

Europeans sign pact to build a key piece of NASA's Orion spaceship

By Alan Boyle

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NASA and the European Space Agency have signed an agreement calling for the Europeans to provide the service module for the Orion space capsule, the U.S. space agency's crew vehicle for exploration beyond Earth orbit.

The hardware would provide the Orion with propulsion, power, thermal control and basic supplies such as water and breathable air. ESA said the design will be based on that of the ATV supply ships that are currently being sent to the International Space Station.

"ATV has proven itself on three flawless missions to the space station, and this agreement is further confirmation that Europe is building advanced, dependable spacecraft," Nico Dettmann, head of the ATV's production program, said in an [ESA statement](#).

The Orion's first test flight is scheduled for 2014, using a test service module built by Lockheed Martin. That unmanned launch would send the Orion to an altitude of 3,600 miles (5,800 kilometers). The European-built service module would get its first in-space tryout along with the Orion capsule and heavy-lift Space Launch System rocket in 2017, during an unmanned test flight that would go around the moon and back.

"This is not a simple system," Orion program manager Mark Geyer said in a [NASA statement](#). "ESA's contribution is going to be critical to the success of Orion's 2017 mission."

The first flight with astronauts aboard would follow a round-the-moon route in 2021, and ESA will provide components for that flight as well.

NASA's current exploration plan calls for the Orion-SLS system to send humans to a near-Earth asteroid in the mid-2020s, and to Mars and its moons in the 2030s. Meanwhile, the task of sending cargo and crew to the International Space Station would be left to commercial spaceship providers.

When the Orion-SLS program was [unveiled in 2011](#), the development cost was estimated at \$18 billion through 2017, and roughly that much more for the 2017-2022 time frame.

Under the NASA-ESA agreement, which was signed in December and announced on Wednesday, ESA will provide the design and the hardware for the Orion service module as part of its contribution to the International Space Station project. [The BBC reported](#) that without such a contribution, ESA would owe NASA \$600 million for the 2017-2020 period.

"Space has long been a frontier for international cooperation as we explore," Dan Dumbacher, NASA's deputy associate administrator for exploration system development, said in the space agency's statement. "This latest chapter builds on NASA's excellent relationship with ESA as a partner in the International Space Station, and helps us move forward in our plans to send humans farther into space than we've ever been before."

Even though ESA will provide the service module, its propulsion system will make use of engines left over from NASA's space shuttle program.

Bill Gerstenmaier, director of spaceflight operations at NASA Headquarters, said the European contribution would help keep the Orion project on track for the 2017 and 2021 flights. "We shouldn't try to go look at what ESA's contributing and then try to subtract that out of our budget," he told reporters. "We're actually getting a better, more robust design by cooperating together."

He acknowledged that the agreement put the Europeans in the "critical path" for future U.S. space exploration.

"I'm a realist, and I know that this won't be easy," he said. "It's not 100 percent comfortable — but I'm never 100 percent comfortable."

More about Orion:

- [Europeans decide to boost NASA's Orion](#)
- [Orion project on schedule for 2014 test flight](#)
- [The moon looms again as future destination](#)

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