
Space Program

Titan explosion creates emergency; U.S. without heavy launch capability

by Robert Gallagher

With the April 18 explosion of an Air Force Titan 34D missile while reportedly attempting to launch a "Big Bird" photo reconnaissance satellite from Vandenberg Air Force Base, U.S. heavy-lift space-launch capabilities fully collapsed. The Titan failure leaves the United States without any ability to launch the heavy KH series and "Big Bird" photo reconnaissance satellites, replace degraded missile early-warning satellites, or launch any other payloads heavier than 5,000-8,000 pounds into low-Earth orbit.

In February, after the explosion of Space Shuttle Challenger, U.S. Air Force Secretary Edward Aldridge told the House Science and Technology Committee that the Shuttle failure had already produced "a national security emergency," since the Shuttle is the nation's principal launch system. He shook up congressmen fantasizing over whether private industry would build a Shuttle, and urged them to fund construction of another orbiter to replace Challenger.

At present, there is only one Air Force KH-11 satellite deployed. At least two such satellites are required in orbit, to provide complete coverage of the Soviet Union. NASA Acting Administrator William Graham told the 100th annual convention of the American Newspaper Publishers that after the Challenger exploded, three secret Shuttle flights were cancelled and their payloads shifted to Titan missiles. Last year, the Shuttles and Titans were used in two-thirds of the nation's satellite launches.

The nation's Strategic Defense Initiative program will also be impaired by the crisis. With the grounding of the Shuttle, the SDI has temporarily lost the use of a major laboratory for many of its experiments. The satellite lost in the Titan incident, was the last Big Bird in the U.S. inventory, according to *Aviation Week and Space Technology* magazine; reportedly, one KH-11 remains.

Early warning system threatened

The impact of the launcher crisis on national security is across the board. One or two missile early-warning spacecraft have been routinely launched from Cape Canaveral by Titan 34D boosters every year, reports *Aviation Week*. In

1984, as many as three were launched from the Cape. No missile early-warning spacecraft were launched in 1985, however, and the inability to launch any more until the Titan and Shuttle problems are resolved will prevent the United States from replacing any degraded missile-warning satellites in space for the foreseeable future.

Continuous reconnaissance coverage of Soviet territory, is required to detect Russian military maneuvers. "It took the U.S. more than 18 months to detect and photograph the large phased-array radar at Pechora, and more than a year after construction began at Ablakova to detect construction of the radar there," reported *Aviation Week* on Jan. 16, 1984.

The Pechora and Ablakova radars are part of an anti-ballistic missile (ABM) battle management system; their construction directly violates the 1972 ABM Treaty. Only after intelligence sources *inside* the Soviet Union reported on the construction of the Ablakova radar somewhere in the country, did the United States finally launch a "Big Bird" to spot it on June 20, 1983, according to the magazine.

The present reconnaissance crisis would prevent the United States from detecting Soviet rapid deployment of, for example, its new, full-scale, mobile ABM system based on mobile versions of the new SH-04 and SH-08 ABM missiles installed around Moscow. "The radars [for the mobile system] are designed modularly so that components can be produced and stored until required. They can be concealed and assembled rapidly for use in the system," *Aviation Week* reported.

At this moment, the United States has only two rockets available for space launches; the payloads they can deliver to orbit are not great. The small Delta rocket can place a satellite of only 4,700 pounds into close Earth orbit (CEO—about 300 miles up), and the Atlas-Centaur, the old ICBM mated to the upper-stage developed by Dr. Krafft Ehrlicke, could orbit only a few thousand pounds more in CEO. The weight of the Big Birds and KH satellites is about 25,000 pounds.

Defense Daily reports that two SDI payloads have been transferred to the Delta for launch once this year and again in 1987. However, Rockwell officials told *Aviation Week* that

SDI use of the Shuttle in the next few years included plans for several satellites that had to be deployed *and retrieved*, and the testing of SDI-related technologies in space that might later be used in defensive weapons. Without the Shuttle, this work cannot be done.

They also stated that the Shuttle is required to deploy and retrieve a neutral particle beam system for discrimination of decoys from real targets. The spacecraft could be deployed and retrieved in a single Shuttle flight, but cannot be switched to an expendable rocket, even if the Titan is repaired.

Sabotage?

Industry representatives at the annual conference of the American Institute of Aeronautics and Astronautics (AIAA) April 30, expressed skepticism that the two consecutive Titan launch failures that have occurred since August, were produced by breakdown in technology. Sabotage, which has not been ruled out by the Vandenberg base commander, is "a likely explanation," one claimed.

The Titan 34D is composed of a Titan III liquid rocket, with two strap-on solid-rocket boosters with 5½ segments of solid propellant each. It has been launched successfully seven times in a row since its first deployment in 1981. Last August, the launch reportedly failed because of a turbo pump in one of the liquid rocket engines and a "massive oxidizer leak." This failure and the one in April reduced the system success rate from 100% to 78%. A total of 136 Titan liquid rockets have been launched, with a success rate of 94%.

In the launch that failed April 18, the possibility of sabotage coincides with a special motive for Libya and its Soviet backers. The "Big Bird" Low Altitude Surveillance Platform intended for launch that day, is deployed for relatively short-term, special surveillance tasks, as required to assess the situation in Libya, and designate targets for expected future U.S. attacks. Reconnaissance data is required not only for bombers, but also to program sea-launched Navy Tomahawk cruise missiles, to hit Libyan targets along the coast.

Once the cause of the Titan explosion is determined, an emergency program can quickly move to expand Titan production. Before the incident, Martin Marietta already had plans to do so, *Defense Daily* reported April 21, to complement the capabilities of the Shuttle system. A Martin Marietta spokesman said the company could "easily build 14 vehicles annually." He reported that a recent assessment conducted by the company in response to an Air Force request concluded that production of "a mix of five Titan 34D7 Complementary Expendable Launch Vehicles (CELVs), three Titan 34Ds, plus six Titan IIs at a total rate of 14 per year presented no difficulties and did not approach our historical production of 20 Titan IIs a year," he said.

Martin Marietta has a \$2.1 billion Air Force contract to build 10 CELVs in the 1988-92 period. The company also is under contract to the Air Force to refurbish up to 13 Titan II ICBMs as launch vehicles, with another 43 of the ICBMs available for conversion.

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Downgrading of world food production
Mobilizing for more and better food
The 99th Congress's farm shut-down
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