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Botched Satellite Launch Shakes Russia's Space Rocket Industry

By Matthew Bodner

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Russia's space agency, Roscosmos, has launched an independent investigation into the cause of Friday's botched launch of two brand-new European navigation satellites aboard a Soyuz rocket amid fears that the accident will destroy already weak consumer confidence in the country's space industry.

Four years behind schedule, Friday's launch in Kourou, French Guiana, of the first two fully operational Galileo satellites — the EU's answer to the U.S. GPS and Russian Glonass satellite navigation systems — was supposed to be a momentous occasion for the European space community. But after initially hailing the launch as a success, flight engineers on the ground noticed that the rocket had delivered the satellites into the wrong orbit.

Officials from the European Space Agency, or ESA, which manages the Galileo project, have yet to declare the satellites officially "lost." But given their position relative to their intended

orbits they are likely now useless.

With European investigations into the cause of the botched launch already under way, Russia's space community has launched its own internal investigation. Though the Soyuz rockets launched from Kourou are operated not by the Russian space agency but by French firm Arianespace, they are bought and made in Russia.

Two possibilities have been floated: a hardware failure in the Fregat booster, which forms the upper-stage of the Soyuz rocket — the part that actually flies in space — and was responsible for the final placing of the satellites; or a confused guidance system, Interfax reported Monday, citing an unidentified official from Roscosmos.

Partnership Undermined

The Galileo navigation system is a flagship high-tech project for the EU-backed ESA. Its realization would curtail Europe's reliance on the U.S. GPS, which could be shut off by the U.S. military during times of war. It has also been billed as a European job creator, with the market for satellite navigation-based services expected to reach a value of $320 billion by 2020.

ESA has budgeted 5 billion euros ($6.6 billion) for the project, which plans to have 30 satellites in orbit by 2017. The satellites that were lost on Friday were the first to be launched. They were uninsured.

Though the space business is notoriously difficult, the cost of losing such a high-value and symbolic payload could be serious for Russia's commercial launch industry, which is already struggling to find and retain new customers amid tensions sparked by the crisis in Ukraine and concerns over quality control after a series of high-profile launch failures began plaguing the industry in 2011.

Russian rockets have enjoyed a prominent position on the global launch market since the fall of the Soviet Union. Last year, Proton rockets alone, sold via International Launch Services, accounted for 30 percent of commercial launches worldwide.

International Launch Services and Sea Launch, which were responsible for selling commercial launches of Russia's heavy-lift Proton and light Zenit rockets, recently announced that they were cutting staff and reducing their launch expectations amid a slowdown in customer demand. Both rockets have experienced launch failures in the past three years.

One of the more noteworthy crashes to undermine trust in Russia's space competence involved a Proton rocket in June 2013. The rocket's guidance system was installed upside down, and when it tried to correct its trajectory after lifting off, it drove itself immediately into the ground.

The future of the Soyuz rocket had looked bright thanks to the partnership with Arianespace. The French rocket firm began buying Soyuz rockets from Russia in 2005 to meet demand for medium-weight payloads and spent $800 million to develop a Soyuz launch pad at the ESA spaceport in Kourou, French Guiana.

Arianespace does not have its own medium booster, only the lightweight Vega rocket and the

heavyweight Ariane 5, making Soyuz — with its general reputation for success — a good option to include in its launch services.

The rockets started flying from Kourou in October 2011. After purchasing an initial 10 Soyuz rockets, Arianespace in April signed a new $400 million contract with Roscosmos for the delivery of an additional 16 Soyuz boosters to cover demand for medium-sized payloads — including the Galileo satellites — through 2019.

Now it is not clear what will become of those agreements. Confidence in the abilities of the Russian space industry have been degrading over the past several years, and Friday's bungle only adds to the disquiet.

"Of course, this will influence Russia's competitive abilities in the launch market," Pavel Luzin, a space policy expert at the Institute of World Economics and International Relations, told The Moscow Times on Monday.

"Launch vehicle crashes can happen. But due to current political tensions between Russia and the West, the accident with the two Galileo satellites may lead to a revision of launch contracts," he said.

Erosion of Trust

In a statement released on Saturday, Arianespace said it would not fly the Soyuz rocket until the cause of Friday's botched launch is clearer.

The next two Galileo satellites are scheduled to launch in December aboard the same Soyuz-FG-type rocket that was used on Friday. In total, ESA plans to launch eight more Galileo satellites on the Soyuz rocket over the next three years. These satellites will be buttressed by 12 more that will be launched aboard French Ariane-5 heavy-lift rockets by 2017.

Soyuz rockets have been flown in various forms since the late 1960s — the current model is based on the same design that flew Yury Gagarin and Sputnik into space — and today are used to send cosmonauts and supplies to the International Space Station. In this role, they are the only means of reaching the space station.

Friday's failure is unlikely to effect this role, as investigators are so far blaming Soyuz's upper-stage rocket, Fregat. Fregat upper-stage boosters are used to deploy unmanned spacecraft upon reaching orbit and are not used in ISS runs.

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