

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Vehicles in Service or in Development (1)

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PARTNERING FOR SUCCESS – NORTHROP GRUMMAN AND FIREFLY ADVANCE NEW
MEDIUM-CLASS LAUNCH VEHICLE

Abstract

INTRODUCTION:

Northrop Grumman (NG) and Firefly Aerospace are co-developing a next-generation medium-class launch vehicle to provide dependable and affordable access to LEO and beyond. Fabrication and testing the vehicle's new tap-off cycle engines and key structural components is well underway – with major works ongoing at Firefly's Rocket Ranch in Briggs, TX, and NG facilities in Sterling, VA, Chandler, AZ, and in collaboration with Virginia Space at the NASA Wallops Flight Facility. If selected, company representatives from NG and Firefly will provide a progress update on the MLV development and testing program as well as an overview of the launch vehicle's performance capabilities. They will also describe how this partnership between a traditional aerospace and defense prime and an agile new space company benefits the global space community by providing dependable and affordable medium-class launch services.

BACKGROUND:

The NG/Firefly collaboration emerged in 2022, with NG seeking a new US-based propulsion supplier for its Antares program and Firefly seeking an experienced partner to move into the medium-class launch segment. The companies are working together under two agreements: the first is to replace the Antares first stage booster, creating the A330 configuration, and the second is to develop MLV. The Antares 330 will launch Cygnus on its destination to the International Space Station and it is an interim step to the MLV. MLV will incorporate the same first stage booster, but also a liquid-fuel second stage and a larger payload fairing to meet the needs of customers across the broader commercial, civil, and national security segments. Firefly provides the first and second stage MLV boosters, built from the company's innovative lightweight composite sandwich structures and tap-off cycle engines. NG provides the new 5.4 m payload fairing with a 457 cm US Cat B envelope, modular avionics, and other flight-proven systems. The seven engines on Stage 1 provide a combined vacuum thrust of 7,162 kN and the single vacuum-optimized engine on Stage 2 provides 890 kN of thrust. The fueled vehicle will weigh about 510,000 kg at liftoff and can put more than 16,000 kg of payload into LEO.