Active Debris Removal

Orbital debris in Low Earth Orbit (LEO) is an international problem that threatens the success of future space ventures. An analysis of a wide variety of alternative solutions for active debris removal (ADR) has been performed. The solution selected is an efficient, effective, and executable solution to remove large debris in LEO, primarily spent rocket bodies. Removing large debris objects is a critical step in reducing the hazard from orbital debris, because of the large amount of medium and small debris created through large body collisions.

Based on the analysis of alternatives, the concept and design for a vehicle which could efficiently address the debris hazard by disposing of several large objects per mission has been developed. This concept establishes a comprehensive, detailed technical approach for an actual end-to-end, on-orbit ADR solution to remove large debris. This robust solution enables the start of solving the problem of debris removal before it reaches a critical and potentially irreversible state by “getting there as soon as possible, as economically as possible, with the most capability”.