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RELEASE : 10-086

NASA to Launch Human-Like Robot to Join Space Station Crew

WASHINGTON -- NASA will launch the first human-like robot to space later this year to become a permanent resident of the International Space Station. Robonaut 2, or R2, was developed jointly by NASA and General Motors under a cooperative agreement to develop a robotic assistant that can work alongside humans, whether they are

astronauts in space or workers at GM manufacturing plants on Earth.

The 300-pound R2 consists of a head and a torso with two arms and two hands. R2 will launch on space shuttle Discovery as part of the STS-133 mission planned for September. Once aboard the station, engineers will monitor how the robot operates in weightlessness. Throughout its first decade in orbit, the space station has served as a test bed for human and robotic teamwork for construction, maintenance and science.

R2 will be confined to operations in the station's Destiny laboratory. However, future enhancements and modifications may allow it to move more freely around the station's interior or outside the complex.

"This project exemplifies the promise that a future generation of robots can have both in space and on Earth, not as replacements for humans but as companions that can carry out key supporting roles," said John Olson, director of NASA's Exploration Systems Integration Office at NASA Headquarters in Washington. "The combined potential of humans and robots is a perfect example of the sum equaling more than the parts. It will allow us to go farther and achieve more than we can probably even imagine today."

The dexterous robot not only looks like a human but also is designed to work like one. With human-like hands and arms, R2 is able to use the same tools station crew members use. In the future, the greatest benefits of humanoid robots in space may be as assistants or stand-in for astronauts during spacewalks or for tasks too difficult or dangerous for humans. For now, R2 is still a prototype and does not have adequate protection needed to exist outside the space station in the extreme temperatures of space.

Testing the robot inside the station will provide an important intermediate environment. R2 will be tested in microgravity and subjected to the station's radiation and electromagnetic interference environments. The interior operations will provide performance data about how a robot may work side-by-side with astronauts. As development activities progress on the ground, station crews may be provided hardware and software to update R2 to enable it to do new tasks.

R2 is undergoing extensive testing in preparation for its flight. Vibration, vacuum and radiation testing along with other procedures being conducted on R2 also benefit the team at GM. The automaker plans to use technologies from R2 in future advanced vehicle safety systems and manufacturing plant applications.

"The extreme levels of testing R2 has undergone as it prepares to venture to the International Space Station are on par with the validation our vehicles and components go through on the path to production," said Alan Taub, vice president of GM's global research and development. "The work done by GM and NASA engineers also will help us validate manufacturing technologies that will improve the health and safety of our GM team members at our manufacturing plants throughout the world. Partnerships between organizations such as GM and NASA help ensure space exploration, road travel and manufacturing can become even safer in the future."

For more information about Robonaut 2, visit:

<http://www.nasa.gov/topics/technology/features/robonaut.html>

For more information about the International Space Station, visit:

<http://www.nasa.gov/station>

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