

# **EDITORIAL - Supply-chain recovery will be key in how Kyushu earthquake will affect the Japanese automotive industry**

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## Earthquakes halt Japanese automakers' domestic output, with potential effect on overseas production

Two powerful earthquakes hit the southwestern island of Kyushu on 14 and 16 April, causing domestic production shutdowns at key Japanese automakers including Mitsubishi, Nissan, and Toyota. Component shortages have been cited as one of the main reasons behind these shutdowns. According to official announcements and IHS Automotive research, we expect the situation at suppliers Aisin Seiki and Renesas to be key to how quickly normal operations resume in the industry.



Most of the automakers in Japan follow a just-in-time/sequence process for deliveries of components, systems, and modules. Under this system, automakers receive parts according to their production schedules, saving them from building up inventory. After the devastating earthquake and subsequent tsunami in 2011, however, Japanese automakers took steps to make the process more resilient to natural disasters, such as by maintaining supply-chain databases. However, these earthquakes have affected suppliers' facilities, disrupting the supply chain. Until suppliers resume deliveries, automakers cannot restart assembly operations. Yet suppliers' ability to resume production depends on several factors, including how severely the earthquakes damaged not only their plants but also those of their tier-two or raw material suppliers.

Aisin Seiki produces body and engine components and has three factories in Kumamoto prefecture; two of these have halted operations because of aftershocks, and these stoppages mainly affect production at the Toyota Group. The path to resumption is still to be determined, but Aisin is aggressively trying to restart operations and looking at alternative sourcing from other Aisin plants. The earthquakes have forced Aisin Seiki, one of Toyota's key suppliers, to pause production of doors, engines, and other parts at its subsidiary in Kumamoto Prefecture, resulting in a parts shortage.

Aisin Seiki has started importing door parts from its Chinese and Mexican plants in order to meet a parts shortage in Japan on account of the recent earthquakes, according to reports in the *Nikkei*. The supplier will import door checks – a component that keeps an opened door in place instead of slamming shut under its own weight. Meanwhile, Aisin is repairing power systems and other facilities at the Kumamoto factory, where large cranes are removing machinery and moulds. The usable machinery and moulds are being shifted by Aisin to factories of other co-operating companies in Kyushu to increase its supply. Once the installation and tests are carried out for the equipment, Aisin hopes to have a system in place to supply 900,000 units a month, including the emergency imports from China and Mexico. Aisin Kyushu is also working to quickly resume production of door frames and cast aluminium engine parts.

Renesas produces semiconductors, key components used in Toyota engine control units (ECUs), at its Kawajiri plant in Kumamoto city, and operations have stopped since the earthquake.

### Toyota most affected

The impact on the supply chain in the Kyushu area is forcing temporary production stoppages at Toyota, Nissan, and Mitsubishi. Toyota Group is most affected and it could take more than four months for the company to recover all of its lost volumes. Toyota announced on Wednesday (20 April) that it expected to resume production at 18 affected assembly lines between 25 and 28 April.

Mitsubishi meanwhile halted operations at its Mizushima plant from 18 April (night) and 19 April. Nissan resumed operations at its two Kyushu plants from 18 April, although IHS Automotive forecasting analyst Satomi Hamada says that a parts shortage could temporarily hold up production. The impact on Nissan and Mitsubishi will not be as great as it is for Toyota as they are less reliant on supplies from Aisin Seiki and Renesas in the Kumamoto area, and they are expected to recover any losses within one month.

Toyota's domestic assembly lines are being suspended for the second time this year. In February, the automaker halted work at its factories from 8 to 13 February following an explosion at a steel plant operated by its affiliate Aichi. According to IHS Automotive global production forecasts, Toyota (excluding joint ventures) carries out 39% of its vehicle production in Japan, making the country its single most important vehicle assembly source. North America is its second largest production location, with 19.5% of total output.

The situation remains in flux, so IHS is considering two scenarios: a base scenario and a pessimistic scenario. In the base scenario, we assume that the recovery plans at Aisin Seiki and Renesas support the resumption of vehicle plant operations in the week beginning 25 April. In this scenario, the net loss would be equivalent to 2.1 days in April, which equates to 70,000 units, of which 66,000 units would be lost by Toyota Group across 15 plants. Toyota would need to add approximately three additional working days until June to recover the lost volumes under this scenario.

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