

Japan's First Successful Launch and Landing Test of an Experimental Rocket Conducted by a Private Company

Honda R&D Co., Ltd.

Overview of the case

In June 2025, the company used a reusable experimental rocket developed in-house to successfully conduct Japan's first-ever launch and landing test to reach an altitude of 300 m. The purpose of this test was to demonstrate elemental technologies necessary for rocket reuse, such as vehicle stability during ascent and descent and landing functions. The company successfully achieved the target operations for the launch and landing behavior of the rocket (altitude reached: 271.4 m; deviation from landing target: 37 cm; flight time: 56.6 seconds) and acquired data during ascent and descent.

Key points regarding receiving the award (Comments from the selection committee)

A successful test of a reusable rocket is a major achievement on a global scale, and can be expected to contribute significantly to expanding Japan's space transportation capabilities, ensuring Japan's independence in access to space, and strengthening its international competitiveness. Moreover, it is of tremendous significance for industrialization.

This case was highly commendable for successfully demonstrating launch and landing behavior and acquiring data during ascent and descent, and for demonstrating the elemental technologies for a sustainable space transport vehicle using a reusable rocket and renewable fuel.



Honda experimental sustainable rocket for launch and landing test

Specific results, etc.

1. Contributing to the creation of new fields in space development and utilization

This marks Japan's first successful launch and landing test of an experimental rocket conducted by a private company. Through this experiment, we acquired fundamental technologies for building systems that enable the reuse of vehicles and the application of renewable fuel as a propulsion source. And we have taken a step towards realizing a space transport vehicle that will play an active role in a future sustainable society.

This represents the first breakthrough in a major challenge toward expanding Japan's space transportation capabilities with guaranteed sustainability, and toward contributing to the creation and expansion of satellite utilization services originating from Japan.

2. Contributing to the expansion of the space development and utilization market

The expansion of Japan's sustainable space transportation capabilities resulting from this research and development can be expected to be highly competitive in the growing market for launching satellites into low Earth orbit, and to gain a market share accordingly. Regarding the system demonstrated in this experiment, which enables the application of reusable vehicle technology and renewable fuels as propulsion sources, overseas media and social media also had many expectant comments declaring Honda's successful challenge to be "an important step toward the sustainability of space technologies." This test has brought with it the potential to contribute to the global environment as a sustainable technology.

3. Contributing to the advancement of the economy and society

In today's society, huge amounts of data are being utilized, and the advancement of data utilization technology is accelerating day by day. On the other hand, while efforts to increase the proportion of sustainable energy in terms of supply are progressing, there is no clear prospect of a sustainable energy supply that can keep pace with the accelerating growth of data usage. This is making it increasingly difficult to balance the advancement of society through data technologies centered on AI, etc. with the achievement of a sustainable society. Against this background, utilization of data systems in space through the expanded use of satellites is anticipated, and demand for convenient rockets to

launch these satellites is expected to increase accordingly.

The sustainable rocket system demonstrated in this test, which enables the application of reusable vehicle technology and renewable fuels as propulsion sources, has the potential to contribute to addressing the above societal issues.

4. Contributing to technologies

There are only a few companies taking on the challenge of research and development toward sustainable rockets that are reusable and can use renewable fuels (biomethane / green methane), and Honda R&D Co., Ltd. is one of them. The system demonstrated in this experiment, which enables the reuse of vehicles and application of renewable fuels as propulsion sources, represents a crucial step toward achieving space transport vehicles capable of contributing to a sustainable future society. Furthermore, in this initiative, we developed an experimental vehicle that incorporated "essential functions required for reusable rockets," including a turbopump, engine gimbal, movable legs, and movable wings. Moreover, we developed those major technologies entirely in-house, and acquired the technical capabilities to design, prototype, and assemble them. As a mobility company that has developed a variety of products, primarily automobiles, we possess core technologies such as control and combustion. We leveraged these core technologies to advance this research. This method and approach to technological development is expected to continue contributing to research and development in space-related fields.

5. Contributing to the enhancement of citizens' understanding and to human resource development

This initiative demonstrated the potential for achieving an approach to promoting new development for Japan's manufacturing industry—which has grown through manufacturing—by developing personnel capable of taking technical capabilities cultivated in the automotive and motorcycle industries and applying them to new fields. The expansion of Japan's strengths in advanced manufacturing into new industries and the acquisition and development of talented human resources will be crucial points for maintaining international competitiveness, and the achievement of this approach can be expected to have significant value for the nation. Also, the success of this test was widely covered by various media outlets, through which it brought surprise, joy, and hope to people of all ages, from children to adults.

