NASA'S Launch Services Program presents…

National Aeronautics and Space Administration

TDRS-L

Tracking and Data Relay Satellite-L (TDRS-L)

The Tracking and Data Relay Satellite-L (TDRS-L) Project is providing follow-on and replacement spacecraft necessary to maintain and expand space network communications. TDRS-L is scheduled for launch aboard a United Launch Alliance Atlas V-401 launch vehicle in 2014.

The TDRS Project was established in 1973 and is responsible for the development, launch and in-orbit test and calibration of TDRS spacecraft. There have been four procurements of TDRS spacecraft, which include the Basic Program (TDRS F1-F6), the Replacement Program (TDRS F7), the TDRS H, I, J Program, and the TDRS K and L Program. The first seven spacecraft (TDRS F1-F7) are referred to as the first generation; the H, I, J series are the second generation; and the K and L series are the third generation. The TDRS K and L series were built by Boeing Space Systems in El Segundo, Calif. TDRS F1-7 spacecraft were built by TRW (now Northrop Grumman) in Redondo Beach, Calif. The TDRS F8-F10 (H, I, J) spacecraft were built by Hughes (now Boeing) in El Segundo, Calif.

The TDRS system (TDRSS), also referred to as the NASA Space Network, comprises the in-orbit telecommunications TDRS satellites stationed at geosynchronous stationary positions and the associated TDRS ground stations located at White Sands, N.M., and Guam. The TDRSS is capable of providing nearly continuous high-bandwidth telecommunications services for low-Earth orbit spacecraft and expendable launch vehicles, including the Hubble Space Telescope and the International Space Station. TDRSS is a basic agency capability and a critical national resource.

Launch Vehicle
Atlas V-401

Launch Location
Cape Canaveral Air Force Station, Fla.

Launch Date
2014

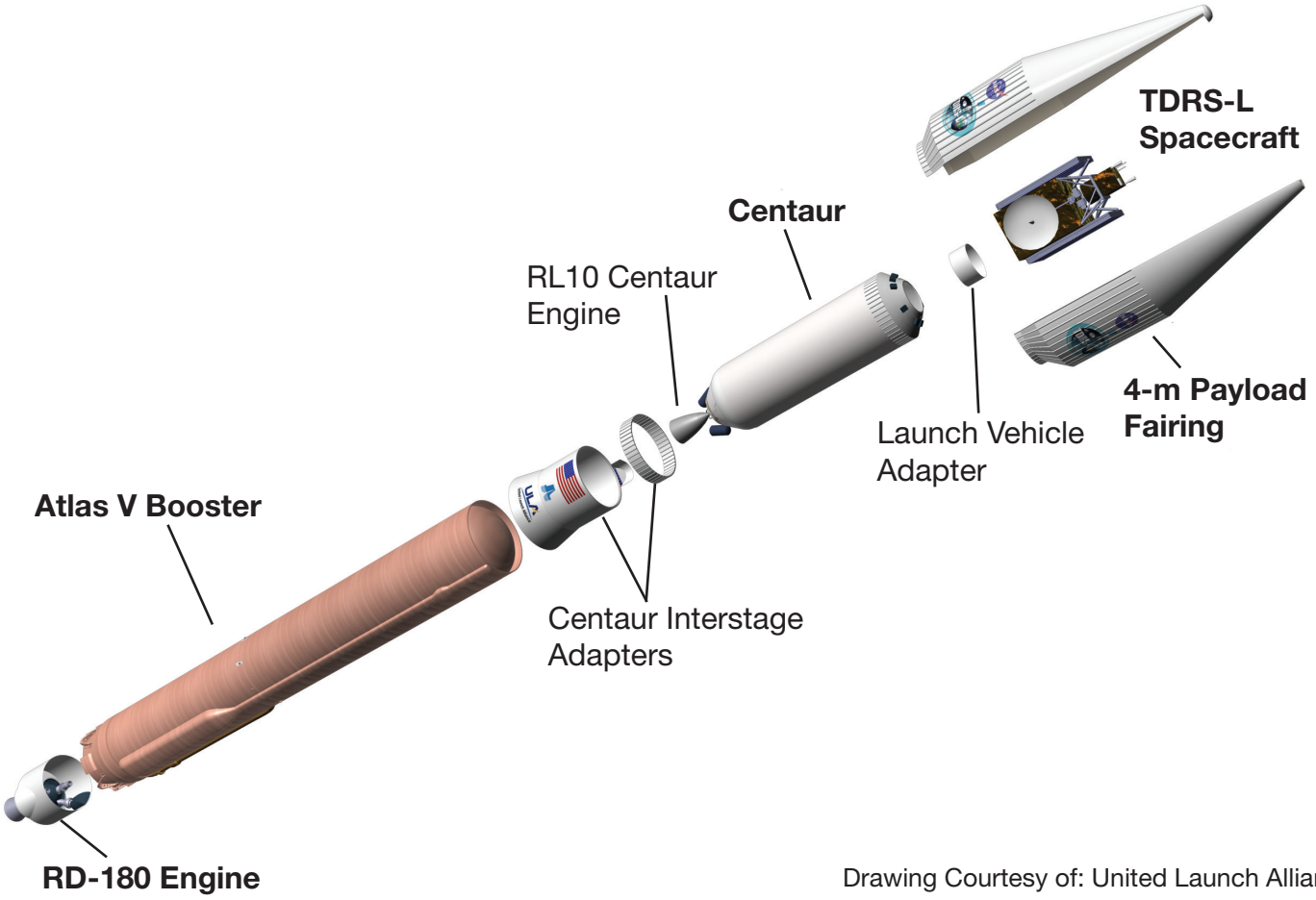
Tracking and Data Relay Satellite-L (TDRS-L)

The Tracking and Data Relay Satellite-L (TDRS-L) mission will be launched on a United Launch Alliance Atlas V 401 rocket in 2014. The Atlas V that will launch the spacecraft combines the RD-180 powered Common Core Booster TM with a 13-foot-diameter (4-meter) payload fairing. The Atlas V uses a single engine Centaur upper stage.

The primary interfaces between the Atlas V launch vehicle and TDRS-L spacecraft comprise the payload adapter, which supports the spacecraft on the launch vehicle and provides separation; and the payload fairing, which encloses and protects the spacecraft during ground operations and launch vehicle ascent.

The payload fairing provides thermal, acoustic, electromagnetic and environmental protection for the spacecraft during the prelaunch processing operations, launch and ascent.

The Tracking and Data Relay Satellite System (TDRSS) is a space-based communication system used to provide tracking, telemetry, command and high-bandwidth data return services to its many customers. A major component of the system is the TDRS spacecraft itself. Aboard each satellite are several antennas that send and receive signals to and from the ground to multiple satellites simultaneously. As a result, TDRS provides a wide variety of services to meet customers' needs and demands.



Drawing Courtesy of: United Launch Alliance

National Aeronautics and Space Administration

John F. Kennedy Space Center
Kennedy Space Center, FL 32899