

C-130J

Executive Summary

- The C-130J is in production with periodic Block Upgrades to correct deficiencies and to provide capability enhancements.
- Improvements to the Station Keeping Equipment (SKE), verified in a second FOT&E, now enable the C-130J to perform formation airdrop missions in instrument meteorological conditions (IMC), correcting an effectiveness shortfall from the C-130J IOT&E in 2005.
- The Air Force conducted FOT&E of the Data Transfer and Diagnostics System (DTADS), which will replace the legacy computerized maintenance system, in order to correct suitability shortfalls from the IOT&E.
- The Air Force is correcting some deficiencies and adding new capabilities in the Block Upgrade 7.0. Delivery of the upgrade has continued to experience delays, now estimated to occur by 2QFY13. The Air Force has not funded subsequent deployment of Block Upgrade 7.0 to the fleet, and operational testing of the upgrade in FY13 remains undefined. This deferment affects several mission design series of the C-130J operated by the Air Force, Navy, and Coast Guard.

System

- The C-130J is a medium-sized four-engine turboprop tactical transport aircraft.
- Compared to previous models, the cockpit crew requirement is reduced from four to two on the J model; loadmaster requirements vary (one or two), depending on mission need.
- Compared to legacy models, the C-130J has approximately 70 percent new development. Enhancements unique to the C-130J include a glass cockpit and digital avionics, advanced integrated diagnostics, a new propulsion system, improved defensive systems, and an enhanced cargo handling system.
- The C-130J has two different lengths denoted as a long and a short body. The long body carries eight standard pallets; the short carries six.



Mission

- Combatant Commanders use the C-130J within a theater of operations for combat delivery missions which include:
 - Airdrop of paratroopers and cargo (palletized, containerized, bulk, and heavy equipment)
 - Airland delivery of passengers, troops, and cargo
 - Emergency aeromedical evacuations
- Combat Delivery units operate in all weather conditions, use night-vision lighting systems, and may be required to operate globally in civil-controlled airspace.

Major Contractor

Lockheed Martin Aeronautics Corporation – Fort Worth, Texas

Activity

- The Air Force is correcting deficiencies found in both developmental and operational testing and adding new capabilities in the Block Upgrade 7.0. Block Upgrade 7.0 continues to experience delays, with government developmental test and evaluation now expected to be complete by 2QFY13. The Air Force is deferring some deficiencies originally planned for correction in Block Upgrade 7.0 to Block Upgrade 8.1. The Air Force has not funded the deployment of Block Upgrade 7.0, which will likely become the technical baseline for the development of Block Upgrade 8.1. The Air Force has not fully defined plans

for operational testing of Block Upgrade 7.0 and may limit operational testing to an operational assessment of limited capability enhancements in 3QFY13.

- The Air Force conducted FOT&E of the DTADS in October and November 2011 in accordance with the DOT&E-approved test plan. DTADS will replace the current computerized maintenance system (the integrated diagnostics system interface and Portable Maintenance Aid) that had suitability shortfalls during the C-130J IOT&E. DOT&E released a report on the DTADS FOT&E in October 2012.

AIR FORCE PROGRAMS

- The Air Force conducted a second FOT&E of the SKE software enhancement from January to March 2012 in accordance with the DOT&E-approved test plan. DOT&E released reports on the first FOT&E in February 2012 and the second FOT&E in October 2012.

Assessment

- The Air Force decision not to deploy Block Upgrade 7.0 will affect all mission design series C-130J aircraft, including Air Force EC-, HC-, MC-, and WC-130J; Navy KC-130J; and Coast Guard HC-130J. Some future aircraft acquisitions that planned to incorporate Block Upgrade 7.0 modifications in the production line will have to be re-planned as kit installations at an increased cost and decreased aircraft availability.
- DTADS represents a significant improvement over the legacy maintenance support system in terms of usability, portability, diagnostic capability, and organic maintainability. Information Assurance shortfalls remain, particularly concerning the Windows XP® operating system used by DTADS and the procedures for handling potentially classified digital flight data recorder information. The Air Force cannot connect DTADS to government computer networks without a required Windows 7® update.

- The SKE has demonstrated significant improvement in successfully enabling formation flight in IMC, and some improvement in reliability. However, shortfalls remain in the troubleshooting and repair of SKE faults. The Air Force restricts formation flight in IMC to formations of only C-130J aircraft, limiting interoperability with legacy C-130 models.

Recommendations

- Status of Previous Recommendations. The Air Force has made sufficient progress in addressing the FY11 recommendation to correct deficiencies in formation flying that will enable the SKE capability release. However, maintainability shortfalls remain in the troubleshooting and repair of SKE faults.
- FY12 Recommendations. The Air Force should:
 1. Correct remaining deficiencies in the technical data concerning the operation, fault isolation, and repair of the SKE system.
 2. Finalize plans for FY13 operational testing of Block Upgrade 7.0 and communicate them to DOT&E.
 3. Ensure adequate training and protocols are established for managing classified media associated with DTADS and digital flight data recorder downloads.