

Cygnus™

Cargo Delivery Spacecraft for the International Space Station (ISS)

FACT SHEET



Overview

Orbital ATK developed the Cygnus advanced maneuvering spacecraft to demonstrate cargo delivery services under a NASA Commercial Orbital Transportation Services (COTS) Space Act Agreement. Orbital ATK uses Cygnus to perform ISS resupply flights under the Commercial Resupply Service (CRS) contract. Orbital ATK is under contract to conduct 10 missions to deliver approximately 28,700 kilograms of cargo to the ISS. The first of these was successfully completed in early 2014.

The Cygnus system is a low-risk design incorporating elements drawn from Orbital ATK and its partners' existing, flight-proven spacecraft technologies. Cygnus consists of a common service module and a pressurized cargo module. Cygnus is used to carry crew supplies, spare equipment and scientific experiments to the ISS.

The service module incorporates avionics systems from Orbital ATK's flight-proven LEOStar™ and GEOStar™ satellite product lines plus propulsion and power systems from our GEOStar communications satellites.

The pressurized cargo module is based on the Multi-Purpose Logistics Module (MPLM), developed by Thales Alenia Space for NASA.

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

Odyssey Space Research

Visiting vehicle requirements support

JAMSS America, Inc.

Operations support

Vivace

Systems engineering support

Specifications

Service Module

Heritage: GEOStar™, LEOStar™
Power Generation: 2 fixed wing solar arrays, ZTJ Gallium Arsenide cells
Power Output: 3.5 kW (sun-pointed)
Propellant: Dual-mode N₂H₄/MON-3 or N₂H₄

Pressurized Cargo Module

Heritage: Multi-Purpose Logistics Module
Total Cargo Mass: 3,200 - 3,500 kg
Pressurized Volume: 27 m³
Berthing at ISS: Node 2 Common Berthing Mechanism (CBM)

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



Cygnus approaching the ISS



The Cygnus Service Module incorporates systems from Orbital ATK's flight proven LEOStar and GEOStar satellite product lines



For CRS Missions, Cygnus is boosted into orbit by Orbital ATK's Antares™ medium-class space launch vehicle (left) or a United Launch Alliance Atlas V rocket (right)



Cygnus spacecraft at the Kennedy Space Center