

C-130 Avionics Modernization Program (C-130 AMP)

Executive Summary

- The C130 AMP Integrated Diagnostics System (IDS) and Integrated Maintenance Information System (IMIS) are not fully developed. The lack of a robust IDS and IMIS increases aircraft downtime and adversely impacts sortie generation rate. The Air Force is planning to evaluate system capability in FY10.
- A Milestone C Defense Acquisition Board (DAB) Review was held December 3, 2008, with a requirement to refine the low-rate initial production (LRIP)/production acquisition strategy and costs prior to the final Milestone C DAB.
- Developmental T&E is ongoing beyond the planned completion date of May 2009, and the Air Force Operational Test and Evaluation Center (AFOTEC) completed an update to the first Operational Assessment (OA) in November 2008. The OA update is intended to support the Milestone C DAB.
- The Air Force completed two Integrated System Evaluations to evaluate the Avionics Modernization Program (AMP) modification performance and reliability in the polar region, European airspace, and the Pacific region.

System

- Legacy C-130s (excluding the C-130J) are four-engine turboprop aircraft used by the Air Force, Navy, Marines, and Special Operations units. Crew size varies from four to 13 depending on aircraft mission.
- The AMP adds glass cockpits, integrated digital avionics, and an integrated defensive systems suite. It eliminates the need for a crew navigator on all Combat Delivery missions. The AMP provides new communications, navigation, and surveillance capabilities for Air Traffic Management functions.
- Combat Delivery C-130 AMP aircraft have six pallet positions for cargo.



Mission

- Units equipped with the C-130 primarily perform the tactical portion of the airlift mission, flying shorter distances and using austere airfields within combat zones.
- Combat delivery includes:
 - Airdrop of paratroopers and cargo (palletized, containerized, bulk, and heavy equipment)
 - Airland delivery of passengers, troops, and cargo

Prime Contractor

- The Boeing Company, Integrated Defense Systems, Wichita, Kansas

Activity

- A Milestone C DAB Review was held December 3, 2008, with a requirement to refine the LRIP/production acquisition strategy and costs prior to final Milestone C DAB.
- The third AMP aircraft (AMP 3), based on the C-130H version 3, joined the test fleet at Edwards AFB, California, on January 24, 2009. The AMP 2 aircraft completed flight testing and arrived at Boeing San Antonio, Texas, for modification to make it production representative. The AMP 1 aircraft is out of flight test and in San Antonio, Texas, for retrofit.
- In developmental testing, the integrated test team completed approximately 91 percent of 2,800 test points. The AMP aircraft have flown with production hardware since August 2008 and have successfully completed systems-level electromagnetic compatibility testing, chemical and biological testing, and environmental testing.
- AFOTEC completed an update to the first OA in November 2008 to support the Milestone C DAB. A second OA was scheduled for September and October 2009 in

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support of the In-Process Review anticipated in March 2010. However, AFOTEC has postponed the second OA until a final decision is made concerning program funding in the FY10 budget and beyond.

- The Air Force completed two Integrated System Evaluations to evaluate the AMP modification in the polar region, European airspace, and the Pacific and International Dateline region.
- Testing for the IDS and IMIS and interfaces is anticipated to begin November 2009.
- Developmental testing has been delayed and is now anticipated to be complete in FY10. The remaining developmental test events will be used to evaluate a software update that improves defensive systems, Station Keeping Equipment, and the flight management system.

Assessment

- The operational test will include a minimum of four production-representative aircraft with at least two of those being LRIP aircraft. This supports testing of the formation flight requirement.
- The transfer of data from the mission planning system to the aircraft does not function per the Air Force requirement. If

not resolved, this problem will limit the effectiveness of the C-130 AMP aircraft and crews to perform the combat delivery mission.

- The current program schedule does not appear to provide sufficient time to adequately assess the IDS and IMIS.
- The mission computer software is adversely affecting reliability and performance, but problems with the software are being addressed.

Recommendations

- Status of Previous Recommendations. The Air Force has not addressed two of the three FY08 recommendations; however, the Air Force has implemented a program to track and predict the C-130 AMP progression toward the reliability requirement for Mean Time Between Failure of 12.4 hours.
- FY09 Recommendation.
 1. The Air Force should allocate adequate time in the program schedule to test the complete IDS and IMIS prior to the start of IOT&E.