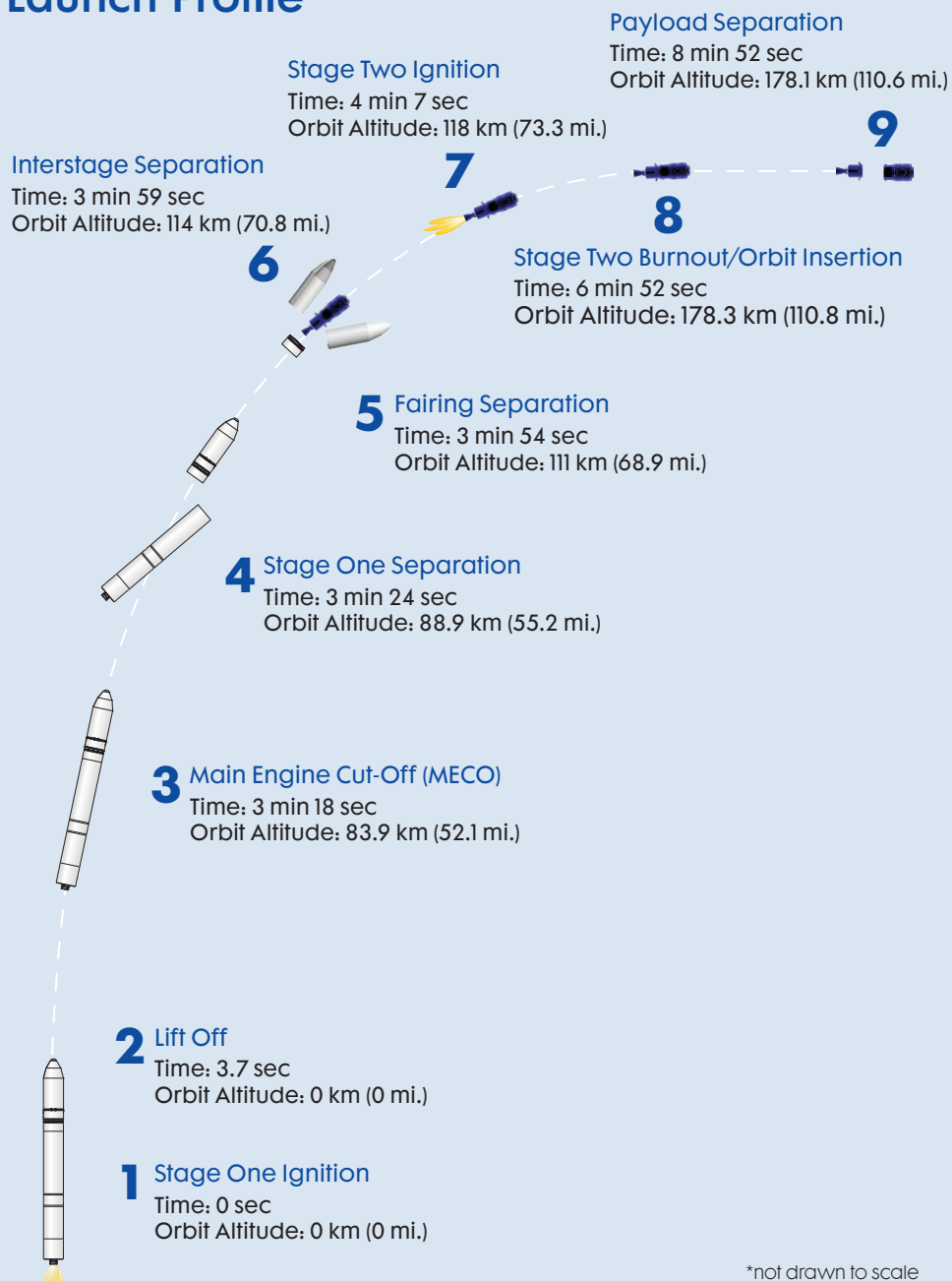


NG-16 Mission

Delivering Cargo to the International Space Station

Launch Profile



Mission Parameters

Launch Vehicle:
Antares 230+

Cargo Spacecraft:
Cygнус

Launch Site:
MARS Pad 0A,
Wallops Island, Virginia

Ascent Cargo Mass:
Up to 3,729 kg (8,200 lb.)

Descent Cargo Mass:
Up to 3,729 kg (8,200 lb.)

Initial Orbit Altitude:
171 km x 295 km

Inclination:
51.63°

Transit to Station:
Two Days

Duration at Station:
Up to 100 Days Berthed
Up to 30 days on orbit

Mission Description

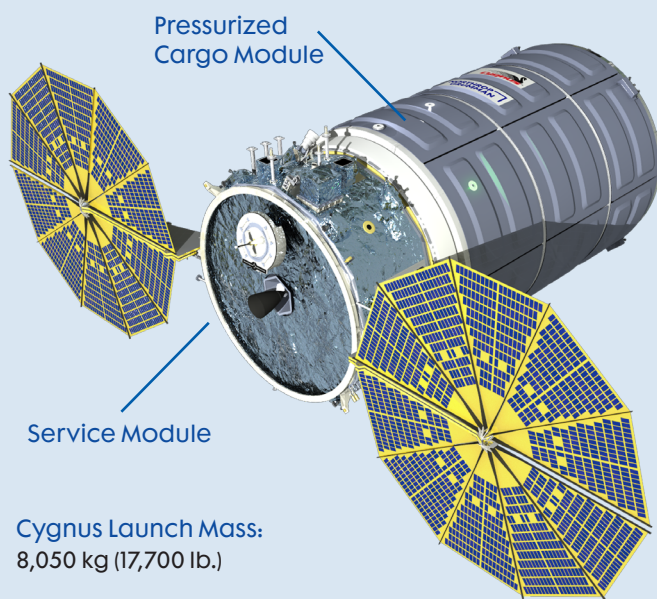
For the NG-16 mission, the Cygnus spacecraft will deliver approximately 3,700 kg. (8,200 lb.) of cargo to the space station. Cygnus is comprised of two primary components, the Pressurized Cargo Module and the Service Module. In keeping with company tradition, each spacecraft is named after an important figure in the aerospace industry. Northrop Grumman is honored to name the NG-16 Cygnus spacecraft after Ellison Onizuka, the first Asian American astronaut. The S.S.

Ellison Onizuka will be launched into orbit using an Antares 230+ rocket from Virginia Space's Mid-Atlantic Regional Spaceport (MARS) Pad 0A on Wallops Island, Virginia. Northrop Grumman will once again load critical cargo into Cygnus 24 hours before the scheduled launch.

Upon arrival at the International Space Station, the cargo will be unloaded from Cygnus. Riding as a payload on the S.S. Ellison Onizuka is a Northrop Grumman

and Space Development Agency (SDA) experimental mission called the Prototype Infrared Payload (PIRPL). Upon arrival at the ISS, PIRPL will begin collecting infrared data which will define possible by expanding detection capabilities. The data collected will aid the development of algorithms for the next generation of tracking satellites.. Once its mission has been completed, Cygnus will perform a safe, destructive reentry into Earth's atmosphere over the Pacific Ocean.

Cygnus Spacecraft



Cygnus Launch Mass:
8,050 kg (17,700 lb.)

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

Ascent Cargo Mass:
Up to 3,729 kg (8,200 lb.)

Pressurized Volume:
27 m³

Height:
6.39 m (21 ft.)

Power Generation:
2 fixed wing UltraFlex™ solar arrays,
ZTI gallium arsenide cells

Descent Cargo Mass:
Up to 3,729 kg (8,200 lb.)

Antares Launch Vehicle



Diameter:
3.9 m (12.8 ft.)

Height:
42.5 m (139.4 ft.)

Mass:
290,000 - 310,000 kg
(639,341 - 683,433 lb.)

**Cygnus Advanced
Maneuvering Spacecraft**

Stage 2
Northrop Grumman
CASTOR® 30XL solid motor
with thrust vectoring

Stage 1
Liquid oxygen/kerosene
fueled

Northrop Grumman
responsible for system
development and
integration

Core tank designed and
verified by KB Yuzhnoye
(Zenit-derived heritage)

Core tank production by
Yuzhmash

Two Energomash RD-181
engines each with
independent thrust
vectoring