

Firefly Aerospace



Cedar Park, TX

<https://firefly.com/>

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SINCE ITS FOUNDING IN

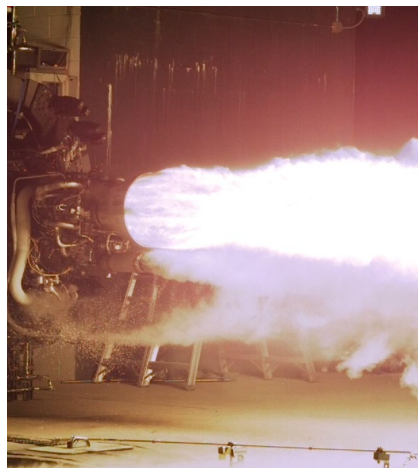
2017

1 SBIR Award

323 Employees

NA Socioeconomic Category

2 Filed Patents (SBIR/STTR)



Low-Cost Expendable Launch Technology

Reliable, on-demand access to space for commercial, civil, and national security users of satellite systems continues to be a challenge 60+ years after launch of the world's first operational satellite.

Firefly Aerospace, with support from DARPA has dramatically increased the reliability of accessing space by developing a simple, efficient, and streamlined pump-fed engine. Most traditional rocket engines use a separate, smaller combustor — a preburner or gas generator — to power a turbopump. Firefly's Reaver engine uses hot gases from the main engine combustion chamber to power the turbopump, thereby eliminating the additional combustor entirely. This is the first RP-1 fueled "tap-off" cycle engine developed, and this engine cycle reduces complexity and cost of the engine while greatly increasing flight reliability. The high thrust-to-weight ratio of 94:1 of this engine demonstrates the simplicity and effectiveness of the "tap-off" cycle.

IMPACT

The commercialization of low Earth orbit and cislunar space is marked by a transition to privately-developed small launch vehicles. Competing to provide economical and reliable access to space for small payloads, vehicles with simplified engine technology are fielded at a much lower unit cost while improving launch responsiveness for satellite architectures requiring rapid replenishment. Incorporating "tap off" technology in future rocket engine designs is a critical enabler for next generation space access.

BEYOND PHASE II

Firefly has secured private investment in excess of \$200M through first flight of its Alpha launch vehicle and has completed acceptance testing of its Reaver engine. The company's launch order pipeline of \$2.6B has positioned the Alpha launch vehicle as a leading provider of industry wide small launch services for the cislunar economy. Firefly was also awarded with two NASA contracts (CLPS, VCLS-2).

Solicitation:

Low-Cost Expendable Launch Technology

DARPA SBIR Sponsor

SB152-008 Topic Number

Cost Savings Primary Innovation

Improved Performance Secondary Innovation