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HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Governmental Human Spaceflight Programs (Overview) (1)

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ORION PROGRAM PRODUCTION READINESS

Abstract

Orion, the Multi-Purpose Crew Vehicle, is a key piece of the NASA human exploration architecture for beyond earth orbit (BEO). Lockheed Martin was awarded the contracts for the design, development, test, and production planning for Orion through the Exploration Mission 2 (EM-2) in 2021..

On December 5, 2014, NASA and an industry team led by Lockheed Martin achieved a remarkable advancement in our nation's human deep space exploration capability with the launch of Orion's Exploration Flight Test-1 (EFT-1). In a 4.5 hour, 60,000 mile that flew 15 times higher than the International Space Station, the Orion EFT-1 team carried out many of the riskiest in-flight events critical to making Orion the safest spacecraft possible for crewed deep space missions.

The results of lessons learned have been applied throughout the DDTE phase of the program to ensure the recurring production phase of the program will be as safe, low risk, affordable, technically sound, and with a sustainable schedule for all future human exploration missions. Based on EFT-1 results the EM design is being optimized for performance and producability. Future design and analysis efforts are being simplified, overall mass has gone down, and recurring costs for production has been lowered.

After evaluating areas of from launch, to flight to re-entry and water intrusion with corrosion, we've come to expect that many components in the crew module, especially inside the pressurized volume, or the hull where the crew sits, can be reused for later flights—components such as the computers, avionics and electrical distribution for example.

The lessons learned from EFT-1 assembly, Integration, and testing have been collected and are influencing the EM designs from a "design for manufacturability" stand point. Overall, the EFT-1 experience has greatly influenced EM "design for producibility".

The Subcontract and supply management role represents over 70

This paper will discuss the Orion Programs Production readiness as we migrate from a development program to an operational one.