United States Deorbit Vehicle

Since 1998, five space agencies, CSA (Canadian Space Agency), ESA (European Space Agency), JAXA (Japan Aerospace Exploration Agency), NASA (National Aeronautics and Space Administration), and State Space Corporation Roscosmos, have operated the International Space Station with each agency responsible for managing and controlling the hardware it provides. The station was designed to be interdependent and relies on contributions from across the partnership to function. The United States, Japan, Canada, and the participating countries of ESA have committed to operating the station through 2030. Russia has committed to continued station operations through at least 2028.

NASA and the International Space Station partner agencies have studied options to safely deorbit the space station, these efforts indicated that a new or modified spacecraft is needed to provide more robust capabilities for deorbit.

Who/Where

The Office of Procurement at NASA Johnson Space Center (JSC) awarded and administers the United States Deorbit Vehicle (USDV) contract. NASA selected SpaceX who will develop and deliver the USDV which will deorbit the International Space Station (ISS), the largest single structure ever built in space, through a controlled targeted deorbit to a remote unpopulated ocean area after the end of its operational life in 2030.

SPACEX

SpaceX's design of the U.S. Deorbit Vehicle is based on its Dragon spacecraft with an enhanced trunk section. (SpaceX)

National Aeronautics and Space Administration

NASA

The chosen approach for safe decommissioning is a combination of natural orbital decay, intentionally lowering the altitude of the station likely using current propulsive elements, and then execution of a re-entry maneuver for final targeting and to control the debris footprint.

How

The USDV procurement was innovative in that it allowed offerors to choose their proposed contract type either Firm Fixed Price or Cost-Plus Incentive Fee. This was beneficial because it increased competition of flight proven companies and allowed traditional aerospace companies to compete with new aerospace companies in a contract type arrangement that best aligned with their technical approach. For the first time in NASA history, Offerors chose their proposed contract type and allowed for differing contract type proposal to be evaluated on a common basis.

When

NASA released the RFP in September 2023 and awarded the contract in June 2024. The solicitation allowed offerors the ability to propose either the Government's desired delivery date of August 1, 2028, or required delivery date of May 1, 2029.

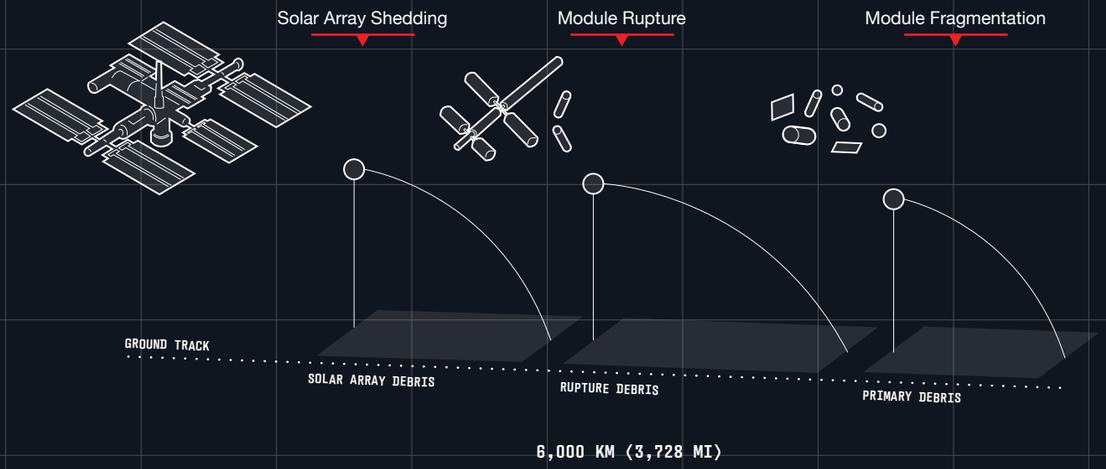
NASA Office of Procurement
// United States Deorbit Vehicle

National Aeronautics and Space Administration

Why

NASA and the International Space Station partner agencies have studied options to safely deorbit the space station. These efforts indicated that a new or modified spacecraft was needed to provide more robust capabilities for deorbit. Existing spacecrafts flying to the ISS exist today but needed an enhanced propulsion system which was not currently available. This acquisition innovation allowed flight proven companies to compete in a contracting arrangement that best aligned with their corporate technical approach which increased competition and allowed NASA to select the best technical solution to ensure the safe deorbit of the ISS.

WHAT HAPPENS WHEN THE SPACE STATION DEORBITS?



NASA's target location for full deorbit of all ISS debris is a 6,000 km or less footprint in an uninhabited region of the South Pacific Ocean. Environmental impacts are projected to be small as any toxic liquids or materials are expected to burn up during the reentry process.