The Cygnus spacecraft is a flight-proven system, having successfully delivered cargo to the International Space Station on nine previous missions. Cygnus is used to carry crew supplies, spare equipment and scientific experiments.

For the NG-10 mission, Northrop Grumman is using the enhanced Cygnus spacecraft to deliver cargo to the space station. Cygnus is comprised of two components, the Pressurized Cargo Module (PCM) and the Service Module (SM). The cargo capability of the Enhanced PCM, developed by Thales Alenia Space, is more than 3,500 kg (7,700 lbs) with a total volumetric capacity of 27 cubic meters. The Service Module, built by Northrop Grumman, utilizes flight-proven avionics and communication systems, and incorporates UltraFlex™ solar arrays as well as an optimized propulsion system and structure.

Cygnus will be launched into orbit using Northrop Grumman’s Antares 230 launch vehicle from Virginia Space’s Mid-Atlantic Regional Spaceport Pad 0A on Wallops Island, Virginia at NASA’s Wallops Flight Facility. The Antares 230 vehicle features RD-181 engines.

Upon arrival to the International Space Station, Cygnus will be unloaded and prepped for the next phase of its mission. During its stay at the station, astronauts will load the module with cargo ready for disposal. Once Cygnus is unberthed, a NanoRacks deployer will release three Cubesats from both above and below the station. Upon completion of its mission, Cygnus will perform a safe, destructive reentry into Earth’s atmosphere over the Pacific Ocean.

**Facts At A Glance**
- Launch Vehicle: Antares 230
- Cargo Spacecraft: Enhanced Cygnus
- Ascent Cargo Mass: Up to 3,450 kg (7,605 lb.)
- Descent Cargo Mass: Up to 3,450 kg (7,605 lb.)
- Launch Site: MARS Pad 0A, Wallops Island, VA
- Mission Duration: Up to 90 days berthed
**Cygnus Spacecraft**

- **Pressurized Cargo Module**
- **Service Module**

**Mission Profile**

- Cargo is delivered to Wallops Flight Facility and loaded into Cygnus.
- Cygnus is launched into orbit by Antares from MARS Pad OA at Wallops Island, VA.
- Cygnus rendezvous with the ISS and is grappled and berthed by the ISS crew.
- Destructive reentry into Earth's atmosphere at the end of mission.

**Cygnus Launch Mass:** 6,173 kg (13,608 lb.)

**Propellant Mass:** 800 kg (1,764 lb.)

**Ascent Cargo Mass:** 3,450 kg (7,605 lb.)

**Pressurized Volume:** 27 m³

**Height:** 6.39 m

**Power Generation:** 2 fixed wing "UltraFlex™" solar arrays, ZTJ gallium arsenide cells

**Descent Cargo Mass:** Up to 3,450 kg (7,605 lb.)

**Mission Duration:** 2-4 days ascent and phasing
Up to 90 days berthed
Up to 2 weeks descent and reentry

**Antares Launch Vehicle**

- **Stage 1**
  - Liquid oxygen/kerosene fueled
  - Northrop Grumman responsible for system development and integration
  - Core tank design and design verification by KB Yuzhnoye (Zenit-derived heritage)
  - Core tank production by Yuzhmash
  - Two Energomash RD-181 engines each with independent thrust vectoring

- **Stage 2**
  - Northrop Grumman CASTOR™ 30XL solid motor (CASTOR 120 heritage) with thrust vectoring