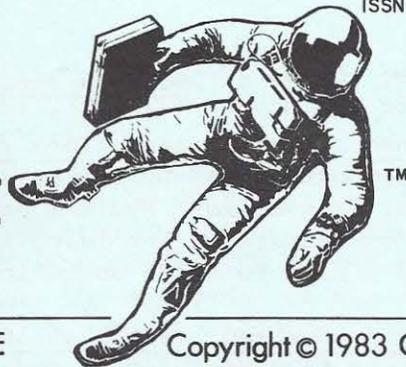


THE COMMERCIAL SPACE REPORT

ISSN 0735-9314



A MONTHLY NEWSLETTER ON FREE ENTERPRISE IN SPACE

Copyright © 1983 C.S.R.

Volume 7, No. 10

October, 1983

Dear Subscriber:

Intelsat May Delay Launcher Decision Until December

Titan 34D may be back in the running if the Intelsat Board of Governors follows the recommendation of Intelsat's director general and delays until December the selection of a launch system for three Intelsat VI satellites. As mentioned last issue, this would allow Martin Marietta, builders of the Titan, time to complete negotiations with the Air Force for the use of government Titan facilities.

The delay will also allow further observation of Shuttle and Ariane operations by the Intelsat group, as the infighting between NASA and Arianespace grows fiercer.

Ariane is fighting well in spite of two handicaps: a spotty flight record and the fact that Ariane 4, the vehicle designated for the Intelsat VI launches, has not yet been tested. In fact, only one Ariane 4 flight will have taken place before the first scheduled Intelsat VI launch.

NASA is pulling no punches, either. The price previously quoted for launching Intelsat VI (about \$50 million per launch) has apparently been reduced, although NASA, playing it close to the chest, is refusing to say by what amount. Other marketing strategies include:

- A \$5 million discount to any customer who books five satellites on Shuttle flights. By a not-so-amazing coincidence, this discount would happen to apply to the three Intelsat VI satellites, since the first two such satellites have already been designated for Shuttle launches.

- Intelsat launch priority over other commercial and non-sensitive government launches. The rationale for this is that Intelsat should have such priority because it is government-sponsored.

- A possible cost break for flying two Intelsats on one Shuttle flight, rather than flying the Intelsats on separate flights shared with other payloads.

This is unsettling behavior for a public agency competing against private industry. A marketing strategy intended to drive out the competition is normal and proper in the sphere of free enterprise. Price-war tactics such as discounts, cost "breaks," and others are moderated by the fact that the private company must, in the end, show a profit. These same tactics, used by a government agency fed with taxpayer dollars, are not bound by such restraints. Theoretically, there is nothing to prevent NASA from undercutting any possible launch competitor, as long as political support for its subsidies holds out. If private enterprise is ever going to become a valid alternative to the government in the field of space transportation, then measures may have to be taken to prevent taxpayer-supported launch systems from using their subsidies to take unfair advantage of commercial systems.

Lockheed Team Wins Shuttle Processing Contract

Space Shuttle operations moved towards higher efficiency with NASA's selection of a consortium led by Lockheed Space Operations Co. for final negotiations on a multi-billion-dollar Shuttle processing contract. The consortium will be responsible for operations involving launch and landing of the Space Shuttle, a major step in NASA's plan to shift operations of the Shuttle system over to private enterprise.

The Lockheed team beat out a team led by Rockwell Shuttle Operations, Inc. Lockheed's team includes Grumman Technical Services, Inc.; Morton-Thiokol, Inc.; and Pan-American World Services, Inc. The team led by Rockwell Shuttle Operations, Inc. included Boeing Services Intl.; Martin Marietta Launch Services Corp.; United Technologies United Space Boosters, Inc.; and United Airlines Aerospace Services.

The contract involves a variety of Shuttle processing services consisting of most tasks occurring during the period between the Shuttle's touching down on the runway after one flight, and clearing the launch tower at the start of the following flight. The contract covers work done both at the Kennedy Space Center (KSC) and Vandenberg Air Force Base (VAFB) launch sites.

Lockheed will be the prime contractor, directing shuttle operations presently being performed by 15 different contractors. Grumman will do the actual shuttle orbiter processing along with Lockheed workers. Morton Thiokol will process the solid rocket boosters and the external tank. Pan American will develop ways to apply airline turnaround techniques to the entire processing operation.

The overall contract will be administered by NASA, and will contain separate statements of work for KSC and VAFB which will be managed by NASA/KSC and the Air Force, respectively.

The award was an upset for the Rockwell team which included most of the major contractors responsible for Shuttle development (such as Rockwell itself, the Shuttle orbiter's prime contractor). The role of these contractors in orbiter construction, however, remains essentially unchanged.

The selection was based on a variety of complex factors, but the primary one seemed to be the different management structures proposed by the two consortiums. Lockheed offered a solidly-structured vertical management arrangement with precise lines of responsibility and authority, while Rockwell offered a matrix-management system utilizing personnel from all its consortium members at all levels. This latter approach, successful in a number of private organizations, was deemed by NASA (probably correctly) to be inappropriate for the complex Shuttle processing tasks.

The initial contract is for three years, at about \$400 million per year. The contract is renewable in three year increments for up to 15 years, for a total potential value of \$6 billion.

NASA and Fairchild Industries Sign Leasecraft Agreement

Fairchild will build its Leasecraft system and the Shuttle will test-fly it, according to the terms of a Joint Endeavor Agreement signed recently. The Leasecraft concept is an unmanned modular satellite platform which will provide (for a fee) power, data handling, and other services to commercial and other payloads (C.S.R., Feb. 1983, p. 3-4). Fairchild will spend about \$200 million of its own funds to construct the system. NASA's contribution will be an initial Shuttle flight to orbit a Leasecraft (scheduled for 1987), a servicing flight about six months later, and technical support.

Fairchild will profit from the arrangement, which saves the company millions of

dollars in prototype launch costs. When operational, Leascraft could be quite profitable, with a single Leascraft commanding up to \$5 million per month in "rent" for time on orbit.

It is also a good deal for NASA, which will not have to shell out any development funds for the Leascraft system. NASA receives other benefits as well. The agency will be allowed to attach its own payloads to the Leascraft during the two flights that it is providing. Also, in the long run, the existence of an operating Leascraft system will open up the market for many paying Shuttle customers that may otherwise not have been able to afford development of a complete satellite system.

Comments Invited on Draft Proposal for Transfer of NOAA Satellites

The Commerce Dept. is looking for input from the private sector and others relating to a forthcoming draft Request for Proposals (RFP) on the possible sale of NOAA weather and earth resources satellites to the private sector (C.S.R., May 1983, pp. 1-4). The draft RFP will be issued in mid-October, with comments due in the next 30 days.

Review copies of the draft RFP may be had from: Source Evaluation Board for Civil Space Remote Sensing (SCF), Room 300, NBOC-1, 11420 Rockville Pike, Rockville, MD 20852; Tel.: (301) 443-3925. (Note: Appendix A of the RFP is classified "Secret," and a company must have appropriate clearance to receive it.)

There is pressure from Congress and other agencies to kill such a sale. Both houses of Congress are working on resolutions disapproving of the transfer of NOAA's remote sensing satellites, and votes are expected in the next few weeks.

Possible foreign policy repercussions were also cited by the General Accounting Office and the Office of Technology Assessment. A number of foreign governments fear that exorbitantly high data prices would result from privatization (as opposed to the present "free" data policies). These governments presently rely on Landsat data for agricultural planning and mapmaking.

The Commerce and State Departments defend the sale, pointing out that competition from other remote-sensing systems would tend to keep prices reasonable.

Space America's "Aeros" Remote-Sensing Satellite: More Details

Space America's Aeros satellites are designed with solid-state sensors which will provide Landsat-type data at lower cost to the customer (C.S.R., May 1983, p. 4). The sensors, assembled by Honeywell, Inc., use charge-coupled devices built by Fairchild Camera and Instrument Corp. of Mountain View, CA. The first Aeros satellite, Aeros-A (due to be launched in 1986), will have two sensors mounted at different angles so that a stereo image can be constructed by using two separate passes over a given area.

Each sensor contains four charge-coupled arrays, three with 80-meter resolution and one with 43-meter resolution. Two of the 80-meter arrays and the 43-meter array operate in various bands in the visible light spectrum, covering between them the range from approximately 0.44 to 0.7 microns wavelength. The other 80-meter array will operate in the near infrared band (approximately 0.7 to 0.9 microns).

Aeros-A will broadcast data directly to earth. Aeros-B and later satellites may have on-board recorders to store data for later transmission. Aeros-B will also have higher resolution (20-meter) sensors.

The satellites may end up being launched by the Space Shuttle, although at present the plan is to use Space Services, Inc.'s Conestoga rocket.

OTRAG Update

The first operational OTRAG sounding rocket launch met with partial success on Sept. 19, according to Theo Pirard writing for Interspace magazine. The rocket was intended to reach an altitude of 15 km., but despite optimal rocket performance a payload failure destroyed the vehicle twelve seconds after launch. The launch took place at the Esrange sounding rocket launch site at Kiruna, in northern Sweden.

The payload consisted of scientific experiments from West German universities, a mass spectrometer system and a video signal test experiment. The payload was intended to be recovered by parachute, but the rocket was to be expended.

Starstruck, Inc. Hybrid Engine Test

Starstruck, Inc. also had mixed results in a recent static engine test. Intended to check out a full-sized (42" diameter) hybrid engine for the Dolphin rocket, the test engine burned through its case in two places at 20 and 25 seconds into the test. The test was terminated at 35 seconds (the burn time required for the initial test launch, due late this year, is about 60 seconds). Initial analysis indicated a faulty ignition procedure may have been to blame. Next test is scheduled for early November.

The thrust vector control system, also being tested, reportedly worked well. This type of system, commonly used in solid rockets, controls the vehicle's direction by injecting a liquid through the walls of the rocket nozzle and into the hot gas flow of the exhaust. This redirects the exhaust slightly, steering the rocket. Optimizing this system is critical to Starstruck's success.

Correction

Last month's article on Truax's launch systems contained a math error. The article mentioned the "economy of scale" in launch vehicles, citing the mathematical relationship between volume and surface area as an object's size increases. This is true, but, as a number of people pointed out (including Truax), we inadvertently left the factor for internal tank pressure out of the calculations. Tank wall thickness (and hence tank weight) increases directly with tank diameters, and this factor, added in, results in structural weight increasing at the same rate as vehicle size, not at a slower rate as was given last month.

Actual "economy of scale" is probably due more to economics than physics. It is the design and construction costs growing at a slower rate than vehicle size that seems to be the major reason for designing for larger payloads.

Until next time,

Tom Brosz

The Commercial Space Report (C.S.R.) is published monthly, and endeavors to report and analyze developments in the field of private initiatives in the exploration and exploitation of space.

Subscription rates are: U.S., Mexico, Canada and Foreign Surface Mail: 1 year-\$15.00, 2 years-\$28.00, 3 years-\$39.00. Foreign Air Mail: 1 year-\$20.00, 2 years-\$38.00, 3 years-\$54.00. Back issues are available at \$1.50 each from September, 1977. Xerographic copies may be substituted as stocks are depleted.

Address all correspondence to: Commercial Space Report, P.O. Box 60547, Sunnyvale, CA 94088. Editor: Tom A. Brosz. Tel: (415) 965-8666. Comments, ideas, or requests for information are welcomed, as are any items which may be of interest to our readers. Unless otherwise noted, contents are ©1983 by The Commercial Space Report and may not be reproduced in any form without written permission. The opinions contained in the Report are those of the writer or writers, and do not necessarily reflect those of any organization or company.