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A Comparison of Manned and Unmanned Orbital Construction and Maintenance

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ABSTRACT

Future space missions will require a capability for construction, assembly, maintenance, and repair of objects in orbit. A number of options exist to perform the required tasks. These include manual operations by space-suited astronauts, operations performed by autonomous robot machines, and machine performed operations with "man-in-the-loop" control. Such orbital operations are in many ways similar to those now performed by commercial and military divers and marine construction companies. This paper will examine these different approaches to perform a given task and present guidelines to select the best approach for several work scenarios.