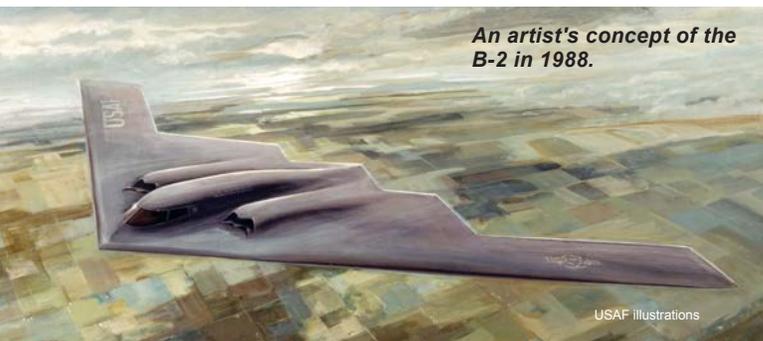


Back to the future; One engine maker; Guarding against hacking; McCain's threat; How contracts are signed

NO FOOLIN': THE NEW BOMBER

The Air Force's new B-21 bomber takes the service back to the future, offering a surprising resemblance to the original, 1970s design for what would become the Northrop Grumman B-2. A deliberately vague image of the winged diamond/flying wing was released by Air Force Secretary Deborah Lee James at AFA's Air Warfare Symposium in Orlando, Fla., in late February.

James designated the new jet the B-21—for “21st century”—and some wags instantly dubbed the familiar-looking aircraft the “B-2.1.” It lacks the extra “sawtooth” tail features added to the B-2 when that aircraft underwent an extensive redesign in the mid-1980s but is otherwise a ringer for the B-2's original design concept.



James held programmatic details of the highly classified program until a “State of the Air Force” briefing she and Chief of Staff Gen. Mark A. Welsh III gave reporters at the Pentagon a week later. There she revealed the members of Northrop Grumman's industrial team, which she listed in the following order (and with the anticipated work locations):

- United Technologies Pratt & Whitney, East Hartford, Conn.
- BAE Systems, Nashua, N.H.
- GKN Aerospace, St. Louis
- Janicki Industries, Sedro-Woolley, Wash.
- Orbital ATK, Clearfield, Utah, and Dayton, Ohio
- Rockwell-Collins, Cedar Rapids, Iowa
- Spirit Aerosystems, Wichita, Kan.

Pratt & Whitney providing the engines was no surprise, as the company had offered a cryptic public message of congratulations when Northrop Grumman was named the winner of the Long-Range Strike Bomber competition last October. At that time, USAF officials said both Northrop Grumman and the competing team of Boeing/Lockheed Martin had selected their own engine partners, offering a “package” deal. However, James would not say which Pratt & Whitney engines will power the B-21, or how many will propel each bomber.

As P&W now has the engine franchise for the F-22, F-35, and B-21, James was asked whether the service is worried

about having settled on a single supplier of high-performance jet engines. Her response was, “We're comfortable with the choices and the strategy ... that we selected.”

James was under pressure from members of industry and USAF senior statesmen to reveal the subcontractor information. As one USAF major command's retired chief said at a conference in February, “We have to start building the advocacy” for the new bomber, which is traditionally undertaken in Congress by members who have participating contractors in their districts. Previously, USAF had not disclosed any information about the jet other than its “not-to-exceed” cost. At neither the February nor March events did James disclose the value of Northrop Grumman's contract.

The final assembly location of the B-21 remains an official mystery, as well, although Northrop Grumman has sufficient

capacity at its Palmdale, Calif., plant—where the B-2 was built—and has also suggested it might do significant work in Florida. Three years ago, the company designated its Melbourne, Fla., facility its “manned aircraft design center of excellence,” while Palmdale was designated one of its aircraft integration centers of excellence. Sen. Bill Nelson (D-Fla.) at the time said new bomber work would be done in his state if Northrop Grumman won the contract.

HACK LICENSE

Why did it take so long to release even the names of the contractors? The companies involved require protection plans to safeguard their networks and prevent intrusion from adversaries who could hack in and help themselves to secrets. Those safeguards are now “in place,” James said.

China's new putatively stealthy fighters strongly resemble the F-22 and F-35, reportedly due to a successful cyber espionage campaign in the 2000s. James said the Air Force doesn't want to offer adversaries an opportunity to “connect dots”—hence the continuing secrecy on the program.

In that case, however, why reveal anything at all? James said one lesson learned from the B-2 was that it “remained classified too long.” When the information was

finally revealed, “there was sticker shock in terms of the dollars involved,” she said, “and the dollars kept changing.” That won’t happen with the B-21, she insisted, as cost increases usually attend requirements changes. Requirements haven’t changed since the program began, and this “discipline” will continue to drive costs down.

Moreover, the B-21 will rely largely on proven, mature technologies, instead of inventing a whole new level of stealth, she said.

With the B-2, “everything was new. ... New airframe, new components, ... and the integration was enormous,” James said. “The equivalent of a miracle a day had to transpire” to bring the B-2 to fruition. “In the case of the B-21, we have a new airframe ... but we are using mature technology, “both in the airframe and components, so the risk is more bounded.”

Service officials have said that contractors were encouraged to reduce risk with the B-21 by reusing hardware and software from other systems. The list of contractors James released suggests a strong alignment of the B-21’s systems with those of the B-2, F-35, and F-22.

James doesn’t expect nearly the political fight with the B-21 as USAF experienced with the B-1 and B-2 or with other abortive bomber programs. In the case of the B-2, “there was a perceived lack of a threat” when that aircraft was terminated, she noted. At the time—the late 1990s—Russia was reeling from the dissolution of the Soviet Union. The old Soviet military, strapped for funds, was rapidly obsolescing and physically rusting away. Congress responded by slashing the B-2 program from a planned 132 aircraft to just 21, causing unit cost to soar by orders of magnitude.

“Today, with the B-21, I don’t see it that way,” James said. “I think there’s quite a substantial recognition that we do have threats around the world, that we do need this capability.”

GOING INTO CONTRACTIONS

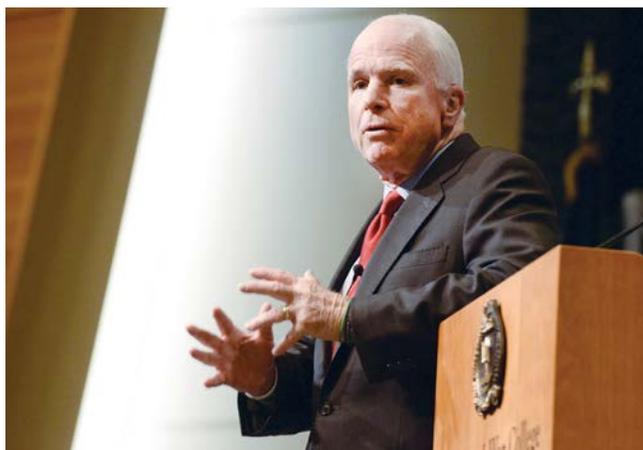
Senate Armed Services Committee chair John McCain (R-Ariz.) said in February that he’d stop the B-21 program in its tracks if the Air Force uses a cost-plus type contract on the program.

“I will not authorize a program that has a cost-plus contract,” McCain told reporters, saying he wants the project to be accomplished at a fixed price.

James, testifying before McCain’s committee, explained that there’s no “one-size-fits-all” type of contracting vehicle—that managers have to use the type that’s most appropriate for the work being done—and in any case, only the development portion of the B-21 program is cost-plus incentive fee. The production phase of the program will be fixed price, she said.

James noted that some fixed-price development projects have proved financially or developmentally disastrous for the military, specifically calling out the Navy’s A-12 attack airplane, USAF’s C-5A airlifter, the Army’s Future Combat System, and the AGM-137 Tri-Service Standoff Attack Missile as prime examples. Generally, she said, inventing technology at a fixed price is not a recipe for success.

The contracting vehicles used on the B-21 were chosen “to capitalize on the advantages” each offers, she told McCain, “while limiting the potential risk for cost growth



Threatening the B-21.

and/or performance issues.” The development phase is worth about 30 percent of the overall program cost, while production is 70 percent, she said.

At the State of the Air Force briefing, service uniformed acquisition chief Lt. Gen. Arnold W. Bunch Jr. explained the subtleties of how the contract vehicle was chosen.

“The way we’ve structured the incentives,” Bunch said, Northrop Grumman will have to hit both performance and schedule marks on time or risk losing substantial amounts of the incentive fees it can collect.

“The schedule incentive is actually the more heavily weighted of the two,” Bunch said. The company’s fees are reduced if it’s late, and milestones downstream won’t be changed.

If Northrop Grumman doesn’t meet performance goals and milestones, “then the incentive fee—or the profit—goes down until it goes to zero,” Bunch explained. “But the next scheduled incentive date, it’s still out there on the calendar, and they have to march to that date. So it is definitely incentivized to meet those criteria, and meet delivery on those capabilities across the whole program.”

A reporter asked why the Air Force should accept any financial risk on the program, noting that Boeing absorbed all the risk with KC-46 development, on which it bid less than the work was actually worth.

Bunch explained that the two programs are “completely different.” The tanker, he said, is “a derivative aircraft off of a commercial line that was already hot. ... They were already producing 767s,” on which the KC-46 is based.

Boeing can adapt its KC-46 work to offer a new variant of the 767, he said, and the KC-46 can be offered for commercial sales or foreign military sales.

With the B-21, “you do not have the possibility of commercial sales ... nor do we anticipate the ability to do foreign military sales,” Bunch said. “You’re building an aircraft that has never been built before and ... integrating, yes, mature technologies” but ones that have to be integrated on a “never before built platform.” Thus, Northrop Grumman has fewer opportunities to earn back any investment losses on the B-21.

“We’re still building a brand-new airplane, so that carries risk,” Bunch said. “Would I equate it to the same risk as a B-2? No. Would I believe the risk is low enough that we would want to go to a fixed price? I wouldn’t. So, it’s somewhere in between.”

USN photo by Chief Mass Comm. Specialist James E. Foehl