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SPACE



Starfish Space executes rendezvous between Otter Pup and D-Orbit's ION

The successful rendezvous is Starfish Space's first, and a finale for the Otter Pup mission

Seattle, WA – May 7, 2024 – [Starfish Space](#), in collaboration with [D-Orbit](#), a leading space logistics company, announced today **a successful on orbit rendezvous between Starfish's Otter Pup and D-Orbit's ION SCV006 satellite**. The Starfish team calculated and directed precise maneuvers for ION that culminated in this successful rendezvous, with Otter Pup capturing images of the ION spacecraft as it maneuvered in close proximity. This mission represents a significant engineering achievement for Starfish and D-Orbit, and a further step towards making affordable, available satellite servicing a reality.

Following the successful recovery from initial rotation rates exceeding 330 degrees per second and a thruster anomaly during subsequent commissioning, Starfish sought to maximize the value of Otter Pup for testing and validation of its core technologies. In January, Starfish and D-Orbit agreed to attempt a rendezvous mission in which Starfish would direct D-Orbit to execute maneuvers placing ION within close proximity of Otter Pup.

Rendezvous planning began with the teams at Starfish and D-Orbit working closely together to assess the feasibility of the mission, given that the ION satellite was not originally designed for this type of mission. Once the teams determined the mission's viability, Starfish planned, calculated and calibrated multiple desired close approach and auxiliary maneuver plans, including pointing and targeting for alignment between Otter Pup and ION. Starfish collaborated closely with D-Orbit to transfer and implement the calculations to ION, as well as issue instructions for the necessary burns to maneuver ION into position. D-Orbit safely operated ION and executed the prescribed maneuvers, with significant support on conjunction analysis and other capabilities from the EUSST (S3TOC) team.

By mid-April, Otter Pup and ION were in position for the final rendezvous attempt. ION passed by Otter Pup at increasingly close orbits, down to within approximately 1 kilometer. On Friday, April 19th, Otter Pup pointed its cameras and captured images of ION, marking the successful rendezvous.

Dr. Trevor Bennett, Co-founder of Starfish Space, emphasized the significance of these achievements, stating, *"Beyond validating a core capability, these images will provide invaluable data for our ongoing GNC software development. Continuing to operate Otter Pup gave us a lot of value; it allowed us to increase our satellite operations experience, and to test and validate software and hardware on-orbit, including the camera system that was used to capture these images."*

ION's ability to safely and reliably conduct the maneuvers required for this mission served as another milestone for one of the most accomplished satellite platforms currently operating in space. With over twelve ION spacecraft launched to-date, D-Orbit has proven itself as a leading provider of space logistics and orbital transportation services.

"The successful flyby between Starfish Space's Otter Pup and our ION SCV006 is a great achievement for both companies," commented **Matteo Bartolini, VP Sales Engineering at D-Orbit**. *"This operation not only demonstrates the precision and reliability of our ION spacecraft but also highlights the robust capabilities of our teams working in concert with Starfish. Achieving such a complex maneuver truly underscores our commitment to advancing the field of satellite servicing and orbital operations".*

In addition to the engineering teams at Starfish and D-Orbit, this mission was made possible by Redwire Space, which provided the camera system utilized for image capture, LeoLabs, offering crucial on-orbit state data, and Astro Digital, delivering continuous operational support throughout the duration of Otter Pup's mission lifecycle.

"Executing this rendezvous means we absolutely maximized the value we could get out of Otter Pup, in spite of the numerous challenges we faced, from emergency deployment to thruster failure," said **Bennett**. *"Space domain awareness (capturing images of other objects in space), is often a mission in and of itself. We were able to execute this task as a backup after multiple challenges and failures. This was a rewarding way to conclude our first demonstration mission, and we look forward to returning to orbit with our next mission to push our capabilities forward."*

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About Starfish Space

Starfish Space is developing the Otter servicing vehicle to extend the lives of satellites in geostationary orbit and dispose of space debris in low-Earth orbit. Starfish has been recognized by NSIC, NASA, the U.S. Space Force, and Air Force Research Laboratory for its innovation in satellite servicing technologies and has raised over \$23 million in venture capital funding to date. Starfish Space launched its Otter Pup demonstration mission in June 2023, with the goal of executing the first-ever docking of two commercial satellites in low-Earth orbit. For more information, please visit starfishspace.com.

About D-Orbit

D-Orbit is a market leader in the space logistics and transportation services industry with a track record of space-proven services, technologies, and successful missions.

Founded in 2011, D-Orbit is the first company addressing the logistics needs of the space market. ION Satellite Carrier, for example, is a space vehicle that can transport satellites in orbit and release them individually into distinct orbital slots, reducing the time from launch to operations by up to 85% and the launch costs of an entire satellite constellation by up to 40%. ION can also accommodate multiple third-party payloads like innovative technologies developed by startups, experiments from research entities, and instruments from traditional space companies requiring a test in orbit. The whole, fully redundant ION can be rented for edge computing applications and space cloud services to provide satellite operators with storage capacity and advanced computing capabilities in orbit.

D-Orbit's roadmap includes becoming a relevant player in the in-orbit servicing market, which is forecasted to become one of the largest, growing markets within the space sector.

D-Orbit has offices in Italy, Portugal, the UK, and the US; its commitment to pursuing business models that are profitable, friendly for the environment, and socially beneficial, led D-Orbit S.p.A. to become the first certified B-Corp space company in the world. dorbit.space

Image credit: Starfish Space

Image caption: Image captured by Otter Pup of ION-SCV006 on April 19th at a distance of approximately 3km. The satellites conducted multiple close approaches, passing at distances as close as 1km.