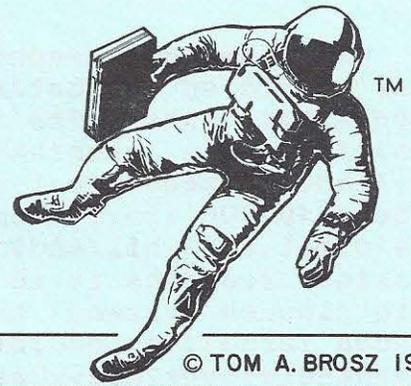


THE COMMERCIAL SPACE REPORT



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Dear Subscriber:

July, 1982

Soviets Launch Shuttle-Type Vehicle. On June 3, the Soviet Union launched a 2000 lb. test version of a winged, shuttle-type spacecraft into orbit. The spacecraft made a little over one orbit, and then splashed down in the Indian Ocean about 1400 miles northwest of Australia. According to United States tracking data, the test vehicle was launched into a 143 x 119 mile orbit inclined 49.66 degrees, (other sources speculate that the orbit was considerably lower--approximately 90 miles), and was in space for a little less than two hours. Similar data indicated the launch site to be Kasputin Yar, a site normally used for small, unmanned missions.

The booster was a standard expendable rocket, reported to be an SL-8. The SL-8 is a version of the Soviet SS-5 ballistic missile, and has a payload into orbit of about 2,200 lbs. For routine operations, the final version of the Soviet shuttle is expected to use a Proton SL-9 booster with strap-ons pending the expected construction of a fully reusable fly-back booster system.

The low-powered booster and small payload capability may be one explanation for why the spacecraft was landed in the ocean instead of on a runway. There is, after all, a perfectly servicable new runway at the Tyuratam complex specifically built for the new Soviet shuttle. The water landing was no accident either--a seven-ship naval task force was waiting at the landing site. With weight at a premium, and only a model to work with, it may have been that the heavy landing gear and/or other landing equipment required for an airstrip landing were impossible to include on the initial flight. Another obvious reason for rushing the vehicle into a low orbit and an ocean landing as quickly as possible would be to avoid scrutiny by U.S. space observation systems. The fewer orbits a spacecraft makes, the harder it is for a spy camera to lock in on it. Yet another possibility--it may be that as yet the Soviets have not finished developing the complex avionics system that would allow the vehicle to perform the precision glide required to pinpoint a runway from orbit. An ocean is somewhat easier to hit. As far as precision flying goes, there is as yet no evidence that final splashdown was made in a gliding mode. It is possible that the spacecraft deployed a parachute at altitude and made its splashdown dangling below it like any other space capsule.

The vehicle, designated Cosmos 1,374, is a prototype of a shuttle-type spacecraft specifically designed to support Soviet space station efforts. At present, the Soviets make heavy use of disposable space vehicles to man and resupply the Salyut stations. (Salyut 6 alone used up 33 individual Soyuz and Progress spacecraft/booster combinations.) A reusable system would be a great help to economizing the Soviet space program.

The design resembles the old U.S. Air Force/Boeing X-20 "Dyna-Soar" vehicle, almost more of a lifting body than an airplane. (The "Dyna-Soar" was also intended primarily as a space station supply vehicle. The program was cancelled in 1962.) The weight (including payload) of the final version of the Soviet shuttle is thought to be around 40,000 lbs., compared to 172,000 lbs. for the U.S. Space Shuttle orbiter. This indicates a relatively small payload, but since its mission requires it to be only a supply vehicle rather than a satellite launch system, this is no real handicap. There are more than enough large, expendable launch systems on the Soviet drawing boards to handle the heavy payloads. One of these designs will possess a payload-to-orbit capability of nearly half a million pounds, intended to launch a giant 12-man Soviet military/scientific space station. (By contrast, the Saturn-5, which the U.S. can no longer launch, had a payload to orbit of about 250,000 lbs.)

At the risk of sounding monotonous, (I have been bemoaning the status of the Western world's space station situation for the past three issues) I reiterate the huge gap that is developing between Soviet and American space exploitation efforts. The Soviets appear to have a well-thought-out plan which neatly meshes a large booster for space station launches, a versatile group of space station designs, and a potentially completely reusable supply vehicle. (Once the Soviets have a fly-back booster, nothing except fuel will theoretically be expended. The U.S. Space Shuttle will still be tossing away tanks.)

So, the Soviets advance even further into space, while the West lags ever further behind. Compared to the U.S. Federal space program, the Soviet space program seems to have it made. Blessed by the Soviet bureaucracy, when they say frog, people jump. Plans for new space systems do not have to grind through a lobby-ridden, budget-plagued Congress, and there are no re-election worries. It does tend to make for more long-range planning, effective or not, when the people in charge are replaced only when they finally drop dead.

Does this mean that I support the Soviet system of getting things done? Do I feel that the Soviet hegemony has hit upon the only workable way to exploit space? Of course not. A free, private space effort would avoid both the tyranny of the Politburo and the morass of the Legislature, and is the only proper and moral way to accomplish anything. Also, as a practical aside, it will almost always produce superior results in any kind of an even match. The only reason the Soviets are ahead in the space station race is because they are the only ones running. (This also applies to the arms race.)

So, dictatorships aside, I do not even see the necessity for the more liberal U.S. government role in space exploitation. When I call for American space stations to be built, or other endeavors in space to be attempted, it is a call for private enterprise to do it. The primary reason I have for supporting any government space program at all is because up to this point it has been the only game in town.

Fortunately, there are many efforts under way to end the government monopoly in space. Most of these efforts have been and will continue to be chronicled in the Report. The number of these endeavors is increasing, another hopeful sign. The following item concerns a thrust into the area of space stations. I find this encouraging--if work in this area grows, the Space Exploitation Gap may be closed after all.

Private Space Station Studies. Two groups are looking into the possibility of a privately-funded space station. The first is a company called Space Industries Inc. Its president is Maxime Faget, presently working with Eagle Engineering in Houston. (Through Eagle Engineering, Faget is also working with Space Services, Inc. See March, 1982 Report). The second group is a non-profit organization founded by Doyle W. Brewington called the Foundation for Scientific Progress and Continued Exploration (S.P.A.C.E.). Both groups are seeking out private funding (investments in the former case, donations in the latter) to develop an orbiting space station program. As yet, plans are tentative, with no technical details. It does, however, encourage me to believe that maybe we are not totally out of the race yet.

Space Services Update. Space Services, Inc., the Houston based space launch company, opened a new Dallas office June 15, and has released more information on their 'Conestoga' solid-fuel booster project.

The present configuration for the orbital system is a four-stage solid-fuel rocket. The stack will consist of three Algol solid rocket motors (used in the Scout first stage) in a parallel cluster. Atop the central motor will be mounted a fourth motor, a commercial version of the type presently used as the second stage of the Minuteman ICBM. The final stage will be a small, Thiokol-type kick motor. In operation, the outboard Algol motors will fire, and drop off. The third Algol would then ignite as the second stage. The third stage is the Minuteman motor, and the fourth stage, the kick motor.

Payloads are expected to be approximately 500 lbs. to a 500-mile low earth polar orbit. Space Services is hoping for a launch cost ranging from \$5 million to \$7 million.

The first suborbital test launch, consisting of the final two stages only with a dummy payload, will take place on Sept. 8. This test is expected to reach an altitude of about 100 nautical miles, and go downrange about 277 miles downrange. This test is intended to check out upper stage integrity, guidance, separation and spin-up for orbital insertion. Negotiations are still under way to obtain stages from NASA for this test.

As another project, Space Services is still hoping to convince both General Dynamics and the U.S. Government to commercialize the Atlas-Centaur launch system (see May, 1982 Report).

Customer for Space Services. The American Science and Technology Corp., formed by a group of private investors, plans a joint operation with Space Services, Inc. The project would involve launching four land remote sensing satellites in 1984 for commercial service to ground station operators. American Science is developing a solid-state sensor to operate at frequency bands used by the Landsat multi-spectral scanner for the first launch. More sensors are planned for later launches.

More Customers for Ariane. Arianespace, marketing agent for the European Ariane launcher, has said that there now exist 24 firm orders and up to 15 reservations for use of the Ariane booster. According to Arianespace, this demonstrates that a non-reusable Shuttle competitor can find a use up to at least 1986. Production of the booster is planned to be increased to an output of 7-8 per year. A 10-per-year

production rate may be possible, should customer orders warrant it. Also part of the expansion--a new pad being built at French Guinea, to be completed by 1985.

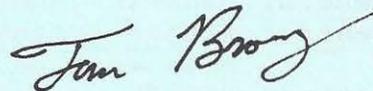
U.S. Air Force Forms Space Command. In an action that had been expected for some time (see Dec. 1981 Report), the Air Force announced the formation of the Space Command. The purpose of this agency is to have a central organization through which the armed forces will direct military operations in space. A possible result, if the Space Command becomes a unified command, would be that all other branches of the armed services would go through the Air Force for space operations. The Space Command will begin operations Sept. 1, with headquarters at the Aerospace Defense Center at Colorado Springs, Colo. The Air Force also announce plans for a Space Technology Center to be created next year at Kirtland Air Force Base, N.M.

Thor: New Concept in Space Weapons Systems. In the April, 1982 Report, I reported on the High Frontier project. One aspect of High Frontier was a missile defense system utilizing small, non-nuclear projectiles stored in multi-projectile orbiting "bus" vehicles. On remote command, these projectiles would be launched and guided to destroy enemy ICBMs soon after launch. (The High Frontier report is available for \$15.00 from: High Frontier, 1010 Vermont Ave. N.W., Suite 1000, Washington D.C. 20005.)

Another system, called Project Thor, has been proposed which would make use of a similar type of non-nuclear projectile system for attacking targets on the earth's surface. Further information is forthcoming, and a future issue of the Report will include a more detailed discussion of the concept.

U.S. Space Plans. A Space Policy is being generated by the Federal Government, and President Reagan will speak on the subject at the Shuttle landing site July 4. No real surprises are expected: Reagan's speech will probably set forth no new national space goals, although there may be some support for prototype space station work, and possibly for a fifth orbiter. As for space policy, it is expected that private industry, including private launch vehicles, will be encouraged, and that there will be new mandates for military activities in space. These mandates may support development of new military launch systems.

Until next time,



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