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## Quietly Competitive

*Boeing's F-15 Silent Eagle has South Korea's ear*



Written by: [Eric Tegler](#) on April 5, 2011

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**A mock-up of Boeing's F-15SE Silent Eagle reveals the canted twin tails and weapons bays housed in adapted conformal fuel tanks that are major features of the aircraft. Photo courtesy of The Boeing Company**

Last summer, Boeing garnered modest press attention when it flight-tested conformal weapons bays on an F-15E. The weapons bays are major components of Boeing's proposed F-15 *Silent Eagle*, essentially a Strike Eagle modified for stealth. Recently, the media has taken note again, but not in the United States.

First announced in 2009, the Silent Eagle is in competition with Lockheed's F-35A and Eurofighter's Typhoon for a 60-65 unit strike-fighter order from South Korea, part of its long-running FX procurement program. In March, South Korean media outlets reported an acceleration of the FX program in response to the North Korean provocations of 2010 and the debut of China's J-20 stealth fighter.

Though the Typhoon remains under consideration, Boeing's F-15 Silent Eagle and Lockheed Martin's F-35 appear to be the leading contenders for the order, which anticipates aircraft deliveries starting in 2015-2016. Despite its non-stealthy foundation, *The Korea Times* opines that the F-15SE has an edge on the F-35, with acceptable Radar Cross Section (RCS) reduction performance and a better price, reportedly around \$100 million a copy.



**Boeing's Silent Eagle flight demonstrator aircraft fires an AMRAAM from its stealthy weapons bay during flight testing July 14, 2010. Photo courtesy of The Boeing Company**

Given the much publicized delays in the F-35 program, South Korean officials may have greater confidence in Boeing's ability to deliver aircraft by 2015-16, the point at which F-35 development should just be wrapping up. Also advantageous is the fact that South Korea already operates 60 F-15K "Slam Eagles" acquired in phases I and II of the FX program in 2002 and 2008. Boeing stresses that F-15SEs would share 85 percent commonality with the country's F-15Ks.

The Silent Eagle builds on the basic F-15E by adding radar absorbent coatings and conformal weapons bays (CWBs) which share the same mold lines and a high degree of engineering similarity with existing conformal fuel tanks. Proposed canted vertical tails help regain some of the range lost with removal of the conformal fuel

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The Boeing Silent Eagle flight demonstrator aircraft during its first flight on July 9, 2010. Photo courtesy of The Boeing Company

Weapons available for internal carriage include the AIM-9 and AIM-120, the JDAM and Small Diameter Bomb. The standard weapons load used on current versions of the F-15 is available with the traditional conformal fuel tanks installed. Other improvements include a digital flight control system and a BAE Digital Electronic Warfare System working in concert with the Raytheon AESA (APG-63 v3) radar.

An F-15E modified with CWBs flew in July of last year for baseline/data gathering tests of the bay doors and an AIM-120 launch. The flights culminated the Silent Eagle demonstration and provided the beginning of an answer to a question posed by a South Korean general, says Boeing Director for F-15 Development Programs Brad Jones.

"This [program] started when we were at a conference in Korea in 2008. A Korean general basically said, 'We have to have stealth but can we

live with the tradeoffs?' We listened. Stealth is very expensive to maintain. These guys will fly these airplanes for 30-plus years and technology will [bypass] stealth. Radar cross section is just in the X-band. We're now moving into multi-spectral areas."

"The Silent Eagle philosophy is that stealth isn't the end-all," Jones continues. "It's one facet of survivability. We didn't want to put so much money into stealth and then have

technology blow by it. We wanted to maintain the same capabilities that the aircraft already had. Taking all of that into consideration, we came up with the Silent Eagle."

Though no further flight testing has gone forward, Boeing has signed a memorandum of understanding with Korean Aerospace Industries (KAI) to manufacture the CWBs. In the meantime, the company has nearly completed its trade study of the aircraft.

"That will come to a close in the next month or two," Jones says. "It [looks at] whether we use hydraulic, pneumatic or electrical systems to open the doors. When the pilot picksles the missile we want the time it takes to come off the airplane to remain the same [as with a conventional F-15]. The trade study that KAI and Boeing are doing is evaluating that right now."

Boeing is also studying F-15SE production processes and retrofit kits for existing Eagles.

"We reached the [RCS reduction] level that we needed to and provided all the data to the U.S. Air Force," Jones confirms. "We've achieved that and now we're looking at how we put these [RCS] techniques into production."

While Boeing has technically briefed the USAF, no sales discussions have been held. In addition to its life-cycle cost advantage, Boeing stresses the SE's flexibility as a day-one stealth fighter that can quickly be returned to conventional configuration once stealth is not required.

"It's the fastest fighter out there," Jones enthuses. "It goes farther, it carries more, it fights at 50,000 feet, it shoots missiles at Mach 1.5 to 1.8. It's an air superiority, multi-role, air to ground aircraft we can deliver in 2015. It's ready to use, in service right now."

The Silent Eagle's prospects likely rest on South Korea and should be decided in a matter of months. "We've proved the concept," Jones adds, "proved the RCS, proved the conformal weapons bays in flight. Now we're waiting for the launch customer."

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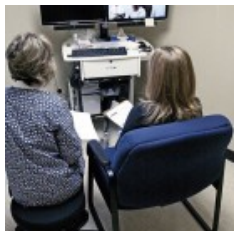
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