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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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The importance of stealth as it applies to modern combat aircraft is at the center of a growing debate. Framed by contemporary and future stealthy tactical aircraft programs, including the most costly defense program in history (the [F-35 Joint Strike Fighter](#), or JSF), and cheaper, more conventional alternatives, the discussion has attracted a variety of critics who contend that stealth technology is compromised and too expensive.

On the other hand, the United States, Russia, and China are all investing heavily in signature reduction across the spectrum (radar, IR, visual, aural). It begs the question: If stealth isn't worth the money, why does everybody want it?



Having fielded stealthy tactical aircraft since the 1960s, including the Lockheed SR-71 Blackbird, [Lockheed F-117 Nighthawk](#), Northrop Grumman B-2 Spirit, and [Lockheed Martin F-22 Raptor](#), the U.S. Air Force (USAF) is the foremost exponent of stealth technology among the world's air forces. The service's dedication to stealth continues with its major commitment to the F-35.

But the USAF now has company when it comes to stealthy fighter aircraft in the form of the Russian Sukhoi PAK FA T-50 and the [Chinese Chengdu J-20](#). Recent reports concerning both fifth-generation fighters have caused a stir in the West, leading to speculation about the credibility of these efforts and whether they further support the argument that stealth technology is worth the investment.

The F-117A Nighthawk was the world's first operational aircraft designed to exploit low-observable stealth technology. This

We asked the Air Force a number of questions related to its support for stealthy combat aircraft but were unable to get answers by press time. So we pressed ahead with input from two noted defense aviation experts.

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First F-35C Night Flight



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precision-strike aircraft penetrated high-threat airspace and used laser-guided weapons against critical targets. The F-117 Nighthawk's capabilities were based almost totally on its stealth features, the aircraft being neither very fast, agile, or heavily armed. Some analysts argue that making stealth the primary design parameter of an aircraft today is a mistake. U.S. Air Force photo by Master Sgt. Lance Cheung

Richard Aboulafia, vice president of analysis for the [Teal Group](#) (an aerospace/defense market intelligence, analysis, and forecasting firm) and defense aviation writer/commentator, views the Russian and Chinese stealthy fighters with a jaundiced eye.

“My take might be a bit of a departure but it seems to me that the only country that is actually producing aircraft where stealth is one of the primary design and cost drivers is the U.S.,” Aboulafia said. “I look at T-50 and right now I see a heavily modified Sukhoi-35 with a bunch of bells and whistles. And the J-20 I regard as somewhere between serious agitprop and practical joke-gone-horribly wrong. But there appear to be people out there with serious credentials who take it seriously so maybe I’m wrong. I mean, one of the very basic tenets of stealth design is that the best place for a canard is on somebody else’s aircraft!”

On the other hand, Bill Sweetman, editor-in-chief for Defense Technology International, characterizes the T-50 and J-20 as “tip

of the spear” weapons, likely to be fielded in smaller numbers than the JSF initially and with an alternative slant on stealth.



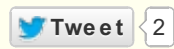
“I think they need to be taken very seriously,” Sweetman said.

“If you look at both aircraft as they exist today, I don’t think the approach to stealth is quite the same as has been practiced in the U.S. Certainly, the T-50 is a compromise between stealth and high performance but without getting into the extremes of power, cost, complexity, and size that characterize the F-22. I’m certain that Russia and China have looked at what has happened in the U.S. and have adjusted their approach accordingly. Even the U.S. can’t afford the F-22.”

Aboulafia contends that the Chinese stealth fighter may be more about image than reality, but acknowledges that the Russian aircraft is more serious.

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