

Bids mark first round of RLV contest

GRAHAM WARWICK/WASHINGTON DC

NASAHAS received bids in the first round of its \$4.5 billion competition for a second-generation reusable launch vehicle (RLV).

The space agency plans to award multiple small contracts to begin defining requirements for the system and initiate risk-reduction activities. These will feed into the first major procurement round, set for September, says programme manager Dan Dumbacher. This will result in the award of "more than two" contracts covering the

first two years of the five-year risk-reduction programme.

Initial contracts, to be awarded next month, will be the first step in defining system requirements to meet NASA's stated safety and cost goals: a 1 in 10,000 probability of loss of crew; and a \$2,200/kg (\$4,845/lb) payload to orbit cost. "We don't know if the cost and safety goals can be met," says Dumbacher. "They're aggressive."

The risk-reduction phase will involve a number of technology demonstrations intended to ensure there are at least two viable com-

mercial competitors. The requirements definition process "will tell us what demonstrations we need to do", Dumbacher says, adding the priorities are crew escape, main propulsion and full-scale integrated structure demonstrations.

Studies will try to "maximise convergence" between NASA, government and commercial launch requirements. Plans call for development of second-generation RLVs to be fully funded by private enterprise, except for NASA-unique requirements such as crewed missions. "We know

there will be some amount of government funding, but we don't know the number or the mechanism," Dumbacher says.

Recognising NASA is already funding the X-33 technology demonstrator for Lockheed Martin's proposed VentureStar single-stage-to-orbit RLV, the risk-reduction programme will be structured "to get as level a playing field as possible", he says. "We will maintain competition." Options include two-stage-to-orbit, towed launch and horizontal take-off concepts, he says. □

Thruster problems delay Clusters

THE LAUNCHES of four European Space Agency DaimlerChrysler Aerospace-built Cluster II science satellites has been delayed by the discovery of a potentially leaking thruster on the spacecraft. The launch of Clusters in pairs on two Starsem Soyuz Fregat boosters planned for June and July have been set back to August at the earliest.

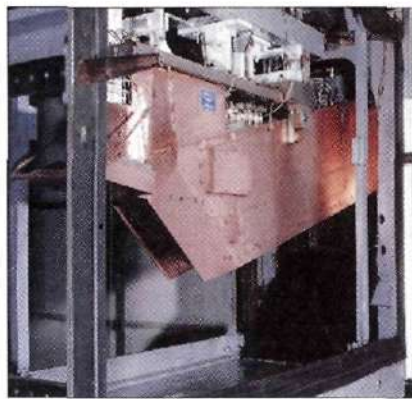
The thruster problem is affecting several European communications satellites manufactured by Matra Marconi Space and Alcatel Space and those supplied with similar thrusters from DaimlerChryslerAerospace, Bremen.

The insurance community has insisted no satellites be launched until the thruster system has been fully tested. The problem centres on the possible leak of fuel when the thrusters are fired. It is believed that there are tiny amounts of fuel leaking from thruster joints when short firings are made to keep the spacecraft on station.

As a result, the Eutelsat W4 communications satellite will not be launched in May on the maiden flight of the International Launch Services Atlas IIIA. The Ariane 5 launches of Astra 2B, Nilesat 102, Eutelsat W1R and Eurasiat 1 are also on hold.

It is understood that not all satellites fitted with the German thrusters may be affected. □

Air-breathing rockets show improvement



NASA breathes easier after successful RBCC tests

GROUND TESTS of experimental air-breathing rockets at Aerojet and Rocketdyne have demonstrated improved low-speed performance, says NASA. The rocket-based combined cycle (RBCC) engines are being developed to power a future "third generation" reusable launch vehicle.

The RBCC functions as a ducted rocket at low speeds, making the transition to an air-breathing ramjet and supersonic-combustion ramjet at progressively higher speeds, before converting to a conventional rocket to boost the vehicle out of the Earth's atmosphere. The use of air-breathing propulsion for about half of the flight cuts

the amount of oxygen the vehicle must carry, reducing launch weight and cost.

The latest tests evaluated modifications to the experimental engines to improve their performance in air-augmented rocket mode, to increase thrust at low speed. Aerojet says ground tests of its Strutjet air-breathing rocket achieved their goal, showing a rise in thrust augmentation.

Under its Advanced Space Transportation programme, NASA is funding work which could result in flight testing of an RBCC-powered technology demonstrator. The agency is also conducting related experiments, including subscale tests of a magnetic-levitation track that could be used to accelerate the launch vehicle inexpensively and cut the amount of rocket boost needed.

In another test, set for late June, NASA will launch a modified ballistic-missile re-entry vehicle to evaluate an ultra-high-temperature ceramic material that could allow reusable launch vehicles to be designed with aerodynamically efficient sharp leading edges. □

Starsem joins Skybridge team

THE FRANCO-Russian Starsem company has become an equity partner in the Skybridge communications satellite consortium. Starsem will provide up to 11 launches of its Soyuz-Fregat booster to the consortium.

Eighty Skybridge satellites will provide high-speed, interactive multimedia services to business and private users from 2003. Thirty-two satellites will be launched by Soyuz Fregat boosters, with two satellites possibly flying on one launch and the others in sets of three. The launch order was from Alcatel, the Skybridge partner and prime contractor.

Boeing, another Skybridge partner, has been awarded a contract to launch 48 Skybridge satellites on board the company's Delta IV medium booster. □

NEWS IN BRIEF

INTERNET ACQUISITION

EchoStar Communications has paid \$50 million for a 17.6% stake in Gilat-To-Home, a joint venture with Israel's Gilat Satellite Communications and Microsoft to provide a two-way broadband Internet service via satellite.