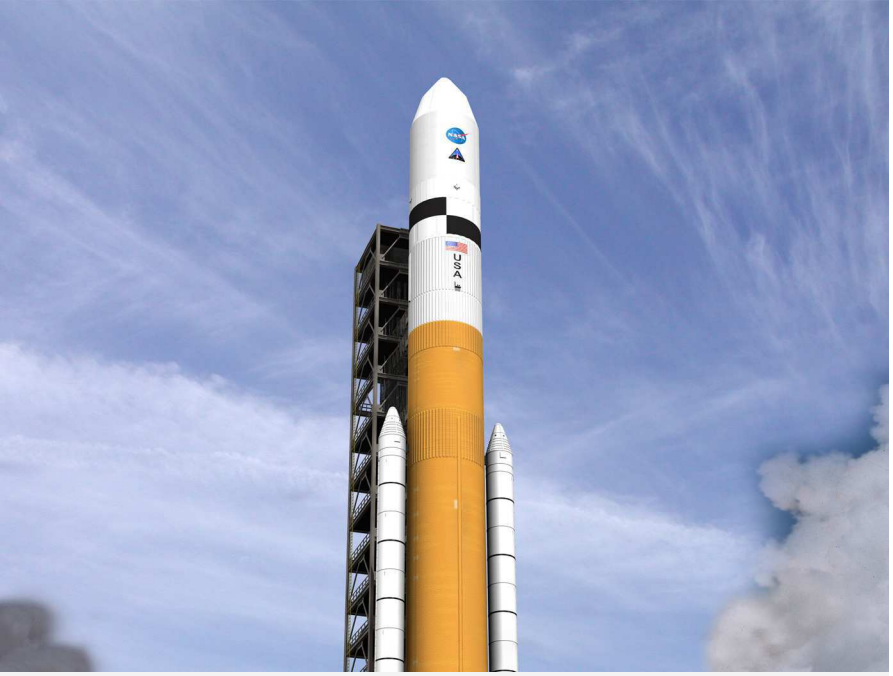


National Aeronautics and Space Administration

technology solution

Aeronautics

NASA Langley's Alternative Launch Abort System Design

Cost saving and recovery of payload

NASAs 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.

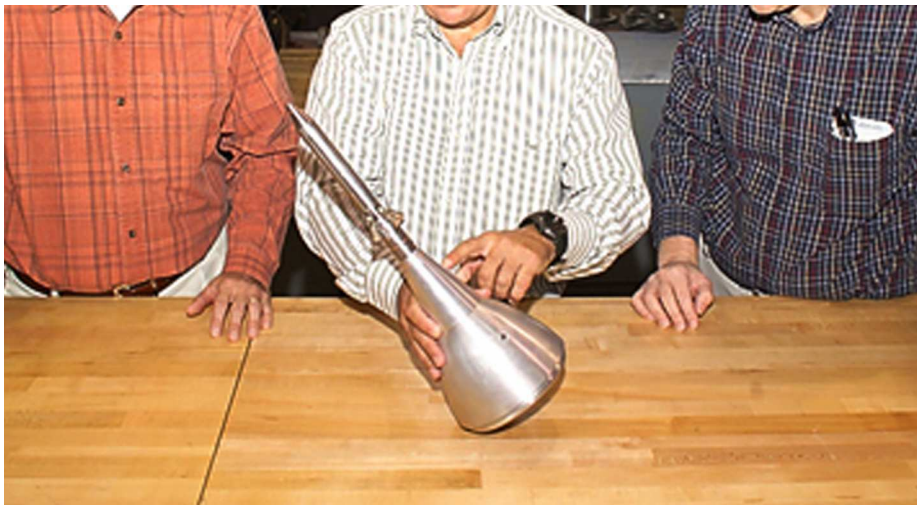
BENEFITS

- 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

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 massto-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.



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

APPLICATIONS

The technology has several potential applications:

- Commercial launch industry - both manned and unmanned

PUBLICATIONS

Patent No: 8,002,219

More Information

National Aeronautics and Space Administration

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NASA's Technology Transfer Program pursues the widest possible applications of agency technology to benefit US citizens. Through partnerships and licensing agreements with industry, the program ensures that NASA's investments in pioneering research find secondary uses that benefit the economy, create jobs, and improve quality of life.

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