Japanese railway company starts testing 249mph bullet train speeds

Enlarge / JR East unveils to the media its new test bullet train “ALFA-X” in Rifu, Miyagi prefecture on May 9, 2019.
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This week, Japanese railway company JR East showed off its new Alfa-X, a high-speed bullet train that is designed to achieve a top speed of 400kph, or 249mph, which would make it the fastest commercial train in the world. In day-to-day operations, the train would shuttle passengers at 360kph, or roughly 224mph.

On Friday, JR East will begin testing the Alfa-X, without passengers, on its railways. According to Bloomberg, the 10-car train will make the trip “between the cities of Aomori and Sendai at night” for the next three years during a testing phase. JR East hopes to use the Alfa-X commercially by 2030. Japan News says the line will eventually be extended to Sapporo.

That long lead time suggests that there might be an opening for another high-speed bullet train option to overtake the Alfa-X Shinkansen train in speed for commercial railway service.

Bloomberg notes that the front runner for the top-speed crown may be a magnetically levitated train line that’s being built between Tokyo and Nagoya, which is expected to open in 2027. That train, however, takes advantage of a tunnel-heavy route to achieve a top speed of 505kph (314mph). (That project was also beset by scandal in 2018, though it appears to still be underway.)

Additionally, many startups are working on bringing a so-called Hyperloop to market. Hyperloop pods would run in a low-pressure tube on magnetic levitation rails (or alternatively, air-bearings), allowing them to reach theoretical speeds greater than 600mph.

But since SpaceX and Tesla CEO Elon Musk pitched the idea in 2013, few startups or teams have been able to deliver on a speed record. Virgin Hyperloop One, arguably the best-funded Hyperloop startup, may be the closest: it has a test track outside of Las Vegas where it has been able to log a speed of 240mph (386kph) in less than a quarter-mile (300 meters).

Ryan Kelly, the head of Marketing and Communications for Virgin Hyperloop One, told Ars by email today, “We have no doubt we’ll be able to at least double that in commercial operation.”

For now, the Alfa-X has a nose that spans 22 meters (72 feet) to cut through wind resistance, and according to Bloomberg it will have “air brakes on the roof and also use magnetic plates near the rails to slow down, in addition to conventional brakes.”

Information on the Alfa-X from JR East notes that the train will have dampers to prevent swaying, specifically during an earthquake.

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