

C-130J Aircraft

Executive Summary

- The C-130J is in production with periodic Block Upgrades to correct deficiencies and to provide capability enhancements.
- The C-130J is effective in performing single ship airland and airdrop missions in a permissive threat environment.
- The C-130J is not effective in performing formation airdrop missions in Instrument Meteorological Conditions where the use of Station Keeping Equipment (SKE) is required.
- The C-130J is not effective for worldwide operations in a non-permissive threat environment.
- The C-130J is not meeting user suitability requirements due to maintainability issues.
- The Air Force is correcting some IOT&E deficiencies and adding new capabilities in the Block Upgrade 7.0. The Air Force scheduled the OT&E for 2011.
- DOT&E completed the C-130J Vulnerability Assessment report.

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 that include the following:
 - 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.

Prime Contractor

- Lockheed Martin Aeronautics Company, Marietta, Georgia

Activity

- The Air Force Flight Test Center (AFFTC) satisfactorily completed testing on the Secure Enroute Communications Package – Intelligence in 1QFY09 and recommended its release for fleet operations.
- AFFTC completed testing on the SKE Software Enhancement formation positioning system at Little Rock AFB, Arkansas, and Edwards AFB, California, in 3QFY09 with C-130J aircraft flying in formation with legacy C-130H model aircraft. The Air Force Operational Test and Evaluation Center (AFOTEC) will conduct FOT&E on the Formation Positioning System in January 2010.
- The Air Force completed system-level OT&E of the Modular Airborne Fire Fighting System on a C-130J model aircraft.

The 146th Airlift Wing at Channel Islands, California, released the system for operational use in 2QFY09.

- The Air Force is correcting some IOT&E deficiencies and adding new capabilities in the Block Upgrade 7.0. The Air Force scheduled the OT&E for 2011.
- The Air Force is updating the Test and Evaluation Master Plan to encompass the Block Upgrade 7.0 and Formation Flight System testing.
- DOT&E completed the C-130J Vulnerability Assessment report. The report summarizes the results of the Air Force C-130J vulnerability reduction program.

Assessment

- The Block Upgrade 6.0 did not correct the SKE anomalies previously observed during Phase 2 OT&E. Employing the Traffic Alert and Collision Avoidance System as an overlay to the SKE display provides the aircrew with additional situational awareness during formation flight operations. However, it does not permit aircraft formation flight operations in Instrument Meteorological Conditions.
- The C-130J is not effective in formation airdrop operations in Instrument Meteorological Conditions. The system cannot be evaluated to assess the full capability of the modification until AFOTEC completes FOT&E on the SKE Software Enhancement scheduled for January 2010.
- The Data Transfer and Diagnostic System is designed to replace the integrated diagnostics system interface and Portable Maintenance Aid, which contributed to not meeting suitability (maintainability) requirements in Phase 2 OT&E. The system is slated for contractor and governmental testing in 3QFY10. The assessment of limited suitability is unchanged.
- The C-130J is not effective for worldwide operations in a non-permissive threat environment.
 - The AAR-47 infrared missile/laser warning system is operationally effective as installed on the C-130J but has one significant classified limitation.
 - The ALR-56M radar warning receiver completed developmental and operational testing in FY08. Results from FOT&E demonstrated the ALR-56M on the C-130J was effective and suitable. The ALR-56M enhances the C-130J mission capability, but the overall partial mission capable rating documented in the Air Force Phase 2 OT&E Report is unchanged.
- Live Fire testing showed the following:
 - Dry bay fire suppression systems did not suppress threat induced fires from one of the threats tested.
 - The composite propeller blade vulnerability to threats tested is low.
 - The C-130J vulnerability to man-portable air defense systems is low.
 - The C-130J is vulnerable to hydrodynamic ram (structural loads caused by threat projectile detonation within fuel inside fuel tanks) from threat projectile impact.
 - The engine nacelle fire extinguishing system is highly effective against the threats tested.

Recommendations

- Status of Previous Recommendations. The Air Force has taken adequate action on the previous recommendations.
- FY09 Recommendations. None.