

Rocket Report: Bank doubles value of SpaceX, Russia won't talk Amur anymore

Enlarge / Hot fire test of integrated second stage for ABL Space System's RS1 rocket.

ABL Space Systems

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Welcome to Edition 3.21 of the Rocket Report. As of Friday morning, there are just 70 days left until January 1. This means that if your rocket company is planning a launch in 2020, you have just 10 weeks left. *No pressure!*

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.

China reveals five-year plan for commercial space. The China Aerospace Science and Industry Corp. outlined plans for developing launch services, satellite constellations, and a reusable spaceplane at the 6th China International Commercial

Aerospace Forum, which opened on Monday in Wuhan, Hubei Province, SpaceNews reports. The group plans to double the number of launches of its Kuaizhou-series rockets (which deliver small satellites into orbit) by 2023 and lead the world in solid-rocket technology by 2025.

Also, a spaceplane ... The group will also test a two-stage-to-orbit reusable spaceplane system by 2025. This Tengyun project aims to develop a reusable two-stage-to-orbit spaceplane that consists of planes for both stages. Demonstration and verification of the Tengyun horizontal takeoff, horizontal landing spacecraft is to be completed by 2025. Tengyun appears to be unrelated to an apparent September “reusable experimental spacecraft” test launched by a Long March 2F. (submitted by Unrulycow, Ken the Bin, and JohnCarter17)

Relativity to launch Lockheed Martin cryo mission. Recently, NASA selected a Lockheed Martin liquid-hydrogen experiment as part of its Tipping Point programs for 2020. Lockheed will test more than a dozen cryogenic fluid-management technologies for in-space applications. Now, we know how these experiments are getting into space.

A high-profile launch ... TechCrunch reports that Relativity Space will launch the mission for Lockheed in 2023, a rather big coup for the company that has yet to launch its 3D-printed Terran 1 rocket for the first time. “Even though the mission is three years out, there will always be last-minute changes as you get closer to launch, and we can accommodate that,” Relativity CEO Tim Ellis told the publication. “Otherwise you’d have to lock in the design now.” (submitted by Ken the Bin)

The Rocket Report: An Ars newsletter

The easiest way to keep up with Eric Berger’s space reporting is to sign up for his newsletter, we’ll collect his stories in your inbox.

ABL Space completes second-stage test. The El Segundo-based launch company, which has kept a low profile, announced Thursday it has completed integrated testing of the second stage of its RS1 launch vehicle. The tests were performed at the Area 1-56 test site on Edwards Air Force Base. Next up: finalizing and testing the first stage for the rocket that can lift up to 1.35 tons to low Earth orbit.

A small team with big results ... “Folks who know orbital launch know that integrated stage testing is the first real proof of capability,” said Dan Piemont, ABL founder and president. To get here in just three years with under 75 people validates the advantages of our approach.” The company is targeting Q1 2021 for the first launch of its RS1 vehicle. (submitted by Ken the Bin)

Isar Aerospace to launch from French Guiana. The company has signed an agreement with the French Space Agency to prepare the launch of its orbital rockets from the Centre Spatial Guyanais (or CSG) in French Guiana, Spacewatch Global reports. The German launch company also said it had hired Alexandre Dalloneau as Head of Mission and Launch Operations. He comes from Arianespace.

Leveraging experience ... “We are very glad to take the next crucial steps on our way to launch Europe’s most powerful privately financed launch vehicle,” said Daniel Metzler, CEO of Isar Aerospace. “CSG offers perfect conditions for our mission to provide Europe with independent and low-cost access to space. We are also very happy to welcome Alexandre to our team. With the technical responsibility for ten launches, he brings in a unique profile and profound experience in launching orbital rockets.” (submitted by Ken the Bin)

FAA publishes new commercial launch rules. Last Friday, the

Federal Aviation Administration released the final version of updated commercial launch and re-entry regulations, SpaceNews reports. The Streamlined Launch and Reentry Licensing Requirements, or SLR2, will take effect 90 days after publication in the Federal Register.

Still work to do ... Officials in the launch industry say the regulatory reform process is far from over. "We recognize the tremendous effort involved in developing and vetting updates to this complex regulation and look forward to our ongoing work with the FAA to assure a robust and safe commercial launch industry," Mary Lynne Dittmar, president and chief executive of the Coalition for Deep Space Exploration, said. It remains to be seen how streamlined the rules will actually be, but there is hope the process has produced improvements. (submitted by platykurtic)

Bank doubles its valuation of SpaceX. In a new report released this week, the investment bank Morgan Stanley says it is raising its "base case enterprise value" of SpaceX from \$52 billion to \$101 billion. "The pieces are coming together for SpaceX to create an economic and technological flywheel," the report states, citing Starship, Starlink, and reuse. (The report is not online as far as we can tell).

Winner take most? ... In part, the report stated, "It is clear to investors and industry observers that SpaceX's launch cost advantages are being used to accelerate deployment of its LEO broadband network. As the company achieves pole position in LEO, which many believe is a winner take most (if not winner take all) arena."

Lockheed Martin acknowledges SpaceX's ascent. In reporting its third-quarter results this week, Lockheed Martin now sees its space business leading future revenue growth. But the large aerospace contractor also acknowledged SpaceX has grown as a threat, Investor's Business Daily reports. Lockheed's space division saw 6-percent growth during the last quarter.

More than a distant threat ... Lockheed CFO Ken Possenriede said SpaceX is “more than an emerging threat right now.” However, he said, United Launch Alliance, Lockheed’s rocket joint venture with Boeing, has been “pleased with the outcome of where we’ve landed relative to SpaceX” in competitions. It’s worth contemplating how quickly SpaceX has grown from a fledgling upstart just a decade ago to the establishment today. (submitted by JohnCarter17)

Russia will no longer talk about the Amur rocket. A few weeks ago we reported about the country’s plans to develop what appeared to be a smaller clone of the Falcon 9 rocket, dubbed Amur. For the first time, the Russian space corporation Roscosmos was embracing a rocket design that incorporated reuse. But now? After digesting the public reaction, Roscosmos says it will no longer share details about the reusable methane rocket “since there are just 70 days left until December 31. If your company is planning a launch in 2020, you have just 10 weeks left!” reports All About Space magazine.

An about-face ... So what is really going on here? Our sense is that Russia’s space program has told its citizens for years that Elon Musk and SpaceX are no different from other rocket companies and that his “low-cost” rockets are heavily subsidized by NASA and the US military. Roscosmos also downplayed the benefits of reuse. It is therefore not surprising that public reaction to the proposed Amur rocket was jaded. (submitted by ASR)

SpaceX pushes bounds of reuse with Starlink missions. The Sunday morning Starlink-13 launch used a Falcon 9 first stage that has already flown into space five times. This is the second time SpaceX has used a first stage a total of six times, and next year the company is likely to reach 10 uses of its rocket. Additionally, for the first time, SpaceX was able use each of these fairing halves for a third time, Ars reports.

Maybe there is something to being "flight proven"... On October 2, the launch of a new Falcon 9 rocket was scrubbed at T-2 seconds due to a turbomachinery issue, and the GPS III payload remains on the ground. NASA has also taken the step of delaying its Crew-1 mission to the International Space Station—also flying on a new Falcon 9 rocket—until no earlier than mid-November while this issue is investigated. Meanwhile, Starlinks keep launching on "flight proven" rockets, although the Starlink-14 mission set for Thursday was delayed after a problem with a camera on the second stage.

Starship roars to life with three engines. SpaceX engineers achieved another milestone early Tuesday morning when the company's Starship vehicle roared to life for the first time with multiple Raptor engines, Ars reports. At 3:13am local time in South Texas, a Starship prototype dubbed SN8, or Serial Number 8, fired three Raptor engines for several seconds during a static-fire test. Company founder Elon Musk later confirmed the test was successful.

Prepping for hopping ... This was an important step toward readying SN8 for a 15km test flight later this month or in early November. Even as one team prepared to ignite the rocket during the wee hours on Tuesday—which tested its plumbing to handle chilled liquid-oxygen and methane fuels, and the recent installation of three Raptor engines—another team assembled the nose cone that will go on top of SN8 in preparation for its flight. The nose cone was moved to the launch site on Wednesday.

Ariane 6 upper stage assembled. ArianeGroup says its teams in the German city of Bremen have assembled the very first Ariane 6 rocket upper stage. They did so by coupling the launcher's tanks with the equipped engine bay of the reignitable Vinci

engine for the first time. This operation brought together Ariane 6's oxygen and hydrogen tanks and the support structure of the Vinci engine. (There's a video at the link, which is pretty cool).

Testing the whole enchilada ... The upper stage will now undergo its first mechanical, fluid, and electrical tests. Once those are out of the way sometime toward the end of the year, it will leave the Bremen site to travel south by river to the German Space Agency site in Lampoldshausen. There, the complete stage will be hot-fire tested on a test bench specially designed for Ariane 6 upper-stage development. The complete Ariane 6 rocket is due to launch during the second half of 2021.

Blue Origin still lobbying for New Glenn. After Blue Origin lost out on the competition to win Air Force launches in the mid-2020s, the military decided to terminate a \$500 million contract Blue Origin received in 2018 to advance the development of its New Glenn rocket. The contract was to have run through 2024. The company is moving forward with New Glenn with the goal to debut the vehicle in 2021 and pursue commercial work.

Funds for ground systems ... However, SpaceNews reports, Blue Origin is trying to make the case to the Air Force that it should continue to fund the vehicle and the ground infrastructure that it would need to be certified for national security missions. "We're discussing with the Air Force the path forward for certification," Megan Mitchell, Blue Origin's director of government and legislative affairs, told the publication. (submitted by JohnCarter17 and Ken the Bin)

Next three launches

Oct. 25: Soyuz | Glonass K navigation satellite | Plesetsk Cosmodrome, Russia | 19:08 UTC

Nov. 2: Soyuz | FalconEye 2 | Kourou, French Guiana | 01:33 UTC

Nov. 10: Falcon 9 | Sentinel 6-Michael Freilich mission | Vandenberg Air Force Base, Calif. | 19:45 UTC

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