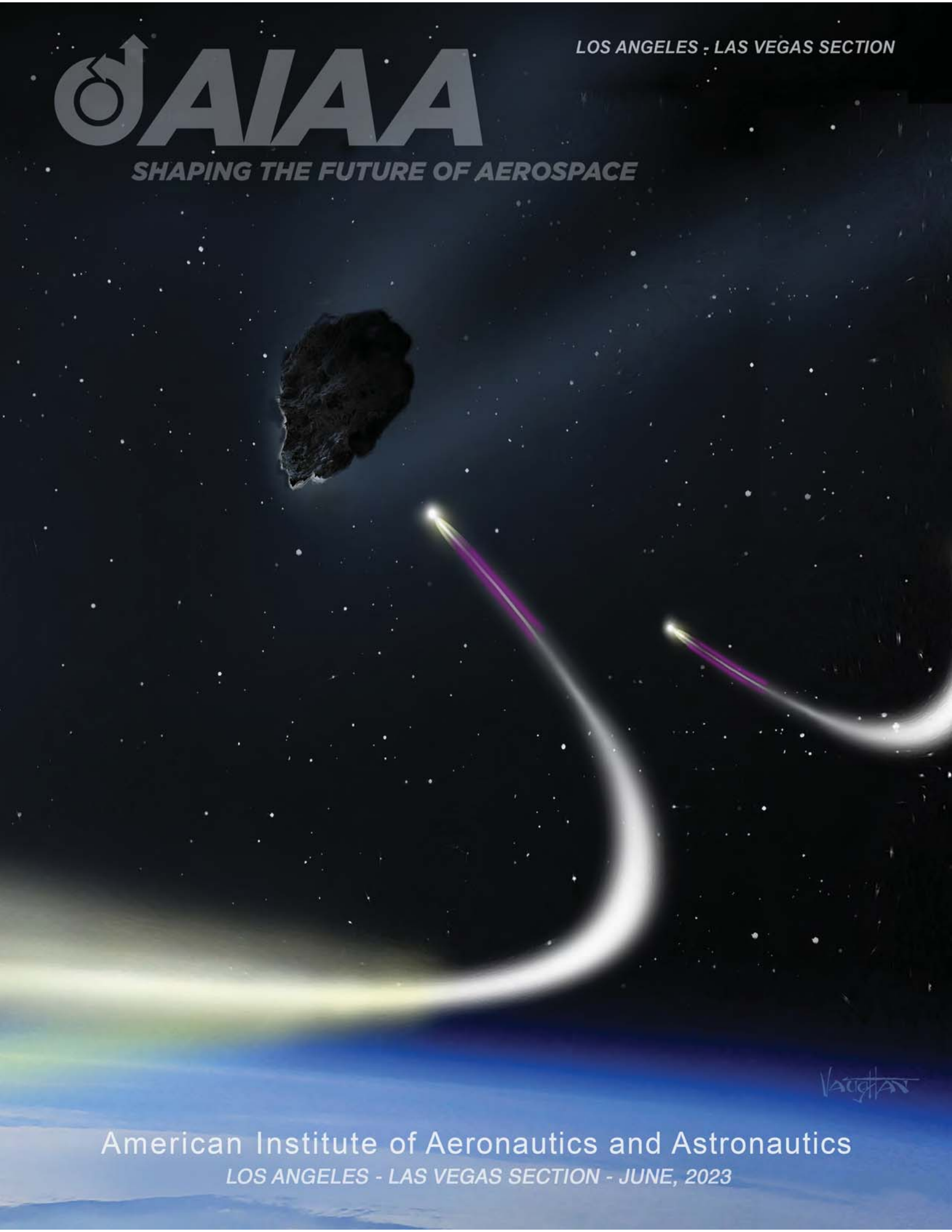




LOS ANGELES - LAS VEGAS SECTION

SHAPING THE FUTURE OF AEROSPACE



Vaughan

American Institute of Aeronautics and Astronautics
LOS ANGELES - LAS VEGAS SECTION - JUNE, 2023

The End of an Era – Delta

by Prof. Mike Gruntman, Professor of Astronautics at USC (2023 June 21)

https://www.linkedin.com/posts/mikegruntman_astronautics-aerospace-defense-activity-7077349438238720000-xOhJ



As Spaceflight Now reports,

“United Launch Alliance has closed its Delta rocket assembly line in Alabama after the 389th and last Delta rocket rolled out of the factory for the journey to its launch base in Florida, clearing real estate in ULA’s sprawling manufacturing center for the next-generation Vulcan launch vehicle.”

(See the full story by Stephen Clark at <https://spaceflightnow.com/2023/06/20/ulas-delta-rocket-assembly-line-falls-silent/>)

This is the end of an era for a storied space launcher family, with its history going back (see the figure on the next page) to the early 1960s and Thor intermediate range ballistic missile.

Where and how it all began:

“In April 1959, NASA let the contract to Douglas Aircraft to provide launch vehicles for space missions. This was the first such contract to a private company by the recently created NASA. The new two-stage rocket, named Delta, used Thor as the first stage. The second stage was based on Aerojet’s AJ10-118, using similarly to Able UDMH and nitric acid. This was the beginning of the highly successful family of space launchers, the ‘workhorse’ of NASA programs. Today [in 2004], this family that can be traced back directly to the Thor, includes Delta II in various modifications and the recently introduced Delta III. Delta IV, although carries the same name, is an entirely new vehicle with the different hydrogen-oxygen propulsion system, RS-68, developed by Rocketdyne.” (M. Gruntman, [Blazing the Trail](#), AIAA, 2004, p. 253, <https://astronauticsnow.com/blazingthetrail/>)

The last medium space launcher Delta II of the rocket family sent a spacecraft to orbit on September 15, 2018. Now the time has come for its remaining heavy sibling, Delta IV, the heaviest space launcher in the United States today.

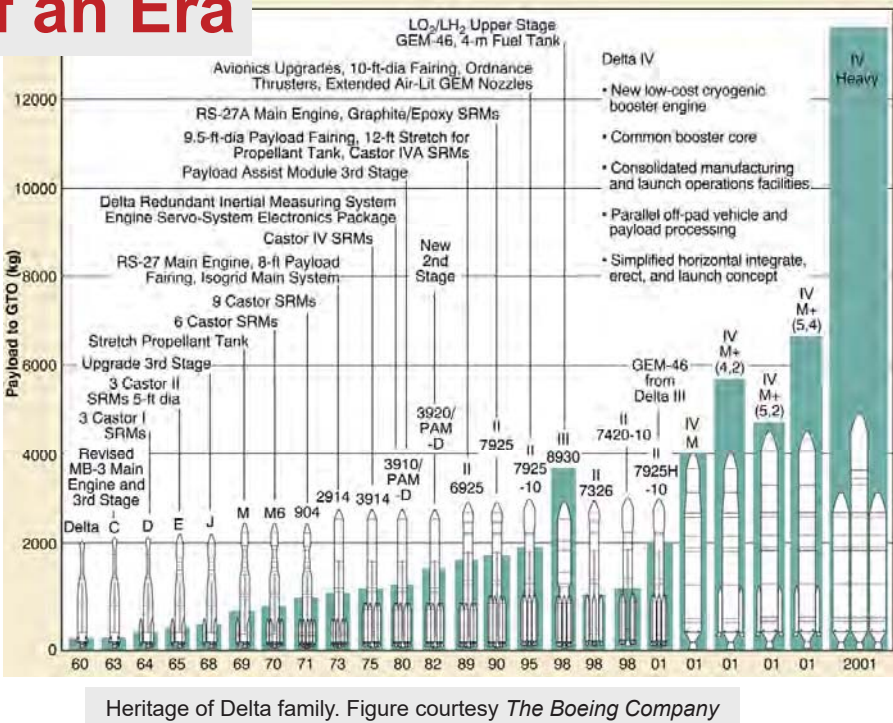
ULA will replace Delta IV and its other heavy launcher Atlas V with a new Vulcan space launcher relying on Blue Origin’s methane-LOX BE-4 engines.

The End of an Era

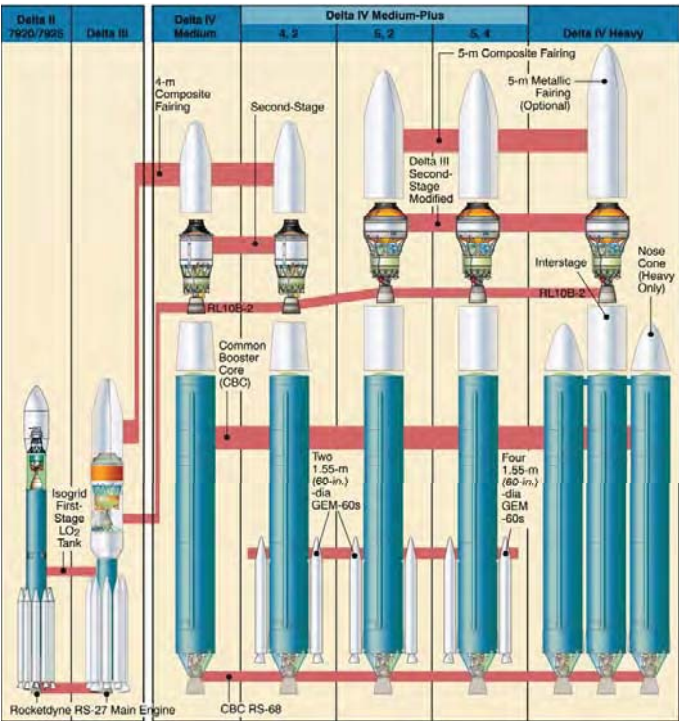
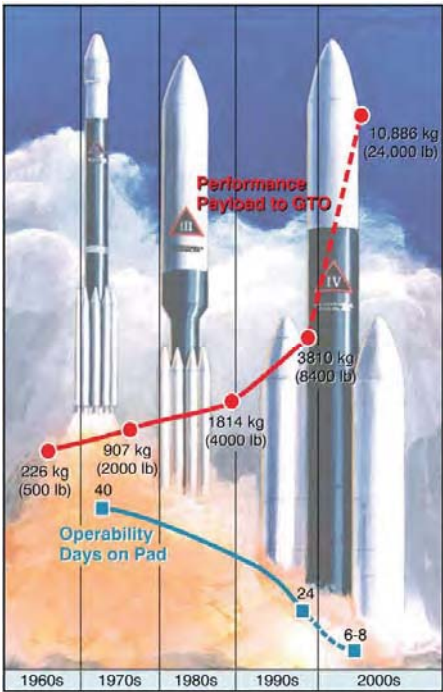
Delta Family (historical)

United Launch Alliance has closed its Delta rocket assembly line in Alabama after the 389th and last Delta rocket rolled out of the factory for the journey to its launch base in Florida, clearing real estate in ULA's sprawling manufacturing center for the next-generation Vulcan launch vehicle.)

Spaceflight Now
June 20, 2023



Delta Family



Delta launch vehicle family.
Figures courtesy The Boeing Company

Last Delta II launched on September 15, 2018