

The Voice of Russia

Marsonauts from Soviet realities

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Russia has devised a super heavy space rocket concept for manned missions to Mars. Engineers at the state-run Khrunichev Rocket and Space Research and Production Center are hoping that a manned four-crew expedition to the “red planet” may take place in 25 years.

Few know, however, that back in the 1960s, the former Soviet Union was closer to interplanetary expeditions than Russia is now. The conceptual design of a Martian spacecraft was elaborated with the best scientific efforts channeled into the project. Space designer Vladimr Bugrov recalls:

That was a huge system comprised of a carrier rocket, 10 times more powerful than the one that lifted Gagarin into space, and a heavy interplanetary spacecraft. Those weren't just paper blueprints. Full-size metal models of both of the carrier rocket and the spacecraft were made.

A three-year manned expedition aboard a 75-ton Mars-bound ship was scheduled for launch in 1971. A crew of three marsonauts was to orbit the “red planet” and drop down several probes before heading back to Earth. The mission's expanded scenario included the orbiting of Venus on the homeward journey. To minimize food and water storage floorspace, closed-cycle life support systems were envisaged. The ship was supposed to have vegetable hothouses and plantations of chlorella, a seaweed species that multiplies rapidly through photosynthesis, absorbing carbon dioxide and releasing oxygen.

There was also a parallel project that stipulated a Mars landing. By the mid-70s, the Soviet Union had planned to assemble a giant space ship weighing 1,630 tons on a near-Earth orbit and send it off to the “red planet” with six Marsonauts on board. At a close approach to Mars, the ship was supposed to split in two with one part staying in orbit and the other, a so-called “Martian train”, making a descent. The train was to consist of five wheeled blocks: a crew cabin, a nuclear power unit, a drilling platform, an airplane for flights in the rarified Martian atmosphere (back then such flights were believed to be possible), and, finally, a return rocket.

In 1964, the Soviet government slowed down the Martian projects and ordered Sergei Korolyov's OKB-1 design bureau to focus on the Moon. Korolyov began redesigning the H-1 heavy rocket for lunar expeditions. But then,

four failed H-1 tests doomed both, the Martian and lunar programs. Vladimir Bugrov:

The entire Martian project, the lunar one too, the entire materials base, all manufactured components, enough for several rockets, all test range infrastructure, giant facilities, and all documentation – all that was destroyed. Absolutely nothing was left.

Despite the failure, the H-1 engines proved to be reliable and were bought by other countries, including Japan. And they are still being used. Meanwhile, Russia is developing a new, lighter carrier rocket. As for the “heavy Martian spacecraft”, its model is housed at the Institute of Medical and Biological Problems. And it is currently hosting the ground-based Mars-500 flight simulation experiment to collect research data for preparing a manned mission to Mars in the 2030s. It is largely symbolical that the old model serves as a prototype for a future expedition. Quite soon, on February 12, the Mars-500 crew will be simulating descent. The half-a-century Martian epopee continues.