

## Reinventing the space station

Yet again, NASA's proposed space station is undergoing a major redesign. The most recent plan, spurred by White House orders to drastically cut the total cost of the craft and to cap annual spending at \$2.1 billion, consists of two designs that for the moment are being developed in parallel.

Earlier this month, NASA unveiled one of the blueprints, known as space station Alpha. The Alpha plan is a throwback to one of three redesigns suggested in June, when the proposed craft was still referred to as space station Freedom (SN: 6/19/93, p.389). But although the June plan, dubbed Option A, would have cut laboratory space on the craft by one-third, Alpha would reinstate all the laboratories. The Alpha plan would also restore the ability of the space station's solar arrays to track the sun without having to regularly reorient the craft.

Given the new focus on trying to build a joint U.S.-Russian space station, it's significant that Alpha's basic design wouldn't need alterations if Russian components are added to it. Among these components, notes Bryan O'Connor, director of space station redesign at NASA headquarters, are a Russian "space tug" that would guide, propel, and orient the craft. The space station might use two or three such tugs, and O'Connor estimates that the Russian models, at least one of which is now operating, would have a cheaper price tag than a similar U.S. system.

Under the Alpha plan, O'Connor adds, flights to carry space station parts would begin in 1998 and the station would start regular operation in 2003.

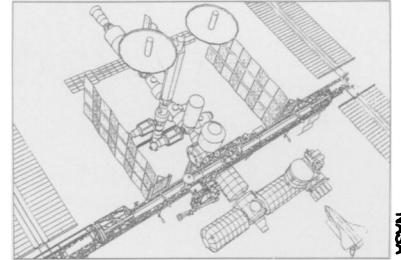
NASA is also considering an alternative plan, known as the Russian option. In this design, U.S. and Russian space station components would be joined in space. Some of the Russian

parts might come from those intended for Mir-2, the next generation of Russian space station. This plan would allow assembly to begin in 1997.

O'Connor says the space agency must find out "fairly soon" which option to pursue in order to avoid purchasing U.S. equipment that the Russians might end up providing. NASA will report to the White House on Nov. 1 the results of a study analyzing the Russian option and will then await the President's decision.

"There are some risks on both sides," O'Connor says of the proposed U.S.-Russian collaboration. "The Russians were even concerned about working with us because our space station [budget] comes up for a vote every year. . . . And we have concerns about the reliability of their ground-support systems and launch pad. But we think technically it's feasible to do."

In the meantime, amid uncertainty about which design option will be selected, a Senate subcommittee has moved to hold back \$946 million of the space station's budget through Jan. 31. The action would likely force NASA to tell Congress about the redesign decision before funds are released.



Russian option for space station: Hardware built by the United States, Japan, and European countries would join with components designed for the Russian Mir-2 space station.

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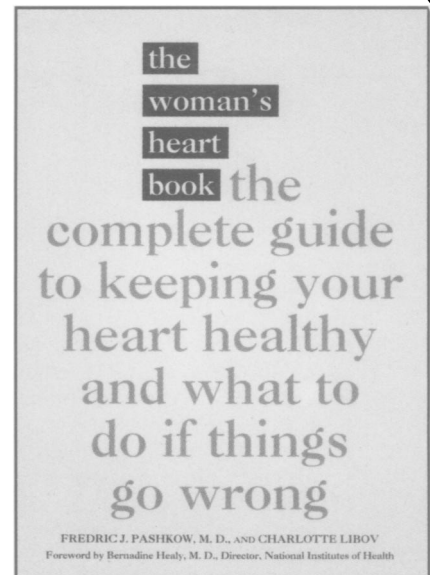
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