



Cygnus™ OA-4 Mission

Cargo Delivery Spacecraft for the International Space Station (ISS)

FACT SHEET



Overview

For the OA-4 mission, Orbital ATK has developed an enhanced space system for improved cargo delivery capability to the International Space Station (ISS). Cargo capability has increased to better than 3500 kg (7700 lbs) on this mission vs previous maximum capability of 2300 kg (5070 lbs).

The Cygnus spacecraft is a flight proven system, having successfully delivered cargo to the ISS on three previous missions. Cygnus is used to carry crew supplies, spare equipment and scientific experiments to the ISS. The OA-4 Cygnus vehicle consists of an upgraded service module and an enhanced pressurized cargo module.

The upgraded service module utilizes flight proven avionics and communication systems, and incorporates new UltraFlex™ solar arrays as well as an optimized propulsion system and structure.

The Enhanced Pressurized Cargo Module is based on the standard PCM, developed by Thales Alenia Space for the Cygnus spacecraft. The Enhanced PCM has increased volume capability by approximately 25%, as well as an improved secondary structure allowing for more densely packed cargo.

The OA-4 mission is the first Cygnus mission utilizing the Atlas V launch system, providing increased performance and flexibility to the Orbital ATK cargo delivery service. This mission is also the first Cygnus mission to utilize the Kennedy Space Center and launch from the Cape Canaveral Air Force base in Cape Canaveral, Florida.

FACTS AT A GLANCE

Mission Partners

Orbital ATK

Prime contractor; engineering and development; Cygnus Service Module, mission and cargo operations

Thales Alenia Space

Pressurized cargo module

Mitsubishi Electric Corporation (MELCO)

Proximity link system

Draper Laboratory

Guidance, navigation and fault tolerant computer support

United Launch Alliance

Atlas V 401 launch vehicle delivery service

JAMSS America, Inc.

Operations support

Kennedy Space Center

Spacecraft processing facilities and services

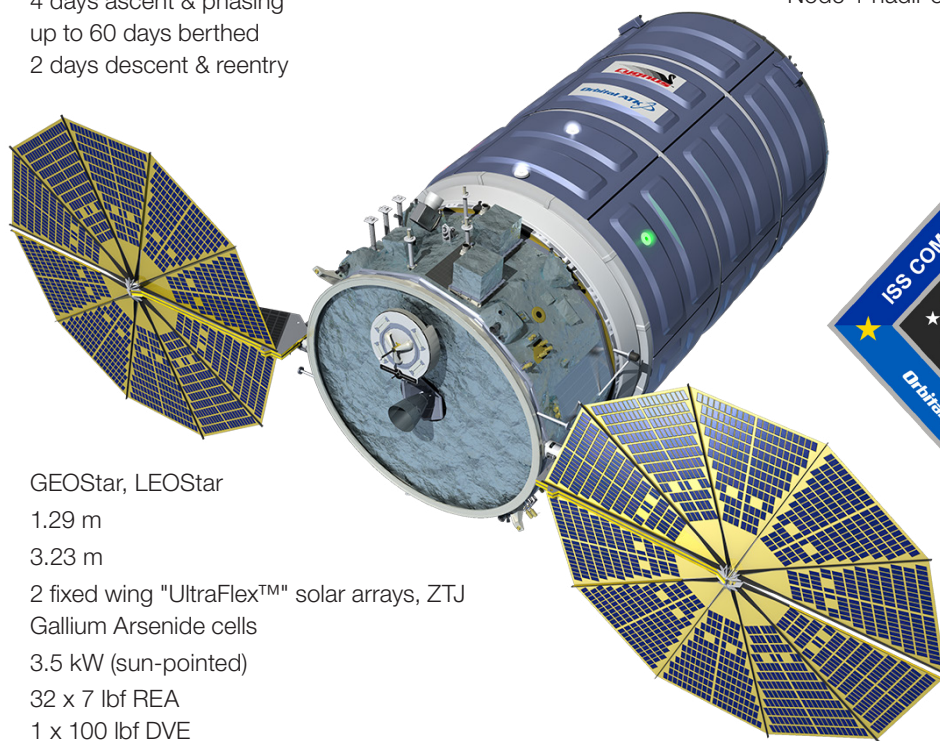
Specifications

Mission Overview

Space Vehicle:	Cygnus
Launch Vehicle:	ATLAS V 401
Cygnus Launch Mass:	7,492 kg
Propellant Mass:	828 kg
Ascent Cargo Mass:	3,513 kg
Descent Cargo Mass:	Up to 3,513 kg
Mission Duration:	4 days ascent & phasing up to 60 days berthed 2 days descent & reentry

Pressurized Cargo Module

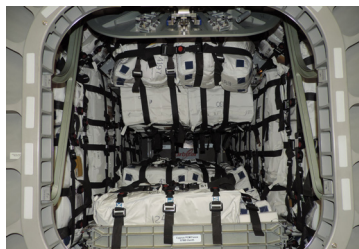
Height:	5.1 m
Diameter:	3.05 m
Heritage:	Multi-Purpose Logistics Module
Total Cargo Mass:	3,513 kg
Pressurized Volume:	27 m³
Berthing at ISS:	Common Berthing Mechanism (CBM), Node-1 nadir or Node-2 nadir



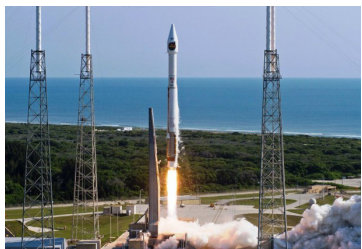
Service Module

Heritage:	GEOSTAR, LEOSTAR
Height:	1.29 m
Max Diameter:	3.23 m
Power Generation:	2 fixed wing "UltraFlex™" solar arrays, ZTJ Gallium Arsenide cells
Power Output:	3.5 kW (sun-pointed)
Propulsion:	32 x 7 lbf REA 1 x 100 lbf DVE
Propellant:	Dual-mode N ₂ H ₄ /MON-3 or N ₂ H ₄

Mission Profile



NASA cargo loaded in Cygnus
Pressurized Cargo Module



Launch from Kennedy Space Center



Rendezvous and berthing with ISS



Destructive reentry above
the Pacific Ocean

Key Contacts

Frank DeMauro
Vice President, Human Spaceflight Systems Programs,
Civil & Defense Division
(703) 948-8766
frank.demauro@orbitalatk.com

Bob Richards
Vice President, Business Development,
Human Spaceflight Systems
Civil & Defense Division
(703) 406-5221
bob.richards@orbitalatk.com

