AIR NATIONAL GUARD

GUARDING AMERICA DEFENDING FREEDOM

WEAPONS SYSTEMS MODERNIZATION

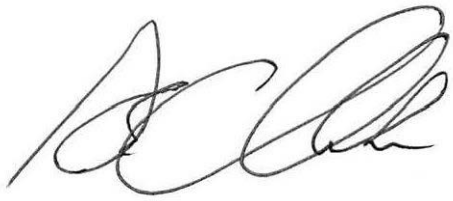
PRIORITIES 2015

FOREWORD

Since 1947, the Air National Guard has defined itself as a vital, mission ready component of the Total Air Force. Today, more than ever, the United States will depend on Guard Airman to defend the nation at home and abroad. Through cost-effective and community based forces, Guard Airmen support the five Air Force core missions: Air and Space Superiority, Intelligence, Surveillance and Reconnaissance, Rapid Global Mobility, Global Strike, and Command and Control.

Validated operational needs - *direct from the warfighter* – are the basis of the contents of the 2015 Air National Guard Weapons Systems Modernization Priorities Handbook. A forum of Reserve Component and Active Duty Weapons Officers at the annual Weapons and Tactics (WEPTAC) Council articulated each necessary capability. Capabilities set forth herein directly contribute toward the modernization and sustainment of Air National Guard weapons systems.

As an operational war-fighting reserve component of the United States Air Force, it is appropriate and critically important for the Air National Guard to modernize its weapons systems. Modernizing our equipment will allow the Air National Guard to remain a proven choice for combat, the first choice for homeland operations, and an enduring choice for security cooperation and building partnerships. Through modernization, the Air National Guard will remain a professional, ready, and reliable force that is *Always on Mission*.



STANLEY E. CLARKE III
Lieutenant General, USAF
Director, Air National Guard

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INTRODUCTION

The 2015 Air National Guard (ANG) Weapons Systems Modernization Priorities Book documents capability priorities identified during the Oct 2014 Air Reserve Component Weapons and Tactics (WEPTAC) Conference. WEPTAC hosted representatives from all ANG and Air Force Reserve (AFR) units, as well as representation from the active component.

The 2015 Book is organized into 19 individual weapons systems Tabs. Each Tab begins with a summary page of capabilities identified at WEPTAC, categorized as Critical (Crucial - within the next one to three years), Essential (Vital - within the next three to five years), or Desired (Enhances mission success in the five-year timeframe).

For each Critical capability identified, an information paper is included within the weapon system Tab. A header within each information paper identifies its appropriate Service Core Function or functional category as one of the following:

Air Superiority / Global Precision Attack
Space Superiority / Cyberspace Superiority
Global Integrated ISR
Agile Combat Support
Rapid Global Mobility
Command and Control
Special Operations / Personnel Recovery
Simulation and Distributed Mission Operations

Applicable Funding Appropriation Definitions

3840 - ANG Operations and Maintenance, one-year funding
3010 - Aircraft Procurement, three-year funding
3600 - Research and Development, two-year funding
3080 - Other Procurement, three-year funding
(NOTE: In most cases, Non-Recurring Engineering (NRE) costs are paid for with 3600 Research, Development, Test and Engineering (RDT&E) money, but in some cases they can be paid for with 3010 Procurement money.)

The State Matrix on each Tab page identifies ANG weapons systems locations by state/territory. These depictions reflect the force structure as of 2 Feb 2015.

State Matrix

Weapons System Reference Table by State (2 Feb2015)

Refer to Weapon System Tabs for Specific Information (Classic Associate Units are shown in red.)

	A-10	B-2	C-17	C-130	E-8/C-32	F-15	F-16	F-22	HH-60	KC-135	MQ-1 MQ-9	OSA	AOC/ACS CRC/ADS	Space / Cyber / IO	RC-26 DCGS	GA / ST / TACP	Ranges
AK			●	●●					●	●			●	Space		GA	
AL							●			●					●●		
AR				●							MQ-9				●		●
AZ							●			●	MQ-1				●		
CA				●●		●			●		MQ-1/9			CY/SP	●●	GA	
CO							●					●		Space			●
CT				●									●●				
DC							●					●					
DE				●										Cyber			
FL						●							●	Space	●		
GA				●	E-8								●		●	TACP	●
GU																	
HI			●					●		●			●●		●		
IA										●	MQ-9		●	Cyber			
ID	●															TACP	
IL				●						●			●			TACP	
IN	●														●	TACP	●●
KS										●			●	CY/SP	●	TACP	●
KY				●												ST	
LA						●										TACP	
MA						●							●		●		
MD	●												●	CY (3)			
ME										●							
MI	●									●	MQ-9		●				●
MN				●			●										
MO		●		●									●				●
MS			●							●			●		●	TACP	●
MT				●													
NC				●												TACP	
ND											MQ-1						
NE										●							
NH										●							
NJ					C-32		●			●				Cyber		TACP	●
NM				●					●						●		
NV				●							MQ-1/9				●		
NY			●	●●					●		MQ-9		●●	Space		GA/TP	●
OH				●			●			●	MQ-1		●				
OK							●			●						TACP	
OR						●							●			ST	
PA				●						●	MQ-9		●	Cyber		TACP	●
PR				●									●●				
RI				●										Cyber			
SC							●										
SD							●										
TN			●							●	MQ-9			Cyber			
TX				●			●				MQ-1			Cyber	●	TACP	●
UT										●			●		●		
VA								●							●		
VI																	
VT							●							Cyber			
WA										●			●	CY (2)	●	TACP	
WI							●			●			●		●		●
WV			●	●											●		
WY				●										Space			

Contacts

Col Christopher Will NGB/A5
Director, Plans & Requirements
240-612-9366 (DSN 612-9366)
Email: christopher.will@ang.af.mil

Mr. Frank Ballinger NGB/A5
Associate Director, Plans & Requirements
240-612-9351 (DSN 612-9351)
Email: frank.ballinger@ang.af.mil

Col Kevin Campbell NGB/A5R
Chief, Operational Requirements
240-612-9363 (DSN 612-9363)
Email: kevin.campbell.2@ang.af.mil

Col Ian Bryan NGB/A5P
Chief, Program Integration
240-612-9367 (DSN 612-9367)
Email: ian.bryan@ang.af.mil

Mr. Michael Regan NGB/A5X
Chief, Strategy and Plans
240-612-9356 (DSN 612-9356)
Email: michael.regan.1@ang.af.mil

Col Michael Flanagan NGB/A1
Director, Manpower, Personnel & Services
240-612-9455 (DSN 612-9455)
Email: michael.flanagan@ang.af.mil

Col John Knabel NGB/A2
Director, Intelligence, Surveillance and Reconnaissance
240-612-9307 (DSN 612-9307)
Email: john.knabel@ang.af.mil

Brig Gen Dawne Deskins NGB/A3
Director, Air, Space & Cyber Operations
240-612-9454 (DSN 612-9454)
Email: dawne.l.deskins@ang.af.mil

Col Jeffrey Bozard NGB/A4
Director, Logistics
240-612-8470 (DSN 612-8470)
Email: jeffrey.bozard@ang.af.mil

Col Kevin Donovan NGB/A6
Director, Communications
240-612-8602 (DSN 612-8602)
Email: kevin.donovan.1@ang.af.mil

Col Michael McDonald NGB/A7
Director, Installation & Mission Support
240-612-8884 (DSN 612-8884)
Email: michael.mcdonald@ang.af.mil

Brig Gen Randolph Staudenraus NGB/A8/9
Director, Plans & Programs
240-612-9382 (DSN 612-9382)
Email: Randolph.staudenraus@ang.af.mil

Col Matthew Manifold AATC/CC
Commander
520-295-6900 (DSN 844-6900)
Email: matthew.manifold@.ang.af.mil

***2015 Weapon Systems Modernization Priorities* Book Credits:**

Editor in Chief: Lt Col Scott Gilloon, NGB/A5RC

An online version of this document is available at: http://www.ang.af.mil/angprioritiesbooks/

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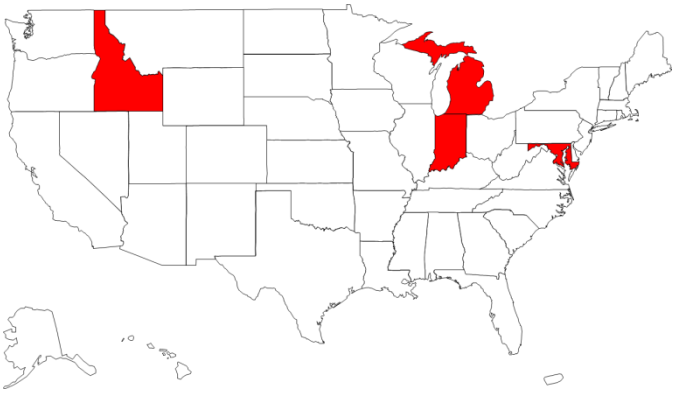
A-10

- **Close Air Support**
- **Forward Air Controller – Airborne**
- **Combat Search and Rescue**
- **ANG Units Provide 40% of the Total Fleet**

The A-10 continues to prove itself as the premier close air support (CAS) platform for overseas contingency operations (OCO). The A-10's combat survivability, wide combat radius, and ability to land at and operate from austere airfields provides flexibility beyond that of other fixed wing Air Force CAS assets. The A-10 minimizes collateral damage with precision munitions and its 30-millimeter cannon. Its extensive loiter time and targeting pod capabilities provide superior support capabilities for ground forces in its forward air controller-airborne (FAC-A) role.

The Air National Guard (ANG) operates 72 A-10s at Boise AP, Boise, ID; Selfridge ANGB, MI; Ft. Wayne IAP, IN; and Martin State AP, MD. ANG aircraft have the helmet-mounted integrated targeting modification, drastically reducing the time required to acquire targets. This ultimately increases both survivability and lethality. The lightweight airborne recovery system is a unique ANG A-10 aircraft capability contributing toward successful combat search and rescue.

Current A-10 modernization priorities include a high-resolution center display, which allows pilots to see the high definition picture provided by targeting pods. Display upgrades improve A-10 pilots' ability to positively identify friendly forces while aiding in the search, identification, surveillance, and tracking of enemy personnel. Additional upgrades to increase OCO effectiveness include an integrated noise-cancelling, three-dimensional cockpit audio system and an anti-jam embedded Global Positioning System.



A-10
2014 Weapons and Tactics Council

Critical Capabilities List

- Improved Positive Identification, Intelligence, Surveillance, and Reconnaissance, and Battle Tracking Through High Resolution Displays, Targeting Pod with Digital Output Ports, and Increased Helmet-Mounted Cueing System Accuracy Improvement
- Fully Funded Operational Flight Program
- Fully Integrated Communications Suite with Three-Dimensional Audio and Situational Awareness Waveform
- Improved Ability to Operate in a Degraded/Denied Global Positioning System Navigation Environment with an Anti-Jam Embedded Global Positioning System/Inertial Navigation System
- Improved Capability to Operate and Employ from Austere Airfields with Combat Fuel Tanks, Covert-Overt Landing Assembly Light, On-Board Oxygen Generating System, Parking Brake, Advanced Precision Kill Weapons System, and Electronic Flight Book

Essential Capabilities List

- Improved Electronic Attack and Electronic Protection
- Smart Triple Ejector Rack
- Find, Fix, and Identify Targets or Threats Through the Weather Capability
- Laser Threat Protection for Eyes and Sensors
- Fifth Generation Aircraft Data Link Visibility

Desired Capabilities List

- Airframe Sustainment and Upgraded Propulsion
- Full AIM-9 Integration
- Instrument Flight Rules-Compatible Heads-Up Display
- Longer Range Precision Guided Munitions with Moving Target Capability

A-10 IMPROVED POSITIVE IDENTIFICATION, INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE, AND BATTLE TRACKING

1. Background. The A-10 requires improved positive identification (PID), intelligence, surveillance, and reconnaissance, and battle tracking capabilities. Friendly forces and enemy combatants PID is crucial in any conflict. Tremendous effort is exerted to minimize fratricide and civilian casualties. Currently, three capabilities can immediately help A-10 pilots improve PID. The first capability is an improved helmet-mounted cueing system (HMCS). HMCS reduces the time to acquire targets with aircraft sensors from minutes to seconds, and allows pilots to quickly and accurately locate the position of friendly ground forces. The next component is the ability to generate and display high-resolution video. Advanced targeting pod (ATP) digital output upgrades with color video provide high-resolution feeds, coupled with high definition displays, enable visual identification of friendly and enemy forces from greatly increased standoff ranges. The additional situational awareness afforded to pilots provides a more accurate three-dimensional picture of the battlefield, thereby lowering risk to friendly forces, civilian personnel, and property. Installation of high-resolution displays in the A-10 enables full utilization of targeting pod improvements. Refinements, through ARC-210 connections, to the display system allow pilots to securely share data, including any ATP imagery, with Joint Tactical Air Controllers (JTACs). These actions lesson the likelihood of fratricide or collateral damage.

2. Source of Need. Combatant Command Urgent Operational Need dated 26 Sep 2008; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

122 FW Ft Wayne IAP, IN 127 WG Selfridge ANGB, MI 175 WG Martin State AP, MD
124 WG Boise AP, ID

4. Program Details. PEC: 27131

Remaining Quantity Required	Unit Cost	Program Cost
1 HMCS Improvements (3010)	**$3,000,000**	**$3,000,000**
1 Display NRE (3600)	**$9,000,000**	**$9,000,000**
106 Color Displays * (3010)	**$326,000**	**$34,556,000**
244 Targeting Pod Upgrades * ** (3010)	**$250,000**	**$61,000,000**
Total		**$107,556,000**

* Includes 10% spares.

** Quantities and Program Costs are shared with F-16s (see F-16 Info Paper).

A-10 FULLY FUNDED OPERATIONAL FLIGHT PROGRAM

1. Background. Ensuring A-10 viability requires constant updates to the operational flight program (OFP). The A-10 OFP is the key to integrating and updating all systems and weapons carried on the aircraft. Currently, A-10 OFP software development requires $28 million per year for aging system sustainment and integration of new aircraft and weapon capabilities; however, OFP funding is limited to $13.4 million, approximately 50% of the required level. Limited OFP funding has a significant impact on the A-10's ability to maintain relevance in modern combat. First, reduced funding limits program work to sustainment actions such as corrections to previous software versions. Second, lower funding and reduced OFP capacity offloads the integration burden for new capabilities onto users by shifting costs from the platform to the subsystem. For example, future advanced targeting pod (ATP) upgrades require additional software funding to cover ATP integration. Previous upgrades were integrated by the A-10's OFP. New ATP upgrades are required to maintain unique legacy interfaces within ATP software at significantly higher costs. The new cost is directly transferred to A-10 users whenever modernization or relevancy upgrades are accomplished. Vital mission sets, such as close air support (CAS) and combat search and rescue (CSAR), become exceptionally challenging as A-10s delay modernization due to incompatible legacy OFP interfaces and outdated technology. The A-10 preserves combat relevance with a fully funded OFP.

2. Source of Need. A-10 Operational Requirements Document (ORD); 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council**.**

3. Units Impacted.

122 FW Ft Wayne IAP, IN 127 WG Selfridge ANGB, MI 175 WG Martin State AP, MD
124 WG Boise AP, ID

4. Program Details. PEC: 27131

Remaining Quantity Required	Unit Cost	Program Cost **
3 OFP Software Upgrades * (3600)	**$14,000,000**	**$42,000,000**
Total		**$42,000,000**

* Annual cost to meet OFP development requirement.

** Total cost over a 3 year period.

A-10 FULLY INTEGRATED COMMUNICATIONS SUITE WITH THREE-DIMENSIONAL AUDIO AND SITUATIONAL AWARENESS WAVEFORM

1. Background. An improved A-10 communication suite consists of satellite communications (SATCOM), three-dimensional (3-D) audio, enhanced data link, and Single-Channel Ground and Airborne Radio System (SINCGARS) situational awareness (SA) waveform. Two multi-band and multi-mode digital radios with SATCOM capability meet the need for simultaneous beyond line-of-sight (BLOS) and secure line-of-sight (SLOS) communications. Integration of the SINCGARS SA waveform allows Global Positioning System (GPS) data, transmitted by existing tactical radios, to be displayed on the A-10 tactical awareness display (TAD), the targeting pod field of view, and within the helmet-mounted cueing system (HMCS) display. Utilization of the SA waveform capability reduces the risk of fratricide in combat search and rescue (CSAR) or close air support (CAS) scenarios by providing immediate and constant awareness of friendly positions. The integration of noise-cancelling and 3-D audio in the cockpit increases situational awareness by spatially separating aural warning and radio signals and providing angular cueing to ground and air threats when used in conjunction with a HMCS. Spatial separation and reduction in ambient noise significantly increases the pilot's ability to process information simultaneously arriving from multiple radios and warning systems. Continued advancements in data link architecture and the proliferation of data link systems to multiple aircraft and ground parties requires the A-10 to upgrade its data link system. This ensures interconnectivity and security with all fielded data link variants.

2. Source of Need. 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council

3. Units Impacted.

122 FW Ft Wayne IAP, IN 127 WG Selfridge ANGB, MI 175 WG Martin State AP, MD
124 WG Boise AP, ID

4. Program Details. PEC: 27131

Remaining Quantity Required	Unit Cost	Program Cost
1 Directional Audio NRE (3600)	**$5,000,000**	**$5,000,000**
106 Directional Audio Kits * (3010)	**$50,000**	**$5,300,000**
159 Directional Audio Pilot Equipment * (3010)	**$7,000**	**$1,113,000**
10 Unit Test Equipment (3080)	**$43,800**	**$438,000**
SINCGARS SA Waveform Retrofit (3010)	**$1,000,000**	**$1,000,000**
Total		**$12,851,000**

* Includes 10% spares.

A-10 IMPROVED ABILITY TO OPERATE IN A DEGRADED/DENIED GLOBAL POSITIONING SYSTEM NAVIGATION ENVIRONMENT WITH AN ANTI-JAM EMBEDDED GLOBAL POSITIONING SYSTEM, INERTIAL NAVIGATION SYSTEM ENVIRONMENT

1. Background. The A-10 uses an embedded Global Positioning System (GPS)/inertial navigation system (INS) for precision navigation and weapons employment. Virtually every system on the A-10 depends on the highly accurate position, orientation, and velocity data the embedded GPS/INS (EGI) provides. Adversary attempts to deny GPS capability may degrade or limit the precision of A-10 navigation solutions, decreasing positional awareness and weapons employment accuracy. The first step to counter or minimize this threat is the installation of a controlled reception pattern antenna to nullify the effects of jamming systems. Selective availability anti-spoofing modules integration eliminates the impacts of jamming and protects both precise and standard positioning systems. Additionally, current Federal Aviation Administration (FAA) regulations mandate compliance with automatic dependent surveillance-broadcast by 2020. The A-10 requires greater surveillance precision and reliability in order to comply with the national aerospace system's transition to the satellite-based air traffic control system. Upgrading the A-10's current EGI supports the FAA mandate and provides increased capability to preserve GPS integrity in a contested or degraded electromagnetic environment.

2. Source of Need. FAA Rule - 14 CFR Part 91 [Docket No. FAA-2007-29305; Amendment No.91-314], RIN 2120-AI92 - Automatic Dependent Surveillance-Broadcast (ADS-B) Out Performance Requirements to Support Air Traffic Control (ATC) Services, 28 May 2010; 2012 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

122 FW	Ft Wayne IAP, IN	127 WG	Selfridge ANGB, MI	175 WG	Martin State AP, MD
124 WG	Boise AP, ID				

4. Program Details. PEC: 27131

Remaining Quantity Required	Unit Cost	Program Cost
1 Anti-Jam EGI NRE (3600)	**$4,500,000**	**$4,500,000**
106 Anti-Jam EGI * (3010)	**$155,000**	**$16,430,000**
Total		**$20,930,000**

* Includes 10% spares.

A-10 IMPROVED CAPABILITY TO OPERATE AND EMPLOY FROM AUSTERE AIRFIELDS

1. Background. The A-10 is the only fighter aircraft in the Air Force inventory with the ability to land at austere, unimproved airfields. This capability gives Combatant Commanders flexibility to pre-deploy A-10s closer to the expected battlespace, and enables rapid response during close air support, forward air controller-airborne, and combat search and rescue sorties. Emerging capabilities further improve the A-10's ability to operate from austere airfields by reducing the number of maintenance and logistics personnel required to support operations. Pilot-selectable, overt/covert landing lights provide normal or night vision compatible landing lights as required. Combat fuel tanks provide additional endurance and minimize the need for additional refueling operations. On-board oxygen generating system eliminates liquid oxygen refill and reduces maintenance requirements between missions. A parking brake allows pilots to remain in the aircraft during prolonged ground operations without the need for additional personnel to place and remove wheel chocks. An electronic flight book (EFB) increases the flexibility to instantly establish austere field operations without the restriction of additional paper flight information publications. The EFB allows pilots to download essential mission data and provides a digital inflight reference of the battlespace, including the necessary charts and maps. Triple ejector rack modifications permit carriage of additional GPS-guided munitions. This reduces the quantity of pre-positioned ordnance and weapons loaders required to replace expended munitions between sorties.

2. Source of Need. A-10 Operational Requirements Document (ORD); 2012 ARC WEPTAC Conference; and 2014 ARC WEPTAC Council.

3. Units Impacted.

122 FW Ft Wayne IAP, IN 127 WG Selfridge ANGB, MI 175 WG Martin State AP, MD
124 WG Boise AP, ID

4. Program Details. PEC: 27131

Remaining Quantity Required	Unit Cost	Program Cost
106 Landing Lights * (3010)	**$11,000**	**$1,166,000**
63 Combat Fuel Tanks * (3010)	**$20,000**	**$1,260,000**
106 OBOGS * (3010)	**$208,000**	**$22,048,000**
106 Parking Brakes * (3010)	**$10,000**	**$1,060,000**
1 Smart Triple Ejector Rack NRE (3600)	**$2,000,000**	**$2,000,000**
126 Smart Triple Ejector Racks * (3010)	**$100,000**	**$12,600,000**
Total		**$40,134,000**

* Includes 10% spares.

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Command and Control

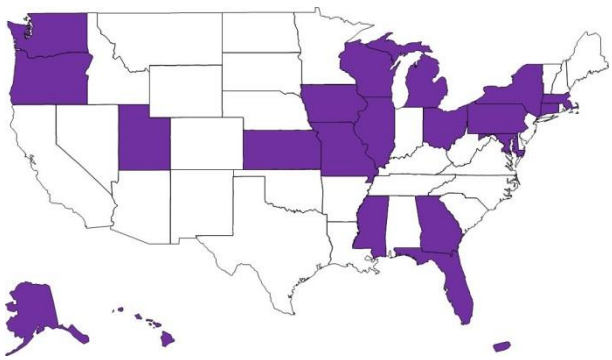
- **Air Defense and Surveillance for North America**
- **Air Battle Management**
- **C-NAF Integration/Augmentation**
- **Military Range Control**
- **Centralized Control**
- **Ground Controlled Intercept**
- **Flight Safety Monitoring**

The Air National Guard (ANG) command and control (C2) weapons systems are integral to both the joint fight in overseas contingency operations (OCO) and homeland defense.

Air Operations Center (AOC) - The component numbered air force is comprised of an AOC and Air Force forces (AFFOR) A-Staff. The AOC weapon system is the capstone of the theater air control system employed by the commander, Air Force forces (COMAFFOR), providing centralized control and decentralized execution of aerospace forces to the joint force air component commander (JFACC). The A-Staff is organized into a command section, commander's personal staff, and functional staff A1 through A9, as well as a variety of cross-functional teams supporting the COMAFFOR as the AF service combatant commander (COCOM). Additionally, the A-Staff conducts joint operational planning during contingency and crisis operations in support of COCOM requirements.

Control and Reporting Center (CRC)/Air Control Squadron (ACS) - An ACS is the only Air Force 24/7 deployable and sustainable ground/air battle management command and control (BMC2) platform. The CRC, at operational and tactical levels of operations, provides surveillance, tactical communications, data links, and combat-related air battle management of joint air operations with real-time networked situational awareness.

Battle Control Center (BCC) - A BCC is a fixed BMC2 surveillance system. It is a tactical air control system employed to support homeland defense operations in the continental United States, Alaska, and Hawaii. BCC refers to the aerospace warning and control "system," which integrates surveillance radars and communications systems with computer processing and display/control equipment at fixed facilities for mission execution.



Command and Control
2014 Weapons and Tactics Conference

Critical Capabilities List

Air Force Forces (AFFOR) Air Operations Center (AOC):

- Secure Voice Capabilities
- Cross Domain Network Capabilities
- Distributed Mission Operations and Training Capability (see Tab Q)
- Joint Range Extension and Link Training Tool (see Tab Q)
- Targeting Application Workstations to Support Air Operations Center

Control and Reporting Center (CRC):

- Remote Voice Communications
- Data Link Dynamic Training Simulation System (see Tab Q)
- Modular Tactical Electrical Power Mission Support Systems

Battle Control Center (BCC):

- Common Battle Management Command and Control Mission System
- Cross-Domain Enterprise Solution
- Live-Virtual-Constructive Distributed Mission Operations Mission Training Center (see Tab Q)
- Beyond Line-of-Sight Tactical Communication Capability
- Beyond Line-of-Sight Tactical Data Links

Essential Capabilities List

Air Force Forces (AFFOR) Air Operations Center (AOC):

- Recurring Event 13 Upgrade to Air Operations Center
- Data Fusion and Access Providing Integrated Awareness and Assessment
- Generator Power for Air Operations Groups

Control and Reporting Center (CRC):

- Upgraded Command and Control Engine

Battle Control Center (BCC):

- Joint Engagement Zone Battle Management Command and Control Systems
- Pocket-J Link-16 Software Upgrade
- Point Defense and Wide Area Surveillance Sensors
- Communications Architecture With Fixed, on-Site Radios and a Distributed Antenna Network
- Live-Virtual-Constructive Systems Providing Joint Air, Cruise, and Ballistic Missile Defense Training

Desired Capabilities List

Air Force Forces (AFFOR) Air Operations Center (AOC):

- None

Control and Reporting Center (CRC):

- None

Battle Control Center (BCC):

- Counter Unmanned Aerial Vehicle Threat Mitigation
- Passive Detection and Tracking System
- Organic Kinetic and Non-Kinetic Threat Mitigation Capabilities

AIR OPERATIONS CENTER DIRECT OPERATIONAL SECURE VOICE COMMUNICATION

1. Background. Air Operations Centers (AOC) utilize various radios to communicate with joint services, allies, partner nations, aircraft platforms, associate units, state civil authorities, and emergency response agencies for domestic and disaster response coordination. However, units lack direct radio communication with supported commanders, deployed units, state civil authorities, and emergency agencies. This capability gap impacts operations and training. The direct operational secure voice communication capability consists of a radio bridge to internet protocol. Satellite communication radio sets enable ANG AOCs to simulate and train realistic Tactical Air Control System control procedures, participate in real-world events, conduct distributed operations, interface with aligned units, and increase readiness training. The system consists of at least one PRC-117G, associated antenna systems, and appropriate communications security equipment. To align with the active component, AOC units must train and operate on the same radio systems. Without this capability, ANG AOC units cannot execute or train to full mission expectation.

2. Source of Need. Program Action Directive (PAD) 10-2; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

102 AOG	Otis ANGB, MA	157 AOG	Jefferson Barracks, MO	701 COS	March ARB, CA
111 AOG	Horsham, PA	183 AOG	Springfield, IL		
112 AOG	State College, PA	217 AOG	Battle Creek, MI		
152 AOG	Syracuse, NY	286 AOG	Meridian, MS		

4. Program Details. **PEC: 507411**

Units Required	Unit Cost	Program Cost
9 PRC-117G SATCOM Radio Sets (3080)	**$37,000**	**$333,000**
Total		**$333,000**

AIR OPERATIONS CENTER CROSS-DOMAIN NETWORK CAPABILITY

1. Background. Air Operations Center operators and Air Force contingency planners require daily use of multiple networks across various domains to conduct operations and training. Information across multiple classification domains must be visible simultaneously to provide effective training and operational support to their respective Component-Number Air Force, and state Joint Force Headquarters Joint Operations Center to conduct domestic operations. Access to data in response to life threatening events is crucial to contingency planners. The cross-domain network capability consists of two parts. The first part is a "single pane of glass" solution which provides simultaneous views of classified and unclassified networks on a single client, enhancing operator efficiency. Security is enhanced through the reduction of printed products used to compare information. Infrastructure, client hardware, office space, power, cooling requirements, lifecycle, and administration of systems is reduced by combining into a "single pane of glass" solution**.** The second part is an automated high assurance guard system that protects and transfers approved information between two different security domains / enclaves, allowing for direct exchange of information between classified and unclassified systems. It also sanitizes guards and downgrades higher classified formatted data to lower security classifications. During mission operations, unclassified data critical to mission accomplishment can be stored on classified systems. Access to this data is available to individuals via lower classification systems. The current procedures for data transfer are manual, cumbersome, and prone to error.

2. Source of Need. 2012-2013 ARC WEPTAC Conference; and 2014 ARC WEPTAC Council.

3. Units Impacted.

101 AOG	Tyndall AFB, FL	152 AOG	Syracuse, NY	286 AOG	Meridian, MS
102 AOG	Otis ANGB, MA	157 AOG	Jefferson Barracks, MO	701 COS	March ARB, CA
111 AOG	Horsham, PA	183 AOG	Springfield, IL		
112 AOG	State College, PA	217 AOG	Battle Creek, MI		

4. Program Details. PEC: 507411

Description	Unit Cost	Program Cost
8 Server Hardware (3080)	**$80,000**	**$640,000**
8 Client Hardware (3080)	**$37,000**	**$296,000**
8 Software (3080)	**$230,000**	**$1,840,000**
8 Installation and Certification (3080)	**$150,000**	**$1,200,000**
Total		**$3,976,000**

AIR OPERATIONS CENTER TARGETING APPLICATION WORKSTATION

1. Background. ANG Air Operations Groups (AOG) lack an effective solution to train and support advanced target development in accordance with CJCSI 3370.01 *Target Development Standards*, and as a result are unable to train to active component standards or engage in distributed operational support. Advanced target development is defined by CJCSI 3370.01 as the minimum information required to effectively engage a target, and requires the generation of highly accurate coordinates that can be utilized by today's precision munitions. Per CJCSI 3505.01b *Target Coordinate Mensuration Certification and Program Accreditation,* and AFI 14-126 *Target Coordinate Mensuration Training and Certification Program*, the process of generating precise coordinates, known within the USAF as the precise point positioning program (AFP4) or precision point mensuration (PPM), can only be accomplished using systems and software specifically accredited by the National Geospatial Intelligence Agency. The targeting application workstation (TAW) is the current system of record for AFP4/PPM within the Air Operations Center. Additionally, targeting analysts are required to maintain monthly training and proficiency requirements in collateral damage estimation per CJCSI 3160.01 *No-Strike and Collateral Damage Estimation Methodology*. Collateral damage estimates can only be produced using the TAW. The Air Force Targeting Center, the USAF lead agent for AFP4 training and certification, recommends a ratio of 1:1 TAW to AFP4 certified analysts due to the number of man-hours required (8-12) to maintain certification each month. ANG AOGs have been allocated two TAWs per unit, with some units tasked to provide as many as 12 AFP4 certified analysts. This ratio of 1:6 workstations to analysts is insufficient to meet the ANG's training needs. The ANG requires a minimum ratio of 1:2 workstations per analysts (three additional allocations per unit, for a total of five authorized TAWs per unit) in order to effectively train assigned personnel.

2. Source of Need. AFPD 14-1, AFPD 14-2, AFPD 36-26, PAD 10-2, CJCSI 3160.01, CJCSI 3370.1, CJCSI 3505.01b, AFTTP 3-3AOC, AFI 14-117, AFI 14-126, AFI 13-1AOC v3, USAF Greybeard Targeting Study (2008), USAF Targeting Roadmap (2012), USAF Targeting Center, ACC 20th IS.

3. Units Impacted.

102 AOG	Otis ANGB, MA	157 AOG	Jefferson Barracks, MO	217 AOG	Battle Creek, MI
112 AOG	State College, PA	183 AOG	Springfield, IL	701 COS	March ARB, CA
152 AOG	Syracuse, NY				

4. Program Details. **PEC: 507411**

Remaining Quantity Required	Unit Cost	Program Cost
24 TAW Hardware (3080)	**$3,600**	**$86,400**
24 Socet GXP Software License (3080)	**$15,000**	**$360,000**
Total		**$446,400**

CONTROL AND REPORTING CENTER REMOTE VOICE COMMUNICATIONS

1. Background. The Control and Reporting Center (CRC) is a mobile battle management command and control capability with deployable radar elements of the Theater Air Control System. Air Combat Command (ACC) has tasked ANG to provide 10 air control squadrons to execute mission functions and capabilities of a deployable CRC in support of air operations. CRC operators have a critical training requirement to conduct specialized live missions to obtain proficiency and remain combat mission ready. CRCs are unable to support these missions if not conducted within the range of the TPS-75 tactical radar. In the near term, availability of non-organic radar access (NORA), along with utilization of remote radar and radio data, does not only satisfy this requirement, it is also invaluable in training, mission operations and overall combat readiness. The remote communications package capability mitigates a current training deficiency, provide first of its kind capability to control various types of live fly missions remotely from each unit, and significantly reduce personnel travel costs. ACC requires information assurance accredited and approved technical capability including software and hardware components. All CRCs have remote radar and radio access over an internet protocol-based network. The NORA system also provides remote voice capability. Many NORA systems have been fielded; however, the capability to access remote radios and actual radar feeds is unavailable. The capability to access these radios and radar feeds parallels capabilities employed by US air defense sectors. Access to radar feeds and communication lines is necessary to control the live missions. Remote voice communications and radar also enhance training for fighter squadrons throughout the combat Air Force. Currently, hundreds of live fly missions are conducted without battle management control. Remote voice communications capabilities enable CRC control of live-fly missions, enhancing training for both fighters and the CRC.

2. Source of Need. North American Aerospace Defense Command (NORAD) Contingency Plan (CONPLAN) 3310-12; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

103 ACS	Orange, CT	123 ACS	Blue Ash, OH	134 ACS	McConnell AFB, KS
109 ACS	Salt Lake City, UT	128 ACS	Volk Field, WI	141 ACS	Punta Borinquen, PR
116 ACS	Warrenton, OR	133TS	Fort Dodge, IA	255 ACS	Gulfport, MS
117ACS	Savannah, GA				

4. Program Details. **PEC: 52672**

Remaining Quantity Required	Unit Cost	Program Cost
10 Communications Suites (3840)	**$200,000**	**$2,000,000**
Total		**$2,000,000**

CONTROL AND REPORTING CENTER MODULAR TACTICAL ELECTRICAL POWER MISSION SUPPORT SYSTEMS

1. Background. The Control and Reporting Center (CRC) is a mobile battle management command and control capability with deployable radar elements of a theater air control system. The CRC integrates a comprehensive air picture via multiple data links from air, sea, and land-based sensors, and from its embedded surveillance and control radars. It performs decentralized command and control of joint operations by conducting threat warning, battle management, theater missile defense, weapons control, combat identification and strategic communications. For continuous operations the CRC requires safe and reliable power to operate in a deployed environment. An integrated power grid consists of the power distribution panel systems (PDPS), all weather tactical power cables, and state-of-the-art tactical generators that consolidates and reduces numerous legacy electrical power production units and support systems. The primary power grid, interconnected with the PDPS, must be capable of load balancing. Although the primary components of the PDPS equipment have been delivered to all units, interconnect cables and components are still required for all units to have a fully functional, safe, and efficient power distribution system. The PDPS must be able to rapidly deploy and connect power to mission essential equipment.

2. Source of Need. 2010-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

103 ACS	Orange, CT	123 ACS	Blue Ash, OH	134 ACS	McConnell AFB, KS
109 ACS	Salt Lake City, UT	128 ACS	Volk Field, WI	141 ACS	Punta Borinquen, PR
116 ACS	Warrenton, OR	133TS	Fort Dodge, IA	255 ACS	Gulfport, MS
117ACS	Savannah, GA				

4. Program Details. PEC: 52672

Remaining Quantity Required	Unit Cost	Program Cost
10 Power Distribution Systems (3080)	**$195,000**	**$1,950,000**
Total		**$1,950,000**

BATTLE CONTROL CENTER AND CONTROL AND REPORTING CENTER COMMON MISSION SYSTEM

1. Background. Battle Control Center (BCC) and Control and Reporting Center (CRC) missions are currently increasing common and interchangeable. Traditionally, CRCs have deployed to austere environments lacking power and communication system infrastructure. Due to dwindling mobility resources and advanced distributed network technology, CRCs are increasingly deployed on main operating bases utilizing existing infrastructure for power, communication, and integration of distributed radars and radios across assigned battle management areas. BCCs have already mastered this capability by integrating hundreds of radars and radios across their areas of operation. The future of tactical command and control (C2) is an amalgamation of these two weapons systems with a common mission, vision, and platform. Currently, CRCs and BCCs lack a common mission system. A common mission system allows the interchangeability of missions, manpower, and tactics techniques and procedures across weapons systems.

2. Source of Need. 2014 NORAD C2 Ops Conference #2/11 Operational Needs; 2014 NORAD WEPTAC #2 of 12 Operational Needs; BCC Information Sharing Capabilities Request Form FY14; AF Form 1067 Global Earth Capability; AF Form 1067 2-way TacChat integration; AF Form 1067 ADSB integration; AF Form 1067 Multi-Source Correlation; AFNORTH Capabilities Request Form Multi-Source Correlation; AF Form 1067 Front End J-Chat; AF Form 1067 ID Matrix, #1 operational need at 2013-14 CAF WEPTAC; BCC Tactics Review Board; 2014 ARC WEPTAC Council.

3. Units Impacted.

WADS	Joint Base Lewis-McChord, WA	176 ADS	Joint Base Elmendorf-Richardson, AK
EADS	Rome, NY	169 ADS	Wheeler Army Air Field, HI

4. Program Details. PEC: 51311

Remaining Quantity Required	Unit Cost	Program Cost
4 Common Mission Systems (3080)	**$1,000,000**	**$4,000,000**
Total		**$4,000,000**

BATTLE CONTROL CENTER CROSS-DOMAIN ENTERPRISE SERVICE

1. Background. A cross-domain solution (CDS) at the Battle Control Center (BCC) provides tactical information sharing, increased cybersecurity, and redundancy. The CDS processes non-releasable classified information from tactical data systems and presents the appropriate releasable information to specific partner nations via dedicated networks. CDS is the application layer data filter that assures tactical integration of assets in cyberspace for homeland defense operations. This solution is required to integrate tactical data links, provide functional redundancy to the Air Event Information Sharing Service, integrated joint service tactical data links, and facilitate defense support to civil authorities through the Situational Awareness Geospatial Enterprise application. The full package includes two additional joint range extensions in each BCC providing functional redundancy for information exchange and assurance within North American Aerospace Defense Command.

2. Source of Need. 2014 NORAD C2 Ops Conference #1/11 Operational Needs; 2014 NORAD WEPTAC #3 of 12 Operational Needs out-briefed to the CDRNORAD in the Executive Session; AFNORTH Information Sharing POM for FY16/17; BCC Information Sharing Capabilities Request Form FY14; AF Form 1067 CDES; #1 operational need at 2014 CAF WEPTAC, BCC Tactics Review Board; 2014 ARC WEPTAC Critical Capability

3. Units Impacted.

WADS	Joint Base Lewis-McChord, WA	176 ADS	Joint Base Elmendorf-Richardson, AK
EADS	Rome, NY	169 ADS	Wheeler Army Air Field, HI

4. Program Details. PEC: 51311

Remaining Quantity Required	Unit Cost	Program Cost
4 Firewall Hardware / Software Packages (3080)	**$500,000**	**$2,000,000**
4 Joint Range Extension 3 Generation Gateways (3080)	**$180,000**	**$720,000**
4 Software Licenses for JREs (3840)	**$45,000**	**$180,000**
Total		**$2,900,000**

BATTLE CONTROL CENTER BEYOND LINE-OF-SIGHT COMMUNCATIONS

1. Background. Battle Control Centers (BCC) lack complete radio and data coverage within the US via beyond-line-of-sight tactical satellite communications (TACSAT). TACSAT utilizes existing satellite capable radios with existing satellite communications (SATCOM) connectivity to perform tactical missions. New TACSAT equipment must be voice and data capable with connectivity in the extreme northern latitudes (north of 66°). Current SATCOM coverage is unreliable beyond 66° north latitude. In addition, new TACSAT radios must perform legacy missions utilizing SATCOM waveforms and Mobile User Objective System (MUOS) capable waveform due to its success and reliability at the magnetic poles. TACSAT radios located at the BCC allow direct control of the waveform by BCC operators, or remote control through IP connectivity, still allowing for waveform manipulation. Radio coverage in Alaska is substandard with no solution for this gap planned until 2025. Alaska has 183 remote site radios that are obsolete and require replacement. An interim solution is to purchase 20 PRC-117G each for BCCs located outside of the continental United States. These radios have the capability to integrate with TACSAT and utilize the MUOS capable waveform. Employment of TACSAT at the BCC improves voice and data connectivity in all mission sets to include homeland defense, defense support to civil authorities and aerospace control alert.

2. Source of Need. Air Combat Command (ACC) Enabling Concept for US Theater Air Control System Battle Control Center, dated 1 January 2005; AFI 13-1BCCv3 (DRAFT); AFI 13-1ADv3; Radio Upgrade Plan for NORAD Alaskan Region 1 October 2014; AFI 21-103, ACC SUP, Addendum KK; 2008-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

169 ADS Wheeler Army Air Field, HI 176 ADS Joint Base Elmendorf-Richardson, AK

4. Program Details. PEC: 51311

Remaining Quantity Required	Unit Cost	Program Cost
40 PRC-117G (3080)	**$37,000**	**$1,480,000**
Total		**$1,480,000**

BATTLE CONTROL CENTER BEYOND LINE-OF-SIGHT TACTICAL DATA LINK

1. Background. Battle Control Centers (BCCs) require beyond line-of-sight (BLOS) high frequency (HF) Link-11 to accomplish operations with various command and control (C2) assets operating outside of Link-16 and UHF radio coverage in the United States. Beyond line-of-sight (BLOS) high frequency (HF) Link-11 is the primary means of data transfer. The data terminal set (DTS) is the hardware (computer terminal with embedded radio) that enables BCCs to perform HF Link-11 for C2. The DTS converts BCC battle control system-fixed data messages into MIL-STD 6011 data, ready for transport in an analog BLOS HF waveform. The BCC DTSs are out-of-date, unreliable, and beyond their sustainment life cycle. In order to continue to meet this critical capability, new DTSs are required. In North American Aerospace Defense Command's (NORAD) Alaskan Region, Link-11 is the primary tactical data link. Line-of-sight (LOS) is the primary method of communication for voice and data in homeland defense (HD). There are vast expanses of LOS gaps in Pacific Air Forces (PACAF). Due to these gaps, the PACAF BCCs require BLOS HF Link-11 data capability, enabling continued delivery of vital C2 information to other weapons systems. This allows BCCs to continue to support all NORAD mission sets including homeland defense, defense support to civil authorities and aerospace control alert.

2. Source of Need. Air Combat Command Enabling Concept for US Theater Air Control System Battle Control Center, dated 1 January 2005; AFI 21-103_ACCSUP Addendum KK (BCC Mission Set Equipment List (MSEL) 2014); 2008-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

169 ADS	Wheeler Army Air Field, HI	176 ADS	Joint Base Elmendorf-Richardson, AK

4. Program Details. PEC: 51311

Remaining Quantity Required	Unit Cost	Program Cost
4 Data Terminal Sets (3080)	**$76,000**	**$304,000**
Total		**$304,000**

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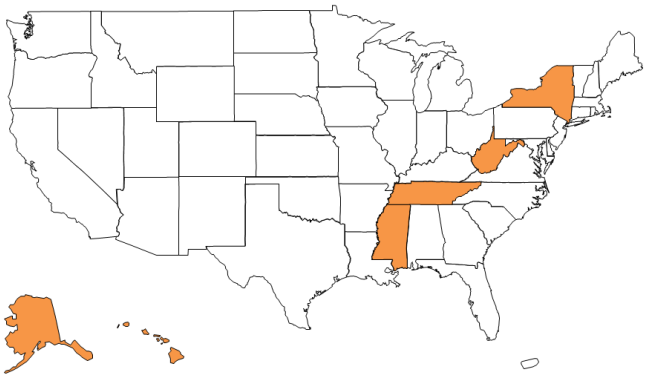
C-17

- **Strategic Airlift**
- **Outsized or Oversized Cargo Airlift**
- **Aeromedical Evacuation Missions**
- **ANG C-17 Units Provide 16% of the Total Fleet**

The C-17 Globemaster III is the nation's newest strategic military airlifter and continues to excel in a wide range of operational mission scenarios. It supports both inter- and intra-theater missions and allows Air Mobility Command (AMC) to significantly improve throughput during contingency operations. Using C-17s as an intra-theater airlift platform provides relief to the C-130 fleet and reduces ground forces' dependence on vehicle convoys.

The Air National Guard (ANG) operates 32 C-17 aircraft assigned to the 105 AW, Stewart ANGB, NY; 164 AW, Memphis IAP, TN; 167 AW, Eastern WV RAP; and the 172 AW in Jackson, MS. The 154 AW at Hickam AFB, HI and the 176 WG at Elmendorf AFB, AK are ANG associate units.

The fully equipped aircraft carries combat-ready military units to any point in the world on short notice, and provides critical field support to sustain the fighting force**.**



C-17
2014 Weapons and Tactics Council

Critical Capabilities List

- Extended Range Fuel Tanks
- Integrated Display Providing Data Link, Next Generation Military Ultra High Frequency Satellite Communications, and Electronic Flight Bag
- Large Aircraft Infrared Countermeasures
- Digital Radar Warning Receiver
- Forward Area Refueling Carts

Essential Capabilities List

- Stick-Mounted Electronic Countermeasures Dispense System
- Remote Electronic Countermeasures Dispense System
- Enhanced Visual System Infrared Head-up Display
- Three-Engine Airdrop Escape Performance Data
- Heads-up Countermeasures Dispenser Control

Desired Capabilities List

- Radar Warning Receiver
- Hostile Fire Indicator

C-17 EXTENDED RANGE FUEL TANKS

1. Background. ANG C-17A Globemaster IIIs routinely transport troops and equipment around the world, provide humanitarian relief and perform aeromedical evacuation (AE) missions. The C-17A, with extended range (ER) fuel tanks, has the capability to carry an additional 65,000 pounds of fuel, enabling an additional 1,800 NM of range when compared to non-ER C-17As. This added range reduces the need for fuel stops, enables faster cargo delivery, and results in fewer landing and takeoff cycles. ER fuel tanks also reduce the demand for air-to-air refueling. ER modified C-17As are required in most cases to perform AE missions departing from European bases due to patient requirements prohibiting fuel stops. The ER modification is performed in conjunction with on-board inert gas generating system II, which reduces the vulnerability of fuel explosion due to small arms fire.

2. Source of Need. 2014 AMC C-17 Requirements and Planning Council; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

105 AW Stewart ANGB, NY 167AW Eastern WV RAP, WV 172 AW Jackson-Evers IAP, MS
164 AW Memphis IAP, TN

4. Program Details. PEC: 41130

Remaining Quantity Required	Unit Cost	Program Cost
18 Extended Range Fuel Tanks (3010)	**$12,000,000**	**$216,000,000**
Total		**$216,000,000**

C-17 INTEGRATED DISPLAY PROVIDING DATA LINK, NEXT GENERATION MILITARY ULTRA HIGH FREQUENCY SATELLITE COMMUNICATIONS, AND ELECTRONIC FLIGHT BAG

1. Background. Current information-based dynamic battlespace environments require secure airborne data communications with other aircraft, command and control (C2) agencies, and ground-based forces. Data link (DL) and data transfer provide aircrews the ability to report and receive from monitoring C2 agencies battlespace information such as position of other aircraft, weather, threat, mission events, mission status, task completion, resource status, etc. This increased situational awareness allows C2 agencies the ability to track mission progress and facilitate rapid decisions and adjustments during mission execution. Next generation military ultra-high frequency satellite communication radios provide both data and voice using satellites operating outside of traditional DL bandwidths. This enables the crew to get real-time updates for weather, departure and landing information, as well as provides C2 reach-back capability. Electronic flight bags can electronically store and retrieve documents required for flight operations, such as technical orders, Air Force Instructions, flight operations manual, minimum equipment lists, as well as providing the most current flight information publications. To reduce crew workload, these solutions require integration with other aircraft systems.

2. Source of Need. Air Mobility Command (AMC) Requirements and Planning Council; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

105 AW Stewart IAP, NY 167 AW Eastern WV RAP, WV 172 AW Jackson-Evers IAP, MS
164 AW Memphis IAP, TN

4. Program Details. PEC: 41130

Remaining Quantity Required	Unit Cost	Program Cost
1 C-17 NRE (3600)	**$10,000,000**	**$10,000,000**
36 C-17 Group A (3010)	**$100,000**	**$3,600,000**
36 C-17 DL Radios (3010)	**$330,000**	**$11,880,000**
36 C-17 DL Processors (3010)	**$100,000**	**$3,600,000**
36 Electronic Flight Bags (3010)	**$240,000**	**$8,640,000**
36 UHF SATCOM KITS (3010)	**$475,000**	**$17,100.000**
Total		**$54,820,000**

C-17 LARGE AIRCRAFT INFRARED COUNTERMEASURES

1. Background. ANG C-17s operate worldwide in environments where man-portable air defenses (MANPADs) proliferate. MANPADs represent a significant threat during takeoff and landing phases of flight because many are designed to defeat flare-based defensive systems. The Block 30 large aircraft infrared countermeasures (LAIRCM) system provides the most effective countermeasures against MANPADs. C-17s transferring to the ANG may not arrive with LAIRCM installed, while those that do usually require upgrade to the Block 30 version. LAIRCM and its sensors are a prerequisite to having the next generation AAR-54 missile launch detector. The upgraded AAR-54 provides better IR threat detection and significantly increases flare and LAIRCM effectiveness. New sensors allow high fidelity detection of IR missile engagements, as well as detection of small arms fire. This system also aids low visibility ground operations and provides better references during low visibility approaches.

2. Source of Need. LAIRCM Operational Requirements Document (ORD) 314-92, Aug 1998; AF Form 1067 AMC 11-170, 11-169 and 11-168; Air Mobility Command (AMC) Requirements and Planning Council; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

105 AW Stewart ANGB, NY 167AW Eastern WV RAP, WV 172 AW Jackson-Evers IAP, MS
164 AW Memphis IAP, TN

4. Program Details. PEC: 41130

Remaining Quantity Required	Unit Cost	Program Cost
1 Next Generation NRE (3600)	**$12,000,000**	**$12,000,000**
32 LAIRCM Group A Kits (3010)	**$2,100,000**	**$67,200,000**
32 LAIRCM Group B Kits (3010)	**$3,000,000**	**$96,000,000**
Total		**$175,200,000**

C-17 DIGITAL RADAR WARNING RECEIVER

1. Background. C-17 missions into radio frequency (RF) based threat regions drive a dire need for RF threat awareness and avoidance. For threat awareness, current operations rely heavily on off-board assets and command and control. Air National Guard C-17s have no onboard radar warning receiver (RWR), thereby, no onboard RF threat detection capability. A digital RWR is critical for C-17 missions into advanced/contested RF emitting threat areas.

2. Source of Need. AN/ALR-69A Capabilities Production Document; 2014 ARC WEPTAC Council.

3. Units Impacted.

105 AW Stewart ANGB, NY 167AW Eastern WV RAP, WV 172 AW Jackson-Evers IAP, MS
164 AW Memphis IAP, TN

4. Program Details. PEC: 41130

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3600)	**$10,000,000**	**$10,000,000**
32 RWR Systems (3010)	**$700,000**	**$22,400,000**
Total		**$32,400,000**

C-17 FORWARD AREA REFUELING POINT CARTS

1. Background. Forward arming and refueling point (FARP) carts provide ground and flying units the ability to fuel directly from a C-17 on the ground. This ability supports the warfighter abroad and is leveraged to support domestic operations. The carts can be airlifted by a C-17 and flown into the area of operation. This new ability gives the combatant commander and on-scene leadership a new capability to respond to warfighter demands to include; major natural disasters, humanitarian events, and other needs that the Air National Guard are uniquely tasked to support. This capability is critical in an anti-access, area denial environment, allowing FARP operations to occur. Fighters, helicopters, and other vehicles that use fuel increase their operational radius through the use of FARP carts. With fuel provided directly from the C-17, aircraft and support vehicles operate from austere locations without the problems associated with conventional over the road fuel delivery.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.

105 AW Stewart ANGB, NY 167AW Eastern WV RAP, WV 172 AW Jackson-Evers IAP, MS
164 AW Memphis IAP, TN

4. Program Details. PEC: 41130

Remaining Quantity Required	Unit Cost	Program Cost
4 Forward Area Refueling Carts (3010)	**$2,200,000**	**$8,800,000**
Total		**$8,800,000**

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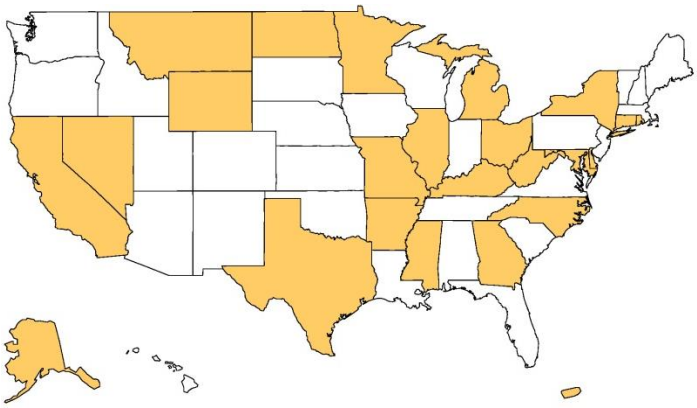
C-130H/J

- **Tactical Airlift**
- **ANG C-130 Units Provide 40% of the Total Fleet**

After more than six decades of service, the C-130 Hercules remains the US military's primary combat delivery aircraft. In addition to its primary role in tactical airlift, Air National Guard (ANG) C-130s support worldwide humanitarian, peacekeeping, and disaster relief operations. Procurement efforts continue to address updates to the avionics suites, improved self-protection, single-pass precision airdrop, enhanced situational awareness, and propulsion modernization. These improvements ensure that the ANG C-130 fleet remains capable of safely and effectively executing its missions globally.



C-130H/J
2014 Weapons and Tactics Council

Critical Capabilities List

C-130H:
- Updated Avionics Suite Providing Global Airspace Access and Modernized Cockpit Instrumentation
- Improved Radio Frequency and Infrared Self-Protection
- Single-Pass Precision Airdrop
- Integrated Data Link and Defensive Systems Suite
- Propulsion System Upgrades

C-130J:
- Improved Radio Frequency and Infrared Self-Protection Suite
- Single-Pass Precision Airdrop
- Tactical Plot Suite
- Aircraft Integrated Processor/Broker
- Dynamic Retasking Capability

Essential Capabilities List

C-130H:
- Tactical Data Link Included in the C-130 Multi-Mission Cockpit Trainers
- Improved Dual-mode External Lighting
- Cargo Compartment Modernization
- Military Secure Precision Global Position System Tightly Coupled with Inertial Navigation System and Jamming Notification

C-130J:
- Data Link Capability for Weapons System Trainer/Multi-Mission Cockpit Trainers
- Improved Heads-Up Display Readability During Night Vision Instrument System Mode
- Virtual Electronic Combat Training System
- Selective Call
- Global Position System Jam-resistant Embedded Global Positioning System/Inertial Navigation System and Streamlined Notification
- Vertical Situation Awareness
- Cargo Compartment Camera

Desired Capabilities List

C-130H:
- Permanent 115V AC, 60 Hz Flight Deck
- Wireless Fidelity Systems

C-130J:
- Wireless Fidelity Systems
- Mission Recording and Reconstruction Capability

C-130H UPDATED AVIONICS SUITE PROVIDING GLOBAL AIRSPACE ACCESS AND MODERNIZED COCKPIT INSTRUMENTATION

1. Background. The delay of the Avionics Modernization Program results in an unachievable timeline for ANG C-130H models to meet the 2020 deadline for international communications, navigation and surveillance/air traffic management (CNS/ATM) mandates established by Federal Aviation Administration Directive Order 260B, and related International Civil Aviation Organization documents. The C-130 fleet faces severe sustainment challenges with mission-required avionics equipment. Diminishing manufacturing sources have rendered greater than 25 percent of current avionics obsolete. C-130H models do not meet precision and area navigation or automatic dependent surveillance-broadcast (ADS-B) requirements to operate worldwide beyond 2019. Current cockpit lighting is substandard for Night Vision Goggle (NVG) operations. A modern flight management system with Global Positioning System approach capability and a modern "glass" flight deck increase mission capability and training effectiveness rates with higher equipment reliability, lower maintenance costs and enhanced safety. Updated avionics address CNS/ATM mandates and increase operational efficiency by opening up airspace routes with stringent navigational requirements and allow the use of GPS approaches. A glass cockpit reduces crew workload through presentation of a consolidated situational awareness picture. Improving the night vision instrument system (NVIS) lighting compatibility ensures compliance with Air Force Instruction (AFI) 11-2C130 V3, *C-130 Operations Procedures*, and Military Standard (MIL-STD) 3009, and increase both capability and sustainability to operate safely at night. The lack of C-130H improved communications and avionics technology restricts them from operating in European airspace. Additionally, tactical night operations continue to suffer with non-NVIS compliant lighting.

2. Source of Need. Air Mobility Command AF Form 1067 #14-013 and 14-018; FAA Directive Order 260B, 27 May 2010; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

103 AW	Bradley IAP, CT	136 AW	JRB Fort Worth, TX	165 AW	Savannah IAP, GA
109 AW	Schenectady CAP, NY	139 AW	St Joseph AP, MO	166 AW	New Castle CAP, DE
120 AW	Great Falls IAP, MT	145 AW	Charlotte-Douglas IAP, NC	176 AW	JB Elmendorf, AK
123 AW	Louisville IAP, KY	152 AW	Reno-Tahoe IAP, NV	179 AW	Mansfield Lahm AP, OH
130 AW	Yeager AP, WV	153 AW	Cheyenne RAP, WY	182 AW	Peoria IAP, IL
133 AW	Mpls-St Paul IAP, MN	156 AW	San Juan IAP, PR	189 AW	Little Rock AFB, AR

4. Program Details. **PEC: 41115**

Remaining Quantity Required	Unit Cost	Program Cost
154 Avionics Kits (3010)	**$5,700,000**	**$877,800,000**
1 NRE (3600)	**$50,000,000**	**$50,000,000**
154 NVIS (3010)	**$465,000**	**$71,610,000**
Total		**$999,410,000**

C-130H IMPROVED RADIO FREQUENCY AND INFRARED SELF-PROTECTION

1. Background. C-130 aircraft perform demanding missions in close proximity to radio frequency (RF) based threats and man-portable air defenses (MANPADs). Combat plans rely heavily on airlift for logistical support to front-line troops, requiring C-130s to operate closer to adversary RF and infrared (IR) surface-to-air missile systems. At present, ANG C-130Hs have limited to no RF detection capability. A radar warning receiver (RWR) with geolocation capability in dense RF environments is critical for all ANG C-130 aircraft. In addition, C-130H aircraft require an increased capability to decrease IR signature and defeat modern MANPADs. The infrared suppression system reduces the IR signature while the AN/AAQ-24 Large Aircraft Infrared Countermeasures (LAIRCM) Block 30 system provides more capable countermeasures against currently fielded advanced MANPAD threats. The Block 30 configuration, being fielded on Air Mobility Command (AMC) C-17, C-5, KC-135, and C-130J aircraft, delivers this needed detection capability and higher reliability.

2. Source of Need. AMC Advanced Situational Awareness Countermeasures CDD, Jan 2008; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

103 AW	Bradley IAP, CT	136 AW	JRB Fort Worth, TX	165 AW	Savannah IAP, GA
109 AW	Schenectady CAP, NY	139 AW	St Joseph AP, MO	166 AW	New Castle CAP, DE
120 AW	Great Falls IAP, MT	145 AW	Charlotte-Douglas IAP, NC	176 AW	JB Elmendorf, AK
123 AW	Louisville IAP, KY	152 AW	Reno-Tahoe IAP, NV	179 AW	Mansfield Lahm AP, OH
130 AW	Yeager AP, WV	153 AW	Cheyenne RAP, WY	182 AW	Peoria IAP, IL
133 AW	Mpls-St Paul IAP, MN	156 AW	San Juan IAP, PR	189 AW	Little Rock AFB, AR

4. Program Details. **PEC: 41115**

Remaining Quantity Required	Unit Cost	Program Cost
158 C-130H LAIRCM Group A Kits (3010)	**$1,500,000**	**$237,000,000**
79 C-130H LAIRCM Group B Kits (3010)	**$4,400,000**	**$347,600,000**
158 C-130H NexGen Group A Kits (3010)	**$420,000**	**$66,360,000**
40 C-130H NexGen Group B Kits (3010)	**$774,855**	**$30,994,200**
145 C-130H ALR-69A* (3010)	**$1,000,000**	**$145,000,000**
Total		**$826,954,200**

* Includes 10% spares.

C-130H/J SINGLE-PASS PRECISION AIRDROP

1. Background. The ANG C-130 fleet has several shortfalls in its ability to accurately deliver airdrop loads in contested and degraded operations (CDO) in both instrument and visual meteorological conditions (IMC/VMC). The US Army's objective for airdrop accuracy is 50 meters circular error average, but traditional methods only provide 300-meter accuracy. Current precision airdrop methods also require multiple passes (increased exposure to threats) over the drop zone for atmospheric calculations before dropping actual bundles. Effective airdrop operations require early identification of the drop zone (crucial during on-call operations), real-time airdrop damage estimates, real-time wind sensing (altitude to surface), displayed continuously computed impact point/launch acceptability region, and post-drop assessment. Targeting pods with light detection and ranging provide the necessary capabilities during VMC operations, especially in CDO environments. Software and hardware upgrades to the APN-241 radar provide synthetic aperture radar and wind sensing to meet these requirements in IMC airdrops. Radar upgrades coupled with targeting pods provide a highly accurate all-weather single-pass airdrop capability that can be utilized to support domestic and contingency operations.

2. Source of Need. AF Form 1067 AMC 13-116 and 13-117; Mission Need Statement Air Mobility Command/Combat Air Forces/Air Education and Training Command/Air Force Special Operations Command/Air Force Materiel Command 301-97; C-130 Avionics Modernization Program System Requirement Document, 31 March 2000; Required Theater CEA/Mitigate ADE; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

103 AW Bradley IAP, CT	139 AW St Joseph AP, MO	165 AW Savannah IAP, GA
109 AW Schenectady CAP, NY	143 AW Quonset SAP, RI	166 AW New Castle CAP, DE
120 AW Great Falls IAP, MT	145 AW Charlotte-Douglas IAP, NC	176 AW JB Elmendorf, AK
123 AW Louisville IAP, KY	146 AW Channel Island ANGS, CA	179 AW Mansfield Lahm AP, OH
130 AW Yeager AP, WV	152 AW Reno-Tahoe IAP, NV	182 AW Peoria IAP, IL
133 AW Mpls-St Paul IAP, MN	153 AW Cheyenne AP, WY	189 AW Little Rock AFB, AR
136 AW JRB Ft Worth, TX	156 AW San Juan IAP, PR	

4. Program Details. PEC: (C-130H) 41115, (C-130J) 41132

Remaining Quantity Required	Unit Cost	Program Cost
1 Targeting Pod NRE (3600)	**$16,000,000**	**$16,000,000**
1 APN-241 Radar Upgrade (3600)	**$3,000,000**	**$3,000,000**
77 Targeting Pods (3010)	**$2,000,000**	**$154,000,000**
Total		**$1,173,000,000**

C-130H INTEGRATED DATA LINK AND DEFENSIVE SYSTEMS SUITE

1. Background. Combat operations have highlighted the need for comprehensive and networked battle space awareness within the C-130 community. The C-130 real-time information in the cockpit (RTIC) system allows C-130 aircraft to participate on multiple data link networks by utilizing technologies already fielded on other DoD assets. Upgrades to the C-130 RTIC system increase the overarching network capability and provide a common processing and display platform for previously federated systems, resulting in a consolidated situational awareness picture. Integration with the advanced integrated electronic combat system provides the capability for on-board/off-board threat correlations, data sharing, on-board radar threat system geo-location, route re-planning, and automated countermeasures. Combining the control and outputs of multiple systems into one common graphical interface reduces crew workload, decreases "heads-down" time, and provides improved decision support for aircrews operating in the tactical environment. Lack of this capability creates a detriment to safety due to shortfalls in situational awareness, such as the lack of terrain awareness warning system and electronic takeoff and landing data systems. This degrades crew resource management and highlights the need to develop, field, and sustain these capabilities. Lastly, the integration of noise-cancelling and three-dimensional audio in the cockpit increases situational awareness by spatially separating aural warning and radio signals such as angular threat information or terrain awareness cues.

2. Source of Need. AF Form 1067 AMC 09-093 and 13-013; Mobility Air Forces Network Enabling Concept, 26 Apr 2006; AMC MAF Data Link Integration Technical Requirements Document, 25 Oct 2006; Tactical Data link Transformation Capabilities Development Document, Increment 1, JROCM, 23 Jun 2004; AMC Advanced Situational Awareness Countermeasures CDD, Jan 2008. 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

103 AW	Bradley IAP, CT	136 AW	JRB Fort Worth, TX	165 AW	Savannah IAP, GA
109 AW	Schenectady CAP, NY	139 AW	St Joseph AP, MO	166 AW	New Castle CAP, DE
120 AW	Great Falls IAP, MT	145 AW	Charlotte-Douglas IAP, NC	176 AW	JB Elmendorf, AK
123 AW	Louisville IAP, KY	152 AW	Reno-Tahoe IAP, NV	179 AW	Mansfield Lahm AP, OH
130 AW	Yeager AP, WV	153 AW	Cheyenne RAP, WY	182 AW	Peoria IAP, IL
133 AW	Mpls-St Paul IAP, MN	156 AW	San Juan IAP, PR	189 AW	Little Rock AFB, AR

4. Program Details. PEC: (C-130H) 41115

Remaining Quantity Required	Unit Cost	Program Cost
154 AIECS Kits (3010)	**$150,000**	**$23,100,000**
1 AIECS NRE (3600)	**$10,000,000**	**$10,000,000**
1 Directional Audio NRE (3600)	**$5,000,000**	**$5,000,000**
155 Directional Audio Kits (3010)	**$50,000**	**$7,750,000**
Total		**$45,850,000**

C-130H PROPULSION SYSTEM UPGRADES

1. Background. Current operations and the need for increased performance, efficiency, and reliability have highlighted the need for a comprehensive propulsion upgrade to the C-130H fleet. Incorporating modular blade technology (NP2000), electronic propeller control system (EPCS), and in-flight propeller balancing system (IPBS) provide increased performance and reliability. The 3.5 engine upgrade results in significant fuel savings and reliability improvements. The modular design of NP 2000 eight-bladed propellers decrease propeller maintenance time, increases airlift efficiency during transportation by taking up less pallet space, and increases operational performance. EPCS improves safety by accelerating response time when throttles are rapidly advanced; an issue in previous mishaps. The legacy propeller control system uses 1950's technology and is a significant maintenance driver; while the EPCS improves propeller system reliability by 50 percent. IPBS eliminates the need for regular maintenance as the propeller is continuously balanced during flight operations. As a result, it virtually eliminates propeller balance induced vibration, which equates to reduced noise, less damage, and improved aircraft availability. Upgrading the T-56 engine with the Rolls Royce 3.5 modification, with redesigned compressors and turbines, increases engine life-cycle and improves fuel economy. Until propulsion deficiencies are addressed, legacy aircraft continue to lag behind modern counterparts, missing the opportunity to decrease operational risk and increase utility and effectiveness in the evolving combat and special mission environments.

2. Source of Need. AF Form 1067 AMC 11-138 and 14-089; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

103 AW	Bradley IAP, CT	136 AW	JRB Fort Worth, TX	165 AW	Savannah IAP, GA
109 AW	Schenectady CAP, NY	139 AW	St Joseph AP, MO	166 AW	New Castle CAP, DE
120 AW	Great Falls IAP, MT	145 AW	Charlotte-Douglas IAP, NC	176 AW	JB Elmendorf, AK
123 AW	Louisville IAP, KY	152 AW	Reno-Tahoe IAP, NV	179 AW	Mansfield Lahm AP, OH
130 AW	Yeager AP, WV	153 AW	Cheyenne RAP, WY	182 AW	Peoria IAP, IL
133 AW	Mpls-St Paul IAP, MN	156 AW	San Juan IAP, PR	189 AW	Little Rock AFB, AR

4. Program Details. PEC: 41115

Remaining Quantity Required *	Unit Cost	Program Cost
EPCS/IPBS NRE (3010)	**$8,000,000**	**$8,000,000**
135 NP2000 * (3010)	**$2,000,000**	**$270,000,000**
135 EPCS * (3010)	**$825,000**	**$111,375,000**
135 IPBS * (3010)	**$350,000**	**$47,250,000**
540 T-56 3.5 MOD Engines * (3010)	**$1,400,000**	**$756,000,000**
135 OCA * (3010)	**$667,000**	**$90,045,000**
Total		**$1,282,670,000**

* Includes 10% spares.

C-130J IMPROVED RADIO FREQUENCY AND INFRARED SELF-PROTECTION SUITE

1. Background. C-130 aircraft perform demanding missions within the weapons engagement zones of man-portable air defenses (MANPADs) and radio frequency (RF) guided threats. Current combatant command operational plans rely heavily on airlift for logistical support to front-line troops, requiring C-130s to operate closer to adversary tactical surface-to-air missile systems. The AN/AAQ-24 Large Aircraft Infrared Countermeasures (LAIRCM) Block 30 system provides the most capable countermeasures against current MANPAD threats. The Block 30 configuration, currently fielded on Air Mobility Command C-17 aircraft, delivers greater warning, lower false alarm rates and higher reliability than earlier systems. The lack of RF geolocation capability decreases the effectiveness of C-130J defensive reactions. Therefore, an advanced radar warning receiver, such as the AN/ALR-69A, is critical for C-130J aircraft to effectively employ in anti-access/area denial combat theaters. Increased situational awareness is needed to correlate onboard and off-board threat detection, terrain masking, and optimized dynamic rerouting capabilities to avoid or minimize exposure to threats.

2. Source of Need. AMC Advanced Situational Awareness Countermeasures Capability Development Document, Jan 2008; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

143 AW Quonset State, RI 146 AW Channel Islands, CA

4. Program Details. PEC: 41132

Remaining Quantities Required	Unit Cost	Program Cost
16 C-130J LAIRCM Group A Kits (3010)	**$970,000**	**$15,520,000**
8 C-130J LAIRCM Group B Kits (3010)	**$4,4000,000**	**$35,200,000**
16 C-130J NexGen Group A Kits (3010)	**$420,000**	**$3,360,000**
8 C-130J NexGen Group B Kits (3010)	**$774,855**	**$6,198,840**
1 NRE (3600)	**$5,000,000**	**$5,000,000**
16 C-130J ALR-69A (3010)	**$1,000,000**	**$16,000,000**
Total		**$81,278,840**

C-130J TACTICAL PLOT SUITE

1. Background. The C-130J's current software suite permits the use of only 10 Tactical Plots (TAC PLOT), which are limited to a circular dimension. Aircrew currently use TAC-PLOTs to display airspace and threats "under the glass" on the C-130J digital map, the navigation radar display, the terrain awareness warning system display, and coordinated aircraft position/station keeping equipment. The current 10 circular TAC PLOTs are inadequate to display the robust tactical airspace picture where killbox/keypads, political borders, restricted operating zones, and departure/arrival corridors exist. A TAC PLOT suite meeting this capability exists for the C-5M. This software can be easily interfaced with the C-130J mission computer, communication navigation interface-management unit and heads down displays. This TAC PLOT suite allows the plotting of accurate killbox/keypads, arrival/departure sectors, and zone plotting where pilots can use multiple waypoints to draw uniquely structured airspace. Lastly, this software allows 50 entries of each type of TAC PLOT.

2. Source of Need. AMC Tactics Review Board 2012-2013; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
143 AW Quonset State, RI 146 AW Channel Islands, CA

4. Program Details. PEC: 41132

Remaining Quantities Required	Unit Cost	Program Cost
1 NRE (3600)	**$4,000,000**	**$4,000,000**
TAC PLOT Suite Software Update (3010)	**$62,500**	**$1,000,000**
Total		**$5,000,000**

C-130J AIRCRAFT INTEGRATED PROCESSOR/BROKER

1. Background. To operate in contingencies, with constantly changing enemy tactics and increased mission demands, C-130Js require a nimble processing system to negotiate the dynamic tactical environment. Examples of emerging systems processed by an integrated processor/broker include tactical data link, communications, navigation and surveillance/air traffic management, next generation self-protection systems, single pass precision airdrop, electronic flight bag, and new parachute ballistic calculations for airdrop. The current aircraft modernization process hinders system enhancements until programmed block upgrades occur for 7.0/8.1 (FY 2018-2029). This yields complicated, non-integrated workarounds while aircrew await contracted aircraft update cycles. Acquiring an aircraft integrated processor/broker allows immediate access to the 1553 data bus. This rapid plug-and-play capability is more cost effective, meets time-sensitive mission requirements, and presents a system-integrated solution, which is pivotal to the C-130J two-man cockpit.

2. Source of Need. AMC Tactics Review Board 2012-2013; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

143 AW Quonset State, RI 146 AW Channel Islands, CA

4. Program Details. PEC: 41132

Remaining Quantities Required	Unit Cost	Program Cost
1 NRE (3010)	**$5,000,000**	**$5,000,000**
18 Aircraft Broker / Special Mission Processor Kits* (3010)	**$120,000**	**$2,160,000**
Total		**$7,160,000**

* Includes 10% spares.

C-130J DYNAMIC RETASKING CAPABILITY

1. Background. Combat operations highlight the need for comprehensive and networked battlespace awareness within the C-130 community. The dynamic retasking capability (DRC) system is an Air Mobility Command (AMC) solution to a US Central Command Urgent Operational Need (UON). DRC allows select C-130J aircraft to participate on multiple data link networks by utilizing current, fielded technologies. The DRC system consists of a permanent Group A kit aircraft modification and a roll-on, roll-off Group B kit to enable network capability with two tactical data links: Enhance Position Location System/Situational Awareness Data Link and Joint Range Extension Application Protocol - Appendix A. DRC was programmed for interim C-130J use, until permanent installation of the Link-16 tactical data link system as part of the Block 7.0 upgrade. The C-130J Block 7.0 upgrade has been delayed to coincide with the Block 8.1 upgrade, currently scheduled to begin in 2018 and continue through 2029. The original limited DRC acquisition goal is no longer viable with the delayed Block 7.0/8.1 implementation timeline. The ANG employs 16 C-130J aircraft and only 10 are modified with Group A kits, and only 4 Group B kits are allocated for utilization (2 per unit). In order to ensure ANG C-130J units are able to effectively train, operate, and deploy with data link capability and proficiency, all aircraft are modified with DRC Group A and Group B kits.

2. Source of Need. AF Form 1067 13-062; Mobility Air Forces Network Enabling Concept, 26 Apr 2006; AMC MAF Data link Integration Technical Requirements Document 25 Oct 2006; Tactical Data Link Transformation Capability Development Document, Increment 1, Joint Requirements Oversight Council Memorandum, 23 Jun 2004; 2014 ARC WEPTAC Council.

3. Units Impacted.

143 AW Quonset State, RI 146 AW Channel Islands, CA

4. Program Details. PEC: 41132

Remaining Quantities Required *	Unit Cost	Program Cost
6 Dynamic Retasking Capability A Kits (3010)	**$200,000**	**$1,200,000**
14 Dynamic Retasking Capability B Kits* (3010)	**$400,000**	**$5,600,000**
Total		**$6,800,000**

* Includes spares.

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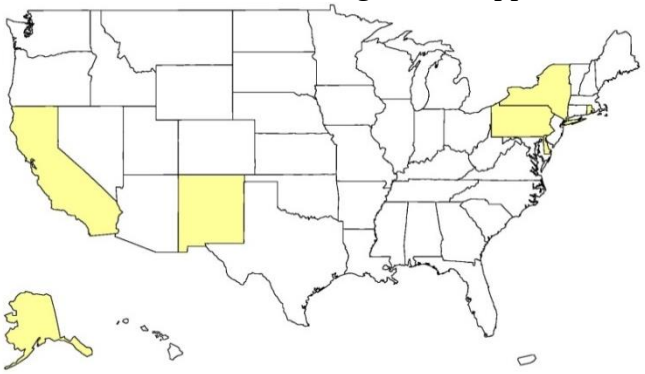
C-130
Special Mission

- **Commando Solo**
- **SOF/CSAR**
- **Special Mission (Airborne Firefighting, Antarctic Logistics)**
- **ANG Commando Solos Provide 100% of the Total Fleet**
- **ANG CSAR H/MC-130s Units Provide 36% of the Total Fleet**
- **ANG LC-130s Provide 100% of the Total Fleet**

EC-130J - The EC-130J "Commando Solo" conducts information operations, psychological operations, and civil affairs broadcasts. Procurement efforts continue for the large aircraft infrared countermeasure system, tactical data link secure line-of-sight and beyond line-of-sight capabilities, radio communication upgrades, and loadmaster crashworthy seats.

HC/MC-130 - The Air National Guard (ANG) provides 35 percent of the AF's HC/MC-130 combat search and rescue capability. ANG HC/MC-130 units continue to deploy in support of overseas contingency operations and provide emergency rescue and relief support during domestic operations. Upcoming modernization efforts for the ANG HC/MC-130 fleet include loadmaster crashworthy seats, aircrew flight equipment racks, electro-optical-infrared sensor upgrades and heavy equipment airdrop capability.

LC-130 - The LC-130 operates on snowfields in remote areas of the Polar Regions in support of the National Science Foundation (NSF). In order to keep the aircraft up-to-date, several modification efforts are underway including the electronic propeller control system (EPCS), eight-bladed propellers, and the crevasse detection radar. The ANG is also working with the NSF to develop a pod-based scientific payload capability for the LC-130s.



C-130 Special Mission
2014 Weapons and Tactics Conference

Critical Capabilities List

EC-130J:

- C/MC/HC-130J Simulator Training Devices (see Tab Q)
- Super J Special Operations Forces Mobility Requirements
- Communication/Situational Awareness Suite Phase II/III
- Ku-Band Spread Spectrum System and Trainer
- Removable Airborne Military Information Support Operations System

HC/MC-130P/N:

- Integrated Beyond Line-of-Sight/Secure Line-of-Sight Data Link
- Information Superiority
- Combat Penetrator Suite
- Enhanced Engine and Propeller Performance
- Mission Flexible Refueling and Airdrop System

LC-130H:

- Avionics Obsolescence Solution
- Propulsion Modernization
- Enhanced Situational Awareness
- Retractable External Arm and Crevasse Detection Radar
- Flight Deck Communications Upgrade

Essential Capabilities List

EC-130J:

- Single-Pass Precision Guided Airdrop
- Emergency Equipment Bins

HC/MC-130P/N:

- Roll-On/Roll-Off Electro-Optical-Infrared
- Electronic Flight Bag
- Visual Threat Recognition and Avoidance Training
- Communications, Navigation, and Surveillance and Air Traffic Management Compliant Avionics
- Distributed Mission Operations and Training

LC-130H:

- None

Desired Capabilities List

EC-130J:

- None

HC/MC-130P/N:

- Global Positioning System Internal Repeater
- Radar Altimeter on Copilot Instrument Panel
- Altitude Alert
- Terrain Following/Terrain Avoidance Low-level Navigation
- Dual Rail Compatible Air Deflector Doors

LC-130H:

- None

EC-130J SUPER J SPECIAL OPERATIONS FORCES MOBILITY REQUIREMENTS

1. Background. ANG EC-130J Commando Solo aircraft perform demanding missions worldwide in all environments including low level altitudes at night into austere airfields. Mountainous terrain and obstacles are a threat to successful mission operations. The ANG requires a multi-spectral targeting system, utilizing advanced forward looking infrared radar technology, to safely avoid terrain while at low level, acquire targets and execute operations at austere airfields. These mission sets are carried out in multiple combatant command areas of responsibility (AOR), necessitating long range flights and reliance on tanker support. External fuel tanks allow EC-130J aircraft to reach AORs with fewer aerial aircraft refuelings and increase mission loiter time.

2. Source of Need. AFSOC AF Form 1067, USSOCOM Lesson Learned; 193 SOW Strategic Plan FY12-37; 2013 ARC WEPTAC Conference, 2014 ARC WEPTAC Council.

3. Unit Impacted.
193 SOW Harrisburg IAP, PA

4. Program Details. PEC: 41132, 27253

Remaining Quantity Required	Unit Cost	Program Cost
3 Dash 21 Equipment (3010)	**$3,000,000**	**$9,000,000**
14 External Tanks (3010)	**$365,625**	**$5,118,750**
7 AN/AAS-52 Systems (3010)	**$750,000**	**$5,250,000**
Installation and Integration (3010)	**$2,000,000**	**$2,000,000**
Total		**$21,368,750**

EC-130J COMMUNICATION / SITUATIONAL AWARENESS SUITE PHASE II / III

1. Background. Special Operations Forces (SOF) Air Mission Suite/Enhanced Situational Awareness (SAMS/ESA) is the Air Force standard situational awareness system installed on all Air Force Special Operations Command (AFSOC) aircraft. The system is a computer network based communication and data link integration system. The Phase I standard data link suite has been integrated and fielded on the EC-130J. It consists of an Enhanced Position Location System Situation Awareness Data Link (EPLRS/SADL) radio, a PRC-117G radio, four laptop computers, three external displays, and provides control of the existing Air Force Tactical Receiver System-Ruggedized broadcast receiver and the Ku band spread spectrum (KuSS) VMT-1220HM communications system. While effective, combat operations have demonstrated a need for the additional capabilities of Phase II/III. These phase improvements include near real-time inflight situational awareness updates. This enables aircrews and command, control, communications, computers and intelligence nodes to monitor and adjust mission conditions and profiles to increase mission effectiveness. Phase II integrates a second Harris PRC-117G multiband tactical radio and an L3 Video Oriented Transceiver for Exchange of information full motion video capability on the EC-130J. The second PRC-117G radio provides a line-of-sight capability that enables the adaptive networking wideband waveform function, a secondary source of beyond line-of-sight capability, and one additional laptop computer for the mission commander. Phase III incorporates the entire system into the aircraft 1553 bus for more stable power and integration of all the systems.

2. Source of Need. AFSOC AF Form 1067 #11104, #09037, USSOCOM Lesson Learned and TERESA CDD; 2014 ARC WEPTAC Council.

3. Unit Impacted.
193 SOW Harrisburg IAP, PA

4. Program Details. PEC: 41132

Remaining Quantity Required	Unit Cost	Program Cost
7 SAMS/ESA Phase II/III (3010)	**$1,429,000**	**$10,003,000**
Total		**$10,003,000**

EC-130J KU-BAND SPREAD SPECTRUM SYSTEM AND TRAINER

1. Background. ANG EC-130J Commando Solo aircraft perform a variety of missions using the Ku-Band Spread Spectrum (KuSS) hatch-mounted satellite system. The 193rd Special Operations Group uses KuSS to send/receive full motion video intelligence, surveillance, and reconnaissance feeds, stream audio/video content for military information support operation broadcasts, and provides a link for other critical command and control data. Four of seven unit aircraft have off-the-shelf C-130 KuSS in-vehicle equipment and a roof mounted antenna assembly installed. Three additional systems are needed to provide all EC-130J aircraft with the same capability. A KuSS system trainer is also needed for mission qualification, continuation, proficiency training. Currently training is accomplished on an "as available" basis in an aircraft. The KuSS System Trainer integrates with the existing Commando Solo partial task trainer (PTT), reducing operational flying requirements for training, while ensuring crews are prepared to meet combatant commander requirements. The addition of a KuSS trainer reduces the hatch mounted antenna maintenance workload, extending the life of the system.

2. Source of Need. USSOCOM Lessons Learned; EC-130J Communications Situational Awareness Suite; 2014 ARC WEPTAC Council.

3. Unit Impacted.
193 SOW Harrisburg IAP, PA

4. Program Details. PEC: 41132

Remaining Quantity Required	Unit Cost	Program Cost
3 KuSS System (3080)	**$400,000**	**$1,200,000**
1 KuSS System Trainer (3080)	**$400,000**	**$400,000**
Total		**$1,600,000**

EC-130J REMOVABLE AIRBORNE MISO SYSTEM

1. Background. Only three of the seven EC-130J aircraft are capable of performing the primary mission of military information support operations (MISO) broadcasting. The Removable Airborne MISO System (RAMS) is a combination of the Fly-Away Broadcast System (FABS) and a retractable external arm mounted in the aft hatch door. The FABS is a US Army developed portable transmitter system used to broadcast MISO messages. This system mounts on a C-130 aircraft without the need for permanent modifications to either the airframe or power systems. The broadcasting portion of the system is mounted in a pod attached to the external arm. The retractable external arm is a flexible system capable of holding multiple pod mounted sensors, kinetic weapons, and antennas. As a modular system, it is not limited to just the RAMS and could be reconfigured with different sensor equipment or other mission specific pod configurations. Existing Commando Solo equipment will be re-purposed for use with the RAMS and only partial kits are needed. Additionally, one airframe has a unique configuration that necessitates an additional crashworthy seat when using the RAMS.

2. Source of Need. US Army Special Operations Command (USASOC) FABS Capability Production Document (CPD), 11 Apr 2011; Psychological Operations Broadcast-Specialized Mission Equipment (SME) Joint Operations Requirements Document (JORD), 28 Mar 2005; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF), 2012-13 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Unit Impacted.
193 SOW Harrisburg IAP, PA

4. Program Details. PEC: 41132

Remaining Quantity Required	Unit Cost	Program Cost
1 FABS NRE (3600)	**$6,000,000**	**$6,000,000**
7 FABS Systems (3010)	**$500,000**	**$3,500,000**
7 Retractable Arm Kits (3010)	**$1,245,714**	**$8,719,998**
1 Crashworthy Seat Kit (3010)	**$60,000**	**$60,000**
4 FABS Operator Stations (3010)	**$750,000**	**$3,000,000**
Total		**$21,779,998**

HC/MC-130P/N BEYOND LINE-OF-SIGHT/SECURE LINE-OF-SIGHT INTEGRATED DATA LINK

1. Background. Installation of a tactical data link (TDL) provides comprehensive command and control (C2) and maximizes HC/MC-130P/N aircrew situational awareness with beyond line-of-sight/secure line-of-sight (BLOS/SLOS) capabilities. It provides critical real-time data to aircrews to participate in the network-centric battlespace. The HC/MC-130P/N operates as the airborne mission commander, rescue mission commander, and on-scene commander during personnel recovery (PR) operations and is limited in these roles without a full picture of the battlespace. Gateways are crucial to allow the disparate data links used by various PR assets to communicate and provide a cohesive battlespace picture. Currently, the HC/MC-130P/N cannot see PR forces on any data link to include fighter and C2 data links. Without data link, the aircrew is unable to track and locate the myriad of survival radios used by joint/coalition forces and civil aircraft. This upgraded communication and avionics suite must be equipped with modern data loading capabilities to include a digital mapping interface system, secure internet protocol, and Blue Force Tracker (BFT). BFT is a modernized joint tracking system that is compatible with Enhanced Position Location System/Situational Awareness Data Link and Link-16 TDLs, providing BLOS interactive data between aviation assets and C2. These capabilities enable aircrews to receive near real-time BFT data and text messaging from the battlefield. A TDL capability must be compatible with situational awareness cockpit display units and compatible with all existing TDL architectures. Without a TDL, the 13 ANG HC/MC-130P/N aircraft do not have access to the C2 networks used during PR operations.

2. Source of Need. Mobility Air Forces (MAF) Network Enabling Concept, 26 Apr 2006; Air Mobility Command (AMC) MAF Datalink Integration Technical Requirements Document (TRD), 25 Oct 2006; Tactical Data Link Transformation CDD, Increment 1, JROCM, 23 Jun 2004; AMC R&PC Mission Essential 07/08; CAF MNS 316-92, Real-Time Information in the Cockpit (RTIC); Global Information Grid CRD, JROCM 134-01, 30 Aug 2001; AF Tactical Data Link Master Plan; 2012 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: 27224 (HC-130); 27230 (MC-130)

Remaining Quantity Required	Unit Cost	Program Cost
1 Gateway NRE (3600)	**$1,000,000**	**$1,000,000**
13 Gateway Kits (3010)	**$500,000**	**$6,500,000**
13 BFT Kits (3010)	**$100,000**	**$1,300,000**
Total		**$8,800,000**

HC/MC-130P/N INFORMATION SUPERIORITY

1. Background. Real-time information exchange is paramount during personnel recovery operations requiring great precision and speed in asymmetric battlespace environments. Recent technical advancements provide the means to integrate an HC/MC-130P/N sensor with existing modern processors and data links to improve command and control and tactical coordination. This state-of-the-art full motion video electro-optical-infrared sensor includes a laser range finder, illuminator, and designator. Using this sensor, the HC/MC-130P/N locates and marks fixed or dynamic targets with precision, providing the Combined Forces Air Component Commander with a powerful collaboration tool in uncertain tactical environments. This same sensor can also precisely determine survivor location information, taking the "search" out of "search and rescue". Additionally, in order for rescue forces to fully support information superiority operations, they require the ability to utilize web-based communication on board the aircraft to enable efficient information sharing across a digital network. Currently, combat search and rescue operations are reliant on low-density/high-demand (LD/HD) weapons systems to provide these critical capabilities. Equipment modernization allows single platform information superiority, targeting, and personnel search, eliminating reliance on other LD/HD intelligence, surveillance, and reconnaissance assets.

2. Source of Need. The Personnel Recovery (PR) Core Function Master Plan (CFMP); AMC, RMC and OSC duties as outlined in AFTTP 3-3.HC/MC-130; AMC R&PC Mission Essential 07/08; CAF MNS 316-92, Real-Time Information in the Cockpit (RTIC); Global Information Grid CRD; JROCM 134-01, 30 Aug 2001; ARC 2012 WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: (HC-130) 27224, (MC-130) 27230

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3600)	**$2,000,000**	**$2,000,000**
13 EO/IR Sensor Upgrades (3010)	**$1,075,000**	**$13,975,000**
13 FMV (3010)	**$192,300**	**$2,499,900**
13 IOB (3010)	**$50,000**	**$650,000**
Total		**$19,124,900**

HC/MC-130P/N COMBAT PENETRATOR SUITE

1. Background. The HC/MC-130P/N rescue aircraft requires multiple upgrades to perform combat rescue in a hostile environment in a peer-on-peer conflict. The HC/MC-130P/N must have a robust self-defense capability because it operates in various threat envelopes. In order to operate in a high threat environment, the HC/MC-130P/N requires a radio frequency (RF) jammer, improved radar detection capability, a terrain following and terrain avoidance (TFTA) radar system, directional audio threat cuing, and a hostile fire indicator (HFI). A modernized radar warning receiver, such as the AN/ALR-69A, provides increased sensitivity, improved range/accuracy resolution of threat radar threat type and location. The RF jammer and TFTA radar allow the combat search and rescue task force to operate in an elevated radar threat environment by utilizing low altitude terrain masking to avoid or defeat detected radar threats. For small arms fire, the HFI helps aircrew avoid unguided ground fire. An electronic combat system coordinates and integrates the electronic warfare systems and provides timely information for threat reactions. The electronic combat system also allows for integration of directional audio threat cuing to help enable timely threat reactions by improving aircrew situational awareness.

2. Source of Need. Lessons Learned from Operations ENDURING FREEDOM and IRAQI FREEDOM; ARC 2012 WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: (HC-130) 27224, (MC-130) 27230

Remaining Quantity Required	Unit Cost	Program Cost
1 Directional Audio (NRE) (3600)	**$6,000,000**	**$6,000,000**
117 Directional Audio Kits (3010)	**$7,000**	**$819,000**
3 Unit Test Equipment (3080)	**$58,500**	**$175,500**
1 RF Jammer NRE (3600)	**$5,000,000**	**$5,000,000**
13 RF Jammer (3010)	**$5,000,000**	**$65,000,000**
1 RWR NRE (3600)	**$2,000,000**	**$2,000,000**
13 RWR Upgrades (3010)	**$1,300,000**	**$16,900,000**
1 TFTA NRE (3600)	**$5,000,000**	**$5,000,000**
13 TFTA (3010)	**$3,000,000**	**$39,000,000**
13 Hostile Fire Indicator (3010)	**$270,000**	**$3,510,000**
Total		**$143,404,500**

HC/MC-130P/N ENHANCED ENGINE AND PROPELLER PERFORMANCE

1. Background. The HC/MC-130P/N aircraft routinely operate at heavy gross weights due to fuel loads required for helicopter air-to-air refueling and forward area refueling procedures. High outside air temperatures, high pressure altitudes, and low-altitude flight (<500 feet) in mountainous terrain are some of the significant hazards facing HC/MC-130P/N aircrew during operations in performance limited situations. Aircrew risk can be lowered through an aircraft performance upgrade consisting of the following: Electronic Propeller Control System (EPCS); NP2000 high-efficiency propeller; an in-flight propeller balancing (IFPB) system; and electronic takeoff and landing data (TOLD). The EPCS enhances performance with improved synchro-phasing during ground operations and improved thrust responsiveness from throttle adjustments. The NP2000 is an eight-bladed, composite propeller that significantly improves the thrust output of the current HC/MC-130P/N engines during take-off and at low altitude. The IFPB system reduces regular propeller balancing maintenance and results in reduced noise, less damage from vibration, and improved aircraft availability. Electronic TOLD calculates engine performance data on a standalone computer system, dramatically reducing opportunities for induced error during manual TOLD calculations for multiple different operating environments.

2. Source of Need. 2012 ARC WEPTAC Conference, 2014 ARC WEPTAC Council.

3. Units Impacted.

106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: 27224 (HC-130); 27230 (MC-130)

Remaining Quantity Required	Unit Cost	Program Cost
1 EPCS, IFPB, ETOLD, & NP2000 NRE (3600)	**$6,000,000**	**$6,000,000**
13 EPCS (3010)	**$879,000**	**$11,427,000**
13 IFPB (3010)	**$350,000**	**$4,550,000**
13 NP2000 * (3010)	**$2,200,000**	**$28,600,000**
Total		**$50,777,000**

* Electronic Propeller Control System (EPCS) is pre-requisite component - replaces mechanical valve housing.

HC/MC-130P/N MISSION FLEXIBLE REFUELING AND AIRDROP SYSTEM

1. Background. The HC/MC-130P/N has recently been modified with the dual-rail system which increases aircraft mission capabilities. A palletized fuel tank compatible with the dual-rails allows for more expeditious reconfiguration that provides greater mission flexibility to support hot refueling and forward area refueling operations. It is capable of withstanding small arms fire and be equipped with fire retardant material. Three for each unit allows for efficient mission utilization. Additionally, only four of the 17 H/MC-130 aircraft are configured to utilize a high-speed drogue. Procurement of thirteen high-speed drogues adapter kits standardizes fleet refueling capabilities and optimizes mission efficiency.

2. Source of Need. Air Force Special Operations Command MC-130P Class A, Air Force Safety Automated System ID 304522, 13 Feb 2002; 2012 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: 27224 (HC-130); 27230 (MC-130)

Remaining Quantity Required	Unit Cost	Program Cost
9 Dual-Rail Fuel Tanks (3010)	**$1,800,000**	**$16,200,000**
13 High Speed Drogue Adapter Kits (3010)	**$100,000**	**$1,300,000**
Total		**$17,500,000**

LC-130 AVIONICS OBSOLESCENCE SOLUTION

1. Background. Avionics modernization program delays have decreased the likelihood that ANG C/LC-130H aircraft will meet international communication navigation surveillance and air traffic management (CNS/ATM) mandates by 2019. The C/LC-130 fleet is also facing sustainability challenges with mission required avionics equipment. Currently, the ANG's C-130H models do not meet 2020 precision and area navigation (P-RNAV) requirements to operate worldwide. In addition, current cockpit lighting is substandard for night vision goggle operations; requiring intensive pre-mission preparation and reducing crew visual acuity. A modern flight management system with Global Positioning System (GPS) approach capability and "glass" flight deck increase mission capability, improve training effectiveness, increase equipment reliability, lower maintenance costs, and enhance aircrew safety. Updated avionics comply with CNS/ATM mandates when the new regulations are effective. Operational effectiveness and efficiency increase with access to airspace that requires more stringent GPS aided approaches and P-RNAV. In addition, situational awareness increases and crew workload decreases with a glass cockpit due to a consolidated picture when used in conjunction with a system integrator such as the airlift integrated electronic combat system. Improving the night vision instrument system (NVIS) lighting compatibility ensures compliance with AFI 11-2C130 V3/MIL-STD-3009 and increase capability to operate safely in night environments. NVIS upgrades are required immediately prior to CNS/ATM upgrades.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.
109 AW Schenectady CAP, NY

4. Program Details. PEC: 41115

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3600)	**$5,000,000**	**$5,000,000**
10 Avionics Kits (3010)	**$6,000,000**	**$60,000,000**
10 NVIS Kits (3010)	**$465,000**	**$4,650,000**
Total		**$64,650,000**

LC-130 PROPULSION MODERNIZATION

1. Background. ANG LC-130Hs from Schenectady, NY have ski-equipped landing gear to enable landings and takeoffs on snow and ice. The 109 AW has a total of 10 LC-130H aircraft: six USAF and four NSF-owned aircraft that are operated by the ANG. A significant portion of their mission requires landing on deep field runways and unimproved snow and ice. To ensure successful takeoffs from deep field runways, Jet Assisted Take-Off (JATO) rocket motors are often used. Current operations require increased performance, efficiency, and reliability which highlight the need for a comprehensive propulsion upgrade to the C-130H fleet. Incorporating NP2000 modular blade technology, electronic propeller control system (EPCS), in-flight propeller balancing system (IPBS), and the 3.5 engine upgrade provide increased performance and reliability. The NP2000/EPCS is an eight-bladed, composite propeller and improved synchronization system that improves thrust 20 percent over the current C-130 engine during takeoff. The benefits of the eight-bladed propeller are additional power, reduced vibration, and reduced JATO shock during takeoff. IPBS lessens routine maintenance because the propeller is continuously balanced inflight. As a result, it nearly eliminates propeller balance induced vibration, which equates to lower noise, less vibration damage, and improved aircraft availability. Upgrading the T-56 engine with the Rolls Royce 3.5 modification, with redesigned compressors and turbines, increases engine life-cycle and improve fuel economy. If these propulsion upgrades are not funded for the LC-130H, the resulting loss of capability seriously reduces polar operations.

2. Source of Need. AF Form 1067, A4MY 11-066; AF Form 1067, 09-003; AF Form AMC 1067 05-042; AF Form AMC 14-089; 2014 ARC WEPTAC Council.

3. Unit Impacted.
109 AW Schenectady CAP, NY

4. Program Details. PEC: 41115

Remaining Quantity Required	Unit Cost	Program Cost
1 NP2000 NRE (3010)	**$2,000,000**	**$2,000,000**
9 NP2000 ** (3010)	**$2,000,000**	**$18,000,000**
EPCS Spares (3010)	**$1,500,000**	**$1,500,000**
1 IPBS NRE (3600)	**$3,000,000**	**$3,000,000**
10 IPBS * (3010)	**$350,000**	**$3,500,000**
50 T-56 3.5 MOD Engines * (3010)	**$1,400,000**	**$70,000,000**
Total		**$98,000,000**

* Includes 10% spares.
** In support of operational testing one of the ANG LC-130Hs is already equipped with the NP2000.

LC-130 ENHANCED SITUATIONAL AWARENESS

1. Background. Recent operations have highlighted the need for comprehensive, networked, command and control awareness, and integration of aircraft systems. The C-130 Real-Time Information in the Cockpit (RTIC) increases data link capability, provides on-board/off-board data sharing, and performs route re-planning. Situational awareness improvements include near real-time inflight updates, allowing aircrew and command, control, communications, computers and intelligence nodes to monitor and adjust mission conditions and profiles to increase mission effectiveness. Without data link, aircrew are largely unable to track and locate joint/coalition forces and civil aircraft without extensive communications relays. RTIC reduces communication transmission time and provides aircrew with the situational awareness necessary to adjust mission profiles in accordance with changing battlefield conditions and air component commander's guidance. Without tactical data link upgrades, C-130 aircrews continue to lack the situational awareness and flexibility to operate with joint/coalition forces in dynamic situations.

2. Source of Need. Mobility Air Forces Network Enabling Concept, 26 Apr 2006; AMC Data Link Integration Technical Requirements Document, 25 Oct 2006; Tactical Data link Transformation CDD, Increment 1, JROCM, 23 Jun 2004; AMC R&PC Mission Essential 2007 and 2008; 2014 ARC WEPTAC Council.

3. Units Impacted.

109 AW Schenectady CAP, NY

4. Program Details. PEC: 41115

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3010)	**$350,000**	**$350,000**
10 RTIC Hardware and Installations * (3010)	**$510,000**	**$5,100,000**
Total		**$5,450,000**

* Includes 10% spares.

LC-130 RETRACTABLE EXTERNAL ARM AND CREVASSE DETECTION RADAR

1. Background. ANG LC-130 aircraft from Schenectady, NY have ski-equipped landing gear to enable landing and takeoffs on snow and ice. The 109 AW supports both polar operations and National Science Foundation polar research missions. Over the last four decades, numerous LC-130H aircraft have sustained damage after landing on ice and snow covered areas that were not thoroughly surveyed. Current methods to identify hazards using national imaging assets entail long lead-times and are often unreliable. LC-130 aircraft require crevasse detection radar (CDR) with survivability enhancements, polar search and rescue, and airborne sensing. ANG evaluated and fielded an X-band radar, but additional modifications are required to improve the CDR performance. In addition, the CDR is mounted on the aircraft using a flexible external articulating arm. Additional effort is required to establish the retractable external arm as a permanent modification in the LC-130H fleet.

2. Source of Need. AF Form 1067 A4MY 07-007; AF Form 1067 A4MY 11-012; 2014 ARC WEPTAC Council.

3. Unit Impacted.
109 AW Schenectady CAP, NY

4. Program Details. PEC: 41115

Remaining Quantity Required	Unit Cost	Program Cost
1 CDR Operational Improvements (3010)	**$1,000,000**	**$1,000,000**
1 Retractable External Arm Modification (3010)	**$1,000,000**	**$1,000,000**
Total		**$2,000,000**

LC-130 FLIGHT DECK COMMUNICATIONS UPGRADE

1. Background. Air National Guard (ANG) LC-130Hs from Schenectady, NY have ski-equipped landing gear to enable landings and takeoffs on snow and ice. The current fleet consists of six AF and four National Science Foundation aircraft. Remote LC-130H operating locations, especially polar mission support, require long-range beyond-line-of-sight communications. Satellite Communication is limited at polar high latitudes and high frequency (HF) radios are unreliable during periods of high solar flare activity. A communication system such as the Iridium network is necessary for weather, air traffic control, and command and control communications (voice and text) to ensure safe flight operations. The LC-130H currently uses a portable Iridium-based phone system that is functional, but lacks the robustness and reliability necessary to operate in extreme environments. Window-mounted antennas have poor reception and the sextant port antenna needs to be frequently removed for celestial navigation. A permanently installed Iridium voice and data solution with an external flush-mount antenna, capable of secure communication is required. Without this upgrade the LC-130Hs are subject to safety issues and operational concerns associated with the short term fix currently in place for the Iridium radio and the inconsistent performance of HF communication.

2. Source of Need. AF Form 1067 NGB/A4MA 20070212; 2014 ARC WEPTAC Council.

3. Unit Impacted.
109 AW Schenectady CAP, NY

4. Program Details. PEC: 41115

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3010)	**$1,000,000**	**$1,000,000**
10 Flight Deck Upgrades * (3010)	**$100,000**	**$800,000**
Total		**$1,800,000**

* Includes 10% spares.

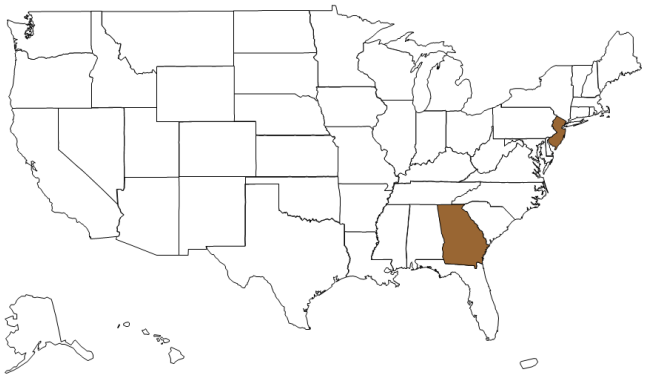
E-8 & C-32

- **Robust "Sensor-To-Shooter" C2 Battle Management**
- **Wide-Area Ground, Littoral, and Maritime Surveillance/Tracking**
- **ANG E-8 Unit Provides 100% of the Total Fleet**

E-8: The E-8C joint surveillance, target attack radar system (JSTARS) is the world's premier wide-area surveillance moving target indicator, airborne, manned battle management command and control aircraft. It brings a unique combination of robust communication and real-time surveillance to air, ground, and surface domains. The aircraft's capability to find, fix, track, and orient shooters to air, ground, and surface targets of interest allows friendly forces to respond rapidly to a changing battlefield environment.

The Air National Guard (ANG) 116 ACW at Robins AFB, GA is home to 16 E-8Cs and the only E-8(T)C. Team JSTARS is the premier example of Total Force Integration. They have accrued more than 92,000 combat hours and 8,700 combat sorties over Kosovo, Iraq, Afghanistan, and Libya. In fiscal year 2013, JSTARS provided 8,800 hours of simultaneous battle management, command and control, and intelligence, surveillance, and reconnaissance, supporting all six combatant commanders. As an Active Association, there are approximately 750 full-time and 350 traditional ANG personnel within the 116 ACW (ANG) host unit, and over 1,300 active duty airmen, soldiers and individual mobilization augmentees within the 461 ACW (active duty) associate unit. Modernization efforts enhance warfighting capabilities and include integrated broadcast service, personnel recovery compatible radios, integrated automatic identification system, and non-cooperative target combat identification.

C-32: The C-32B provides dedicated rapid response worldwide airlift to the Commander, United States Special Operations Command, in support of the US Government domestic and overseas crisis response activities. The 150 SOS of the New Jersey ANG operates the C-32B from Joint Base McGuire-Dix-Lakehurst, NJ.



E-8 and C-32
2014 Weapons and Tactics Council

Critical Capabilities List

E-8:
- Non-Cooperative Target Combat Identification Modernization
- Integrated Automatic Identification System
- Integrated Personnel Recovery Compatible Interrogation Radio
- Weapons System Trainer AAR Capability (see Tab Q)
- Integrated Broadcast Service Modernization

C-32:
- None

Essential Capabilities List

E-8:
- Onboard Global Imagery Server
- Bridge/Relay Dissimilar Defense Support to Civilian Authorities, Homeland Defense Voice and Data Networks
- Beyond Line-of-Sight Tactical Data Link Interoperability/Multi-Tactical Data
- Enhanced Electronic Protection Capability
- Self-Defense Suite

C-32:
- Audio/Video System Replacement
- Winglets

Desired Capabilities List

E-8:
- Common Data Link with Common Ground Station
- Net-Enabled Weapons
- Electronic Flight Bag
- Moving Target Indicator/Link-16/Battle Management Command and Control Deployable Ground System Capability
- Independent Positional Situational Awareness Capability for Aircraft Commander and Co-Pilot

C-32:
- None

E-8C NON-COOPERATIVE TARGET COMBAT IDENTIFICATION MODERNIZATION

1. Background. An on-board combat identification capability on the E-8C Joint Surveillance Target Attack Radar System (JSTARS) aircraft increases lethality of other weapons systems by reducing the length of the sensor-to-shooter kill chain. This capability enables an accurate characterization of detected objects in the joint battlespace and provides decision quality data to the operator for the timely application of military options. There may not be a single solution to field this requirement. To make this capability operational, required components include: Blue Force Tracker and multi-spectral, electro-optical-infrared sensors. These sensors are cued by the radar and incorporate an aided target recognition upgrade to the current radar system.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.
116 ACW Robins AFB, GA

4. Program Details. PEC: 27581

Remaining Quantity Required	Unit Cost	Program Cost
1 CID NRE (3600)	**$10,000,000**	**$10,000,000**
14 CID (3010)	**$15,000,000**	**$210,000,000**
Total		**$220,000,000**

E-8C INTEGRATED AUTOMATIC IDENTIFICATION SYSTEM

1. Background. The E-8C JSTARS recently expanded its maritime surveillance capabilities by adding the enhanced land maritime mode. As a result, JSTARS operational taskings have increased to support real-world maritime missions. JSTARS requires an organic, integrated capability to provide near real-time identification of maritime vessels. The Automatic Identification System (AIS) is the recognized system of record providing this capability. AIS is a tracking system used on ships and by vessel tracking services (VTS). This system identifies and locates vessels by electronically exchanging data with other nearby ships and VTS stations. Interrogating a vessel's identity, position, course, and speed greatly enhances JSTARS's ability to distinguish between neutral and suspect maritime entities. AIS provides the mission crew with the capability to focus on suspect vessels and expedite cross cueing of potential targets with external agencies. An integrated AIS system, which overlays AIS reports on the JSTARS operator work station, allows expeditious comparison of organic moving target indicator data with AIS transponder returns.

2. Source of Need. 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
116 ACW Robins AFB, GA

4. Program Details. **PEC:** 27581

Remaining Quantity Required	Unit Cost	Program Cost
16 AIS (3010)	**$210,000**	**$3,360,000**
3 Training Systems (3010)	**$210,000**	**$630,000**
Total		**$3,990,000**

E-8C INTEGRATED PERSONNEL RECOVERY COMPATIBLE INTERROGATION RADIO

1. Background. The E-8C JSTARS supports combat search and rescue by providing over-watch of potential hostile extraction areas, guiding isolated personnel and extraction teams via secure messaging, and providing command and control (C2) to strike assets when needed to support extraction operations. JSTARS has an operational requirement to support CSAR operations using a personnel recovery (PR) compatible radio capable of interrogating isolated personnel. The overall objective of the PR program is to provide isolated personnel and extraction teams with enhanced surveillance, connectivity, and security through interoperability with the E-8C via the secure PR data link. JSTARS, with PR capability, provides a persistent airborne C2, intelligence, surveillance, and reconnaissance node to support isolated personnel and extraction teams. The PR system offers interoperability with all US and many North Atlantic Treaty Organization deployed combat survival radios, to include the PRC-112B/G, PRC-434, and PRQ-7 combat survivor evader locater.

2. Source of Need. Air Combat Command JSTARS Requirements List (CSAR Support); 2012 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
116 ACW Robins AFB, GA

4. Program Details. PEC: 27581

Remaining Quantity Required	Unit Cost	Program Cost
16 PRC Radios (3010)	**$562,500**	**$9,000,000**
2 PRC Training Systems (3010)	**$500,000**	**$1,000,000**
Total		**$10,000,000**

E-8C INTEGRATED BROADCAST SERVICE MODERNIZATION

1. Background. Integrated broadcast service (IBS) is the primary threat warning system on the E-8C JSTARS aircraft and a key distribution network for critical battlefield information. Additionally, IBS provides reports of electronic intelligence, signals intelligence, and human intelligence for fusion with local sensor information to support a single operating picture for target nomination and identification. The current IBS system's internal components are no longer commercially available with contractor repairs taking 90-180 days. Furthermore, the Commander's Tactical Terminal/Hybrid - Receive Only (CTT/H-R) terminals cannot be modified to support new common message format, nor common interactive broadcast waveform migration. Its cryptographic capability requires replacement with a modernization program compliant device/algorithm. Air Force tactical receiver system-ruggedized (AFTRS-R) terminals are fully capable of supporting IBS requirements as functional replacements for CTT/H-R terminals. AFTRS-R National Security Agency certified Block II terminals are readily available for JSTARS; however, these assets require integration and test with the aircraft.

2. Source of Need. JSTARS Operational Requirements Document - Rev 5, Dec 2004; 2012 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
116 ACW Robins AFB, GA

4. Program Details. PEC: 27581

Remaining Quantity Required	Unit Cost	Program Cost
16 IBS (3010)	**$550,000**	**$8,800,000**
3 IBS Training Systems (3010)	**$400,000**	**$1,200,000**
Total		**$10,000,000**

F-15

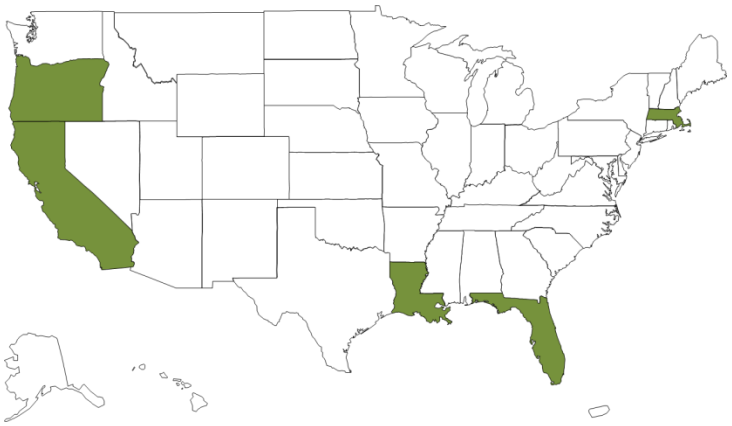
- **Air Superiority Fighter**
- **Homeland Defense**
- **ANG F-15 Units Provide 58% of the Total Combat Fleet**

The F-15C Eagle has been the backbone of our nation's Air Superiority fleet for over 30 years and, according to recent analysis, will continue to be a key asset beyond 2035. Air National Guard (ANG) F-15C units provide 31 percent of the nation's aerospace control alert (ACA) assets, spanning five alert sites in the continental United States (CONUS). These alert sites ensure 24-hour homeland defense. Active electronically scanned array (AESA) radars on ANG F-15Cs provide the combatant commanders with updated air superiority capability and unmatched homeland defense capability.

In 2014 ANG F-15's participated in many domestic and international exercises, including Sentry Aloha, Amalgam Dart, Red Flag, and Cope Tiger.

Over half of the F-15C combat capability resides within the Air National Guard, possessing the majority of the air superiority assets available for air expeditionary forces (AEF) commitments and ACA tasking. The ANG operates the US Air Force's only F-15 flying training unit at the 173 FW, Klamath Falls IAP, OR and trains all F-15C pilots for both the Air National Guard and the Active Component.

Sustainment and modernization programs are necessary to improve aircraft capabilities for both homeland defense and overseas contingency operations. These programs include the AESA radar, a modernized electronic warfare suite, updated non-cooperative target identification capability, upgraded cockpit displays, and an infrared search and track system.



F-15
2014 Weapons and Tactics Council

Critical Capabilities List

- Active Electronically Scanned Array Radar
- Modernized Electronic Warfare and Self-Protection
- Multi-Spectral Search/Track/Target Capability
- Persistent Air Dominance Enabler
- Modernized Cockpit

Essential Capabilities List

- External Missile Launcher
- High Fidelity Networked Simulators at Air National Guard Bases
- Organic US Government Owned F-15 Operational Flight Program
- Joint Mission Planning System and Common Mission Debrief Program Support System
- Mobile User Objective System Tactical Satellite Communications System

Desired Capabilities List

- Realistic Training Opportunities
- Air Launched Hit-to-Kill
- Next Generation Weapon

F-15 ACTIVE ELECTRONICALLY SCANNED ARRAY RADAR

1. Background. Active electronically scanned array (AESA) radar technology exponentially increases detection and track ranges of airborne targets and greatly improves identification capability. AESA radar gives the F-15C multi-target track and attack capability, and vastly increases capabilities against advanced electronic attack from enemy systems. AESA radars are critical for homeland defense (HD) missions because the system enables pilots to locate a target of interest in a saturated air traffic environment, as well as detect and track small, asymmetric threats. AESA radars eliminate the hydraulic and electrical systems associated with mechanically operated radars such as the APG-63(v)0, resulting in dramatically improved reliability and maintainability. The mean time between failure (MTBF) for the APG-63(v)0 is 10-12 hours of flight time, while the MTBF for an AESA radar is over 30 times greater. To date, Congress has funded approximately 50 AESA radar systems for the Air National Guard; however, ANG F-15C units continue to operate the only combat-coded APG-63(v)0 radars in the combat air forces and these need to be upgraded to remain relevant. The Department of Defense's (DoD) strategic pivot to the Pacific reinforces the ANG requirement for F-15C AESA radars in order to effectively support combatant commands and preserve the commitment to HD. The modification allows each operational ANG unit to provide AESA-equipped F-15Cs for worldwide deployment while simultaneously providing 24/7 HD at aerospace control alert locations. AESA radar is required in F-15C/D aircraft to accommodate installation of the Advanced Display Core Processor (ADCP) II and is needed to host the next generation of aircraft operational flight program software.

2. Source of Need. F-15C/D Radar Improvement Program; APG-63(v)3 Capability Development Document (CDD), 21 Apr 2005; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
125 FW	Jacksonville IAP, FL	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR

4. Program Details. PEC: 207130

Remaining Units Required	Unit Cost *	Program Cost
23 APG-63(v)0 AESA Conversions (3010)	**$9,500,000**	**$218,500,000**
Total		**$218,500,000**

* Includes installation, spares, and program costs.

F-15 MODERNIZED ELECTRONIC WARFARE AND SELF-PROTECTION

1. Background. The existing F-15C electronic warfare (EW) suite is comprised of outdated EW technology and requires modernization with the following capabilities: updated offensive electronic warfare, electronic attack with offensive weapons employment, situational awareness improvements, and self-protection upgrades that include countermeasures for present and future threat systems. The Air Force identified and validated defensive shortfalls in the Eagle Passive Active Warning Survivability System (EPAWSS) Capability Development Document and initiated funding in FY13; however, sustainment funding of the legacy EW suite was terminated in FY12, leaving the F-15C without an integrated EW system. Accordingly, EW sustainment and obsolescence replacement requires re-initiation and the legacy system needs modernization with several interim capabilities to include: digital radar warning receiver, digital radio frequency memory electronic attack, ALE-58 back of launcher (BOL) countermeasures dispenser, modernized electronic warning warfare set, towed decoy, and radar cross-section reduction initiatives. EPAWSS and interim solutions provide adequate defensive measures, but the F-15C/D also requires an offensive electronic warfare system. The offensive electronic warfare system must be programmable and able to proactively suppress specific enemy threat systems to enable 4th and 5th generation aircraft offensive operations in contested airspace. Interim measures and offensive electronic warfare systems allow the Air National Guard to support continued air dominance in anti-access/area denial scenarios until EPAWSS is operational.

2. Source of Need. Tactical Air Forces 304-80-I/II/III-C System Operational Requirements Document for the F-15A-D Tactical Electronic Warfare Suite, 7 Apr 1992; EPAWSS Capability Development Document, Jun 2007; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
125 FW	Jacksonville IAP, FL	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR

4. Program Details. **PEC: 207130**

Remaining Quantity Required	Unit Cost	Program Cost
105 EPAWSS * (3010)	**$6,600,000**	**$693,000,000**
105 Radar Warning Receiver Upgrades	**$500,000**	**$52,500,000**
1 F-15 Towed Decoy NRE (3600)	**$5,500,000**	**$5,500,000**
50 F-15 Towed Decoys (3010)	**$2,500,000**	**$125,000,000**
120 BOL-IR * (3010)	**$90,000**	**$10,800,000**
Total		**$886,800,000**

* Includes required spares, support equipment, and technical orders.

F-15 MULTI-SPECTRAL SEARCH/TRACK/TARGET CAPABILITY

1. Background. ANG F-15Cs provide Air Superiority in regions throughout the world as part of the Air and Space Expeditionary Force while simultaneously defending the homeland. Current adversary aircraft and integrated air defense networks employ sophisticated detection and electronic attack (EA) methods that complicate F-15C employment and leave the F-15 vulnerable to attack. Exploitation of less contested or degraded sections of the electromagnetic spectrum enhances operational effectiveness. Multi-spectral search/track/target systems must be procured to supplement on-board threat detection, identification, and tracking as part of a time-synchronized, integrated function of the existing sensor systems for detection and weapons cueing. Incorporating features such as an infrared search and track (IRST) capability ensures system track files are maintained in any EA contested or degraded operating environment. IRST and related capabilities are not employed in lieu of active electronically scanned array radars or as stand-alone functions. They are a family of systems producing integrated fire-control that dramatically increases the probability of threat detection when EA and advanced radio frequency and infrared counter-measures are used. Lastly, a multi-spectral system must be coordinated with threat warning to provide robust threat alerts to friendly aircraft. Multi-spectral search/target/track system is essential to successful air superiority today and a critical enabler for integrated 4th and 5th generation fighter operations, theater missile detection and asymmetric threat defense.

2. Source of Need. F/A-18 Infrared Search-and-Track System Capability Development Document, Mar 2011, US Air Force Annex; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
125 FW	Jacksonville IAP, FL	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR

4. Program Details. PEC: 207130

Remaining Quantity Required *	Unit Cost	Program Cost
50 Infrared Search and Track Systems (3010)	**$3,500,000**	**$175,000,000**
105 Multi-Spectral Systems (3010)	**$450,000**	**$47,250,000**
Total		**$222,250,000**

* Assumes Full Rate Production.

F-15 PERSISTENT AIR DOMINANCE ENABLER

1. Background. Adding conformal fuel tanks (CFTs), an updated non-cooperative target identification capability, and additional weapons stations to the F-15C/D ensures relevance beyond 2035. These F-15C modifications deliver combat capabilities essential to the Air Component Commander's ability to deliver persistent, lethal air superiority. CFTs, coupled with additional advanced weapons and updated electronic countermeasures, enable one formation of F-15Cs to provide nearly twice the normal duration of coverage in contested environments without the need for air refueling support or landing to reload weapons. CFTs also streamline weapons development and integration for all versions of the F-15 through standardized weapons communication, thereby enabling the exploitation of rapid evolutions in weapons development throughout the F-15 fleet. Combatant Commands can quickly exploit the advantages of a common F-15 fleet if all aircraft readily accommodate advanced weapons or off-the-shelf defensive countermeasure upgrades, such as a pylon-mounted fiber-optic towed decoy. No other fighter aircraft in the US inventory can deliver the same capability and mix of lethality at significant combat range without an extensive aerial refueling bridge. With an aging air refueling fleet, anti-access/area denial challenges, and a decreasing number of air superiority platforms, F-15C aircraft must be configured for persistent air dominance.

2. Source of Need. F-15C/D Operational Requirements Document, 7 Apr 1992; LF10-054 Revision A Tasking; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
125 FW	Jacksonville IAP, FL	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR

4. Program Details. **PEC: 27130**

Remaining Quantity Required	Unit Cost *	Program Cost
105 F-15 Conformal Fuel Tanks (3010)	**$3,700,000**	**$388,500,000**
50 Multi-Rail Missile Launcher (3010)	**$250,000**	**$12,500,000**
Total		**$401,000,000**

* Includes required spares, support equipment and technical orders.

F-15 MODERNIZED COCKPIT

1. Background. The current displays and communication/navigation functionality in the F-15C cockpit are based on outdated 1970s technology. The F-15C fleet has experienced exponential growth in capability and lethality in its 30+ years of combat-proven service due to the modernization of radars, weapons, sensors and data links. Fully utilizing these enhancements requires a complex pilot interface. The current legacy displays and communication architecture are incapable of properly presenting this information due to display size, outdated technology and minimal audio integration. Replacement of legacy displays with larger color and/or smart color display systems increases ANG F-15C lethality by more intuitively processing and displaying data. The addition of three-dimensional (3-D) audio separation allows the pilot to rapidly interpret complex data based on current scientific understanding of the pilot-to-vehicle interface. Further, these upgrades allow the pilot to make better operational use of current and planned aircraft capabilities. Based upon the proposed F-15C modernization schedule, new displays and 3-D audio are the most effective means available to bridge current system limitations and provide a stable platform as new capabilities are realized.

2. Source of Need. F-15C/D Operational Requirements Document, 7 Apr 1992; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

104 FW	Westfield-Barnes RAP, MA	142 FW	Portland IAP, OR	159 FW	JRB New Orleans, LA
125 FW	Jacksonville IAP, FL	144 FW	Fresno IAP, CA	173 FW	Klamath Falls AP, OR

4. Program Details. PEC: 207130

Remaining Units Required	Unit Cost	Program Cost
1 F-15 Display Upgrade NRE (3010)	**$3,000,000**	**$3,000,000**
130 F-15 Display Upgrades * (3010)	**$20,000**	**$2,600,000**
1 Controller NRE (3010)	**$5,000,000**	**$5,000,000**
105 Radio Controller with 3-D Audio * (3010)	**$60,000**	**$6,300,000**
105 Upgraded Data Link Terminals * (3010)	**$300,000**	**$31,500,000**
Total		**$48,400,000**

*Assumes installation, program costs and 10% spares.

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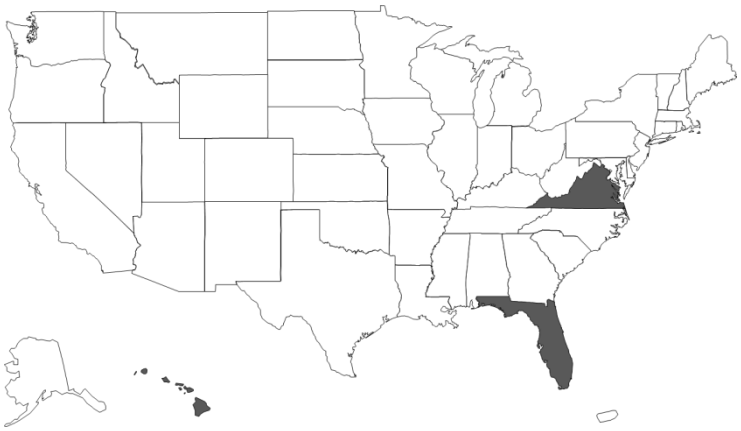
F-22

- **Air Dominance**
- **Homeland Defense**
- **ANG F-22 Units Provide 11% of the Total Fleet**

The Air National Guard (ANG) operates F-22s at three locations. The ANG has two F-22 classic associate units: Joint Base (JB) Langley-Eustis, VA and Tyndall AFB, FL. Additionally, the Hawaii ANG based at Hickam, HI, is the first operational ANG F-22 squadron. The Hawaii ANG provides aerospace control alert (ACA) support for the Hawaiian Islands and air dominance for the Pacific theatre. In 2014, ANG F-22s participated in several exercises, including Red Flag, Combat Archer, Sentry Savannah, and Cope Taufan.

Primary ANG F-22 modernization focuses on a common configuration and increment 3.2C. Enhancements in the infrared spectrum, such as missile launch detectors, ensure increased survivability. Communication upgrades, including 4th/5th and 5th/5th generation data link, and a helmet-mounted display enable the F-22 to efficiently and effectively accomplish alert taskings.



F-22
2014 Weapons and Tactics Council

Critical Capabilities List

- Helmet-Mounted Display
- Survivability Enhancements
- Secure Beyond Line-of-Sight Communication
- Rapid Raptor Enablers
- Electronic Flight Bag

Essential Capabilities List

- Open System Architecture
- Multi-Spectral Sensor Capabilities
- Munitions Improvements for Air-to-Air and Air-to-Ground
- Combat Identification Software and Hardware Improvements
- Synthetic Aperture Radar Map Enhancements

Desired Capabilities List

- External Low-Observable Carriage for Weapons, Fuel, and Sensors
- Improved Non-Kinetic Effects
- New Integrated-Forebody
- Advanced Radar
- Improved Radar Warning Hardware

F-22 HELMET-MOUNTED DISPLAY

1. Background. F-22 pilots critically require a night vision goggle compatible, color helmet-mounted display (HMD). Multiple simulations and an operational utility assessment conducted by the 422nd Test and Evaluation Squadron demonstrated that incorporating a HMD provides a distinct first-shot, first-kill advantage. This advantage applies primarily to within visual range engagements, but also substantially increases situational awareness during beyond visual range intercepts. HMD technology provides the capability to cue and verify off-boresight sensor and weapon information through the display of weapons employment zone symbology and visual cues of target and friendly aircraft locations. Originally conceived as a weapons cueing system, the HMD has evolved into a force multiplier because of its ability to enhance situational awareness during all phases of flight and across all mission sets. For example, the HMD provides threat information visual cues while the pilot is "eyes-out" of the cockpit, warning of dangers and providing critical information to allow the pilot to maneuver the aircraft away from terrain or inbound threats. Similarly, F-22s tasked with identifying targets of interest during homeland defense missions would be better able to quickly and efficiently visually locate and identify small aircraft or unmanned systems.

2. Source of Need. JHMCS ORD CAF-USN 308-93-II-A Dec 1996; Operation Requirements Document CAF 304-83-I/II/IIIA, paragraph 4.2.7.3 "Helmet Mounted Displays" Mar 2004; Operational Capability Definition Document (OCDD) for Increment 3 Dec 2011; ARC 2011 – 2013 ARC WEPTAC Conference; and 2014 ARC WEPTAC Council.

3. Units Impacted.
154 FG JB Pearl Harbor-Hickam, HI

4. Program Details. PEC: 27138

Remaining Units Required	Unit Cost	Program Cost
1 Helmet Mounted Display NRE (3600)	**$10,000,000**	**$10,000,000**
20 Helmet Mounted Displays * (3010)	**$200,000**	**$4,000,000**
Total		**$14,000,000**

* Includes 10% spares, TCTO's, installs & support equipment.

F-22 SURVIVABILITY ENHANCEMENTS

1. Background. The F-22 is the nation's most technologically advanced air superiority fighter. It is the only operational 5th generation fighter and it is the most survivable against modern threats. Emerging threats are increasingly pressuring countermeasure development timelines, putting air superiority forces at a potential self-imposed strategic disadvantage. Defeating the threat requires rapid modernization of aircraft countermeasures, thus ensuring that the F-22 and other 5th generation aircraft remain survivable against continuously advancing and evolving threats. Two key aspects to rapid modernization of aircraft countermeasures and enhanced survivability are robust simulation technologies and diverse lab facilities to evaluate solutions earlier in the development cycle. Unlike legacy aircraft support, 5th generation aircraft advanced lab facilities and simulation technologies are highly centralized. Centralization permits consistent test patterns, but it does not enable rapid analysis and fielding of emerging countermeasures. Therefore, funding is required to develop survivability analysis tools that enable efficient analysis of potential solutions during or immediately following operational test events.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.
154 FG JB Pearl Harbor-Hickam, HI

4. Program Details. PEC: 27138

Remaining Units Required	Unit Cost	Program Cost
1 Simulation Development (3600)	**$10,000,000**	**$10,000,000**
1 Threat Lab Development (3600)	**$10,000,000**	**$10,000,000**
Total		**$20,000,000**

F-22 SECURE BEYOND LINE-OF-SIGHT COMMUNICATION

1. Background. The F-22 has limited ability to communicate beyond line-of-sight as transmission capability is restricted to ultra high frequency (UHF), very high frequency (VHF) and intra-flight data link. Several mission sets, including North American Aerospace Defense aerospace control alert missions, require the F-22 to "reach back" to command and control (C2) facilities due to the distances involved in long-range intercepts. Currently a communications bridge is required to enable coordination with the Air Operations Center (AOC). A tanker or airborne C2 platform relays F-22 UHF/VHF communications to the AOC. Voice relays between C2 aircraft and F-22s often result in confusion and delays during time constrained scenarios since pilots are unable to speak directly with the intercept authority. Global precision attack missions, throughout various areas of responsibility (AOR), also benefit from this capability. As adversaries deny access to AORs and develop broad spectrum electronic attack capabilities, the ability to leverage current C2 platforms and tanker aircraft as communications relays for frontline fighters will diminish.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.

154 FG JB Pearl Harbor-Hickam, HI

4. Program Details. PEC: 27138

Remaining Quantity Required	Unit Cost	Program Cost
1 BLOS NRE (3600)	**$10,000,000**	**$10,000,000**
20 BLOS Radios * (3010)	**$175,000**	**$3,500,000**
Total		**$13,500,000**

* Includes required spares, support equipment, and technical orders.

F-22 RAPID RAPTOR ENABLERS

1. Background. The F-22A community recently began exploring a rapid deployment concept called "Rapid Raptor". Rapid Raptor provides strategic capability through flexible operations from dispersed, semi-austere airfields. Rapid Raptor training exercises have been conducted from Joint Bases Elmendorf-Richardson, AK and Pearl Harbor-Hickam, HI. The concept can be broken down into three distinct problem sets: sustainment, bed-down, and re-armament. The sustainment challenge includes deploying a small number of F-22s and a single C-17 to a remote airfield with no additional military support, with little or no notice. The bed-down element entails establishing limited contingency operations at semi-austere airfields not originally designed to support fighter and combat operations. Re-armament challenges, for example, include F-22s departing from home station or a deployed airfield with live ordnance, conducting combat operations with ordnance expenditures, landing at a remote airfield with only C-17 support, re-arming and refueling, then launching for another combat mission. Using this concept, F-22s could execute combat missions out of a semi-austere airfield for up to several weeks. Ongoing Rapid Raptor events are identifying process gaps in order to establish proper techniques and procedures for worldwide combat zone applications. Forward area manifold refueling carts and satellite communications data transfer provide the ability for F-22s to operate from dispersed, semi-austere airfields. Additional requirements will likely be discovered as more training events are conducted, but ongoing Rapid Raptor evaluations have proven the viability and flexibility of the construct.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.

154 FG JB Pearl Harbor-Hickam, HI

4. Program Details. PEC: 27138

Remaining Quantity Required	Unit Cost *	Program Cost
5 Forward Area Manifold Refueling Carts (3010)	**$500,000**	**$2,500,000**
2 SATCOM Data Transfer Stations (3080)	**$1,000,000**	**$2,000,000**
Total		**$4,500,000**

* Includes required spares, support equipment, and technical orders.

F-22 ELECTRONIC FLIGHT BAG

1. Background. The F-22A community recently began exploring a rapid deployment concept called "Rapid Raptor". Rapid Raptor provides strategic capability through flexible operations from dispersed, semi-austere airfields. The electronic flight bag (EFB) is a hand-held device that serves as both an enabler for Rapid Raptor operations and a critical backup navigation tool during aircraft emergencies. For safety of flight concerns, Air Force regulations require pilots to carry current copies of numerous technical orders and flight information publications (FLIP) for the expected area of operations (AOR). Rapid Raptor may include short notice taskings to unexpected AORs and airfields, making it difficult to acquire and carry the appropriate hardcopy FLIP. EFB is a low-cost, commercial off-the-shelf solution for accessing and maintaining current worldwide FLIP. In the event of a navigational failure, the EFB, with embedded Global Positioning System navigation, can serve as a critical backup navigation tool.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.
154 FG JB Pearl Harbor-Hickam, HI

4. Program Details. PEC: 27138

Remaining Units Required	Unit Cost	Program Cost
1 EFB NRE (3080)	**$2,000,000**	**$2,000,000**
30 EFB * (3080)	**$800**	**$24,000**
Total		**$2,024,000**

* Includes 10% spares, TCTO's, installs & support equipment.

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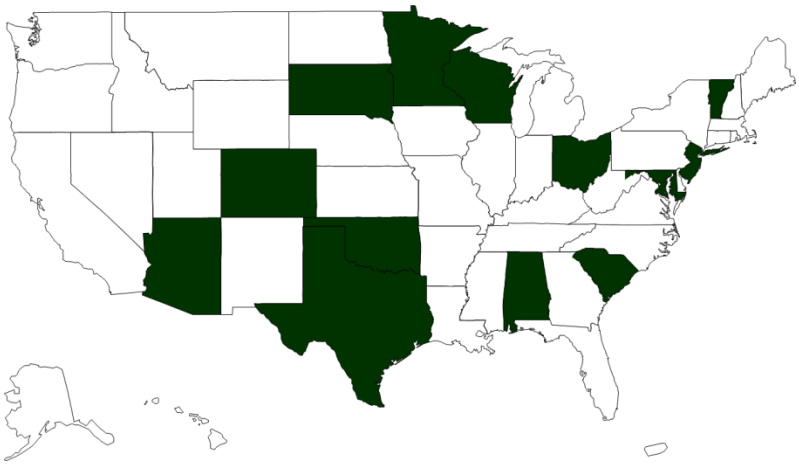
F-16

- **Close Air Support/Interdiction/Precision Strike**
- **Suppression/Destruction of Enemy Air Defenses**
- **Homeland Defense**
- **ANG F-16 Units Provide 37% of the Total Fleet**

Air National Guard (ANG) F-16s directly support and are critical to the success of contingencies around the globe including Operations NOBLE EAGLE, IRAQI FREEDOM, ENDURING FREEDOM, NEW DAWN, and homeland defense scrambles. Since 2003, ANG F-16Cs have fulfilled many of Allied Forces Central Europe's precision-guided munitions and close air support (CAS) taskings, including convoy escort, dedicated infrastructure defense, border patrol, and raid support.

The ANG operates 338 Block 25/30/32/40/42/50/52 F-16C/Ds. Block 30/32 aircraft are 58% of the nation's aerospace control alert (ACA) fighter force and provide a near-constant presence in operational theaters conducting CAS and armed reconnaissance. Capability enhancements to the Block 40/42 and Block 50/52 aircraft make them the Air Force's only suppression of enemy air defenses (SEAD)-capable aircraft until future SEAD-capable aircraft become fully operational.

Modernization efforts are underway to improve ANG F-16s by fielding affordable systems with secure line-of-sight and beyond line-of-sight communication suites, smart displays with data processing capability, advanced helmet-mounted target cueing for air and ground weapons employment, enhanced self-protection suites, and improved radar performance and reliability.



F-16
2014 Weapons and Tactics Council

Critical Capabilities List

- Radar Providing Low Observable Detection, Air-to-Air and Air-to-Ground Electronic Protection/Electronic Attack, and Combat Identification Capability
- Organic, Concurrent Link-16 Capability with Growth Potential for Fifth-Fourth Generation Fighter Interoperability
- Continued Incremental Development of Targeting Pod and High Definition Display with Broadband Uplink
- Increased Jam-Resistant Navigational Systems
- Communication Suite Enhancements with Three Radios and Three-Dimensional Audio
- Integrated Self-Protection Electronic Warfare Processor

Essential Capabilities List

- High-Speed Anti-Radiation Missile Targeting System Pod Acquisition
- Missile Warning System
- Night-Compatible, Color Helmet-Mounted Display for All Air Reserve Component F-16s
- Ability to Fly Global Positioning System Approaches
- Digital Threat Detection Suite

Desired Capabilities List

- Proliferation and Sustainment of Concurrent High-Fidelity Ready Aircrew Program Quality Simulators
- Increased Smart Weapon Payload Capability
- Digital Video Recorder Upgrade
- Color Video from Targeting Pod
- Low Collateral Damage Effects Fast Mover Weapon

F-16 RADAR PROVIDING LOW OBSERVABLE DETECTION, AIR-TO-AIR AND AIR-TO-GROUND ELECTRONIC PROTECTION, ELECTRONIC ATTACK, AND COMBAT IDENTIFICATION CAPABILITY

1. Background. ANG F-16 aircraft require active electronically scanned array (AESA) radars to effectively execute missions including homeland defense. AESA radars provide a critical capability for aerospace control alert F-16s to detect and track multiple airborne targets of interest in dense civilian air traffic environments near major population centers. Simultaneously, AESA radars improve the capability of ANG F-16's in close air support, surface attack and defensive counter-air. AESA radars detect, track, communicate, and jam in multiple directions simultaneously. Additionally, AESA radars eliminate several components associated with mechanical radars, thus significantly improving reliability and reducing maintainability costs.

2. Source of Need. Combat Avionics Programmed Extension Suite Capability Development Document; 2014 ARC WEPTAC Council.

3. Units Impacted.

113 WG JB Andrews, MD	144 FW Fresno IAP, CA	169 FW McEntire JNGB, SC
114 FW Sioux Falls RAP, SD	148 FW Duluth IAP, MN	177 FW Atlantic City IAP, NJ
115 FW Truax Field, WI	149 FW Kelly Fld, TX	180 FW Toledo Express AP, OH
138 FW Tulsa IAP, OK	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL
140 WG Buckley AFB, CO	162 FW Tucson IAP, AZ	

4. Program Details. **PEC: 207133**

Remaining Quantity Required	Unit Cost	Program Cost
1 Radar Development and Integration (3600)	**$150,000,000**	**$150,000,000**
339 Radar Upgrades (3010)	**$3,500,000**	**$1,186,500,000**
Total		**$1,336,500,000**

F-16 ORGANIC, CONCURRENT LINK-16 CAPABILITY WITH GROWTH POTENTIAL FOR FIFTH-FOURTH GENERATION FIGHTER INTEROPERABILITY

1. Background. ANG F-16 Block 25/30/32 aircraft require Link-16 data link capability to effectively employ in the current operational environment. Legacy Situational Awareness Data Link equipment has proven inadequate due to lack of fielded support infrastructure, frequency band constraints, and Joint Interface Control Cell support. The transition of F-16 Block 25/30/32 aircraft to Link-16 allows seamless deployment, connectivity and interoperability of the entire F-16 fleet. ANG F-16's (Block 25/30/32/40/42/50/52) require growth potential in data link equipment to foster 5th to 4th generation aircraft data link communications, so any selected system must have the potential to integrate with 5th generation aircraft.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.

113 WG JB Andrews, MD	144 FW Fresno IAP, CA	169 FW McEntire JNGB, SC
114 FW Sioux Falls RAP, SD	148 FW Duluth IAP, MN	177 FW Atlantic City IAP, NJ
115 FW Truax Field, WI	149 FW Kelly Fld, TX	180 FW Toledo Express AP, OH
138 FW Tulsa IAP, OK	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL
140 WG Buckley AFB, CO	162 FW Tucson IAP, AZ	

4. Program Details. PEC: 207133

Remaining Quantity Required	Unit Cost	Program Cost
1 Data Link NRE (3600)	**$10,000,000**	**$10,000,000**
155 Data Link Upgrades (3010)	**$250,000**	**$38,750,000**
Total		**$48,750,000**

F-16 CONTINUED INCREMENTAL DEVELOPMENT OF TARGETING POD AND HIGH DEFINITION DISPLAY WITH BROADBAND UPLINK

1. Background. ANG F-16 aircraft require advanced targeting pod (ATP) technology coupled with a high definition display to fully leverage F-16 capabilities. Targeting pod enhancements, including direct digital connections, 1K forward looking infrared, 1K charge-coupled device, and laser target image processing, increase successful employment of the F-16C as a multi-role fighter. A high definition center display unit (CDU) displays full resolution ATP digital image quality. Additionally, the CDU provides more robust computer processing power and replace aging flight instruments. Data transfer and exploitation of digital targeting pod video is critical throughout the broad spectrum of F-16 missions including close air support, time sensitive targeting and aerospace control alert. Coupling the CDU with the ability to broadband uplink information allows aircrew to broadcast high definition real-time data to provide decision makers with improved situational awareness to expedite the kill chain. Furthermore, the CDU contains additional processing capacity that allows for the manipulation of data external to the aircraft operational flight program (OFP). Additional processing capacity provides the ability to insert pre-mission planning data, while opening low cost pathways for new capabilities integration without the costly and time consuming process of changing OFP software. Pilot selectable display options on the CDU provide electronic instrument flight displays (attitude, performance, and navigation) when required.

2. Source of Need. Combatant Command Urgent Need Request, Combat Air Forces 301-01-B, F-16C/D Block 25/30/32 Multi-Stage Improvement Program (MSIP) Operational Requirements Document, 15 Dec 2004; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

113 WG JB Andrews, MD	144 FW Fresno IAP, CA	169 FW McEntire JNGB, SC
114 FW Sioux Falls RAP, SD	148 FW Duluth IAP, MN	177 FW Atlantic City IAP, NJ
115 FW Truax Field, WI	149 FW Kelly Fld, TX	180 FW Toledo Express AP, OH
138 FW Tulsa IAP, OK	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL
140 WG Buckley AFB, CO	162 FW Tucson IAP, AZ	

4. Program Details. **PEC: 207133**

Remaining Quantities Required	Unit Cost	Program Cost
244 Targeting Pod Upgrades ** (3010)	**$250,000**	**$61,000,000**
280 Center Display Units * (3010)	**$500,000**	**$140,000,000**
1 Broadband Uplink NRE (3010)	**$5,000,000**	**$5,000,000**
50 Broadband Uplink Kits * (3010)	**$100,000**	**$5,000,000**
Total		**$211,000,000**

* Includes 10% spares

** Quantities and Program Costs are shared with A-10s

F-16 INCREASED JAM-RESISTANT NAVIGATIONAL SYSTEMS

1. Background. ANG F-16 Block 25/30/32 require an update to the Embedded Global Positioning System/Inertial Navigation System (EGI) to provide increased anti-jam and Selective Availability Anti-Spoofing Module (SAASM) capability. The navigation equipment in the F-16C must operate with precise Global Positioning System (GPS) accuracy regardless of a contested electro-magnetic environment. The design and operation of the F-16C Block 30 EGI did not include modern threats. Subsequently, its performance is insufficient during contested or degraded operations. GPS signal processing technology has improved in speed, memory and computer processing, along with corresponding improvements to signal processing software algorithms. The new signal processing capabilities provide the increased navigational performance necessary for continued operations in a GPS denied environment.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.

113 WG JB Andrews, MD	144 FW Fresno IAP, CA	162 FW Tucson IAP, AZ
115 FW Truax Field, WI	149 FW Kelly Fld, TX	177 FW Atlantic City IAP, NJ
140 WG Buckley AFB, CO	158 FW Burlington IAP, VT	187 FW Montgomery RAP, AL

4. Program Details. PEC: 207133

Remaining Quantity Required	Unit Cost *	Program Cost
1 Jam-Resistant Navigation System NRE (3010)	**$5,500,000**	**$5,500,000**
155 Jam-Resistant Navigation Systems (3010)	**$155,000**	**$24,025,000**
Total		**$29,525,000**

*Includes 10% spares.

F-16 COMMUNICATION SUITE ENHANCEMENTS WITH THREE RADIOS AND THREE-DIMENSIONAL AUDIO

1. Background. Current upgrades to F-16Cs provide secure line-of-sight (SLOS) and beyond line-of-sight (BLOS) communications through the installation of one ARC-210 radio. The ARC-210 provides an improved ability to securely communicate with ground forces and command and control (C2) nodes, but does not allow simultaneous operations on SLOS/BLOS frequencies. Aerospace control alert (ACA) and combat theater operations require simultaneous SLOS/BLOS communications to concurrently maintain contact with both C2 and friendly forces. A second ARC-210 upgrade permits growth to extended data and image transfer when linked to an advanced display. The combination of two ARC-210s, plus a legacy radio (three radios total), provides simultaneous in-theater communications on a C2 frequency, a secure tactical frequency with ground forces, and an intra-flight frequency. A three radio configuration enables monitoring C2, air traffic control, and intra-flight frequencies simultaneously when executing homeland defense (HD) missions. The integration of noise-cancelling and three-dimensional audio simplifies interpretation of simultaneous radio calls by spatially separating aural warning and radio signals. Additionally, three-dimensional audio provides angular cueing to ground and air threats when used in conjunction with a helmet-mounted cueing system. These capabilities are critical to operations in remote areas, dense threat environments, and dynamic HD missions.

2. Source of Need. Tactical Air Forces 303-76-I/II/III-A SORD for the F-16C/D; Combat Air Forces ORD 303-76-I/II/III-D F-16C/D Multi-Stage Improvement Program (MSIP) ORD, 14 Aug 2000; CENTCOM UON; NORTHCOM Integrated Priority List; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

113 WG	JB Andrews, MD	144 FW	Fresno IAP, CA	169 FW	McEntire JNGB, SC
114 FW	Sioux Falls RAP, SD	148 FW	Duluth IAP, MN	177 FW	Atlantic City IAP, NJ
115 FW	Truax Field, WI	149 FW	Kelly Fld, TX	180 FW	Toledo Express AP, OH
138 FW	Tulsa IAP, OK	158 FW	Burlington IAP, VT	187 FW	Montgomery RAP, AL
140 WG	Buckley AFB, CO	162 FW	Tucson IAP, AZ		

4. Program Details. **PEC: 207133**

Remaining Quantity Required	Unit Cost	Program Cost
1 BLOS NRE (3600)	**$5,000,000**	**$5,000,000**
200 BLOS Radios * (3010)	**$150,000**	**$30,000,000**
1 Three-Dimensional Audio NRE (3600)	**$6,000,000**	**$6,000,000**
255 Three-Dimensional Audio Upgrades * (3010)	**$100,000**	**$25,500,000**
Total		**$66,500,000**

* Includes 10% spares.

F-16 INTEGRATED SELF-PROTECTION ELECTRONIC WARFARE PROCESSOR

1. Background. The current F-16 Block 40/42/50/52 electronic warfare (EW) suite processor computers were designed in the 1980s and are not configured to provide advanced EW systems integration. Additionally, the system suffers from sustainment issues and has significant limitations against modern adversary threat systems. A fully automated and integrated electronic attack suite processor enables ANG Block 40/42/50/52 F-16C aircraft to fully integrate existing and planned upgrades to the F-16 EW suite. The ANG has fully upgraded its combat coded Block 42 aircraft with EW processors, but requires a similar automated system for combat-coded F-16C Block 40/50/52 aircraft. The current and planned EW suite for Blocks 40/50/52 aircraft are the ALR-56M, ALE-50, ALQ-131A, and expendables.

2. Source of Need. Combat Air Forces (CAF) Operational Requirements Document (ORD) 303-76-I/II/III-D F-16C/D Multi-Stage Improvement Program (MSIP) ORD, 14 Aug 2000; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

114 FW Sioux Falls RAP, SD	148 FW Duluth IAP, MN	180 FW Toledo Express AP, OH
138 FW Tulsa IAP, OK	169 FW McEntire JNGB, SC	

4. Program Details. PEC: 207133

Remaining Quantity Required	Unit Cost	Program Cost
1 EW Processor NRE (3600)	**$10,000,000**	**$10,000,000**
105 EW Processors * (3010)	**$100,000**	**$10,500,000**
Total		**$20,500,000**

* Includes 10% spares.

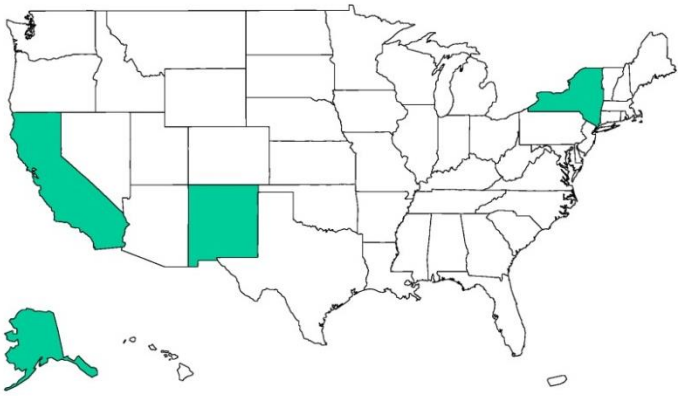
HH-60G

- **Combat Search and Rescue**
- **ANG HH-60 Units Provide 18% of the Total Fleet**

Air National Guard (ANG) personnel recovery (PR) helicopters and crews play a critical role in support of overseas contingency operations while also responding to increasingly high demand for domestic operations. These ANG PR helicopters are in Alaska, California, New Mexico, and New York.

In fiscal year 2014, the 129 RQS continued to provide civil search and rescue capabilities to the state of California and flew numerous counterdrug missions. The 210 RQS held a 24-hour, state-wide, rescue alert in Alaska resulting in 48 missions and 70 lives saved. The 101 RQS from New York provided numerous pre-deployment and other training opportunities to joint service military units, as well as the US Coast Guard. The 188 RQS is a classic associate unit in New Mexico that maintains readiness to respond to domestic disasters and provides training to produce mission ready aircrew.

The Air Force continues modernization programs for the HH-60 to include the GAU-21 weapon system and the PEDROS high fidelity simulator. Additional modernization programs include the avionics communication suite upgrade program, the smart multi-function display program, and the AN/ARSv12 personnel locator system. The ANG intends to pursue modernization programs such as blue force tracker and improved defensive equipment to include a hostile fire detector.



HH-60
2014 Weapons and Tactics Conference

Critical Capabilities List

- Advanced Electronic Warfare Penetrator Suite
- Modernized Defensive Systems Suite
- Integrated Flight Deck
- Helmet-Mounted Cueing System
- Aircraft Weapons Modernization

Essential Capabilities List

- Distributed Mission Operations Capable HH-60 Aircraft Simulator
- Overwater Mission Survivability Equipment
- Improved Ballistic Protection
- Federal Aviation Administration Global Positioning System Certified Aircraft
- Wireless Intercom

Desired Capabilities List

- Identification Friend or Foe Mode 5/S
- Improved Aircraft Generators
- Aircrew Flight Equipment Enhancements
- Electronic Flight Bag
- Instrumentation Upgrade

HH-60G ADVANCED ELECTRONIC WARFARE PENETRATOR SUITE

1. Background. HH-60G helicopters and crews are tasked to recover downed airmen within advanced radar guided threat envelopes. The HH-60G requires the capability to penetrate airspace, with advanced surface-to-air threat systems, to recover isolated personnel in contested environments. The legacy analog radar warning receiver (RWR), the AN/APR-39Bv2, is incapable of providing adequate situational awareness in this environment. The HH-60G needs a modern digital RWR, radio frequency jammer, platform integration, and embedded training capability permitting effective execution of combat scenarios in an anti-access area denial environment.

2. Sources of Need. Lessons learned from current operations; PR Core Function Master Plan; Air Combat Command AF Form 1067 #10-252; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Field, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: 53114

Remaining Quantity Required	Unit Cost	Program Cost
1 Defensive System NRE (3600)	**$2,000,000**	**$2,000,000**
3 Unit Test Equipment (3080)	**$58,400**	**$175,200**
18 Radar Warning Receivers (3010)	**$1,240,000**	**$22,320,000**
Total		**$24,495,200**

HH-60G MODERNIZED DEFENSIVE SYSTEM SUITE

1. Background. HH-60G helicopters have been destroyed and crews have been lost while performing combat rescue operations due to their inability to detect and react to hostile enemy fire. The HH-60G requires a precise, integrated defensive system that detects and defeats current and future threat systems such as small arms fire, rocket propelled grenades (RPGs), and man-portable air defense systems. Currently, RPGs and small arms fire can only be detected visually, or relayed from a ground observer. A three dimensional audio system integrated with missile warning, a hostile fire indicator, and a radar warning receiver provides aircrew with spatial and situational awareness of relevant threats, allowing precise and immediate defensive fire. Aircrews also require integrated training software in the electronic warfare suite to effectively prepare for combat scenarios utilizing the modernized defensive system suite.

2. Sources of Need. PR Core Function Master Plan; Air Combat Command AF Form 1067 10-252; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Field, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: 53114

Remaining Quantity Required	Unit Cost	Program Cost
1 Defensive System NRE (3600)	**$2,000,000**	**$2,000,000**
1 Directional Audio NRE (3600)	**$6,000,000**	**$6,000,000**
18 Hostile Fire Indicators (3010)	**$270,000**	**$4,860,000**
108 Directional Audio Kits (3010)	**$7,000**	**$756,000**
3 Unit Test Equipment (3080)	**$58,400**	**$175,200**
18 Defensive System Kits (3010)	**$234,000**	**$4,212,000**
Total		**$18,003,200**

HH-60G INTEGRATED FLIGHT DECK

1. Background. Overseas and domestic operations require HH-60G crews to process fragmented and dissimilar information presented by legacy systems, and to rapidly formulate courses of action in dynamic and time sensitive threat environments. To reduce crew workload and enhance mission effectiveness, the current smart multi-function color display installed on ANG HH-60Gs requires the following upgrades: Enhanced Position Location System Situational Awareness Data Link (EPLRS/SADL), Lightweight Airborne Recovery System version 12 (LARS V12), Air Force Tactical Receive Segment-Ruggedized (AFTRS-R), Blue Force Tracker 2 (BFT2), secure multi-spectrum radio capable of supporting Soldier Radio Waveform, and full motion video. The addition of secure internet protocol data will also enable aircrews to receive near real-time BFT2 data and text messaging from the battlefield. BFT2 is a modernized joint tracking system integrated with SADL and Link-16 to provide beyond line-of-sight interactive data communication between aviation assets and command and control.

2. Source of Need. Air Combat Command AF Form 1067 #04-043,#05-078, #09-153 and #10-229; Combat Air Force Urgent Operational Need 306-09; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: 53114

Remaining Quantity Required	Unit Cost	Program Cost
18 Full Motion Video (3010)	**$200,000**	**$3,600,000**
18 Blue Force Tracker - 2 (3010)	**$100,000**	**$1,800,000**
Total		**$7,900,000**

HH-60G HELMET-MOUNTED CUEING SYSTEM

1. Background. The addition of day and night, helmet mounted cueing and display capability in the HH-60G significantly increases aircrew situational awareness (SA), weapons employment capability, enhances terminal area search and rescue operations, speeds overall internal communication during critical mission phases, and enables crews to safely land in restricted visibility conditions. A helmet-mounted cueing system (HMCS) allows all crewmembers to quickly acquire SA with minimal need for voice communication. All information must be accessible to all crewmembers, as well as crewmembers within a multi-aircraft formation. Sensor and data link symbols visible on the helmet mounted display are superimposed over the geographic location of friendly, hostile, and survivor positions. Additionally, the ability to display sensor and data link information on a helmet-mounted display enhances low altitude flight safety below 500 ft). Since the majority of the HH-60G combat missions occur at night, the HMCS solution must be night vision goggle compatible with individually selectable levels of display information. In restricted visibility operations near the ground, pilots are unable to maintain sufficient visual references necessary to control the aircraft. The loss of visibility creates significant flight safety risks and can lead to spatial disorientation. Three-dimensional (3-D) landing zone symbology, integrated into HMCS, provides crews with sufficient visual cues to maneuver the aircraft in reduced visibility conditions. The helmet must be lightweight to reduce fatigue and prevent injury. Cables/tethers for aircrew must not restrict freedom of movement in the cabin.

2. Source of Need. Air Combat Command (ACC) AF Form 1067 #09-258; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF); 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: 53114

Remaining Quantity Required	Unit Cost	Program Cost
1 HMCS NRE (3010)	**$6,000,000**	**$6,000,000**
18 HMCS Aircraft Kits (3010)	**$335,294**	**$6,035,292**
102 HMCS Helmet Kits (3010)	**$87,843**	**$8,959,986**
102 Night Vision Units (3010)	**$65,882**	**$6,719,964**
1 3-D Landing Zone NRE (3600)	**$20,000,000**	**$20,000,000**
18 3-D Landing Zone Kits (3010)	**$1,000,000**	**$18,000,000**
Total		**$65,715,242**

HH-60G AIRCRAFT WEAPONS MODERNIZATION

1. Background. HH-60G aircraft current weapons include the GAU-2B, a 7.62 mm weapon system that serves as a defensive weapon when conducting combat search and rescue personnel recovery. However, since the HH-60G routinely operates at maximum allowable gross weight, it is necessary to find weight savings wherever possible. Additionally, weapons maintenance and reliability is becoming increasingly hampered by aging parts and corrosion. The M134D-H mini-gun is an improved GAU-2B weapon system paired with updated and improved components. It is a lower weight weapon that provides increased corrosion protection and reliability, with no loss in capability. The components include an ergonomically designed grip, safing sector housing cover, 3,000-round firing trigger, direct current drive motor with battery and cable set, low-drag ammo feed chute, titanium rotor assembly, rigid expended brass link chute, and a barrel clamp safety retainer. The current GAU-2B system also relies on an electronic control unit and aircraft alternating current power to operate. In the event an aircraft must land in an austere environment and aircraft power is not available, there is no way to fire the weapon for aircrew self-defense. Replacing the current 7.62 mm GAU-2B with the M134D-H mini-gun provides the HH-60G a highly reliable weapon, reduced aircraft overall gross weight, and ensures defensive firepower is available in the event of a loss of aircraft AC power.

2. Source of Need. Air Combat Command Project 96-012A HH-60G Cabin Configuration Follow-on Operational Test and Evaluation Final Report, Apr 1997; Combat Air Forces Operational Requirements Document 306-00-I/II/III HH-60G Block 152; ACC / Central Command Combat Mission Need Statement 02-501; ACC Validated AF Form 1067 #08-115; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: 53114

Remaining Quantity Required	Unit Cost	Program Cost
36 M134D-H Minigun Components (3010)	**$30,000**	**$1,080,000**
36 M134D-H Miniguns (3010)	**$60,000**	**$2,160,000**
Totals		**$3,240,000**

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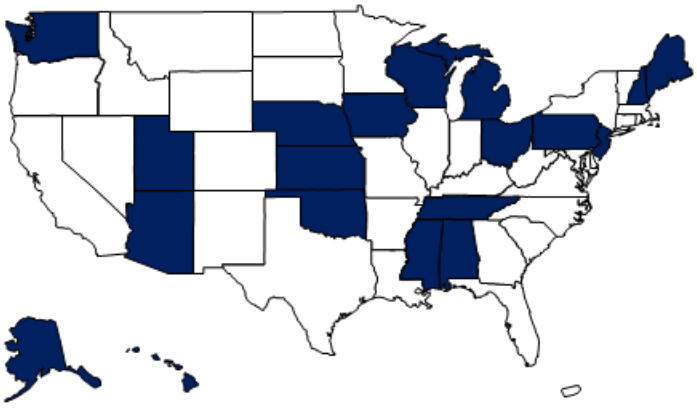
KC-135

- **Air Refueling**
- **Aeromedical Evacuation**
- **Airlift**
- **ANG KC-135 Units Provide 44% of the Total Fleet**

Air refueling is vital to protecting America's global interests. The KC-135 Stratotanker is Air Mobility Command's primary air refueling platform providing approximately 87 percent of air refueling in support of US, allied, and coalition military aircraft. The KC-135 supports deployment, employment, sustainment, and redeployment of joint forces across the full range of military operations including nuclear warfare, routine military activities and irregular warfare.

The KC-135 is tasked to operate close to high-threat areas. Defensive systems are necessary to prevent shoulder-fired surface-to-air missile systems from destroying aircraft during takeoff, landing, and in low-altitude flight over mountainous terrain.

Tactical data link technologies and situational awareness displays that bring real-time threat information, as well as secure radio capability, greatly enhance KC-135 air refueling, airlift, and aeromedical evacuation missions.



KC-135
2014 Weapons and Tactics Council

Critical Capabilities List

- Advanced Infrared Countermeasures Defensive Systems
- Tactical Data Link and Situational Awareness Cockpit Display Units
- External Overt/Covert Lighting
- Aircraft Ground Cooling Capability
- Jam Resistant Global Positioning System

Essential Capabilities List

- Improved Cargo Compartment Lighting
- Soft Basket Quick Connect Boom Drogue Adapter
- Block 45 Electronic Engine Instrument Display Integrated Handset Control Software
- Fuel Tank Fire Explosion Protection
- Electronic Flight Bag

Desired Capabilities List

- Improved Crew Bunks
- Advanced Squadron Level Simulator Systems

KC-135 ADVANCED INFRARED COUNTERMEASURES DEFENSIVE SYSTEMS

1. Background. Changes in tactics place KC-135 aircraft in high threat areas. Missions such as low altitude refueling and forward positioning subject the KC-135 to increasingly hostile environments. This threat environment is widely populated with shoulder-fired, infrared (IR) based man-portable air defenses (MANPADs). MANPADs are a significant threat during take-offs, landings, and low-altitude refueling missions. Due to mission constraints, an advanced IR countermeasures system that does not rely on pyrotechnic expendables is needed to counter MANPAD threats.

2. Source of Need. Large Aircraft Infrared Countermeasures (LAIRCM) ORD 314-92, Aug 1998; LAIRCM Equipage Study; AMC Requirements and Planning Council; AF Form 1067 AMC 10-137 and 12-053; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	186 ARW	Key Fld, MS
127 WG	Selfridge ANGB, MI	157 ARW	Pease IATP, NH	190 ARW	Forbes Fld, KS

4. Program Details. PEC: 41218

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3010)	**$10,000,000**	**$10,000,000**
180 Group A Kits (3010)	**$500,000**	**$90,000,000**
40 Group B Kits (3010)	**$1,600,000**	**$64,000,000**
Total		**$164,000,000**

KC-135 TACTICAL DATA LINK AND SITUATIONAL AWARENESS COCKPIT DISPLAY UNITS

1. Background. Recent combat operations highlighted the need for comprehensive, networked command and control (C2) throughout all theaters of operation. A robust, secure, tactical data link (TDL) provides this C2 link and maximizes KC-135 aircrew situational awareness with beyond line-of-sight and line-of-sight capabilities. TDL provides critical real-time information to KC-135 aircrews such as friendly aircraft position, weather conditions, and hostile threat locations. This greatly increases the KC-135's ability to effectively participate in the present day network-centric battlespace. These C2 elements provide for near-real-time monitoring of mission events, mission status, task completion, and resource status. TDL also enhances the situational awareness of all participant aircraft, including tanker aircraft, receiver aircraft, joint and coalition network participants.

2. Source of Need. Draft annex to Tanker Operational Requirement Document (AF/A5R); Mobility Air Forces Network Enabling Concept, 26 Apr 2006; AMC MAF Data link Integration Technical Requirements Document, 25 Oct 2006; TDL Transformation CDD, Increment 1, JROCM, 23 Jun 2004; AMC Requirements and Planning Council; AF Form 1067 AMC 11-143; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	186 ARW	Key Fld, MS
127 WG	Selfridge ANGB, MI	157 ARW	Pease IATP, NH	190 ARW	Forbes Fld, KS

4. Program Details. PEC: 41218

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3600)	**$9,000,000**	**$9,000,000**
180 Group A Kits (3010)	**$120,000**	**$21,600,000**
198 TDL Radios and Processors * (3010)	**$380,000**	**$75,240,000**
Total		**$105,840,000**

* Includes spares.

KC-135 EXTERNAL OVERT/COVERT LIGHTING

1. Background. Current KC-135 exterior lighting does not meet military specification illumination standards. This deficiency has been highlighted during ground testing conducted by Air Force Research Lab. By replacing the existing incandescent lighting with updated Light Emitting Diode (LED) lighting, the KC-135 combat and peacetime operations benefit in three areas: safety, survivability, and sustainability. LED lighting increases safety margins by providing significantly better aircraft visual acquisition during ground and airborne operations. The covert mode allows KC-135 crews the ability to operate in accordance with theater requirements. Covert lighting drastically reduces the potential of a mid-air collision, which has been highlighted as a safety concern during night operations in theater. The upgraded lighting increases mean time between failure (MTBF) from 40 to 60 hours for incandescent bulbs to over 10,000 hours with LEDs. This significant increase in MTBF reduces supply costs and decreases maintenance requirements.

2. Source of Need. AMC Requirements and Planning Council; AF Form 1067 AMC 10-044; ARC 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	186 ARW	Key Fld, MS
127 WG	Selfridge ANGB, MI	157 ARW	Pease IATP, NH	190 ARW	Forbes Fld, KS

4. Program Details. PEC: 41218

Remaining Quantity Required *	Unit Cost	Program Cost
198 LED Light Kits (3010)	**$70,000**	**$13,860,000**
Total		**$13,860,000**

* Includes 10% spares.

KC-135 AIRCRAFT GROUND COOLING CAPABILITY

1. Background. KC-135 aircraft have no internal means of cooling when below 2,000 feet above ground level, which is the point at which the cockpit becomes pressurized and cooling systems become effective. Current and future employment locations require crews and aircraft to operate in extreme environments. Temperatures at deployed locations routinely exceed 100° F. This ambient temperature results in cockpit temperatures of 140° F and cargo compartment temperatures of 170° F. Crews generally spend greater than one hour in these conditions, which is not conducive to mission accomplishment. Ground cooling carts are the primary method for temperature reduction. Ground cooling carts are removed prior to engine start and are not usable if mission delays occur. Vapor cycle air conditioning units can supplement ground cooling. Ground cooling units can produce 24,000 British thermal units of cooling at 600 cubic feet per minute; approximately a normal house-sized air conditioner, within normal aircraft power and weight requirements. This limited system provides crews and aircraft a more robust operating capability, reduces crew fatigue, and minimizes unsafe temperature conditions.

2. Source of Need. AMC AF Form 1067 06-131; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	186 ARW	Key Fld, MS
127 WG	Selfridge ANGB, MI	157 ARW	Pease ITAP, NH	190 ARW	Forbes Fld, KS

4. Program Details. **PEC: 41218**

Remaining Quantity Required *	Unit Cost	Program Cost
107 Ground Cooling Units (3010)	**$40,000**	**$4,280,000**
Total		**$4,280,000**

* Includes 10% spares.

KC-135 JAM RESISTANT GLOBAL POSITIONING SYSTEM

1. Background. Current employment tactics place KC-135 aircraft in high threat areas. Forward positioning, forward air refueling and other missions subject the KC-135 to increasingly hostile operational environments. Precise navigation is essential and ensures the KC-135 remains within designated safe areas of operation. Primary navigation relies on Global Positioning System (GPS); therefore, the KC-135 requires a robust GPS-based navigation system.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.

101 ARW	Bangor IAP, ME	128 ARW	Gen Mitchel IAP, WI	161 ARW	Phoenix IAP, AZ
108 ARW	JB McGuire, NJ	134 ARW	McGhee Tyson AP, TN	168 ARW	Eielson AFB, AK
117 ARW	Birmingham IAP, AL	151 ARW	Salt Lake City IAP, UT	171 ARW	Pittsburgh IAP, PA
121 ARW	Rickenbacker IAP, OH	154 WG	Hickam AFB, HI	185 ARW	Sioux Gateway AP, IA
126 ARW	Scott AFB, IL	155 ARW	Lincoln AP, NE	186 ARW	Key Fld, MS
127 WG	Selfridge ANGB, MI	157 ARW	Pease ITAP, NH	190 ARW	Forbes Fld, KS

4. Program Details. PEC: 41218

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3010)	**$1,000,000**	**$1,000,000**
357 GPS Antennas (3010)	**$34,878**	**$12,451,446**
357 Electronic Units (3010)	**$30,139**	**$10,759,623**
Total		**$24,211,069**

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Logistics

- **Homeland Defense**
- **Provide Agile and Responsive Forces**
- **Viability Through Modernization**

Air National Guard (ANG) logistics is the largest career field in the US Air Force, encompassing over 21 different occupational series. Air Force Specialty Code assignments range in scope from aircraft maintenance and inventory management, to traffic management and petroleum, oils, and lubricants management. Logistics personnel in the 54 states, territories, and the District of Columbia prepare and train daily for their dual mission of supporting worldwide contingency deployments and responding to domestic emergencies. The logistics team is essential to timely sortie generation in support of domestic emergencies or overseas contingency operations.

Modernizing and recapitalizing the legacy aircraft fleet implies that ANG logisticians must simultaneously modernize the aircraft support structure as well.

Today's increasingly austere fiscal environment drives the need for logisticians to reduce product life cycle costs and the costs of enterprise logistics processes. Devices enhancing maintenance efficiency and safety, while improving capabilities, improve aircraft availability, reduce operating costs, and enhance agile combat support. Equipment such as the maintenance inspection platforms, leak detectors, and digital test equipment reduce aircraft downtime, permit logistics personnel to maintain a high rate of sortie generation, and ensure the longevity, relevance, reliability, and responsiveness of the aging fleet.

Logistics
2014 Weapons and Tactics Council

Critical Capabilities List

- Aircraft Support Equipment
- Aircraft Test Equipment
- Advanced Repair Capability
- Maintenance Support Vehicles
- Maintenance Stands and Platforms

Essential Capabilities List

- Tooling for Legacy Engine Repairs
- Improved Aerial Refueling Point of Sale Tracking System Requiring Totalizer Due to Accuracy Problems
- Auxiliary and External Fuel Tank Storage
- Universal Hydraulic Test Stand
- Improved Temporary Maintenance Shelters
- Improved Fall Restraint and Harness System with Self-Lowering Capability
- Improved Loading Ramps for HH-60 Aircraft
- Modernized Engine and Cockpit Instrument Tester with Digital and Analog Capability
- Improved Electronic Warfare Test Equipment (USM-670A)
- Electronic Warfare Test Equipment Couplers and Borescope
- Upgraded Software for Flight Data Recorder Analysis Computer
- F-15 Secondary Power Tester
- Improved Fire Loop Tester

Desired Capabilities List

- Heat Shield Breaks
- Improved Maintenance Intercom Capability
- C-300/C-301 Fuel Truck Fuel Loading Modernization
- Improved Electronic Diagnostic Capability
- Improved Bleed Air Leak Tester with Thermal Imaging

LOGISTICS AIRCRAFT SUPPORT EQUIPMENT

1. Background. Support equipment is an array of various equipment items that support aircraft availability and sortie generation. Current maintenance operations rely on obsolete support equipment that is cumbersome, expensive to operate, and often causes significant safety concerns. Digital commercial replacement items incorporate the utility of multiple tools, and are more efficient and less costly to operate. Procurement of updated equipment enhances maintenance efficiency and safety while improving aircraft availability. Updated equipment also facilitates a reduction in operating costs and enhances agile combat support capabilities. The MJ-1E electric munitions loader improves load crew effectiveness and safety by eliminating noise and pollution from diesel engines. Currently, 72 kW flight line generator shortfalls affect maintenance units' ability of to generate aircraft. Remotely piloted aircraft units rent a crane or create a makeshift gantry to perform basic maintenance actions on the Predator and Reaper aircraft. In many instances, cranes are unavailable for rent forcing units to be creative to accomplish basic maintenance functions. Units use forklifts, local manufacturing blocks, and cradles to prep aircraft for transportation or assembly at the launch and recovery locations. Unit maintainers need the capability to assemble, disassemble, and store the airframe's components for transport or assembly. This improves safety, reduces task duration, eliminates crane rentals, and eliminates local manufacturing of blocks and cradles.

2. Source of Need. Presidential Directive on Energy Conservation; 2011-2013 ARC WEPTAC Conference; and 2014 ARC WEPTAC Council

3. Units Impacted. All ANG flying units.

4. Program Details. PEC: 22834, 52844, 72834, 207133

Remaining Quantity Required	Unit Cost	Program Cost
62 MJ-1E Electric Jammers (3080)	**$140,000**	**$8,680,000**
186 Flight Line Generators 75 kW (3080)	**$60,000**	**$11,160,000**
24 Highly Mobile and Deployable Cranes (3080)	**$200,000**	**$4,800,000**
Total		**$24,640,000**

LOGISTICS AIRCRAFT TEST EQUIPMENT

1. Background. Aircraft test equipment is critical to daily maintenance operations at ANG units. This equipment is nearing the end of its designed useful life and is increasingly difficult to sustain and expensive to repair. In many cases the original manufacturer is no longer in business, is unwilling to produce outdated equipment, or will not permit other sources to produce their proprietary equipment. Each article of aircraft test equipment has a path forward to resolve longstanding issues. For instance, mid-life upgrades for the improved avionics intermediate shop updates electronics and rectifies diminishing manufacturing source issues. Modern leak detection equipment that uses tracer gas enables maintenance personnel to troubleshoot and repair leaks without the need to contract for legacy tool repair in order to apply outdated maintenance methods.

2. Source of Need. 2011-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted. All ANG units.

4. Program Details. PEC: 22834, 72834

Remaining Quantity Required	Unit Cost	Program Cost
180 Airdata/Pitot Static Testers (3080)	**$100,000**	**$18,000,000**
180 50/60 Testers (3080)	**$25,000**	**$4,500,000**
180 BCIT BUS Testers (3080)	**$65,000**	**$11,700,000**
90 SADL Support Equipment (3080)	**$10,000**	**$900,000**
126 PRC-117F Radios for SSE (3080)	**$27,500**	**$3,465,000**
30 SATCOM Testers and Scripting (3080)	**$41,667**	**$1,250,010**
8 VXI-IAIS Upgrade Kits (3080)	**$2,500,000**	**$20,000,000**
156 Hydrogen Leak Detectors (3080)	**$30,000**	**$4,680,000**
Total		**$64,495,010**

LOGISTICS ADVANCED REPAIR CAPABILITY

1. Background. Current aircraft structural maintenance relies on equipment designed in the 1970s and 1980s and is nearing the end of its designed useful life. This legacy equipment, while critical to daily operations at ANG units, is cumbersome to use, expensive to operate, and often causes safety concerns. Upgrading or improving current incandescent lighting to light emitting diodes (LED) on aircraft interiors and exteriors greatly reduces maintenance efforts to maintain aircraft lighting. Mean time between failure (MTBF) for incandescent lights is 60 hours while LED lights have an approximate MTBF of 10,000 hours. Procurement of LEDs for interior and exterior lighting increases aircraft availability, decreases supply chain delays, and ensures appropriate illumination; creating a safer platform for airborne aerial refueling operations and ground based maintenance activities. Procurement of nondestructive inspection and structural equipment facilitates maintenance personnel to identify, repair, and mitigate aircraft structural damage. This equipment is essential in detecting and repairing cracks, locating corrosion, and enables inspections without using hazardous chemical processes that are detrimental to both the user and the environment.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted. All ANG flying units.

4. Program Details. PEC: 41218, 22834, 72834

Remaining Quantity Required	Unit Cost	Program Cost
89 Structural Maintenance and Inspection Equipment (3080)	**$276,405**	**$24,600,045**
191 Interior and Exterior Aircraft Lighting Upgrades (3080)	**$520,000**	**$99,320,000**
Total		**$123,920,045**

LOGISTICS MAINTENANCE SUPPORT VEHICLES

1. Background. ANG faces a diminishing manufacturing source for items still required for aircraft maintenance because current maintenance operations rely on equipment technologies from the 1970s and 1980s. Replacements for the following systems are needed to fill capability gaps in aircraft maintenance activities: safe aircraft positioners/tow vehicles and maintenance multipurpose vehicles (MPMV). The updated aircraft positioner/alternative tow vehicle uses new technologies providing improved maneuverability and visibility during towing operations, resulting in better utilization of hangar space as well as improved sheltering of aircraft. In addition to improved towing capabilities, the new vehicles also lower operating costs and enhance Agile Combat Support (ACS) capabilities. Procurement of a vehicle mounted engine removal and replacement system capable of performing all required maintenance tasks is needed to ensure maximum aircraft availability. This capability supports installation and removal of engines and life rafts. In addition, it provides a stable and safe platform for performing maintenance activities on control surfaces and propellers on aircraft.

2. Source of Need. Presidential Directive on Energy Conservation; 2012-2013 ARC WEPTAC Conference and 2014 ARC WEPTAC Council

3. Units Impacted. All ANG flying units.

4. Program Details. PEC: 22834

Remaining Quantity Required	Unit Cost	Program Cost
56 CAF Alternative Tow Vehicles (3080)	**$200,000**	**$11,200,000**
106 MAF Alternative Tow Vehicles (3080)	**$350,000**	**$37,100,000**
50 Multipurpose Maintenance Vehicle (MPMV) (3080)	**$300,000**	**$15,000,000**
Total		**$63,300,000**

LOGISTICS MAINTENANCE STANDS AND PLATFORMS

1. Background. Current isochronal inspection stands and HH-60 cribbing no longer meet Air Force Occupational Safety and Health Administration or Occupational Safety and Health Administration standards. Many stands in use are over 40 years old and require frequent maintenance actions to maintain serviceability. These stands are critical to accomplishing periodic inspection requirements. Additionally, no standard HH-60 cribbing or engine test stands exist. Most units create makeshift cribbing out of plywood and other materials that are unsafe and cannot be moved once the HH-60 is attached. HH-60 engine test stands reduce risk to operators and eliminate the procedure of engine tests in a hover at 10 feet. Established workarounds delay completion of those inspection requirements, effectively doubling inspection times and reducing aircraft availability. New stands and cribbing are safer and allow maintainers to complete aircraft specific tasks.

2. Source of Need. Occupational Safety and Health Administration (OSHA) Standards, 29 CFR 1910 Subpart D; 2010-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted. All MAF and HH-60 units.

4. Program Details. PEC: 41115, 41130, 41218

Remaining Quantity Required	Unit Cost	Program Cost
5 C-17 Maintenance Platforms and Stands (3080)	**$4,000,000**	**$20,000,000**
18 KC-135 Maintenance Platforms and Stands (3080)	**$2,000,000**	**$36,000,000**
12 HH-60 Engine Test Stands (3080)	**$1,500,000**	**$18,000,000**
6 HH-60 Cribbing (3080)	**$300,000**	**$1,800,000**
Total		**$75,800,000**

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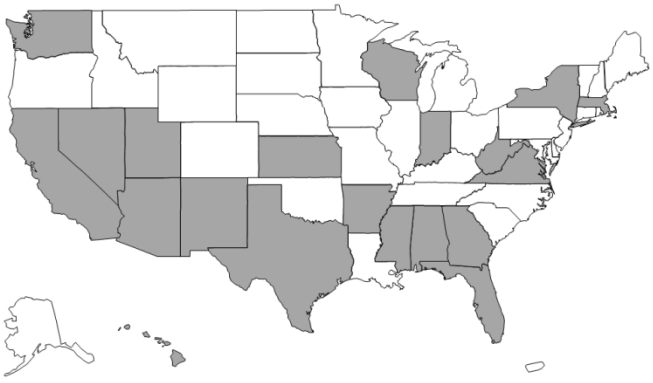
Intelligence, Surveillance, and Reconnaissance

- **RC-26B Condor**
- **Distributed Common Ground System**

US intelligence agencies call upon Air National Guard (ANG) manned airborne reconnaissance assets to fill critical Intelligence, Surveillance, and Reconnaissance (ISR) and Incident Awareness and Assessment (IAA) requirements. These ANG resources support homeland operations, counterdrug operations, and combatant command (COCOM) areas of responsibility.

RC-26B Condor - The RC-26B manned ISR platform provides day and night full motion video (FMV) for IAA and ISR requirements with aircraft in two configurations: Block 20 and Block 25. The RC-26B is a low density/high demand platform operating in the US and overseas, supporting COCOM overseas contingency operations and IAA requirements for disaster response, national special security events, and counterdrug operations. Modernization efforts are moving toward a common configuration of all aircraft to include an upgraded electro-optical-infrared sensor, communications, and mission management systems. Eleven aircraft are attached to 11 units from Air Combat Command, Air Mobility Command, and Air Education and Training Command. RC-26B locations include AL, AZ, CA, FL, MS, NM, NY, TX, WA, WI, and WV.

Distributed Common Ground System (DCGS) - The AF DCGS, designated the AN/GSQ-272 Sentinel, is the primary ISR processing, exploitation, and dissemination system. DCGS provides multi-discipline intelligence derived from ISR platforms to COCOMs, component numbered air forces (C-NAF), and national command authorities across the globe 24 hours a day, 7 days a week. Through distributed (reach-back and deployed) and collaborative operations, DCGS personnel enable the AF to engage in multiple, simultaneous military operations across the globe. ANG DCGS locations include AL, AR, CA, GA, HI, IN, KS, MA, NV, UT, and VA.



Intelligence, Surveillance, and Reconnaissance
2014 Weapons and Tactics Council

Critical Capabilities List

RC-26B:
- Avionics Modernization
- Block 25R Common Fleet Configuration
- Interoperable Beyond Line-of-Sight Ku- and Ka-Band Communications Data Link
- Modular Mission Pod
- Aircraft Performance Upgrade

Distributed Common Ground System:
- Upgrade of Baseline Systems to Meet Full Motion Video Exploitation Requirements
- Air National Guard Intelligence, Surveillance, and Reconnaissance Simulated Integrated Training System (see Tab Q)

Essential Capabilities List

RC-26B:
- Full Crew Distributed Mission Operation and Live Virtual Construct Simulator
- Common Unclassified Airborne Data Dissemination System
- Maritime and Ground Moving Target Indicator and Coherent Change Detection Synthetic Aperture Radar for Organic Self-Cueing
- Hyper-Spectral Imagery Sensor
- Wide-Area Tactical Over-Watch Sensor

Distributed Common Ground System:
- None

Desired Capabilities List

RC-26B:
- Generator Upgrade
- Helmet-Mounted Cueing and Flight Display System
- Full Spectrum Late Generation Battlespace Awareness
- Broadcast Bandwith System

Distributed Common Ground System:
- None

RC-26B AVIONICS MODERNIZATION

1. Background. RC-26B avionics are obsolete and unsustainable due to diminishing manufacturing sources. Specifically, the Global Positioning System (GPS), electronic flight information system displays, flight management system (FMS), as well as the navigation and communication radios need to be modernized. The current avionics suite only includes one GPS, meaning that a single GPS failure restricts crews from flying area navigation routes and approaches. Additionally, the FMS is not certified to perform GPS approaches per the Federal Aviation Administration /International Civil Aviation Organization communication navigation surveillance/air traffic management certification requirements. Honeywell Bendix, the manufacturer of the RC-26 FMS (KNS 660) stops supporting this system in December 2015, rendering the fleet potentially incapable of RNAV operations. The RC-26B does not have frequency modulation immunity in the navigation radios, leaving it vulnerable to congestion and potentially unsafe aircraft operations when flying terminal area approaches and departures. Additionally, the communication radios do not meet the frequency spacing required for operation in the European Command area of operations. Lastly, battlefield operations now demand the use of night vision compatible cockpits and utilization of certified GPS navigations systems to safely depart and land at austere and remote airfields. The current RC-26B avionics suite and GPS do not meet these requirements.

2. Source of Need. FAA, ICAO mandates, 2009-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	174 ATW	Syracuse Hancock IAP, NY
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	186 ARW	Meridian RAP, MS
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	187 FW	Montgomery RAP, AL
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ		

4. Program Details. PEC: 502889

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3600)	**$1,300,000**	**$1,300,000**
11 Shipset Kits (3010)	**$1,570,000**	**$17,270,000**
Total		**$18,570,000**

RC-26B BLOCK 25R COMMON CONFIGUATION

1. Background. The RC-26B is routinely tasked for both domestic and overseas missions and has two configurations: Block 20 for domestic operations (DOMOPS); Block 25 for overseas contingency operations (OCO). Each configuration has a different sensor, mission management system (MMS), and communications suite for intelligence, surveillance, and reconnaissance (ISR) operations. Split configurations create inefficient aircraft and manpower utilization in addition to the training and planning difficulties brought about by the acute capability differences between aircraft. All issues resulting from Block-specific differences can be remedied through a common aircraft configuration. Currently, six Block 25 aircraft are under contract to be reconfigured into Block 25R, with an upgraded high definition (HD) electro-optical-infrared (EO/IR) full motion video (FMV) sensor, mission equipment, and communications capability for DOMOPS and OCO mission sets. The remaining five Block 20 aircraft must be added to this effort to standardize the fleet with the Block 25R configuration.

2. Source of Need. AF Form 1067, 22 Oct 2008; USSOCOM Manned Airborne Intelligence Surveillance, and Reconnaissance Capability Production Document, 23 Apr 2014; 2009-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	174 ATW	Syracuse Hancock IAP, NY
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	186 ARW	Meridian RAP, MS
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	187 FW	Montgomery RAP, AL
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ		

4. Program Details. PEC: 502889

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3600)	**$550,000**	**$550,000**
5 Block 25R Configuration Kits (3010)	**$1,150,000**	**$5,750,000**
Total		**$6,300,000**

RC-26B INTEROPERABLE BEYOND LINE-OF-SIGHT KU- AND KA-BAND COMMUNICATIONS DATA LINK

1. Background. The intelligence community utilizes real-time, seamless interoperable communication architectures in a network-centric battlespace, the standard for airborne intelligence, surveillance, and reconnaissance (ISR) assets. The RC-26B has no capability to interact with the global information grid using broadband beyond line-of sight (BLOS) technology or to communicate within a common data link (CDL) environment. In addition, the supported warfighter on the ground is increasingly operating in remote locations where the ability to exchange real-time data and transmit full motion video (FMV) via line-of-sight only means is a severe combat capability restriction. BLOS CDL and high definition (HD) FMV downlink capability to command and control (C2) nodes and ground forces are critical capabilities for all airborne ISR platforms. The proposed upgrade to the RC-26 with a Ku- and Ka-band BLOS kit – antenna, antenna bubble, aircraft wiring and integration – gives the aircraft a wideband data link providing both intelligence data and HD FMV to BLOS users and customers. This modification enables the enhancement of operational situational awareness for intelligence gatherers and ground elements in any tasking area of operations. It also permits platform-to-platform and platform-to-C2 data exchange and sensor slewing. These upgrade kits also provide a vast amount of HD awareness and assessment imagery for domestic operations.

2. Source of Need. AF Form 1067 A4MY 10-024, 9 Apr 2010; 2011 - 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council. US Special Operations Command (USSOCOM) Manned Airborne Intelligence Surveillance Reconnaissance (MAISR) Capability Production Document, 23 Apr 2014; 2014 ARC WEPTAC Council Critical Capability

3. Units Impacted.

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	174 ATW	Syracuse Hancock IAP, NY
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	186 ARW	Meridian RAP, MS
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	187 FW	Montgomery RAP, AL
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ		

4. Program Details. PEC: 502889

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3600)	**$1,000,000**	**$1,000,000**
11 BLOS Kits (3010)	**$581,800**	**$6,399,800**
Total		**$7,399,800**

RC-26B MODULAR MISSION POD

1. Background. The RC-26B is low density, high demand intelligence surveillance reconnaissance, and incident awareness and assessment (IAA) aircraft ideally suited to employ existing imagery, sensor, communication, and electronic warfare commercial and government technologies. Sensors can include electro-optical-infrared in focused and wide-area formats, multi-spectral, hyper- spectral, and synthetic aperture radar (SAR). SAR delivers ground moving target indication, dismounted moving target indication, coherent change detection, and maritime search capabilities. Other mission sets and customers require data collection sensors to include electronic intelligence, communications intelligence, signals intelligence, measures and signal intelligence, as well as systems capable of communications jamming, communications relay, satellite communications, satellite telemetry, electronic support measures, electronic attack, electronic countermeasures, and magnetic anomaly detection. A modular pod that can be re-configured at low cost and minimal integration effort eliminates lengthy and costly aircraft modifications and provide quick-turn capability for the wide array of technologies needed for the varied missions. Depending on specific mission requirements, these sensors and payloads can be combined to create mission specific pod suites requiring only the change-out of the pod for any given mission. The pod must be able to accept a modular, internally-racked self-contained payload either in the form rack-mounted sensor or equipment, antenna array, or pre-existing ball-type sensors. It must also have provisions for specific electro-magnetic spectrum transparency when necessary for specific payloads. Aircraft mounting of the pod takes advantage of an existing hard-mount payload attachment point. Eleven pods are needed, one for each aircraft in the fleet, plus one spare. Customer and mission specific payloads could then be integrated one or more at a time and used across the fleet as necessary, maximizing aircraft utilization and providing a wide array of capability.

2. Source of Need. NGB/J32; SOCOM, JIATF-S; 2014 ARC WEPTAC Council.

3. Units Impacted.

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	174 ATW	Syracuse Hancock IAP, NY
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	186 ARW	Meridian RAP, MS
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	187 FW	Montgomery RAP, AL
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ		

4. Program Details. **PEC: 502889**

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3600)	**$500,000**	**$500,000**
12 Modular Mission Pods (3010) *	**$300,000**	**$3,600,000**
Total		**$4,700,000**

* Including spares.

RC-26B AIRCRAFT PERFORMANCE UPGRADE

1. Background. The RC-26B airframe is an effective, low-cost, and capable manned aircraft for Intelligence Surveillance Reconnaissance (ISR) and Incident Awareness and Assessment (IAA) missions. Numerous incremental modifications, adding weight, airframe changes (antennas, fuselage mounted sensors and equipment), and increased power consumption, reduce overall aircraft performance and impact mission effectiveness. An aircraft performance upgrade provides greater range and increased endurance, reduces ground acoustic signature, and increases sensor and airframe life. Modification options being considered to reduce parasite drag include winglets and high-efficiency composite propellers. Installation of airflow vanes and vortex generators greatly reduces the overall aircraft drag. Winglets increase lift, reduce drag, and have the added benefit of being used as antennas for additional sensors and / or radios. High-efficiency propellers would increase fuel efficiency as well as reduce the noise signature of the aircraft, lowering the risk of detection by ground surveillance targets and allowing for smaller reconnaissance orbits and lower mission altitudes when the mission dictates. Additionally, the reduction in vibration due to these new propellers will increase the mean time between failure of sensitive aircraft sensors and increase the lifetime of the airframe itself. Lastly, new, higher output generators increase the load limit, increase safety and allow for additional sensors and mission equipment. Overall, these upgrades create a more effective ISR and IAA platform, with increased utility to combatant commanders, domestic operations, and special mission customers.

2. Source of Need. SOCOM MAISR CPD Briefing, 23 Apr 2014; 2014 ARC WEPTAC Council

3. Units Impacted.

115 FW	Truax Fld, WI	144 FW	Fresno IAP, CA	174 ATW	Syracuse Hancock IAP, NY
125 FW	Jacksonville IAP, FL	147 RW	Ellington IAP, TX	186 ARW	Meridian RAP, MS
130 AW	Yeager AP, WV	150 FW	Kirtland AFB, NM	187 FW	Montgomery RAP, AL
141 ARW	Fairchild AFB, WA	162 FW	Tucson IAP, AZ		

4. Program Details. PEC: 502889

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3600)	**$1,200,000**	**$1,200,000**
11 Aircraft Performance Upgrade Kits (3010)	**$481,800**	**$5,300,000**
22 Generators (3080)	**$27,300**	**$600,600**
Total		**$6,500,600**

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DISTRIBUTED COMMON GROUND SYSTEM UPGRADE OF BASELINE SYSTEMS TO MEET FULL MOTION VIDEO EXPLOITATION REQUIREMENTS

1. Background. ANG Air Force Distributed Common Ground System (AFDCGS) units routinely need mission systems upgrades and component technical-refresh. These upgrades enable 24/7 geospatial intelligence (GEOINT) and signals intelligence processing, exploitation, and dissemination support to combatant commands. These AFDCGS systems include workstation hardware, servers, local area network equipment, and associated communications equipment. Several ANG AFDCGS units operate GEOINT full motion video mission systems that are more than 6 years old and experiencing severe sustainability issues. It is a constant challenge to keep these weapons systems mission ready with many components no longer industry-supported. Upgrading all components to the current AFDCGS GEOINT baseline ensures ANG full motion video capabilities match other AFDCGS enterprise units.

2. Source of Need. Joint Requirements Oversight Council-approved AFDCGS Operational Requirements Document, 28 Feb 2001; Office of the Under Secretary of Defense for Acquisitions, Technology, and Logistics Action Directive Memorandum, 24 Oct 2003; Secretary of the Air Force for Acquisitions Program Management Directive (PMD) 04-2379(3) / PE# 0305208F for AN/GSQ-272 Sentinel; AF DCGS PMD, 1 Jul 2005; Air Combat Command Intelligence, Surveillance, and Reconnaissance Directorate Combat Air Force AFDCGS Weapon System Management Plan, 13 Sep 2006; 2014 ARC WEPTAC Council.

3. Units Impacted.

117 IS	Birmingham, AL	123 IS	Little Rock AFB, AR	152 IS	Reno-Tahoe IAP, NV

4. Program Details. PEC: 55208, 53115, 53117, 53218, 53219

Remaining Quantity Required	Unit Cost	Program Cost
3 GEOINT Baseline Suites (3840)	**$6,000,000**	**$18,000,000**
Total		**$18,000,000**

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE SIMULATED INTEGRATED TRAINING SYSTEM

1. Background. The ANG intelligence, surveillance, and reconnaissance (ISR) community requires a standalone training simulator and the ability to participate in the live-virtual-constructive (LVC) distributed training structure. Distributed mission operations and the Distributed Training Operations Center afford this LVC integration. ISR operators conduct mission qualification and continuation training during real-world operational missions due to the lack of a simulation capability. This drastically limits the scope of training while incurring the inherent risks of training during an operational mission. ANG ISR operators require a tailorable and integrated mission simulator to maintain combat mission ready proficiency for contested ISR collection, processing, analysis, and dissemination training. A distributed simulation capability allows for the development and validation of multi-discipline ISR tactics across multiple platforms. An integrated training simulator satisfies the tailored Air Force Instruction 14-2 for each mission design series, provides an ISR analysis-training component, and increases the dynamic integration of ISR coordination with all platforms across the ANG. In the absence of this capability, ISR operators must conduct proficiency and continuation training on an ad hoc basis with limited multi-MDS coordination or focus on the next generation fight.

2. Source of Need. Air Force Policy Directive 14-2, Intelligence Rules and Procedures; Air Force ISR 2023: Delivering Decision Advantage; AF ISR Agency Strategic Plan 2013-2023, Dec 2013; AF ISR Agency Distributed Common Ground System Weapons System Trainer Flight Plan, Sep 2013; AF Form 1067 480ISRW-10-06-11; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted. All ANG Distributed Ground Systems, Distributed Mission Systems, Combat Air Forces, Mobility Air Forces, Air and Space Operations Groups, Remotely Piloted Aircraft squadrons, Space Operations Squadrons, Cyber Operations Squadrons, and targeting units.

4. Program Details. PEC: 55208, 53115, 53117, 53218, 53219

Remaining Quantity Required	Unit Cost	Program Cost
11 ARCNet Gateway Racks (3080)	**$20,250**	**$222,750**
11 Site Installation and Training (3840)	**$1,500**	**$16,500**
11 Annual Site Service Fees (3840)	**$19,385**	**$213,235**
11 Hardware, Software, and Peripherals (3080)	**$45,550**	**$501,050**
Total		**$953,535**

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Operational Support Aircraft

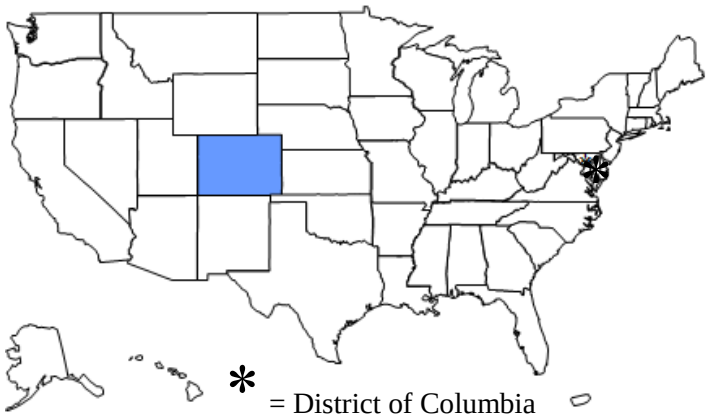
- **Provides Special Mission Transportation of Distinguished Visitors**
- **ANG OSA Units Provide: C-38 - 100%, C-40 - 27%, C-21 - 9% of the Total Fleet**

The Air National Guard (ANG) operational support aircraft (OSA) support crucial special missions including distinguished visitor (DV) transportation. Each mission has unique requirements beyond the traditional support provided to the rest of the ANG's fleet. The 201 AS operates the C-40C and C-38 from JB Andrews, MD for the District of Columbia ANG. The 200 AS operates the C-21As from Colorado Springs, CO. The 201 AS aircraft provide worldwide transportation for Congressional, Department of Defense (DoD), Air Force, and National Guard travel missions. The primary mission of all OSA aircraft is to ensure passenger safety and comfort while providing the utmost in reliability. The ANG's modernization efforts continue to focus on keeping these aircraft modern and safe.

Since the ANG began the C-40C mission, demand has steadily increased. To improve service and increase mission availability an additional C-40C aircraft is required.

The C-38A was originally acquired to support continental United States operations. The evolution of National Guard overseas commitments has driven a fundamental mission change. The two C-38As have non-standard airframes within the Air Force inventory, lack the range and reliability to meet new mission requirements, and need to be replaced.

Demand for the C-21A continues to increase as the Active Component fleet shrinks. Co-location with a major command and the deactivation of the Active Component unit at Peterson AFB, created a void for available DV airlift. By adding two more C-21A aircraft, availability increases to meet DV mission demand.



Operational Support Aircraft
2014 Weapons and Tactics Council

Critical Capabilities List

- None

Essential Capabilities List

- C-38A Avionics Modernization
- C-40C Electronic Flight Bag
- C-21A Avionics Upgrade

Desired Capabilities List

- None

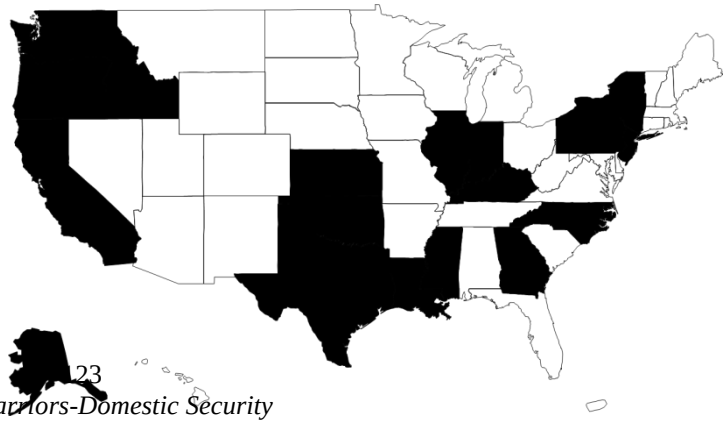
Guardian Angel, Special Tactics, and Tactical Air Control Party

- **Combat Search and Rescue**
- **Special Operations**
- **ANG GA Units Provide 30% of the Total Force**
- **ANG ST Units Provide 25% of the Total Force**
- **ANG TACP Units Provide 35% of the Total Force**

The Air National Guard (ANG) has three Guardian Angel (GA) units including 103 RQS, Francis S. Gabreski Airport, NY; 131 RQS, MoffettFederal Airfield, CA; and 212 RQS, Joint Base Elmendorf-Richardson, AK. GA consists of combat rescue officers, pararescue jumpers, and survival, evasion, resistance, and escape (SERE) instructors. Their deployed mission is to recover downed and injured aircrew members in austere and non-permissive environments. GAs provide emergency medical treatment necessary to stabilize and evacuate injured personnel in a SERE environment.

The ANG has two special tactics squadrons (STS) including the 123 STS, Louisville IAP, KY and 125 STS, Portland IAP, OR. Special tactics teams (STT) are quick-reaction, deployable Air Force units, uniquely organized, trained, and equipped to facilitate the air-to-ground interface during joint special operations missions. STT personnel provide quick-reaction command and control, close air support (CAS), positive air traffic management, personnel recovery, treatment and evacuation of casualties, and real-time weather analysis and interpretation during joint air, ground, and maritime operations.

Tactical Air Control Party (TACP) is a small team of Air Force personnel providing airspace de-confliction and terminal control of CAS firepower onto enemy ground targets. TACPs provide advice, assistance, and planning for air and space power employment in support of the air support operations center. TACPs advise ground commanders on the best use of airpower, establish, and maintain command, control, and communications, and provide precision terminal attack guidance.



Guardian Angel, Special Tactics, and Tactical Air Control Party
2014 Weapons and Tactics Council

Critical Capabilities List

Guardian Angel:
- Command, Control, Communication, Cyberspace, and Intelligence
- Combat Survivability Suite Modernization
- Human Performance Optimization Equipment
- Storage Solutions Suite
- Combat Shooting Range (see Tab Q)

Special Tactics:
- Home Station Training Solutions (see Tab Q)
- Dismounted Operator Suite
- Employment Enhancement Suite
- Communications Upgrades
- Modernized Aerial Delivery Systems

Tactical Air Control Party:
- Dismounted Audio and Video Mission Recording and Debrief System
- Rapidly Deployable Joint Operational Communications System
- Dismounted Software Targeting and Data Management System
- Lightweight Dismounted Sensor and Targeting System
- Air Support Operations Center Tactical Data Link Control System

Essential Capabilities List

Guardian Angel:
- Search Enhancement
- Terminal Area Simulator
- Single Pass Precision Airdrop
- Signature Management Capabilities
- Pararescue Maritime Capability

Special Tactics:
- Covert Night Marking and Targeting Capability
- Two-Channel Voice and Data-Capable Radio
- Operator Wireless Network
- Training and Simulation Alternate Insertion and Extraction Tower
- Optimized Lightweight Dismounted Operator Kit

Tactical Air Control Party:
- Targeting Pod
- White Phosphorus Night Vision Goggles
- Portable Next Generation Power Storage
- Low Profile Vehicle and Dismounted Antennae

Desired Capabilities List

Guardian Angel:
- Search and Rescue Vehicle
- Physical Augmentation
- Air Deployable Rescue Vehicle Communication and Weapon Enhancements

Special Tactics:
- Persistent Space/Air-to-Ground Two-Way Data
- Organic Indirect Fire Capability
- Stronger, Smaller Technical Rope Rescue System

Tactical Air Control Party:
- None

GUARDIAN ANGEL COMMAND, CONTROL, COMMUNICATION, CYBERSPACE, AND INTELLIGENCE

1. Background. Guardian Angel (GA) units require enhancements to Command, Control, Communications, Cyberspace, and Intelligence (C4I). Combat lessons demonstrate it is extremely difficult for operators to determine the precise location of enemy and friendly forces, effectively communicate the same message to all assets supported, and gather the latest intelligence. To alleviate this constraint, a new C4I tool is required by rescue squadron teams. Similarly, the proliferation of Global Positioning System denial systems necessitates equipment that is less susceptible to jamming and improves navigation accuracy in mounted and dismounted vehicle applications. Another requirement is the ability to have C4I information available on a hand held device, with an easy user interface, while wirelessly connected to its other components that help the handheld device gather information. GA success on the battlefield also depends heavily on the ability to designate threats to supporting parties. The ability to mark friendly and enemy forces and broadcast the information to supporting assets is essential. Additionally, the force-multiplying effect of advanced communications cannot be overstated; acquisition of a lightweight and compact communication system, capable of delivering voice and high-speed data in both line-of-sight and over-the-horizon while the operator is on the move, dramatically improves GA capability.

2. Source of Need. Lessons learned from Operations ENDURING FREEDOM and IRAQI FREEDOM; shortfalls identified in the Guardian Angel Modernization Initial Capabilities Document and the GA Capabilities-Based Assessment Final Report; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council

3. Units Impacted.

106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK.

4. Program Details. PEC: 53119

Remaining Quantity Required	Unit Cost	Program Cost
9 C4I Solution Sets (3080)	**$50,000**	**$450,000**
Total		**$450,000**

GUARDIAN ANGEL COMBAT SURVIVABILITY SUITE MODERNIZATION

1. Background. Guardian Angels (GAs) require enhancements to the combat survivability suite. Lessons learned show that in prosecution of the GA mission it is extremely difficult for the operator to determine the direction of incoming fire. To alleviate this limitation, a light-weight, man-portable, hostile fire indicator is essential. Similarly, countering threats deigned to deny Global Positioning System service requires enhanced equipment that is less susceptible to jamming and is capable of providing improved navigation accuracy in both mounted and dismounted vehicle applications. Another requirement is the capability to see into areas of reduced visibility (low ambient light, fog, smog or concealment measures). A fusion goggle that operates day or night, incorporating thermal and night vision technology, and provides the operator "heads-up" information such as distance and bearing to a chosen objective fills this capability gap. GA success on the battlefield also depends heavily on its ability to designate threats to combat support equipment and personnel. A handheld day/fusion goggles, night target designator is essential. Additionally, the force-multiplying effect of advanced communications cannot be overstated.

2. Source of Need. Lessons Learned from Operations ENDURING FREEDOM and IRAQI FREEDOM; Mission Required Equipment; Shortfalls identified in the Guardian Angel Modernization Initial Capabilities Document and the Capabilities-Based Assessment Final Report; 2010-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK.

4. Program Details. PEC: 53119

Remaining Quantity Required	Unit Cost	Program Cost
54 MicroDAGR (3080)	**$1,450**	**$78,300**
150 Invisio V60 (3080)	**$2,000**	**$300,000**
30 HFI (3080)	**$1,800**	**$54,000**
150 Fusion Goggles (3080)	**$32,000**	**$4,800,000**
73 AN PVS-31 BNVD (3080)	**$10,000**	**$730,000**
36 Night/Day Target Designators (3080)	**$18,500**	**$666,000**
Total		**$6,628,300**

GUARDIAN ANGEL HUMAN PERFORMANCE OPTIMIZATION EQUIPMENT

1. Background. ANG Guardian Angels (GA) have fallen behind in progressive methods of fitness, rest, and rehabilitation of injuries sustained while executing or training for missions that are consistent with other Special Operations Forces weapon systems. Injuries negatively impact the health and readiness of the Guardian Angel weapon system and result in excessive and unnecessary lost work-days and subsequently impact mission-ready status. The current medical system does not provide a detailed initial medical screening for special operations operators, nor does it address past injuries and structural concerns. In order to enhance human performance and mitigate injuries, GAs require a human optimization system that consists of both contracted physical training personnel and physical training equipment. Phase One is contracting physical therapists, injury managers, strength coaches, nutritionists and physician's assistants to address operator health concerns and track health data through the operator's professional career. Phase Two of the Human Optimization System (HOS) is the procurement of specific physical training equipment suited for the HOS recovery and rehabilitation program. HOS Phase Three is the procurement of physical training and strength conditioning/reconditioning equipment.

2. Source of Need. Human Performance Optimization (HPO) requirement identified by the GA Senior Leaders Working Group and supported by the Weapon System Council; Guardian Angel Vision 2020 document currently in coordination; Tactical Human Optimization, Rapid Rehabilitation, and Reconditioning Program THOR 3; AFSOC HPO Program; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK.

4. Program Details. PEC: 53119

Remaining Quantity Required	Unit Cost	Program Cost
3 Units Phase One (3080)	**$250,650**	**$751,950**
3 Units Phase Two (3080)	**$355,700**	**$1,067,100**
3 Units Phase Three (3080)	**$241,245**	**$723,735**
Total		**$2,542,785**

GUARDIAN ANGEL STORAGE SOLUTIONS SUITE

1. Background. ANG Guardian Angels (GA) have inadequate space and storage solutions to adequately store and access mission critical equipment. Due to increased mission requirements over the past decade, GAs have added thousands of square feet of equipment without an increase in allocated storage facilities. GA units are working with the National Guard Bureau Civil Engineering office to complete deviance requests in order to increase space authorizations. During the interim, GA units must purchase or lease temporary storage to prevent the rapid deterioration of mission critical gear purchased from newly levied requirements which otherwise must be stored outside. GA units can more efficiently utilize their current allotted space by purchasing space saver storage devices. This can save significant costs in the long run by preventing or reducing military construction projects. Mission critical GA equipment is stored in harsh environments and climates where it deteriorates much more rapidly. Additionally, due to the current difficulties in storing equipment, GA have a difficult time both meeting alert and rapidly responding to missions as it is difficult to access equipment needed for rescues.

2. Source of Need. Storage solutions requirement identified by the GA Senior Leaders Working Group and supported by the GA Senior Leaders Working Group and supported by the Weapon System Council; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK.

4. Program Details. PEC: 53119

Remaining Quantity Required	Unit Cost	Program Cost
3 Temporary Climate Controlled Facilities (3080)	**$535,000**	**$1,605,000**
3 Overhead Cranes/ Loaders (3080)	**$500,000**	**$1,500,000**
Total		**$3,105,000**

SPECIAL TACTICS DISMOUNTED OPERATOR SUITE

1. Background. Special tactics squadrons (STS) consist of combat controllers (CCT), Pararescuemen, and Special Operations Weather Teams who engage the enemy with personal weapons at close range while coordinating precision air and indirect fire strikes on targets at ranges from two hundred meters to three thousand meters. Lessons learned indicate that the key to victory is rapid and accurate return fire on the enemy followed by immediate and accurate precision air strikes. Advanced aircraft technology has led to the need for dismounted operators to carry additional devices to effectively communicate with aircrew in order to employ the munitions and counter measures the aircraft carries. STS operators require a suite of the lightest, most accurate, and easiest to use gear available. Capabilities of the components are complementary and interoperable throughout the entire special tactics mission set. Ruggedized tablets, more accurate target designators, range finders and portable satellite communications (SATCOM) antennas represent some of the latest advancements in technology that operators need in order to maintain a qualitative advantage. Laser range finders equip combat controllers with much needed and improved range finding capability. Ballistic helmet upgrades allow operators a 360 degree field of hearing without removing headsets while reducing operator fatigue. Previous technology does not allow the operator to accurately place the direction of a particular sound, such as gunfire, without taking off his headset. Laser target designators (LTDs) provide the lightest and smallest LTDs available while maintaining mission requirements. Recent unit type code changes for special operations weather team members require a portable system for weather reconnaissance. New tablets provide CCT teams updated situational awareness software/hardware for battle tracking. SATCOM antennas replace existing outdated antennas with a more effective capability.

2. Source of Need. Lessons learned from Operation ENDURING FREEDOM; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
123 STS Louisville IAP, KY 125 STS Portland IAP, OR

4. Program Details. PEC: 53130

Remaining Quantity Required	Unit Cost	Program Cost
30 Next Generation Small Laser Range Finders (3080)	**$8,500**	**$255,000**
100 Ballistic Helmet Upgrades (3080)	**$2,000**	**$200,000**
6 Laser Target Designator (3080)	**$150,000**	**$900,000**
1 Portable Weather Reconnaissance System	**$350,000**	**$350,000**
10 Situational Awareness Tablets (3080)	**$10,000**	**$100,000**
10 ManPack SATCOM Antennas (3080)	**$5,000**	**$50,000**
Total		**$1,855,000**

SPECIAL TACTICS EMPLOYMENT ENHANCEMENT SUITE

1. Background. Special tactics squadrons (STS) consist of combat controllers, pararescuemen, and special operations weather teams who utilize a wide variety of employment vehicles for training as well as overseas contingency operations. These special tactics (ST) operators rely heavily on small light tactical vehicles and watercraft to reach their objective area as quickly and efficiently as possible. ST units are creating a versatile multi-mission fleet capable of meeting diverse requirements in all environments. Advances in technology, as well as aging and degrading equipment, dictate replacing a portion of the fleet. A new support boat replaces an old and outdated boat. Two tactical vehicles meet the pararescue requirement for an air-droppable tactical vehicle. Forward looking infrared (FLIR) mounting systems allow a rapid transfer of FLIR equipment from one vehicle to another. Custom C-130 trailers allow snowmobiles to be transported while providing protection from the elements during storage. An all-terrain vehicle (ATV) track system enables current 4-wheel ATVs to be converted into tracked vehicles for better mobility in deep snow and loose terrain. An internal airlift/helicopter sling-capable container unit facilitates a more organized and effective storage of equipment during movement or deployment. Swift water boats replace existing worn and outdated boats.

2. Source of Need. Lessons learned from Operation ENDURING FREEDOM; Guardian Angel, Air-Deployable; Recovery Vehicle System Development Requirement; Shortfalls identified in the Guardian Angel (GA) Modernization Initial Capabilities Document and the GA Capabilities-Based Assessment Final Report; 2014 ARC WEPTAC Council.

3. Units Impacted.

123 STS Louisville IAP, KY 125 STS Portland IAP, OR

4. Program Details. PEC: 53130

Remaining Quantity Required	Unit Cost	Program Cost
1 Maritime Support Boat (3080)	**$300,000**	**$300,000**
2 Search & Rescue Tactical Vehicles (3080)	**$150,000**	**$300,000**
2 FLIR Mounting Systems (3080)	**$300,000**	**$600,000**
2 C-130 Enclosed Trailers (3080)	**$10,000**	**$20,000**
8 ATV Track Systems (3080)	**$5,000**	**$40,000**
2 ISU Organization System (3080)	**$100,000**	**$200,000**
2 **Swift Water Boats (**3080)	**$13,000**	**$26,000**
Total		**$1,486,000**

SPECIAL TACTICS COMMUNICATIONS UPGRADES

1. Background. Special tactics squadron (STS) combat controllers, pararescue personnel, and special operations weather teams must be able to effectively transmit voice and data communication with military and civilian emergency responder units in support of contingency and domestic operations. Enhanced communication systems allow STS teams the ability to maintain a high level of proficiency with cutting edge data and voice technology during global battlefield engagements and domestic operations. Newer equipment is lightweight and allows enhanced military and civilian interagency communications resulting in more agile and effective team communications in any environment. The equipment also allows the special tactics operation center and operator teams to extend communications boundaries allowing leadership a better battlefield sight picture to allow for more decisive engagements. Procurement of enhanced communications equipment enables special tactics operators to more safely and effectively conduct critical missions in any environment with far greater efficiency.

2. Source of Need. Lessons learned from Operation ENDURING FREEDOM; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
123 STS Louisville IAP, KY 125 STS Portland IAP, OR

4. Program Details. PEC: 53130

Remaining Quantity Required	Unit Cost	Program Cost
4 Vehicle Intercom System (3080)	**45,000**	**180,000**
4 Tactical Radio Remote Control Unit (3080)	**12,000**	**48,000**
3 Digital Radio Test Set (3080)	**66,000**	**198,000**
2 High-Bandwith SATCOM Ant (3080)	**$80,000**	**$160,000**
100 In Ear Tactical Headsets(3080)	**$650**	**$65,000**
Total		**$651,000**

SPECIAL TACTICS MODERNIZED AERIAL DELIVERY SYSTEMS

1. Background. Special tactics squadrons (STS) consist of combat controllers, pararescue personnel, and special operations weather teams who require multiple unique mission support equipment items in order to prosecute their various missions. Ten person oxygen consoles allow STS to field a higher number of military freefall (MFF) jumpers while reducing the number of consoles required. This also provides greater mobility for the jumpers as well as the jumpmaster. MFF parachute systems standardize the 125 STS with the 123 STS by providing them with similar, state of the art Back-of-Container (BOC) parachutes. Current systems in use at the 125 STS are ripcord activated, not BOC systems. BOC systems are predominately used in commercial parachuting and have a much lower malfunction rate than the rip cord counterpart. This lowers risk associated with MFF operations by ensuring both teams can train and operate together while utilizing the same equipment. This was highlighted by a recent domestic exercise where members of the 125 STS had not received training on 123 STS specific parachutes and were forced to ship their own parachutes to the training site for 125 STS personnel's parachute training. If both teams respond to natural disasters, there is no guarantee which set of equipment will arrive on scene first. Therefore, it is imperative to ensure configuration control of shared equipment sets. Four automated aerial delivery systems allow accurate delivery of equipment to ground personnel in the event an operator is unable or unavailable to execute the jump. Panoramic night vision devices (NVD) provide a greater field of view, improve depth perception and provide better situational awareness through all stages of a mission. Current NVDs provide an approximate viewing field of 40 degrees. Panoramic NVDs provide up to 120 degrees, reducing head movement as well as eye fatigue.

2. Source of Need. Lessons learned from Operation ENDURING FREEDOM; 2014 ARC WEPTAC Council.

3. Units Impacted.
123 STS Louisville IAP, KY 125 STS Portland IAP, OR

4. Program Details. PEC: 53130

Remaining Quantity Required	Unit Cost	Program Cost
8 Ten Person Oxygen Console (3080)	**$55,000**	**$440,000**
20 Freefall Parachute Systems(3080)	**$20,000**	**$400,000**
4 Microfly Parachute Devices (3080)	**$28,500**	**$114,000**
50 Panoramic Night Vision Devices (3080)	**$40,000**	**$2,000,000**
Total		**$2,954,000**

TACTICAL AIR CONTROL PARTY DISMOUNTED AUDIO AND VIDEO MISSION RECORDING AND DEBRIEF SYSTEM

1. Background. Joint terminal attack controllers (JTAC) utilize hand-written notes as the sole source of reference for mission debrief. This leads to substandard debriefs with critical elements of the mission either remembered incorrectly or overlooked completely. Much like aircrew, JTAC instructors and evaluators play multiple roles for the student (such as notional aircraft, Army ground elements, etc.) limiting the time they have to take thorough notes and decreasing the likelihood that mission details are accurately reconstructed for the debrief phase of the mission. The result of these limitations is that mission debriefs lack fidelity, reducing their effectiveness, limiting the ability of a JTAC to improve as a result of every training mission. A lightweight, wearable recording device for the dismounted JTAC provides the fidelity needed to improve JTAC mission debrief. The system must record traffic for up to two radios, ambient sound, and "heads up display" video (both day and night capable). It must be capable of time stamping significant events for quick reference. It also must be able to play all recorded channels synchronously (internally and in conjunction with aircraft recording systems) with little configuration required by the operator.

2. Source of Need. 66 Weapons Squadron JTAC Advanced Instructor Course (AIC) White Paper titled *JTAC Debriefing Guide*; Lessons learned from Operations ENDURING FREEDOM and IRAQI FREEDOM; 2014 ARC WEPTAC Council.

3. Units Impacted.

111 ASOS Camp Murray, WA	138 CTF Camp Gruber, OK	169 ASOS Peoria, IL
113 ASOS Terre Haute, IN	146 ASOS Will Rodgers, OK	227 ASOS Atlantic City, NJ
116 ASOS Camp Murray, WA	147 ASOS Ellington Field, TX	238 ASOS Meridian, MS
118 ASOS New London, NC	148 ASOS Fort Indiantown Gap, PA	274 ASOS Syracuse, NY
122 ASOS Camp Beauregard, LA	165 ASOS Garden City, GA	284 ASOS Smoky Hill, KS
124 ASOS Gowen Field, ID	168 ASOS Peoria, IL	

4. Program Details. **PEC: 52671**

Remaining Quantity Required	Unit Cost	Program Cost
104 JTAC MSN Recording and Debrief System (3080)	**$5,000**	**$520,000**
Total		**$520,000**

TACTICAL AIR CONTROL PARTY RAPIDLY DEPLOYABLE JOINT OPERATIONAL COMMUNICATIONS SYSTEM

1. Background. The legacy Tactical Air Control Party (TACP) vehicular communications system is unsustainable, highly unreliable, and incompatible with current battlefield technologies. These limitations force TACPs to rely upon the use of non-amplified man-portable communications systems within vehicles resulting in both potentially unsafe conditions and ineffective communications. An integrated radio suite providing modern amplified multi-band and high frequency radios is required to ensure mission critical communication with tactical agencies. The solution is modular in nature to allow installation, operation, and maintenance in various highly mobile tactical vehicles. Amplified man-portable radios, compatible antennas, cables, and human interface devices allowing centralized suite control impact system design and integration. Joint Terminal Attack Controllers (JTACs) are also in an ever-evolving, communications-intensive operating environment under direct combat conditions. They require the ability to maintain persistent, secure, voice and data communications with aircraft and other remote sites in a non-permissive environment. JTAC vehicle crews require the ability to communicate internally within a single vehicle as well as externally to additional vehicles, command and control elements, and to combat aircraft operating on a broad spectrum between 2MHz-2GHz. Additionally, various tactical scenarios require multiple JTACs to be able to utilize and control the communications system remotely from both static and dynamic tactical environments.

2. Source of Need. ACC TACP Requirements Working Group (RWG) and Unit Type Code Logistics Detail Review; Lessons learned from Operations ENDURING FREEDOM and IRAQI FREEDOM; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

111 ASOS Camp Murray, WA	138 CTF Camp Gruber, OK	169 ASOS Peoria, IL
113 ASOS Terre Haute, IN	146 ASOS Will Rodgers, OK	227 ASOS Atlantic City, NJ
116 ASOS Camp Murray, WA	147 ASOS Ellington Field, TX	238 ASOS Meridian, MS
118 ASOS New London, NC	148 ASOS Fort Indiantown Gap, PA	274 ASOS Syracuse, NY
122 ASOS Camp Beauregard, LA	165 ASOS Garden City, GA	284 ASOS Smoky Hill, KS
124 ASOS Gowen Field, ID	168 ASOS Peoria, IL	

4. Program Details. **PEC: 52671**

Remaining Quantity Required	Unit Cost	Program Cost
108 JTAC Intra Vehicle Comm System (3080)	**$162,000**	**$17,496,000**
Total		**$17,496,000**

TACTICAL AIR CONTROL PARTY DISMOUNTED SOFTWARE TARGETING AND DATA MANAGEMENT SYSTEM

1. Background. Dismounted joint terminal attack controllers (JTACs) currently lack a lightweight integrated solution capable of sharing targeting data with a wide range of close air support (CAS) aircraft. JTACs need the capability to simultaneously operate geospatial mapping, navigation, and precision targeting software with the option to provide direct, near real-time connectivity with supporting aircraft and ground forces. These capabilities shorten the kill chain timeline and help mitigate collateral damage and fratricide. JTACs require a software and lightweight man-portable hardware solution optimized for the human machine interface requirements of the battlefield. The current digitally aided CAS software of record was designed for use by command and control agencies on desktop computers and is not useable on small form factor, touch screen devices. A JTAC-centric solution is required that allows for transmission of timely and accurate targeting solutions directly to airborne platforms without requiring beyond line-of-sight communications through a remote gateway. Enhanced sharing of targeting data and situational awareness can dramatically decrease required voice communications, decrease the propensity for target misidentification, and expedite kinetic strikes on known targets.

2. Source of Need. Lessons learned from Operations IRAQI FREEDOM and ENDURING FREEDOM; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

111 ASOS Camp Murray, WA
113 ASOS Terre Haute, IN
116 ASOS Camp Murray, WA
118 ASOS New London, NC
122 ASOS Camp Beauregard, LA
124 ASOS Gowen Field, ID
138 CTF Camp Gruber, OK
146 ASOS Will Rodgers, OK
147 ASOS Ellington Field, TX
148 ASOS Fort Indiantown Gap, PA
165 ASOS Garden City, GA
168 ASOS Peoria, IL
169 ASOS Peoria, IL
227 ASOS Atlantic City, NJ
238 ASOS Meridian, MS
274 ASOS Syracuse, NY
284 ASOS Smoky Hill, KS

4. Program Details. PEC: 52671

Remaining Units Required	Unit Cost	Program Cost
140 JTAC Dismounted Computer Kits (3080)	**$28,000**	**$3,920,000**
220 JTAC Targeting Software Kits (3080)	**$10,000**	**$2,200,000**
180 Targeting Pod Based Data Link (3080)	**$60,000**	**$10,800,000**
Total		**$16,920,000**

TACTICAL AIR CONTROL PARTY LIGHTWEIGHT DISMOUNTED SENSOR AND TARGETING SYSTEM

1. Background. Joint terminal attack controllers (JTACs) are required to carry multiple single use function devices to provide ranging, covert marking, designating, and detection. Simultaneous use of these devices is prohibitive due to their capability, weight, size, and power limitations. JTACs need a combined laser target marker/laser target designator (LTD)/laser range finder weighing less than five pounds and have the capability to identify and designate a tank-sized target at distances greater than two kilometers and the ability to mark targets at a distance greater than three kilometers. The LRF function integrates eye-safe magnified optics capable of target identification at five kilometers for day and one kilometer for night operations with coordinate generation capabilities. The LTD must be capable of pulse interval modulation encoding. The ability to visually determine the location of pulse-coded frequency lasers is paramount in order to confirm that aircraft-based lasers are tracking the same intended target that ground forces are designating/marking. JTAC sensor and targeting solutions are tied to equipment which requires numerous cables for connectivity. A secure wireless personal area network increases the combat capability of JTACs while decreasing the weight carried and potential for equipment failure.

2. Source of Need. ACC Tactical Air Control Party Requirements Working Group; Lessons learned from Operations IRAQI FREEDOM and ENDURING FREEDOM; 2014 ARC WEPTAC Council.

3. Units Impacted.

111 ASOS Camp Murray, WA
113 ASOS Terre Haute, IN
116 ASOS Camp Murray, WA
118 ASOS New London, NC
122 ASOS Camp Beauregard, LA
124 ASOS Gowen Field, ID
138 CTF Camp Gruber, OK
146 ASOS Will Rodgers, OK
147 ASOS Ellington Field, TX
148 ASOS Fort Indiantown Gap, PA
165 ASOS Garden City, GA
168 ASOS Peoria, IL
169 ASOS Peoria, IL
227 ASOS Atlantic City, NJ
238 ASOS Meridian, MS
274 ASOS Syracuse, NY
284 ASOS Smoky Hill, KS

4. Program Details. PEC: 52671

Remaining Quantity Required	Unit Cost	Program Cost
252 TACP Day/Night Spot Trackers (3080)	**$66,000**	**$16,632,000**
340 JTAC WPAN Capability (3080)	**$15,000**	**$5,100,000**
252 Lightweight Range Mark Designator (3080)	**$100,000**	**$25,200,000**
Total		**$46,932,000**

TACTICAL AIR CONTROL PARTY AIR SUPPORT OPERATIONS CENTER TACTICAL DATALINK CONTROL SYSTEM

1. Background. Air support operations centers (ASOC) serve as the principal air control agency of the theater air control system (TACS) and are responsible for the direction and control of air operations supporting the ground combat element. They process and coordinate requests for immediate air support and coordinate air missions requiring integration with other supporting air and ground forces. They normally collocate with the US Army tactical headquarters' senior fire support coordination center within the ground combat element. The ASOC's organic long-haul voice and data communications serve as the primary link between the air operations center, Senior Army Echelon, and the operational joint terminal attack controllers (JTAC) and airborne assets. The ASOCs lack a lightweight, transportable, tactical network suite capable of linking JTACs, aircrews, and senior echelons in the TACS. This tactical network must include non-secure internet protocol router network, secure internet protocol router network, Combined Enterprise Regional Information Exchange System, Defense Switched Network, and secure voice. The solution needs a voice-over internet protocol (VOIP) server and VOIP phones to support voice demand and must support a minimum bandwidth of six Mbps. It is also vital that this new system be tailored to the specific mission needs and allow for expansion and modification as the ASOC mission evolves. Additionally, a proper solution reduces the overall footprint and is more cost effective.

2. Source of Need. US Special Operations Command (USSOCOM) sponsored recommendation for deployable Command and Control, Communications, Computers Integration (C4I) requirements; lessons learned from Operations IRAQI FREEDOM and ENDURING FREEDOM; 2012-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

111 ASOS Camp Murray, WA 168 ASOS Peoria, IL

4. Program Details. PEC: 52671

Remaining Quantity Required	Unit Cost	Program Cost
2 Tactical Network Systems (3080)	**$550,000**	**$1,100,000**
Total		**$1,100,000**

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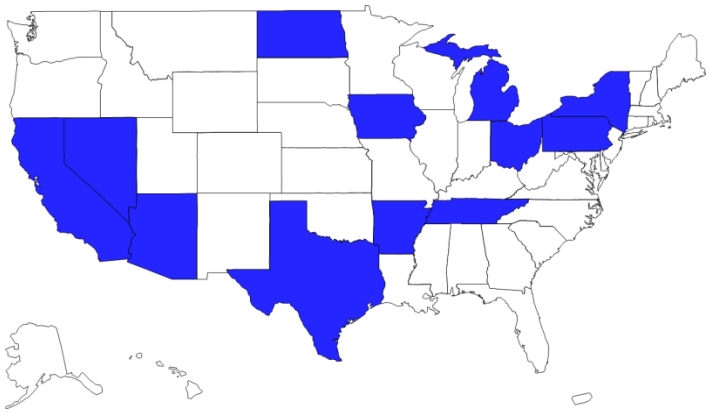
MQ-1 and MQ-9

- **Intelligence, Surveillance, and Reconnaissance**
- **Air Interdiction/Armed Reconnaissance**
- **Close Air Support to Ground Forces**
- **ANG MQ-1 / MQ-9 Units Provide 17% of the Total Fleet**

MQ-1 Predator Remotely Piloted Aircraft - The MQ-1 Predator is a medium-altitude, long endurance, remotely piloted system. The MQ-1's primary mission is to act as an intelligence, surveillance, and reconnaissance (ISR) asset, employing sensors to provide real-time data to commanders and intelligence specialists at all levels. The MQ-1 conducts interdiction and armed reconnaissance with a system integrating electro-optical-infrared laser designator and laser illuminator into a single sensor package. The aircraft employs two laser-guided AGM-114 Hellfire missiles. The MQ-1 is a theater asset for reconnaissance, surveillance, and target acquisition organic to the joint force air component commander's forces. The MQ-1 Predator is flown by ND, AZ, TX, OH, and CA Air National Guard (ANG) units. The NV ANG supports active duty MQ-1 operational and training sorties.

MQ-9 Reaper Remotely Piloted Aircraft - The MQ-9 Reaper is a medium-to-high altitude, long-endurance, remotely piloted system. Because of its robust weapons payload capacity, long endurance, and on-station times, the MQ-9's primary mission is hunter-killer operations against emerging targets. The MQ-9's secondary mission is to act as an ISR asset, employing sensors to provide real-time data to commanders and intelligence specialists at all levels. It is larger and more powerful than the MQ-1 Predator, and is designed to prosecute time-sensitive targets using precision targeting and long endurance capability to find, fix, and destroy or disable those targets. AR, CA, IA, MI, NY, PA, and TN ANG units operate the MQ-9 Reaper. The NV ANG supports Active Component MQ-9 operational and training sorties.



MQ-1 and MQ-9
2014 Weapons and Tactics Council

Critical Capabilities List

- Tactical Data Link Radio
- Network-Enabled Programmable Communications Suite with Intercom Integration
- High Definition Full Motion Video
- Optimized Software and Hardware Cockpit Interface
- Category 1 Target Location Error Capable Targeting Pod

Essential Capabilities List

- Deployable Launch and Recovery Capability
- Electronic Warfare Suite for Electronic Attack, Self-Protection, and Imminent Threat Warning
- Weapons Simulate Mode
- Targeting Pod Directed Energy Counter-Countermeasures
- Network Capable Simulator

Desired Capabilities List

- All-Weather Weapon
- Long Range Maritime Surveillance Radar
- High Power Visible Spot Light
- Combat Search and Rescue Isolated Personnel Auto Locater and Interrogator

TACTICAL DATA LINK RADIO

1. Background. MQ-1/9 aircraft lack the means to establish and maintain direct tactical data link (TDL) communications with command and control, tactical agencies, and other TDL users. TDLs are used to share aircraft position, targeting data, sensor points of interest, cursor-on-target data, and target-track information derived from various intelligence sources via an airborne network. The lack of TDL single-point reception and transmission capability on board the aircraft slows the kill chain, delays effects for supported commanders, and poses a safety issue with regard to aircraft position and airspace deconfliction. This lack of direct information sharing with other TDL participants degrades overall situational awareness in all operations utilizing TDL information and networks. Current MQ-1/9 TDL communication and information transfers are not routed directly through the existing airborne TDL network but instead are routed through multiple ground-based servers outside of the RPA architecture. This method of TDL data routing limits data-link communication with end-user agencies and TDL players, causing significant delays of critical information, such as aircraft position and targeting data. An aircraft TDL radio is needed by MQ-1/9 operators that are compatible with all current data link architectures in both domestic and combat areas of responsibility, to include Situational Awareness Data Link and Link-16. This radio/system must include provisions for consistent, reliable, timely, and unrestricted TDL communications, and have open architecture to allow for growth and advances in the TDL technology.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.

118 AW	Nashville IAP, TN	163 RW	March ARB, CA	214 RS	Davis-Monthan AFB, AZ
119 WG	Hector IAP, ND	174 ATKW	Hancock IAP, NY		
147 RW	Ellington IAP, TX	178 FW	Beckley MAP, OH		

4. Program Details. **PEC: 53219**

Remaining Quantity Required	Unit Cost	Program Cost
1 NRE (3010)	**$350,000**	**$350,000**
17 TDL Radios (3080)	**$200,000**	**$3,400,000**
Total		**$3,750,000**

MQ-1/MQ-9 NETWORK-ENABLED PROGRAMMABLE COMMUNICATIONS SUITE WITH INTERCOM INTEGRATION

1. Background. The MQ-1/9 functions across multiple domains and mission sets simultaneously. Tasks often involve intelligence, surveillance and reconnaissance (ISR), strike, special operations, and command and control (C2). Recent conflicts have reinforced the need for the MQ-1/9 to execute across the full range of military operations, in both contested and uncontested environments. A flexible tactical voice system is required to reliably connect all mission participants. The primary option is an internet protocol based communications solution integrating intercom, line-of-sight (LOS) radios, and telephone into a single headset with spatial audio. The system features an intuitive touch screen interface and allows any user to talk directly to any other user on the system. The system allows use of in-theater LOS repeater towers via switches available to operators. This system is ideal for MQ-1/9 crews who are limited by a single LOS radio on the aircraft, a single point of failure that additionally suffers from poor reception and up to a two-second satellite relay delay. In order to effectively fulfill its cross-domain role as a C2 node, MQ-1/9s require access to multiple in-theater radios and direct voice access to key C2 players. Additionally, this integrated suite gives MQ-1/9 crews the AF-fleet wide standard ability able to monitor several LOS radio frequencies simultaneously. Lastly, as MQ-1/9s are increasingly tasked to perform multi-ship tactics, the system allows any ground control station to talk directly to other geographically separated GCSs, vastly improving combat capabilities and situational awareness.

2. Source of Need. Capability Production Document for MQ-9 HUNTER-KILLER, 8 Aug 2006; AFCENT UON CAF 301-12, 17 Feb 2012; ARC 2013 WEPTAC Conference; 2014 ARC WEPTAC Council..

3. Units Impacted

107 AW	Niagara Falls ARS, NY	119 WG	Hector IAP, ND	174 ATKW	Hancock IAP, NY
110 AW	Battle Creek IAP, MI	132 RW	Des Moines IAP, IA	178 FW	Beckley MAP, OH
111 TKW	Horsham ANGS, PA	147 RW	Ellington IAP, TX	188 FW	Ft. Smith RAP, AR
118 AW	Nashville IAP, TN	163 RW	March ARB, CA	214 RS	Davis-Monthan AFB, AZ

4. Program Details. PEC: 53219

Remaining Quantity Required	Unit Cost	Program Cost
12 Communication Suites	**$91,700**	**$1,100,400**
Total		**$1,100,400**

MQ-1/MQ-9 HIGH DEFINITION FULL MOTION VIDEO

1. Background. Current ANG remotely piloted aircraft (RPA) ground control stations (GCS) are configured to fly only MQ-1/9 aircraft equipped with standard definition full motion video (FMV) sensors. ANG units routinely fly RPAs belonging Air Combat Command and Air Force Special Operations Command, but are limited to only those with SD sensors, limiting the ANG participation in the combat operations. High definition (HD) video allows more precise targeting, superior ability to identify, track, and strike moving targets, and enhanced capability to detect and prevent unintended collateral damage. In order to fly aircraft equipped with high definition sensors, ANG GCSs must be modified to accept and display HD video. This allows ANG RPA units to fully participate in the RPA total force and improve the display resolution of their own SD GCSs.

2. Source of Need. ARC 2014 WEPTAC Council.

3. Units Impacted.

107 AW	Niagara Falls ARS, NY	119 WG	Hector IAP, ND	174 ATKW	Hancock IAP, NY
110 AW	Battle Creek IAP, MI	132 RW	Des Moines IAP, IA	178 FW	Beckley MAP, OH
111 TKW	Horsham ANGS, PA	147 RW	Ellington IAP, TX	188 FW	Ft. Smith RAP, AR
118 AW	Nashville IAP, TN	163 RW	March ARB, CA	214 RS	Davis-Monthan AFB, AZ

4. Program Details. **PEC: 53219**

Remaining Quantity Required	Unit Cost	Program Cost
12 High Definition Upgrade Kits	**$80,000**	**$960,000**
Total		**$960,000**

MQ-1/MQ-9 OPTMIZED SOFTWARE AND HARDWARE COCKPIT INTERFACE

1. Background. The MQ-1/9 cockpit, referred to as the Ground Control station (GCS), was originally designed only as a test control station for new Remotely Piloted Aircraft (RPA) technology. Without further development of the cockpit system, urgent operational and combat needs pressed it into service as the actual operating console for the GCS. RPAs consist of not just the aircraft and aircrew, but are also connected to a squadron operations center (SOC). SOCs are manned by multiple intelligence analysts and mission supervisors that draw on multiple sources of data, direct communication with key mission players, and headquarters staff. This data and situational awareness fusion can create an effective intelligence, surveillance, and reconnaissance platform and weapon system. However, the inefficiencies of the GCS cockpit limit aircrew ability to fly the aircraft and manage the mission. The GCS's awkward human-machine interface was the cause of aircraft accidents, mission effectiveness degradation, and mission failure. An optimized and ergonomic GCS, emulating a manned aircraft cockpit, enables the warfighter to precisely control the aircraft and sensors, quickly understand the status of onboard systems, and provide mission information. Since the GCS is connected to multiple sources of information and programs running on separate networks, there must be a method to share data to reduce redundant manual inputs and present information in an intuitive virtual environment. This augmented vision includes high-fidelity depictions of terrain, friendly and enemy locations, weather, surface-to-air threat zones, airspace blocks, and airborne traffic. The GCS must have an open architecture, modular, and compatible with current/future RPA aircraft. Lastly, the desired throttle and joystick match 4th and 5th generation fighter hands on throttle and stick capabilities so aircrew can precisely manipulate aircraft position, sensors, and critical switches while not removing their hands from the flight controls.

2. Source of Need. RPA Vector: Vision and Enabling Concepts 2013–2038, Lessons learned from IOC to Present. California RIMFIRE 2013.

3. Units Impacted.

107 AW	Niagara Falls ARS, NY	119 WG	Hector IAP, ND	174 ATKW	Hancock IAP, NY
110 AW	Battle Creek IAP, MI	132 RW	Des Moines IAP, IA	178 FW	Beckley MAP, OH
111 TKW	Horsham ANGS, PA	147 RW	Ellington IAP, TX	188 FW	Ft. Smith RAP, AR
118 AW	Nashville IAP, TN	163 RW	March ARB, CA	214 RS	Davis-Monthan AFB, AZ

4. Program Details. **PEC: 53219**

Remaining Quantity Required	Unit Cost	Program Cost
34 Optimized GCS Interfaces (3080)	**$353,000**	**$12,002,000**
Total		**$12,002,000**

MQ-1/MQ-9 CATEGORY 1 TARGET LOCATION ERROR CAPABLE TARGETING POD

1. Background. Current and future operations require assets that can precisely report the position of dynamic targets and points of interest. The nature of the connected battlespace allows for the rapid transfer of this information, decreasing the time required from targeting to desired effects. As a battlefield asset, the MQ-1/9 provides a persistent and armed airborne presence. The MQ-1/9 is unable to generate the real-time and actionable coordinates required by precision guided munitions. Remotely Piloted aircraft (RPA) currently only carry laser-guided weapons. The units supported by the RPA community expect precision in intelligence and employment as well as the ability to assist in coordinating with other theater airborne assets. The RPA must be able to quickly generate actionable coordinates for Global Positioning System weapons giving ground force commanders effectively manage their assets and make effective decisions in a highly dynamic and fluid environment.

2. Source of Need. Precision Guided Munitions CONOPS, ROEs; 2014 ARC WEPTAC Council.

3. Units Impacted.

107 AW	Niagara Falls ARS, NY	119 WG	Hector IAP, ND	174 ATKW	Hancock IAP, NY
110 AW	Battle Creek IAP, MI	132 RW	Des Moines IAP, IA	178 FW	Beckley MAP, OH
111 TKW	Horsham ANGS, PA	147 RW	Ellington IAP, TX	188 FW	Ft. Smith RAP, AR
118 AW	Nashville IAP, TN	163 RW	March ARB, CA	214 RS	Davis-Monthan AFB, AZ

4. Program Details. PEC: 53219

Remaining Quantity Required	Unit Cost	Program Cost
12 Software Upgrades (3080)	**$333,4000**	**$4,000,800**
Total		**$4,000,800**

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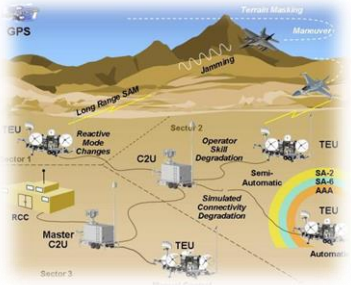
Simulation, Distributed Mission Operations & Range Instrumentation

- **Advanced Simulator Development**
- **Operational Training Environments**

Mission simulation devices span the spectrum from very high fidelity to medium part-task trainers. Current major programs being fielded include the KC-135 Boom Operator Simulation System (BOSS); the ANG Advanced Joint Terminal Air Controller (JTAC) Training System (AAJTS); C-130H Multi-Mission Crew Trainer (MMCT); and the next generation F-16C Full Mission Trainer (FMT). Aircrew Procedures Trainers (APT) include the HH-60G, RC-26B and MQ-9.

Live-Virtual-Constructive architectures supported by distributed mission operations (DMO) remains a baseline component of all ANG training systems. The Distributed Training Operations Center (DTOC), 132 FW Detachment 1, provides the operational environment for DMO by linking a wide array of flight and mission crew simulators at ANG, Air Force Reserve Command (AFRC), active duty Air Force and other Service operational simulator sites. The DTOC continues to pursue further ability to connect and integrate simulators for additional training requirements. Developing capabilities include cross domain solutions (CDS) to allow for a wider variety of DMO training partnerships, and initial steps to establish technical capability to support daily LVC activities that include airmen in live aircraft.

The ANG training range community strives to continuously modernize its equipment and infrastructure to support all current weapons systems in the Department of Defense (DoD) inventory. As new systems are developed, such as the F-22, F-35, the Joint Direct Attack Munition, improved precision guided munitions, airborne lasers, remotely piloted vehicles and information warfare, range modernization must keep pace. The constant evolution of these technologies requires new training space, equipment, infrastructure, and instrumentation. The ANG, using primary training ranges and Combat Readiness Training Centers, brings these critical elements together for recurring training and regional exercise events in a live virtual constructive and joint training environment.



Simulation, Distributed Mission Operations, and Range Instrumentation
2014 Weapons and Tactics Council *

Critical Capabilities List

Simulation:
- Guardian Angel Combat Shooting Range
- Special Tactics Home Station Training Suite
- E-8C Weapon System Trainer Air Refueling Capability
- C/MC/HC 130J Simulator Training Devices
- Air Operations Center Distributed Mission Operations and Training Capabilities
- Air Operations Center Joint Range Extension and Link Training Tool
- Battle Control Center Live-Virtual-Constructive Distributed Mission Operations Mission Training Center
- Control and Reporting Center Data Link Dynamic Training Simulation System
- DCGS Air National Guard Intelligence, Surveillance, and Reconnaissance Simulated Integrated Training System

Distributed Mission Operations:
- Cross-Domain Solutions
- Enhanced Live-Fly Capability

Range Instrumentation:
- High-Fidelity Surrogate Targets
- Mobile High-Fidelity Threat Simulators
- Communications and Tactical Data Link Architecture Support
- Joint Advanced Weapon Scoring System

Essential Capabilities List

Simulation:
- Battle Control Center - Live-Virtual-Constructive Systems Providing Joint Air, Cruise, and Ballistic Missile Defense Training
- C-130J Data Link Capability for Weapons System Trainer/Multi-Mission Cockpit Trainers
- HC/MC-130P/N Visual Threat Recognition and Avoidance Training
- HC/MC-130P/N Distributed Mission Operations and Training
- HH-60 Distributed Mission Operations Capable Aircraft Simulator
- RC-26 Full Crew Distributed Mission Operation and Live Virtual Construct Simulator
- Guardian Angel Terminal Area Simulator
- Special Tactics Training and Simulation Alternate Insertion and Extraction Tower
- Remotely Piloted Vehicles Network Capable Simulator
- High Fidelity Networked Simulators at Air National Guard Bases
- Security Forces Force Option Simulator

Distributed Mission Operations:
- None

Range Instrumentation:
- **None**

Desired Capabilities List

Simulation:
- F-16 Proliferation and Sustainment of Concurrent High-Fidelity Ready Aircrew Program Quality Simulators
- KC-135 Advanced Squadron Level Simulator Systems

Distributed Mission Operations:
- None

Range Instrumentation:
- None

* Note: Simulation did not have a separate breakout session at the 2014 WEPTAC. Capabilities are extracted from the referenced weapon system Tab and consolidated, without priority order, in this Tab for clarity.

SIMULATION: GUARDIAN ANGEL COMBAT SHOOTING RANGE

1. Background. With an evolving battlefield and constantly changing tactics, techniques and procedures, Guardian Angels (GA) are finding it increasingly difficult to meet home station tactical training requirements. The desired solution encompasses all core tactical aspects of the GA mission set to include small arms training, military parachute operations, and water operations proficiency. GA's goal is to develop a core training site to enhance training capability, overall safety, and reduce unneeded travel and cost. The suite of trainers covers all core tactical training requirements. GA's vision is to give instructors the ability to properly train members in a safe and controlled environment. The Combat Shooting Range greatly increases GA operator capability. These ranges allow GA to live-fire all their small arms. The military parachute trainer allows for freefall training with full combat equipment. The water operation trainer allows for underwater rescue training in a representative environment. This range proves highly trained GA, with honed core tactical skillsets, increasing overall mission capability.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.
106 RQW Gabreski AP, NY 129 RQW Moffett Fld, CA 176 WG JB Elmendorf, AK

4. Program Details. PEC: 53119

Remaining Quantity Required	Unit Cost	Program Cost
3 Combat Shooting Ranges (3080)	**$4,000,000**	**$12,000,000**
3 Water Operation Trainers (3080)	**$1,200,000**	**$3,600,000**
3 Military Parachute Trainers (3080)	**$3,800,000**	**$11,400,000**
Total		**$15,000,000**

SIMULATION: SPECIAL TACTICS HOME STATION TRAINING SUITE

1. Background. Special Tactics Squadrons (STS) consist of Combat Controllers (CCT), Pararescue (PJ), and Special Operations Weather Teams (SOWT). Currently, both of the Air National Guard (ANG) STS units have limited small arms training opportunities at their bases. Additionally, special tactics operators must maintain weapons currency and proficiency on 15 assigned weapons. Currency is increasingly difficult due to recent closures of base ranges. The modular small arms training system allows operators to conduct weapons currency and proficiency training at home station. CCT, PJ, and SOWT require specific training, in remote locations, and at significant distances from ANG bases. Additional off-road vehicles are required to move personnel and equipment to remote and austere locations while also allowing personnel at home station the ability to accomplish day-to-day operational requirements. The human performance program (HPP) is part of the US Special Operations Command initiative of preservation of the force and family. HPP focuses on a holistic approach to physically and mentally strengthen Battlefield Airmen as well as provide rehabilitation to maximize their potential for as long as possible. Each operator receives individual attention to constantly challenge or correctly rehabilitate or prevent any ailment. The training turf and high angle training wall are essential components of the HPP spectrum. Currently, HPP training and rehabilitation equipment do not have adequate climate controlled facilities for effective use.

2. Source of Need. THOR3 Program; Human Performance Program; 2013 ARC WEPTAC Conference; 2014 WEPTAC Council.

3. Units Impacted:
123 STS Louisville IAP, KY 125 STS Portland IAP, OR

4. Program Details PEC: 53130

Remaining Quantity Required	Unit Cost	Program Cost
2 Modular Small Arms Training System (3080)	**$4,000,000**	**$8,000,000**
4 Six-Passenger, Diesel, 4x4 Truck (3080)	**$50,000**	**$200,000**
2 Temporary Storage Solutions (3080)	**$150,000**	**$300,000**
2 Movement Training Turfs (3080)	**$50,000**	**$100,000**
1 Indoor High Angle Training Wall (3080)	**$200,000**	**$200,000**
Total		**$8,800,000**

SIMULATION: E-8C WEAPONS SYSTEM TRAINER AIR TO AIR REFUELING CAPABILITY

1. Background. A certified and accredited aerial refueling simulation capability on the E-8C Joint Surveillance Target Attack Radar System (JSTARS) Weapons System Trainer (WST) increases proficiency and capability of pilots. This capability decreases training sortie flight requirements and provides emergency procedures training not available to aircrew during normal flight operations. The WST upgrade provides initial qualification and continuation training with the KC-135 and KC-10 with growth options for the KC-46. Adding distributed mission operations (DMO) capability should provide new JSTARS simulators with the capability to train with KC-135 aircrew using the KC-135 Boom Operator Simulation System (BOSS) through the ANG Distributed Mission Operations Center (DTOC). DTOC connections enable various ANG units to train using realistic AAR and mission conditions in the virtual DMO battlespace.

2. Source of Need. 2014 ARC WEPTAC Council.

3. Units Impacted.
116 ACW Robins AFB, GA

4. Program Details. PEC: 27581

Remaining Quantity Required	Unit Cost	Program Cost
1 AAR Integration NRE (3010)	**$320,000**	**$320,000**
2 Hardware Refresh (3010)	**$150,000**	**$300,000**
Total		**$620,000**

SIMULATION: C/MC/HC-130J SIMULATOR TRAINING DEVICES

1. Background. The EC-130J is an Air Force Special Operations Command (AFSOC) asset providing specialized military information support operations , clandestine infiltration and exfiltration, and resupply of special operations forces (SOF). Forecast operational budgets in AFSOC are predicted to dramatically reduce the numbers of flying hours available for aircrew refresher and proficiency/continuation training. AFSOC can better meet increasing requirements under declining budgets if it is equipped with a system of aircraft simulators. Co-located weapons system trainers (WST) save recurring travel costs of 16 crews per year by allowing integrated refresher training with the combat systems officer (CSO). In addition, a significant number of pilot, CSO, and loadmaster currency events can be accomplished in the simulator, but not in the aircraft. Currently, the unit's C-130J trainer does not adequately simulate operational mission profiles and can only be used as an emergency procedures trainer for pilots and loadmasters. CSOs are on a waiver for simulator training because the current device is not configured for a CSO flight station. The load master partial task trainer and the load master fuselage trainer meet the needs and demands of the unit by allowing a significant number of loadmaster currency events in the simulator versus the aircraft. The estimated reduction of flying hour requirements, (35 to 12 hours per week) results in a $5,600,000 per year savings. Without this new simulator, all currency, proficiency, and mission qualification training must be accomplished in the aircraft; however, the unit is not allocated additional flying hours to support the training requirements. As a result, crews are required to travel for simulator training, reducing crew availability and incurring significant travel cost. In addition, training requirements limit the 193rd's ability to support bi-lateral training, multi-lateral training, and tactical operations. A reconfigurable WST that can meet the requirements of several C-130J variants, as well as providing distributed mission operations capability, allows multiple units to use the simulator at the 193rd thereby adding to the cost benefit.

2. Source of Need. Program Objectives Memorandum (POM) issue #16-361, USSOCOM/CDR FY12-15 Commander's Training Guidance (17 Aug 2011); AFSOC Vision, Mission & Priorities Statement (Aug 2011); 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Unit Impacted.

106 RQW	Gabreski AP, NY	143 AW	Quonset State, RI	176 WG	JB Elmendorf, AK
129 RQW	Moffett Fld, CA	146 AW	Channel Islands, CA	193 SOW	Harrisburg IAP,

4. Program Details. PEC: 27230

Remaining Quantity Required	Unit Cost	Program Cost
6 C/MC/HC-130J WST (3010)	**$28,300,000**	**$169,800,000**
3 C/MC/HC-130J LMFT (3010)	**$7,000,000**	**$21,000,000**
3 C/MC/HC-130J LMPTT (3010)	**$1,500,000**	**$4,500,000**
Total		**$195,300,000**

SIMULATION: AIR OPERATIONS CENTER DISTRIBUTED MISSION OPERATIONS AND TRAINING CAPABILITY

1. Background. Distributed mission operations (DMO) and training capabilities are required by Air Reserve Component (ARC) Air Operation Centers (AOC) to fulfill their missions of providing highly qualified and combat mission ready personnel to AOC's as stated in Air Force Policy Directive 10-3. ARC AOCs can best meet this requirement through increasing joint / integrated training opportunities, distributed operations, and continuity of operations capabilities if the AOC experiences a critical system failure. This required capability can be accomplished via two methods; gaining access to a dedicated training network (ARCNet-1) or by the addition of a network device to leverage existing cloud computing technology and networks to integrate operations and training between separate units. DMO exercises are planned and hosted on this closed network by the Distributed Mission Operation Center located at Kirtland AFB, NM. The web/application delivery controller cloud option provides ARC AOCs the capability to extend their local AOC weapon system applications to other units across existing networks. This device allows external access to AOC hosted applications (allowing the use of AOC desktop from remote location), provides data compression for increased performance over the network, and secures remote user connections by encrypting and encapsulating all network traffic.

2. Source of Need. Air Force Policy Directive 10-3 paragraph 1.3.

3. Units Impacted.

101 AOG	Tyndall AFB, FL	152 AOG	Syracuse, NY	286 AOG	Meridian, MS
102 AOG	Otis ANGB, MA	157 AOG	Jefferson Barracks, MO	701 COS	March ARB, CA
111 AOG	Horsham, PA	183 AOG	Springfield, IL		
112 AOG	State College, PA	217 AOG	Battle Creek, MI		

4. Program Details. **PEC: 507411**

Remaining Quantity Required	Unit Cost	Program Cost
9 Gateways (3080)	**$39,000**	**$351,000**
Total		**$351,000**

SIMULATION: AIR OPERATIONS CENTER JOINT RANGE EXTENSION AND LINK TRAINING TOOL

1. Background. The Joint Range Extension (JRE) at Air Operations Centers (AOC) consolidates tactical data link information to provide situational awareness to command and control (C2) units via various network links. ANG AOC units cannot perform JRE link training in a simulated environment because the Theater Battle Management Core System (TBMCS) part task trainer (PTT), the current simulation tool of record, does not support JRE link functionality degradation and manipulation training. A JRE link training tool is needed to operate software systems associated with JRE in a non-operational training environment, including a training tool that allows the Joint Interface Cell (JIC) within the Combat Operations Division (COD) to build, initiate, manage, manipulate, track, and link data. ANG AOC units will then be able to conduct in-garrison training on the complete set of ACC mandated COD JIC task training list items.

2. Source of Need. AFI 13-1 Vol. 3 ACC/A3; 2014 ARC WEPTAC Council.

3. Units Impacted:

102 AOG	Otis ANGB, MA	157 AOG	Jefferson Barracks, MO	286 AOG	Meridian, MS
112 AOG	State College, PA	183 AOG	Springfield, IL	701 COS	March ARB, CA
152 AOG	Syracuse, NY	217 AOG	Battle Creek, MI		

4. Program Details. PEC: 507411

Remaining Quantity Required	Unit Cost	Program Cost
8 Simulation JRE Systems (3080)	**$36,000**	**$288,000**
8 Help Desk/Support * (3840)	**$11,600**	**$92,800**
Total		**$380,800**

* Recurring annual expense.

SIMULATION: BATTLE CONTROL CENTER LIVE-VIRTUAL-CONSTRUCTIVE DISTRIBUTED MISSION OPERATIONS MISSION TRAINING CENTER

1. Background. Battle Control Centers (BCC) operating in the North American Aerospace Defense Command area of operations need the capability to train and integrate in the live-virtual-constructive (LVC) environment to achieve and maintain combat mission readiness. BCCs lack capability to connect to and train with current fourth and fifth generation aircraft in a distributed mission operations (DMO) environment at the appropriate classification levels. The Western and Eastern Air Defense Sectors have the equipment necessary and are in the process of installing and developing DMO capability. The Alaska and Hawaii BCCs cannot fully train with all fourth and fifth generation fighter assets, but are unique in that their primary aerospace control alert assets are fifth generation aircraft. In the long-term, it is essential for all BCCs to train at their current facilities while able to fully manage all fighter, command and control (C2) and future platforms on the combat Air Force DMO Network (DMON). In the interim, the capability outlined is aimed at providing relevant training with equipment for utilization in the long term solution. This proposal includes installing appropriate DMO connections and equipment in order to provide the Alaska and Hawaii BCCs the ability to brief, video teleconference, record and playback individual consoles, provide C2, and debrief with pilots via Air Reserve Component Network and the Distributed Training Operations Center. The system also allows direct connectivity to the DMON, once approved. This is a critical step for BCCs to leverage the full potential of LVC Mission Training Centers.

2. Source of Need. Department of Defense Directive (DODD) 1322.18 Military Training; USAF LVC Operational Training Flight Plan 22 Jan 2013; AFI 36-2251 Management of Air Force Training Systems; Contingency Plan 3310-12 Aerospace Defense and Maritime Warning; USAF DMO CONOPS Oct 2003; 2011-2013 ARC WEPTAC Conference; and 2014 ARC WEPTAC Council.

3. Units Impacted.

169 ADS Wheeler Army Air Field, HI 176 ADS Joint Base Elmendorf-Richardson, AK

4. Program Details. PEC: 51311

Remaining Quantity Required	Unit Cost	Program Cost
1 MSCT/TDF (AK) (3080)	**$425,000**	**$425,000**
2 Work Stations (AK) (3840)	**$5,000**	**$10,000**
2 ARCNet Gateways (AK, HI) (3080)	**$15,000**	**$30,000**
2 T1 Lines (AK) (3840)	**$4,200**	**$8,400**
1 ASCOT (AK) (3080)	**$300,000**	**$300,000**
2 EMRRS/VTC (AK, HI) (3080)	**$55,000**	**$110,000**
2 Desktop PCs (AK) (3840)	**$6,000**	**$12,000**
Total		**$895,000**

SIMULATION: CONTROL AND REPORTING CENTER DATA LINK DYNAMIC TRAINING SIMULATION SYSTEM

1. Background. The Air Combat Command Ready Aircrew Program (RAP) tasking memorandum requires the Control and Reporting Center (CRC) to train utilizing data link events, and incorporate the transmission and resolution of J or M series messages (messages coded for Link-16 and Link-11 data transmission). This requirement has become increasingly difficult to meet with the reduction of live-fly missions. CRCs require the critical capability to obtain data link training in a simulated or live environment to meet RAP requirements and enhance capability. The data link simulator must provide the following capabilities for both the live and simulated events: transmit J-series messages; receive J-series messages; respond to J-series messages; implement distributed interactive simulation entity state and transmitter and signal protocol data units (PDU); ability to simulate multiple data links simultaneously; simulate joint range extension application protocol; simulate over live scenario generation; and provide simulation capability for both tracks and message manipulation. These capabilities allow for each CRC to simulate data links with multiple platforms, and send and receive J-series messages to meet RAP requirements and increase data link proficiency for the Combat Air Force.

2. Source of Need. CRC Ready Aircrew Program Tasking Message; 2014 ARC WEPTAC Council.

3. Units Impacted.

103 ACS	Orange, CT	123 ACS	Blue Ash, OH	134 ACS	McConnell AFB, KS
109 ACS	Salt Lake City, UT	128 ACS	Volk Field, WI	141 ACS	Punta Borinquen, PR
116 ACS	Warrenton, OR	133TS	Fort Dodge, IA	255 ACS	Gulfport, MS
117ACS	Savannah, GA				

4. Program Details. PEC: 52672

Option 1 Remaining Quantity Required	Unit Cost	Program Cost
10 Data Link Simulators (3080)	**$50,000**	**$500,000**
Total		**$500,000**
Option 2 Remaining Quantity Required	**Unit Cost**	**Program Cost**
3 Data Link Simulators (3080)	**$50,000**	**$150,000**
1 Data Link Terminal (3080)	**$50,000**	**$50,000**
Total		**$200,000**

SIMULATION: AIR NATIONAL GUARD INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE SIMULATED INTEGRATED TRAINING SYSTEM

1. Background. Due to the lack of simulation capability, intelligence, surveillance, and reconnaissance (ISR) operators conduct mission qualification and continuation training during real-world operational missions. This drastically limits the scope of training while incurring the risks of training on an operational mission. ANG ISR operators require a tailorable, integrated, mission training simulator in order to maintain combat mission ready proficiency for contested ISR collection, processing, analysis, and dissemination training. ANG ISR operators require standalone training simulation as well as the capability to participate in the live-virtual--constructive distributed training structure afforded by distributed mission operations and the distributed training operations center. A distributed simulation capability allows the development and validation of multi-discipline ISR tactics across multiple platforms. A simulated integrated training system provides required mission-specific ISR analysis training, and increases the dynamic integration of ISR coordination with all platforms across the ANG. In the absence of this capability, proficiency and continuation training continue to be conducted on an ad hoc basis with limited multi-mission design series coordination.

2. Source of Need. Air Force ISR 2023: Delivering Decision Advantage; AF ISR Agency Strategic Plan 2013-2023, Dec 2013; AF ISR Agency DCGS Weapons System Trainer Flight Plan, Sep 2013; AF Form 1067 # 480ISRW-10-06-11; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted. All ANG flying, space and cyber units.

4. Program Details. PEC: 55208, 53115, 53117, 53218, 53219

Remaining Quantity Required	Unit Cost	Program Cost
11 ARCNet Gateway Racks (3080)	**$20,250**	**$222,750**
11 Site Installation and Training (3840)	**$1,500**	**$16,500**
11 Annual Site Service Fees (3840)	**$19,385**	**$213,235**
11 Hardware, Software, and Peripherals (3080)	**$45,550**	**$501,050**
Total		**$953,535**

DISTRIBUTED MISSION OPERATIONS: CROSS-DOMAIN SOLUTIONS

1. Background. Warfighters that employ together in combat must train together in both live and virtual environments. Current network security requirements do not allow many simulators to connect to other relevant simulators without technical solutions that allow for appropriate data protection and transmission on the network. The technical solutions needed are called cross domain solutions (CDS). CDS are defined as information assurance/cyber security solutions that provide the ability to access and/or transfer data between two or more differing security level domains. CDS are integrated systems of hardware and software that enable connections among incompatible security domains or levels of classification. Many CDSs have been developed and implemented by Air Combat Command and other Department of Defense agencies, making procurement of similar software and hardware solutions feasible. Each variety of aircraft simulator intended to connect via CDS must have a specifically tailored solution. The solution can be fielded at the Distributed Training Operations Center to serve multiple connected simulator locations.

2. Source of Need. MDS RAP Tasking Messages, and Volume 1 Training Requirements; 2014 ARC WEPTAC Council.

3. Units Impacted.
132FW Det 1, DTOC Des Moines, IA (solutions implemented at DTOC to benefit connected units within MDS)

4. Program Details. PEC: 81380

Remaining Quantity Required	Unit Cost	Program Cost
2 F15C (3080)	**$500,000**	**$1,000,000**
3 F16 (3080)	**$500,000**	**$1,500,000**
BCC (3080)	**$500,000**	**$500,000**
Total		**$3,000,000**

DISTRIBUTED MISSION OPERATIONS: ENHANCED LIVE-FLY CAPABILITY

1. Background. Advanced threat environments have made realistic and robust training difficult to achieve with existing equipment, existing airspace, and with aircraft in sufficient numbers. Integrating virtual and manned-but-simulated participants in real time with actual weapon systems operating on training ranges permits advance operational training scenarios and realism not otherwise possible. Similarly, the ability to inject man-in-the-loop surface threats, data link messaging and other command and control (C2) capabilities in daily live-fly training greatly enhances training value. As 4th generation aircraft capabilities advance and the demand for 5th generation aircraft integration increases, live-virtual-constructive (LVC) capability is essential to meet training needs. Demonstrated LVC capability provides an incredibly robust training environment compared to local intra-unit training using only live assets in insufficient quantity, and under the constraints of existing airspace. In addition to the data link representation, voice capability from virtual-constructive control stations to the live-fly airspace is essential to ensure this representation is realistically integrated into live fly training. Existing templates in the USAF exist to connect digital radios of the virtual-constructive environment to live radio networks, and the proposal is to establish that connection at a distributed training operations center (DTOC). Finally, existing AFNORTH capabilities to provide a live radar feed back to the DTOC is required for event control awareness and effectiveness. This capability benefits any Link 16 or situation awareness data link (SADL) capable aircraft, as well as C2 and intelligence, surveillance and reconnaissance platforms and agencies needing additional or enhanced live fly capabilities.

2. Source of Need. Persistent ANG unit capability requests; USAF LVC-OT Plan, March 2013; CAF LVC Vision, June 2013; MDS RAP Tasking Messages and Volume 1 Training Requirements; and 2014 ARC WEPTAC Council.

3. Units Impacted.

128 ACS	Volk Fld, WI	148 FW	Duluth, IA	DTOC	Des Moines, IA
133 TS	Fort Dodge, IA	180 FW	Toledo, OH		

4. Program Details. PEC 81380

Remaining Items Required	Unit Cost	Program Cost
3 Battlefield Operational Support Systems (BOSS)* (3080)	**$350,000**	**$1,050,000**
4 MIDS Terminals or EPLRS Radios (3080)	**$150,000**	**$600,000**
MVP Radio Network Components (3080)	**$150,000**	**$150,000**
MSCT / TDF (3080)	**$400,000**	**$400,000**
4 ARCNet Gateway Racks (3080)	**$20,000**	**$80,000**
Total		**2,280,000**

* Battlefield Operational Support System (BOSS), or equivalent, plus MIDS terminal or EPLRS Radios and connection components.

RANGE INSTRUMENTATION: HIGH-FIDELITY SURROGATE TARGETS

1. Background. ANG has a shortfall in realistic target identification and acquisition training. To meet ready aircrew program tasking requirements, the ANG's primary training ranges require realistic target surrogates to replicate real-world complex target sets. All 14 of these ranges have the airspace and real estate infrastructure necessary to fully utilize surrogate targets. High-value complex target arrays mimicking unique vehicles, tanks, mobile communication equipment and other targets require the physical characteristics to include visual footprint, density, and heat signatures to simulate real systems. Acquisition of these systems provides realistic training from home station and during deployments to the combat readiness training centers. Accurate re-creation of target systems allows aviators to hone their skills, and add increasingly difficult training scenarios for a constantly changing environment. These high-fidelity target arrays are used at ANG training ranges to support primary users (both air and ground forces) during all phases of training to include air-to-ground gunnery, laser operations, and close air support training and exercises.

2. Source of Need. Ready aircrew program tasking messages; ANG Training Ranges and Airspace Roadmap, FY 10; ANG MD 10.01; 2014 ARC WEPTAC Council.

3. Units Impacted.

Adirondack Range, NY	Airburst Range, CO	Atterbury Range, IN
Bollen Range, PA	Cannon Range, MO	Grayling Range, MI
Hardwood Range, WI	Jefferson Range, IN	McMullen Range, TX
Razorback Range, AR	Shelby Range, MS	Smoky Hill Range, KS
Townsend Range, GA	Warren Grove Range, NJ	

4. Program Details. **PEC: 52634**

Remaining Quantity Required	Unit Cost	Program Cost
20 High-Fidelity Targets (3080)	**$150,000**	**$3,000,000**
Total		**$3,000,000**

RANGE INSTRUMENTATION: MOBILE HIGH-FIDELITY THREAT SIMULATORS

1. Background. ANG has a shortfall in realistic electronic warfare (EW) threat training. To meet ready aircrew program (RAP) tasking requirements, the ANG's combat readiness training center (CRTC) ranges require realistic simulators to replicate modern integrated air defense scenarios. These ranges have the airspace and real-estate infrastructure necessary to fully utilize EW assets. These EW packages consist of three major components: mobile control threat units; identification, friend or foe tracking radar systems; and upgraded joint threat emitters. This accurate re-creation of threat signals allow aviators the opportunity to hone EW skills and tactics while incorporating increasingly difficult threat scenarios to simulate a constantly changing threat environment. Threat simulators can also be tied into the air combat maneuver instrumentation systems and data link systems located at the CRTCs.

2. Source of Need. RAP tasking messages; ANG Training Ranges and Airspace Roadmap, FY 10; ANG MD 10.01; 2014 ARC WEPTAC Council.

3. Units Impacted.

Adirondack Range, NY Volk Field CRTC, WI Smoky Hill Range, KS
Gulfport CRTC, MS

4. Program Details. PEC: 27429

Remaining Quantity Required	Unit Cost	Program Cost
1 Mobile CTU (3080)	**$2,600,000**	**$2,600,000**
4 EW Emitters (3080)	**$6,500,000**	**$26,000,000**
1 IFF Tracking Systems (3080)	**$1,500,000**	**$1,500,000**
Total		**$30,100,000**

RANGE INSTRUMENTATION: COMMUNICATIONS AND TACTICAL DATA LINK ARCHITECTURE SUPPORT

1. Background. ANG has a shortfall in realistic communications and data link immersive environment at critical nodes in the range training infrastructure. To meet ready aircrew program tasking requirements, the ANG's combat readiness training centers (CRTC) and primary training ranges (PTR) require realistic, standardized, full spectrum, and immersive electronic training environments that include communications and data link systems. These ranges have the airspace and real estate infrastructure necessary to support every phase of ANG combat training from employment through after action review. Link-16 radios, joint range extensions systems, ground tactical control battlefield operational support systems, and range radios are required to replicate the operating environment, record/score employment, and relay this information in a useable format back to the warfighter. These systems afford ANG units the ability to accomplish realistic full-spectrum training from home station. Additionally, these systems configured together provide an accurate re-creation of the electronic wartime operating environment, recording aircrew actions, and performance. This allows aviators to hone their cockpit resource management skills and push their personal task saturation envelopes. These systems will be located at the CRTCs and PTRs with after action reviews distributed to participating squadrons.

2. Source of Need. RAP tasking messages; ANG training ranges and airspace roadmap, FY 10; training range infrastructure connectivity CONOPS FY 09, ANG MD 10.01; 2014 ARC WEPTAC Council.

3. Units Impacted.

Adirondack Range, NY	Airburst Range, CO	Atterbury Range, IN
Bollen Range, PA	Cannon Range, MO	Grayling Range, MI
Hardwood Range, WI	Jefferson Range, IN	McMullen Range, TX
Razorback Range, AR	Shelby Range, MS	Smoky Hill Range, KS
Townsend Range, GA	Warren Grove Range, NJ	

4. Program Details. PEC: 52634

Remaining Quantity Required	Unit Cost	Program Cost
6 LVT-2 Link-16 Radios (3080)	**$360,000**	**$2,160,000**
1 Ground Tactical Control Battlefield Operational Support Systems (3080)	**$297,000**	**$297,000**
6 Joint Range Extension Systems (3080)	**$132,000**	**$792,000**
6 Range Radio systems (3080)	**$150,000**	**$900,000**
Total		**$4,149,000**

RANGE INSTRUMENTATION: JOINT ADVANCED WEAPON SCORING SYSTEM

1. Background. The joint advanced weapon scoring system (JAWSS) upgrades the tactical ordnance scoring system by providing night and laser scoring capabilities for A-10, F-15, and F-16 pilots. These systems provide greater accuracy, night and day scoring, laser scoring, and strafe scoring capabilities. They also provide virtual reality imaging weapons training system, no-drop weapon scoring, and automated remote feedback for home-station debrief. JAWSS consists of five systems: weapon impact scoring system, laser evaluation system-mobile, large scale target sensor system, remote strafe scoring system, and the imaging weapons training system. Upgrading systems at our 14 air gunnery ranges provide pilots immediate feedback during training events at local ANG ranges to meet training and Ready Aircrew Program requirements.

2. Source of Need. ACC RAP Tasking Message; 2014 ARC WEPTAC Council.

3. Units Impacted.

Adirondack Range, NY	Airburst Range, CO	Atterbury Range, IN
Bollen Range, PA	Cannon Range, MO	Grayling Range, MI
Hardwood Range, WI	Jefferson Range, IN	McMullen Range, TX
Razorback Range, AR	Shelby Range, MS	Smoky Hill Range, KS
Townsend Range, GA	Warren Grove Range, NJ	

4. Program Details. PEC: 52634

Remaining Quantity Required	Unit Cost	Program Cost
14 Replacement WISS Systems (3080)	**$500,000**	**$7,000,000**
14 Site Communications Infrastructure (3080)	**$250,000**	**$3,500,000**
14 JAWSS Spare / Upgrade (3080)	**$200,000**	**$2,800,000**
Total		**$13,300,000**

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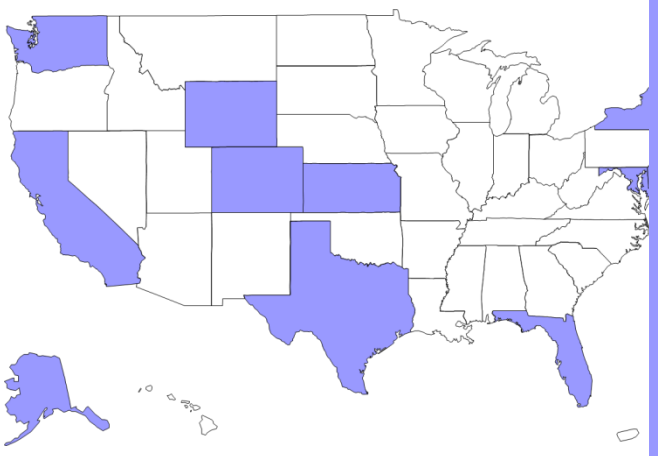
Space Operations and Cyber Operations

- **Missile Warning, Satellite Control, and Launch Operations**
- **Network Warfare and Information Operations**

Space Operations - The Air National Guard (ANG) contribution to Air Force Space Command missions includes over 900 personnel within seven squadrons located in CO, CA, NY, AK, FL, and WY. Units employ weapon systems for missile warning, space situational awareness, command and control, and satellite communications. These space effects provide direct support for nuclear command and control community and for combatant commands. Space operations support targeting decisions, non-kinetic effects, and mission essential communications . The multi-mission training platform and operations center ensure an efficient and on-time conversion for new ANG space control squadrons as they prepare to execute space operations missions.

Cyber Operations - The ANG cyber operations force includes nine units in DE, KS, MD, RI, TX, VT, CA, and WA. Cyber capabilities support federal- and state-level agencies, the Air Force, and combatant commands by conducting cyberspace force application, cyberspace defense, cyberspace support, and related planning activities. Many guardsmen participating in these missions draw upon synergies with their related civilian careers, leveraging skills developed by high-tech companies. Specific missions assigned to ANG units range from network vulnerability assessments to digital media and network analysis to full-spectrum cyber warfare support in both exercises and operations. Execution of these activities occurs from home station and national facilities.



Space Operations and Cyber Operations
2014 Weapons and Tactics Council

Critical Capabilities List

Space Operations:
- Classified Capability Supported by Multi-Mission Platform
- Classified Space Control Operations Center

Cyber Operations:
- Garrison Interceptor Platform
- Virtual Interconnected Training Environment
- Secure Infrastructure Collaborative Capability

Essential Capabilities List

Space Operations:
- Space Control Training Satellite Emulation Suite
- Mobile and Lightweight Walter Purification System
- Antenna Corrosion Control Domes
- Classified Crew Force Management, Scheduling, Training, and Evaluation Software

Cyber Operations:
- None

Desired Capabilities List

Space Operations:
- Mobility Support Equipment
- Counter Communications System Configuration Automation Software

Cyber Operations:
- None

SPACE OPERATIONS CLASSIFIED CAPABILITY SUPPORTED BY MULTI-MISSION PLATFORM

1. Background. ANG has two Space Control Squadrons (SPCS) to conduct space superiority operations. The 114 SPCS and the 216 SPCS support global and theater space campaigns and domestic operations. In order to fulfill mission requirements and to assure ANG SPCS units modernize concurrently with their active component counterparts, it is critical the 114 SPCS and 216 SPCS acquire the Multi-Mission Platform (MMP). The MMP provides early access and additional capacity for training and evaluation of space control operators. It also increases SPCS capabilities to develop weapon system tactics. The delivery of this pod upgrade enhances ANG space superiority through increased capability, training, evaluation, and tactics development.

2. Source of Need. Air Force Space Command Commander's Annual Prioritized Air Reserve Component Initiatives, 8 Nov 2013, Attachment 1, Priority #1; 2014 ARC WEPTAC Council.

3. Units Impacted.
114 SPCS Patrick AFB, FL 216 SPCS Vandenberg AFB, CA

4. Program Details. PEC: 64421

Remaining Quantity Required	Unit Cost	Program Cost
2 Multi-Mission Platforms (3080)	**$1,500,000**	**$3,000,000**
Total		**$3,000,000**

SPACE OPERATIONS CLASSIFIED SPACE CONTROL OPERATIONS CENTER

1. Background. The 114 Space Control Squadron (SPCS) supports domestic operations, global, and theater space control campaigns. The 114 SPCS requires a sensitive compartmented information facility (SCIF) to fulfill mission requirements. The squadron conducts training, evaluations, and operations for its relevant systems from the SCIF. Rapid acquisition of a modular SCIF allows the 114 SPCS to begin training and evaluations in time to achieve initial operational capability by April 2017.

2. Source of Need. Air Force Space Command Commander's Annual Prioritized Air Reserve Component Initiatives, 8 Nov 2013, Attachment 1, Priority #1; 2014 ARC WEPTAC Council.

3. Units Impacted.
114 SPCS Patrick AFB, FL

4. Program Details. PEC: 64421

Remaining Quantity Required	Unit Cost	Program Cost
1 Modular SCIF (3080)	**$3,250,000**	**$3,250,000**
Total		**$3,250,000**

CYBER OPERATIONS GARRISON INTERCEPTOR PLATFORM

1. Background. ANG information operations and network warfare squadrons require the ability to conduct Cyberspace Vulnerability Assessment (CVA)/Hunter training in support of the Cyber Protection Team mission. The Garrison Interceptor Platform (GIP) is the first US Air Force cyber weapon system developed and approved for use as the CVA/Hunter weapon system. GIP provides cyber hunt capability to detect and mitigate advanced persistent threats within Department of Defense information networks. ANG units require an offline weapon system such as GIP that is dedicated to currency training and achieving combat mission ready (CMR) certification of the ANG cyber mission operators without impacting operational capacity. GIP training integration at ANG-gained units is critical to mission capability and sustainment.

2. Source of Need. US Cyber Command CYBER FORCE Concept of Employment, Mar 2013; Air Force Space Command (AFSPC) Cyber Mission Force Concept of Operations, Nov 2013; Headquarters Air Force Cyber Mission Force Program Action Directive (PAD), Dec 2013; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.
273 IOS Lackland AFB, TX

4. Program Details. PEC: 28088

Remaining Quantity Required	Unit Cost	Program Cost
1 GIP (3080)	**$8,400,000**	**$8,400,000**
Total		**$8,400,000**

CYBER OPERATIONS VIRTUAL INTERCONNECTED TRAINING ENVIRONMENT

1. Background. Air National Guard (ANG) Cyberspace Operations (CO) units require a Virtual Interconnected Training Environment (VITE) to support Tier 1, 2, and 3 exercises, conduct training, and maintain combat mission ready proficiency as required by 24th Air Force. This capability provides a persistent training environment supporting implementation of the Cyber Mission Force construct and ensures distributed training for integrated warfighter operations in kinetics and non-kinetics. The VITE is a scalable capability configurable to any cyber environment. It provides realistic network environments with the ability to simulate adaptive opposing forces and threats. It simulates the internet-based critical infrastructure and key resources with add-on modules to provide more realistic cyberspace threats, targets, and terrain. The VITE provides simulation for commercial and government networks. This includes the non-secure internet protocol router network, secret internet protocol router network, and Joint Worldwide Intelligence Communications System, representing a wide variety of Department of Defense information network environments. The VITE operates as a standalone training environment and connects to the information operations ranges, a distributed training operations center, or any other distributed environment. The VITE hosts a wide variety of software and integrates with other weapon system training environments without additional licensing costs. The VITE meets information assurance requirements for certification and accreditation.

2. Source of Need. Air Force Space Command Guidance Memorandum 10-1, -2 and -3; Air Force Cyber Command Cyberspace Requirement Number, Jul 2011; 10th Air Force 2013 Prioritized Requirements, Aug 2013; 2010-2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

102 NWS	Quonset ANGB, RI	166 NWS	New Castle, DE	262 NWS	McChord AFB, WA
119 CACS	McGhee-Tyson, TN	175 COG	Martin State, MD	273 IOS	San Antonio, TX
132 NWS	Des Moines, IA	229 IOS	Burlington, VT		
143 IOS	Camp Murray, WA	261 NWS	Sepulveda, CA		

4. Program Details. PEC: 28087

Remaining Quantity Required	Unit Cost	Program Cost
3 Internet Hubs (3080)	**$393,000**	**$1,179,000**
12 VITE Systems (3080)	**$340,000**	**$4,080,000**
12 Interconnection Installations (3080)	**$50,000**	**$600,000**
11 Information Operations Range Pico Nodes	**$80,000**	**$880,000**
11 Interconnection Fees (3840)	**$20,000**	**$220,000**
Total		**$6,959,000**

CYBER OPERATIONS SECURE INFRASTRUCTURE COLLABORATIVE CAPABILITY

1. Background. ANG information operations and network warfare squadrons need the capability to access secure, classified, real-time communications and networks used by the Air Force and US Cyber Command for collaboration, and unique cyber and threat situational awareness. The majority of planning, operations, and cyber warfare information sharing occur in classified, collaborative environments, primarily through the Joint Worldwide Intelligence Communication System and National Security Agency-Network infrastructure. The Secure Infrastructure Collaborative Capability (SIC2) provides a collaborative classified environment and common operations picture to support near real-time full spectrum cyberspace operations and training. The SIC2 systems result in reduced travel and manpower costs.

2. Source of Need. USCYBERCOM Cyberspace Operations Capabilities, Dec 2013; Air Force Cyber Command Cyberspace Requirement Need, Aug 2011; Enabling Concept for Cyberspace Common Operations Picture, Aug 2011; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted.

102 NWS	Quonset ANGB, RI	166 NWS	New Castle, DE	261 NWS	Sepulveda, CA
119 CACS	McGhee-Tyson, TN	175 COG	Martin State, MD	262 NWS	McChord AFB, WA
132 NWS	Des Moines, IA	177 IAS	McConnell AFB, KS	273 IOS	San Antonio, TX
143 IOS	Camp Murray, WA	229 IOS	Burlington, VT		

4. Program Details. **PEC: 27277**

Remaining Quantity Required	Unit Cost	Program Cost
12 SIC2 Systems (3080)	**$300,000**	**$3,600,000**
Total		**$3,600,000**

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Security Forces

- **Integrated Base Defense**
- **Combat Arms Support**
- **Law Enforcement**

Air National Guard security forces comprise over 7,000 defenders from the 54 states and territories. Security forces support worldwide contingencies and home-station installations; they defend personnel and resources through the principles of integrated base defense, enabling security forces personnel to control the terrain both inside and outside the base perimeters.

The security forces missions include installation access control, asset security, suspect apprehension and detention, high-risk vehicle inspections, heavy weapons support with military operations in urban terrain, mounted and dismounted individual and team patrols, convoy operations, detainee movement operations, personal security details, fly-away security, raven tasking, close precision engagement teams and active shooter response.

To ensure defenders meet an evolving threat and deter, detect, and defend installations globally, it is paramount to modernize security forces capabilities with active shooter response platforms, close combat mission capability kits, precision engagement and assessment suites, surveillance, target acquisition, and night observation equipment, and small arms range solutions.

Security Forces
2014 Weapons and Tactics Council

Critical Combat Capabilities List

- Active Shooter Response Platform
- Close Combat Mission Capability Kits
- Precision Engagement and Assessment Suite
- Surveillance, Target Acquisition, and Night Observation Equipment
- Small Arms Range Solutions

Essential Capabilities List

- Force Option Simulator
- Security Forces Modernized Helmet Initiative
- Modular Advanced Base Defense Operations Center
- Next Generation Lightweight Level 4 Small Arms Protective Insert
- Fly-Away Security Kits

Desired Capabilities List

- Ballistic Mobile Defensive Fighting Position
- Small Form Factor, Squad-Level Remotely Piloted Aircraft with Video Surveillance
- Modernized Combatives Capabilities Set
- Modular Multi-Purpose Training Facility
- Weapons Modernization Suite

SECURITY FORCES ACTIVE SHOOTER RESPONSE PLATFORM

1. Background. ANG security forces units must be equipped to respond to an active shooter situation. SF units require individual personal protective equipment. Department of Defense enhanced small arms protective insert ballistic plates and lightweight soft ballistic inserts along with body armor meet or exceed the standards for responder personal protection. Additional safety items include maxillofacial mandible shield with visors providing protection to the head and face. There is also a need for advanced hearing protection which enhances communications. These items constitute the Personnel Response Kits and are critical to responder safety and mission effectiveness. There is also a need for a breaching tool to penetrate locked rooms. The Active Shooter Response Kit seamlessly integrates with the less-than-lethal kit.

2. Source of Need. AFI 31-101 Integrated Defense, AFI 31-117 Arming & Use of Force, Lessons learned from domestic operations, Operations ENDURING FREEDOM, IRAQI FREEDOM, and NEW DAWN; 2014 ARC WEPTAC Council.

3. Units Impacted. All SF squadrons.

4. Program Details. PEC: 52625

Remaining Quantity Required	Unit Cost	Program Cost
92 Active Shooter Response Kits (3080)	**$4,200**	**$386,400**
7,649 Personnel Response Kits (3080)	**$3,050**	**$23,329,450**
Total		**$23,715,850**

SECURITY FORCES CLOSE COMBAT MISSION CAPABILITY KITS

1. Background. Due to recent change in AFI 36-2646 regarding security forces (SF) training and standardization/evaluation programs, shoot, move, communicate (SMC) training and evaluation is now required. SMC courses standardize basic individual and team firearms tactical skills necessary to engage hostile threats. The close combat mission capability kit (CCMCK) provides the ability to conduct critical tactics, techniques, and procedures effectively across the threat spectrum. The CCMCK allows controlled and safe force-on-force training scenarios utilizing nonlethal training munitions. CCMCK training munitions do not require a specific range and the United States Air Force has certified them as safe for use inside facilities. Additionally, personal protective equipment ensures the safety of all personnel engaged in training. These kits permit SF to train in accordance with new standardization/evaluation programs.

2. Source of Need. AFI 36-2646 Security Forces Training and Standardization Evaluation Program, AFI 31-101 Integrated Defense, AFI 31-118 Security Forces Standards and Procedures; Air Force Security Forces Center Shoot Move Communicate Concept of Operations; Department of Homeland Security Active Shooter guidelines; National Summit on Multiple Casualty Shootings; Lessons learned from domestic operations; Operations ENDURING FREEDOM, IRAQI FREEDOM, and NEW DAWN; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted. All SF squadrons.

4. Program Details. **PEC: 52625**

Remaining Quantity Required	Unit Cost	Program Cost
5380 M-4 CCMC Kit (3080)	**$531**	**$2,856,780**
5380 M-9 CCMC Kit (3080)	**$390**	**$2,098,200**
744 M-249 CCMC Kit (3080)	**$835**	**$621,240**
4048 PPE Kits (3080)	**$212**	**$858,176**
Total		**$6,434,396**

SECURITY FORCES PRECISION ENGAGEMENT AND ASSESSMENT SUITE

1. Background. ANG security forces (SF) designated marksmen (DM) and Advanced Designated Marksmen (ADM) personnel require enhanced target detection, observation, and precision engagement capabilities to support both overseas contingency and domestic operations. SF marksmen deliver long-range precision rifle fire, enhanced observation, and reporting in all environments. Lessons learned in recent operations have illustrated the need for enhanced observation and target detection capabilities. SF is currently limited in its capability to deliver precision rifle fire for both day and night operations. SF DM equipment improve the ability to detect, report, monitor, and mitigate threats rapidly. SF serving in over watch roles must positively identify and diminish asymmetric threats at increased distances before they pose a danger. ADM equipment enhancement minimizes collateral damage and maximizes desired effects on threats. These enhancements also provide increased surveillance and observation capabilities and mitigate threats within the Integrated Defense Concept of Operations as outlined in Air Force Policy Directive 31-1, *Integrated Defense*. These modernized capabilities improve SF's ability to provide target description and location to command and control resources with greater speed, precision, and accuracy than currently available.

2. Source of Need. AFPD 31-1 Integrated Defense; Lessons Learned from Operations ENDURING FREEDOM (OEF), IRAQI FREEDOM (OIF), and NEW DAWN (OND); 2014 ARC WEPTAC Council.

3. Units Impacted. All ANG SF squadrons.

4. Program Details. PEC: 52625

Remaining Quantity Required	Unit Cost	Program Cost
47 Advanced Designated Marksmen Equipment Enhancement (3080)	**$106,995**	**$5,028,765**
375 Designated Marksmen Equipment Upgrade (3080)	**$20,300**	**$7,612,500**
Total		**$12,641,265**

SECURITY FORCES SURVEILLANCE, TARGET ACQUISITION, AND NIGHT OBSERVATION EQUIPMENT

1. Background. ANG security forces (SF) personnel require detection devices that provide usable imagery in both daytime and nighttime operations through the use of active or passive surveillance, target acquisition, and night observation. This equipment enhances the SF combat capability to navigate, identify targets, distinguish friend or foe, and effectively engage targets in low signature environments. These imaging devices need to work in adverse conditions both day and night. SF personnel lack the imaging capability mandated in the SF mission capability statement. Without this capability, SF is at a tactical disadvantage when environmental obscurants reduce target identification.

2. Source of Need. AFI 31-101 Integrated Defense; Security Forces Logistics Detail: Mission Capability Statement; lessons learned from Operations ENDURING FREEDOM, IRAQI FREEDOM, and NEW DAWN; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted. All ANG SF squadrons.

4. Program Details: PEC: 52625

Remaining Quantity Required	Unit Cost	Program Cost
375 Enhanced Night Vision (3080)	**$12,000**	**$4,500,000**
Total		**$4,500,000**

SECURITY FORCES SMALL ARMS RANGE SOLUTIONS

1. Background. The Air National Guard (ANG) owns 26 small arms ranges, which cost in excess of $1 million per year to sustain. Three of these ranges closed due to non-compliance with the requirements in Engineering Technical Letter 11-18, *Small Arms Range Design and Construction*. For training to continue, they require constant upkeep, repair, and waivers. With only 23 ranges in operation across the ANG, security forces (SF) personnel have to rely heavily upon commercial, local, state, or other federal agencies' small arms ranges. This creates scheduling conflicts and added expenses for the ANG. In addition to SF' needs, every ANG Airman is required to meet small arms training requirements prior to deployment. The procurement of a modular small arms range at ANG installations provides combat arms training and maintenance (CATM) personnel a significant increase in capability to provide small arms training for ANG warfighters.

2. Source of Need. AFI 36-2226 Combat Arms Program, Engineering Technical Letter (ETL) 11-18 Small Arms Range Design and Construction; lessons learned from Operations ENDURING FREEDOM, IRAQI FREEDOM, and NEW DAWN; 2013 ARC WEPTAC Conference; 2014 ARC WEPTAC Council.

3. Units Impacted. To be determined.

4. Program Details. PEC: 52625

Remaining Quantity Required	Unit Cost	Program Cost
8 Small Arms Ranges (3080)	**$4,000,000**	**$32,000,000**
Total		**$32,000,000**