



Backgrounder

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F/A-22 Raptor

Boeing is teamed with Lockheed Martin, Pratt & Whitney and the U.S. Air Force to develop the F/A-22 Raptor as a replacement for the F-15. The fast, agile, stealthy F/A-22 will take over the air superiority role with the Air Combat Command starting in 2005. The Air Force has said it requires a minimum of 381 F/A-22s to meet air dominance needs for the future.

The F/A-22 program's outstanding teaming arrangement has allowed unprecedented industry cost-sharing and taken advantage of the different companies' strengths in advanced technology, production capability and systems integration.

Boeing Work

Boeing in Seattle, Wash., builds the Raptor's wings and aft-fuselage, as is responsible for avionics integration and test, 70 percent of mission software, the pilot and maintenance training systems and the life-support and fire-protection systems.

Hardware Deliveries

As of December 2005, Boeing has delivered 57 sets of wings and 63 aft-fuselages to team partner Lockheed Martin for mate with the plane's fuselage in Marietta, Ga. The deliveries include wings and aft-fuselages for eleven test vehicles supporting the program's Engineering and Manufacturing Development phase, eight production representative test vehicles that will be used for operational test, evaluation and tactics development, with the remaining deliveries being for the first production aircraft.

Avionics Integration

Boeing is responsible for avionics integration and test of all software and system components that come in from a number of companies, including Lockheed Martin and subcontractors (Northrop Grumman, Raytheon, TRW and BAE Systems). Boeing has been testing the Raptor's advanced software "blocks" in both its avionics integration lab (AIL), since 1998, and on its 757 Flying Test Bed (FTB) since March 1999. Boeing has completed more than 20,000 hours of avionics testing in the AIL and 1,200 hours in flight on the FTB.

Both the AIL and FTB are helping reduce avionics risks and development costs by enabling extensive evaluation and troubleshooting before full avionics are ever installed on the F/A-22.

Boeing has delivered numerous software blocks to Lockheed Martin for both flight-test and production aircraft. In April 2004 Boeing delivered the final avionics software package necessary for Initial Operational Test & Evaluation (IOT&E) to begin.

Training

Boeing is also under contract to develop and implement the overall F/A-22 training system. The system will be used to train F/A-22 pilots, as well as maintainers of the fleet. The F/A-22 training system comprises three elements: the pilot training system; the maintenance training system; and the training system support center. Training system assets include pilot and maintenance trainers (simulators), instructor-led and student-paced courseware, and electronic classrooms. The multi-media courseware and classrooms exploit the commercial-off-the-shelf leading-edge technology and methods used in the Boeing 777 training program.

The program's training system is uniquely configured to accommodate future technology and mission enhancements, including new aircraft operational flight programs, weapons and tactics additions, and courseware development and presentation tool improvements.

Program Improvements

Boeing is working hand-in-hand with the entire F/A-22 team to help reduce program costs. The company has already implemented numerous improvements in its factory that are directly reducing manufacturing time and costs. Similar improvements are also being made in Boeing labs as well as other work areas.

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