



The Joint Cargo Aircraft (JCA)—Transfer of an Acquisition Category (ACAT) 1D Program to the U.S. Air Force (USAF)

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JCA is an excellent example of a successful joint acquisition program. An acquisition category (ACAT) 1D Major Defense Acquisition Program, JCA fills a critical tactical airlift capability gap. It will provide time-sensitive/mission-critical (TS/MC) delivery of equipment, personnel, and supplies across the last tactical mile to military forces on the battlefield. JCA was an Army-led joint program meeting all expectations for cost, schedule, and performance. With the delivery of the first two C-27J Spartans, the Army and USAF began training, testing, and preparing to rapidly field this much-needed capability in the fall of 2010. However, in the spring of 2009, the Secretary of Defense directed the program to be transferred to the USAF. This is the success story of the JCA and actions conducted in the ongoing transfer to the USAF.

The C-27J Spartan will provide TS/MC delivery of equipment, personnel, and supplies across the last tactical mile to military forces on the battlefield. (Photo courtesy of the Aviation Systems Project Office.)

JCA Joint Program Office (JPO)

In December 2005, Program Decision Memorandum III directed the Army to lead the JCA program, which merged the USAF Light Cargo Aircraft with the Army Future Cargo Aircraft. The Army and USAF Vice Chiefs of Staff (VCSs) signed a Memorandum of Agreement (MOA) in June 2006, paving the way ahead for the convergence of these two programs. In October 2006, the JCA JPO stood up at Redstone Arsenal, AL, with an Army Product Director and a USAF Deputy.

In June 2007, L-3 Integrated Systems was awarded a 5-year, firm-fixed-price requirements contract. The contract was designed to accommodate the Army-validated requirement for 78 aircraft (54 for the Army and 24 for USAF), plus potential international sales.

Since contract award, the JCA has been a model ACAT 1D joint program that is meeting its cost, schedule, and performance goals today. This exemplary performance earned the JPO the 2008 Defense Acquisition Executive's Certificate of Achievement, which highlighted the obligation of more than \$400 million for 13 aircraft, engineering services, bed-down and phase-in, aircrew training, and interim

contractor support. To date, three JCAs have been delivered. The program took delivery of JCA 1 and JCA 2 in September and November 2008. This was both a critical and an impressive feat, considering that the program was delayed 90 days due to protest. The accelerated deliveries of these two aircraft were critical to keeping the program on schedule, as they were required to begin aircrew training and airworthiness flight testing.

Training and Testing

Training of the first class of pilots and loadmasters began in November 2008. JCA training is a 14-week, contractor-led course conducted to Army standards and governed by Army regulations. The JPO split the eight pilot seats in Class 1 into four seats each for Class 1A and Class 1B. Class 1A was designed to produce qualified test pilots to take the program through production qualification testing (PQT). It consisted of three pilots from the U.S. Army Test and Evaluation Command's Development

Test Command Aviation Flight Test Directorate and one USAF Operational Test representative assigned to the JPO. Class 1A allowed the contractor to gain experience in instruction while allowing the government's test pilots to obtain aircraft proficiency, knowledge, and experience. Class 1B was designed to produce pilots who could evaluate the contractor flight training. Class 1B consisted of four Army aviators and loadmasters who possessed fixed-wing instructor and combat experience. Class 1B validated the training for Class 2, in which pilots and loadmasters will conduct the program's Multiservice Operational Test and Evaluation (MOT&E) and subsequently deploy with the first JCA unit. Instruction for Class 2 began Nov. 30, 2009, and is composed of two Army and two USAF crews.

PQT commenced in earnest with the graduation of the aircrews from Class 1A. Before their graduation, electromagnetic environmental effects (E3) ground testing was successfully



A C-27J Spartan flies over Monument Valley, UT. (Photo courtesy of the Aviation Systems Project Office.)

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conducted at the Naval Air Systems Command Patuxent River, MD, facility. With the conclusion of E3 tests and the arrival of aircrews, flight test began with airdrops at Yuma Proving Ground, AZ. This PQT was followed with testing for aircraft survivability at the U.S. Navy's (USN's) China Lake facility, CA, and the USAF's Eglin test ranges, FL. Aircraft Survivability Equipment (ASE) testing efforts also involved the use of F-18D/Tiger pods, infrared models, threat signal processor in the loop, modeling and simulation (M&S) flare solution development, and chaff and preemptive flare solution.

PQT also validates the C-27J's six key performance parameters:

- Unimproved runway takeoff and landing.
- Self-deployment.
- Transloadability.
- Survivability.
- Force protection.
- Net readiness.

In addition, the program has also undergone a Live Fire Test and Evaluation (LFT&E) to determine the C-27J's survivability (susceptibility and vulnerability) against ballistic and advanced threats. In particular, LFT&E consisted of completing "hardware" testing on nine components/subsystems and completing two complex ballistic vulnerability analyses. To ensure LFT&E Title X compliance before the C-27J's Full-Rate Production (FRP) decision, the program office mitigated scheduled risk by concurrently employing major ranges and test facility bases (MRTFBs) of each service. A significant LFT&E accomplishment was achieved the week

of May 18, 2009, when five separate JCA LFT&E ballistic test events were simultaneously completed at Army, USAF, and USN MRTFBs. In addition to live-fire testing, the JPO also used design analyses, M&S, and analysis to determine aircraft survivability given existing combat data. Again, DOD has cited the program as a model example on how to conduct a comprehensive LFT&E.

Testing will conclude in 2010 when MOT&E ends. MOT&E will assess operational effectiveness, suitability, and survivability. The Army's Operational Test Command will serve as the Operational Test Agency with support from the USAF Operational Test and Evaluation Center. This joint test team will evaluate the Army and USAF aircrews from Training Class 2.

Besides training and testing, the program office is also responsible for ensuring that the C-27J obtains a Federal Aviation Administration (FAA) Type Certificate (TC) along with a military airworthiness certificate for its peculiar mission equipment (PME), which includes ASE, public service radio, blue force tracker, secure voice communications, ARC-210 satellite communication radios, and ballistic protection armor. The U.S. Army Aviation Engineering Directorate will issue a Fielding Airworthiness Release based on the FAA's issuance of a TC

and its engineering review of PME substantiating data and test reports.

Joint Cooperation

In April 2009, Resource Management Decision (RMD) 802 changed the program's direction when it mandated reduction of the procurement quantity from 78 to 38, and transfer of both the program and the direct support airlift mission it supports from the Army to the USAF. The direction to take an ACAT 1D program in the middle of its qualification testing, Army-based training, and Low-Rate Initial Production (LRIP) phase and transfer it to another service was unprecedented. Though disappointed over the loss of the program, the Army did not let this deter its support of the acquisition program. Within weeks, the Army met with its USAF counterparts, who agreed to let the Army continue to execute the program until the FRP decision to ensure uninterrupted program execution and delivery of capability to the field in 2010.

Joint briefings by the Department of the Army and USAF's Air Mobility Command to the Joint Capabilities Board, the Joint Chiefs of Staff, and Deputy's Advisory Working Group following RMD 802 cemented the path forward and the activities required. In September 2009, the VCSs for the USAF and Army signed an MOA,



The Aviation Flight Test Directorate Survivability Equipment Joint Test Team is pictured with a C-27J Spartan. (Photo courtesy of the Aviation Flight Test Directorate.)

approving a Direct Support Concept of Employment and the USAF Direct Support of Army TS/MC effective date. The USAF is currently using a C-130, directly supporting an Army Combat Aviation Brigade as a proof of concept.

With a year to go to FRP, the Army program office is in the throes of completing PQT and beginning MOT&E. Preparations for determining the long-term sustainment strategy are at high pitch. Transition has begun with USAF program office personnel increasing while the Army office downsizes. With the signing of the FY10 Defense Bills into law, program authority and funding now resides with the USAF. Army leadership continues to ensure the schedule for test and training is not interrupted and momentum for completion is maintained.

After receipt of RMD 802, the JPO began planning activities to seamlessly transition the program from an Army-led joint effort to a single-service USAF one. The purpose of the transition plan is to document, coordinate, and approve assumptions, critical tasks, and organizational responsibilities, and target timelines and events for the transition of the C-27J program. This is an event-driven process. The objective of the plan is to minimize disruption and mitigate risk by defining and coordinating critical transition tasks and timelines between gaining and losing acquisition organizations. The primary approach to preventing disruption and reducing risk is to minimize change. The secondary approach is to transition gradually with temporarily overlapping organizations. This allows new program leaders to

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The Aviation Flight Test Directorate conducts an ASE test. (Photo courtesy of the Aviation Systems Project Office.)

develop a required understanding of current program operations before being charged with daily execution and decision-making responsibility. The Army and USAF have proceeded successfully with transition activities to date, cross-walking information, jointly producing documentation, and deciding fiscal, schedule, and business issues with the C27J Program Office, Air Mobility Command, and the Air National Guard.

The unprecedented success of this major acquisition program is a testament to the professionalism of the JCA JPO. After nearly 4 years, the program remains on cost, schedule, and performance. Innovative acquisition execution strategies and precise execution across the joint services are models for other programs to emulate. The end result of a highly capable cargo aircraft that fills

the requirement to provide dedicated support to the last tactical mile is both valid and an operational necessity, and will be executed by the USAF.

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