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Russia's Energomash Dreams Up Reusable Rocket Engine Design

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Russia's NPO Energomash, one of the world's leading rocket engine manufacturers, has cooked up an ambitious plan to make its engines reusable up to 10 times, news agency TASS reported Friday.

Reusability is the buzzword of the modern space industry. Born of exorbitant Cold War budgets, space programs across the globe have struggled over the last two decades to survive with less funding — and reusability is the key to radically cutting down costs.

Energomash has devised a novel, albeit limited, solution to the problem of returning rocket parts safely to earth. The company proposes housing its RD-191 engine in a capsule attached to the bottom of Russia's Angara rockets. After the engine has exhausted its fuel, the capsule will detach and fall back to earth, protected by a heat shield on one side.

A parachute will deploy once the capsule hits the atmosphere, allowing the engine to land

safely either with the help of a special airbag or small rockets to slow its descent.

The added weight of this recovery system would knock 2.6 percent off of the Angara rocket's payload capacity, or the maximum weight it can lift to a given altitude above the earth.

The proposal was presented at a conference hosted by Russia's largest space company, RSC Energia, TASS reported Friday.

On the other side of the globe, U.S.-based SpaceX is also moving forward with ambitious reusable designs. The company is working to make its Falcon 9 and upcoming Falcon Heavy rockets — which Angara is often compared to — completely reusable, with the entire rocket returning to earth and landing itself.

Angara, the first rocket developed by the post-Soviet Russian space industry, was originally also designed to be entirely reusable. Its boosters to deploy wings after use that would allow the rocket to fly back home and land like an airplane. This design was ultimately dropped in favor of the conventional single-use approach.

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