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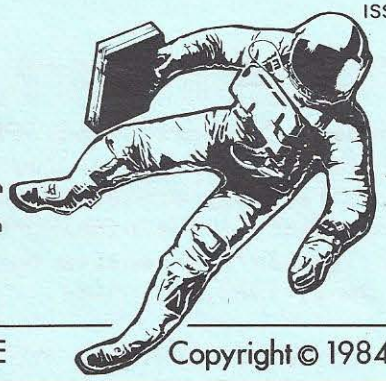
THE COMMERCIAL SPACE REPORT



A MONTHLY NEWSLETTER ON FREE ENTERPRISE IN SPACE

Volume 8, No. 6 June, 1984

Dear Subscriber:

Astrotech Moves Forward With Space Plans

Astrotech International is continuing its development of a new Space Shuttle upper stage. Astrotech (located in Pittsburgh, PA, and formerly called the Cyprus Corporation) has authorized McDonnell Douglas to begin work on the Delta Transfer Stage (DTS), a project Astrotech has been working on for some time (C.S.R., Dec. 1983, p. 2).

Astrotech has allocated an initial $1 million to McDonnell Douglas for initial design and development. Final negotiations are under way on an agreement covering the estimated $50 million required to build the DTS.

The DTS is based on the reliable liquid-fueled second stage of McDonnell Douglas' Delta expendable launch vehicle, and would carry payloads to higher orbits after being dropped off in low earth orbit by the Space Shuttle.

The DTS is a competitor to Orbital Sciences Corporation's solid-fueled Transfer Orbit Stage (TOS). The DTS has a larger payload, with the capability of inserting 9,000 lbs. into geosynchronous orbit (GEO), compared with the TOS, which can place 6,800 lbs. into GEO. Astrotech emphasizes the flexibility that is provided by a liquid-fueled system, which, unlike solid-fueled rockets, can stop and restart its engines. On missions involving multiple payloads, this allows the DTS (within the limits of its fuel supply) to place each payload into its own individual orbit.

Astrotech is targeting the Department of Defense as the initial market for the DTS, but has plans for later commercial applications.

Astrotech is also proceeding with its plans to commercialize the Space Shuttle (C.S.R., April, 1984, pp. 5-6). The company is currently holding discussions with the National Aeronautics and Space Administration (NASA) regarding acquisition of the fifth Space Shuttle orbiter, as well as additional orbiters.

Astrotech has incorporated a subsidiary for this purpose, Space Shuttle of America, Inc. (SSA), in Delaware. Astrotech anticipates two stages of financing for the subsidiary, with institutional debt financing of between $500 million and $1 billion, and subsequent public offerings as required. SSA has been authorized to issue 500 million shares of common stock.

Negotiations with NASA are in a preliminary stage, with no solid results expected until sometime around September, so that no real details of SSA's plans are available. However, these details are awaited with much interest. With NASA subsidizing Shuttle flights to the tune of over $100 million a flight, and Shuttle orbiters costing about $2 billion a copy, some observers are more than a little curious about how Space Shuttle of America plans on turning a profit.

Transpace Carriers Inc. Concludes Delta Commercialization Agreement With NASA

Transpace Carriers, Inc. (TCI) of Washington, D.C. has begun the transition of NASA's Delta launch vehicle program to the private sector. James Beggs, NASA Administrator, officially executed the Delta Commercialization Agreement on behalf of the U.S. Government. The signing took place on May 16, 1984, the first anniversary of President Reagan's Directive on the Commercialization of Expendable Launch Vehicles (C.S.R., June, 1983, pp. 5-6).

The agreement provides TCI with the exclusive marketing and production rights for future Delta launches. TCI will take over launch activities after NASA completes its current launch services contracts in October, 1984. The Delta launch vehicle has been and will continue to be produced by McDonnell Douglas Astronautics Co., along with its subcontractors. TCI is actively marketing Delta launch services, but has signed up no firm customers as yet.

Transpace Carriers, Inc. Attacks Arianespace Price Policies

TCI has accused Arianespace, the company marketing the European Space Agency's Ariane launch vehicle, of selling Ariane launches to U.S. customers at "predatory" below-market prices which are subsidized by higher launch prices charged to ESA member states. In a petition filed June 1 with the Office of the U.S. Trade Representative in Washington, D.C., TCI complained that Arianespace's two-tiered pricing system poses a threat to U.S. expendable launch vehicle services.

Transpace Carriers has requested that the Administration retaliate by barring Arianespace from advertising or marketing in the U.S., and by imposing economic sanctions on goods and services from ESA member states until the two-tiered pricing policy ceases.

Arianespace was somewhat surprised, since its pricing policies have been public knowledge since 1981. In a May 29 response, Arianespace replied that its two-tiered price structure (which, by mutual agreement, places a 25% surcharge on payloads launched by ESA member states) is the only way that it can compete with the existing pricing policies of NASA's Space Shuttle, whose launch costs are heavily subsidized by NASA. Arianespace says it plans to phase out its two-tiered pricing policy by 1987, assuming that NASA changes its pricing policy as well. NASA, for its part, is staying as far away from the whole argument as possible.

The elimination of government subsidies, a thorn in the side of numerous private endeavors, is a cause worthy of support. However, how objective is Transpace Carriers' grievance on subsidized prices? Take a look at the figures:

- TCI would charge about $30-33 million to launch a Delta-class payload (about 2,400 lbs.) into a geosynchronous transfer orbit (GEO transfer). TCI is private and non-subsidized, and must cover all of its own operational costs.

- Arianespace charges U.S. customers $25-30 million for a similar payload (an Ariane 3 can launches two such payloads on a single mission). The Ariane launch vehicle is subsidized by the governments of ESA member states, through higher launch prices, and by such items as below-cost prices for launch facilities and insurance. However, although exact figures are not available, it appears that Arianespace still covers many of its own operational costs.

- NASA officially charges about $40 million for a Shuttle launch (this will increase to $71 million in 1986, in 1982 dollars). The Space Shuttle can launch four Delta-class payloads on a single mission. So, to place a Delta-class payload into low earth orbit costs the customer about $10 million. There are additional costs to the customer involved in placing the payload into GEO transfer, such as the

price of an orbital transfer motor. This raises the customer's costs to $16-20 million, but these costs are not included in NASA's launch fees. With Shuttle flights costing NASA about $250 million a crack, this means a launch cost of about $62.5 million per satellite. The difference between $62.5 million and $10 million--$52.5 million--is the Shuttle's approximate price subsidy on a single Delta-class payload. Notice that this is somewhat more than what an entire flight costs on either Delta or Ariane.

When the Shuttle price is raised to $71 million in 1986, the price to launch a Delta-class payload will increase to about $18 million. Increased numbers of Shuttle flights will tend to reduce NASA's cost per flight as well. As a result, Shuttle subsidies will decrease a little, but it is not likely that the system will ever get any significant distance out of the red, much less into the black.

It is obvious that, while TCI does have a case against Arianespace, TCI's complaint suffers from a glaring omission of NASA's Space Shuttle, which is also a major competitor of the Delta (communications satellites, a prime Delta market, will constitute nearly half of the Shuttle's payloads over the next five years).

When Transpace Carriers was asked why the company was seemingly overlooking the Shuttle's subsidies in the quest for fair competition, TCI replied that the issue was not subsidies as such, but the charging of different prices to different customers for competitive advantage. In other words, the two-tiered pricing.

However, NASA also uses a form of two-tiered pricing, although somewhat in reverse. While Arianespace charges ESA governments a surcharge over the regular commercial launch price, NASA charges its commercial customers the surcharge: about 4.3 million per flight. This two-tiered pricing, unlike Arianespace's, tends to make the Shuttle slightly less competitive (for commercial payloads) with other commercial launch vehicles, which may be one reason TCI is not concerned with it.

Some observers pointed out that, unlike NASA, Arianespace pulled a juicy payload customer (Satellite Business Systems, which will launch two satellites in 1986 and 1987) away from Transpace Carriers on May 25, only one week before TCI filed its complaint. If TCI was using its complaint to retaliate specifically against Arianespace for this coup, NASA would naturally be excluded. However, the retaliation theory does not seem to hold water. TCI states that its legal actions had been planned several months beforehand. TCI chose to wait until after the SBS contract had been awarded to file its complaint in order to avoid the possibility of upsetting the negotiations by throwing monkey wrenches into the pricing calculations.

I think that the major factor in the omission of NASA in the complaint is that Transpace Carriers, Inc. is still heavily dependent on NASA's good will. TCI is commercializing a NASA vehicle (Delta) with a great deal of NASA cooperation required. It would be highly unproductive and foolhardy for TCI to antagonize NASA at this point (only a week after signing a critical agreement with the agency!)

Although understandable, and probably unavoidable, the inconsistency of Transpace Carriers' objections blunts much of the positive effect an anti-subsidy crusade could have on the commercial launch industry. A true attack on government price supports must probably await a commercial launch company with no ties to the present launch establishment.

Name Change for Space Van Company:

TranSpace, Inc. has changed its name to Third Millennium, Inc., abbreviated as MMI (the Roman numeral form for the year 2001). MMI is the designer of the Space Van (C.S.R., Nov. 1981, p. 1), a small, reusable, manned spacecraft resembling a miniature Shuttle orbiter. Launched from the back of a modified 747 aircraft, Space

Van would be capable of placing about 6,600 lbs. into low earth orbit at a launch cost of between $2 and $10 million (depending on number of launches per year). Incorporated into the Space Van system is a refueling capability which would permit placing payloads into geosynchronous orbit.

Public confusion between TranSpace, Inc. and Transpace Carriers, Inc. was a major reason for the name change, which becomes official on June 30.

* * *

Articles of Interest In Non-Space Publications

Popular Science, May, 1984, pp. 92-95: "How They Build High-Tech Rockets On the Cheap." Illustrated article on Starstruck, Inc. and Space Services, Inc.

Esquire, May, 1984, pp. 47-56: "Space Hustlers," by Randall Rothenberg. An overview on private space endeavors, including short histories of several private space transportation firms.

Wall Street Journal, May 16, 1984, editorial page: "Space...The Private Frontier," by Gary C. Hudson and Jerry Pournelle. A column describing the role of free enterprise in space exploitation.

Corrections on Last Month's Recommended Periodicals List

Space Calendar: Day-to-day calendar portion of the publication covers news and events that are scheduled to occur during the week following the date of issue, not, as was implied, events that have already happened the week before the date of issue.

Space Commerce Bulletin, mentioned as being in "the same price range" as the $295.00/year Space Business News, will actually cost somewhat less, with a charter subscription price of $197.00/year and a regular price of $247.00/year (subcriptions actually cover 24 issues, not precisely one year).

Launch Vehicle Lineup

Included with this issue is an illustration showing most of the existing and proposed private launch vehicle systems which have been covered in this newsletter in past issues (NASA's Shuttle is also included for reference). Further details (addresses, etc.) on the companies involved appeared in a list of private space transportation companies that was included with the Jan. 1984 C.S.R.

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 space transportation and exploitation.

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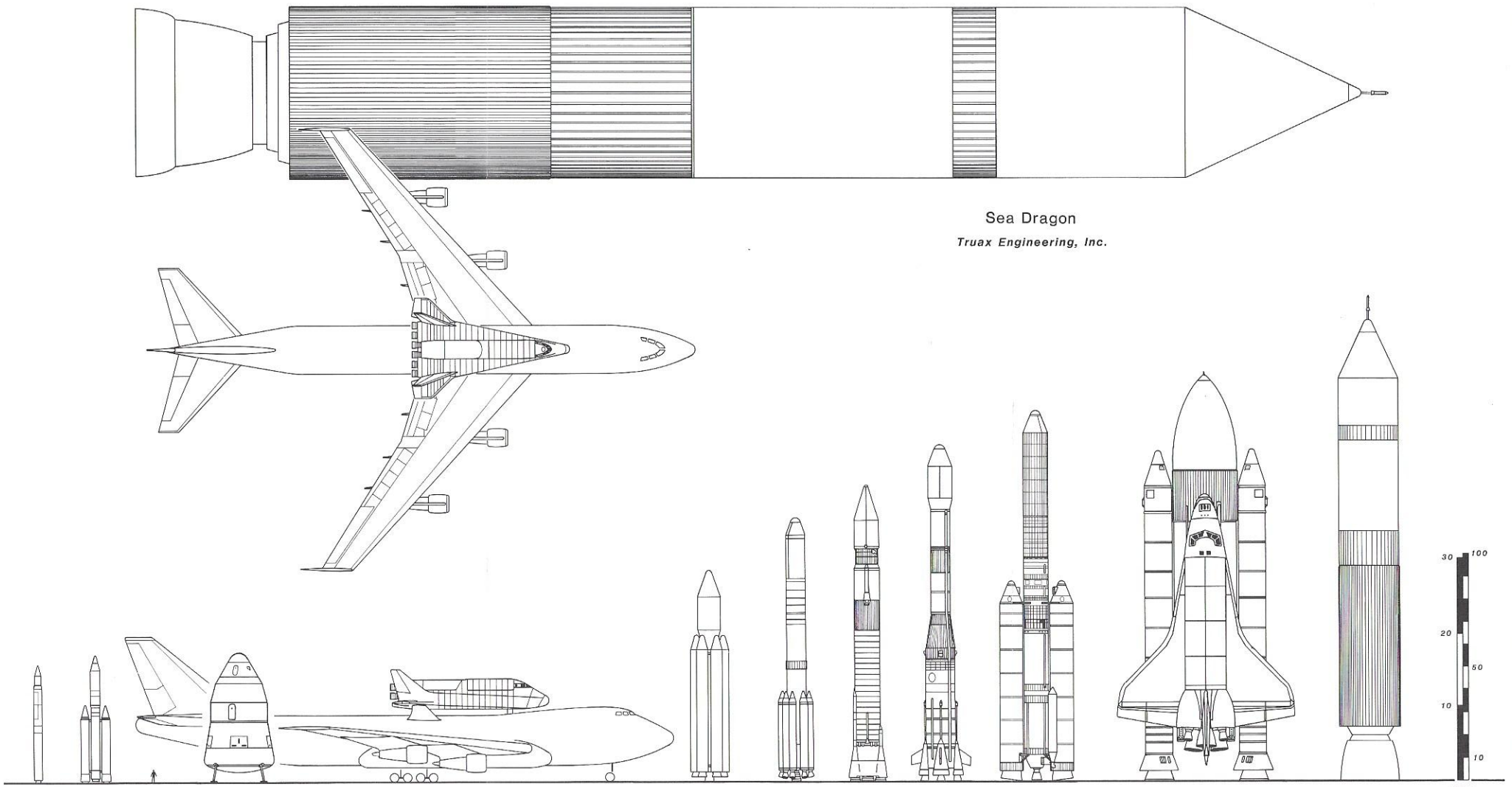

COMMERCIAL LAUNCH VEHICLES