Flight2™ integrated avionics system upgrades for legacy C-130s

THE NEXT GENERATION OF MISSION-CRITICAL AVIONICS

Cost-effective, flexible avionics for today's missions and future challenges

Collins Aerospace

SOLVE THE TOUGHEST CHALLENGES FOR YOUR FLEET

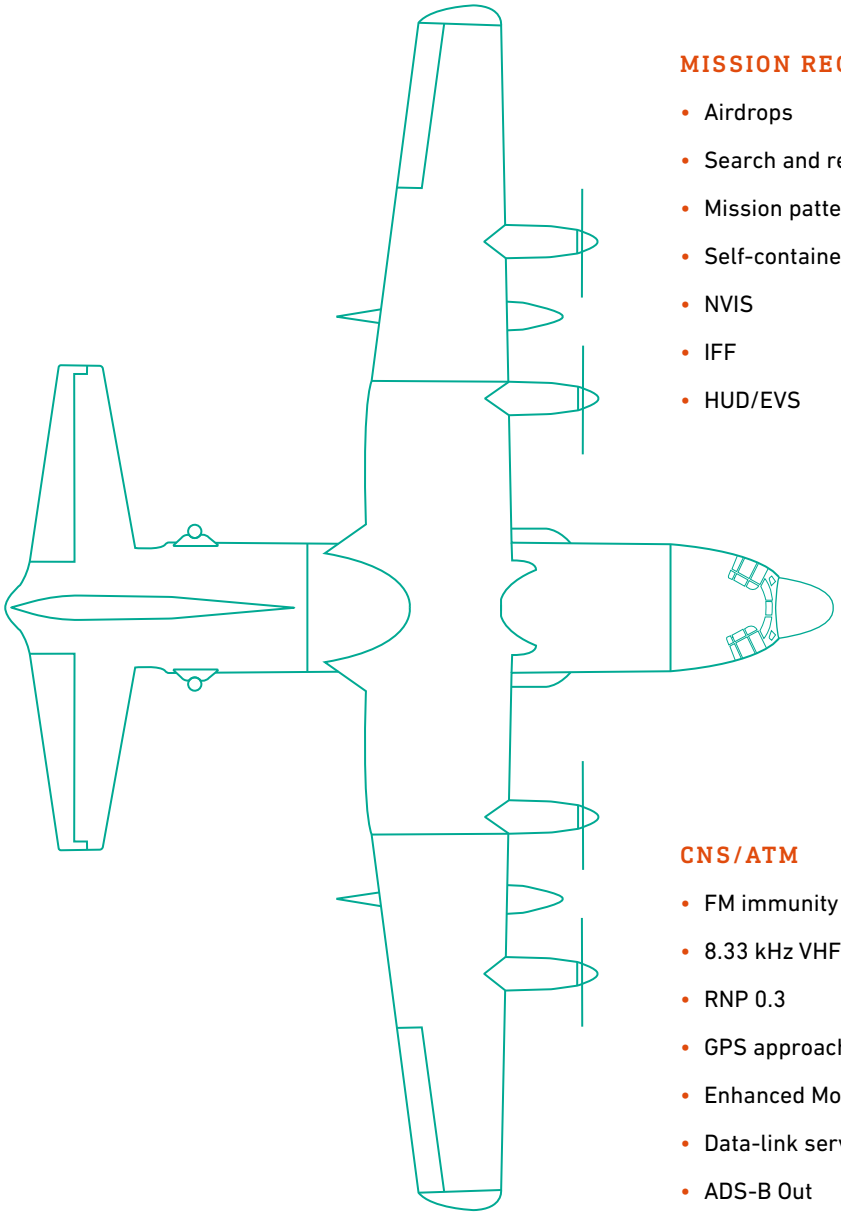
We understand the challenges C-130 operators are facing today – from accessing civil airspace to meeting mission requirements to increasing obsolescence issues. Our Flight2™ integrated avionics system meets those challenges. An innovative, low-risk avionics solution based on industry standards, Flight2 meets your C-130 civil airspace and military mission requirements while minimizing development schedule and cost.

A PROVEN TRACK RECORD

With over 900 fixed-wing aircraft upgraded to date, Flight2 leads the market for fixed-wing military cockpit upgrades. From C-130s, P-3s, C/KC-135s, KC-10s, E-2Cs, C-2As and E-3s, we're a proven partner to meet your current and future airspace requirements while improving mission capability and reducing obsolescence issues. Today, more than 190 international and USAF C-130 aircraft are modified or are being modified with Flight2 avionics. In fact, Flight2 avionics have been installed on more C-130s than any other avionics system in the world.

OBSOLESCENCE

- Engine instruments
- Flight instruments
- Air data system
- GPS
- Autopilot
- Comm/nav radios



MISSION REQUIREMENTS

- Airdrops
- Search and rescue
- Mission patterns
- Self-contained approaches
- NVIS
- IFF
- HUD/EVS

CNS/ATM

- FM immunity
- 8.33 kHz VHF
- RNP 0.3
- GPS approaches
- Enhanced Mode S surveillance
- Data-link services
- ADS-B Out

OFF-THE-SHELF CONFIGURATIONS TO MEET YOUR NEEDS

Flight2 is designed as a complete avionics solution with a choice of off-the-shelf configurations available today to meet your C-130 avionics needs. It's more than an avionics system – it's a product line approach that enables the next generation of integrated avionics capabilities. The system includes planned growth and technology insertions to prevent obsolescence for the operational life of your aircraft.

Each configuration has a common core function to ensure access to civil airspace while also improving mission capabilities, reducing obsolescence issues and minimizing aircraft downtime.

Our Flight2 configurations easily integrate new displays and avionics with your aircraft's existing analog and/or digital sensors, radios, autopilots and other systems. You can choose configurations as a stand-alone upgrade or as a starting point to add capabilities as mission needs grow and budgets allow.

Whether you need to meet essential Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) requirements while retaining applicable legacy sensors, or you need to meet CNS/ATM and mission requirements with a suite of new sensors to eliminate obsolescence – we have a proven configuration for you.

AN AVIONICS SOLUTION FOR TODAY'S MISSIONS

Flight2 mission mobility applications

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 Flight2 MMA upgrades enable your aircraft to perform demanding military missions without compromising reliability or affordability, while complying with civil mandates.

	CNS/ATM 2020 MIN REQUIREMENTS	COLLINS AEROSPACE FLIGHT2
COMMUNICATIONS		
FM immunity	X	X
8.33 V/UHF radio (x2) – Europe mandate since 2007	X	X
HF	X	X
SATCOM voice/data		X
CPDLC/FANS 1/A – Europe mandate above FL290 since 2011(inc Link 2000+)		X
NAVIGATION		
FMS (CDU)/data transfer unit	X	X
Multifunction displays (6"x8")/standby indicator	X	X
GPS/EGI	X	X
Digital autopilot/Digital flight director		X
ADC/AHS		X
TACAN/DME		X
ADF		X
INS navigation		X
SURVEILLANCE		X
Mode S transponder – Europe mandates by country today; Singapore	X	X
TCAS 7.1	X	X
ADS-B Out – USA/Europe mandate 2020; Singapore/Australia today	X	X
TAWS	X	X
CVR/FDR		X
WXR with wind shear detection		X
ELT		X
IFF		X
SITUATIONAL AWARENESS		
Digital engine instrumentation		X
EFB digmap		X
HUD/EVS		X
Cargo ACLADS		X
FLIR (growth)		X
SVS (growth)		X

CHALLENGE

Almost all C-130 users want to customize their avionics solutions, but the customization process entails large, often unaffordable non-recurring costs. Our Flight2 mission mobility application (MMA) system provides a cost-effective and flexible solution for C-130 customers with smaller fleets and budgets.

SOLUTION

Flight2 MMA delivers a superset of functions and equipment within a single hardware and software integrated solution to meet the requirements of most C-130 users and C-130 models. With Flight2 MMA, you can select civil and military options that are enabled by a configurable software file.

All Flight2 MMA configurations meet CNS/ATM requirements and fundamental military needs (airdrop, search and rescue (SAR) patterns, tactical/remote landings, refueling, etc.). The system is MIL-HDBK-516B military airworthiness certified, with all required analyses and artifacts processes available for reuse.

ENSURE ACCESS TO THE GLOBAL AIRSPACE

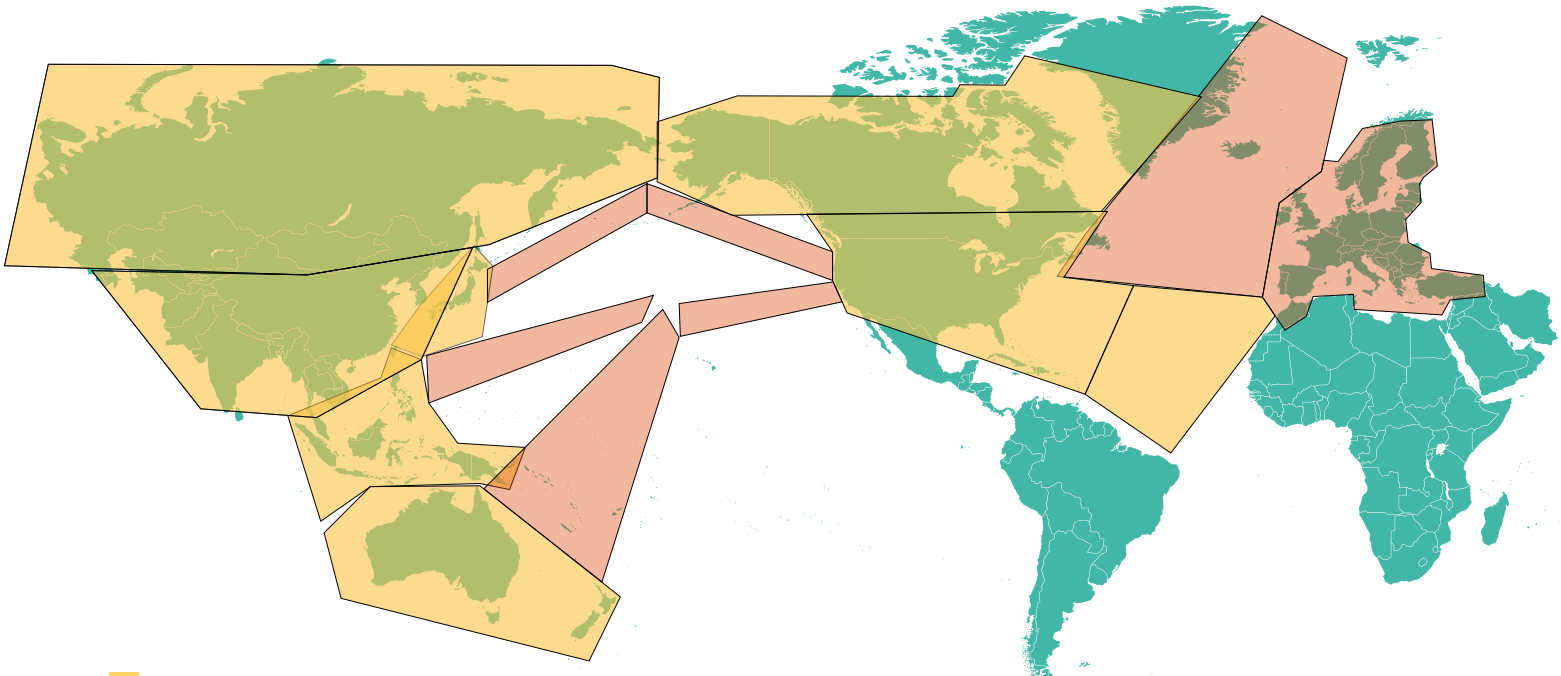
Whether you need to meet basic CNS/ATM civil airspace requirements or you're modifying your C-130 to meet the most challenging of mission requirements, such as head-up displays (HUDs), Enhanced Vision System (EVS) and Link 16, our Flight2 MMA system can provide the right solution for you – all while minimizing development schedule and cost.

The Flight2 MMA system for C-130 upgrades provides a true open-system architecture designed for ease of C-130 upgrades with growth for future CNS/ATM and operational requirements. The system:

- Meets all international civil regulations for airspace access with growth to meet future requirements
- Is currently in operation on C-130s today
- Is provided by a proven avionics supplier and industry leader in both commercial and military marketplaces
- Is at the lowest reasonable cost and schedule
- Significantly reduces obsolescence
- Causes no loss or degradation of existing capabilities

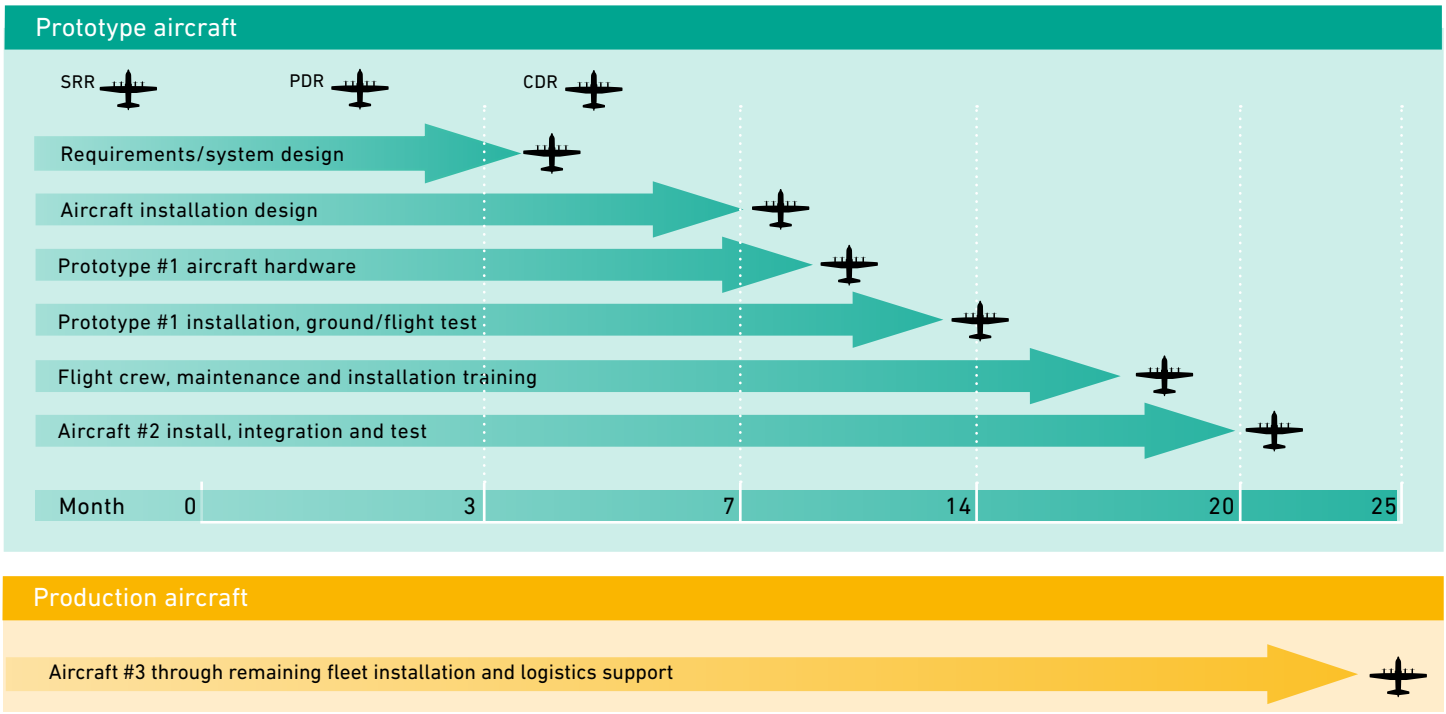
The result is a highly efficient, adaptable, proven cockpit design that can support mission requirements, now and in the future.

CNS/ATM airspace restrictions



AIRSPACE RESTRICTION
AIRSPACE DENIALS
AIRSPACE ACCESS

Typical C-130 avionics modification project schedule



Ready-to-go solutions

CAPTURE REQUIREMENTS

- Software
- Interfaces
- Operational

SOFTWARE/HARDWARE DESIGN

- 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 Qualification Test (FQT)
- Witness FQT

AIRCRAFT INSTALLATION

- On-site Collins field service engineering (FSE)
- On-site install support
- Possible offset

ELECTROMAGNETIC INTERFERENCE (EMI), GROUND AND FLIGHT TESTS

- On-site Collins engineering
- On-site install support
- Potential offset
- Electronic load analysis
- Antenna co-site analysis

AVIONICS MANUFACTURE

- OEM reliability
- OEM sustainability
- Potential offset

LOGISTICS

- Spares and provisioning services
- Training
- Technical publications

TRAINING AND SIMULATION

- Simulation and training solutions
- Instructional system design
- Virtual Avionics Procedures Trainer (VAPT)
  - Simulation solutions from desktop to full-flight simulation

FLEXFORCE℠ LIFE CYCLE SERVICE SOLUTIONS

- Contract logistics support
- Performance-based logistics solutions
- Obsolescence management mitigation

Ensure timely avionics training/ retraining while reducing cost

Our Virtual Avionics Procedures Trainer (VAPT) lets flight crews train on the capabilities, functions and procedures of your aircraft without the high costs that come with using the actual aircraft. At the heart of the VAPT system is a unique combination of COTS, PC-based hardware and Collins' avionics software.

We re-hosted the avionics software on COTS hardware, providing you with a cost-effective training option. With this unique software re-hosting architecture, all it takes is a software upgrade to the VAPT when you change or upgrade your avionics equipment and your flight crews are training on the same new avionics they'll 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
- Flexible to enable future software upgrades without hardware modifications

KEY FEATURES

- Wireless instructor operator station
- Modular system hardware configuration for portability
- Configurable, expandable, simulator-common software
- Virtual control display unit and multifunctional display formats

FlexForce^{SM} life cycle service solutions

MRO

- Maintenance, repair and overhaul of all Collins and select third-party systems
- Intermediate-level test/repair solutions
- Worldwide relationships to enhance mission support

LOGISTICS SOLUTIONS

- Performance-based programs
- Material services provide inventory and asset management
- Integrated logistics support
- Obsolescence management

SUPPORT PERSONNEL

- Field service personnel deployed worldwide
- Program management
- Engineering expertise

TRAINING AND SIMULATION

- Total training solutions based on the needs of our customers
- Virtual simulation systems
- Technical publications

Around the clock across 40 countries, more than 2,000 air and ground platforms are operating with Collins electronics. Our FlexForce^{SM} life cycle service solutions provide the tailored support that helps keep those platforms mission ready. From advanced communications to fully integrated flight decks, FlexForce enhances operational availability while minimizing mission risk and life-cycle cost.

SUPPORT AND SERVICES

For all of the Flight2 configurations described in this document, we can also provide complete aircraft A-kit design, manufacturing and installation. Additionally, we can provide operator "differences" training, maintenance training, equipment repair services and database/ subscription services.

To learn more, go to
collinsaerospace.com

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