Year of Decision for ASAT Program

Congress is likely to maintain a ban on antisatellite tests; the Air Force is pushing new technology, including weapons being developed by SDI

"THIS is a year of decision for our U.S. ASAT program," President Reagan proclaimed in a 12 May "white paper" designed to bolster congressional support for the Administration's antisatellite (ASAT) effort. Indeed it will be; in fact, it now appears that the existing ASAT program may not survive beyond 1987.

The House of Representatives has decided to extend for yet another year a 2-year-old ban on testing the weapon against a target in space. And the Senate Armed Services Committee has decided that extension of the test moratorium would be an appropriate signal to bring the curtain down on the program as now structured.

The Air Force has, in fact, already decided to restructure the ASAT program, emphasizing new technical avenues. It is considering the use of powerful rockets, such as the Pershing missiles now based in Europe, to attack satellites in deeper space, and it is also exploring more exotic laser technologies.

One probable outcome of all this turmoil is the de facto merger of the ASAT project—long presented as an entirely distinct entity—with the no less controversial Strategic Defense Initiative (SDI) antimissile research effort. If so, the program will have traveled full circle. Key elements of the current ASAT technology, after all, grew out of the ballistic missile defense research effort of the 1970s.

Fittingly, the first key ASAT decision was made precisely 10 years ago, when the Air Force awarded a contract to the Vought Corporation of Dallas, Texas, for development of the miniature homing vehicle (MHV). Mated with two off-the-shelf booster stages, Vought's small cylindrical MHV warhead contains eight cryogenically cooled infrared sensors and 56 miniature steering rockets. The 35-pound MHV is launched into space by a 17-foot-long missile fired from beneath an F-15 fighter, and homes in on its satellite target with a closing speed of almost 11,000 miles per hour. The target is destroyed by the impact. This capability has been demonstrated only once, in a controversial test that demolished an aging but still functional Solwind research satellite in September 1985.

However technologically ingenious the MHV may be, the past decade has been a rocky one for the ASAT program. Three rounds of U.S.–Soviet talks on a possible ASAT test ban in 1978–79 came to naught after the Carter Administration's efforts tumbled into the arms control chasm created by the Soviet invasion of Afghanistan. Abjuring negotiations toward an agreement that it has argued would be ineffective and unverifiable, the Reagan Administration has placed all of its ASAT chips on the deterrent and war-fighting potential of the MHV. But the troubled MHV has seen its test program repeatedly curbed by Congress, its military utility strongly questioned by a range of experts, its price tag swell, and its deployment schedule repeatedly slip.

Air Force

General Rankine: *"We must be able to test . . . just as the Soviets did."*

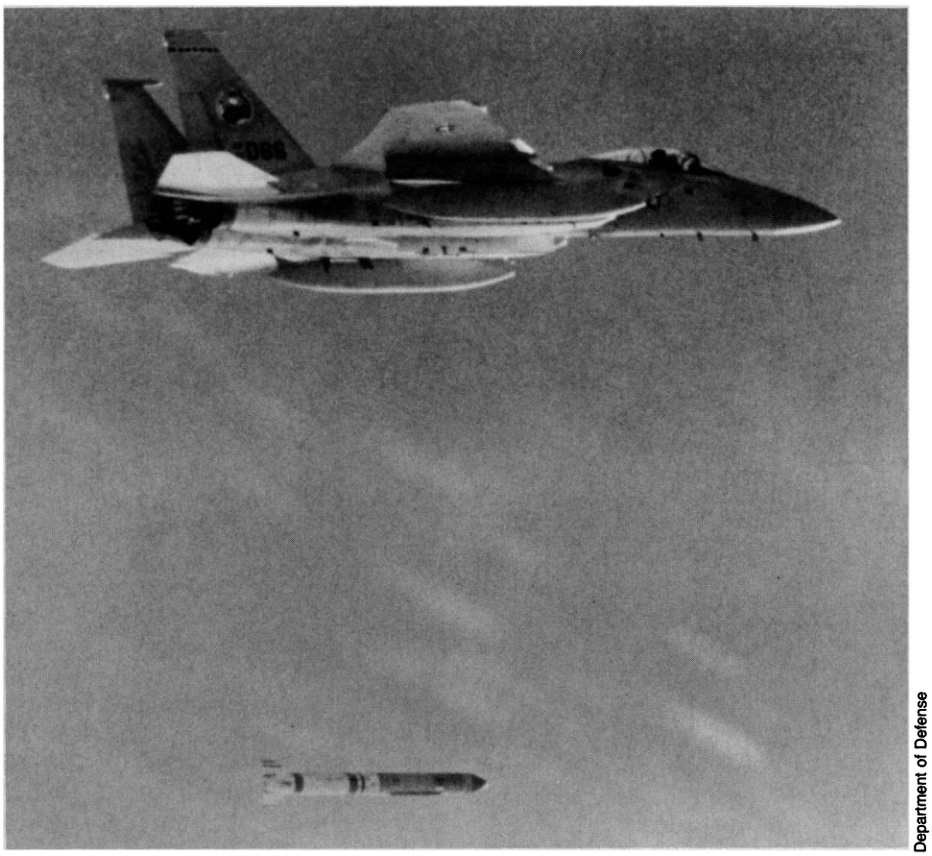
Previous plans to buy 112 ASAT missiles for deployment on both coasts were dramatically recast last year. Now the Air Force intends to purchase only 35 of the weapons, assigning them to 18 F-15s based solely at Langley Air Force Base in Virginia. At the same time, estimated program costs have almost quadrupled, from $1.2 billion in 1980 to a whopping $4.2 billion today.

"Although I have been a long-time supporter of this ASAT system, I have reservations about its potential for adequately addressing the threat," said Representative George (Buddy) Darden (D–GA) during a heated debate in the House on 19 May over renewal of the ASAT test ban. But "this is no reason to eliminate the entire ASAT program," he added, suggesting that laser weapons, electromagnetic rail guns, and other prospective SDI systems may have promising ASAT capabilities. The Defense Department apparently agrees. It had already announced, on 10 March, a three-pronged restructuring of the ASAT program that would emphasize new technologies.

One thrust is directed at the MHV-ASAT. Having repeatedly targeted the missile on the radiant energy of stars—most recently on 30 September last year—the Air Force is eager to resume testing against actual targets in space. The service launched two Kevlar-coated, inflatable mock satellites into space in mid-December 1985 only to be told by Congress days later that it would be forbidden to fire MHVs against them. When the ban was extended again in 1986, the Air Force inflated one of the targets last December for a series of nondestructive "target characterization" tests. In the unlikely event that the congressional ASAT test ban is not renewed, three test firings would be conducted against the dummy satellites during 1988—the one remaining and two more yet to be launched—leading to a request for production funds the following year and deployment in the early 1990s.

"But to proceed with the development of this vital capability, we must be able to test the miniature vehicle ASAT system against objects in space just as the Soviets did on numerous occasions in the past," Brigadier General Robert R. Rankine, Jr., the Air Force's director for space systems research, stressed at a press conference announcing the restructuring of the program.

Since 1968, the Soviet Union has conducted 20 tests of its co-orbital ASAT, which is launched atop a 150-foot-long booster derived from a military missile. Of 14 Soviet tests employing a radar guidance system that would be comparatively easy to



Department of Defense

ASAT launch. *The current U.S. ASAT consists of a miniature homing vehicle launched by a missile fired from an F-15 fighter.*

counter, six have failed, and another six tests employing a potentially more capable infrared guidance system have all failed.

The Soviets declared a unilateral ASAT test moratorium in 1982, however. Their ASAT has thus now sat idle for 5 years. While Administration officials contend that the Soviet system has proven its mettle and needs no further exercise to pose a threat, other space analysts consider it, at this point, to be a "wasting asset."

"You could not fly an ASAT for 10 years and then use it and have some reasonable expectation of success, but that is not normally what is done for a war-fighting capability," said Nicholas L. Johnson, of Teledyne Brown Engineering at Colorado Springs. Johnson is an expert on Soviet aerospace and the author of the annual report, *The Soviet Year in Space*. He noted that the Soviets routinely conduct between 400 and 500 ballistic missile test launches per year. "It is not a specific erosion of capability," he said of the Soviet test moratorium. "But no commander wants to bet that a system that has not been used for 5 years will work."

The second component of the Air Force's new plan is aimed at stretching the reach of the MHV-ASAT. With a maximum range estimated at roughly 450 miles, the fighter-launched missile can attack only a select subpopulation of the Soviet Union's roughly 100 military satellites: low-orbiting photo-reconnaissance and electronic intelligence satellites and ocean surveillance spacecraft. The latter, because of their potential ability to locate and target American battle fleets in wartime, have been a central rationale for proceeding with the MHV. But congressional critics have argued with apparent success that $4.2 billion is a stiff price to pay for the means to destroy Soviet sensors that some naval officers have testified could also be countered by such passive means as cover and deception.

The Air Force now plans to look at ways to double the range of the MHV, either by loading a larger booster missile onto the F-15 or, more likely, by using a ground-launched booster like the Pershing II. Logistically, this scheme could be facilitated by the growing likelihood that the Pershings now in West Germany will come home later this decade as the result of a pact with the Soviet Union. (This prospect injects yet another historical irony into the decades-old ASAT saga: In the early 1960s, the United States pulled its Thor missiles out of Great Britain and converted some of them into nuclear-armed ASATs. Based in the South Pacific, they were not retired until 1975.)

Deployment of a Pershing II ASAT would not be dependent on arms control success in Geneva, however. The Martin Marietta Corporation, now winding up production of 308 Pershings for the Army, would be more than happy to keep its assembly lines running. "Just like Detroit," said a spokesman for the corporation's Orlando, Florida, aerospace division, "we've already begun [design] work on the next model of the Pershing II." Provided that it can resume testing of the MHV, the Pentagon said, a Pershing II–boosted model could be in the field by the mid-1990s.

By pushing the MHV's punch out to more than 900 miles—roughly the altitude at which the Soviets have tested their ASAT—the United States could double the number of Soviet satellites it could attack, according to Brookings Institution space policy analyst Paul B. Stares, author of *The Militarization of Space: U.S. Policy, 1945–84* (Cornell University Press, Ithaca, NY, 1985). Brought into reach would be additional electronic intelligence satellites, as well as some communications, navigation, and meteorological spacecraft.

The Air Force's current drive for an enhanced-altitude ASAT could be interpreted in several different ways, suggested Stares. "You could say that they are not very confident in the capabilities of the MHV to perform its mission and that intercepting ocean recon [satellites] is at the limits of its capabilities and that they want to increase their assurance that they can go after them," he said. "Also, adding an additional ground-based system increases their flexibility, trading cross-range for altitude. And, they may be expecting the Soviets to raise the altitudes of some of their reconnaissance satellites out of reach of today's MHV."

The third strand of this year's ASAT plan is also the most intriguing. In cooperation with the Strategic Defense Initiative Organization (SDIO), the Air Force will be evaluating ground-based lasers for the ASAT mission. Three candidate systems are in the running: free-electron lasers, which are being funded solely by the SDIO and are prime candidates for the antimissile task; oxygen-iodine lasers, which are being funded solely by the Air Force; and excimer lasers, which are now being jointly funded by the SDIO and the Air Force.

As free-electron lasers have gained favor among the "Star Warriors" and as Congress has chopped away at the SDI budget, excimer lasers have fared badly. Their funding dropped from $39.1 million last year to only $12.4 million in fiscal year 1987. Not surprisingly, the Air Force's willingness to spend $95.4 million over the next 2 years on excimer lasers for ASAT purposes was readi-

ly seized upon by the SDIO director Lieutenant General James A. Abrahamson. The excimer laser "is a good back-up to the free-electron laser from General Abrahamson's point of view, that's why he's interested," said Rankine.

"A growing relationship between SDI and ASAT was expected all along," observed House aide Peter Didisheim, who wrote a monograph for the Union of Concerned Scientists on precisely that nexus in late 1985. "To see it now in programmatic terms really confirms that."

In many respects, an ASAT excimer laser would be an ideal "pathfinder" for future missile defense systems. "You have the same fundamental atmospheric transmission problems [for missile defense as for ASAT lasers], but you don't have to deliver anywhere near the same power to cook a satellite," notes laser expert Jeff Hecht, a contributing editor of *Lasers & Optronics* magazine and author of *Beam Weapons: The Next Arms Race* (Plenum Press, New York, 1984). "The Pentagon's rationale for the excimer laser [ASAT] program is a reasonable one. We can't justify this for SDI anymore because of the cuts we've had. It's a high-risk venture, but it makes sense for the ASAT because it's a nearer term technology than a monster free-electron laser" for missile defense.

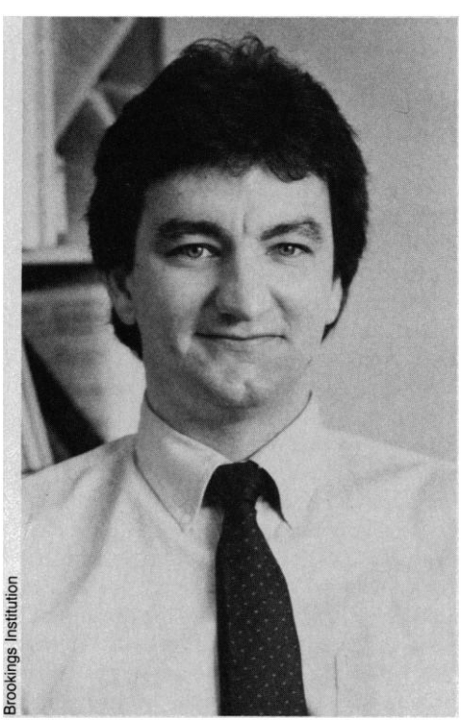
The laser ASAT also has the added advantage of rousing less congressional ire than does the MHV. Both the House as a whole and the Senate Armed Services Committee have recommended funding in full the Administration's $46.6-million FY 1988 request for excimer laser ASAT development, while cutting deeply into the budget requests for the F-15–launched and extended-range MHV programs.

"The laser funding, although worrisome, is technology [as opposed to deployment] funding and it is a long ways off," said Representative Les AuCoin (D–OR), one of the MHV's most ardent congressional foes. "I think that this is only realistic," said another such opponent, Representative George E. Brown, Jr. (D–CA). "If they want to maintain some momentum with regard to ASAT capabilities, they ought to do it at the R&D stage and try to come up with systems that would be more cost-effective and forget about the idea of near-term deployment." The Pentagon has said that a fully operational laser ASAT could not be expected much before the end of the century.

All told, the Administration would like to spend $1.2 billion on its three-pronged ASAT program over the next 2 years. But first it must convince Congress. And that has become an increasingly hard sell to make. Last June, the General Accounting Office released a classified report highly critical of the MHV's cost growth and schedule slippage. It also questioned such technical aspects of the program as the likelihood that ground-based satellite tracking radars would be attacked or dedicated to other missions in wartime and that more sophisticated Soviet countermeasures could spoof the MHV's infrared guidance. Although the Defense Department contested the GAO's findings, House Armed Services Committee member Darden noted that "there has been a lot of discussion on the committee as to whether the MHV is the approach to take."

The Pentagon certainly gave its best shot this year as the House's 19 May ASAT vote approached. General Rankine, said a House aide, "visited more offices this year than I've ever seen before. [He] and his staff were basically camped out here for a couple or 3 weeks." The thrust of the briefing that Rankine gave uncommitted House members was that the Soviet Union had a deployed ASAT and the United States did not, that the United States needed to be able to destroy Soviet space systems that could track American naval units and that "a U.S. ASAT will provide the Soviets a greater incentive to offer serious arms control proposals."

That last proposition comes freighted with no small weight of irony. Many congressional observers attribute the Administration's inability to forestall legislated ASAT test bans to the very fact that it has thus far refused to negotiate on ASATs. The recurring plaint that Congress must do nothing to undermine American negotiators in Geneva finds no resonance here. And so, for 2 years running, the tough, year-end legislative horse trading between the House, the Senate, and the White House has seen the ASAT ban survive when other House-sponsored arms control amendments have bitten the dust of political compromise.



Paul Stares: *The Air Force appears to lack confidence in the current ASAT.*

This year, the House Armed Services Committee's ranking Republican, William L. Dickinson of Alabama, sponsored an amendment that would have permitted ASAT tests against targets out to 800 miles in space. But he withdrew it at the last moment because, he said, "the interests of the country would be best served by a simple vote up or down" on the ASAT test ban amendment sponsored by Brown and Representative Lawrence Coughlin (R–PA). The margin of the vote favoring extension of the ban, while a fairly close 229 to 188, was even greater than last year's.

"What is really interesting is that the Administration lobbied hard on this," said Brown. "The Pentagon had people over here working the halls, and the White House put out a white paper. I can only assume that their credibility on this issue is not that high over here."

The MHV's stock is also falling on the Senate side. "If the F-15 MHV is not permitted to resume testing against objects in space in fiscal 1988, [we] would recommend a significant restructuring or cancellation of the MHV ASAT program," the Senate Armed Services Committee noted in its report on the FY 1988 defense bill. Expenditures could not be justified in the current budget environment, it added, "if they are not accompanied by the prospect of progress toward an operationally deployed system."

Observers were almost unanimous in the expectation that the ASAT test ban will hold for another year. Although Air Force officials have repeatedly denied it, virtually everyone interviewed also remarked on the apparent softness of the Pentagon's support for the MHV as witnessed by its failure to mobilize all of its resources to prevent the test prohibition, as it has forestalled so many other congressional initiatives. The reason? Suggested one House member who supports the ASAT program: "I think they are developing one [ASAT] under the SDI mode and are [just] leaving the [MHV] fight out there to follow its own course." ■

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