



## CRS Report for Congress

# Military Airlift: The Joint Cargo Aircraft Program

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### Summary

Joint Cargo Aircraft (JCA) is a joint acquisition program between the Army and Air Force designed to procure a commercial off-the-shelf aircraft, capable of meeting Army requirements for “direct support” to maneuver units and Air Force requirements for “common-user” intra-theater airlift. The C-27J *Spartan* has already won the JCA competition. Issues for Congress include requirements and service “roles and missions.”

### Background

The Joint Cargo Aircraft (JCA) is a small, intra-theater aircraft being procured by the Army and Air Force. Small tactical airlifters have filled niche roles for the Department of Defense (DOD) over the past several decades, although their ownership has often been contentious. When the Vietnam War started, the Air Force flew C-123 *Providers* while the Army used C-7 *Caribous* to resupply austere forward-operating locations conducting counterinsurgency operations.<sup>1</sup> A source of inter-service tension, C-7 ownership transferred to the Air Force in 1966 as part of an agreement between the Army and Air Force, but continued to fly attached to Army units.<sup>2</sup> With funding scarce after Vietnam, the Air Force retired both the C-7 and C-123 without replacement.

DOD has also used small tactical airlifters to transport time-sensitive cargo. In the 1980s, the Air Force bought 18 C-23 *Sherpas* to move supplies between European bases. After the Cold War, six *Sherpas* were transferred to the Army before more were acquired and assigned mostly to Army National Guard units.<sup>3</sup> In 1991, the Air Force purchased 10 C-27A *Spartans* for operations around Howard AFB, Panama, but these aircraft were

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<sup>1</sup> Lt. Col. Charles E. Miller (USAF), *Airlift Doctrine*, AU Press, Maxwell AFB, AL, 1988, p. 311.

<sup>2</sup> Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1961-1984*, vol. II, AU Press, Maxwell AFB, AL, 1989, p. 313.

<sup>3</sup> Jane's Aircraft Upgrades, Shorts C-23 Sherpa, November 9, 2007, online.

retired in 1999 after the base closed.<sup>4</sup> Today, some believe large Joint Operating Areas within Iraq and Afghanistan have stressed Army transport helicopters, amplified weaknesses of the *Sherpa* fleet the Army inherited, and exposed a capability gap within DOD. Also, many foresee a persistent need for small tactical airlifters for homeland defense and disaster relief. **Table 1** summarizes characteristics for some tactical transport aircraft.

**Table 1. Comparison of Fixed-Wing and Helicopter Transports**

| Aircraft | Army Inventory | Max Payload (lbs.) | Passengers | Range w/ Max Payload (NM) | Service Ceiling (ft.) | Speed (knots) |
|----------|----------------|--------------------|------------|---------------------------|-----------------------|---------------|
| C-7      | —              | 8,740              | 32         | 210                       | 24,800                | 188           |
| C-23     | 47             | 7,280              | 30         | 446                       | 20,000                | 194           |
| C-27J    | —              | 18,739             | 46         | 1,160                     | 30,000                | 315           |
| CH-47D   | 395            | 19,500             | 33-55      | 230                       | 18,000                | 143           |

**Sources:** *Jane's All the World's Aircraft* and *World Armies* on-line; Teal Group; and U.S. Army Fact Files.

**Note:** C-27J has max. payload of 25,353 lbs. in non-tactical environment.

In 2004, the DOD began to consider options to meet Army requirements for intra-theater airlift.<sup>5</sup> The Army's Future Cargo Aircraft (FCA) program gained DOD approval in March 2005 with plans for an initial purchase of 33 FCAs. FCA was intended to replace aging C-23s, C-26 *Metroliners*, and some C-12 *Hurons*;<sup>6</sup> reduce reliance on ground convoys in Iraq and Afghanistan; and decrease the heavy workload of the Army's CH-47 *Chinook* helicopters.<sup>7</sup> A rift over FCA between the Army and Air Force began to surface in 2005. For example, former Air Force Chief of Staff, General John Jumper, replied to a reporter's FCA question stating, "you don't need to go out and buy yourself an Air Force — we've got one."<sup>8</sup> In September 2005, the Air Force expressed interest in developing a small intra-theater airlifter of its own — the Light Cargo Aircraft (LCA). Air Force interest continued in 2006 with officials expecting to need 100-150 LCAs.<sup>9</sup>

In December 2006, DOD took advantage of the similarities between the FCA and LCA programs and merged them into the Joint Cargo Aircraft (JCA) program with the Army designated as lead. In June 2006, the Army and Air Force Vice Chiefs of Staff

<sup>4</sup> Richard Aboulafia, Alenia/Lockheed Martin G.222/C-27/JCA, *World Military and Civil Aircraft Briefing*, July 2007.

<sup>5</sup> Cynthia Di Pasquale, "Airlift Mission Toss-up: Joint Staff Considers Air Force, Army Roles in Intra-theater Airlift," *Inside the Air Force*, October 29, 2004, p. 1.

<sup>6</sup> Primarily passenger carriers, Army plans to replace C-26s and some C-12s are an attempt to transition to a more cargo-centric capable fixed wing fleet.

<sup>7</sup> Ashley Roque, "Army Seeking Information for Off-the-Shelf Future Cargo Aircraft," *Inside the Army*, April 25, 2005.

<sup>8</sup> John T. Bennett, "USAF Chief: Small Fixed-Wing Aircraft Needed for Intra-Theater Lift," *Inside the Air Force*, September 2, 2005, p. 2.

<sup>9</sup> John T. Bennett, "AFSOC Could Operate up to 40 Joint Cargo Aircraft Commander Says," *Inside the Air Force*, September 2, 2005, p. 1.

signed a Memorandum of Agreement (MOA) establishing a “way ahead” for determining command and control (C2), sustainment, training, and acquisition strategies for the JCA.<sup>10</sup> Industry competed four aircraft for the JCA contract:

- L-3 Communications, Alenia Aeronautica, and Boeing offered the C-27J.
- Raytheon and European Aeronautic Defence and Space (EADS) Company’s CASA North America proposed the C-295 and CN-235.
- Lockheed Martin competed the C-130J.<sup>11</sup>

In November 2006, after the C-130J was eliminated from competition for failing to meet required navigational capabilities, Lockheed Martin protested the decision. Likewise, when the C-27J won the JCA competition in June 2007, Raytheon contested DOD’s evaluation of competing aircraft. The Government Accountability Office denied both protests,<sup>12</sup> and subsequently L-3 Communications was awarded a \$2.04 billion firm-fixed price contract to build up to 78 C-27Js (54 Army, 24 Air Force).<sup>13</sup>

**Congressional Action.** In FY2006, the President requested \$4.9 million for JCA lead procurement, and both authorizers (P.L. 109-148) and appropriators (P.L. 109-163) fully supported the request. In FY2007, the President requested \$109.2 million for Army procurement and \$15.8 million for Air Force procurement. Congressional authorizers supported the request but transferred procurement funding to the Air Force’s account (P.L. 109-364). Appropriators cut funding for Army JCA to \$72.2 million and transferred Air Force procurement dollars into the Air Force’s Research, Development, Testing and Evaluation (RDT&E) account (P.L. 109-289). Echoing comments from the 2007 Defense Authorization Bill, Senate appropriators expressed a desire for additional analyses of intra-theater airlift requirements.<sup>14</sup> In FY2008, the President’s JCA request included \$157 million for Army procurement and \$42.3 million for Air Force RDT&E. In 2008, House authorizers supported the request but stipulated that DOD could not obligate funds until requirements analysis is complete.<sup>15</sup> Senate authorizers also supported the funding request, but transferred funds from the Army into the Air Force’s procurement account and questioned the Army’s need for an organic fixed-wing airlift fleet stating,

A pattern of the joint forces air component commander (JFACC) providing support that did not match the priorities of the joint forces land component commander (JFLCC), would certainly argue for intervention of the joint forces commander to

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<sup>10</sup> Gen. Richard A. Cody (USA) and Gen. John W. Corley (USAF), Memorandum of Agreement, “Way Ahead for the Convergence of the Army Future Cargo Aircraft (FCA) and the Air Force Light Cargo Aircraft (LCA) Programs,” June 20, 2006.

<sup>11</sup> Martin Matishak, “AFMC Chief: Army, Air Force Reach Accord on Technical Data for JCA,” *Inside the Army*, July 3, 2006, p. 2.

<sup>12</sup> Government Accountability Office (GAO), Report B-298626, November 21, 2006, p. 1, and GAO Reports B-298626.2, B298626.3, September 27, 2007, p. 14.

<sup>13</sup> DOD Press Release, No. 737-07, June 13, 2007.

<sup>14</sup> S.Rept. 109-292, DOD Appropriations Bill, FY2007.

<sup>15</sup> H.Rept. 110-146, National Defense Authorization Act for FY2008, p. 142.

correct the situation. It would not be a persuasive argument that the JFLCC should have his own air force.<sup>16</sup>

The 2008 Defense Authorization Act restored Army procurement funds, but directed DOD to conduct a roles and missions review (P.L. 110-181). Appropriators supported the President's request for procurement but, cut \$21.3 million from RDT&E as an "unjustified request" (P.L. 110-116). For FY2009, the Administration requested \$264.2 million to procure seven C-27Js for the Army, \$5.4 million for advanced procurement for the Air Force, \$3 million for Army RDT&E, and \$26.8 million for Air Force RDT&E.<sup>17</sup>

## Requirements

In 2007, Rand analysts suggested the optimal airlift fleet should be structured to meet "the most serious threats to vital national interest ... consists of several types of aircraft" with a "variety of operational characteristics," and avoid specialization that "jeopardizes the ability of the overall force to perform its most critical missions."<sup>18</sup> Most agree that C-27Js can improve the overall airlift system by offering planners an efficient means of moving small cargo loads and by increasing DOD's capability to reach shorter, austere airstrips often present during counterinsurgency operations. However, some question whether the JCA will fill a critical and unique need within DOD and, if so, question how many are needed.

JCA critics often state that DOD has sufficient options for tactical airlift. Some suggest the Air Force could have a more versatile system by diverting funds planned for JCA into procuring larger tactical airlift models such as C-130s and C-17s.<sup>19</sup> Some assert that the Army's helicopter modernization program will require a 50% larger budget between 2007-2030 compared with 1986-2005 and suggest the Army could better use JCA dollars by modernizing its helicopter fleet.<sup>20</sup> Advocates may counter that as major airlines operate commuter fleets into small markets to save money, the Air Force could potentially save money by operating the JCA on missions that do not require the capacity of C-130s and C-17s. In this view, the Army may realize savings by flying C-27Js on missions where its combination of speed, range, and ceiling are more efficient than the *Chinook*. Advocates might argue that savings garnered from potential efficiencies could be redirected to other DOD programs.

How many C-27Js will be required is not clear, but multiple DOD studies are planned to establish JCA requirements. Two completed studies looked at DOD's tactical airlift requirements; however, the 2005 Mobility Capability Study (MCS 05) did not

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<sup>16</sup> S.Rept. 110-77, National Defense Authorization Act for FY2008, pp. 393-394.

<sup>17</sup> *FY 2009 Budget Request Summary Justification*, Department of Defense, February 4, 2008, p.163, on-line at [<http://www.defenselink.mil/comptroller/budget.html>].

<sup>18</sup> Robert C. Owen and Karl P. Mueller, *Airlift Capabilities for Future U.S. Counterinsurgency Operations*, Rand Corporation, 2007, pp. 35-39.

<sup>19</sup> Issue Brief, "Joint Cargo Aircraft: Is This Program Necessary?" Lexington Institute, May 3, 2006.

<sup>20</sup> Congressional Budget Office Paper, *Modernizing the Army's Rotary-Wing Aviation Fleet*, November 2007, p. vii.

consider the impact of the JCA, nor did its follow-on Intratheater Lift Capabilities Study identify requirements for service-organic airlift. To address requirements for service-organic sustainment, DOD completed the Joint Intra Theater Distribution Analysis, but the results are classified. Further, the Army completed the JCA Analysis of Alternatives Addendum, which validated a program baseline of up to 75 aircraft. In addition, Rand Corporation is conducting an Intratheater Airlift Force Mix Analysis to determine the optimum composition of the Air Force's intra-theater airlift fleet.<sup>21</sup>

## Service Roles and Missions

Some in Congress have questioned the merit of splitting tactical airlift between the Army and Air Force, while others have expressed strong support for DOD's plan. According to the JCA MOA, the Army will operate C-27Js in the "service-organic" role, while the Air Force will use C-27Js for "common-user" lift.<sup>22</sup>

**Service-Organic Airlift.** Also referred to as "direct support," the Army plans to use JCA for "on-demand transport of time-sensitive/mission-critical cargo and key personnel to forward deployed Army units operating in a Joint Operations Area."<sup>23</sup> Joint doctrine allows each service component to maintain a small fleet of aircraft to meet service-specific needs.<sup>24</sup> For example, the Navy operates a small fleet of C-2 *Greyhounds* that transport passengers and supplies to and from aircraft carriers. Further, the Navy and Marine Corps operate small fleets of C-130s to meet service-specific transportation and air refueling requirements. In short, the role of service-organic airlift is to provide on-call response directly to the tactical needs of commanders.

**Common-User Lift.** Also referred to as "general support," DOD defines common-user airlift as "the airlift service provided on a common basis for all DOD agencies and, as authorized, for other agencies of the U.S. Government" and assigns mission responsibility to U.S. Transportation Command.<sup>25</sup> Further, the Air Force is responsible for organizing, training, and equipping to perform intra-theater airlift for DOD. The role of common-user airlift is to allocate available airlift to all users in accordance with the Joint Force Commander's (JFC's) priorities to ensure joint objectives are achieved as efficiently as possible. Whereas the roles of service-organic and common-user airlift differ, the missions both perform (passenger and cargo movement, combat employment and sustainment, etc.) are essentially the same.<sup>26</sup>

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<sup>21</sup> Background Paper on Mobility Airlift Studies, AF/A5RM, October 2, 2007.

<sup>22</sup> Gen. Richard A. Cody (USA) and Gen. John W. Corley (USAF), Memorandum of Agreement, "Way Ahead for the Convergence of the Army Future Cargo Aircraft (FCA) and the Air Force Light Cargo Aircraft (LCA) Programs," June 20, 2006, pp. 2-3.

<sup>23</sup> *Ibid.*, p. 2.

<sup>24</sup> Joint Publication 1-02: DOD Dictionary of Military and Associated Terms, April 12, 2001, as amended through October 17, 2007, p. 488.

<sup>25</sup> *Ibid.*, p. 106.

<sup>26</sup> Joint Publication 3-17: Joint Doctrine and Joint Tactics, Techniques and Procedures for Air Mobility Operations, August 14, 2002, p. ix.

**Roles and Missions Debate.** Historically, the Army has argued for ownership of a small fleet of tactical airlifters. Field commanders often believe they need the responsiveness that “direct support” airlift provides to counter unforeseen contingencies. Some criticize this approach as inefficiently creating “two air forces.” Others believe the JCA simply maintains the status quo in roles and missions. For example, most believe that “direct support” Army transport helicopters, performing time-sensitive or mission-critical movement of passengers and cargo, create a battlefield synergy between efficiency and effectiveness in conducting the joint fight. Further, some point out that the Army is responsible for sustaining soldiers within their respective Joint Operating Areas. Thus, some believe the Army should be able to procure and use the most efficient vehicles (truck, MRAP, helicopter, C-27J) to perform this task. Split-buy proponents also point out that Army C-27Js would be made available to the common-user airlift pool when not needed in their “direct support” role.<sup>27</sup> However, it is not yet clear that the Army is committed to obtaining the necessary command and control systems architecture already resident within the Air Force to ensure that Army C-27Js available for “general support” are both visible and taskable by the JFC.

Is Army service-organic “direct support” tactical airlift still necessary to effectively support ground commanders? Advocates of placing all JCAs into the Air Force may point out that presently a JFC can apportion tactical airlift into a “direct support” role if needed. In 2003, the Air Force retired its service-organic C-9 *Nightingale* medical evacuation fleet and moved completely to a “common user” system. When patients are ready for transport to a stateside medical facility, nearly any air mobility aircraft can be tasked to perform the mission. Air Force officials tout this change as having accelerated patient movement to stateside facilities by 300%.<sup>28</sup> Some believe relating the C-9 to the JCA is an “apples-to-oranges” comparison. Those that hold this view assert that the C-9, although a service-organic airlift asset, was used in the “general support” role while performing joint aeromedical evacuation, rather than the “direct support” role the Army envisions for the JCA. They question: would the Air Force further be able to replicate the efficiencies and effectiveness illustrated in the aeromedical evacuation example for time-sensitive force sustainment and passenger/cargo movement intra-theater airlift missions? Would Army field commanders benefit from having a nearly all common-user airlift aircraft available to their support time-sensitive, mission-critical requirements?

Some may question the Air Force’s long-term commitment to the “direct support” role, pointing out the Air Force has retired its last four small tactical airlift aircraft without replacement. When asked about his preference in the JCA debate, Gen. Norton Schwartz, Commander of U.S. Transportation Command, questioned whether the Air Force was willing to support the Army in the manner the Army wants to be supported. For example, he asked, is the Air Force willing to attach tactical airlifters to an Army brigade commander when required?<sup>29</sup>

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<sup>27</sup> Gen. Richard A. Cody (USA) and Gen. John W. Corley (USAF), Memorandum of Agreement, “Way Ahead for the Convergence of the Army Future Cargo Aircraft (FCA) and the Air Force Light Cargo Aircraft (LCA) Programs,” June 20, 2006, pp. 2-3.

<sup>28</sup> Gen. Duncan J. McNabb (USAF), letter to Sen. Carl Levin, October 18, 2007, p. 3. Obtained through SAF/LL.

<sup>29</sup> “Not Our Way,” *Daily Report*, December 7, 2007, online at [<http://dailyreport.afa.org/afa/>].