Navy Unmanned Combat Air System (N-UCAS)

For nearly a decade, ARINC has provided critical research, development, testing, and evaluation support to unmanned aviation projects, including the Defense Advanced Research Projects Agency (DARPA) Advanced Technology Demonstrator, the Air Force led Joint Unmanned Air System (J-UCAS), and the current Navy Unmanned Combat Air System (N-UCAS) demonstration.

ARINC provides a complete range of services for ultra-sophisticated, sea- and land-based automated aircraft control, navigation, and landing systems.

- Systems Engineering
- Requirements Development
- Precision GPS (PGPS) development
- Automatic Air Refueling (AAR) requirements and navigational development
- Modeling & Simulation
- Test & Evaluation
- Configuration Management
- Program Management

Air Systems/Ship Systems Projects

ARINC is supporting the development of new navigation and communications control technologies for UCAS projects—requiring demonstration of aircraft carrier operations and landing capabilities, critical carrier technologies in a relevant environment, and full integration of the existing N-UCAS Mission Control Element (MCE) with existing shipboard Flight Deck, Air Traffic Control, Landing Signal Officer, and Primary Flight Control Systems.

N-UCAS Development Operations

Utilizing the expertise gained in support of JPALS, ARINC is leading development efforts for sea-based N-UCAS air traffic control and landing system operations by defining

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DEDICATION BEYOND EXPECTATION

Quick Facts

- Unmatched experience with civil and military GPS navigation technology
- Wide expertise in real-world aircraft and ship operations
- Dedicated systems engineering, modeling & simulation, and test & demonstration teams
- Proven program management capability
- Multiple contract vehicles




requirements and developing technology to enable unmanned aircraft to seamlessly operate with manned aircraft in the demanding shipboard environment.

Advanced technologies have included relative and precision GPS navigation and two-way secure data link, which are essential to enable fully automated and positive-controlled shipboard monitoring, precision approach, landing, bolter, missed approach and situational awareness. Of recent ARINC has provided system engineering and test and evaluation in the production of two demonstration air vehicles, with first flight scheduled in late 2009 and ship demonstration planned for 2011. Additionally Automated Aerial Refueling (AAR) of the N-UCAS has been added to demonstration efforts which are planned for 2013.

These same technologies are applicable to civil Unmanned Air Systems (UAS) programs, both inside and outside the National Air Space (NAS).

N-UCAS Program Office

ARINC supports the NAVAIR Unmanned Combat Air System N-UCAS and other defense contractors in the design and development of the Aircraft Carrier Segment (CVS) for the UCAS Demonstration in 2011. CVS will mature necessary technologies for CV flight operations and, ultimately, be fully integrated with N-UCAS to enable safe, unmanned operations within 200 nmi of the aircraft carrier. CVS requires upgrade and integration of existing systems, including the TPX-42 ATC Console, Landing Signal Officer Display System (LSODS), PriFly Display System (PFDS), Aviation Data Management and Control System (ADMACS), and Integrated Shipboard Information System (ISIS). It also requires new technology, including the Ship Integration Processor (SIP), Precision GPS, and Airborne Networking Waveform.

X-47 & X-45 Demonstrators

Northrop Grumman developed the X-47A Pegasus as part of the DARPA/UCAV-Navy programs, which required a demonstration of autonomous landing for JPALS. As part of this effort, ARINC integrated JPALS avionics in the demonstration aircraft. The successful flight tests took place at China Lake, California, in February 2003.

With systems engineering support provided by ARINC, Boeing developed, delivered and flew two X-45 N-UCAS demonstrators—the X-45A made its first flight at Edwards Air Force Base in May 2002. ARINC has been supporting JPALS, N-UCAS and other GPS-based navigation systems for the past 10 years. Whether your navigation system requirements involve air or sea transport, or manned or unmanned systems, ARINC has the dedication and expertise needed to meet your most challenging specifications.

ARINC, a portfolio company of The Carlyle Group, provides communications, engineering and integration solutions for commercial, defense and government customers worldwide. Headquartered in Annapolis, Maryland with regional offices in London and Singapore, ARINC is ISO 9001:2008 and AS9100 certified.

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