

Russian State Commission Issues Results Of Proton Review

April 28 2006

The Russian State Commission has completed its investigation into the Proton M/Breeze M anomaly that left the Arabsat 4A satellite in the wrong orbit eight weeks ago, during a mission for International Launch Services (ILS).

The commission concluded that an anomaly in the oxidizer supply system caused the Breeze M upper stage main engine to shut down prematurely. Based on telemetry data, the most probable cause of the oxidizer supply interruption was a foreign particle that blocked a nozzle of the booster hydraulic pump, the commission stated.

Flight operations should be able to resume after corrective actions have been implemented, the commission stated. Implementation of such steps is expected by the end of May.

The launch of the Arabsat 4A satellite took place at 11:10 p.m. Moscow time Feb. 28 (2:10 a.m. March 1 at the Baikonur launch site). The Proton M launch vehicle inserted the space head unit (Breeze M upper stage with satellite) into the proper orbit, according to the mission profile.

At 5,536 seconds after liftoff, during the second burn of the Breeze M, an unplanned main engine shutdown occurred. In accordance with standard procedures, the flight control system produced an emergency command, and at 5,541 seconds after liftoff the spacecraft was separated from the upper stage, into an orbit of 51.5 degrees inclination, 14,679

km apogee altitude and 506 km perigee altitude.

The State Commission reviewed all possible failure scenarios based on telemetry data received from the Breeze M upper stage. To verify possible scenarios, various units have been tested in test stands, including test firing of the main engine.

The commission is developing corrective actions for additional inspection of the Breeze M and Breeze KM main engines, which are of the same type, to prevent recurrence of similar anomalies.

Concurrently, the ILS Failure Review Oversight Board will commence a series of meetings in Moscow. The FROB will review the final report and corrective action plan in accord with U.S. and Russian government technology control regulations, with a goal of completing its work by the end of May.

ILS is a Lockheed Martin joint venture based in McLean, Va. ILS markets commercial launch missions on the Lockheed Martin Atlas rocket and on the Russian-built Proton vehicle to satellite operators worldwide.

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