

C-130 AIRCRAFT MODERNIZATION PROGRAM (AMP)



The purpose of the C-130 Avionics Modernization Program (AMP) is to lower the cost of ownership of the U.S. military's C-130 fleet, while complying with the Air Force Navigation and Safety (Nav/Safety) Master Plan, Required Navigation Performance requirements, and other applicable Global Air Traffic Management (GATM) requirements. This will be done through a cockpit modernization program that replaces aging, unreliable equipment and adds equipment necessary to meet Nav/Safety and GATM requirements. New equipment is intended to lower the cost of ownership by reducing cockpit crew manning, increasing aircraft reliability, maintainability, and sustainability as well as the number of different aircraft configurations. The C-130 AMP should also provide an improved precision airdrop capability for the combat delivery fleet, meet Night Vision Imaging System (NVIS) requirements, and improve the C-130's precision approach and landing capability. This program also provides the interfaces necessary to integrate real time information in the cockpit. A standard cockpit layout is planned allowing crewmembers to be trained to fly in one aircraft type and required to undergo mission qualification only when reaching their new units—unlike the current situation.

BACKGROUND INFORMATION

A C-130 AMP/Common Avionics Architecture for Penetration (CAAP) Test Planning Working Group has been established to provide a forum for all cognizant test organizations to participate in the C-130 AMP/CAAP test planning process. The Responsible Test Organization (RTO) for AMP/CAAP Developmental Test & Evaluation is the 418th Flight Test Squadron (FLTS) at Edwards AFB, CA. The using commands and AFOTEC will provide crew members, as required, to support ground and flight tests during combined DT/OT and dedicated OT&E. The RTO is responsible for conduct of DT&E testing, detailed test planning, and reporting of test results to the Program Managers. Participating Test Organizations include, but are not limited to, the 339th Flight Test Squadron at Robins AFB, GA, and Detachment 1 of the 46 Operations Group at Hurlburt Field, FL. The Program Office will manage the LFT&E program.

OT&E will be conducted by AFOTEC, with support from the program office and the using commands. DT&E and OT&E test objectives and sorties will be combined to the maximum extent possible. Force Development Evaluations may be conducted by the Air Mobility Command's, 33rd FLTS and by the Air Force Special Operations Command's 18th FLTS.

TEST & EVALUATION ACTIVITY

DOT&E has participated in the IPTs that prepared for the Milestone II decision. The Milestone II decision resulted in the Boeing Company being awarded the C-130 AMP contract in July 2001. A Test Planning Working Group and a LFT&E IPT have been created to formulate the specifics of the LFT&E program and the TEMP. The C-130 AMP TEMP was approved by DOT&E in July 2001. The TEMP is currently being revised to include specific details applicable to the winning contractor.

The AMP test strategy presumes that contractor ground tests will be conducted at the Boeing facility in San Antonio, Texas, the plant at Long Beach, and Edwards AFB. Following a series of shakedown flights at the contractor facility, initial prototypes will transition to the RTO facility at Edwards AFB for the start of formal DT&E. DT&E flight tests will be accomplished by a combined government and contractor Integrated Test Team under the direction of the RTO. AFOTEC personnel will participate as part of the government contingent.

TEST & EVALUATION ASSESSMENT

The successful testing of AMP components across a broad range of aircraft configurations and mission requirements will be a significant challenge. The concept is feasible; however, it is unlikely to succeed unless the various users commit to a unified fleet management approach for the modification of all aircraft. Fleet management of more than 700 aircraft is one of the keys to success. A tentative plan calls for some aircraft being retired, others being moved from one unit to another to manage structural life, some sent to depot, and still others used for test purposes. Identifying aircraft by tail number, without regard to unit ownership, is efficient, but it is not popular.

The following lists the different Mission Design Series (MDS) of the C-130s to be modified and some of the special test requirements for them:

Quantities of C-130 and Special Test Requirements by MDS

MDS	Nomenclature	Special Tests
C130E/H/H1/H2/H3	Combat Delivery	GATM, TCAS, TAWS, NVIS, FMS
AC-130H/U	Gunship	Gunfire Accuracy, ESA, Defensive
EC-130E	ABCCC	Mission Unique
EC-130H	Compass Call	Mission Unique
HC-130N/P	Combat Rescue	Mission Unique
MC-130E	Combat Talon I	TF/TA Navigation
MC-130H	Combat Talon II	TF/TA Navigation, ESA, Defensive
MC-130P	Combat Shadow	Mission Unique
LC-130H	Ski	Mission Unique