



NASA Langley's Alternative Launch Abort System Design

Cost savings and recovery of payload

NASA Langley Research Center has designed a Multifunctional Boost Protective Cover (MBPC) for a Launch Abort System (LAS). In the event of a crewed launch, the innovation provides a redundant means of saving the crew, and for an unmanned launch, it provides the means for recovering a very expensive, sensitive, and/or dangerous payload. In addition, costs are reduced by minimizing insurance premiums and costly delays to fabricate new complex satellite systems in the event of a failed launch. NASA is seeking development partners and potential licensees.

Benefits

- Recovery of expensive, sensitive, and/or dangerous payload
- Minimize the generation and transmission of acoustic pressure to the payload and/or crew
- Increased payload-to-orbit capability
- Efficient aerodynamic shape with reduced drag
- Reduced launch costs by minimizing insurance premiums and costly delays to build new satellite systems (given a failed launch)

partnership opportunity





Photo Credit: ATK

The Technology

NASA Langley developed the MBPC LAS design for use in launch vehicles. The current design enables this increased redundancy with no detrimental impact to mass-to-orbit capability and, in effect, can increase the payload-to-orbit capability of the spacecraft by enabling the firing of the launch abort motor (LAM) during nominal missions to effect an increased delta-velocity or increased mass-to-orbit capability. The current invention enables the launch abort function and minimizes the generation and transmission of acoustic pressure to the payload and/or crew. In addition, the design accommodates inertial, structural, and thermal loads.

The innovation also reduces the structural mass of the crew or payload module by transferring the load-carrying structure to a multi-functional boost protective cover that is jettisoned early in the launch trajectory (prior to reaching the orbital velocity), thus reducing mass to orbit. The MBPC also has a very efficient aerodynamic shape that reduces drag and enables increased payload/mass to orbit.

The launch abort system is a key element in NASA's continuing efforts to improve safety as the agency develops the next generation of spacecraft to return humans to the moon.

Applications

The technology offers wide-ranging market applications, including commercial launch industry—both manned and unmanned



NASA team has defined best Alternate Launch Abort System configurations for ascent performance, crew exploration vehicle abort controllability, and acoustic loads.

For More Information

If your company is interested in licensing or joint development opportunities associated with this technology, or if you would like additional information on partnering with NASA, please contact:

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