

Conestoga and Ariane: Ups and Downs of the Launch Business

The two rockets were launched less than half a day apart, one from little Matagorda Island on the Texas coast of the Gulf of Mexico, the other from Kourou, Guiana, along South America's northeastern Atlantic seaboard. Each soared into the air, arched hundreds of miles up and out over the waves, and splashed down into the water. But whereas one inspired cheers, glasses of champagne and optimism, the other brought consternation.

The Texas takeoff was that of Conestoga 1, a small booster based on the motor from a sounding rocket and developed and financed by Space Services Inc., a Houston-based company bent on launching satellites at low cost to oil companies and other potential customers. Technologically, the Sept. 9 flight's goal was simply to show that the rocket could get through a sub-orbital test run (it lasted about 10.5 minutes, as planned, and splashed down about 321 miles from the launch pad). But just as important to SSI was the demonstration that a private company could organize such a project, raise the money (57 investors have so far contributed about \$6 million), deal with the numerous required government licenses and permissions and in general take on a business that in the U.S. has so far been the sole province of the National Aeronautics and Space Administration. And according to mission director (and former astronaut) Donald K. "Deke" Slayton, "Everything looked perfect."

SSI plans to launch its first orbital payload — possibly a remote-sensing satellite or one to communicate with remote data-collection platforms on the ground — in September of 1984, using a multi-stage rocket. New technology, however, is not SSI's focus. For last week's flight, one contractor built the rocket, another provided the equipment for the launch site and tracking, while yet another served essentially as engineering overseer for the whole project. "What we're doing," says SSI public affairs director Charles Chafer, "is just combining existing stuff in a way that makes money."

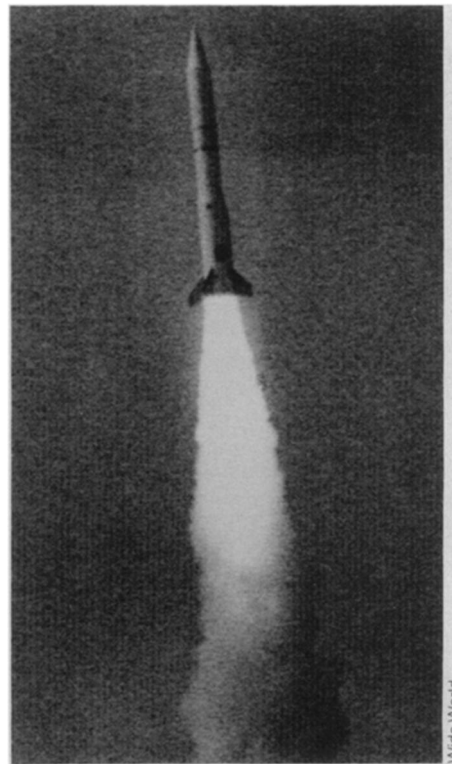
At least that's the idea. SSI hopes to be able to offer such customers as exploration-oriented oil and mineral companies the ability to put a 500-pound satellite in a 500-mile-high orbit for \$3 million to \$5 million. If business warrants, in fact, the company has far loftier plans. "We're trying to put together a 'turn-key' system," says Chafer, "where we provide launch site, launch vehicle, satellite and maybe even a ground station — all for less than \$20 million."

Such plans did not just spring into being on the success of Conestoga 1, but Chafer acknowledges that success was a virtual

necessity to give SSI the credibility to begin competing for business with NASA's space shuttle and Europe's Ariane.

Still, not even the major players are yet home free. The shuttle's first operational launching (with two communications satellites as its first paying passengers) is not due until Nov. 11, though its managers are confident. And the first operational flight of Ariane—last week's other launching—was a disaster.

It was the fifth Ariane to be launched (its predecessors had been developmental missions, and a vibration problem that destroyed flight #2 had been worked out and dealt with), and it went exactly as planned . . . for 561 seconds. The first two stages had worked nominally, and the third had ignited on time, but suddenly the speed of its turbine dropped and the combustion-chamber pressure fell to zero. And instead of carrying its payloads (the MARECS-B maritime communications satellite and SIRIO-B, designed to distribute weather data and to help with an intercontinental program of synchronizing atomic clocks) into orbit, it carried them to the bottom of the Atlantic. A study of the failure is in progress. Ariane's next launch, carrying an astronomy satellite called EXOSAT, had been set for November. —J. Eberhart



Conestoga 1 rocket, privately built, funded and launched, on its Sept. 9 maiden flight.

Clearance confusion after DOD clampdown

In the aftermath of last month's Department of Defense action to halt the presentation of about 100 scientific papers at an international optical engineering symposium (SN: 9/4/82, p. 148), some researchers are confused about why certain topics were targeted and about what constitutes proper clearance procedures. They suggest that DOD should re-examine its review process.

One symposium participant, Robert M. Silva of VTI, Inc., in Dayton, Ohio, was not allowed to present three papers at sessions on scattering in optical materials. "I still have not heard from anybody why the papers were withdrawn," Silva told SCIENCE NEWS. "I'm in great sympathy with the administration in trying to keep information that could be beneficial to our potential adversaries, but at the same time it has to be done with a considerable amount of intelligence. Someone has to weigh who is being hurt."

Silva and his company, together with researchers at Wright-Patterson Air Force Base, have developed an instrument for detecting flaws on "supersmooth" optical surfaces used in laser applications and for other purposes. Their work shows that standard procedures used in the optical industry for measuring, cleaning and test-

ing can destroy expensively prepared surfaces. This damage is amplified by methods for coating the surface and limits performance. Silva says that DOD, which purchases numerous optical systems, is unaware it is buying "junk." "The only way we have to get this message across is not through normal DOD channels, because the information just doesn't get around, but through symposia and information exchange meetings like the SPIE [Society of Photo-Optical Instrumentation Engineers] meetings," he says.

Silva first heard about the possibility of a problem after he arrived at the meeting in San Diego on Monday, Aug. 23. Then two days later, he discussed the papers with a DOD representative and found out that all previous clearances had been withdrawn. "Up to that time, we thought the papers had been cleared," Silva says. "So then I started making some phone calls and found out that all that I had heard previously was no longer valid."

Silva and his colleagues had presented papers on similar research at earlier conferences. This was the first time that a clearance had been withdrawn, he says. "So it was really a shock," Silva says, "and it was done from the standpoint of people who really didn't know what we were do-