

NASA Preparing Oxygen Generation System for Space Station

February 9 2006

NASA is preparing to launch an oxygen generation system to the International Space Station. The system uses water to generate breathable oxygen for crew members. Life support systems like this are necessary to support future long-duration missions to the moon, Mars and beyond.

The system was shipped from NASA's Marshall Space Flight Center, Huntsville, Ala., on Jan. 24, and arrived the next day at the agency's Kennedy Space Center, Fla. The system will be installed in a pressurized cargo compartment later this month for a possible May launch aboard the Space Shuttle Discovery.

"Delivering this hardware to the space station is a major step toward achieving the full potential of the complex," said Mike Suffredini, station program manager. "Once complete, the regenerative life support system will sustain additional crew members onboard that can conduct more scientific research. It also will give us experience operating and sustaining a 'closed-loop' life support system similar to that necessary for future human spaceflight missions farther from Earth," he added.

The system will also help replace oxygen lost during experiments and airlock depressurization. Once activated, the oxygen generation system may daily provide up to 20 pounds of oxygen. During normal operations, it will provide 12 pounds daily; enough to support six crew members. The system will tap into the station's water supply and split the liquid into hydrogen and oxygen molecules. The hydrogen will be pushed into

space, leaving the oxygen for the crew. The system is designed to operate with little monitoring.

"Advancing life-support technology will become increasingly important as we pursue missions to the moon and Mars," said Bob Bagdigian, project manager at Marshall's Center for the Regenerative Environmental Control and Life Support System.

The oxygen generation system is one of two primary components in the station's regenerative environmental control and life support system. The other component, the water recovery system, is planned for shipment to Kennedy early next year, once testing and design modifications are completed.

The water system is designed to provide clean water by recycling wastewater and crew member urine. The recycled water must meet purity standards before it is used to support crew, payload and spacewalk activities. The recovery systems will be packaged into three refrigerator-sized racks for installation in the station's U.S. Destiny lab module.

The station relies on a combination of expendable and limited regenerative life support technologies in Destiny and the Russian Zvezda service module. The advances made in the regenerative environmental control and life support system will help cut station operating costs. Less money will be needed to launch fresh supplies of air, water and expendable life support equipment to the station and return used equipment to Earth.

The oxygen generation system was designed and tested by Marshall and Hamilton Sundstrand Space Systems International, Windsor Locks, Conn.

Source: NASA

Citation: NASA Preparing Oxygen Generation System for Space Station (2006, February 9)
retrieved 3 May 2024 from <https://phys.org/news/2006-02-nasa-oxygen-space-station.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.