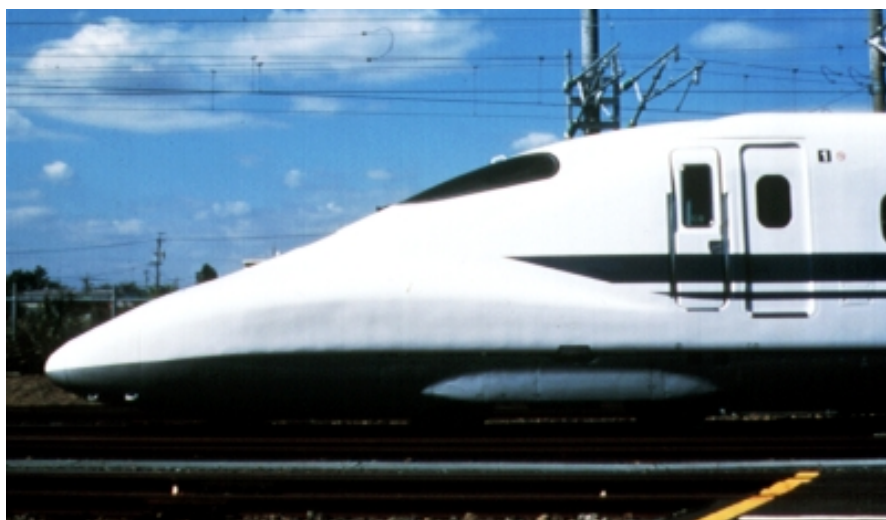


JR Central and JR West Series 700 Shinkansen EMU

The Series 700 EMU has been developed jointly by JR Central and JR West as a next-generation super express train for the Tokaido and Sanyo Shinkansen (from Tokyo via Osaka to Hakata in Kyushu). It is based on the new technologies used by the JR West 300X experimental train (see *JRTR* 7), which established the Japanese speed record of 270 km/h in 1995, as well as the JR West Series 500 (see *JRTR* 7), which shares the world's fastest commercial speed of 300 km/h with the French TGV. A new type of semiconductor called Insulated Gate Bipolar Transistor (IGBT), and a Variable Voltage-Variable Frequency (VVVF) system, are used in the main power control unit; 48 induction motors generate a total output of 13,200 kW. Aerodynamic performance is improved by new-design front and back noses, pantograph and pantograph covers, and a smooth aluminium-alloy body, which also covers under-floor parts. The top speed on the Tokaido section will be 270 km/h, and will be faster on the Sanyo section. The train is composed of 12 powered cars—three are 'Green Cars' (first-class). Seating capacity is designed to be exactly the same as the Series 300 to facilitate replacement.

(Photographs by JR Central)



'Aerostream' nose design of Series 700 EMU



'Green Car' seats



Interior of driver's cabin



400-meter-long trainset at Hamamatsu Workshop, Shizuoka Prefecture



Interior of standard car

JR East Series E4 Shinkansen EMU

The Series E4 is JR East's second all double-decker shinkansen trainset, after the Series E1 (see *JRTR* 2). It is designed to meet the growing numbers of commuters using the Tohoku Shinkansen and Joetsu Shinkansen, and is composed of eight double-decker cars, four of which are powered—two are 'Green Cars' (first class). Two trainsets can be coupled to form a 428-m train, seating 1634—the largest capacity among the world's high-speed trains. One eight-car set is driven by 16 induction motors (420 kW each) with VVVF control units, to attain a maximum commercial speed of 240 km/h. The aluminium-alloy body features a unique duck-bill nose design for better aerodynamics.



Interior of upper deck in standard car

(JR East)



Wheelchair space for disabled passengers

(M. Miura)



Duck-bill nose design to decrease air resistance

(JR East)



Futuristic driver's cabin

(M. Miura)



Nose cone opens to couple two trainsets

(M. Miura)