

IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)  
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Author: Mr. Daniel Adams

United Launch Alliance LLC (ULA), United States, daniel.d.adams@ulalaunch.com

Mr. Caleb Weiss

United Launch Alliance LLC (ULA), United States, caleb.c.weiss@ulalaunch.com

PREPARING THE ATLAS V ROCKET FOR HUMAN SPACEFLIGHT

**Abstract**

United Launch Alliance (ULA) and The Boeing Company are proudly returning astronauts to space from US soil, something that has not happened since the retirement of the Space Shuttle in 2011. ULA is launching the Boeing Starliner crew capsule aboard its Atlas V rocket. Atlas V was chosen for this critical mission because of its strong record of mission success, reliability, and fault tolerant design. To obtain human certification of Atlas V, ULA invested in key safety systems, infrastructure, and rocket design updates with a specific emphasis on design for astronaut safety. This included development of new processes and refinement of existing processes for safety. New hardware for Starliner launches was also required to safely launch crew which includes a dual-engine configuration of the Centaur upper stage and a launch vehicle adapter with an aeroskirt. At the Cape Canaveral Florida launch site, ULA designed and installed a 200-foot (60-meter) tall Crew Access Tower including an emergency egress system. Prior to launching Crew ULA and Boeing will conduct the uncrewed Orbital Flight Test (OFT), planned for launch prior to October 2019. For this mission, Starliner will be launched on an Atlas V, dock with the International Space Station, and return to Earth to fully test all launch vehicle and spacecraft systems. The paper discusses the broad spectrum of preparation for Starliner launch, including results from OFT, focused on developments for Astronaut safety.