

## F-22A Advanced Tactical Fighter

### Executive Summary

- The Air Force Operational Test and Evaluation Center (AFOTEC) completed FOT&E of F-22A Increment 3.1 Enhanced Global Strike capabilities in November 2011, and fleet-wide Increment 3.1 retrofits of Block 30 F-22As continued throughout FY13.
- F-22A Increment 3.2A developmental testing proceeded throughout FY13 and will continue in FY14. Increment 3.2A is a software-only modernization effort integrating Link 16 Receive, enhanced Combat Identification, and enhanced Electronic Protection (EP) capabilities.
- The F-22A Modernization integrated test construct enabled operational test pilots to fly familiarization, training, regression, and developmental test support missions with F-22As configured with early developmental Increment 3.2A Operational Flight Program (OFP) software releases throughout FY13. This enabled the F-22A Increment 3.2A program to identify problems early in system development and preserve the overall Increment 3.2A developmental test schedule throughout FY13.
- F-22A Modernization Increment 3.2B, a separate Major Defense Acquisition Program, achieved Milestone B in June 2013.

### System

- The F-22A is an air superiority fighter that combines low observability to threat radars, sustained high speed, and integrated avionics sensors.
- Low observability reduces threat capability to engage F-22As with current adversary weapons.
- The aircraft maintains supersonic speeds without the use of an afterburner.
- Avionics that fuse information from the Active Electronically Scanned Array radar, other sensors, and datalinked information for the pilot enable employment of medium- and short-range air-to-air missiles, guns, and air-to-ground munitions.
- The Air Force designed the F-22A to be more reliable and easier to maintain than legacy fighter aircraft.
- F-22A air-to-air weapons are the AIM-120C radar-guided missile, the AIM-9M infrared-guided missile, and the M61A1 20 mm gun.
- F-22A air-to-ground precision strike capability consists of the 1,000-pound Joint Direct Attack Munition and the 250-pound Small Diameter Bomb (SDB) Increment One.
- The F-22A program delivers capability in increments. Incremental Enhanced Global Strike modernization efforts include the following current and projected increments:
  - Increment 3.1 provides enhanced air-to-ground mission capability, to include geo-location of selected emitters, electronic attack, air-to-ground synthetic aperture



radar mapping and designation of surface targets, and SDB integration. Increment 3.1 is currently fielding in operational F-22A units.

- Increment 3.2A is a software-only upgrade intended to provide improved EP, Link 16 Receive, and Combat Identification capabilities in early FY15. Increment 3.2A is a modernization effort within the scope of the F-22A Advanced Tactical Fighter baseline acquisition program of record.
- Increment 3.2B is a separate Major Defense Acquisition Program modernization effort intended to integrate AIM-120D and AIM-9X missile systems and provide additional EP enhancements and improved emitter geo-location capability. Increment 3.2B IOT&E is currently planned for FY17.

### Mission

A unit equipped with the F-22A:

- Provides air superiority over friendly and non-permissive, contested enemy territory
- Defends friendly forces against fighter, bomber, or cruise missile attack
- Escorts friendly air forces into enemy territory
- Provides air-to-ground capability for counter-air, strategic attack, counter-land, and enemy air defense suppression missions

### Major Contractor

Lockheed Martin Aeronautics Company – Fort Worth, Texas

# AIR FORCE PROGRAMS

## Activity

- The Air Force conducted F-22A testing in accordance with the DOT&E-approved Test and Evaluation Master Plan and test plan.
- The Air Force completed F-22A Increment 3.1 FOT&E in November 2011. Fleet-wide Increment 3.1 retrofits of Block 30 F-22As continued throughout FY13.
- F-22A Increment 3.2A developmental testing proceeded throughout FY13 and will continue in FY14. Increment 3.2A FOT&E is scheduled to begin in June 2014.
- F-22 Increment 3.2B achieved Milestone B in June 2013.

## Assessment

The F-22A Increment 3.2A integrated testing construct enabled the program to progress in accordance with the planned FY13 development schedule. Air Combat Command's 53d Wing operational test pilots flew familiarization, training, regression, and developmental test support missions with F-22As configured

with early developmental OFP releases throughout FY13. This effort provided operational testers early insight into capabilities and helped shape development efforts and the scope of testing that will be required to vet system capabilities in the FY14 AFOTEC FOT&E.

## Recommendations

- Status of Previous Recommendations. The Air Force continues to address all previous recommendations.
- FY13 Recommendation.
  1. The Air Force should continue to utilize the integrated testing construct for F-22A Increment development, and should provide increased opportunities, where feasible, for operational test unit pilots to conduct familiarization, training, regression, and developmental flight test support with early OFP releases.