

LEGACY C-130 CNS/ATM UPGRADE PROGRAMS

Total life-cycle solutions for C-130 fleet sustainment.



**Rockwell
Collins**

Building trust every day

Continuing the success of the C-130 now and in the future.



A proven track record

Rockwell Collins' Flight2™ avionics architecture has set the standard for military cockpit upgrades. From the United States Air Force C/KC-135 Global Air Traffic Management (GATM) modification to numerous international C-130 platforms, we are the proven solution to meet current and future airspace requirements.

Today more than 120 C-130 aircraft are flying with our proven next generation Flight2 system, and more than 140 will be flying by 2013. In fact, more C-130 modifications have been fitted with the Rockwell Collins solution than any other provider in the world. Add to that a fleet of 419 Flight2-equipped C/KC-135 aircraft and you'll understand why Rockwell Collins is the trusted source for military avionics upgrades.

Flight decks for today and tomorrow

From delivering vital supplies and troops in hostile environments to search and rescue operations and humanitarian missions, you demand a lot from your C-130 fleet. Our next generation Flight2 upgrades enable your aircraft to perform demanding military missions without compromising reliability or affordability, while complying with civil mandates.

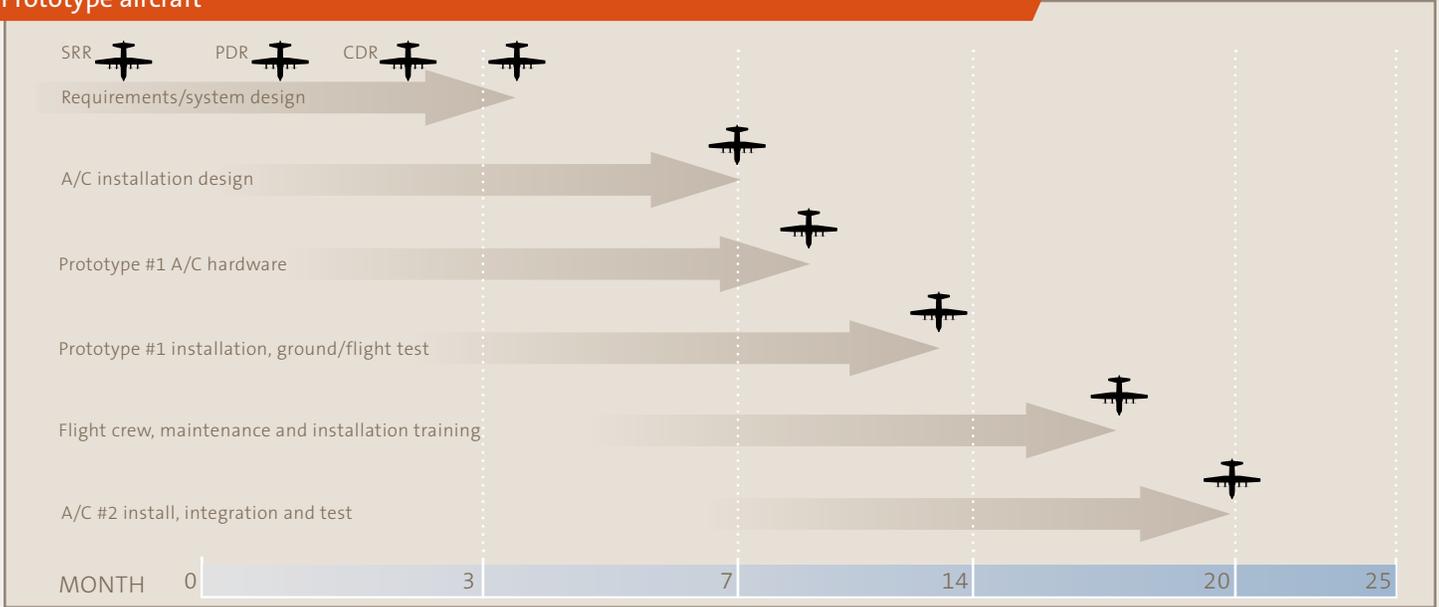
To meet the ever-changing environment of military aviation, you need products and systems that go beyond today's technology to meet tomorrow's requirements as well. Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) mandates often require major cockpit operation changes, while acquisition reform focuses on gaining benefits from the use of commercial off-the-shelf (COTS) solutions.

Customizable

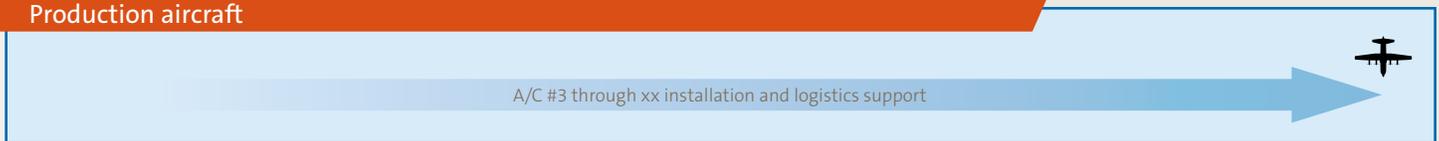
Rockwell Collins next generation Flight2 solution of fully integrated, militarized systems and applications can be customized to meet your specific requirements. Tailor your system from a full spectrum of controls and displays, information/data processing and communications, navigation, safety and surveillance systems. Everything you need to be mission ready – today and tomorrow.

Typical C-130 avionics modification project schedule.

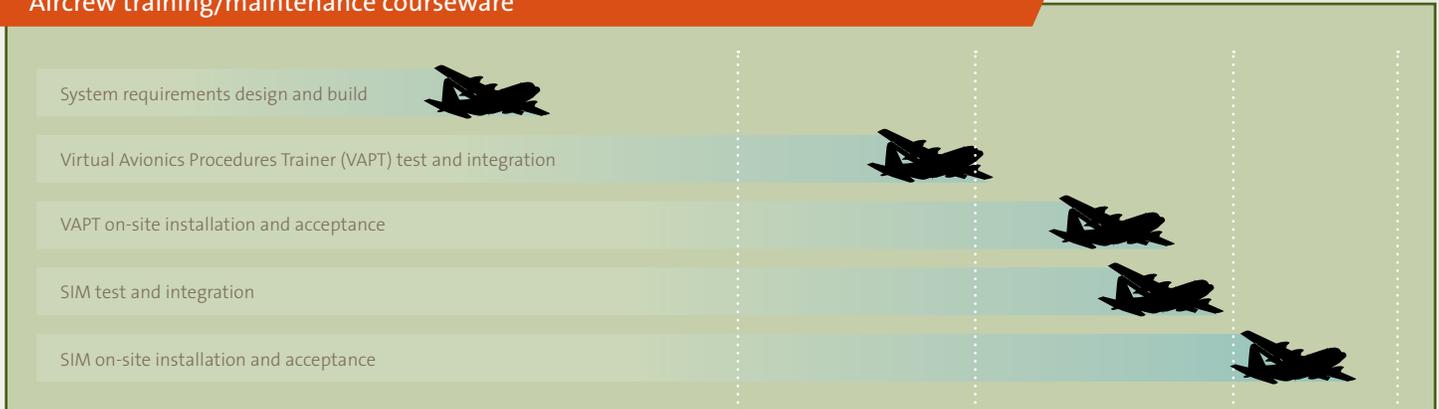
Prototype aircraft



Production aircraft



Aircrew training/maintenance courseware



Cost effective, reliable, sustainable

Equipping your C-130 with the next generation Flight2 system allows you to benefit from a broad military and commercial installed base. Our COTS and nondevelopment item (NDI) equipment ensure civil airspace interoperability while meeting specialized military-only mission demands. Our approach saves both time and cost and ensures future functionality. The Flight2 system allows your C-130 fleet to change military mission functions without affecting FAA or ICAO-certified civil airspace capabilities.

Flight2 Core



Flight2 Core

- › Enables global unrestricted civil airspace access
- › Using GPS/SBAS RNP RNAV 0.3 capabilities including SIDs, STARS and RNAV approaches
- › Tactical navigation and remote approaches, precision airdrops, SAR patterns
- › Engine instruments replaced with two large MFDs
- › 5-by-5-inch MFD(s)/PFD(s)
 - Optional 6-by-8-inch displays with new autopilot
- › Maximizes reuse of existing Comm/Nav radios unaffected by CNS/ATM mandates
- › EIDS improves mission availability rates by 25 percent*

**Based upon data obtained from Freedom of Information Act*

C-130 CNS/ATM compliance

- › The Rockwell Collins next generation Flight2 avionics system offers a 100 percent CNS/ATM-compliant architecture through 2020 with growth to 2025
- › Developed CNS/ATM system with commercial/military certification
- › Blend of certified commercial/military flight management functions
- › Over 120 international C-130 aircraft operational
 - On contract to deliver 140 production aircraft

Next generation Flight2



Next generation Flight2

- › Complete digital avionics replacement, including six identical 6-by-8-inch displays (glass cockpit)
- › Enables global unrestricted civil airspace access including SIDs, STARS and approaches using EGI(s) with protected GPS
- › Tactical navigation and remote approaches, precision airdrops, SAR patterns
- › Tactical mission suite with EGI(s), EGPWS, wx/ground mapping radar, integrated dig map, EFB, integrated radios, TACAN. Options for:
 - HUD(s)
 - SVS/EVS
 - TF/TA
 - Commercial data links (CPDLC)



Singapore C-130

- › Providing next generation Flight2 complete CNS/ATM avionics upgrade for entire Republic of Singapore Air Force C-130 fleet, primed by ST Aero with Rockwell Collins as the avionics integrator
- › First implementation of the single Digital Engine Instrument Display subsystem



North Africa C-130

- › Next generation Flight2 System
 - Complete CNS/ATM avionics upgrade
- › Glass cockpit
- › Latest generation CDU-7000/FMS
- › Weather radar
- › TAWS
- › Dig map
- › Control-Pilot Data Link Communications (CPDLC)
- › Worldwide access to commercial airspace

Current instruments



Proposed instruments



Engine Instrument Display System (EIDS)

- › Rockwell Collins EIDS replicated the existing engine indicators
- › Rapid identification of engine exceedances/warnings through high-contrast color changes
- › Capability to display crew alerting messages
- › Integrated Fuel Quantity display
- › EIDS improves mission availability rates by 25 percent*
- › 800 hours of record time
- › Video input for situational awareness

**Based upon data obtained from Freedom of Information Act*



Proven performance C/KC-135R

- › September 2011 – C/KC-135 GATM program completed. Fleet of 419 aircraft upgraded in 12 years.
- › Delivered one aircraft per week
- › The KC-135 GATM, primed by Rockwell Collins, is the only GATM program that has:
 - Completed all major milestones on or ahead of schedule
 - Been approved by AMC for worldwide deployment
- › Cited by USAF as model acquisition program

Turnkey solutions

Capture requirements

- › Software
- › Interfaces
- › Operational

Software/hardware design

- › Rockwell Collins design team
- › Operational working groups

Prototype kit

- › Off-the-shelf avionics
- › Software tailoring A/R
- › A kit design and manufacture
- › Potential offset

Lab/bench test

- › Software formal qual test
- › Witness FQT

Prototype install

- › On-site Rockwell Collins Field Service Engineering (FSE)
- › On-site install support
- › Possible offset

EMI, ground and flight tests

- › On-site Rockwell Collins engineering
- › On-site install support
- › Potential offset

Avionics manufacture

- › OEM reliability
- › OEM sustainability
- › Potential offset

Installation

- › On-site Rockwell Collins FSE
- › On-site install support
- › Potential offset

Logistics

- › Spares and provisioning services
- › Training
- › Technical publications

Training/simulation

- › STS
- › Instructional system design
- › VAPT
 - Simulation solutions from desktop to full flight simulation

Life cycle support

- › Contract logistics support
- › Performance-Based Logistics solutions
- › Obsolescence management mitigation



Virtual procedures training device ensures timely avionics training/retraining and reduces cost.

The solution is the Rockwell Collins VAPT. It lets flight crews experience the capabilities, functions and procedures found in the aircraft without the high costs that come with using the aircraft. At the heart of the VAPT system is a unique combination of COTS, PC-based hardware and Rockwell Collins avionics software. The re-hosting of the actual avionics software on COTS hardware provides a cost-effective training option. With this unique software re-hosting architecture, when you change or upgrade the avionics equipment on the aircraft, all it takes is a software upgrade to the VAPT and your flight crews are training on the same new avionics that they will be flying with. All delivered well before your avionics upgrade, ensuring timely retraining of your pilot force.

Key benefits

- › Reduced operational costs
- › High-fidelity training early in upgrade program
- › Software based for ease of reconfiguration
- › Scalable to multiple aircraft platforms
- › Flexibility that allows for future software upgrades without hardware modifications

Key features

- › Wireless Instructor Operator Station
- › Modular system hardware configuration for portability
- › Configurable, expandable, simulator common software
- › Provides virtual Control Display Unit and Multifunctional Display formats

Our commitment to you.

At Rockwell Collins, we listen to and communicate with our customers regularly to fully understand their mission requirements. We test our systems in a lab throughout a program's life cycle to identify and mitigate potential risks as early as possible.

Our next generation Flight2 system, coupled with our dedication to open systems architecture and proven avionics performance, means your C-130 upgrade will be completed on time, at the lowest cost, with the lowest risk.

Building trust every day.

Rockwell Collins delivers smart communication and aviation electronic solutions to customers worldwide. Backed by a global network of service and support, we stand committed to putting technology and practical innovation to work for you whenever and wherever you need us. In this way, working together, we build trust. Every day.

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