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To the media

Sumitomo Heavy Industries, Ltd.  
Sumitomo Construction Machinery Co., Ltd.  
Fujita Corporation

**Demonstration Test of Autonomous Loading and Transport by  
Coordinating Hydraulic Excavator and Crawler Dump Truck  
~Integration of Proprietary Technologies from Sumitomo Heavy Industries, Sumitomo  
Construction Machinery, and Fujita~**

Sumitomo Heavy Industries, Ltd. (Head Office: Shinagawa-ku, Tokyo; Representative Director, President and CEO: Toshiro Watanabe; hereinafter “Sumitomo Heavy Industries”), Sumitomo Construction Machinery Co., Ltd. (Head Office: Shinagawa-ku, Tokyo; President and CEO: Isamu Mitsuhashi; a wholly-owned subsidiary of Sumitomo Heavy Industries; hereinafter “Sumitomo Construction Machinery”), and Fujita Corporation (Head Office: Shibuya-ku, Tokyo; President and CEO: Yoji Okumura; hereinafter “Fujita”) have jointly conducted a demonstration test on automating the loading and transport of earth and soil at construction sites by coordinating an autonomous (\*1) hydraulic excavator and an autonomous crawler dump truck. Aiming to evaluate the practicality of automating the removal of earth and soil, the test verified whether different types of autonomous construction machinery could coordinate to complete the entire work cycle of “excavation → loading → transport → unloading” based on commands from a construction management system. As a result, the companies confirmed that the operations could be safely carried out by a single system operator without any contact between the machines.

※An overview of this test is also available in video form at the following URL(Japanese Only):  
<https://www.youtube.com/watch?v=S7iYZbNFRVE> (Sumitomo Heavy Industries YouTube channel)



(Left) A hydraulic excavator autonomously loads earth and soil into a nearby crawler dump truck  
(Right) Instructions being issued to construction machinery from the remote control room

[Background of the Initiative]

The construction industry is facing issues such as labor shortages caused by a declining number of young workers and an aging workforce, as well as the need to improve productivity. In response, Japan’s Ministry of Land, Infrastructure, Transport and Tourism is promoting i-Construction 2.0, and construction machinery manufacturers and general contractors are also pursuing various initiatives aimed at automating construction processes.

Sumitomo Heavy Industries and Sumitomo Construction Machinery have been conducting their own proprietary development of autonomous hydraulic excavators that operate on their own based on the surrounding environment (\*2), and have been exploring the possibility of collaboration with construction management systems that issue operational instructions to multiple pieces of construction machinery.

Fujita has been conducting demonstration tests through the Cabinet Office’s Strategic Innovation Promotion Program (hereinafter “SIP”) (\*3) and other initiatives where multiple construction machines collaborate to perform autonomous construction based on commands from its own construction management system, and has been exploring the applicability of this technology to construction machinery in collaboration with manufacturers.

Against this backdrop, the three companies held repeated discussions with the aim of achieving labor-savings and greater sophistication at construction sites. They connected Sumitomo Heavy Industries and Sumitomo Construction Machinery’s autonomous hydraulic excavator and an autonomous crawler dump truck developed as an SIP initiative to Fujita’s construction management system to verify the automation of loading and transporting earth and soil.

[Overview of Demonstration test]

This demonstration test was conducted at the Ebigawa Upper Stream District Land Readjustment Project Infrastructure Development construction site in Chiba Prefecture, where Fujita is currently carrying out construction work, from January 19 to February 28, 2026. The objective was to verify the work efficiency and safety of the standard “excavation → loading → transport → unloading” work cycle by coordinating an autonomous hydraulic excavator and autonomous crawler dump truck.

[Role of Three Companies]

Sumitomo Heavy Industries	<ul style="list-style-type: none"><li>• Provision of an autonomous hydraulic excavator capable of autonomously moving, excavating, and loading in accordance with instructions from the construction management system</li></ul>
Sumitomo Construction Machinery	<ul style="list-style-type: none"><li>• Provision of an ICT-compatible hydraulic excavator (SH200Z) serving as the base for the autonomous hydraulic excavator</li></ul>
Fujita	<ul style="list-style-type: none"><li>• Development of a construction management system that issues work instructions to each piece of construction machinery (autonomous crawler dump truck, autonomous hydraulic excavator) from the construction management system</li><li>• Provision of an autonomous crawler dump truck that travels to designated locations and unloads earth and soil based on the surrounding environment in accordance with instructions from the construction management system</li></ul>

[Flow of Demonstration test] \* ( ) indicates the entity responsible for the development and provision of each technology or system.

- Commands are sent (such as transport requests, start/stop of excavation and loading, and dump truck departure instructions) to an autonomous hydraulic excavator and autonomous crawler dump truck from the construction management system (Fujita)
- The crawler dump truck travels while detecting and avoiding surrounding obstacles. It stops in a position to receive earth and soil from the hydraulic excavator and rotates its vehicle body in the appropriate direction (Fujita)
- The autonomous hydraulic excavator recognizes the ground and the shape of the earth and soil in the bed of the crawler dump truck in real time. Soil excavation and loading onto the crawler dump truck are performed continuously. (Sumitomo Heavy Industries)
- After loading is completed, the crawler dump truck once again travels while detecting and avoiding surrounding obstacles. It then unloads at the designated location.

[Technical Features]

- The hydraulic excavator moves autonomously in response to the progress of the work. It determines the optimal excavation location in real time and can continuously load material into the crawler dump truck (Sumitomo Heavy Industries)
- The hydraulic excavator utilizes AI that references operator input to achieve smooth movement speeds that closely mimic those of operator input (Sumitomo Heavy Industries)
- Safety features such as emergency stop, fail-safe, and safe-mode operation in the event of communication loss have been implemented (Fujita)

[Key Findings of Demonstration]

- Different construction machinery successfully completed coordinated work involving autonomous loading and transport of earth and soil at construction sites based on commands from the construction management system
- It was confirmed that the number of personnel required for the full excavation → loading → transport → unloading work sequence could be reduced from two to one (requiring only one operator for the construction management system, replacing the operators of the hydraulic excavator and crawler dump truck). Going forward, labor savings will increase as the amount of construction machinery capable of coordination grows
- The excavator detects the position of the crawler dump truck's bed to ensure smooth loading without colliding with the vehicle body

[Future Developments]

Through this demonstration, the three companies were able to evaluate the practicality of automating the removal of earth and soil through collaboration between an autonomous hydraulic excavator and autonomous crawler dump truck at a construction site designed for automation. Going forward, the companies will further enhance safety, reliability, and maintainability, and accelerate development toward practical application and full-scale implementation at construction sites. Sumitomo Heavy Industries, Sumitomo Construction Machinery, and Fujita will continue to contribute to manpower and labor savings, productivity innovation, and the realization of a safe and sustainable society through the use of ICT, automation, and robotics technologies.

Notes

\*1 Definition of terms: “Autonomous” refers to machines that think and operate on their own (performing optimal operations through machine learning, etc.).

\*2 Yusuke Sano et al. “Development of Autonomous Excavators.” Sumitomo Heavy Industries Technical Review. 2025. 217. 15-18.

[https://www.shi.co.jp/tech/tech\\_report/pdf/217.pdf](https://www.shi.co.jp/tech/tech_report/pdf/217.pdf)

\*3 Smart Infrastructure Management System, Sub-Project A: Innovative Construction Production Processes, R&D theme (a-1): “Autonomous Earthwork for Total Optimization of Construction Proces”

<https://sip-icas-project.org/en/>

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