

THE VEHICLE

THE SATELLITE

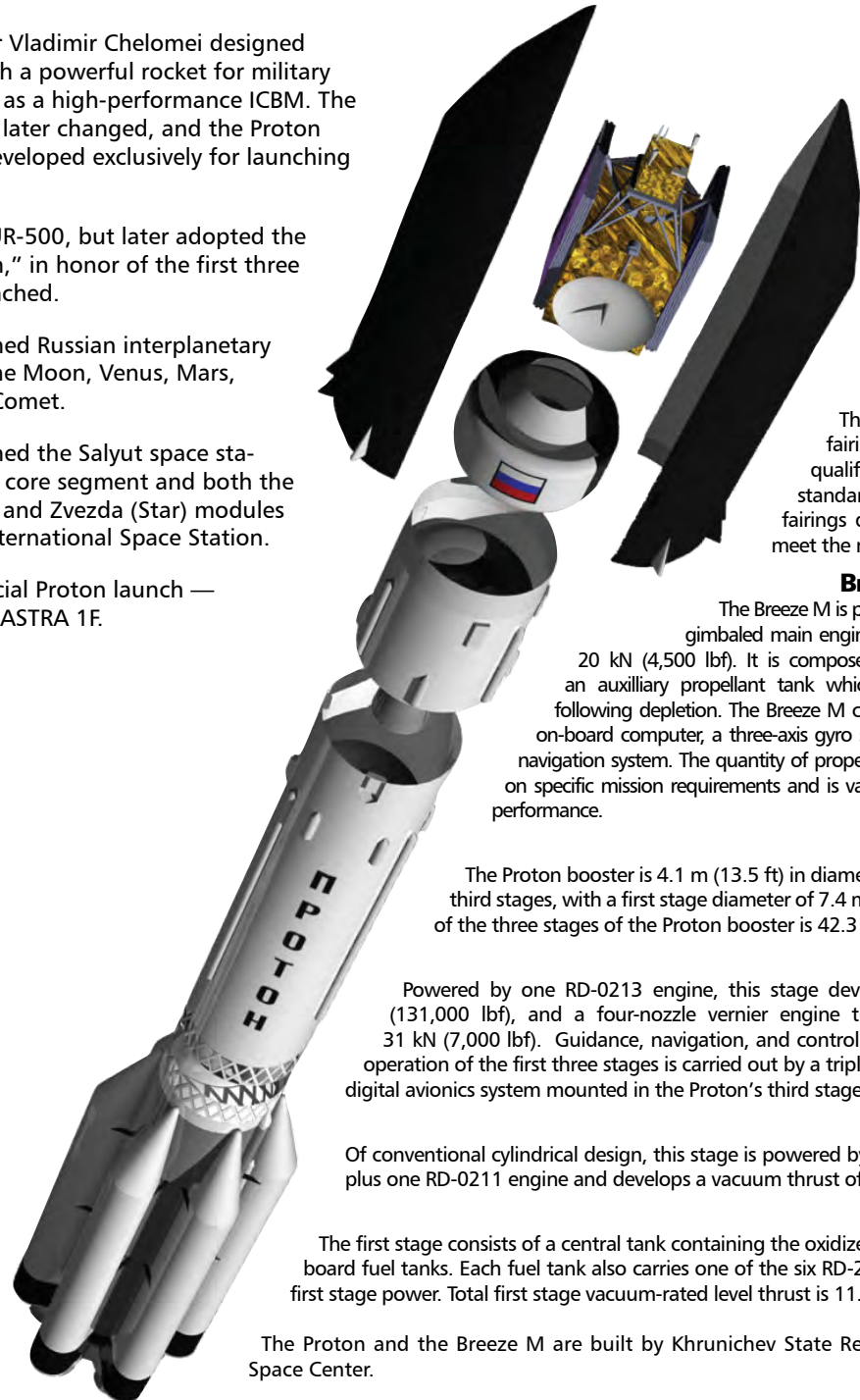


www.ilslaunch.com

PROTON HISTORY

- Lead designer Vladimir Chelomei designed Proton as both a powerful rocket for military payloads and as a high-performance ICBM. The program was later changed, and the Proton rocket was developed exclusively for launching spacecraft.
- First named UR-500, but later adopted the name "Proton," in honor of the first three payloads launched.
- Proton launched Russian interplanetary missions to the Moon, Venus, Mars, and Halley's Comet.
- Proton launched the Salyut space stations, the Mir core segment and both the Zarya (Dawn) and Zvezda (Star) modules for today's International Space Station.
- First commercial Proton launch — 9 April 1996, ASTRA 1F.

PROTON DESCRIPTION



TOTAL HEIGHT
56.2 m (185 ft)

GROSS LIFTOFF WEIGHT
705,000 kg
(1,554,000 lb)

PROPELLANT
UDMH and N₂O₄

INITIAL LAUNCH
16 July 1965
Proton-1 Spacecraft

PAYLOAD FAIRINGS
There are multiple payload fairing designs presently qualified for flight, including standard commercial payload fairings developed specifically to meet the needs of our customers.

BREEZE M UPPER STAGE
The Breeze M is powered by one pump-fed gimbaled main engine that develops thrust of 20 kN (4,500 lbf). It is composed of a central core and an auxiliary propellant tank which is jettisoned in flight following depletion. The Breeze M control system includes an on-board computer, a three-axis gyro stabilized platform, and a navigation system. The quantity of propellant carried is dependent on specific mission requirements and is varied to maximize mission performance.

PROTON BOOSTER
The Proton booster is 4.1 m (13.5 ft) in diameter along its second and third stages, with a first stage diameter of 7.4 m (24.3 ft). Overall height of the three stages of the Proton booster is 42.3 m (138.8 ft).

THIRD STAGE
Powered by one RD-0213 engine, this stage develops thrust of 583 kN (131,000 lbf), and a four-nozzle vernier engine that produces thrust of 31 kN (7,000 lbf). Guidance, navigation, and control of the Proton M during operation of the first three stages is carried out by a triple redundant closed-loop digital avionics system mounted in the Proton's third stage.

SECOND STAGE
Of conventional cylindrical design, this stage is powered by three RD-0210 engines plus one RD-0211 engine and develops a vacuum thrust of 2.4 MN (540,000 lbf).

FIRST STAGE
The first stage consists of a central tank containing the oxidizer surrounded by six out-board fuel tanks. Each fuel tank also carries one of the six RD-276 engines that provide first stage power. Total first stage vacuum-rated level thrust is 11.0 MN (2,500,000 lbf).

The Proton and the Breeze M are built by Khrunichev State Research and Production Space Center.



SATELLITE OPERATOR
Asia Satellite Telecommunications Co. Ltd. (AsiaSat)
www.asiasat.com

SATELLITE MANUFACTURER
Space Systems/Loral
www.ssloral.com

PLATFORM
1300 Spacecraft Bus

SEPARATED MASS
3,760 kg

SATELLITE DESIGN LIFE
15 Years

SATELLITE MISSION
AsiaSat 5 is a new generation satellite equipped with the latest technology and new beam coverage to provide highest quality television broadcast, telephone networks and VSAT networks for broadband multimedia services across Asia Pacific. In addition to a very powerful pan-Asian C-band footprint and the improved Ku-band East Asia beam, AsiaSat 5's new Ku-band South Asia and in-orbit steerable beams are designed to serve new market requirements and to offer full backup capability in network coverage with AsiaSat's existing satellites AsiaSat 3S and AsiaSat 4. AsiaSat 5, a replacement satellite for AsiaSat 2, will be located at 100.5 degrees East.

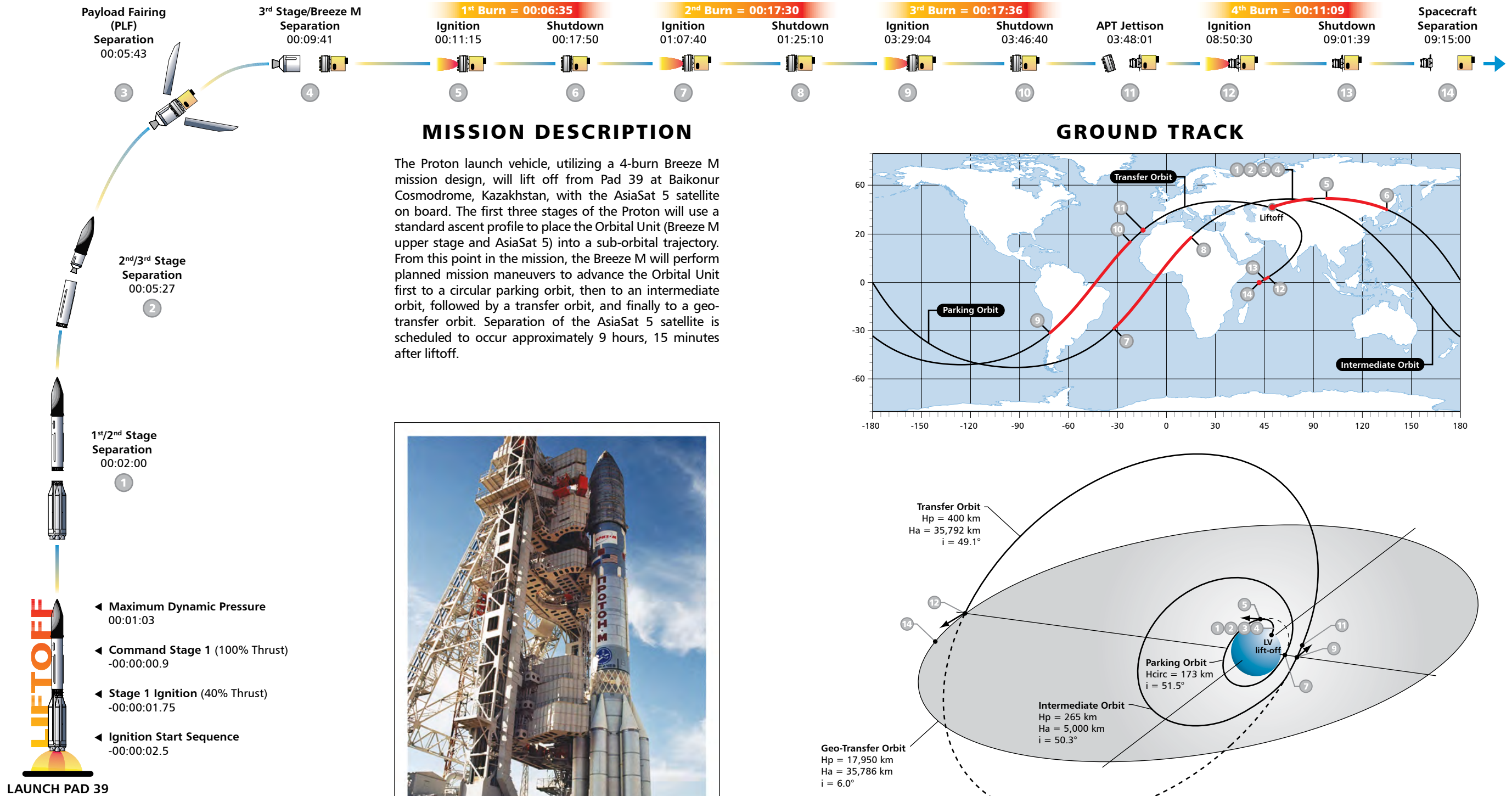


AsiaSat 5 MISSION OVERVIEW

- 6th Proton Launch of 2009 / 4th ILS Proton Launch of 2009
- 53rd Proton Launch for ILS
- 4th AsiaSat Satellite Launched by ILS
- 12th Space Systems/Loral Satellite Launched on Proton



THE MISSION



MISSION DESCRIPTION

The Proton launch vehicle, utilizing a 4-burn Breeze M mission design, will lift off from Pad 39 at Baikonur Cosmodrome, Kazakhstan, with the AsiaSat 5 satellite on board. The first three stages of the Proton will use a standard ascent profile to place the Orbital Unit (Breeze M upper stage and AsiaSat 5) into a sub-orbital trajectory. From this point in the mission, the Breeze M will perform planned mission maneuvers to advance the Orbital Unit first to a circular parking orbit, then to an intermediate orbit, followed by a transfer orbit, and finally to a geo-transfer orbit. Separation of the AsiaSat 5 satellite is scheduled to occur approximately 9 hours, 15 minutes after liftoff.



PROTON M ON PAD 39

ASCENT PROFILE

ORBIT INSERTION

