

# Germany's newest satellite is just part of the European space leader's drive

As a, if not the, most influential contender in the space business in Europe, West Germany is continuing to expand its role toward an even more productive future, punctuated this week by the launch of its fourth satellite and last month by the award, to a West German company, of the prime contract for one of Europe's largest space projects.

West Germany has long provided the lion's share of contributions to the European Space Research Organization (ESRO). ESRO's major developing project is Spacelab, a complex, multi-purpose research module to be carried in various versions aboard the U.S. space shuttle in the 1980's. West Germany is funding 54.1 percent of Spacelab's development, compared with 18 percent from Italy, 10 percent from France and considerably smaller amounts from the other ESRO members.

It is not too surprising, therefore, that last month the space division of West Germany's vfw-Fokker was selected as the prime Spacelab contractor, a plum that could be worth hundreds of millions of dollars. The simplest form of Spacelab will be an unmanned (controlled from the shuttle cockpit) instrument pallet that could include anything from small, rack-mounted experiments to large telescopes. A manned version will include a habitable work station, although the researchers using it will use the sleeping and hygiene facilities of the shuttle itself. A third configuration will combine a smaller work capsule with an external pallet of instruments.

NASA is likely to buy about five basic Spacelab packages, at perhaps \$30 million apiece, along with as many as nine "extension units" to expand the system's usefulness and up to 30 pallets—all of them routed through West Germany.

Spacelab is only one facet of West Germany's ambitious advance into space. In biomedical research, a West German experiment studied the influence of heavy nuclei on simple life-forms during three Apollo flights as well as aboard Skylab. A similar experiment together with an electrophoresis study of blood fractions will be part of the Apollo-Soyuz rendezvous mission next summer.

On July 16, NASA launched West Germany's fourth satellite, AEROS-2,

intended to study the upper atmosphere from a polar orbit while two U.S. probes carry out similar investigations from equatorial and inclined orbits. West Germany's first satellite, Azur in 1969, was also a cooperative program with NASA, as was AEROS-1 in 1972. In 1970, in another binational arrangement, France launched the French-German probe Dial.

Four satellites would hardly seem to be enough to produce a major space-faring nation, yet West Germany's plans are already big league. In 1978, for example, a West German experiment will be aboard a Pioneer probe bound for Venus—a considerable step upward in technological demands from mere earth-orbiting gear.

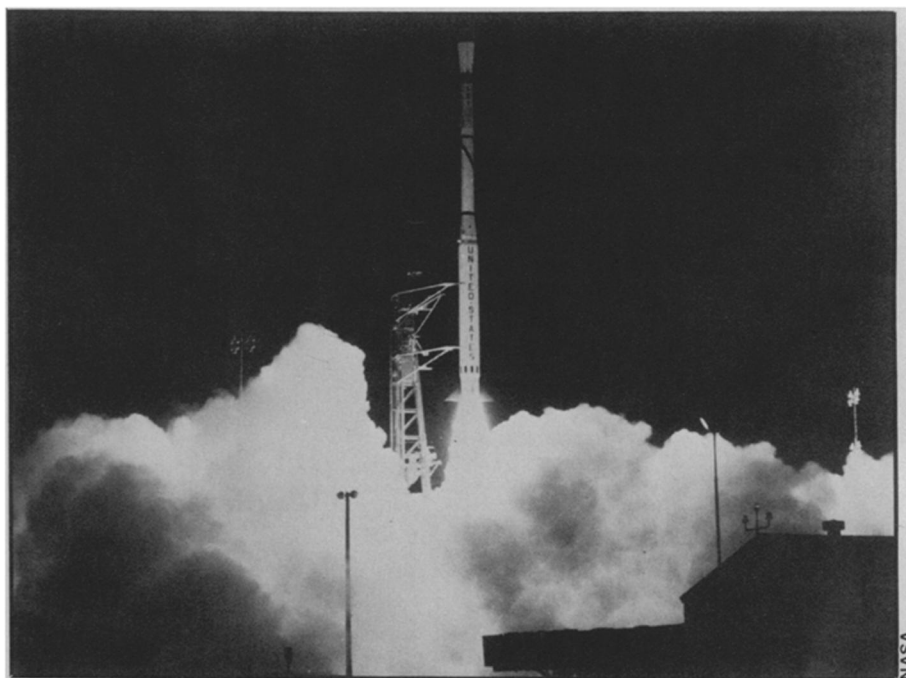
Even more remarkable is Helios, to be launched this October onto a path that will take it closer to the sun than any manmade object has ever gone. West Germany's precocious engineers have met the challenge of turning out components that have already shown themselves capable in ground tests of withstanding temperatures as high as 700 degrees F. The West German Helios team, says NASA international affairs officer Lloyd Jones, has "quite successfully taken a quantum leap forward."

West Germany's space commitment

has grown with its ambition. The Gesellschaft für Weltraumforschung, quasi-governmental equivalent to NASA, has grown in seven years from fewer than 50 people, says Jones, to about 700. In the same time span, the country's space expenditures have increased some 600 percent.

This is not to say that everything is roses, however. In contrast with what some observers have referred to as West Germany's "incredible" technology and "first-rate" science, there seems to be a less-than-enlightened approach to one of the space business's most important areas: management. The intense nationalistic pride that has contributed to West Germany's aggressive growth in space research has posed problems in some areas of international cooperation. Some sources suggest a German tendency to unilaterally take the bull by the horns in an over-independent manner that has caused delays and some frayed tempers in what are supposed to be cooperative ventures. Even within the country, there have been reported problems in coordination among experimenters.

Nonetheless, West Germany is likely to continue as a valuable influence on European space development, both in technological and scientific leadership and in sheer impetus. □



AEROS satellite symptomizes Germany's lofty ambitions for its future in space.