Rocket Report: Chinese firm first to orbit, Starhopper makes its big leap

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Welcome to Edition 2.08 of the Rocket Report! This week's report comes from Brownsville, Texas, where we came to see if SpaceX's Starhopper can actually hop into the sky 20 meters. (Spoiler alert, it did!) Also, there's loads of news in the world of smallsat launchers this week, including a big breakthrough in China.

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.

First private Chinese firm reaches orbit. iSpace became the first Chinese private firm to achieve orbit with Thursday's successful launch from a national space center in the Gobi Desert, Space News reports. The company, formally named Beijing Interstellar Glory Space Technology Ltd., launched the Hyperbola-1 launch vehicle from Jiuquan Satellite Launch Center at 1am Eastern on July 25.

But, but, is it really private? … The smallsat launcher, with three solid stages and a liquid-propellant fourth stage, is 20.8 meters tall. The company has about 120 employees and has received $100 million in private equity. As ever, there are questions about how "private" Chinese companies are because of the government's transfer of restricted technologies to approved firms in order to promote innovation. Regardless, the myriad Chinese firms in various states of development will become important players in the commercial launch market over the coming decade. (submitted by Ken the Bin)

Blue Origin continues testing Moon landing engine. Jeff Bezos' space venture says it has test-fired its BE-7 rocket engine for the total six-minute duration it would need for a landing on the Moon. Patrick Zeitouni, Blue Origin's head of advanced development programs, said the milestone for cumulative firing time was reached during a test conducted earlier in July at NASA's Marshall Space Flight Center in Alabama, according to GeekWire.

Good timing … The ongoing test firings of the BE-7 engine,

which has 10,000 pounds of thrust and will power a descent vehicle, comes as NASA is beginning to solicit ideas from industry about how to put astronauts on the lunar surface by 2024. NASA has recently asked industry for proposals for both the ascent and descent portion of the lander. It doesn't hurt to have a working rocket engine built for just such a purpose. (submitted by Ken the Bin)

Lockheed Martin invests in smallsat rocket. The venture arm of Lockheed Martin has invested in small launch startup ABL Space Systems, Space News reports. ABL declined to identify the size of the investment or the resulting valuation of the company, however.

Eyeing a launch next year … Based in El Segundo, California, ABL is developing the RS1 small launch vehicle, which it says will be able to put 1,200kg into low-Earth orbit at a price of $12 million per launch. The company intends to use the funds from Lockheed's investment to support the development and test program of the RS1 and plans a first launch of the vehicle in 2020.

India delays debut of smallsat launcher. In recent years, cognizant of rising competition in the small satellite launch market, India has been developing the Small Satellite Launch Vehicle (SSLV). This rocket, with a capacity of 500kg to low-Earth orbit, will offer a lower price and faster service than India's current offering, the Polar Satellite Launch Vehicle.

Not into multi-tasking … The Indian space organization, ISRO, had been planning to fly the SSLV for the first time in June or July, but now that flight has been put off until at least September, the Times of India reports. The chairman of ISRO, K. Sivan, told the publication that the space agency's entire focus is on the recently launched Chandrayaan-2 lunar mission and that focus won't turn to the SSLV until after a planned landing on September 7.

Rocket Lab launched a Mexican defense satellite. Since a launch in May, New Zealand's government has been debating how much of Rocket Lab's payload information should be released to the public. For the May 2 launch, Rocket Lab had honored a request from Mexico not to disclose information about the surveillance satellite, stuff.co reports. However, the New Zealand Space Agency identified the Mexico Secretariat of National Defense as the satellite's owner in response to an Official Information Act request.

Encouraging transparency … New Zealand Space Agency head Peter Crabtree said it was "developing a process for the proactive release of information about approved payloads" to increase transparency and address the growing public interest in payloads launched from New Zealand. Rocket Lab spokeswoman Morgan Bailey said the company was working closely with the agency and its customers to encourage transparency around payloads. (submitted by platykurtic)

Virgin Orbit partners with Royal Air Force. A new RAF project, named Artemis (which, yes, shares the same name as NASA's Moon program), has selected Virgin Orbit for launch services beginning as early as late 2020. According to NASASpaceFlight.com, the goal of the program is to demonstrate responsive launch of small satellites to support the RAF and allied forces.

Desired orbit, please … These missions will utilize Virgin Orbit's LauncherOne rocket and take advantage of its Boeing 747-400 carrier aircraft Cosmic Girl, which can reach any orbital inclination. "If a satellite in orbit can no longer perform its function, or if a new need emerges, we need to launch within days, if not hours. And it's not sufficient to launch to just any orbit; we need to place the satellite into the orbit where it is needed," said Air Vice-Marshal 'Rocky' Rochelle, chief of staff of the Royal Air Force. (submitted by Ken the Bin)

Blue Origin is a "few more flights" from human launches. Blue Origin is just a few test flights away from flying people to suborbital space by the end of the year, CEO Bob Smith told Axios. "We're still focused on getting the vehicle ready to go fly humans on it, and we're still pushing to get that done by the end of the year," Smith said. He's aware that there are just five months left in 2019.

Seeking a higher cadence … Blue Origin last flew New Shepard on May 2, marking the 11th flight of the suborbital rocket and capsule. At the current rate, "a few more flights" will easily drag into 2020 before the first human flight happens, but we've heard the company intends to fly at a higher cadence in the second half of this year. Let's hope that happens. (submitted by Ken the Bin)

India launches ambitious Moon mission. On Monday, an Indian rocket launched a spacecraft bound for the Moon from Sriharikota, a barrier island off the Bay of Bengal coast. This Chandrayaan-2 mission is the second spacecraft India has sent to the Moon, and it represents a significant effort to explore the lunar surface and its potential as a source for water ice, Ars reports.

A long trip … The GSLV Mark III rocket lifted off Monday after an eight-day delay due to a technical issue, and the launch proceeded normally. Although this is India's most powerful rocket, the GSLV vehicle has only a little more than one-third the lift capacity of a Falcon 9 rocket, so the 3.85-ton payload must follow a circuitous path through space in order to gain enough energy to reach and then settle into lunar orbit. It is due to reach orbit around the Moon in September.

NASA clears view of human launch pads. NASA has cut down trees on more than 385 acres of Kennedy Space Center in Florida to

allow a better view of launch pads where human spaceflight is set to return, UPI reports. The tree removal allows clear vision from the press site to Launch Complexes 41, 40, and 39-B.

Historic missions … The space center "is very quickly approaching the return of human spaceflight, currently planned for 2019, and it is imperative that Kennedy Space Center is able to capture these historic missions on behalf of our Agency," NASA bid documents say. The tree-cutting contract cost NASA $80,207. Also, we're skeptical of the 2019 date, as you should be. (submitted by Ken the Bin)

SpaceX Starship prototype makes its first "hop." On Thursday evening in South Texas, SpaceX fired up the single Raptor engine powering its "Starhopper" vehicle. The launch lit up the night sky, first with fire, and then smoke. Soon, the prodigious amount of smoke produced by the Raptor engine obscured the vehicle. Was it moving? We couldn't tell. Eventually, the smoke cleared, and the vehicle had moved. How high had it gone was not immediately clear, perhaps 20 or 30 meters, but company founder Elon Musk declared the flight a success.

Will try again Thursday … And the test *was* a success. SpaceX had shown that not only could Raptor breathe fire, but they could control the complex engine enough to ascend, hover, move a short distance horizontally, and then safely return to the surface. Next up? Musk said Starhopper would attempt to go up 200 meters.

Next three launches

July 26: Long March 2C | Yaogan-30-05 surveillance satellites

| Xichang Satellite Launch Center, China | 03:49 UTC

July 30: Soyuz 2.1 | Meridian-M 18L | Plesetsk Cosmodrome, Russia | 05:00 UTC

July 31: Soyuz 2.1 |Progress MS-12 to supply the ISS | Baikonur Cosmodrome, Kazakhstan | 12:10 UTC

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