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The Stealth Debate

While some experts say stealth no longer matters, nations continue to develop signature reduction technologies



Written by: [Jan Tegler](#) on June 5, 2012 
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F-35A airframe Air Force-6 on its first night flight. While the F-35 program has stealth as one of its requirements, other aspects, such as the short take off/vertical landing requirement and airframe commonality, have also been major drivers of the design. Lockheed Martin photo by Tom Reynolds

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“In a sense, it all comes down to F-35 at the moment,” he added. “F-35 advocates will tell you that we’ll finally field an effective stealth aircraft in huge numbers and it’ll be easy to maintain. The USAF still says we’re going to buy 1,763 aircraft. But we’re now talking about F-35 procurement stretching out well into the second half of the 2030s. The people that are going to make that decision are still in high school. If the F-35 doesn’t deliver, then I think you have to look at this 25-year attempt to build an all-stealth air force and conclude that it’s been an apocalyptic failure.”

Aboulafia occupies a middle ground when it comes to the value of stealth technology, recognizing its high costs while observing that stealth is a tool capable of giving American air power an edge in combat.



A U.S. Air Force F-22 Raptor conducts a training mission during a multinational exercise, Dec. 6, 2009. In terms of a combination of signature reduction and high performance, the F-22 Raptor is the gold standard of air superiority fighters. But such performance comes at forbidding price. U.S. Air Force photo by Staff Sgt. Michael B. Keller

“I think there are some out there who want to see stealth as some kind of broad cloaking device rather than a combat enabler based on low observability. In other words, it’s not a question of whether stealthy aircraft can be detected; it’s more about the probability of radar finding them. Anything that reduces that probability gives you an edge in combat. Now is it worth the investment you need to make to gain that advantage? That’s a great question.”

Sweetman is not wholly dismissive of stealth but has written recently that “a silent revolution is under way in combat sensors,” citing passive detection systems like the IRST (infrared search and track) systems being deployed on the Eurofighter

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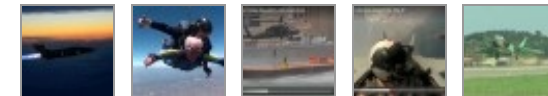
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First F-35C Night Flight



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Typhoon, Saab JAS 39E/F Gripen, and under development for the Boeing F/A-18E/F Super Hornet and Chengdu J-10B. These sensors are relatively cheap alternatives to more expensive active radar systems and may have the sensitivity to track stealthy aircraft via aerodynamic heating.

“Should the United States have equipped more of its conventional legacy fighters with these sensors rather than funding a large fleet of stealthy fighters?”

“If IRST is the sensor improvement it is said to be and future sensor improvements work as well as advocates say they will, then it seriously diminishes the value of stealth unless you’ve also addressed the infrared signature effectively and with an eye to what IRST can really do,” Sweetman said. “Did IRST essentially get buried because it was a threat to stealth? I don’t know.”

Aboulafia “fully approves” of sensor upgrades for existing combat aircraft and advanced sensor integration for the crop of more conventional fighters, like the Boeing F-15SE Silent Eagle, Saab Gripen NG (Next Generation), Eurofighter Typhoon, [Lockheed F-16V Fighting Falcon](#), and Boeing F/A-18E/F Super Hornet, that are in competition with the JSF for fighter programs in countries including South Korea (F-X-3) and Singapore as a less expensive alternative.

Sweetman thinks the attractiveness of these alternatives will be examined more closely once the true costs of the F-35 are known. He offers the possibility that Singapore might be a buyer of Lockheed’s new F-16V as a bridge to later acquisition of the F-35. The South Korean situation is different, he said.

“The Japanese [[a recent international customer for the F-35](#)] are adopting a fairly slow program. They’re planning to buy four airplanes for test and training in the U.S. and the rest they seem to want to manufacture in country. Those aircraft will come along a lot later and will be expensive no matter what. I think Korea wants real combat capability earlier. While there are a lot of people saying that South Korea wants to keep up with the Japanese and

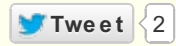
how do they tell their electorate that they're buying these apparently 'old aircraft,' the fact remains that they need capability. They don't need four \$200 million airplanes sitting in the United States."

Aboulafia makes an interesting point in discussing the expense of the F-22 and F-35 programs.

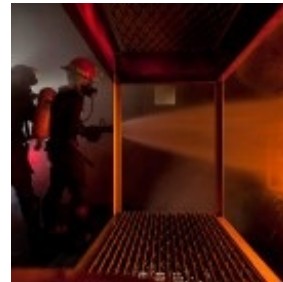
"At this point, there are so many drivers behind F-35 cost increases, and for that matter F-22 costs, that it's really hard to sort out what you're paying for with stealth. In other words, if you were to design a plane that does what [the] F-35 does and not give it those stealth design characteristics, I'm not so sure it would cost a whole lot less.

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