Rocket Report: Rogozin’s crazy promise, SpaceX tests Mars engine, SLS slips

Enlarge / The mighty Delta IV Heavy rocket takes to the skies.

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Welcome to Edition 1.35 of the Rocket Report! The leader of Russia’s space program, Dmitry Rogozin, has promised his president that the country can double its launch total this year. And if you believe that, well, we’ve got a trampoline to sell you that will allow your astronauts to reach orbit.

As always, we welcome reader submissions, and if you don’t want to miss an issue, please subscribe using the box below (the form will not appear on AMP-enabled versions of the site). Each report will include information on small-, medium-, and heavy-lift rockets as well as a quick look ahead at the next three launches on the calendar.

ABL scales up vehicle performance. ABL Space Systems said that it will offer a more powerful variant of its RS1 rocket—up from 900 to 1,200kg to LEO—to find its niche in the crowded smallsat-launcher market. A launch will cost $12 million. Company executives told *SpaceNews* that the increase in

performance comes after a year and a half of work to refine the design of the vehicle and better understand what it would take to produce the rocket.

Something of a trend? … Other industry executives have come to similar conclusions of late. Whereas Rocket Lab and a handful of other providers have gone really small with their rockets, there seems to be an additional sweet spot in the market in the range of about one ton of lift capacity. With Firefly and Relativity Space also targeting this market segment, this appears to represent a new lane in the smallsat-launcher race. (submitted by Ken the Bin)

Second Iranian space launch fails. For the second time in the last month, an Iranian space launch appears to have failed. The two-stage, liquid-fueled rocket based on missile technology the Iranians obtained from the North Koreans, named Safir, attempted to place a satellite called Dousti into space this week. Iran says that it wants to put satellites into space, not develop ICBM technology. US officials are not convinced of this.

Satellite imagery helps … The imagery suggests that the rocket flew for a while before failing. "The scorch marks and lack of apparent crash adjacent to the pad suggest it made it at least 10 seconds, if not longer into flight," Michael Elleman, a physicist and senior fellow for missile defense at the International Institute for Strategic Studies, told NPR. "Whether the first or second stage failed, we cannot judge without additional information."

ArianeGroup to partner with UK launch site. ArianeGroup will work the Shetland Space Centre in defining a "concept of operations and assessing the range of missions" for the spaceport project in a three-month study, the Shetland News reports. "We are flattered that yet another major industry player supports Shetland and Unst in particular as the optimal location to promote small-satellite launch and support

activity within the UK and Europe," the space center's CEO, Frank Strang, said.

Aspires to launch smallsats … At 60 degrees north latitude, Shetland is the United Kingdom's most-northerly island. ArianeGroup oversees the development of the Ariane and Vega rockets. An ArianeGroup official said the company is "bringing our space infrastructure expertise" to the venture, which aspires to launch small satellites. As with all spaceports, we'll remain somewhat skeptical until there's an anchor tenant with a viable launch vehicle.

Spaceflight signs LSA with Vector. Spaceflight announced Wednesday that it has signed a Launch Services Agreement with Vector for a 2019 launch, with multiple price options for future launches, on the Vector-R launch vehicle. Spaceflight will integrate smaller payloads for launch on the rocket as part of its rideshare services.

Going small … "This unique LSA demonstrates our belief in Vector's potential and commitment to providing customers the most variety in launch vehicle access," Melissa Wuerl, VP of business development at Spaceflight, said in a news release. This is an interesting agreement, because it means even the smaller end of rocket-launch providers is looking at putting together rideshare deals, which in this case may mean 10 to 20 CubeSats. It's worth noting, as well, that rocket companies view rideshares as both an opportunity and a threat. (submitted by Ken the Bin)

Vector now targeting late summer for orbital launch. Last year came and went without Vector delivering on a promise for an orbital rocket launch, and now the company has a new schedule. A suborbital launch of the Block 1 version of Vector-R is scheduled for May, followed by an orbital launch in August, *SpaceNews* reports.

Shutdown blamed? … The schedule has slipped "because of the

facts that we find on the ground plus the government shutdown," Vector CEO Jim Cantrell said. Certainly the shutdown may have played a small role, but it can't account for the lion's share of an eight-month delay. Four orbital launches are planned for 2019, Cantrell said, and those launches have been sold. We hope they happen.

Hawaiian spaceport faces more opposition. A proposal to build a smallsat launch site on the Big Island is being met with concern by residents, Hawaii News Now reports. The Alaska Aerospace Corporation wants to build Pacific Spaceport Complex-Hawaii in Keaau. Critics have many concerns, including noise and possible air and water pollution.

No rockets, please … "We want to tell them 'no rockets.' This is just uncalled for. I lived my whole entire life with my families in our Hawaiian Homes community with toxic facilities that have very little checks and balances," said Terri Napeahi, an organizer with Keaukaha Action Network. There are already widespread concerns in Hawaii about the ongoing development of Mauna Kea as a facility for telescopes, especially with the proposed Thirty Meter Telescope, so further opposition to a rocket launch site is to be expected.

Rogozin promises to launch 45 rockets this year. In a meeting with Russian President Vladimir Putin, Roscosmos chief Dmitry Rogozin said the country will more than double its 2018 output. "I must note that, in 2018, we had 22 launches; in 2019, Mr. President, 45 launches are planned—more than double," he said, according to Parabolic Arc. "The workload is large, but I believe we can handle it."

Good luck with that … Let's see, it's February 6 and Russia has launched *<checks notes>* zero rockets this year. The first mission is planned for NET February 21. To say we have no

confidence in this prediction would be overstating it. This is more hollow bluster from Rogozin, and frankly we wonder how long Putin is going to swallow it. We'll be impressed if Russia matches its launch total from 2018. (submitted by BH and Ken the Bin)

Falcon 9 to launch private lunar lander. SpaceIL's Beresheet lander is about the size and shape of a family dinner table, roughly six feet in diameter and four feet high, weighing (on Earth) about 350 pounds. This doesn't include the nearly 1,000 pounds of fuel it carries, The Conversation reports. It is scheduled to launch as a rideshare passenger on a Falcon 9 rocket later this month.

Go XPrize! … SpaceIL is one of the holdovers from the Google Lunar XPrize competition that ended without a winner. But the company has pressed ahead, and it will now attempt to soft land its spacecraft on the Moon and communicate with it. This would be an important first step toward the much-discussed commercialization of the Moon, but the lander is expected to survive for only a few days on the lunar surface. (submitted by fleisher)

NASA selects ULA for asteroid-mission launch. NASA chose United Launch Alliance's Atlas V vehicle to launch the Lucy mission, which will be the first spacecraft to visit Jupiter's swarm of Trojan asteroids. "This mission has a once-in-a-lifetime planetary launch window, and Atlas V's world-leading schedule certainty, coupled with our reliability and performance, provided the optimal vehicle for this mission," ULA chief Tory Bruno said in a news release.

Launch in just a few years … The Lucy mission is scheduled to launch in October 2021 from Space Launch Complex-41 at Cape Canaveral Air Force Station in Florida. Without knowing the proprietary bid details or whether SpaceX competed for the mission, it is impossible to say why ULA won the launch. While price certainly matters, there is no question that ULA has

delivered over and over again for NASA. So that may indeed explain the company's contract win here. (submitted by Ken the Bin)

Commercial crew flights slip again. In an announcement that surprised almost no one, NASA acknowledged that its commercial crew demonstration missions would slip a bit later into 2019. NASA said that the initial uncrewed test flight by SpaceX's Crew Dragon spacecraft, previously scheduled for no earlier than February 23, was now scheduled for March 2. A second test flight, with NASA astronauts Bob Behnken and Doug Hurley, is now scheduled for July, *SpaceNews* reports.

Needs extra time … Boeing's first uncrewed test flight of its CST-100 Starliner vehicle, previously scheduled for March, is now expected no earlier than April. A crewed test flight, with NASA astronauts Mike Fincke and Nicole Mann, and Boeing astronaut Chris Ferguson, is scheduled for no earlier than August. We don't have confidence on most of these estimates, but it is interesting that SpaceX's dates lack the "no earlier than" notation that accompanies Boeing's estimates. Perhaps that means SpaceX's projected launch dates are a bit more grounded in reality. Or not. (submitted by Unrulycow and Ken the Bin)

French auditor raises concerns about Ariane 6. France's independent state auditor, the Cour des comptes, has raised concerns about the viability of Europe's new rocket, the Ariane 6 launcher, Ars reports. "This new launcher does not constitute a sustainable response in order to be competitive in a commercial market in stagnation," the auditor's report states. The Ariane 6 rocket design is too "cautious," according to the report, relying on mostly traditional technologies. SpaceX is praised for its move toward reusable

launch vehicles.

May not change much … Overall, this is a critical report, but it seems unlikely to effect much of a change. Previously, European leaders, including French President Emmanuel Macron, have stated that they want the continent to maintain its own independent access to space. So the Ariane 6 is likely to fly for a long time, whether it is commercially viable on its own or, as this report suggests may happen, requires subsidies to break even. (submitted by paulfjeld)

SpaceX test fires its Raptor engine. The rocket company successfully test fired its Mars rocket engine at 65 percent for two seconds, Ars reports. Founder Elon Musk said the test was successful, although some greenish hues in the flame indicated that some of the copper lining on the engine had burned off. The SpaceX team worked through Super Bowl weekend to make the test happen, another indication of how urgent the company's development of its next-generation rocket and spacecraft has become. It performed an additional test firing on Wednesday.

A critical engine … Musk and SpaceX have a lot riding on this engine, as it will power both the Super Heavy rocket during launch and the Starship spacecraft in space. Engineers can do plenty of analysis on a rocket motor prior to putting it on a test stand, but there is no substitute for lighting the candle and seeing what happens. Nothing blew up, so this is a good first step.

SLS launch may slip into 2021. Although NASA has continued to make progress with the development of its large Space Launch System, it now seems all but certain that NASA will miss its latest launch date for the first flight of the rocket, June 2020. Multiple sources told Ars that, while NASA is still targeting sometime later in 2020 for a test launch of the SLS rocket and Orion spacecraft (known as Exploration Mission-1), this flight is likely to slip into 2021.

No word on a new schedule … “NASA is still assessing impacts as a result of the shutdown, but we are still working toward a launch in 2020,” an agency spokeswoman said to Ars. In reality, we’re hearing from engineers and suppliers that internal schedules have almost entirely ruled out the possibility of a launch in 2020 and that more delays would almost certainly happen if problems occur during the critical tank and green run tests.

Next three launches

Feb. 19: Falcon 9 | PSN 6/SpaceIL Lunar Lander | Cape Canaveral, Florida | 01:58 UTC

Feb. 21: Soyuz | EgyptSat-A | Baikonur, Kazakhstan | 16:47 UTC

Feb. 22: Soyuz | OneWeb pilot program | Kourou, French Guiana | 21:37 UTC

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