

Blackstar A False Messiah From Groom Lake

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Many Space Cadets have gone gaga over the report in Aviation Week that the US military has developed a secret reusable spaceplane. It seemingly confirms a long-standing fantasy in the space community. For years a lot of us have been hoping that some "black" program like this will someday go public and solve all our spacelift problems. Unfortunately, this report is almost certainly bogus.

Unreliable source: AvWeek has a long history of "revealing" secret programs that turned out to be either government disinformation, corporate disinformation, or just plain fantasy.

This trend started back in 1957 with a cover story touting a "Soviet nuclear-powered bomber" which was actually the dismal Myashischev M-50. In the 1970s we read hysterical claims that the Reds had operational laser and particle-beam weapons.

In the 1980s and 1990s AvWeek ran lurid pictures of hypersonic "Aurora" vehicles (my favorite was the one that cruised upside down and was covered with dozens of launching ports for H-bombs). Only last year, AvWeek published a totally credulous article about spaceships powered by "zero-point energy" which quoted only quack promoters and ignored real physicists.

Technical absurdity: Basically, the claim is that a black program succeeded in building a manned reusable SSTO rocketship light enough to be lifted by a modified B-70 and small enough to fit underneath it.

The whole history of X-15, NASP, DC-X, and X-33 shows that this is impossible. A launch at Mach 3 and 100,000' just won't reduce the ~90% fuel fraction needed for a ground launched SSTO enough to allow this. Every real air-launch proposal has used multi-stage expendables carried by heavy-lift jumbo jets -- and they still only can handle small lightsats.

And the technical details given by AvWeek don't even make sense:

"The spaceplane is capable of carrying an advanced imaging suite that features 1-meter-aperture adaptive optics with an integral sodium-ion-sensing laser."

This technology only works looking up, not down. The turbulent layer in the atmosphere is close to the ground and far away from orbit. You don't need it in space, and you don't want the provocation of firing a laser at an enemy installation from orbit.

"Air is directed to what is believed to be aerospike engines similar to those once planned for use on the NASA/Lockheed Martin X-33."

The aerospike engines on the X-33 were ROCKET engines and don't need intake air. They also turned out much heavier than predicted and played a major role in the failure of that program.

In any case the advantage of aerospike engines is that they maintain high efficiency at all altitudes. If the Blackstar orbital vehicle is launched at ~100,000' it doesn't need to cope with thick air and a conventional long bell nozzle would give equal performance for lighter weight.

"WORK ON THE ORBITER moved at a relatively slow pace until a "fuel breakthrough" was made... The new fuel was believed to be a boron-based gel having the consistency of toothpaste and high-energy

characteristics, but occupying less volume than other fuels."

Boron compounds were studied extensively in the 1950s because they have a larger thermal content than an equal weight of conventional jet fuels. The B-70 was originally designed to burn methyldecaborane and elaborate production plants for this "Zip fuel" were planned.

But when the military actually tested borane fuels they turned out to have severe problems: high toxicity, corrosive tailpipe deposits, and a solid black exhaust plume. The boron-based turbojet fuel program was cancelled in August 1959. Small-scale experiments in rocket engines continued for a few years after that, but the theoretical advantages could not be achieved in practice.

Why would the Blackstar orbiter adopt this horribly expensive, dangerous, and awkward toothpaste fuel when liquid or slush hydrogen has even higher energy? If smaller volume is needed, the H₂ can be carried in drop tanks like those on some early Space Shuttle designs.

"One version of the B-70 could have been used as a recoverable booster system to launch things into low-Earth orbit... The B-70 was to carry the 10,000-lb. DynaSoar glider and a 40,000-lb. liquid rocket booster to 70,000 ft. and release them while traveling at Mach 3. With this lofty start, the booster could then push the glider into its final 300-mi. orbit."

The rocket equation tells you this 1959 proposal from North American Aviation wouldn't have worked. A single-stage booster with a fuel fraction of only ~70% just doesn't have enough puff to reach Mach 25 from Mach 3.

Aerospace contractors in the 1960s were notorious for producing desperate proposals to keep profitable programs alive a little longer, and North American was probably the worst offender. As late as 1966, their

publicity department released artist's concepts showing B-70 air launches of X-15, Minuteman, Gemini-Titan, and what seems to be a cluster of three Agena upper stages.

Besides, the 1959 proposal was for an expendable booster - only the Dyna-Soar would have been returned and reused. The Blackstar orbiter supposedly returns complete with tankage and engines. Protecting this extra volume from reentry heating makes the alleged orbital vehicle even more improbable.

Operational concept: The alleged function of Blackstar and the alleged sightings don't make any sense.

"The manned orbiter's primary military advantage would be surprise overflight. There would be no forewarning of its presence, prior to the first orbit, allowing ground targets to be imaged before they could be hidden."

Soviet missile-warning satellites would pick up the IR plume from the second stage, and since it would not be at a known space launch site they would interpret it as a covert nuclear missile launch. At a minimum you would get a major diplomatic crisis, at worst an accidental nuclear war!

"On Oct. 4, 1998, the carrier aircraft was spotted flying over Salt Lake City at about 2:35 p.m. local time. James Petty, the president of JP Rocket Engine Co., saw a small, highly swept-winged vehicle nestled under the belly of the XB-70-like aircraft."

A basic rule of "black" airplanes such as F-117 and B-2 is that they are never flown outside closed airspace in the daytime. This was a major reason these programs were eventually revealed. But Blackstar has never been declassified and would never have flown over a major city in broad daylight.

"So far, observed spaceplane landings have been reported at Hurlburt AFB, Fla.; Kadena AB, Okinawa; and Holloman AFB, N.M."

So where are the photos of these spaceplane landings? The plane-spotter community sits outside air base perimeters with telephoto lenses, looking to complete their lists of tail numbers. But there are no convincing photos of these secret airplanes. There are no photos of the spectacular phenomena that would accompany a spaceplane reentry. People photograph plane crashes and meteors, but never the reentry of these "covert" spacecraft.

Unreliable sources: The article cites anonymous sources who mostly seem to be low-level production workers.

These workers claim that they spent time on projects that weren't part of the NASP/X-30 and A-12 programs, but their bosses ordered them to bill their expenses to those projects. This is certainly a convenient explanation as to why these two failed programs absorbed billions of dollars without producing an actual aircraft.

But... Logically, the four senior Navy officers who were cashiered as a result of the A-12 fiasco might have mentioned this diversion of funds at their hearings. The A-12 contractors might logically have mentioned it during the years of litigation that followed the program's cancellation. It would have been an ideal defense against the charges of financial malfeasance.

But no mention of this emerged during the prolonged investigations into the A-12 affair. So I don't believe these nameless workers. I think they really were working on NASP and A-12, or on other classified projects. It's a common security measure to give low-level employees misleading ideas of what they are working on.

So does Blackstar really exist? All the "evidence" presented by AvWeek doesn't add up to a sensible program. The article seems to be a combination of rumor, fantasy, and 50-year-old ideas that didn't work, written by someone who is technically illiterate.

It's time for us to all give up on the "secret military spaceship" fantasy, and admit that the laws of physics are the same at Groom Lake as everywhere else. There is no messiah who will emerge from the Nevada desert and bring us the millennium. We need to solve the cheap spaceflight problem ourselves.

Jeffrey F. Bell is a former space scientist and recovering pro-space activist.

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