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SpaceX Crew Flight To ISS A Boon To U.S. But A Costly Blow To Russian Space Program

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Expedition 63 crew currently flying on the ISS: From left are, NASA astronaut and Commander Chris... [+] NASA

SpaceX is set to launch its Dragon spacecraft on a demonstration flight to prove that it can safely carry two NASA astronauts to the International Space Station (ISS) at the end of this month. If things go as planned and Dragon safely delivers the astronauts to the ISS, the flight will signal that America no longer needs Russian Soyuz rockets and space vehicles to get to the space station.

Since the termination of the Space Shuttle program in 2011, the U.S. has relied solely on Russian vehicles to transport humans (and most cargo) back and forth to ISS. Buying seats on Soyuz has cost American taxpayers nearly $4 billion, or approximately $400 million per year and $90 million per seat, according to the UAE newspaper *The National* and *ArsTechnica.com*.

It's been called the world's most expensive passenger ticket.

The Russian government also sells Soyuz seats to Japan's space agency (JAXA) and the European Space Agency, making flights to the ISS a valuable source of foreign currency. Given that NASA refers to the ISS enterprise as "the most politically complex space exploration program ever undertaken," what does the likely cessation of ride buying from Russia portend for cooperation on the space station?

Great Anticipation

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Joel Montalbano, NASA's Deputy ISS Program Manager says that the agency is "looking forward with great anticipation" to SpaceX's Demo-2 mission which will launch for the ISS from Kennedy Space Center in Florida on May 27.

To ensure they will not carry any contagious illnesses to the ISS, NASA astronauts Robert Behnken and Douglas Hurley, who will fly in SpaceX's Crew Dragon vehicle, entered quarantine Wednesday for the demonstration mission.

NASA astronauts Robert Behnken and Douglas Hurley will fly in SpaceX's Crew Dragon vehicle for ... [+] NASA - SPACEX

The demo flight is part of NASA's Commercial Crew program which awarded about $3.1 billion to SpaceX and about $4.8 billion to Boeing BA to develop space vehicles to replace the Space Shuttle. Boeing's Starliner capsule hit software snags during a December 2019 test flight but may be ready to fly astronauts to ISS by next spring.

When Crew Dragon, and eventually Starliner, are certified to fly to the space station, Montalbano says they'll transport more American and NASA partner astronauts to the ISS.

"We'll increase the non-Russian [crew complement on ISS] by four people. That helps contribute to additional science on board, helps us with exploration objectives for the Artemis [human presence on the moon] program."

Crew Dragon at Cape Canaveral undergoing final preparations ahead of its first flight to the Space ... [+] SPACEX

While NASA eagerly anticipates the extra research muscle and independent transport, Russia's Roscomos space agency may view Crew Dragon and the loss of Soyuz revenue as a threat to its influence and balance sheet.

Roscomos never gave its approval for the docking of Crew Dragon with the ISS during an unmanned test flight in March according to Russian-based space expert, Vadim Lukashevich. Lukashevich told Russian television station, Moscow 24, that the lack of a forthcoming approval and coyly-worded Russian congratulations signaled resentment of the resumption of American manned transport.

He further speculated that the cost efficiency of Crew Dragon would make it tough for Roscomos to compete in any commercial/consumer low earth orbit flight market.

Let's Make a Deal

NASA is aware of the impact that America's new commercial spaceflight vehicles may have on Russia's space program and its cooperation aboard the space station. According to Joel Montalbano, the Agency is working to devise an arrangement that keeps Russian cosmonauts close and Roscosmos feeling like a valued partner.

“The plan is to always fly a Russian cosmonaut on our U.S. vehicles. We’ll also fly a NASA astronaut on the Soyuz vehicles… That way, we keep the two programs tied together. It allows each provider the capability to continue aboard the ISS if they were run into trouble with their vehicle or their rocket.”

“We’ll do that as a barter agreement,” Montalbano adds.

Barter agreements between ISS partners for resources and services have long been common for the space station which celebrates its 20th anniversary this year. A barter agreement with Russia for transport would be one of the most important.

“We think that’s critical to our success,” Montalbano affirms. “We’re working hard with our Russian colleagues to make that happen.”

Despite its importance, Montalbano says the plan is still a work in progress. It has been discussed at the technical level but it will “have to be a higher agreement than just one among the technical teams.”

American astronauts may still need to make another few trips to ISS on Soyuz before the Dragon and Starliner are fully ready but as yet, there’s not a firm timeline for a co-flight agreement. NASA hopes one will be in place by 2021.

“My hope is that next year we’ll have cosmonauts on the U.S. vehicles and astronauts on the Russian vehicles via a barter agreement,” Montalbano says.

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