

National Defense SPECIAL REPORT



JEFF TUTTLE/THE WICHITA EAGLE/AP FILE

Members of the media get a look at the Boeing 747 plane equipped with an Airborne Laser in October 2006 at Boeing in Wichita, Kan. The plane-based weapon was designed to track and destroy a ballistic missile.

Gen. Lester Lyles

Canceled in its prime: the Airborne Laser

Later this year, the engineers and scientists who have spent the last decade developing a state-of-the-art laser cannon housed in a Boeing 747 will hold their breath, watching on screens and in the sky as the weapon — known as the Airborne Laser — attempts to shoot down a ballistic missile before it leaves the Earth's atmosphere.

If successful, the weapon could give the United States an entirely new defense capability, and, in addition to ballistic missiles, could potentially be used to shoot down cruise missiles, hostile aircraft or surface-to-air missiles, all at the speed of light.

Unfortunately, even if the test proves that the laser works, the plane may be sent to gather dust in a hangar, doomed to be one of a kind. Why?

It's the unfortunate outcome of a recent set of budget cuts at the Pentagon, which, though understandable, penalize the Airborne Laser program for past problems and kick the next-generation technology and critical military capabilities to the curb.

When the Clinton administration started the Airborne Laser program as a test bed in 1996, few knew whether it would be possible to develop lasers powerful, portable and accurate enough to be used as weapons.

Yet, over the last decade, the program has surmounted every technological challenge put in its path. And although these challenges caused past delays, the ABL program has successfully met a comprehensive series of key milestones over the last five years.

The megawatt-class ABL has shown through extensive testing on the ground that it's powerful enough to destroy a target in a matter of seconds at militarily significant ranges.

The laser is now powerful enough to dispatch quickly with countermeasures like reflective paint or spinning missiles. And the aiming system has also proven in flight tests it can successfully train the laser (substituted for testing purposes by a lower-wattage beam) on an airborne target for extended periods of time, even through turbulence.

The ABL system can even measure atmospheric interference, unfocus the laser beam and then use the atmosphere as a lens to refocus the beam into a precise and deadly dot when it hits the target.

However, now that the economy is faltering and the Pentagon needs to find money for other critical priorities, it has canceled development of follow-on ABL aircraft and drastically reduces further testing just as the first prototype plane is set to shoot down a ballistic missile this year. Critics have cited the

Stopping a step short of a revolution

AIRBORNE LASER

- » A megawatt-class laser housed in a modified Boeing 747.
- » Destroys all classes of ballistic missiles in their early "boost" phase; would protect the U.S. and allies from missiles armed with biological, chemical, nuclear or conventional weapons.
- » Extensive on-the-ground and flight tests are leading up to an operational test in late 2009, in which the ABL will destroy a boosting ballistic missile.
- » Ground-breaking "directed energy" technology could be used for a variety of different offensive and defensive weapons, creating a revolution in warfare.

MISGUIDED CUTS

- » On the eve of a definitive operational test, the Obama administration is cutting the funding for additional research and development as well as follow-on prototypes.
- » The cuts would save only a minuscule fraction of the Pentagon budget.
- » Cuts to the program will destroy the specialized industrial base of engineers and optical experts assembled for the project, causing a "brain drain" that could outsource top U.S. technology and know-how to foreign countries.

program's past problems as reason to cancel the program today.

This action overlooks the fact that many of yesterday's most problematic and criticized systems — including stealth technology and mature missile defense weapons like Terminal High Altitude Area Defense — are now among our most prized military assets.

Thanks in large part to ABL, the U.S. is now a world leader in this kind of advanced optical "directed energy" technology, and the ABL supports an advanced industrial base that will disappear if the funding for the program is cut.

But more importantly, the technology could potentially change the face of modern warfare. Directed-

energy weapons like ABL are more precise and offer the advantage of achieving "graduated effects."

In other words, instead of destroying an entire vehicle, a fighter pilot could choose to just shoot out the tires or shut down the engine, greatly reducing collateral damage. This type of precision can reduce collateral damage to civilians. You don't have those kinds of options with a conventional missile.

The U.S. stands today on the verge of a technological revolution in warfare and defense. ABL's megawatt-class laser has been tested extensively on the ground, while the aircraft and its aiming system have been put through their paces in flight testing.

Now, all that's left is for the system to test itself against a real target later this year — a boosting ballistic missile. The next step should be robust testing of the existing prototype that would expand its range and versatility, and would make it available in a national emergency.

But if the funding is cut for the Airborne Laser, a successful test won't make any difference. The only existing prototype will end up in a science museum, a painful waste of a cutting-edge technology.

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