

# NASA wants to make spacecraft parts right on low Earth orbit

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If you thought building a spacecraft assembly factory flying above Earth's orbit was unthinkable? You are wrong. NASA recently announced that it will partner with space technology corporation Maxar Technologies to develop a system to assemble spacecraft parts right in low Earth orbit. In particular, the production process will be almost completely automated with robots.

The purpose of the plan is to apply the most advanced technology currently in manufacturing and manufacturing spacecraft parts into space stations, from which can conduct repair, replacement, overhaul of spacecraft. right in space, saving significant time and money compared to current land repair.

Production and assembly will take place on the NASA Restore Restore-L spacecraft (scheduled to launch in 2023). If implemented as planned, this 'mobile assembly workshop' will significantly extend the service life of satellites operating in low Earth orbit, even if they are not designed to can be repaired and upgraded, which will help the satellite operate more efficiently and reduce the space waste caused by the deactivated and floating satellites in the Left orbit. Lowland.



# Restore-L

## Proving Satellite Servicing

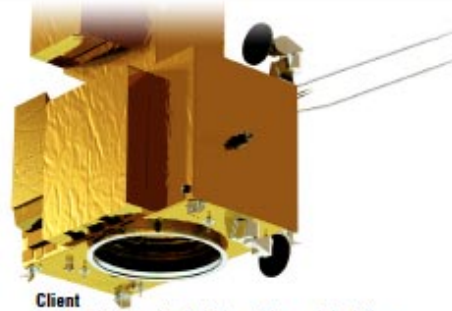
Need extra gas or a tune-up for your satellite? For years, such services were outside the realm of possibility for most spacecraft. But now, one mission will break that paradigm.

Meet Restore-L, a robotic spacecraft equipped with the tools, technologies and techniques needed to extend satellites' lifespans – even if they were not designed to be serviced on orbit.

During its mission, the Restore-L servicer will rendezvous with, grasp, refuel and relocate a government-owned satellite to extend its life. But Restore-L's effect will not end there.

Successfully completing this mission will demonstrate that servicing technologies are ready for incorporation into other NASA missions, including exploration and science ventures. NASA also plans to transfer Restore-L's technologies to commercial entities to help jumpstart a new domestic servicing industry.

The benefits are many. Restore-L's capabilities can give satellite operators new ways to manage their fleets more efficiently, and derive more value from their initial investment. These capabilities could even help mitigate the looming problem of orbital debris.



### Client

More than 1,000 operational satellites exist in space today. Of these, only the Hubble Space Telescope and the International Space Station were designed to be serviceable – in part because robotic servicing is incredibly challenging.



### Restore-L Servicer Spacecraft

Think of it as a robotic tow truck in space: a free-flying spacecraft equipped with life-extension technologies for satellites.

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Especially on the Restore-L spacecraft will be equipped with a type of 'super robot' called Space Infrastructure Dexterous Robot (SPIDER), possesses arms up to 4m extremely flexible, can assemble parts of spacecraft antennas.

The partnership agreement with Maxar Technologies to build a space-based spacecraft assembly system is only part of NASA's low Earth orbit commercial project. In particular, the core objective is to build partnerships with private technology companies to realize complex space exploration missions with more optimal costs. It will also be particularly useful in supporting missions to send humans to the moon or Mars, as well as servicing and upgrading important space telescopes like the upcoming Hubble or James Webb.

Low Earth orbit (LEO) is about 200 km to 1,000 km from the ground and is where the International Space Station (ISS) is on duty, along with thousands of other satellites. Most artificial objects operating in our space are located in this orbit.

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