

Alpha station under attack

BY TIM FURNISS

NASA's \$17.4 billion *Alpha* Space Station enters the US Congressional budget process this month still uncertain of its future, despite its new Russian link.

The station is coming under fire on financial, safety and political grounds. Originally called the *Freedom*, the station has been redesigned seven times since 1984 and has cost \$11.2 billion to date.

On 25 March, NASA reaffirmed the final design (*Flight International*, 1-7 December, 1993), but confirmed that earlier cost- and schedule-saving

estimates had been optimistic.

NASA said in November 1993 that Russian co-operation would save \$2 billion costs and two years in the assembly time required for the *Alpha*. The assembly schedule may now slip a year, however, and \$1 billion of the potential savings may have to be written off by cost over-runs.

For the first time since 1972, NASA has suffered a year-on-year budget cut and, with further cuts expected, a Congressional Budget Office report says that NASA's plans to continue its space efforts, despite the cuts, are doomed to failure and that the agency should adopt more modest aims.

Astronauts at NASA's Houston Space Center have also weighed into the debate, saying that they are worried about the pressure on the Shuttle system to launch 23 station assembly-utilisation missions — and the ten planned precursor missions to the Russian Mir space station — especially if an accident were to ground an orbiter.

NASA has conceded that it will have to compromise some Shuttle launch safety restrictions to meet the tight 5min launch windows required to fly space station missions.

A safety warning has also come from the joint NASA/Congress Aerospace Safety Advisory Panel, which is concerned that the cuts in the Shuttle operations budget will affect safety.

On top of this, space supporters in and outside Congress are expressing doubts about the viability of the project because of possible financial and political instability in Russia.

George Brown, the chairman of the House science, space and technology committee and a supporter of NASA, says: "I'm probably going to have to go against *Alpha*. I want us to be a partner, but not dependent on Russia."

NASA says that it has a back-up design in hand in case Russia — or any of the other international partners — drops out of the project. This would increase NASA's share of the budget, however.

Not everyone in Russia is keen on co-operation either. Disillusioned scientists at the cosmonaut training centre in



Shuttle safety could be compromised

Star City, north of Moscow, are warning that co-operation with the USA in the project will result in the loss of key technologies and hundreds of jobs.

Attempts to spread the debate beyond Star City are being largely thwarted by strong opposition from the space company NPO Energia and the Russian Space Agency.

Already, there are fears that the nearby manned-spaceflight mission-control centre at Kaliningrad will become redundant, as the *Alpha* would be controlled from NASA's mission-control centre based at Houston, Texas. □

Loral/DASA enter microgravity link

Space Systems/Loral and Deutsche Aerospace (DASA) will jointly develop, manufacture and market spaceborne microgravity laboratories for US Government and commercial customers.

The companies will build a 111m² laboratory at Loral's Palo Alto factory in California, to begin research on materials sciences, bio-sciences and protein-crystal growth.

The move comes after the failure of the NASA-sponsored, Westinghouse-led Commercial Experiment Transporter to lift off, and will be in competition with the Space Shuttle-borne Spacehab laboratory.

Both projects have been hit by a lack of commercial customers, who will become convinced of the benefits of microgravity processing only when launch costs are cut — a key area to be addressed. □

First GSLV launch scheduled for 1996

India will launch its first Geostationary Satellite Launch Vehicle (GSLV) in 1996, says the Indian Space Research Organisation's annual report, released on 4 April. The GSLV demonstration flight will be powered by a Russian cryogenic engine on the rocket's third stage. The GSLV will be

able to carry 2,500kg into geostationary orbit.

India will buy seven cryogenic engines from Russia as part of a new deal, following the collapse of an agreement involving the transfer of rockets and technology which caused the imposition of a US embargo on certain space activities with the two countries. The new sale does not violate the missile-technology control regime as did the original \$350 million deal in 1993. The first engine is scheduled to be delivered in 1996 and the rest over three years.

The basic design of an indigenously developed Indian cryogenic engine and GSLV upper

stage has been completed. Private and public-sector companies have been selected to build its components. The first GSLV launch, with an Indian developed cryogenic engine, is scheduled for 1998.

India will spend \$7.3 million on the GSLV in the next year, and has completed fabrication of all 15 segments of the solid-propellant first stage and the strap-on boosters and two engines of the second stage.

Preparations are under way to attempt the second launch of the smaller Polar Satellite Launch Vehicle, components of which will be used to fly the GSLV, by the end of July. The first launch failed in 1993. □

March satellite launch log

No	Date	Spacecraft	Type	Launcher (*)	Country (*)	Launch site (*)
14	2 Mar	Coronas S1	Science	Tsyklon (2)	CIS (8)	Plesetsk (3)
15	4 Mar	Columbia 16	Science	STS 62 (2)	USA (4)	KSC (2)
16	9 Mar	Navstar	GPS	Delta 2 (2)	USA (5)	Canaveral (3)
17	13 Mar	Darpsat/Step	Miltsats	Taurus (1) ^a	USA (6)	Vandenberg (2)
18	17 Mar	Cosmos 2274	Recon	Soyuz (3)	CIS (9)	Plesetsk (4)
19	22 Mar	Progress M22	Tanker	Soyuz (4)	CIS (10)	Baikonur (6)

^aTaurus maiden flight

*Indicates total number of orbital launches by this launch vehicle, country and launch site in 1994