

## United Space Alliance is the Status Quo of Space Launch Capability

Written by Nick Sanders

Wednesday, 18 January 2012 00:00

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A [recent story](#) at Aviation Week & Space Technology discusses challenges faced by the United States as it looks to the future of its space launch capability. It told its readers—

The U.S. must overcome the growing challenges of rising launch costs and aging propulsion systems if it is to gain much needed efficiencies and maintain its global lead, warns Gen. William Shelton, commander of Air Force Space Command.

Although the past 81 consecutive national security launches mark “an unprecedented record” for U.S. space launch, Shelton says ‘we pay a huge financial premium for that success.’ Alternatives must be found to offset these costs, he adds. “Don’t get me wrong. I’m not suggesting we want to do launch on the cheap, but there are places we can look to reduce costs without affecting our sterling record of success,’ he says.

Speaking specifically about the RS-68 and RL10 engines that form the propulsion backbone of the current Evolved Expendable Launch Vehicle (EELV) launcher fleet, Shelton says ‘the RS-68 was designed about 20 years ago and the RL10 was originally designed back in the 1950s — for technology that’s pretty doggone old.’ And the upper-stage engines are ‘red-lined on just about every launch we do, running at 25% over the originally designed chamber pressure,’ he adds. ‘I’ve said for years that the person or company or person who finds a breakthrough in space propulsion will become very wealthy. It’s got to happen because it’s just too expensive to get hardware and people to orbit.’ ...

Although engine performance is currently adequate, Shelton believes the real benefits could be found in improving manufacturing processes, which he adds ‘leave a lot to be desired.’ Citing

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the Pratt & Whitney Rocketdyne RL10, he says each engine ‘requires more than 8,000 man touch hours — more than a hand-built Lamborghini if you can believe that.’

The EELV fleet is operated by the [United Launch Alliance](#), a “50/50 joint venture” between Lockheed Martin and The Boeing Company. The Pentagon [recently awarded](#)

ULA a firm, fixed-priced contract valued at \$1.5 Billion for the launching of “three top secret U.S. spy satellites and six other critical national security spacecraft” by mid-2014. The news story (link above) reports—

Among the cargoes: three National Reconnaissance Office payloads, two Navstar Global Positioning System (GPS) spacecraft, two Defense Meteorological Satellites Program (DMSP) military weather satellites, an advanced Navy 3G communications spacecraft and a payload dubbed Air Force Space Command-4.

That’s great news for the joint venture, which historically has been relative immune from budget cuts because of its importance to the USA’s national security. But that doesn’t mean that its operations have been trouble-free.

For instance, we’ve posted a couple of stories about allegations that ULA may have reaped \$271 million in improper payments from its government customers. The last time we heard about this issue was back in August 2010, when [we reported](#) that DCAA Director Pat Fitzgerald—

... called on the Defense Contract Management Agency (DCMA) to notify the United Launch Alliance team (of which Boeing is one of two team members, along with Lockheed Martin) that the costs are in non-compliance ‘with federal accounting standards’ and are ‘unallowable.’

DCMA did not make that notification at the time, nor have we heard much from the agency regarding this issue since then.

More recently, GAO issued **report** [GAO-11-641](#) in October 2011, in which it stated—

DOD officials believe the launch industrial base is unstable and plan to implement an acquisition

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strategy they believe will help stabilize it. The leading proposal would commit the government to a block buy of eight common booster cores--the main component of a launch vehicle--each year, for a 5-year term. However, this approach may be based on incomplete information and although DOD is gathering data that it needs as it finalizes the new acquisition strategy, some critical knowledge gaps remain. ...

Additionally, some subcontractor data needed to negotiate fair and reasonable prices are lacking, according to Defense Contract Audit Agency (DCAA) reports, and some data requirements were waived in 2007 in exchange for lower prices. Mission assurance comprises numerous activities to ensure launch success, but DOD has little insight into the sufficiency or excess of these activities. The expected block buy may commit the government to buy more booster cores than it needs, and could result in a surplus of hardware requiring storage and potentially rework if stored for extended periods. Also, DOD is gaining insight into the rise in some engine prices, expected to increase dramatically in the near term, but it is unclear how this knowledge will inform the expected acquisition approach or subsequent negotiations. ...

So the status quo has been very nice for ULA (absent a few bumps along the way), but the status quo may be changing in the future, because of new companies eager to enter into the EELV marketplace. Among those new companies is Space Exploration ( [SpaceX](#) ). We've reported on SpaceX before—notably [right here](#)

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In October 2011, SpaceX issued a press release that stated—

The U.S. Air Force is the largest launch customer in the world, but is currently served by a monopoly provider whose prices have consistently risen. Equitable criteria for new entrants, coupled with meaningful opportunities for competition, would save the American taxpayer billions.

'Fair and open competition for commercial launch providers is an essential element of protecting taxpayer dollars,' said Elon Musk, SpaceX CEO. 'Our American-made Falcon vehicles can deliver assured, responsive access to space that will meet warfighter needs while reducing costs for our military customers.'

ULA appears to be nicely positioned for the near term. But in the longer term, we suspect its

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sweet status quo position will be threatened by smaller, less expensive, more nimble innovators such as SpaceX.