

# AIR NATIONAL GUARD

GUARDING AMERICA ★ DEFENDING FREEDOM



**WEAPONS  
SYSTEMS  
MODERNIZATION**

# PRIORITIES 2016



# FOREWORD



The Air National Guard (ANG) has been engaged in continuous combat operations for a quarter century. Over that time, the ANG has evolved from a strategic reserve for national emergencies to an essential operational partner in the Total Air Force. Today's ANG, in addition to providing a reserve surge capacity, contributes daily to the US Air Force commitment to Global Vigilance, Global Reach, and Global Power in all five core missions: Air & Space Superiority; Intelligence, Surveillance, & Reconnaissance; Rapid Global Mobility; Global Strike, and Command & Control. If ANG is to continue to meet its obligations to the Total Air Force, it must maintain interoperability with the rest of the Air Force and Joint Forces as we operate much of the Air Force's oldest equipment. Our continued tactical relevance demands cost-effective

modernization and this book represents the first step in making thoughtful investment decisions.

The 2016 Modernization Book documents the modernization priorities as seen by the operator, the unit-level tactical experts who gathered at the annual Air Reserve Component Weapons and Tactics Conference. It is the best starting place when considering modernization options that will preserve and grow combat capability. I highly recommend it to anyone interested in an operator-level perspective.

ANG modernization priorities focus on capability and equipment, but, in the end, it is really about the men and women who stand behind the pages and dedicate themselves to building a stronger ANG. While standing ready to respond to their governor's call when disaster strikes at home, they continue to excel as warriors and build partnerships around the world in support of American interests everywhere.

We are the Air National Guard and we stand ready to support the Governors, United States Air Force, and Department of Defense.

A handwritten signature in black ink, appearing to read "B. G. Neal".

BRIAN G. NEAL  
Major General, USAF  
Acting Director, Air National Guard

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# Introduction



The 2016 Air National Guard (ANG) Weapons Systems Modernization Priorities Book documents capability priorities identified during the Oct 2015 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 2016 Book is organized into 18 weapon system mission sets. 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 / Rapid Global Mobility  
Space Superiority / Cyberspace Superiority / Command and Control  
Global Integrated ISR / Special Operations / Personnel Recovery  
Agile Combat Support / Simulation and Distributed Mission Operations*

## **Applicable Funding Appropriation Definitions**

0350 – National Guard and Reserve Equipment Account

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 1 Dec 2015.



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*2016 Weapons Systems Modernization Priorities Book Edited by NGB/A5X*

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



# State Matrix



## Weapons System Reference Table by State (1 Dec 2015)

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

	A-10	B-2	C-17	C-130H/J	Special Mission C-130	C-32B, E-8C	F-15	F-16	F-22	HH-60	KC-135	MQ-1/9	AOC, BCC, CRC	Cyber, Space	DCGS, MC-12W, RC-26B	GA / ST / TACP	DMO LVC Range
AK			•	H	HC-130					•	•		BCC	Space		GA	
AL								•			•				RC-26B /DCGS		
AR				H								•			DCGS		Range
AZ								•			•	•			RC-26B		
CA				J	HC-130		•			•		•		CY/SP	RC-26/DCGS	GA	
CO														Space			Range
CT				H									CRC				
DC								•									
DE				H													
FL							•						AOC	Space			
GA				H		E-8C							CRC		DCGS	TACP	Range
GU																	
HI			•						•				AOC/BCC		DCGS		
IA											•	•	CRC	Cyber	DCGS / RC-26		DMO
ID	•															TACP	
IL				H							•		AOC			TACP	
IN	•														DCGS	TACP	Range
KS											•		CRC	CY/SP	DCGS	TACP	Range
KY				H												STS	
LA							•									TACP	
MA							•								DCGS		
MD	•													CY (3)			
ME											•						
MI	•											•	AOC				Range
MN				H				•									
MO		•		H									AOC				Range
MS			•								•		AOC/CRC		RC-26B	TACP	Range
MT				H													
NC				H												TACP	
ND												•			DCGS		
NE											•						
NH											•						
NJ						C-32B		•			•			Cyber		TACP	Range
NM															RC-26B /DCGS		
NV				H						•					DCGS		
NY			•		HC / LC-130					•		•	AOC/BCC	Space		GA/TACP	Range
OH				H				•			•	•	CRC				
OK								•							MC-12W	TACP	
OR							•						CRC			STS	
PA					EC-130J						•	•	AOC			TACP	Range
PR			2	H									CRC				
RI				J										Cyber			
SC								•									
SD								•									
TN			•								•	•		Cyber	DCGS		
TX				H				•				•		Cyber	RC-26B	TACP	Range
UT											•		CRC		DCGS		
VA								•							DCGS		
VI																	
VT								•						Cyber			
WA											•		BCC	CY (2)	RC-26B	TACP	
WI								•			•		CRC		RC-26B		Range
WV			•	H											RC-26B		
WY				H										Space			

# A-10

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

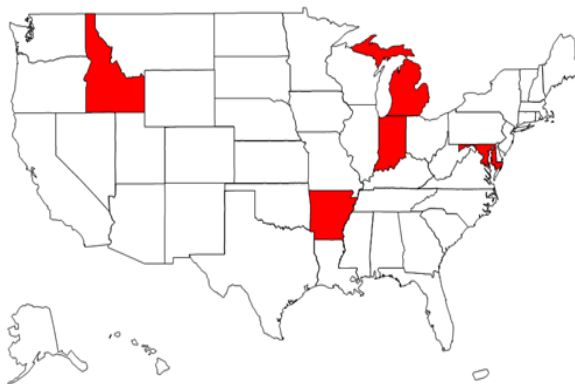


The A-10's combat survivability, long range, and ability to land at and operate from austere airfields provide flexibility beyond that of other fixed wing Air Force CAS assets. The A-10 minimizes collateral damage with precision munitions and its 30-millimeter cannon. Its extensive loiter time and targeting 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 (LARS) 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

## 2015 Weapons and Tactics Conference

### *Critical Capabilities List*

- Improved Positive Identification, Intelligence, Surveillance, and Reconnaissance, and Battle Tracking
- Improved Electronic Attack/Protection and Full Spectrum Countermeasure Systems
- Upgraded Communication Systems which Function in a Contested, Degraded, and Operationally Limited Environment
- Improved Ability to Operate in a Degraded/Denied Global Positioning System Navigation Environment
- Improved Capability to Operate and Employ from Austere Airfields

### *Essential Capabilities List*

- Aircraft Operational Flight Program Upgrade
- Targeting Pod Incremental Development
- Smart Triple Ejector Rack
- Find, Fix, and Identify Targets/Threats Through the Weather (Synthetic Aperture Radar)
- Improved Survivor Defense/Concealment

### *Desired Capabilities List*

- Electronic Flight Bag
- Laser Threat Protection for Eyes and Sensors
- Airframe Sustainment and Propulsion Improvement
- Full AIM-9 Integration
- Instrument Flight Rules Head-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; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

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

**4. Program Details. PEC: 27131F**

Remaining Quantity Required	Unit Cost	Program Cost
<b>HMCS Improvements (3010)</b>	N/A	<b>\$3,000,000</b>
<b>Display Non-Recurring Engineering (NRE) (3010)</b>	N/A	<b>\$9,000,000</b>
<b>106 Color Displays * (3010)</b>	<b>\$326,000</b>	<b>\$34,556,000</b>
<b>169 Targeting Pod Upgrades * ** (3010)</b>	<b>\$250,000</b>	<b>\$42,250,000</b>
<b>Total</b>		<b>\$88,806,000</b>

\* Includes 10% spares

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

**A-10 IMPROVED ELECTRONIC ATTACK/PROTECTION AND FULL SPECTRUM COUNTERMEASURE SYSTEMS**

**1. Background.** The A-10 electronic warfare (EW) suite requires considerable modernization to keep pace with surface-to-air threat technology advancements and proliferation. The Air Force identified these vulnerabilities in the 2012 A-10C Operational Viability and Sustainment Gap Analysis Report, but due to continuing budget battles over retiring the aircraft, very little has been done to address them. Accordingly, A-10 EW modernization requires re-initiation with a focus on several critical capabilities in the radio frequency (RF) spectrum: radar warning receiver modernization, improved chaff program development, integration with digital radio frequency memory (DRFM) jamming pods, ability to record and playback aircraft EW information, and the expansion of the aircraft Ethernet architecture to allow rapid EW reprogramming and communication with advanced pods. A-10 vulnerabilities in the infrared (IR) spectrum must also be addressed through the development of infrared countermeasures which reliably decoy modern IR threats, as well as by replacing the AAR-47 with a missile warning system capable of detecting those threats more reliably and at greater distances. Modernized EW suite subsystems, architecture, and countermeasures will allow the A-10 to conduct full spectrum combat operations in the vast majority of today’s contested environments.

**2. Source of Need.** Air Combat Command A-10C Operational Viability and Sustainment Gap Analysis Report, 2012; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

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

**4. Program Details. PEC: 027131F**

Remaining Quantity Required	Unit Cost	Program Cost
<b>94 ALR-69A Radar Warning Receivers (RWR)</b> (3010)	<b>\$600,000</b>	<b>\$56,400,000</b>
<b>ALR-69A RWR Non-Recurring Engineering (NRE)</b> (3010)	N/A	<b>\$5,000,000</b>
<b>40 ALQ-131A Electronic Attack (EA) Pods</b> (3010)	<b>\$1,000,000</b>	<b>\$40,000,000</b>
<b>94 Electronic Warfare (EW) Architecture Kits</b> (3010)	<b>\$50,000</b>	<b>\$4,700,000</b>
<b>EW Architecture Kit NRE</b> (3010)	N/A	<b>\$2,000,000</b>
<b>94 Advanced Infrared Countermeasures (IRCM) Systems</b> (3010)	<b>\$600,000</b>	<b>\$56,400,000</b>
<b>Advanced IRCM NRE</b> (3600)	N/A	<b>\$10,000,000</b>
<b>Total</b>		<b>\$174,500,000</b>

**A-10 UPGRADED COMMUNICATION SYSTEMS WHICH FUNCTION IN A CONTESTED, DEGRADED, OR OPERATIONALLY LIMITED ENVIRONMENT**

**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; 2015 ARC WEPTAC Council

**3. Units Impacted.**

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

**4. Program Details. PEC: 27131F**

Remaining Quantity Required	Unit Cost	Program Cost
<b>Directional Audio Non-Recurring Engineering (NRE) (3010)</b>	N/A	<b>\$5,000,000</b>
<b>106 Directional Audio Kits * (3010)</b>	<b>\$50,000</b>	<b>\$5,300,000</b>
<b>159 Directional Audio Pilot Equipment * (3010)</b>	<b>\$7,000</b>	<b>\$1,113,000</b>
<b>10 Unit Test Equipment (3010)</b>	<b>\$43,800</b>	<b>\$438,000</b>
<b>SINCGARS SA Waveform Retrofit (3010)</b>	N/A	<b>\$1,000,000</b>
<b>Total</b>		<b>\$12,851,000</b>

\* Includes 10% spares



**A-10 IMPROVED ABILITY TO OPERATE IN A DEGRADED/DENIED GLOBAL POSITIONING SYSTEM NAVIGATION 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. The integration of Selective Availability Anti-Spoofing Modules (SASSM) reduces the impacts of jamming and protects GPS' civil Standard Positioning Service and military Precise Positioning Service accuracies. 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; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

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

**4. Program Details. PEC: 27131F**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Anti-Jam EGI Non-Recurring Engineering (NRE) (3010)</b>	<b>N/A</b>	<b>\$9,000,000</b>
<b>106 Anti-Jam EGI * (3010)</b>	<b>\$195,000</b>	<b>\$20,670,000</b>
<b>Total</b>		<b>\$29,670,000</b>

\* 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. 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 charts and maps. Triple ejector rack modifications permit carriage of additional GPS-guided munitions.

**2. Source of Need.** A-10 Operational Requirements Document (ORD); 2012 ARC WEPTAC Conference; and 2015 ARC WEPTAC Council.

**3. Units Impacted.**

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

**4. Program Details. PEC: 27131F**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>63 Combat Fuel Tanks * (3010)</b>	<b>\$111,000</b>	<b>\$6,993,000</b>
<b>94 OBOGS * (3010)</b>	<b>\$210,000</b>	<b>\$19,740,000</b>
<b>Smart Triple Ejector Rack Non-Recurring Engineering (NRE) (3010)</b>	<b>N/A</b>	<b>\$2,000,000</b>
<b>126 Smart Triple Ejector Racks * (3010)</b>	<b>\$100,000</b>	<b>\$12,600,000</b>
<b>Total</b>		<b>\$41,333,000</b>

\* 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**
- **Ground Controlled Intercept**
- **Flight Safety Monitoring**

The Air National Guard (ANG) Command and Control (C2) weapons systems play an integral role in Homeland Defense, Defense Support of Civil Authorities (DSCA) and Overseas Contingency Operations (OCO).

**Air Operations Center (AOC)** - The AOC weapon system is employed by the Joint Forces Air Component Commander (JFACC), facilitating operational control and direction of theater air, space and cyber forces. Air National Guard AOC and Air Force Forces (AFFOR) staffs are comprised of personnel and facilities postured to support Homeland Defense, Overseas Contingency Operations and Defense Support of Civil Authorities. AOC personnel are organized as divisions specializing in integrated / distributive C2 processes / products. The AFFOR Staff is organized as special / functional directorates that provide planning teams to the Commander, Air Force Forces (COMAFFOR), in support of a Joint Forces Commander or Combatant Commander.

**Battle Control Center (BCC)** - A BCC is a fixed Battle Management Command and Control (BMC2) surveillance system. BCC refers to the aerospace warning and control “system,” which integrates surveillance radars and communications systems with computer processing and display / control equipment at four fixed facilities for mission execution. At the tactical level, BCCs provide surveillance, communication, control, data links, and combat-related air battle management in support of Homeland Defense operations in the Continental United States, Alaska, and Hawaii.

**Control and Reporting Center (CRC)** The CRC, at operational and tactical level, provides surveillance, tactical communications, data links, and combat-related air battle management of joint air operations with real-time networked situational awareness.

# Command and Control

## 2015 Weapons and Tactics Council

### *Critical Capabilities List*

#### AOC

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

#### BCC

- Common Battle Management Command and Control (BMC2) mission system
- Cross-Domain Enterprise Solution
- Live-Virtual-Constructive Distributed Mission Operations Mission Training Center (see Tab Q)
- Defense Information Systems Agency-compliant communications nodes

#### CRC

- In-Garrison Operations Facility
- Combat Identification Capability
- Electronic Attack Training Suite
- Mission Planning Fly Away Kit

- Pocket J Link 16 software upgrade with dynamic filtering/smart forwarding capability.
- Point defense and wide area surveillance sensors.
- Communications architecture that allows BCCs to flexibly assign mil-spec radios through an Internet Protocol (IP) or serial network to deployed/fixed, distributed antennas in their assigned area of responsibility.

#### CRC

- SAASM Embedded Global Positioning System/Inertial Navigation System (EGI).
- Maintaining internal and external simulator capability.
- Countering low flying threats with a highly-mobile medium range radar.
- Integrated Automatic Dependent Surveillance – Broadcast (ADS-B) sensor suite.
- Decoy system capable of replicating organic radar parameters to increase sensor survivability.
- Cross-domain operations within the Battle Management Command and Control (BMC2) enterprise.

### *Essential Capabilities List*

#### AOC

- None

#### BCC

- Multifunctional Information Distribution System (MIDS)/Joint Tactical Radio System (JTRS) terminal.
- Joint Engagement Zone (JEZ) Battle Management Command and Control (C2) Systems.

### *Desired Capabilities List*

#### AOC

- None

#### BCC

- Counter-Unmanned Aircraft System (UAS) Threat Mitigation.
- Integrated Passive Detection, Identifying, And Tracking System For Semi-Cooperative Targets.

#### CRC

- None

*Command and Control*

**AIR OPERATIONS CENTER DIRECT OPERATIONAL SECURE VOICE COMMUNICATION**

**1. Background.** Air Operations Centers (AOC) continue to primarily use Radio Frequency (RF) as a means to communicate with other services, allies, aircraft, associate units and state emergency response agencies for domestic response coordination. Air National Guard (ANG) AOC units lack the capability to communicate directly via radio frequency to supported commanders, fielded units, and state emergency management agencies. The lack of a Core Radio Package (CRP) leads to training shortfalls by not allowing units to adequately train and employ. The Core Radio Package allows an enhanced disaster response capability while providing real-world training between multiple in-state units during domestic responses and exercises. ANG AOC units must train and operate on the same systems as their aligned active duty AOCs they support. Without this; without radio communication capability, ANG, units cannot execute or train to full mission expectation. Also, an included radio-to-Internet Protocol (IP) bridge can be used by ANG AOCs to simulate and train realistic Tactical Air Control System (TACS) control procedures, participate in real-world events, distributed operations, interface with aligned units, and increase readiness training. Moreover, a radio-IP bridge provides digital voice communications that route live radio voice traffic between multiple sites over local and wide area data networks for additional capabilities. The AOC Core Radio Package should consist of at least three PRC-117 Mobile User Objective System (MUOS) Tactical Satellite (TACSAT) compatible radios, one HF radio, one Multifunction Information Distribution System (MIDS) associated antenna at each unit.

**2. Source of Need.** AFD 13-1, ANNEX A; 2012-2014 ARC WEPTAC Conference, 2014-2015 ARC WEPTAC Council

**3. Units Impacted.**

101 AOG Tyndall AFB, FL	152 AOG Syracuse, NY	157 AOG Jefferson Barracks, MO
112 AOG State College, PA	183 AOG Springfield, IL	217 AOG Battle Creek, MI
286 AOG Meridian, MS		

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>21 PRC 117Gs (3080)</b>	<b>\$20000</b>	<b>\$420,000</b>
<b>7 MIDS (3080)</b>	<b>\$20000</b>	<b>\$140,000</b>
<b>7 HF Radios</b>	<b>\$2500</b>	<b>\$175,000</b>
<b>Total</b>		<b>\$577,500</b>

*Command and Control*

**AIR OPERATIONS CENTER TARGETING APPLICATION WORKSTATION**

**1. Background.** Air National Guard (ANG) Air Operations Groups (AOGs) lack an effective solution to train and support advanced target development in accordance with Chairman Joint Chiefs of Staff Instruction (CJCSI) 3370.01 Target Development Standards, and are resultantly unable to train to active duty 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 which can be utilized by today’s coordinate seeking weapons. Per CJCSI 3505.01b Target Coordinate Mensuration Certification And Program Accreditation, and Air Force Instruction (AFI) 14-126 Target Coordinate Mensuration Training And Certification Program, this 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 (NGA). The Targeting Application Workstation (TAW) is the current System of Record for AFP4 / PPM within the Air Operations Center (AOC). Collateral Damage Estimates can only be produced using the TAW. The Air Force Targeting Center, as the USAF lead agent for AFP4 training and certification, has recommended 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, some units are UTC tasked to provide as many as 12 AFP4 certified analysts at a ratio of one workstation for every six analysts. This is insufficient to meet the ANG’s training needs. The ANG AOGs require a total of five TAWs per unit (three additional allocations per unit) to effectively train assigned personnel. Procuring a total of 15 more TAWs will meet this requirement across the ANG enterprise.

**2. Source of Need.** AFPD 13-1, ANNEX A; AFPD 14-1, AFPD 14-2, AFPD 36-26, 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, 2012-2014 ARC WEPTAC, 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

101 AOG Tyndall AFB, FL	109 AOG JB Pearl Harbor-Hickam, HI	112 AOG State College, PA
152 AOG Syracuse, NY	157 AOG Jefferson Barracks, MO	183 AOG Springfield, IL
217 AOG Battle Creek, MI	286 AOG Meridian, MS	

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>15 TAW Hardware (3080)</b>	<b>\$3,600</b>	<b>\$54,000</b>
<b>15 Socet GXP Software License (3080)</b>	<b>\$15,000</b>	<b>\$225,000</b>
<b>Total</b>		<b>\$279,000</b>

\*Does not include sustainment

**AIR OPERATIONS CENTER CROSS-DOMAIN NETWORK CAPABILITY**

**1. Background.** Air Operations Center (AOC) operators and Air Force (AF) contingency planners use multiple cyber domain networks, some with classified and some with unclassified information, to conduct operations and training. Information across networks needs to be visible simultaneously to provide effective training and operational support to Component-Number Air Force (C-NAF), as well as to their state Joint Force Headquarters Joint Operations Center (JFHQ JOC) to conduct Domestic Operations (DOMOPS). Timeliness of access to data in response to life threatening events is crucial to contingency planners. During mission operations, critical unclassified data required for mission accomplishment may be located on classified systems. Switching between multiple level security level information systems presents unnecessary risk of error when executing mission operations. These limiting factors could be solved with a Cross Domain Solution (CDS). A CDS 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 Top Secret / Sensitive Compartmented Information (TS/SCI), Secret Collateral systems, and NIPRNet systems. It also sanitizes, guards, and downgrades higher classified formatted data to lower security classifications. A single integrated CDS glass interface would provide simultaneous views of NIPR, SIPR, C2ANG, SECRET, TS and COALITION networks on a single client, enhancing operator effectiveness. Operations security would be improved through the reduction of printed products used to compare information. An immediate return on investment would be realized due to the reduction of current infrastructure, hardware, office space, power, cooling requirements, lifecycle and administration of systems needed to support various systems that would be merged into a single system. Information Assurance and Protection benefits would be greatly enhanced as multiple individual desktop systems for each network would be replaced by a single terminal with no data being stored on the local device.

**2. Source of Need.** AFPD 13-1, ANNEX A, 2012-2013 ARC WEPTAC Conference; and 2014-15 ARC WEPTAC Council.

**3. Units Impacted.**

101 AOG Tyndall AFB, FL	109 AOG JB Pearl Harbor- Hickam, HI	112 AOG State College, PA
152 AOG Syracuse, NY	157 AOG Jefferson Barracks, MO	183 AOG Springfield, IL
217 AOG Battle Creek, MI	286 AOG Meridian, MS	

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>8 Server Hardware (3080)</b>	<b>\$80,000</b>	<b>\$640,000</b>
<b>8 Client Hardware (3080)</b>	<b>\$37,000</b>	<b>\$296,000</b>
<b>8 Software (3080)</b>	<b>\$230,000</b>	<b>\$1,840,000</b>
<b>8 Installation and Certification (3080)</b>	<b>\$150,000</b>	<b>\$1,200,000</b>
<b>Total</b>		<b>\$3,976,000</b>



*Command and Control*

**BATTLE CONTROL CENTER COMMON MISSION SYSTEM**

**1. Background.** Battle Control Center (BCC) and Control and Reporting Center (CRC) missions are increasingly interchangeable. Traditionally, CRCs have deployed to austere environments lacking power and communication infrastructure. Due to dwindling mobility resources and advanced distributed network technology, CRCs are increasingly employed on main operating bases and utilize existing infrastructure for power, communication, and integration of distributed radars and radios across assigned battle management areas. BCCs have already mastered the capability of integrating hundreds of radar and radio sites across the United States. 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.** 2015 NORAD WEPTAC, 2014 NORAD C2 Ops Conference #2/11 Operational Needs; 2014 NORAD WEPTAC #2 of 12 Operational Needs out-briefed to the CDRNORAD in the Executive Session; BCC Information Sharing Capabilities Request Form FY14; AF Form 1067 Global Earth Capability; AFF 1067 2-way TacChat integration, AFF 1067 ADSB integration, AFF 1067 Multi-Source Correlation, AFNORTH Capabilities Request Form Multi-Source Correlation, AFF 1067 Front End J-Chat, AFF 1067 ID Matrix, #1 operational need at 2013-15 CAF WEPTAC, BCC Tactics Review Board; 2014-15 ARC WEPTAC Council.

**3. Units Impacted.**

169 ADS Wheeler Army Air  
Field, HI  
225 ADG Joint Base Lewis-  
McChord, WA

176 ADS JB Elmendorf-  
Richardson, AK

224 ADG Rome, NY

**4. Program Details. PEC: 51311**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>4 Common Mission System (3080)</b>	<b>\$1,000,000</b>	<b>\$4,000,000</b>
<b>Total</b>		<b>\$4,000,000</b>

*Command and Control*

**BATTLE CONTROL CENTER CROSS-DOMAIN ENTERPRISE SERVICE**

**1. Background.** Air National Guard (ANG) Battle Control Centers (BCCs) execute the North American Aerospace Defense Command (NORAD) and Northern Command (NORTHCOM) Homeland Defense, Air Sovereignty, and Defense Support to Civil Authorities (DSCA) missions across the Continental United States (CONUS), Alaska and Hawaii. The BCCs lack the ability to integrate joint service tactical data links, provide functional redundancy to the Air Event Information Sharing Service (A/EISS), and support DSCA missions through the Situational Awareness Geospatial Enterprise (SAGE) application. The cross-domain enterprise service is the application layer data filter that assures tactical integration of assets in cyberspace for homeland defense operations. A cross-domain enterprise service at the BCC provides tactical-to-tactical information sharing, increased cybersecurity, and redundancy. The cross-domain enterprise service passes data from United States only Not Releasable (NOFORN) classified tactical data systems to classified SECRET REL ACGU (an intelligence alliance comprising Australia, Canada, New Zealand, the United Kingdom, and the United States) information systems. This solution is required to integrate tactical data links, provide functional redundancy to the Air Event Information Sharing Service (A/EISS), integrated joint service tactical data links, and facilitate defense support to civil authorities (DSCA) missions through the Situational Awareness Geospatial Enterprise (SAGE) application. The full package includes two additional Joint Range Extensions (JREs) in each BCC providing functional redundancy for information exchange and assurance within the North American Aerospace Defense Command (NORAD) enterprise.

**2. Source of Need.** 2014-15 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; AF Form 1067 CDES; #1 operational need at 2014 CAF WEPTAC, BCC Tactics Review Board, 2014-15 ARC WEPTAC Council.

**3. Units Impacted.**

224 ADG Rome, NY

225 ADG Joint Base Lewis-McChord, WA

176 ADS JB Elmendorf-Richardson, AK

169 ADS Wheeler Army Air Field, HI

**4. Program Details. PEC: 51311**

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

*Command and Control*

**BATTLE CONTROL CENTER AIR DEFENSE COMMUNICATIONS**

**1. Background** Air National Guard (ANG) Battle Control Centers (BCCs) execute the North American Aerospace Defense Command (NORAD) and Northern Command (NORTHCOM) Homeland Defense mission across the Continental United States (CONUS), Alaska and Hawaii. The two CONUS Battle Control Centers lack seamless radio communications with Aerospace Control Alert (ACA) aircraft throughout the Continental United States during out of area operations (operations within the other sector’s area of operation). As of 2015 the Defense Information Security Network (DISN) is being phased out of service and replaced with connections to the FAA Telecommunications Infrastructure (FTI) IP-based network. Also, the current communications infrastructure is eight years past its originally projected end-of-life cycle. If the communications infrastructure at 100 land-based US radios sites are upgraded to allow the BCCs to connect to the FAA radios and use the FTI IP-based network while providing simultaneous connections and remote access. This also allows remote cyber security software updates and provides seamless access to radio communications for both BCCs. The routers, servers, circuits and Federal Aviation Agency connections requested allow both BCCs to maintain communications with ACA aircraft for continuous air sovereignty and defense operations in the CONUS.

**2. Source of Need.** 2015 ARC WEPTAC Council, NORAD Instruction 10-18, NORAD NORTHCOM Theater Campaign Plan, NOBLE EAGLE EXORD and CONPLAN 3310.

**3. Units Impacted.**

224 ADG Rome , NY

225 ADG Joint Base Lewis-  
McChord , WA

**4. Program Details. PEC: 51311**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>100 Routers, (3080)</b>	<b>\$2,200</b>	<b>\$220,000</b>
<b>100 Servers, (3080)</b>	<b>\$3,700</b>	<b>\$370,000</b>
<b>100 Power Supply’s (3080)</b>	<b>\$1,800</b>	<b>\$180,000</b>
<b>100 Circuits (3080)</b>	<b>\$3,000</b>	<b>\$300,000</b>
<b>100 2.5GB RAM Upgrade (3080)</b>	<b>\$400</b>	<b>\$40,000</b>
<b>100 2GB Flash Upgrade (3080)</b>	<b>\$700</b>	<b>\$70,000</b>
<b>100 Enhanced EtherSwitch Module (3080)</b>	<b>\$1,000</b>	<b>\$100,000</b>
<b>100 Security Bundles (3080)</b>	<b>\$3,800</b>	<b>\$380,000</b>
<b>100 Next Gen Signal Processor (3080)</b>	<b>\$1,200</b>	<b>\$120,000</b>
<b>100 G-A-G Restoration System (3080)</b>	<b>\$3,400</b>	<b>\$340,000</b>
<b>100 Associated Cables/Connectors (3080)</b>	<b>\$2,500</b>	<b>\$350,000</b>
<b>100 Misc Installation Accessories (3080)</b>	<b>\$1,200</b>	<b>\$120,000</b>
<b>Total</b>		<b>\$2,500,000</b>

*Command and Control*

**CONTROL AND REPORTING CENTER IN GARRISON OPERATIONS SHELTERS**

**1. Background.**

The Control and Reporting Center (CRC) is a mobile Battle Management Command and Control (BMC2) capability with deployable radar elements of the Theater Air Control System (TACS). The Air National Guard (ANG) CRC units do not have adequate space within their current facilities to set up Operations Module (OM) Mod workstations for in-garrison use. The CRC community is in the process of getting a BMC2 system upgrade. The upgrade includes 18 operator consoles designed to deploy and are housed in two “Alaskan shelters” in a back-to-back configuration, 20’ x 65’ (1300 sq. ft.) or a building. The Alaskan shelters have fabric exteriors with a vinyl liner that include lights, electric, Environmental Control Units (ECUs), and personnel doors. They do not support environmental conditions for personnel and equipment for longer than 30 days. The equipment being replaced (Modular Control Equipment) provided hardened shelters that could also be used for in-garrison operations and were much more suited for long term operations. The CRC needs a shelter of approximately 1300 sq. ft. that provides adequate environmental controls, weather resistance and information assurance characteristics to house the OM Mod workstations for in-garrison use.

**2. Source of Need.** 2015 ARC WEPTAC Council.

**3. Units Impacted.**

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

**4. Program Details. PEC: 502672**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>10 Facilities (3080)</b>	<b>\$625,000</b>	<b>\$6,250,000</b>
<b>Total</b>		<b>\$6,250,000</b>

*Command and Control*

**CONTROL AND REPORTING CENTER COMBAT IDENTIFICATION**

**1. Background.**

The Control and Reporting Center (CRC) is a mobile battle management Command and Control (C2) capability with deployable radar elements of a theater air control system. CRCs utilize the Modular Control Equipment (MCE) and the AN / TPS-75 as the primary weapon system equipment. The AN / TPS-75 radar system is a mobile, tactical radar system capable of providing radar azimuth, range, height and Identification Friend or Foe (IFF) information for a 240-nautical-mile radius. The radar system supports Identification, Friend, or Foe / Selective Identification Feature (IFF / SIF) integrations. However, the AN / TPS-75 radar system does not have the capability to passively identify aircraft. The CRC relies on controlled aircraft and other assets to disseminate timely, accurate, and relevant identification information to allow engagement of hostile targets. The CRC needs a passive early warning, identification and direction finding capability for airborne threats. Without this capability the CRC survivability is degraded in the event of a contested or degraded operational environment. The system should provide full threat band frequency coverage, instantaneous azimuth coverage, and have an on-line library of emitter types for rapid combat ID.

**2. Source of Need.** 2015 ARC WEPTAC Council

**3. Units Impacted.**

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

**4. Program Details. PEC: 502672**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>10 Combat Identification Suites (3080)</b>	<b>\$100,000</b>	<b>\$1,000,000</b>
<b>Total</b>		<b>\$1,000,000</b>

*Command and Control*

**CONTROL AND REPORTING CENTER ELECTRONIC ATTACK TRAINING SUITE**

**1. Background.** The primary Control and Reporting Center (CRC) sensor is the AN / TPS-75 radar, a 1970s era mobile, tactical system capable of providing azimuth, range, height and identification information of aircraft in support of surveillance operations and control of tactical aircraft. The Electronic Protection Technician (EPT) is primarily responsible for countering enemy electronic attack (EA) through the use of the AN / TPS-75 radar electronic protection (EP) features, while other operations crew members are responsible for recognizing EA and mitigating its impact on command and control operations. The EPT must be able to recognize and counter the effects of EA while maintaining the radar’s presentation and emissions and a thorough understanding of EA to apply the proper EP procedures to combat it. Currently, the CRCs lack a viable solution to simulate real world EA and provide the EPT and other crew members the necessary training to operate in contested environments against advanced threats. The CRCs require a low power steerable antenna ground based jammer to rectify this training shortfall. To ensure proper EP training, the jammer must provide Barrage / Spot / Doppler noise, velocity gate pull off, range-gate pull off, multiple false targets, and Digital Radio Frequency Memory (DRFM) generated EA waveforms against the AN / TPS-75. This capability will greatly enhance operator performance / effectiveness in a contested environment and meet the necessary training requirements in accordance with MACJOM directives.

**2. Source of Need.** 2015 ARC WEPTAC Council, AFI 13-1CRC Volume 3, CRC Ready Aircrew Program (RAP) Tasking Memorandum (RTM) Aviation Schedule (AS)-15, CRC Ready Aircrew Program (RAP) Tasking Memorandum (RTM) Aviation Schedule (AS)-16.

**3. Units Impacted.**

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

**4. Program Details. PEC: 502672**

Remaining Quantity Required	Unit Cost	Program Cost
<b>10 AN/TPS-75 Jammers (3080)</b>	<b>\$100,000</b>	<b>\$1,000,000</b>
<b>Total</b>		<b>\$1,000,000</b>

*Command and Control*

**CONTROL AND REPORTING CENTER MISSION PLANNING FLY AWAY KIT**

**1. Background.** The Control and Reporting Center (CRC) is a mobile Battle Management Command and Control (BMC2) capability with deployable radar elements of the Theater Air Control System (TACS). Air Combat Command (ACC) has tasked the Air National Guard (ANG) to provide 10 Air Control Squadrons (ACSs) to execute mission functions and capabilities of a CRC. CRC personnel will be called upon to provide theater Command and Control (C2) planning. The time sensitive nature of crisis action planning requires a technical solution to assist in planning, coordinating and executing joint and combined air operations. The CRCs lack Information Technology (IT) to meet mission planning requirements in a deployed environment. The CRC require mission planning fly away kits that will provide the necessary software, hardware, and geospatial data in a small, portable, lightweight kit. The kit should consist of four stand-alone laptops with mass storage capability, locally networked and housed in plastic transit cases. It should be designed to require no dedicated IT Support Staff and be able to run Joint Mission Planning System (JMPS). This capability will enable CRC mission planners the capacity to provide higher headquarters with real-time information regarding the CRC’s sensor coverage and operation crew’s ability to execute the daily Air Tasking Order (ATO).

**2. Source of Need.** 2015 ARC WEPTAC Council.

**3. Units Impacted.**

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

**4. Program Details. PEC: 502672**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>40 Laptops (3080)</b>	<b>\$2,500</b>	<b>\$100,000</b>
<b>40 external hard drives (3080)</b>	<b>\$300</b>	<b>\$12,000</b>
<b>40 8-Port Network Switches (3080)</b>	<b>\$50</b>	<b>\$2,000</b>
<b>10 Cases</b>	<b>\$500</b>	<b>\$5,000</b>
<b>10 sets Assorted Cables/Accessories</b>	<b>\$500</b>	<b>\$5,000</b>
<b>Total</b>		<b>\$124,000</b>

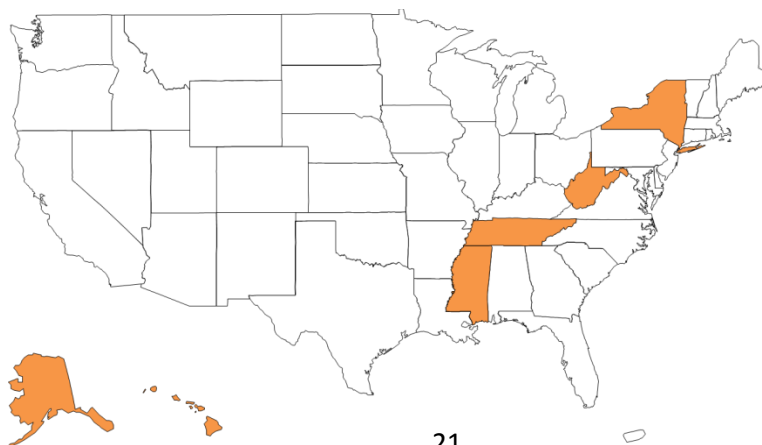
# C-17

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



The Globemaster III is the nation's newest strategic military airlifter and continues to excel in a wide range of operational missions. The C-17 carries combat-ready military units to any point in the world on short-notice, and provides critical field support to sustain the fighting force. It's short-field capability permits it to support both inter- and intra-theater missions. Using C-17s as an intratheater 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.





# C-17

## 2015 Weapons and Tactics Conference

### *Critical Capabilities List*

- Common MAF Mission Computer
- Large Aircraft Infrared Countermeasures
- Digital Radar Warning Receiver
- Forward Area Refueling Point Carts
- Extended Range Tanks

### *Essential Capabilities List*

- Large Aircraft Infrared Countermeasures (LAIRCM) Enhanced Situational Awareness (LESA).
- Replacement Heads-Up Display (RHUD).
- Heads-up Countermeasures Dispenser Control.
- Remote Countermeasures Dispenser System
- Aircrew Improved Seat Armor

### *Desired Capabilities List*

- Hostile fire indicator (HFI)
- Active Noise Reduction (ANR) headsets
- Advanced Situational Awareness Countermeasures System (ASACMS)
- Mission Computer (MC) upgrade
- AERO-I replacement

*Rapid Global Mobility*

**C-17 COMMON MAF MISSION COMPUTER**

**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 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 data link 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. Purchasing 36 of each set of components will equip the entire ANG fleet and provide 10% spare capability.

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

**3. Units Impacted.**

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

**4. Program Details. PEC: 041130**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NRE (3600)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>36 C-17 Group A (3010)</b>	<b>\$100,000</b>	<b>\$3,600,000</b>
<b>36 C-17 Data link Radios (3010)</b>	<b>\$330,000</b>	<b>\$11,880,000</b>
<b>36 C-17 Data link Processors (3010)</b>	<b>\$100,000</b>	<b>\$3,600,000</b>
<b>36 Electronic Flight Bags (3010)</b>	<b>\$240,000</b>	<b>\$8,640,000</b>
<b>36 UHF SATCOM Kits (3010)</b>	<b>\$475,000</b>	<b>\$17,100,000</b>
<b>Total</b>		<b>\$54,820,000</b>

**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.**

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

**4. Program Details. PEC: 41130**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Next Generation NRE (3600)</b>	<b>N/A</b>	<b>\$12,000,000</b>
<b>32 LAIRCM Group A Kits (3010)</b>	<b>\$2,100,000</b>	<b>\$67,200,000</b>
<b>32 LAIRCM Group B Kits (3010)</b>	<b>\$3,000,000</b>	<b>\$96,000,000</b>
<b>Total</b>		<b>\$175,200,000</b>

*Rapid Global Mobility*

**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) and therefore, lack 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.**

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

**4. Program Details. PEC: 41130**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NRE (3600)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>32 RWR Systems (3010)</b>	<b>\$700,000</b>	<b>\$22,400,000</b>
<b>Total</b>		<b>\$32,400,000</b>

*Rapid Global Mobility*

**C-17 FORWARD AREA REFUELING POINT CARTS**

**1. Background.** Forward arming and refueling point (FARP) carts provide ground vehicles and aircraft the ability to fuel directly from a C-17 on the ground. This ability supports the warfighter abroad and domestic operations. The carts can be airlifted by a C-17. This new ability gives the combatant commander or incident commander a new capability to respond to warfighter demands to include major natural disasters, humanitarian events, and other needs that the Air National Guard is uniquely tasked to support. This capability is critical in an anti-access, area denial environment. 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.**

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

**4. Program Details. PEC: 41130**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>4 Forward Area Refueling Carts (3010)</b>	<b>\$2,200,000</b>	<b>\$8,800,000</b>
<b>Total</b>		<b>\$8,800,000</b>

*Rapid Global Mobility*

**C-17 EXTENDED RANGE 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 equipped 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 AE missions departing from European bases due to patient requirements prohibiting fuel stops. The ER modification is mandatorily 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 IAP, NY  
172 AW Jackson IAP, MS

164 AW Memphis IAP, TN

167 AW Eastern WV RAP, WV

**4. Program Details. PEC: 41130**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>18 Extended Range Fuel Tanks (3010)</b>	<b>\$12,000,000</b>	<b>\$216,000,000</b>
<b>Total</b>		<b>\$216,000,000</b>

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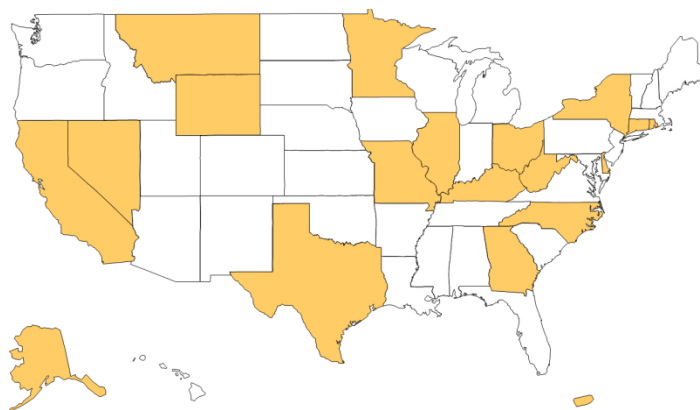
# C-130H/J

- **Tactical Airlift**
- **ANG C-130 Units Provide 49% of the Total Fleet**

With a legacy lasting over 61 years now, the C-130 Hercules remains the U.S. Military's primary combat transport aircraft. In addition to its primary role in tactical airlift, Air National Guard (ANG) C-130s support humanitarian, peacekeeping, and disaster relief operations. Procurement efforts continue to address needed updates to the avionics suites, propulsion modernization,



improved self-protection, single-pass precision airdrop, and enhanced situational awareness. These improvements ensure that the ANG C-130 fleet remains capable of safely and effectively executing its missions globally and maintains relevance in tomorrow's fight.





## ***Critical Capabilities List***

### C-130H

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

### C-130J

- Common MAF Mission Computer
- Improved Radio Frequency and Infrared Self-Protection Suite
- Tactical Plot Suite
- Updated Avionics Suite for Global Airspace Access

## ***Essential Capabilities List***

### C-130H

- Improved Intercom System
- Military Secure Precision Global Position System Tightly Coupled with Inertial Navigation System and Jamming Notification
- Tactical Data Link Included in the C-130 Multi-Mission Cockpit Trainers
- Enhanced Beyond Line-of-Sight Voice
- Improved Dual-Mode External LED Lighting

### 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 (VECTS)
- GPS Jam-Resistant Embedded GPS/INS and Streamlined Notification
- Cargo Compartment Camera

## ***Desired Capabilities List***

### C-130H

- Hostile Fire Indicator with Geo-Reference Capability
- Active RF Protection System
- Permanent 115V AC, 60 Hz Flight Deck
- Wireless Fidelity Systems
- Cargo Compartment Modernization
- Helmet-Mounted Display/Cueing
- Back-Up Camera
- Real-Time Weather Sampling and Modeling
- Hard-Kill Self Protection

### C-130J

- Wireless Fidelity Systems
- Mission Recording and Reconstruction Capability
- Vertical Situation Awareness

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

**1. Background.** The C-130 fleet faces severe sustainment challenges with current avionics and cockpit instrumentation, and will be out of compliance with Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) mandates if not modernized. The lack of C-130H improved communications and avionics technology, including 8.33 kHz frequency spacing capability, prohibits operating in European airspace. Additionally, tactical night operations continue to suffer with non-NVIS compliant lighting. Any further delay of the Avionics Modernization Program will result in Air Reserve Component (ARC) C-130H models failure to meet the 2020 deadline for international CNS/ATM mandates. In order to eliminate critical sustainment issues due to Diminishing Manufacturing Sources (DMS), and to meet required mandates and Air Force Instructions, this modernized cockpit will include: a multifunction Engine Instrument Display System (EIDS), automatic dependent surveillance-broadcast (ADS-B) capability, Night Vision Imaging System (NVIS) compatibility and a modern Flight Management System (FMS) with Global Positioning System (GPS) approach and polar navigation capabilities. 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. An NVIS-compatible and modernized glass cockpit reduces crew workload, lowers maintenance costs and increases capability and sustainability to operate safely at night.

**2. Source of Need.** FAR 91.225/91.227; Air Mobility Command AF Form 1067 #14-013 and 14-018; C-130H Viability and Airspace Access Program CDD 19 March 2015; FAA Directive Order 260B, 27 May 2010; 2013-2015 ARC WEPTAC Councils.

**3. Units Impacted.**

153 AW Cheyenne MPT, WY	130 AW Yeager APT, WV	136 AW Ft Worth NAS, TX
156 AW Luis Munoz Marin IAP, PR	179 AW Mansfield-Lahm APT, OH	152 AW Reno-Tahoe IAP, NV
145 AW Charlotte-Douglas IAP, NC	120 AW Great Falls IAP, MT	139 AW Rosecrans Mem APT, MO
133 AW Mpls-St Paul IAP, MN	123 AW Louisville IAP, KY	182 AW GTR Peoria APT, IL
165 AW Savannah IAP, GA	166 AW New Castle APT, DE	103 AW Bradley IAP, CT

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>154 Avionics Kits (3010)</b>	<b>\$5,700,000</b>	<b>\$877,800,000</b>
<b>NRE (3600)</b>	<b>N/A</b>	<b>\$50,000,000</b>
<b>154 NVIS (3010)</b>	<b>\$465,000</b>	<b>\$71,610,000</b>
<b>Total</b>		<b>\$999,410,000</b>

*Rapid Global Mobility*

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

**1. Background.** C-130H aircraft operate within range of infrared (IR) man-portable air defense systems (MANPADS). ANG C-130Hs have inadequate missile launch detection. Air Mobility Command (AMC) is fielding all of its combat aircraft (i.e., C-17, C-5, KC-135, and C-130J) with a baseline of Large Aircraft Infrared Countermeasures (LAIRCM) Block 30 to improve missile warning and defense; no plan exists to upgrade the C-130H beyond its current configuration. To remain relevant the C-130H must be able to better detect, degrade and defeat IR MANPADS. The AN/AAQ-24 LAIRCM Block 30 system improves detection against advanced MANPADS threats, while the Block 30's IR suppression system would degrade the ability to engage C-130H aircraft. Future conflicts will include a wide spectrum of radio-frequency (RF) threats, in addition to a robust IR threat from man-portable and vehicle-borne systems. Operational plans rely heavily on airlift to support front-line troops. C-130H aircraft can expect to face or operate near RF-based threats. Most ANG C-130H aircraft have limited or no RF detection capability. To survive, C-130H aircraft require a geo-locating Radar Warning Receiver (RWR) capable of processing signals in a dense RF environment and automatically direct countermeasures to defeat those threats. Increased situational awareness is needed to correlate onboard and off-board threat detection, terrain masking, and optimized dynamic rerouting capabilities to minimize exposure to threats. Only 24 C-130H1 aircraft have ALR-69A installed, leaving the remainder of the H model fleet without this needed capability.

**2. Source of Need.** AMC Advanced Situational Awareness Countermeasures CDD, Jan 2008; 2012-2013 ARC WEPTAC Conferences; 2014-2015 ARC WEPTAC Councils.

**3. Units Impacted.**

153 AW Cheyenne MPT, WY	130 AW Yeager APT, WV	136 AW Ft Worth NAS, TX
156 AW Luis Munoz Marin IAP, PR	179 AW Mansfield-Lahm APT, OH	152 AW Reno-Tahoe IAP, NV
145 AW Charlotte-Douglas IAP, NC	120 AW Great Falls IAP, MT	139 AW Rosecrans Mem APT, MO
133 AW Mpls-St Paul IAP, MN	123 AW Louisville IAP, KY	182 AW GTR Peoria APT, IL
165 AW Savannah IAP, GA	166 AW New Castle APT, DE	103 AW Bradley IAP, CT

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>155 C-130H LAIRCM Group A Kits (3010)</b>	<b>\$1,500,000</b>	<b>\$232,500,000</b>
<b>78 C-130H LAIRCM Group B Kits (3010)</b>	<b>\$4,400,000</b>	<b>\$343,200,000</b>
<b>155 C-130H NexGen Group A Kits (3010)</b>	<b>\$420,000</b>	<b>\$65,100,000</b>
<b>78 C-130H NexGen Group B Kits (3010)</b>	<b>\$774,855</b>	<b>\$60,438,690</b>
<b>145 C-130H ALR-69A* (3010)</b>	<b>\$1,000,000</b>	<b>\$145,000,000</b>
Total		\$1,227,477,380

\* Includes 10% spares.

*Rapid Global Mobility*

**C-130H/J SINGLE PASS PRECISION AIRDROP**

**1. Background.** The ARC C-130 fleet has several shortfalls in its ability to accurately deliver airdrop loads in combat 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. Best accuracy with current precision airdrop methods 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 by the flight crew, real time airdrop damage estimates, real-time wind sensing (altitude to surface), displayed continuously computed impact point and launch acceptability region, and post-drop assessment. Targeting pods with light detection and ranging provide the necessary capabilities during VMC operations. Software and hardware upgrades to the APN-241 radar provide synthetic aperture radar to meet these requirements in IMC airdrops. Radar upgrades coupled with targeting pods and off-board cueing provide a highly accurate all-weather single-pass airdrop capability that can be used to support domestic and contingency operations. With 13 pods already purchased for the C-130H/J fleet, 77 additional pods would provide each of the ANG’s 18 combat-coded C-130 units 5 pods to train with and employ.

**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 Conferences; 2014-2015 ARC WEPTAC Councils.

**3. Units Impacted.**

152 AW Reno-Tahoe IAP, NV	166 AW New Castle APT, DE	165 AW Savannah IAP, GA
182 AW GTR Peoria APT, IL	123 AW Louisville IAP, KY	133 AW Mpls-St Paul IAP, MN
139 AW Rosecrans Mem APT, MO	103 AW Bradley IAP, CT	145 AW Charlotte-Douglas IAP, NC
179 AW Mansfield-Lahm APT, OH	156 AW Luis Munoz Marin IAP, PR	136 AW Ft Worth NAS, TX
130 AW Yeager APT, WV	153 AW Cheyenne MPT, WY	120 AW Great Falls IAP, MT
102 NWS Quonset ANGB, RI	109 AW Schenectady Co APT, NY	146 AW Channel Islands AGS, CA

**4. Program Details. PEC: 41115, 41132**

Remaining Quantity Required	Unit Cost	Program Cost
<b>Targeting Pod NRE (3010)</b>	<b>N/A</b>	<b>\$16,000,000</b>
<b>APN-241 Radar Upgrade (3010)</b>	<b>N/A</b>	<b>\$3,000,000</b>
<b>77 Targeting Pods (3010)</b>	<b>\$2,000,000</b>	<b>\$154,000,000</b>
<b>Total</b>		<b>\$173,000,000</b>

*Agile Combat Support*

**C-130H INTEGRATED DATA LINK AND DEFENSIVE SYSTEMS SUITE**

**1. Background.** Combat operations have highlighted the need for comprehensive and networked battle space awareness for C-130s. The C-130 real-time information in the cockpit (RTIC) system allows C-130 aircraft to participate on multiple data link networks using technologies already fielded on other DoD assets. The system must provide growth capability for future TDL networks. 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 (AIECS) 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. 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 Conferences; 2014-2015 ARC WEPTAC Councils.

**3. Units Impacted.**

153 AW Cheyenne MPT, WY	130 AW Yeager APT, WV	136 AW Ft Worth NAS, TX
156 AW Luis Munoz Marin IAP, PR	179 AW Mansfield-Lahm APT, OH	152 AW Reno-Tahoe IAP, NV
145 AW Charlotte-Douglas IAP, NC	120 AW Great Falls IAP, MT	139 AW Rosecrans Mem APT, MO
133 AW Mpls-St Paul IAP, MN	123 AW Louisville IAP, KY	182 AW GTR Peoria APT, IL
165 AW Savannah IAP, GA	166 AW New Castle APT, DE	103 AW Bradley IAP, CT

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>155 AIECS Kits (3010)</b>	<b>\$150,000</b>	<b>\$23,250,000</b>
<b>AIECS NRE (3010)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>Directional Audio NRE (3600)</b>	<b>N/A</b>	<b>\$5,000,000</b>
<b>155 Directional Audio Kits (3010)</b>	<b>\$50,000</b>	<b>\$7,750,000</b>
<b>Total</b>		<b>\$46,000,000</b>

**C-130H PROPULSION SYSTEM UPGRADES**

**1. Background.** The C-130H fleet’s missions require a comprehensive propulsion upgrade for increased performance, efficiency, and reliability. 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, to include a necessary Oil Cooler Augmentation (OCA), 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 consumes significant maintenance resources. 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.

**2. Source of Need.** AF Form 1067 AMC 11-138 and 14-089; 2013 ARC WEPTAC Conference; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

152 AW Reno-Tahoe IAP, NV	166 AW New Castle APT, DE	165 AW Savannah IAP, GA
182 AW GTR Peoria APT, IL	123 AW Louisville IAP, KY	133 AW Mpls-St Paul IAP, MN
109 AW Schenectady Co APT, NY	145 AW Charlotte-Douglas IAP, NC	179 AW Mansfield-Lahm APT, OH
156 AW Luis Munoz Marin IAP, PR	136 AW Ft Worth NAS, TX	130 AW Yeager APT, WV
153 AW Cheyenne MPT, WY	139 AW Rosecrans Mem APT, MO	120 AW Great Falls IAP, MT
176 WG JB Elmendorf, AK	189 AW Little Rock AFB, AR	

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>EPCS/IPBS NRE (3010)</b>	<b>N/A</b>	<b>\$8,000,000</b>
<b>135 NP2000 (3010)</b>	<b>\$2,000,000</b>	<b>\$270,000,000</b>
<b>135 EPCS (3010)</b>	<b>\$825,000</b>	<b>\$111,375,000</b>
<b>135 IPBS (3010)</b>	<b>\$550,000</b>	<b>\$74,250,000</b>
<b>540 T-56 3.5 Mod Engines (3010)</b>	<b>\$1,400,000</b>	<b>\$756,000,000</b>
<b>135 OCA (3010)</b>	<b>\$667,000</b>	<b>\$90,045,000</b>
<b>Total</b>		<b>\$1,282,670,000</b>

**C-130J COMMON MAF MISSION COMPUTER**

**1. Background.** Global mobility operations highlight the need for integrated battlespace awareness. AMC implemented the current C-130J data link system, Dynamic Re-tasking Capability (DRC), to address an Urgent Operational Need (UON) but didn't field this solution for all of the C-130Js. Only one-half of Air Reserve Component (ARC) C-130Js were modified with the DRC A-kits, and due to limited B-kit availability and sustainment issues, less than one quarter of the ARC aircraft can employ at once with data link capability. Real-Time Information in Cockpit (RTIC) is an existing ARC solution for global data link communications, providing secure beyond line-of-sight (BLOS) and line-of sight (LOS) capabilities. An RTIC-type solution is acceptable for the C-130J as it offers a permanent modification to the aircraft, has the ability to change data link radios as mission needs arise, and does not require a C-130J Mission Computer (MC) change to implement. RTIC also includes the Airborne Executive Processor (AEP), which offers a federated mission computer capability. The government-owned software used to manage the AEP is the Tactical Airlift Mission Software Suite (TAMSS). TAMSS is a MAJCOM 1067 approved software program for the C-130H and provides an open architecture to implement mission needs not tied to the C-130J Block Upgrade cycle. Examples of emerging systems processed by TAMSS include global data link, Single Pass Precision Airdrop (SPPAD), and Airdrop Damage Estimation (ADE). The Air National Guard employs 16 C-130J aircraft. In order to ensure units are able to effectively train, operate and deploy with secure global data link capability, all aircraft should be modified with RTIC utilizing the TAMSS software suite.

**2. Source of Need.** 2015 ARC WEPTAC Critical Capability; 2014 Combat Planning Council (CPC). 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 Datalink Transformation Capability Development Document (CDD), Increment 1, Joint Requirements Oversight Council Memorandum (JROCM), 23 Jun 2004; AMC Requirements and Planning Council Mission Essential 2007 and 2008.

**3. Units Impacted.**

143 AW Quonset St APT, RI            146 AW Channel Is ANGS, CA

**4. Program Details. PEC: 41132**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NRE (3010)</b>	<b>N/A</b>	<b>\$5,000,000</b>
<b>16 C-130J RTIC Group A Kits (3010)</b>	<b>\$150,000</b>	<b>\$2,400,000</b>
<b>16 C-130J RTIC Group B Kits (3010)</b>	<b>\$1,000,000</b>	<b>\$16,000,000</b>
<b>Total</b>		<b>\$23,400,000</b>

*Rapid Global Mobility*

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

**1. Background.** C-130 aircraft perform demanding missions within the Weapons Engagement Zone (WEZ) of Man-Portable Air Defense Systems (MANPADS) and Radio Frequency (RF) threats. Combatant Command (COCOM) plans rely heavily on C-130s for logistical support to front-line troops and to operate closer to adversary tactical Surface-to-Air Missile (SAM) systems. The AN/AAQ-24 Large Aircraft Infrared Countermeasures (LAIRCM) Block 30 system provides the most capable countermeasures against MANPADS threats with the latest Infrared (IR) sensors. The Block 30 configuration, being fielded on Air Mobility Command (AMC) C-17 aircraft, delivers greater warning, lower false alarm rates and higher reliability. At present, USAF C130Js have no RF geolocation capability, which limits their ability to best avoid the threat in some cases. Increased Situational Awareness is needed to correlate onboard and off board threat detection, terrain masking, and optimized dynamic rerouting capabilities to avoid the WEZ. An advanced Radar Warning Receiver (RWR) is critical for C-130J aircraft to effectively employ near these threats.

**2. Source of Need.** AMC Advanced Situational Awareness Countermeasures (ASACM) Capability Development Document (CDD), Jan 2008; 2012-2015 ARC WEPTAC Critical Capability.

**3. Units Impacted.**

143 AW Quonset SAP, RI

146 AW Channel Is ANGS, CA

**4. Program Details. PEC: 41132**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>16 C-130J LAIRCM group A Kits (3010)</b>	<b>\$970,000</b>	<b>\$15,520,000</b>
<b>8 C-130J LAIRCM Group B Kits (3010)</b>	<b>\$4,400,000</b>	<b>\$35,200,000</b>
<b>16 C-130J NexGen Group A Kits (3010)</b>	<b>\$420,000</b>	<b>\$6,720,000</b>
<b>8 C-130J NexGen Group B Kits (3010)</b>	<b>\$774,855</b>	<b>\$6,198,840</b>
<b>NRE (3600)</b>	<b>N/A</b>	<b>\$5,000,000</b>
<b>16 C-130J ALR-69A (3010)</b>	<b>\$1,000,000</b>	<b>\$16,000,000</b>
<b>Total</b>		<b>\$84,638,840</b>



*Rapid Global Mobility*

**C-130J TACTICAL PLOT SUITE**

**1. Background.** The C-130J’s software suite permits the use of only 10 Tactical Plots (TAC PLOT), which are limited to a circular shape only. Aircrews currently use these TAC PLOTs to display factor airspace and threats “under the glass” on the C-130J Digital Map, the Navigation Radar Display, the Terrain Awareness Warning System (TAWS) display, and Coordinated Aircraft Position / Station Keeping Equipment (CAP/SKE). The 10 circular TAC PLOTS are not adequate to display the robust tactical airspace picture where killbox / keypads, political borders, Restricted Operating Zones (ROZs), and departure and arrival corridors exist. A TAC PLOT software suite meeting this capability exists for the C-5M, which uses the same hardware components as the C-130J. This software can be easily interfaced with the C-130J Mission Computer (MC), Communication Navigation Interface-Management Unit (CNI-MU) and Heads-Down Displays (HDD). This TAC PLOT suite allows the plotting of accurate killbox-keypads, arrival and 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.** Air Mobility Command (AMC) Tactics Review Board (TRB) 2012-2013; ARC WEPTAC Critical Capability 2013-2015

**3. Units Impacted.**

143 AW Quonset St APT, RI            146 AW Channel Is ANGS, CA

**4. Program Details. PEC: 41132**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
NRE (3600)	N/A	<b>\$4,000,000</b>
<b>16 TAC PLOT Suite Software Update (3010)</b>	<b>\$62,500</b>	<b>\$1,000,000</b>
<b>Total</b>		<b>\$5,000,000</b>

**C-130J UPDATED AVIONICS SUITE FOR GLOBAL AIRSPACE ACCESS**

**1. Background.** The delay of the C-130J Block Update Cycle for Block 7.0 / 8.1 means that Air Reserve/Air National Guard (ARC) C-130J aircraft will not meet the 2020 deadline for international Communications, Navigation and Surveillance / Air Traffic Management (CNS/ATM) mandates established by Federal Aviation Administration (FAA) Directive Order 260B, and by the International Civil Aviation Organization (ICAO). Also with this delay, Block 6.0 C-130Js will not meet Precision and Area Navigation (P-RNAV) and Automatic Dependent Surveillance-Broadcast (ADS-B) requirements to operate worldwide beyond 1 June 2020. Updated avionics with ADS-B Out will address CNS/ATM mandates and increase operational effectiveness and efficiency by opening up airspace that requires more stringent navigational requirements. If this critical item is not met by the 2020 mandate, the result could be denial of airspace access for C-130J aircraft.

**2. Source of Need.** FAA Directive Order 260B, 27 May 2010; 2015 ARC WEPTAC Critical Capability.

**3. Units Impacted.**

143 AW Quonset St APT, RI            146 AW Channel Is ANGS, CA

**4. Program Details. PEC: 41132**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NRE (3600)</b>	<b>N/A</b>	<b>\$30,000,000</b>
<b>16 C-130J Updated Avionics /ADS-B Out Group A Kits (3010)</b>	<b>\$1,300,000</b>	<b>\$20,800,000</b>
<b>16 C-130J Updated Avionics/ADS-B Out Group B Kits (3010)</b>	<b>\$1,200,000</b>	<b>\$19,200,000</b>
<b>Total</b>		<b>\$70,000,000</b>

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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-130 Units Provide 38% of the Total Fleet**
- **ANG LC-130s Provide 100% of the Total Fleet**

C-130 Special Mission aircraft include:



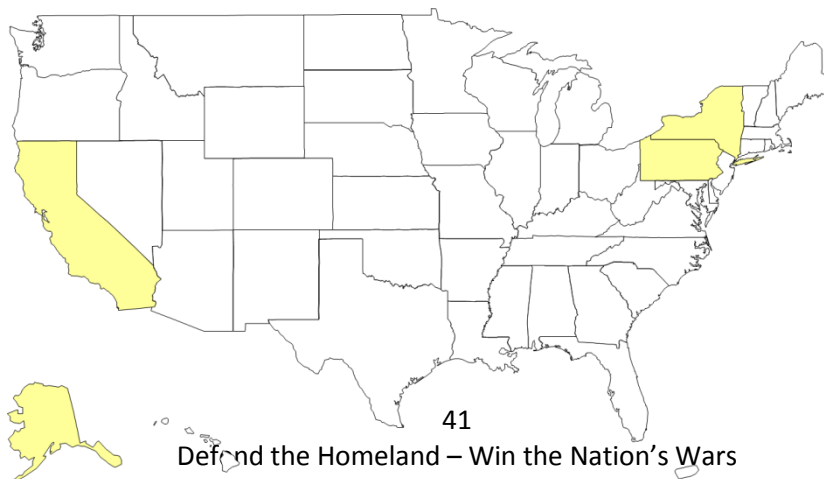
**EC-130J** - The EC-130J “Commando Solo” conducts information operations, psychological operations, and civil affairs broadcasts. This year, procurement efforts included secure line-of-sight and beyond line-of-sight capabilities and radio communication upgrades.



**HC/MC-130** - ANG HC/MC-130 units continue to deploy in support of overseas contingency operations and provide emergency rescue and relief support during domestic operations. Modernization efforts for the ANG HC/MC-130 fleet include loadmaster crashworthy seats, aircrew flight equipment racks, external arm mounts 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 eight bladed propellers and 3.5 engine modification. The ANG is working with the NSF to support a pod-based scientific payload capability.



# C-130 Special Mission

## 2015 Weapons and Tactics Conference

### *Critical Capabilities List*

#### EC-130J

- Federated Defensive System Unit
- Electro-Optical / Infrared Sensor
- ARC-210 Line of Sight Antenna
- Ku Band Spread Spectrum System Trainer
- Permanent Ku Spread Spectrum Antenna

#### HC/MC-130P/N

- Combat Penetration Suite
- Enhanced Electro-Optical/Infrared Sensor
- Single Pass Precision Airdrop
- Combat Rescue Mission Network
- Mission Flexible Refueling

#### LC-130

- Avionics Obsolescence Solution
- Enhanced Situational Awareness
- Retractable External Arm and Ice Sensors
- Flight Deck Communications Upgrade
- Propulsion Modernization

### *Essential Capabilities List*

#### EC-130J

- Weapon System Trainer (WST) / Simulator Training Device
- Removable Airborne Military Information Support Operations System

- Special Operations Forces Air Mission Suite - Enhanced Situational Awareness
- Super J Special Operations Forces Air Mobility Requirements
- Single-Pass Precision Guided Airdrop

#### HC/MC-130P/N

- Electronic Flight Bag with Automatic Dependent Surveillance-Broadcast (ADS-B)
- Computer Navigation Surveillance / Air Traffic Management (CNS/ATM) compliant avionics
- Distributed Mission Operations (DMO) simulator
- Moving Target Indicator (MTI) integrated in EO/IR sensor

#### LC-130

- Mission Specific Simulator

### *Desired Capabilities List*

#### EC-130J

- Emergency Equipment Bins

#### HC/MC-130P/N

- Flare Launch Tubes
- Global Position System (GPS) Internal Repeater
- Scanner Windows
- Encrypted Wireless Network
- Internal Palletized Fuselage Tank

#### LC-130

- None

**EC-130J FEDERATED DEFENSIVE SYSTEM UNIT**

**1. Background.** Air National Guard (ANG) EC-130Js perform a variety of missions at various threat levels, which require the use of chaff and flares to defend the aircraft. The existing ALE-47 Countermeasures Dispensing System (CMDS) limits chaff and flare dispenses and requires the Combat Systems Operator (CSO) to switch CMDS settings based upon the engagement to ensure the proper expenditures are used without wasting invaluable chaff and flare stores. Due to current CMDS limitations, the CSO must control the system via program settings within the Communications Navigation Identification-Management Unit (CNI-MU) and the defensive system master panel, often during the engagement when speed is crucial. The addition of the federated defensive systems panel will not only allow the CSO to dispense flare, chaff, or both with a single button push without the need to switch settings on the defensive systems master panel but will also align the EC-130J with the MC-130J fleet configuration, maximizing the interoperability between active duty and Guard aircrews within AFSOC . One Federated Defensive System Unit is needed for each of the seven ANG EC-130Js.

**2. Source of Need.** AFSOC AF Form 1067 SOC #05077 (EC-130J Countermeasure Dispense Panel; ARC 2015 WEPTAC Council.

**3. Units Impacted.**

193 SOW Harrisburg IAP, PA

**4. Program Details. PEC: 27253**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>7 Federated Defensive System Panel (3010)</b>	<b>\$160,700</b>	<b>\$1,124,900</b>
<b>Total</b>		<b>\$1,124,900</b>

**EC-130J ELECTRO-OPTICAL / INFRARED SENSOR**

**1. Background.** Air National Guard (ANG) EC-130Js (Commando Solo) perform demanding missions worldwide in a wide range of environments to include low level altitudes at nights into austere, airfields. Terrain and obstacles present a threat. The ANG requires eight (seven aircraft and one spare) AN/AAS-52 Multi-Spectral Targeting System (MTS). The MTS, currently on AFSOC's MC-130Js, utilizes advanced forward looking infrared radar (FLIR) technology that is vital for terrain avoidance and target acquisition at austere airfields. Like the AFSOC MC-130J, the EC-130J is being tasked to fly low level missions into austere airfields. In order to reduce the risk of controlled flight into terrain, the ANG EC-130Js require the same MTS as the MC-130Js. One AN/AAS-52 System is needed for each of the seven ANG EC-130Js along with one spare.

**2. Source of Need.** AFSOC AF Form 1067, USSOCOM Lesson Learned; 193 SOW Strategic Plan FY12-37; ARC 2013 WEPTAC Conference, 2015 ARC WEPTAC Council.

**3. Units Impacted.**

193 SOW Harrisburg IAP, PA

**4. Program Details. PEC: 27253**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NRE (3600)</b>	<b>N/A</b>	<b>\$2,000,000</b>
<b>8 AN/AAS-52 Systems (3010)</b>	<b>\$750,000</b>	<b>\$6,000,000</b>
<b>Total</b>		<b>\$8,000,000</b>

*Special Operations/Personnel Recovery*

**EC-130J ARC-210 LINE OF SIGHT ANTENNA**

**1. Background.** Air National Guard (ANG) EC-130Js perform a variety of missions, which require the use of both Line Of Sight (LOS) and Beyond Line Of Sight (BLOS) communications. Adding an ARC-210 LOS antenna allows aircrew to have an additional radio while preserving the capability of BLOS communications contributing to enhanced situational awareness within the AOR. Current aircraft configuration prohibits simultaneous use of VHF 1 radio and BLOS communications due to the ARC-210 not having a LOS antenna.

**2. Source of Need.** USSOCOM Lessons Learned; EC-130J Communications Situational Awareness Suite; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

193 SOW Harrisburg IAP, PA

**4. Program Details. PEC: 27253**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
NRE (3600)	N/A	<b>\$300,000</b>
<b>7 ARC-210 Line of Sight Antenna (3010)</b>	<b>\$30,000</b>	<b>\$210,000</b>
<b>Total</b>		<b>\$510,000</b>



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

**1. Background.** Air National Guard (ANG) EC-130Js perform a variety of missions which require the use of the Airborne Ku Band Spread Spectrum (KuSS) satellite system. The 193rd Special Operations Wing (SOW) uses the KuSS to send and receive Full Motion Video (FMV), Intelligence, Surveillance, and Reconnaissance (ISR) feeds, audio/video content for Military Information Support Operation (MISO) broadcasts, and also provides a datalink for other critical Command and Control (C2) functions. The system consists of off the shelf C-130 KuSS In Vehicle Equipment (IVE) and an escape hatch mounted antenna assembly. Four of seven aircraft presently have KuSS installed. Due to aircraft and equipment shortages, aircrews do not have regular access to KuSS systems for mission qualification, continuation or proficiency training. The KuSS System Trainer will integrate with the currently operational Commando Solo Partial Task Trainer, and greatly enhance its abilities to reduce operational flying requirements. Due to aircraft and equipment shortages, aircrews do not have regular access to KuSS systems for mission qualification, continuation or proficiency training. Current training is accomplished on an “as available” basis with no more than two of seven aircraft configured for KuSS training. The KuSS System Trainer will integrate with the currently operational Commando Solo Partial Task Trainer, and greatly enhance its abilities to reduce operational flying requirements. Only one training device is needed for the 193rd SOW.

**2. Source of Need.** USSOCOM Lessons Learned; EC-130J Communications Situational Awareness Suite; ARC 2013 WEPTAC Conference; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

193 SOW Harrisburg IAP, PA

**4. Program Details. PEC: 27253**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>KuSS Training System (3010)</b>	<b>N/A</b>	<b>\$400,000</b>
<b>Total</b>		<b>\$400,000</b>

**EC-130J PERMANENT KU SPREAD SPECTRUM ANTENNA**

**1. Background.** Air National Guard (ANG) EC-130Js perform a variety of missions, which require the use of the Airborne Ku Band Spread Spectrum (KuSS) satellite system. The 193rd Special Operations Wing (SOW) uses the KuSS to send and receive airborne Full Motion Video (FMV), Intelligence, Surveillance, and Reconnaissance (ISR) feeds, audio/video content for Military Information Support Operation (MISO) broadcasts, and the KuSS also provides a datalink for other critical Command and Control (C2) functions. The system consists of off-the-shelf C-130 KuSS In Vehicle Equipment (IVE) and an escape hatch mounted antenna assembly. Four of seven aircraft presently have KuSS installed. Aircrew do not have access to the center escape hatch when the KuSS is installed. Due to the design of the current KuSS hatch mounted antenna, the airflow over the antenna is causing damage to the VH1 antenna. It is causing an oscillation which fatigues the antenna and eventually causes cracks. The VH1 radio has to therefore be turned off and causes the EC-130 to be less capable. The installation of a permanently installed KuSS antenna allows for access to the center escape hatch for crew egress and permits capability enhancement. In addition, the permanent installation of the KuSS antenna will eliminate structural cracking resulting from the Hatch Mounted Antenna.

**2. Source of Need.** USSOCOM Lessons Learned; EC-130J Communications Situational Awareness Suite; EC-130J Maintenance Advisory 1C-130(E)JMA-20120504001; 2015 ARC WEPTAC Council.

**3. Units Impacted.**  
193 SOW Harrisburg IAP, PA

**4. Program Details. PEC: 27253**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NRE KuSS Permanent Mount Antenna (3600)</b>	<b>N/A</b>	<b>\$200,000</b>
<b>7 KuSS Permanent Mount Antenna (3010)</b>	<b>\$30,000</b>	<b>\$210,000</b>
<b>Total</b>		<b>\$410,000</b>

*Special Operations/Personnel Recovery*

**HC/MC-130 COMBAT PENETRATION SUITE**

**1. Background.** The HC/MC-130 rescue platform is unprepared to survive a combat rescue in a peer-on-peer conflict due to its inability to counter current and emerging threats. In order to operate in a high threat environment the HC/MC-130 requires a Radio Frequency (RF) jammer, and improved radar detection capability (ALR-69A), along with a Terrain Following and Terrain Avoidance (TFTA) radar system. The ALR-69A provides more sensitivity and improved range and accuracy for supplying the crew with information on radar threat type and location. An RF jammer allows the Combat Search and Rescue (CSAR) Task Force (TF) to perform rescues in an elevated radar threat environment. When penetrating an elevated threat environment, the aircraft requires TF/TA radar in order to utilize terrain by navigating at low altitude to defeat a radar threat. When the ALQ-213 is coupled with data link advancements, survivability extends to the greater Personal Recovery Task Force (PRTF). The ALQ-213 enables crews to load a multitude of engagement specific programs that allow the HC-130 to utilize new flare types. The HC-130 currently employs MJU-64 flares as part of the defensive system. Units need allotments of advanced MJU-66 and MJU-71 flares for both training and operational use increasing survivability in current and future engagements. Furthermore, an upgrade of the AAR54 and AAR47 external sensors provides providing acoustic sensing, octant- detection, 2 color IR detection and integrated IR jamming equips the HC/MC-130 to ensure survivability in a contested environment. Finally, updated GPS with the latest anti-jam technology is necessary for continued precision employment of CSAR operations. For each of the 13 HC-130s in the ANG, one RF Jammer, ALR-69A, and Hostile Fire Indicator is needed. 117 3D audio kits are needed to provide nine devices for each of the 13 aircraft. Three 3D Audio test devices are needed to provide one for each of the three ANG HC-130 squadrons.

**2. Source of Need.** ARC 2012 WEPTAC Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF); 2015 ARC WEPTAC Council.

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett FAF, CA

176 WG Elmendorf AFB, AK

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Directional Audio (NRE) (3600)</b>	<b>N/A</b>	<b>\$6,000,000</b>
<b>117 3D Audio Pilot Kits (3010)</b>	<b>\$7,000</b>	<b>\$819,000</b>
<b>3 Unit Test Equipment (3080)</b>	<b>\$58,500</b>	<b>\$175,500</b>
<b>RF Jammer NRE (3600)</b>	<b>N/A</b>	<b>\$5,000,000</b>
<b>ALR-69A NRE (3600)</b>	<b>N/A</b>	<b>\$2,000,000</b>
<b>13 RF Jammer (3010)</b>	<b>\$5,000,000</b>	<b>\$65,000,000</b>
<b>13 ALR-69A (3010)</b>	<b>\$1,300,000</b>	<b>\$16,900,000</b>
<b>13 Hostile Fire Indicator (3010)</b>	<b>\$270,000</b>	<b>\$3,510,000</b>
<b>Total</b>		<b>\$99,404,500</b>

*Special Operations/Personnel Recovery*

**HC/MC-130 ENHANCED ELECTRO-OPTICAL/INFRARED SENSOR**

**1. Background.** HC/MC-130 aircraft must provide the Combat Search and Rescue Task Force (CSARTF) with situational awareness. The current aircraft configuration does not provide the equipment to digitally communicate, provide adequate video imagery, or be able to find, fix, and track points of interest. An enhanced Electro-Optical/Infrared (EO/IR) sensor will provide; Full Motion Video (FMV), Video Data Link (VDL), increased Field of View (FOV), cursor-on-target/infrared cueing, low-light television, hyper multi-spectral sensors, thermal imaging and a target laser range finder/designator capabilities. Personnel Recovery (PR) forces are trained and equipped to utilize stand-alone ROVER technology to enhance battle space awareness when forward deployed away from tactical operations centers. However, no airborne reception / broadcast capability is fielded by PR forces. With the above technology HC/ MC-130s will now be able to organically collect and disseminate real time images of survivor for dissemination to other PR forces and command and control agencies. For each of the 13 HC-130s in the Air National Guard, one targeting pod, Moving Target Indicator, External Retractable Arm, and High Definition Multi-Functional Color Display are needed.

**2. Source of Need.** AF Form 1067 ACC 11-357; The Personnel Recovery (PR) Core Function Master Plan (CFMP); AMCRMC 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; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett FAF, CA

176 WG JB Elmendorf, AK

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Targeting Pod NRE (3010)</b>	<b>N/A</b>	<b>\$4,000,000</b>
<b>13 Targeting Pod (3010)</b>	<b>\$2,000,000</b>	<b>\$26,000,000</b>
<b>13 Moving Target Indication Enhancement (3010)</b>	<b>\$50,000</b>	<b>\$650,000</b>
<b>13 External Retractable Arm (3010)</b>	<b>\$1,000,000</b>	<b>\$13,000,000</b>
<b>13 High Definition Multi-Functional Color Display (3010)</b>	<b>\$200,000</b>	<b>\$2,600,000</b>
<b>Total</b>		<b>\$46,250,000</b>

*Special Operations/Personnel Recovery*

**HC/MC-130 SINGLE PASS PRECISION AIRDROP**

**1. Background.** The ANG HC/MC-130 fleet has several shortfalls in its ability to accurately deliver airdrop bundles in combat 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 (increasing exposure to threats) over the drop zone for atmospheric calculations before dropping actual bundles. Effective airdrop operations require early identification of the drop zone by the aircrew, real-time airdrop damage estimates, real-time wind sensing (altitude to surface), display to the crew of a continuously computed impact point/launch acceptability region, and post-drop assessment. Targeting pods with light detection and ranging provide these capabilities in VMC combat operations. 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. For each of the 13 HC-130s in the ANG, one targeting pod is needed.

**2. Source of Need.** AF Form 1067 ACC 10-114 ; 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; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett FAF, CA

176 WG JB Elmendorf, AK

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Targeting Pod NRE (3010)</b>	<b>N/A</b>	<b>\$4,000,000</b>
<b>APN-241 Radar Upgrade (3600)</b>	<b>N/A</b>	<b>\$3,000,000</b>
<b>13 Targeting Pods (3010)</b>	<b>\$2,000,000</b>	<b>\$26,000,000</b>
<b>Total</b>		<b>\$33,000,000</b>

## HC/MC-130 COMBAT RESCUE MISSION NETWORK

**1. Background.** Multiple efforts in technological advancement have resulted in a task saturated workload for HC-130 aircrews because those multiple efforts were accomplished independently. Integration of radios, datalinks, rescue devices, and defensive systems is necessary to keep the primary focus on safe and successful mission accomplishment and not electronic management. Moreover, HH-60 and HC-130 do not share a common operating picture due to the diverging nature of their respective SA enhancement technology. The Combat Rescue Mission Network (CRMN) would include Blue Force Tracker (BFT), Link-16, AFTRS-R, LARS (v)12 w/CSEL, SADL, FMV and ADS-B In/Out, and it would combine these in a single operating picture similar to the HH-60. These systems provide LOS/BLOS interactive data communication between Combat Search and Rescue Task Force (CSARTF) assets across the range of military operations. In order for rescue forces to fully support information superiority operations, they require the ability to utilize the internet while on board the aircraft. The integration of the organic unencrypted and encrypted Internet on Board (IOB) allows for efficient information sharing across a digital network using mIRC, SIPR, and NIPR architectures. Automatic Dependent Surveillance-Broadcast (ADS-B) Out will provide aircraft position information in the civilian aviation environment. ADS-B In allows aircraft to receive traffic and weather information. Link 16 will give the aircrew situational awareness regarding other Link 16 equipped platforms. For each of the 13 HC-130s in the Air National Guard, one device of each is needed.

**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; 14 CFR Part 91; ARC 2012 WEPTAC Critical Requirement; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett FAF, CA

176 WG JB Elmendorf, AK

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

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	N/A	\$2,000,000
13 IOB (3010)	\$50,000	\$650,000
13 ADS-B In and Out (3010)	\$30,000	\$390,000
13 Link 16 (3010)	\$100,000	\$1,300,000
<b>Total</b>		<b>\$4,340,000</b>

*Special Operations/Personnel Recovery*

**HC/MC-130 MISSION FLEXIBLE REFUELING**

**1. Background.** During Personnel Recovery (PR) and Combat Search and Rescue (CSAR) events, the HC/MC-130P/N is consistently tasked to provide refueling capability to the rescue vehicle (HH-60, Tiltrotor, CH-53, etc...). The scope of these operations require levels of fuel significantly higher than the standard configuration of the HC-130 and in refueling envelopes the HC/MC-130 is not equipped to perform. The HC/MC-130P/N has been equipped with up to 2 removable fuselage fuel tanks (Benson). The current tank requires in excess of 6 hours to install, reducing the flexibility of configuring the aircraft in a dynamic PR tasking environment. Additionally, the next generation HC-130J is not compatible with the current Benson tank. This ability to tanker extra fuel (33% increase) above standard configuration enables more assets more time on station to effect the recovery of isolated personnel during CSAR operations. This need affects air-to-air refueling, Forward Area Refueling Point (FARP) operations and extending the unrefueled range of the HC-130 in environments where tankers for the HC-130J are consistently unavailable. The HC/MC-130P/N is T.C.T.O. compliant up to, but not including the drogue of the refueling system for high speed aircraft refueling. The current locations PR is tasked to support face a significant problem: distance. All of these locations have tiltrotor assets from separate MAJCOMs and DOD services tasked to or capable of supporting PR. The HC/MC-130 is tasked on missions with these aircraft, but is unable to provide air refueling support due to a lack of an interchangeable drogue for high speed refueling. What is needed is a palletized fuel tank, compatible with legacy and J model aircraft that matches the existing additional fuel capability while rapidly able to be installed and removed from the aircraft and the High Speed Drogues(HSD). For each of the 13 HC-130s in the Air National Guard, one Palletized Fuel Tank and two Variable Speed Drogues are needed.

**2. Source of Need.** ARC 2012 WEPTAC Critical Requirement; Class A Mishap MC-130P 20020213FTEV016A SIB2 Recommendation; 20020612FTEV033A Report, ORS 6, Fall 04/05/06/07; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

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

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>13 Palletized Fuel Tanks (3010)</b>	<b>\$1,800,000</b>	<b>\$23,400,000</b>
<b>26 Variable Speed Drogue (3010)</b>	<b>\$100,000</b>	<b>\$2,600,000</b>
<b>Total</b>		<b>\$26,000,000</b>

**LC-130 AVIONICS OBSOLESCENCE SOLUTION**

**1. Background.** Avionics modernization program delays have decreased the likelihood that ANG LC-130H aircraft will meet international communication navigation surveillance and air traffic management (CNS/ATM) mandates by 2020. The 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 a modern “glass” flight deck increases mission capability, training effectiveness rates, higher equipment reliability, lower maintenance costs, and enhanced 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 at night. NVIS upgrades are required immediately prior to CNS/ATM upgrades.

**2. Source of Need.** 2015 ARC WEPTAC Council.

**3. Units Impacted.**

109 AW Schenectady Co APT,  
NY

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NRE (3600)</b>	<b>N/A</b>	<b>\$25,000,000</b>
<b>10 Avionics Kit (3010)</b>	<b>\$7,000,000</b>	<b>\$70,000,000</b>
<b>10 NVIS Kits (3010)</b>	<b>\$500,000</b>	<b>\$5,000,000</b>
<b>Total</b>		<b>\$100,000,000</b>



*Rapid Global Mobility*

**LC-130 ENHANCED SITUATIONAL AWARENESS**

**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. As the only ski equipped large transport aircraft in the DOD inventory, the LC-130's unique capabilities are required to support military operations in the Polar Regions. In addition to the DOD mission the LC-130 has a secondary operational support mission for the National science Foundation (NSF) Greenland and Antarctica. 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 a data link, aircrew are largely unable to track and locate friendly 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 efficiently with joint and 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; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

109 AW Schenectady Co APT,  
NY

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NRE (3010)</b>	<b>N/A</b>	<b>\$350,000</b>
<b>10 RTIC Hardware Installations (3010)</b>	<b>\$510,000</b>	<b>\$5,100,000</b>
<b>Total</b>		<b>\$5,450,000</b>

**LC-130 RETRACTABLE EXTERNAL ARM AND ICE SENSORS**

**1. Background.** 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. More 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; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**  
109 AW Schenectady Co APT,  
NY

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Ice Survey Radar (3010)</b>	<b>N/A</b>	<b>\$2,500,000</b>
<b>Retractable External Arm Modifications (3010)</b>	<b>N/A</b>	<b>\$2,000,000</b>
<b>Total</b>		<b>\$4,500,000</b>

**LC-130 FLIGHT DECK COMMUNICATIONS UPGRADE**

**1. Background.** The LC-130H uses a portable Iridium-based phone system that is functional but lacks the robustness and reliability necessary to operate in extreme environments. 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 increase safety of flight. The current configuration of suction cup 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; 2015 ARC WEPTAC Council

**3. Units Impacted.**

109 AW Schenectady Co APT,  
NY

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
NRE (3010)	N/A	<b>\$1,000,000</b>
<b>10 Flight Deck Communications Upgrade (3010)</b>	<b>\$200,000</b>	<b>\$2,000,000</b>
<b>Total</b>		<b>\$3,000,000</b>

### **LC-130 PROPULSION MODERIZATION**

**1. Background.** ANG LC-130Hs have ski-equipped landing gear to enable landings and takeoffs on snow and ice. The C-130H fleet requires increased performance, efficiency, and reliability from a comprehensive propulsion upgrade. The present method to takeoff from deep snow field runways requires Jet Assisted Take-Off (JATO) rocket motors, which are no longer produced. 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 provides the 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 use. IPBS reduces 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; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

109 AW Schenectady Co APT,  
NY

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NP2000 NRE (3010)</b>	<b>N/A</b>	<b>\$5,000,000</b>
<b>10 NP2000 (3010)</b>	<b>\$2,700,000</b>	<b>\$27,000,000</b>
<b>IPBS NRE (3010)</b>	<b>N/A</b>	<b>\$3,000,000</b>
<b>10 IPBS Installs (3010)</b>	<b>\$550,000</b>	<b>\$27,500,000</b>
<b>Total</b>		<b>\$125,000,000</b>

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# E-8C and C-32B

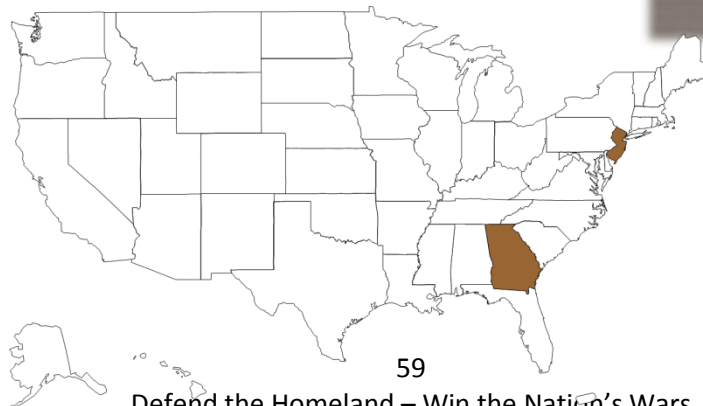
- **Robust "Sensor-To-Shooter" C2 Battle Management**
- **Wide-Area Ground, Littoral, and Maritime Surveillance/Tracking**
- **ANG E-8 Unit Provide 100% of the Total Fleet**

**E-8C:** 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 ability to find, fix, track, and orient shooters to air, ground, and surface targets allows friendly forces to respond rapidly to a changing battlefield.



The Air National Guard (ANG) 116 ACW at Robins AFB, GA is home to 16 E-8C's 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 augmenters within the 461 ACW 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 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-8C and C-32B**

### **2015 Weapons and Tactics Conference**

#### ***Critical Capabilities List***

##### E-8C

- Non-Cooperative Target Identification
- Integrated Broadcast System (IBS) Sustainment
- Encrypted Maritime Automatic Identification System (AIS)
- Personnel Recovery Compatible Interrogation Radio
- Weapon System Trainer (WST) Motion System Sustainment (See Tab Q)

##### C-32B

- Enhanced Flight Vision System

#### ***Essential Capabilities List***

##### E-8C

- Tactical Datalink (TDL) Interoperability/Multi-TDL Gateway
- Automatic Dependent Surveillance-Broadcast (ADS-B)/Mode 5 Identification Friend or Foe (IFF)
- Bridge/Relay Dissimilar Defense Support of Civil Authorities (DSCA)/Department of Homeland Security (DHS) Voice and Data Networks
- Operational Employment in a Contested Environment
- Access to Joint Worldwide Intelligence Communications System (JWICS) (Top Secret) on the Aircraft

##### C-32B

- Blended Wings
- Improved Worldwide Navigation Database

#### ***Desired Capabilities List***

##### E-8C

- Common Datalink (CDL)
- Network-Enabled Weapons
- Human Machine Interface (HMI) Standardization
- Voice over Internet Protocol (VoIP)
- Self-Defense Suite

##### C-32B

- None

**E-8C NON-COOPERATIVE TARGET IDENTIFICATION**

**1. Background.** The E-8C needs the ability to identify objects of interest detected by onboard sensors. 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. Potential solutions include: Blue Force Tracker with passive detection, radar signatures, inverse synthetic aperture radar imagery, and/or 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.** 2004-2007 ARC WEPTAC Conference, 2009-2013 ARC WEPTAC Conference, 2014-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

116 ACW Robins AFB, GA

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Combat Identification (CID) Non-Recurring Engineering (NRE) (3010)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>16 CID (3010)</b>	<b>\$15,000,000</b>	<b>\$240,000,000</b>
<b>Total</b>		<b>\$250,000,000</b>



*Global Integrated ISR*

**E-8C INTEGRATED BROADCAST SERVICE (IBS) 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 legacy IBS system (Commander's Tactical Terminal/Hybrid - Receive Only (CTT/H-R) terminal) is no longer produced and cannot be repaired. The current interim capability uses a commercial satellite to garner the information and thus is more susceptible to adversary interference. The required cryptographic capability requires replacement with a modernization program compliant device and 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; 2012-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

116 ACW Robins AFB, GA

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>16 IBS (3010)</b>	<b>\$550,000</b>	<b>\$8,800,000</b>
<b>3 IBS for Training Systems (3010)</b>	<b>\$400,000</b>	<b>\$1,200,000</b>
<b>Total</b>		<b>\$10,000,000</b>

**E-8C ENCRYPTED AUTOMATIC IDENTIFICATION SYSTEM (AIS)**

**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 broadcasting both encrypted and unencrypted Automatic Identification System (AIS) data. AIS is the system of record to provide a tracking system used on ships and by vessel tracking services (VTS). This system identifies and locates vessels by electronically exchanging data with nearby ships and VTS stations. Interrogating a vessel’s identity, position, course, and speed greatly enhances JSTARS’s ability to distinguish between friendly, neutral, enemy and suspect maritime entities. AIS provides the mission crew with the capability to focus on enemy and suspect vessels and to expedite cross cueing of potential targets with external agencies. The E-8C requires an AIS system, which receives both unencrypted and encrypted AIS transponder signals, then overlays the reports on the JSTARS operator work station. This will allow expeditious comparison of organic moving target indicator data with AIS transponder returns allowing for the filtering of friendly vessels and known commercial ships with neutral, enemy, and suspect vessels.

**2. Source of Need.** 2015 ARC WEPTAC Council.

**3. Units Impacted.**

116 ACW Robins AFB, GA

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>AIS Non-Recurring Engineering (NRE) (3010)</b>	<b>N/A</b>	<b>\$3,970,000</b>
<b>16 Encrypted AIS Kits (3010)</b>	<b>\$250,000</b>	<b>\$4,000,000</b>
<b>3 AIS Kits for Training Systems (3010)</b>	<b>\$210,000</b>	<b>\$630,000</b>
<b>Total</b>		<b>\$8,600,000</b>

**E-8C 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. A fully integrated 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 Locator (CSEL) and is the preferred solution for an E-8C Personnel Recovery Compatible Interrogation Radio. While not as capable, a non-integrated carry-on system, similar to QUICKDRAW, that is interoperable with the PRQ-7 and is able to receive and transmit text messages to the survivor in the same manner as the QUICKDRAW interoperates with the PRC-112B/G and PRC-434, improves on the current capability.

**2. Source of Need.** Air Combat Command JSTARS Requirements List (CSAR Support); 2012-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

116 ACW Robins AFB, GA

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>16 Integrated Radios (3010)</b>	<b>\$562,500</b>	<b>\$9,000,000</b>
<b>2 Integrated Radios for Training Systems (3010)</b>	<b>\$500,000</b>	<b>\$1,000,000</b>
<b>Total</b>		<b>\$10,000,000</b>

**ENHANCED FLIGHT VISION SYSTEM**

**1. Background.** The ANG C-32B mission requires worldwide airlift with little to no advance warning. The C-32B flies a vital US Government crisis response mission requiring success in all meteorological environments. To ensure success, an Enhanced Flight Vision System (EFVS) technology is needed to enable the flight crew to operate in reduced weather minimums conditions. In addition, the EFVS increases situation awareness and safety. The EFVS package includes a heads up display (HUD) fused with an enhanced vision system (EVS). The HUD is a means to provide all primary flight display information to the pilot allowing heads up and eyes out, increasing pilot situational awareness and decreasing pilot workload. This technology is commercially available and FAA approved in a supplemental type certificate (STC) for Boeing 757 installation and operation.

**2. Source of Need.** ARC 2015 WEPTAC Council.

**3. Units Impacted.**

150 SOS McGuire AFB, NJ

**4. Program Details. PEC: 160408**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>2 HUD/EFVS (3010)</b>	<b>\$6,500,000</b>	<b>\$13,000,000</b>
<b>Spare HUD (3010)</b>	<b>N/A</b>	<b>\$1,000,000</b>
<b>Total</b>		<b>\$14,000,000</b>

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# F-15

- **Air Dominance**
- **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 will continue to be a key asset through 2045. 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 provide 24-hour homeland defense. Active Electronically Scanned Array (AESA) radars on ANG F-15C/Ds provide combatant commanders (COCOMs) essential updated air superiority and homeland defense capability.



In FY15, ANG F-15s executed a foundational Quick Reaction Force (QRF) NORTHCOM VIGILANT SHIELD tasking to Goose Bay, Canada and took part in joint & international exercises Red Flag, Sentry Aloha, and Sentry Savannah. ANG Eagles also deployed overseas in support of a European Theater Security Package (TSP) tasking, as well as Operation Atlantic Resolve, enhancing advanced tactical interoperability with our NATO allies.

Over half of USAF F-15C combat capability resides within the Air National Guard, which possesses 39% of all air superiority assets (F-15C & F-22) available for air expeditionary forces (AEF) commitments and ACA tasking. The ANG also operates the USAF's only F-15C formal flying training unit at the 173 FW, Klamath Falls IAP, OR where all Active and Reserve Component Eagle drivers are trained.

Modernization and sustainment programs are vital to improve aircraft capabilities for both overseas contingency operations and homeland defense. These programs include the AESA radar, a modern electronic warfare and self-protection suite, multi-spectral search and track, persistent air dominance-enabling technologies, and a modern, integrated cockpit.

# F-15

## 2015 Weapons and Tactics Conference

### *Critical Capabilities List*

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

### *Essential Capabilities List*

- Realistic Training Opportunities
- Agile Operational Flight Program Development
- High-Fidelity Networked Simulators at Air National Guard Bases
- Program Support for Joint Mission Planning System and Common Mission Debrief Program
- Tactical Satellite Communications System

### *Desired Capabilities List*

- Air- Launched Hit-to-Kill Munition
- Next Generation Air-to-Air Weapon
- Crypto Loading Port Relocation
- Beyond Line- of- Sight Data Transfer System

**F-15 ACTIVE ELECTRONICALLY SCANNED ARRAY RADAR**

**1. Background.** Active Electronically Scanned Array (AESA) radar technology increases detection and track ranges of airborne targets and 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. The APG-63(v)3 AESA meets or exceeds performance capabilities in these environments, and with no moving parts has demonstrated a MTBF over 30 times greater than the APG-63(v)0. The AESA’s high reliability represents a drastic reduction in future sustainment costs, allowing for direct reinvestment in additional game-changing air dominance technologies such as the new F-15 mission computer. In late 2019, the USAF will begin fielding the Advanced Display Core Processor (ADCP-II) on all F-15 models (C/D/E). ADCP-II replaces the existing central computer in the F-15C/D/E aircraft, placing all F-15s on a single, common operating system with enough processing power and software agility to enable the next generation of advanced offensive and defensive systems. ADCP-II is, however, incompatible with the APG-63(v)0 due to both physical space and OFP limitations. Therefore, any F-15 with a legacy (v)0 radar and central computer will be rendered non-combat-capable as well as inadequate for effective combat training, as the ADCP-II upgrade represents the largest pilot-vehicle-interface (PVI) paradigm shift in the history of the F-15C. The long-term cost-effective, full-spectrum solution is to outfit each F-15C/D aircraft with a v(3) AESA radar ahead of scheduled ADCP-II modification to properly phase in this capability, in parallel with a very robust conversion training plan for Eagle drivers. There are 16 F-15C and 2 F-15D aircraft shared among the Active Component and ANG (previously scheduled for retirement) that require re-engineering to incorporate an M-coded Embedded GPS/INS (EGI) which enables the APG-63(v)3 upgrade.

**2. Source of Need.** F-15C/D Radar Improvement Program; APG-63(v)3 Capability Development Document (CDD), 21 Apr 2005; 2012-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

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

**4. Program Details. PEC: 2071303**

Remaining Quantity Required	Unit Cost	Program Cost
<b>18 APG-63(v)0 AESA Conversions (3010)</b>	<b>\$9,500,000</b>	<b>\$171,000,000</b>
<b>M-code EGI/APG-63(v)3 Upgrade NRE (3600)</b>	<b>N/A</b>	<b>\$20,000,000</b>
<b>Total</b>		<b>\$191,000,000</b>

\* Includes installation, spares, and program costs.



**F-15 ENHANCED ELECTRONIC WARFARE AND SELF-PROTECTION**

**1. Background.** The F-15’s internal electronic warfare (EW) suite has been defunded and disconnected since 2012 while the aircraft awaits its next generation EW upgrade. Whether through the program of record or separate initiatives, modernization upgrades for the EW suite require the following capabilities: proactive and directed offensive electronic attack, electronic warfare situational awareness improvements, and self-protection capabilities that include radar cross section (RCS) reduction, infrared countermeasures, and defensive jamming. 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 funding must be reinstated and legacy obsolescence addressed with interim capabilities for the 105 combat-coded Air National Guard (ANG) F-15 aircraft. Capabilities should include: digital radar warning receiver, digital radio frequency memory electronic attack, ALE-58 back of launcher (BOL) countermeasure dispenser, Proactive/Directed Jammer System, and towed decoy. Interim capability of 10 Proactive/Directed Jammer Systems, 10 towed decoy systems, and 24 BOL-IR systems per ANG combat-coded location are adequate in the near-term. EPAWSS and interim solutions provide adequate defensive measures, but the F-15C/D also requires an offensive (proactive and directed) EW system and radar cross section (RCS) reduction initiatives. Offensive EW systems must be able to proactively suppress specific enemy threat systems and should include fiber-optic towed decoys. RCS reduction initiatives will further enable interoperability with 5th generation aircraft in Anti-access/Area denial (A2/AD) environments and should increase the effectiveness of EW systems. Interim measures, EPAWSS, offensive EW systems, and RCS reduction would allow the ANG to support continued air dominance in A2/AD scenarios.

**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; 2013-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

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

**4. Program Details. PEC: 2071303**

Remaining Quantity Required	Unit Cost	Program Cost
105 EPAWSS* (3010)	<b>\$6,600,000</b>	<b>\$693,000,000</b>
<b>105 Radar Warning Receiver Upgrades</b> (3010)	<b>\$500,000</b>	<b>\$52,500,000</b>
<b>F-15 Towed Decoy NRE</b> (3600)	N/A	<b>\$5,500,000</b>
<b>50 F-15 Towed Decoy Systems</b> (3010)	<b>\$2,500,000</b>	<b>\$125,000,000</b>
<b>120 BOL-IR*</b> (3010)	<b>\$90,000</b>	<b>\$10,800,000</b>
<b>F-15 Proactive/Directed Jammer NRE</b> (3600)	N/A	<b>\$50,000,000</b>
<b>50 F-15 Proactive/Directed Jammers</b> (3010)	<b>\$2,000,000</b>	<b>\$100,000,000</b>
<b>F-15 RCS Reduction NRE</b> (3600)	N/A	<b>\$100,000,000</b>
<b>105 F-15 RCS Reduction Kits</b> (3010)	<b>\$1,000,000</b>	<b>\$105,000,000</b>
<b>Total</b>		<b>\$1,241,800, 000</b>

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

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

**1. Background.** 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 and enhanced Electronic Warfare Warning Set (EWWS) on all 105 combat-coded F-15s 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 initially on 10 airframes at each combat-coded ANG F-15 location (supporting both Homeland Defense and COCOM taskings) ensures system track files are maintained in any contested or degraded EA 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 digital radio frequency and infrared counter-measures are used. Additionally, any multi-spectral system must be coordinated with threat warning to provide robust threat alerts to friendly aircraft, which will require developmental funding for proper testing and integration. Therefore, capabilities such as IRST should be procured in the near term for immediate integration while multi-spectral systems that enable integrated 4th and 5th generation fighter operations, theater missile detection, and asymmetric threat defense are developed.

**2. Source of Need.** F/A-18 Infrared Search-and-Track System Capability Development Document, Mar 2011, US Air Force Annex; 2012-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

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

**4. Program Details. PEC: 2071303**

Remaining Quantity Required	Unit Cost	Program Cost
<b>50 Infrared Search and Track Systems (3010)</b>	<b>\$3,500,000</b>	<b>\$175,000,000</b>
<b>Infrared Search and Track System NRE (3600)</b>	N/A	<b>\$10,000,000</b>
<b>105 Electronic Warning Warfare Sets (3010)</b>	<b>\$450,000</b>	<b>\$47,250,000</b>
<b>Electronic Warning Warfare Sets NRE (3010)</b>	N/A	<b>\$50,000,000</b>
<b>Total</b>		<b>\$282,250,000</b>

\* Assumes Full Rate Production.

**F-15 PERSISTENT AIR DOMINANCE ENABLER**

**1. Background.** Integrating conformal fuel tanks (CFTs) and additional weapons stations to all 105 combat-coded ANG F-15s effectively and immediately doubles the combat radius, loiter time, and firepower critical to gathering offensive mass required to achieve air dominance against numerically superior threat in the battlespace of tomorrow. Additional weapon stations mounted on CFTs or Multi-Rail Missile Launchers (2 per aircraft, 210 total) installed in place of previously necessary external fuel tanks, are modular and can be used for a variety of advanced air-to-air weapons, multi-spectrum search/track/targeting pods, and updated electronic & infrared countermeasures. The standardized weapons communication terminals in advanced CFTs will also help streamline weapons development and integration among all versions of the F-15, and allow Combatant Commanders to quickly exploit the advantages of a common fleet when all aircraft (with common central processors, weapons buses, and racks/launchers) can readily accommodate advanced weapons or off-the-shelf defensive countermeasure upgrades, such as a pylon-mounted fiber-optic towed decoys. 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. Incorporating CFT-equipped F-15s into NORAD CONUS Tactics, Techniques, and Procedures (TTPs) will allow for significantly increased intercept ranges of unknown/suspect/foreign military aircraft, in many cases allowing for intercept completion and follow-on action in oceanic airspace outside of any potential standoff missile ranges. With an aging air refueling fleet, evolving anti-access/area denial challenges, and a static number of air superiority platforms, F-15C/D aircraft should be configured to allow overlapping, persistent air dominance.

**2. Source of Need.** F-15C/D Operational Requirements Document, 7 Apr 1992; LF10-054 Revision A Tasking; 2013-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

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

**4. Program Details. PEC: 2071303**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>105 F-15 Conformal Fuel Tanks (3010)</b>	<b>\$3,700,000</b>	<b>\$388,500,000</b>
<b>210 Multi-Rail Missile Launcher (3010)</b>	<b>\$250,000</b>	<b>\$52,500,000</b>
<b>Total</b>		<b>\$441,000,000</b>

\* 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. Eagles have experienced steady growth in capability and lethality in their 30+ years of combat-proven service due to the modernization of radars, weapons, and sensors, as well as the addition of data link and helmet-mounted cueing systems. However, fully utilizing these enhancements requires a fairly complex pilot-vehicle-interface, imposing a demanding workload on the pilot. With current and required future mission system upgrades, the legacy displays and communication architecture are inadequate due to display size, outdated technology, and minimal audio integration. Replacement of legacy displays in all F-15C and F-15D (front cockpit) aircraft (130 total) with larger color and/or smart color display systems increases Air National Guard (ANG) F-15C lethality by displaying offensive and defensive data more intuitively to the pilot. An updated helmet mounted cueing system will facilitate day to night transition missions, provide compatibility with Night-Vision Goggles (NVGs), and decrease pilot fatigue by lowering the system weight. The addition of three-dimensional (3-D) audio separation allows the pilot to spatially separate and process multiple radio frequencies in addition to directional self-protection warning tones. The central hub of comm/nav information throughput and control would be a single Integrated Radio Controller (IRC) that minimizes pilot workload and “heads down” time. An updated, digital IRC would necessitate a new datalink terminal which would take advantage of modern cryptological and algorithm advances, providing the F-15 with secure 5<sup>th</sup> to 4<sup>th</sup>-generation datalink connectivity. These upgrades allow the pilot to maximize current and future capabilities and increase the situational awareness necessary in the modern battlespace.

**2. Source of Need.** F-15C/D Operational Requirements Document, 7 Apr 1992; 2013-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

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

**4. Program Details. PEC: 2071303**

Remaining Quantity Required	Unit Cost	Program Cost
<b>F-15 Display Upgrade NRE (3010)</b>	<b>N/A</b>	<b>\$3,000,000</b>
<b>130 F-15 Display Upgrades* (3010)</b>	<b>\$20,000</b>	<b>\$2,600,000</b>
<b>Controller NRE (3010)</b>	<b>N/A</b>	<b>\$5,000,000</b>
<b>130 Radio Controller with 3-D Audio* (3010)</b>	<b>\$60,000</b>	<b>\$7,800,000</b>
<b>130 Upgraded Data Link Terminals* (3010)</b>	<b>\$300,000</b>	<b>\$39,000,000</b>
<b>Total</b>		<b>\$57,400,000</b>

\*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 Joint Base Pearl Harbor-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 theater. In 2015, ANG F-22s flew in combat operations in support of Operation Inherent Resolve as well as participated in several major exercises.

Primary ANG F-22 modernization focuses on a common configuration and increment 3.2C. Enhancements in utilizing the infrared spectrum, such as missile launch detectors, will increase survivability. Communication upgrades, including 4<sup>th</sup> to 5<sup>th</sup> and 5<sup>th</sup> to 5<sup>th</sup> generation aircraft data link, and a helmet-mounted display enable the F-22 to efficiently and effectively accomplish alert and combatant command tasks.



## **F-22**

### **2015 Weapons and Tactics Conference**

#### ***Critical Capabilities List***

- Helmet-Mounted Display
- Survivability Enhancements
- Link 16 Transmit
- Rapid Raptor Enablers
- Open System Architecture

#### ***Essential Capabilities List***

- Improved Air and Surface Threat Replicators
- 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 with Advanced Radar
- Improved Radar Warning Hardware
- Deployable Simulator

**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 using a Helmet Mounted Display (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 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. This capability would be fielded on all 20 F-22 aircraft at the Hawaii Air National Guard.

**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; 2011 – 2014 ARC WEPTAC Conference; and 2015 ARC WEPTAC Council.

**3. Units Impacted.**

154 WG JB Pearl Harbor-  
Hickam, HI

**4. Program Details. PEC: 27138**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Helmet Mounted Display NRE (3600)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>20 Helmet Mounted Displays (3010)</b>	<b>\$200,000</b>	<b>\$4,000,000</b>
<b>Total</b>		<b>\$14,000,000</b>

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



**F-22 SURVIVABILITY ENHANCEMENTS**

**1. Background.** The F-22 is the nation’s most technologically advanced air superiority fighter. Defeating evolving threats requires rapid modernization of aircraft countermeasures, ensuring that the F-22 and other 5th generation aircraft remain capable of surviving. 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. This centralization permits consistent test patterns, but it does not enable rapid analysis and fielding of effective 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 Conference; and 2015 ARC WEPTAC Council

**3. Units Impacted.**

154 WG JB Pearl Harbor-  
Hickam, HI

**4. Program Details. PEC: 27138**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Simulation Development (3600)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>Threat Lab Development (3600)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>Total</b>		<b>\$20,000,000</b>

**F-22 LINK 16 TRANSMIT**

**1. Background.** The F-22 currently has the ability to receive information in the primary datalink network Link-16. As the nation’s first 5th generation fighter the F-22 was designed with the most advanced sensor capabilities. Unfortunately, due to the inability for the F-22 to transmit on Link-16 none of the data is passed to any other assets. The ability to share high fidelity data of air and surface tracks from an F-22 significantly increases the combat capability of every asset that is Link-16 capable. In addition, all Air Operations Centers (AOC) use Link-16 information to maintain battlespace situational awareness. Link-16 has been proven to increase lethality in the air to air environment allowing fighters to have positional information on friendly forces. An F-22 that is not passing positional information on Link-16 degrades other fighter’s capability to employ weapons on enemy forces without first identifying F-22 position by means of multiple radio calls. This problem is compounded by the inability with other fighters to track the F-22 with their own sensors. One of the core missions for the F-22 is fighter integration, which has been demonstrated as most effective for advanced adversary threats. Link-16 transmitters on the F-22 would vastly improve fighter integration. A Link-16 transmitter on the F-22 that has the capability to revert to receive-only mode allows all the increased information flow for all assets without any degraded capabilities. This capability would be fielded on all 20 F-22 aircraft at the Hawaii Air National Guard.

**2. Source of Need.** 2014 ARC WEPTAC Conference; and 2015 ARC WEPTAC Council.

**3. Units Impacted.**

154 WG JB Pearl Harbor-  
Hickam, HI

**4. Program Details. PEC: 27138**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Link-16 Transmit NRE (3600)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>20 Link-16 Transmit Modules (3010)</b>	<b>\$175,000</b>	<b>\$3,500,000</b>
<b>Total</b>		<b>\$13,500,000</b>

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

**F-22 RAPID RAPTOR ENABLERS**

**1. Background.** A rapid deployment concept called “Rapid Raptor” is being explored for the F-22. Rapid Raptor permits 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 include F-22s departing from home station or a deployed airfield with live ordnance, conducting combat operations, landing at a remote airfield with only C-17 support, re-arming and refueling, then launching for another combat mission. F-22s could execute combat missions out of a semi-austere airfield for up to several weeks. Ongoing Rapid Raptor events are identifying challenges in order to establish proper techniques and procedures for worldwide applications. A beyond line of sight (BLOS) radio would allow the F-22 to communicate to command centers for important tasking information without a large communication footprint. Rapid Raptor may include short notice deployments to unexpected AORs and airfields, making it difficult to acquire and carry hardcopy flight information publications (FLIP). EFB is a low-cost, commercial off-the-shelf solution for accessing and maintaining current worldwide FLIP. This capability would be fielded on all 20 F-22 aircraft at the Hawaii Air National Guard.

**2. Source of Need.** 2014 ARC WEPTAC Conference; and 2015 ARC WEPTAC Council.

**3. Units Impacted.**

154 WG JB Pearl Harbor-Hickam, HI

**4. Program Details. PEC: 27138**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>BLOS NRE (3600)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>20 BLOS Radios (3010)</b>	<b>\$175,000</b>	<b>\$3,500,000</b>
<b>EFB NRE (3080)</b>	<b>N/A</b>	<b>\$2,000,000</b>
<b>30 EFB* (3080)</b>	<b>\$800</b>	<b>\$24,000</b>
<b>Total</b>		<b>\$15,524,000</b>

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

**F-22 OPEN SYSTEM ARCHITECTURE**

**1. Background.** The F-22 operational flight program (OFP) modernization plan is robust due to highly advanced systems. OFP changes are often solicited several years prior to implementation. Most of the OFP changes require a thorough process. Some OFP changes need to be made outside of the normal OFP cycle. Examples include changes to the pilot vehicle interface (PVI), and bug fixes. Open system OFP architecture (OSA) allows these changes to be made faster. OSA would allow programmers at the developmental and operational test units to more effectively troubleshoot proposed OFP changes and test multiple options. OSA is an enabler to modernize the F-22 to counter emerging threats. Examples of other benefits of OSA are a helmet mounted display (HMD) and electronic flight bag (EFB). HMD and EFB technology has existed for years in other aircraft. This capability would be fielded on all 20 F-22 aircraft at the Hawaii Air National Guard.

**2. Source of Need.** 2014 ARC WEPTAC Conference; and 2015 ARC WEPTAC Council.

**3. Units Impacted.**

154 WG JB Pearl Harbor-  
Hickam, HI

**4. Program Details. PEC: 27138**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>OSA NRE (3080)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>20 OSA Modules* (3080)</b>	<b>\$200,000</b>	<b>\$4,000,000</b>
<b>Total</b>		<b>\$14,000,000</b>

\* 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 Defense**
- **Homeland Defense**
- **ANG F-16 Units Provide 37% of the Total Fleet**

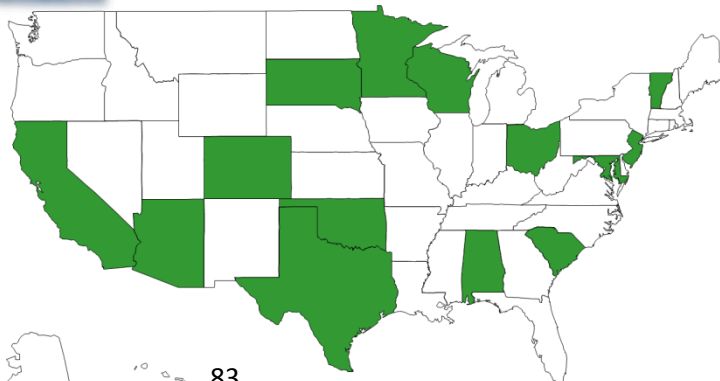
Air National Guard (ANG) F-16s are engaged around the globe in operations including NOBLE EAGLE, IRAQI FREEDOM, ENDURING FREEDOM, and NEW DAWN. Since 2003 ANG F-16Cs have fulfilled many of Allied Air Command's precision-guided munitions and close air support (CAS) tasking's, including convoy escort, dedicated infrastructure defense, border patrol, and raid support.



The ANG operates 336 Block 25/30/32/40/42/50/52 F-16C/Ds. The ANG F-16 aircraft makeup 56% 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.



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

## 2015 Weapons and Tactics Conference

### *Critical Capabilities List*

- Radar Providing Low Observable Detection, Air-to-Air and Air-to-Ground Electronic Protection and Electronic Attack, and Combat Identification Capability
- Continued Development of Targeting Pod With High-Definition Display and Broadband Uplink
- Improved Jam-Resistant Navigational Systems
- Communication Suite Enhancements
- Automated Digital Threat Detection Suite Incorporating Missile Warning
- Link 16 Capability With Growth for 5th and 4th Gen Fighter Interoperability

### *Essential Capabilities List*

- Proliferation and Sustainment of High Fidelity Ready Aircrew Program (RAP) Quality Simulators
- Night Capable Color Helmet-Mounted Display (HMD)
- Automated Ground Collision Avoidance System (AGCAS)
- Conformal Fuel Tanks
- Low Collateral Damage Precision Guided Weapons

### *Desired Capabilities List*

- Boresight Program Enhancement
- Ability to Fly GPS Approaches
- Live Virtual Construct Training
- DVR Storage and Capability Improvement

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

**1. Background.** Air National Guard (ANG) F-16 Block 25/30/32/40/42/50/52 aircraft require Active Electronically Scanned Array (AESA) radars to effectively execute doctrinally tasked mission sets, including Homeland Defense. AESA radars provide the capability to detect and track multiple airborne Targets of Interest (TOI) in dense civilian air traffic environments prevalent around major population centers, a critical capability for Aerospace Control Alert (ACA). Simultaneously, AESA radars will drastically improve the capability of ANG F-16's to succeed in a diverse set of missions, including Close Air Support, Surface Attack and Defensive Counter-Air. AESA radars can perform detection, tracking, communication, combat identification and jamming functions in multiple directions simultaneously. Additionally, AESA radars eliminate several components associated with mechanical radars, thus dramatically improving reliability and maintainability costs.

**2. Source of Need.** NORTHCOM JUON NC-008, TAF 303-76-I/II/III-A SORD for the F-16C/D, CAF ORD 303-76-I/II/III-D F-16C/D MSIP ORD (14 Aug 00); CDD 17 Feb 05, ARC 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015 WEPTAC Critical Requirement.

**3. Units Impacted.**

187 FW Dannelly Fld, AL	180 FW Toledo Express AP, OH	169 FW McEntire AGS, SC
162 FW Tucson IAP, AZ	158 FW Burlington IAP, VT	149 FW Kelly Fld, TX
148 FW Duluth IAP, MN	138 FW Tulsa IAP, OK	115 FW Truax Fld, WI
114 FW Joe Foss Fld, SD	113 FW JB Andrews, MD	177 FW Atlantic City IAP, NJ

**4. Program Details. PEC: 52716**

Remaining Quantity Required	Unit Cost	Program Cost
<b>Radar NRE Integration (3600)</b>	<b>N/A</b>	<b>\$40,000,000</b>
<b>336 Radar Upgrades (3010)</b>	<b>\$3,500,000</b>	<b>\$1,176,000,000</b>
<b>Total</b>		<b>\$1,326,000,000</b>



**F-16 BROADBAND UPLINK/DOWNLINK CAPABILITY**

**1. Background.** Air National Guard (ANG) F-16 Block 30/40/42/50/52 aircraft require the ability to uplink and download data with broadband (10Mbps+) speed. This will allow the ANG F-16 to relay in real-time the exceptional digital targeting pod video and any other sensor information to other critical nodes in the kill chain. With this upgrade, the combatant commander will be able to real-time view the Target-of-Interest (TOI) of the F-16, whether it is a High Value Individual (HVI) in a moving vehicle in a remote location, or a suspect aircraft TOI over the continental United States. This capability can be achieved using an LITENING Digital Port (LDP) Targeting Pod equipped with NET-T to transmit both live video and still images to other nodes in the kill chain using the current data-link and antenna in the most current LDP TGP. This modification would affect all 205 combat coded F-16C's in the Air National Guard inventory.

**2. Source of Need.** 2013-2015 ARC WEPTAC Council

**3. Units Impacted.**

187 FW Dannelly Fld, AL	180 FW Toledo Express AP, OH	177 FW Atlantic City IAP, NJ
169 FW McEntire AGS, SC	162 FW Tucson IAP, AZ	158 FW Burlington IAP, VT
149 FW Kelly Fld, TX	148 FW Duluth IAP, MN	138 FW Tulsa IAP, OK
115 FW Truax Fld, WI	114 FW Joe Foss Fld, SD	113 FW JB Andrews, MD

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>Development and Integration (3600)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>205 A/C upgrades (3010)</b>	<b>\$125,000</b>	<b>\$25,625,000</b>
<b>Total</b>		<b>\$35,625,000</b>

**F-16 IMPROVED JAM-RESISTANT NAVIGATIONAL SYSTEMS**

**1. Background.** Air National Guard (ANG) F-16 Block 25/30/32 requires an update to the Embedded Global Positioning System and Inertial Navigation System (EGI) to provide increased Anti-Jam (AJ) and Selective Availability Anti-Spoofing Module (SAASM) capability. The navigation equipment in the F-16 needs to operate with Global Positioning System (GPS) accuracy in an increasingly contested electro-magnetic environment. The design and operation of the current F-16 Block 30 EGI did not anticipate the current threat environment and its continued performance at the required operational level is at serious risk. Available GPS signal processing technology has made great improvements, enabled by increased speed, memory and computer processing, along with corresponding improvements to GPS signal processing software algorithms. The demonstrated results of these advances provide order of magnitude improvement in rejection capability and will provide an increased navigational performance in the GPS denied environment. This modification would affect all 205 combat coded F-16C's in the Air National Guard inventory.

**2. Source of Need.** CAF 301-01-B, F-16C/D Block 25/30/32 2014-2015 ARC WEPTAC Council

**3. Units Impacted.**

187 FW Dannelly Fld, AL	180 FW Toledo Express AP, OH	177 FW Atlantic City IAP, NJ
169 FW McEntire AGS, SC	162 FW Tucson IAP, AZ	158 FW Burlington IAP, VT
149 FW Kelly Fld, TX	148 FW Duluth IAP, MN	138 FW Tulsa IAP, OK
115 FW Truax Fld, WI	114 FW Joe Foss Fld, SD	113 FW JB Andrews, MD

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>Jam Resistant Navigational System NRE (3600)</b>	<b>N/A</b>	<b>\$5,500,000</b>
<b>217 Jam Resistant Navigational Systems* (3010)</b>	<b>\$155,000</b>	<b>\$33,635,000</b>
<b>Total</b>		<b>\$39,135,000</b>

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

## F-16 SECURE LINE-OF-SIGHT AND BEYOND-LINE-OF-SITE WITH 3D AUDIO COMMUNICATION

**1. Background.** Current upgrades to F-16s provide Secured-Line-of-Sight (SLOS) and Beyond-Line-of-Sight (BLOS) communications through the installation of one ARC-210 radio. The ARC-210 modification provides an improved ability to securely communicate with ground forces and Command and Control (C2) nodes, but does not allow simultaneous operations on SLOS and BLOS frequencies. Aerospace Control Alert (ACA) and combat theater operations require simultaneous SLOS and BLOS communications to concurrently maintain contact with C2 nodes and friendly forces. Standard F-16's are configured with a legacy radio and one ARC-210. Jets are being modified now with a 2<sup>nd</sup> ARC-210 (three total) to allow concurrent SLOS / BLOS communication. This 2<sup>nd</sup> ARC-210 radio, when linked to an advanced display (Center Display Unit or equivalent) will provide the broadband uplink capability desired. The combination of two ARC-210s plus a legacy radio (three radios total) allows in-theater communications on a C2 frequency, a secure tactical frequency with ground forces, and an intra-flight frequency. In the Homeland Defense (HD) mission, this radio configuration enables monitoring C2, air traffic control, and intra-flight frequencies simultaneously. The integration of noise-cancelling and directional (3D) audio simplifies interpretation of simultaneous radio calls by spatially separating aural warning and radio signals and 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. The BLOS modification would affect all 205 combat coded F-16C's in the Air National Guard inventory. The 3-D audio modification will affect 255 aircraft that already have ALQ-213 installed, which is a requirement for 3-D audio.

**2. Source of Need.** TAF 303-76-I/II/III-A SORD for the F-16C/D; CAF ORD 303-76-I/II/III-D F-16C/D MSIP ORD, 14 Aug 2000; CENTCOM UON; NORTHCOM Integrated Priority List; 2012-2013 ARC WEPTAC Conference, 2014-2015 ARC WEPTAC Council

**3. Units Impacted.**

187 FW Dannelly Fld, AL	180 FW Toledo Express AP, OH	177 FW Atlantic City IAP, NJ
169 FW McEntire AGS, SC	162 FW Tucson IAP, AZ	158 FW Burlington IAP, VT
149 FW Kelly Fld, TX	148 FW Duluth IAP, MN	138 FW Tulsa IAP, OK
115 FW Truax Fld, WI	114 FW Joe Foss Fld, SD	113 FW JB Andrews, MD

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

Remaining Quantity Required	Unit Cost *	Program Cost
BLOS NRE (3600)	N/A	\$5,000,000
200 BLOS Radios* (3010)	\$150,000	\$30,000,000
Three Dimensional NRE (3600)	N/A	\$6,000,000
255 Three Dimensional Audio Upgrades (3010)	\$100,000	\$25,500,000
<b>Total</b>		<b>\$66,500,000</b>

\* Includes 10% spares.

**F-16 INTEGRATED ELECTRONIC WARFARE SUITE**

**1. Background.** Current F-16 Block 30/32/40/42/50/52 Electronic Warfare (EW) suite is comprised of a series of EW equipment designed in the 1980s, which are incapable of providing adequate defensive situational awareness and countermeasures against some present and most future radar systems. Today, F-16 electronic attack and electronic protection systems suffer from sustainment issues and have significant capability issues against modern threat systems. A robust integrated electronic attack suite would enable all F-16 blocks to counter current and many radars likely to appear in the future. This integrated suite would incorporate an upgraded digital radar warning receiver (RWR), a digital radio frequency memory upgraded electronic attack (EA) pod, a pylon missile warning system (MWS) and the ALQ-213 legacy Electronic Combat (EC) integration system. The F-16 fleet has two legacy analog RWRs (ALR-69 and ALR-56M) and two legacy analog EA pods (ALQ-131 and ALQ-184). All require sustainment as well as digital based performance upgrades. A robust integrated electronic warfare suite is required on all ANG aircraft. The ALQ-213 EC integration system is installed on all remaining 80 F-16 post-block aircraft. Modifying all 290 of our aircraft with ALR-69 and 70 aircraft with ALR-56M will enhance survivability in a complex threat arena. Finally, with 60 upgraded EA pods and 75 missile warning systems, roughly 3-4 squadrons can effectively deploy with better offensive and defensive systems.

**2. Source of Need.** AN/ALR-69A CPD approved by AFROC, 17 Nov 05, CAF 301-01-B, F-16 C/D Block 25/30/32 MSIP ORD (15 Dec 04), CAF ORD 303-76-I/II/III-D F-16C/D MSIP ORD (14 Aug 00). 2006-2012 ARC WEPTAC Conference, 2014-2015 ARC WEPTAC Council

**3. Units Impacted.**

187 FW Dannelly Fld, AL	180 FW Toledo Express AP, OH	177 FW Atlantic City IAP, NJ
169 FW McEntire AGS, SC	162 FW Tucson IAP, AZ	158 FW Burlington IAP, VT
149 FW Kelly Fld, TX	148 FW Duluth IAP, MN	138 FW Tulsa IAP, OK
115 FW Truax Fld, WI	114 FW Joe Foss Fld, SD	113 FW JB Andrews, MD

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

Remaining Quantity Required	Unit Cost	Program Cost
ALR-69 NRE (3600)	N/A	\$22,840,000
<b>290 ALR-69 Upgrades (3010)</b>	<b>\$82,000</b>	<b>\$23,780,000</b>
ALR-56M NRE (3600)	N/A	\$50,000,000
<b>70 ALR-56M Upgrades (3010)</b>	<b>\$340,000</b>	<b>\$23,800,000</b>
EA Pod NRE (3600)	N/A	\$31,000,000
<b>60 EA Pod Upgrades (3010)</b>	<b>\$1,320,000</b>	<b>\$79,200,000</b>
ALQ-213 NRE (3600)	N/A	\$35,320,000
<b>80 ALQ-213 Upgrades (3010)</b>	<b>\$490,528</b>	<b>\$39,242,240</b>
75 MWS (3010)	<b>\$1,330,000</b>	<b>\$99,750,000</b>
MWS GSE (3080)	N/A	\$41,200,000
<b>Total</b>		<b>\$446,132,240</b>

\*Includes 10% spares

**F-16 LINK-16 AND 5TH TO 4TH GENERATION DATALINK INTEROPERABILITY**

**1. Background.** Air National Guard (ANG) F-16 Block 25/30/32 aircraft require LINK16 datalink capability to effectively employ in the current operational environment. Legacy Situational Awareness Data Link (SADL) equipment has proven inadequate due to lack of support infrastructure, frequency band constraints, and Joint Interface Control Cell (JICC) support. Pre-block A/C (Block 32 and prior) only have SADL and unable to communicate with Link-16. Post block A/C only have Link-16 but are unable to communicate with 5th generation aircraft. The transition of F-16 Block 25/30/32 aircraft to LINK16 will allow seamless deployment, connectivity and interoperability of the entire Total Force F-16 fleet. All ANG F-16's (Block 25/30/32/40/42/50/52) require growth potential in datalink equipment to foster 5th to 4th generation aircraft datalink communications. With this modification, all 217 F-16C pre-block aircraft would have the capability to have datalink communication with other Link-16 aircraft.

**2. Source of Need.** 2014-2015 ARC WEPTAC Council

**3. Units Impacted.**

187 FW Dannelly Fld, AL	180 FW Toledo Express AP, OH	177 FW Atlantic City IAP, NJ
169 FW McEntire AGS, SC	162 FW Tucson IAP, AZ	158 FW Burlington IAP, VT
149 FW Kelly Fld, TX	148 FW Duluth IAP, MN	138 FW Tulsa IAP, OK
115 FW Truax Fld, WI	114 FW Joe Foss Fld, SD	113 FW JB Andrews, MD

**4. Program Details. PEC: 52716**

Remaining Quantity Required	Unit Cost	Program Cost
<b>Data Link NRE (3600)</b>	<b>N/A</b>	<b>\$10,000,000</b>
<b>217 Data Link Upgrades (3010)</b>	<b>\$250,000</b>	<b>\$54,250,000</b>
<b>Total</b>		<b>\$ \$64,250,000</b>

# HH-60G

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

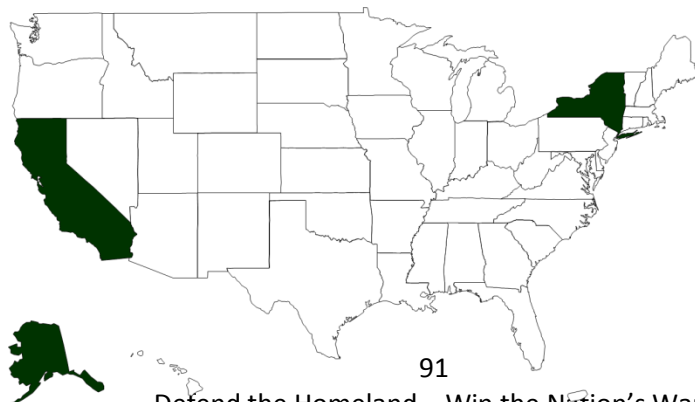
Air National Guard (ANG) Personnel Recovery (PR) helicopters and aircrews play a critical role in support of overseas contingency operations while responding to an increasingly high demand for domestic operations. These ANG PR helicopters are located in Alaska, California, and New York. There is also a PR training unit collocated with an active duty unit in New Mexico.



In 2015, ANG PR units deployed in support of Combined Joint Task Force- Horn of Africa (CJTF-HOA). While not deployed overseas, these units supported their respective states. The 101 RQS in New York worked with Army units in support of their pre-deployment training. The 129 RQS from California flew numerous counterdrug missions and operations against the wildfires. The 210 RQS held 24-hour state-wide, rescue alert in Alaska resulting in 64 missions and 72 lives saved. In New Mexico, the 188 RQS supported aircrew training for the 58 Special Operations Wing and provided personnel in support of CJTF-HOA.



The HH-60G modernization priorities included improvements to the smart multi-functional color display, which merges information from multiple systems into an easily interpretable picture of the battlefield. Additional upgrades completed in FY15 focused on the modernization of the aircraft communication systems.



# HH-60

## 2015 Weapons and Tactics Conference

### *Critical Capabilities List*

- Advanced Electronic Warfare Penetrator System
- Modernized Integrated Defensive System Suite and Advanced Threat Protection
- Integrated Flight Deck
- Helmet Mounted Heads Up Display
- Aircraft Weapons Modernization

### *Essential Capabilities List*

- Distributed Mission Operations Capable HH-60G Aircraft Simulator
- Helicopter Underwater Egress Lighting
- Federal Aviation Administration Global Positioning System Certified Aircraft
- Maritime Ship Locator/Information
- Rotor Brake

### *Desired Capabilities List*

- Improved Aircraft Generators
- Aircrew Flight Equipment Enhancements
- Electronic Flight Bag
- Instrumentation Upgrade
- Wireless Intercom

*Special Operations/Personnel Recovery*

**HH-60 ADVANCED ELECTRONIC WARFARE PENETRATOR SYSTEM**

**1. Background.** HH-60G helicopters and crews are tasked to recover personnel in a contested environment. The HH-60G does not have a defensive system with the ability to penetrate into modern missile envelopes and safely recover an isolated person. The APR-39Bv2 Radar Warning Receiver presently installed on the HH-60G is an analog system with limited processing capability. This system is not capable of displaying radio frequency (RF) threats without ambiguity. HH-60G crews may need to operate within the RF threat engagement zones to recover an isolated person. In order to operate in the RF threat environment, an integrated RF jammer that inhibits the ability to engage the aircraft is also needed to increase survivability. The HH-60G requires a precise, integrated defensive system that detects, jams and defeats RF guided weapons. Crews also require training software integrated into the Electronic Warfare Suite to effectively train for combat scenarios. Test Equipment is needed for all three units for maintenance personnel to train on the equipment. The ANG requires one Radar Warning Receiver with an integrated jammer for each of its eighteen HH-60G helicopters.

**2. Source of Need.** Lessons from current operations Personnel Recovery (PR) OPLAN and CONPLANS require forces to penetrate near-peer contested airspace with advanced surface-to-air threat systems to recover isolated personnel in contested environments; PR Core Function Master Plan; Air Combat Command Validated AF Form 1067 10-252; ARC 2012-2013 ARC WEPTAC Conference; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett FAF, CA

176 WG JB Elmendorf, AK

**4. Program Details. PEC: 53114**

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



**HH-60 MODERNIZED INTEGRATED DEFENSIVE SYSTEM SUITE / ADVANCED THREAT PROTECTION**

**1. Background.** HH-60G helicopters 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, hostile fire indicator 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 (MANPADS). The current method employed to detect RPGs and small arms fire is visual detection or radio notification from a ground party that does not provide crews the required time to react and defeat enemy threats. Three dimensional (3D) audio capability is required to integrate the audio warnings from a Missile Warning System, hostile fire indicator, or Radar Warning Receiver, with communication and mission equipment. 3D audio equipment will permit crews to rapidly return precise and immediate defensive fire, effectively suppressing or destroying the enemy threat. Crews also require training software integrated into the EW Suite to train for combat. The ANG requires one Hostile Fire Indicator and an ALQ-213 with 3D audio capability for each of its 18 HH-60G helicopters. 108 3D audio kits are required to provide a device to all six personnel on the 18 ANG HH-60Gs.

**2. Source of Need.** Lessons Learned from current operations Personnel Recovery (PR) OPLAN and CONPLANS require forces to penetrate near-peer contested airspace with advanced surface-to-air threat systems to recover isolated personnel in contested environments; PR Core Function Master Plan; Air Combat Command Validated AF Form 1067 10-252; ARC WEPTAC Conference 2012-2013; ARC WEPTAC Council 2014-2015.

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett FAF, CA

176 WG JB Elmendorf, AK

**4. Program Details. PEC: 53114**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Defensive System NRE (3600)</b>	<b>N/A</b>	<b>\$2,000,000</b>
<b>Directional Audio NRE (3600)</b>	<b>N/A</b>	<b>\$6,000,000</b>
<b>18 Hostile Fire Indicators (3010)</b>	<b>\$270,000</b>	<b>\$4,860,000</b>
<b>108 3D Audio Kits (3010)</b>	<b>\$7,000</b>	<b>\$756,000</b>
<b>3 Unit Test Equipment (3080)</b>	<b>\$58,400</b>	<b>\$175,200</b>
<b>18 ALQ-213 w/3D Audio Kits (3010)</b>	<b>\$234,000</b>	<b>\$4,212,000</b>
<b>Total</b>		<b>\$18,003,200</b>

*Special Operations/Personnel Recovery*

**HH-60 INTEGRATED FLIGHT DECK**

**1. Background.** Combat and domestic operations require HH-60G crews to process a great deal of information from many sources and they must do it quickly. To manage this information, the current Smart Multi-Function Color Display installed on Air National Guard (ANG) and Air Force Reserve Command HH-60Gs need to be fully integrated with Situational Awareness Datalink (SADL), Lightweight Airborne Recovery System Version 12 (LARS), Air Force Tactical Receive Segment-Ruggedized (AFTRS-R), Blue Force Tracker 2 (BFT2), Full Motion Video (FMV), Automatic Dependent Surveillance- Broadcast (ADS-B) In/Out, and Link-16. The capability to quickly access mission essential data from one centralized display will enable HH-60G aircrews to reduce “heads down” time and vastly improve situational awareness. Secure Internet Protocol data will enable aircrews to receive Near Real-Time BFT2 data and text messaging from the battlefield. BFT2 is a modernized joint tracking system which is cooperative with SADL and Link-16 and provides Beyond Line of Site interactive data communication between aviation assets and Command and Control. ADS-B In/Out is a cooperative surveillance technology which determines aircraft position, surrounding weather, and flight information. Link-16 is a tactical data link which enables digital situational awareness sharing. A securable multi-spectrum radio capable of supporting Soldier Radio Waveform (SRW) ensures military and civil command authorities that rescue helicopters will be ready for any and all relief operations. This also increases the Combat Search and Rescue capability by filling an existing secure radio shortfall. The ANG requires one device for each of its 18 HH-60Gs.

**2. Source of Need.** Lessons Learned from current operations, Personnel Recovery OPLAN, and CONPLANS, and Defense Support to Civil Authorities necessitate the requirement for LOS/BLOS situational awareness and modernized communications management; Air Combat Command Validated AF Form 1067 04-043, 05-078, 09-153 and 10-229; Combat Air Force Urgent Operational Need 306-09; ARC WEPTAC Council 2012-2013; ARC WEPTAC Conference 2014-2015

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett FAF, CA

176 WG JB Elmendorf, AK

**4. Program Details. PEC: 53114**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>18 Full Motion Video (3010)</b>	<b>\$200,000</b>	<b>\$3,600,000</b>
<b>18 Blue Force Tracker - 2 (3010)</b>	<b>\$100,000</b>	<b>\$1,800,000</b>
<b>18 Link-16 (3010)</b>	<b>\$120,000</b>	<b>\$2,160,000</b>
<b>18 ADS-B In/Out (3010)</b>	<b>\$30,000</b>	<b>\$540,000</b>
<b>18 Soldier Radio Waveform (3010)</b>	<b>\$15,000</b>	<b>\$270,000</b>
<b>Total</b>		<b>\$8,370,000</b>

**HH-60 HELMET MOUNTED HEADS UP DISPLAY**

**1. Background.** The addition of day and night helmet mounted cueing and display capability in the HH-60G would significantly increase aircrew Situational Awareness (SA) and weapons employment capability, enhance terminal area search and rescue operations, speed internal communication during critical mission phases, and enable crews to safely land a helicopter in a degraded visual environment (DVE). A Helmet Mounted Heads up Display Cueing System (HMCS) allows all crewmembers to share information –minimizing voice communication. Information must be integrated together between all crewmembers onboard the aircraft, as well as crewmembers within the formation. Sensor and datalink symbols are visible on the helmet mounted display superimposed over the geographic location of friendly, hostile, and survivor positions. Additionally, the ability to display sensor pictures and datalink information while maintaining a heads-up, eyes out posture will greatly enhance safety while flying in the low-level (<500ft) environment. The display must also be available at night without the use of NVGs. Information must be selectable (i.e., video feed, aircraft flight information, SADL display, etc) per individual. Solutions are urgently needed for brown-out, white-out, and other restricted visibility conditions, which can cause issues during helicopter landing and take-off operations. Three-Dimensional (3D) Landing Zone (LZ) symbology integrated into HMCS provides crews with sufficient situational awareness to maneuver the aircraft in reduced visibility conditions. Helmet must be lightweight to reduce fatigue and not cause injury. Cables and tethers for the helmet must not restrict freedom of movement in the cabin. The ANG requires one Helmet Mounted Cueing System kit and 3D Landing Zone kit for each of its 18 HH-60G helicopters. 108 helmets with the Helmet Mounted Cueing System capability and compatible Night Vision units are required to provide a device to all six personnel on the 18 ANG HH-60Gs.

**2. Source of Need.** Air Combat Command (ACC) Validated AF Form 1067 09-258; ARC WEPTAC Conference 2012-2013; ARC WEPTAC Council 2014-2015; Critical Requirement; Lessons Learned from Operations ENDURING FREEDOM (OEF), IRAQI FREEDOM (OIF), and INHERENT RESOLVE (OIR).

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett FAF, CA

176 WG JB Elmendorf, AK

**4. Program Details. PEC: 53114**

Remaining Quantity Required	Unit Cost	Program Cost
HMCS NRE (3600)	N/A	\$6,000,000
18 HMCS Aircraft Kits (3010)	\$335,294	\$6,035,292
108 HMCS Helmet Kits (3010)	\$87,843	\$8,959,986
108 Night Vision Units (3010)	\$65,882	\$7,115,256
3D Landing Zone (3600)	N/A	\$20,000,000
18 3D Landing Zone Symbology (3010)	\$1,000,000	\$18,000,000
<b>Total</b>		<b>\$66,110,534</b>

## **HH-60 AIRCRAFT WEAPONS MODERNIZATION**

**1. Background.** The HH-60G has a requirement to provide defensive firepower to support various combat mission operations often at the aircraft's maximum gross weight. In order to save weight while maintaining lethality, the HH-60G needs a lighter mini-gun. The GAU-2B is the current 7.62 mm weapon system used on the HH-60G. The M134D-H mini-gun is a GAU-2B weapon system that, once updated with the improved weapon components, will provide overall weight savings and bring the weapon system to an up-to-date capability. Improved weapons components include an ergonomic 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. These upgraded components provide increased corrosion protection, which is vital based on the location of ARC HH-60G squadrons. The new system would also no longer rely on an electronic control unit, permitting operation when AC power is unavailable. Removal of the electronic control unit will increase cabin space, reduce aircraft overall gross weight, and permit defensive firepower with a loss of aircraft AC power. Requirement is 2 per aircraft for 18 HH-60Gs.

**2. Source of Need.** Air Combat Command (ACC) Project 96-012A HH-60G Cabin Configuration FOT&E Final Report dated Apr 1997, and Combat Air Forces (CAF) ORD 306-00-I/II/III HH-60G Block 152 both state the requirement for a .50-caliber machine gun on the Rescue HH-60Gs; ACC / CENTCOM C-MNS 02-501; Air Combat Command (ACC) Validated AF Form 1067 08-115; 2012-2013 ARC WEPTAC Conference; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett FAF, CA

176 WG JB Elmendorf, AK

**4. Program Details. PEC: 53114**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>36 M134D-H Minigun Components (3010)</b>	<b>\$30,000</b>	<b>\$1,080,000</b>
<b>36 M134D-H Miniguns (3010)</b>	<b>\$60,000</b>	<b>\$2,160,000</b>
<b>Total</b>		<b>\$3,240,000</b>

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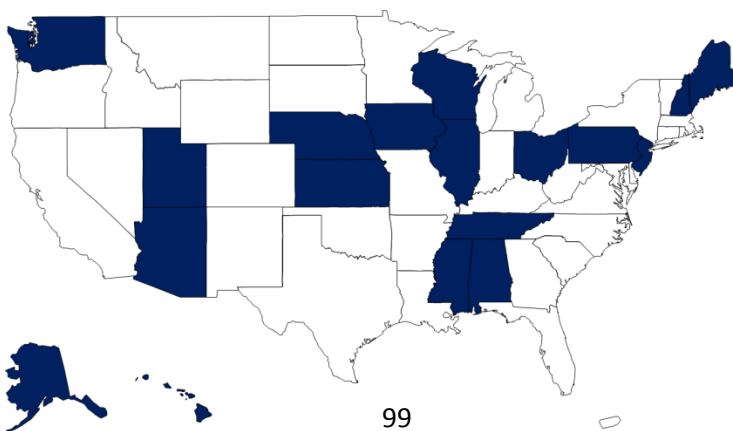
# KC-135

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

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.



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Defend the Homeland – Win the Nation's Wars

# KC-135

## 2015 Weapons and Tactics Conference

### *Critical Capabilities List*

- Advanced Infrared Countermeasures Defensive Systems
- Common MAF Mission Computer
- External Overt/Covert Lighting
- Aircraft Ground Cooling Capability
- Jam-Resistant Global Positioning System

### *Essential Capabilities List*

- Quick Reaction Handbook
- Block 45 Electronic Engine Instrument Display Integrated Handset Control Software
- Fuel Tank Fire Explosion Protection
- Digital Radar Warning Receiver
- Advanced Radio Frequency Countermeasures Defensive System

### *Desired Capabilities List*

- Improved Crew Bunks
- Soft Basket Quick Connect Boom Drogue Adapter

*Rapid Global Mobility*

**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 takeoffs, 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.**

155 ARW Lincoln MPT, NE	117 ARW Birmingham APT, AL	161 ARW Phoenix-Sky Harbor IAP, AZ
185 ARW Sioux Gateway APT, IA	126 ARW Scott AFB, IL	190 ARW Forbes Fld, KS
101 ARW Bangor IAP, ME	168 ARW Eielson AFB, AK	108 WG Joint Base MDL, NJ
128 ARW Gen Mitchell IAP, WI	157 ARW Pease AGS, NH	121 ARW Rickenbacker AGS, OH
171 ARW Pittsburg IAP, PA	134 ARW McGhee-Tyson APT, TN	151 ARW Salt Lake City IAP, UT
141 ARW Fairchild AFB, WA	186 ARW Key Fld, MS	

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

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3010)	N/A	\$10,000,000
<b>180 Group A Kits (3010)</b>	<b>\$500,000</b>	<b>\$90,000,000</b>
<b>42 Group B Kits (3010)</b>	<b>\$1,600,000</b>	<b>\$67,200,000</b>
<b>Total</b>		<b>\$167,200,000</b>



*Rapid Global Mobility*

**COMMON MAF MISSION COMPUTER**

**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. The capability is needed for all 180 aircraft and 198 radios includes spares.

**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.**

155 ARW Lincoln MPT, NE	117 ARW Birmingham APT, AL	161 ARW Phoenix-Sky Harbor IAP, AZ
185 ARW Sioux Gateway APT, IA	126 ARW Scott AFB, IL	190 ARW Forbes Fld, KS
101 ARW Bangor IAP, ME	168 ARW Eielson AFB, AK	108 WG Joint Base MDL, NJ
128 ARW Gen Mitchell IAP, WI	157 ARW Pease AGS, NH	121 ARW Rickenbacker AGS, OH
171 ARW Pittsburg IAP, PA	134 ARW McGhee-Tyson APT, TN	151 ARW Salt Lake City IAP, UT
141 ARW Fairchild AFB, WA	186 ARW Key Fld, MS	

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

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

\*Includes 10% spares

*Rapid Global Mobility*

**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 the 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 by making the aircraft easier to see during ground and airborne operations. The covert mode allows KC-135 crews the ability to operate in accordance with operational requirements. Covert lighting drastically reduces the potential of a mid-air collision, which has been highlighted as a safety concern during night combat missions. The upgraded lighting increases mean time between failures (MTBF) from 40 to 60 hours for incandescent bulbs to over 10,000 hours with LEDs. This reduces supply costs and decreases maintenance requirements. 198 external overt/covert light kits are required to install on all 180 ANG KC-135s and provide one spare kit at each ANG KC-135 base.

**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.**

155 ARW Lincoln MPT, NE	117 ARW Birmingham APT, AL	161 ARW Phoenix-Sky Harbor IAP, AZ
185 ARW Sioux Gateway APT, IA	126 ARW Scott AFB, IL	190 ARW Forbes Fld, KS
101 ARW Bangor IAP, ME	168 ARW Eielson AFB, AK	108 WG Joint Base MDL, NJ
128 ARW Gen Mitchell IAP, WI	157 ARW Pease AGS, NH	121 ARW Rickenbacker AGS, OH
171 ARW Pittsburg IAP, PA	134 ARW McGhee-Tyson APT, TN	151 ARW Salt Lake City IAP, UT
141 ARW Fairchild AFB, WA	186 ARW Key Fld, MS	

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

Remaining Quantity Required	Unit Cost	Program Cost
198 LED Light Kits (3010)	\$70,000	\$13,860,000
<b>Total</b>		<b>\$13,860,000</b>

**KC-135 AIRCRAFT GROUND COOLING CAPABILITY**

**1. Background.** KC-135 aircraft have no cockpit or cabin cooling when below 2,000 feet above ground level, which is the point at which the cockpit becomes pressurized and cooling systems become effective. Temperatures at deployed locations routinely result 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. Roll-on/roll-off Vapor cycle air conditioning units placed onboard can provide ground cooling. These ground cooling units can produce 24,000 British Thermal Units (BTUs) of cooling at 600 cubic feet per minute; approximately a normal house-sized air conditioner, within normal aircraft power and weight requirements. This system provides crews and aircraft a more robust operating capability, reduces crew fatigue, and minimizes unsafe temperature conditions. 107 aircraft ground cooling kits are required to provide a cooling capability for 60% of the ANG KC-135 fleet. The ground cooling kits are a roll-on/roll-off system that will ensure a ground cooling capability is available when required.

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

**3. Units Impacted.**

155 ARW Lincoln MPT, NE	117 ARW Birmingham APT, AL	161 ARW Phoenix-Sky Harbor IAP, AZ
185 ARW Sioux Gateway APT, IA	126 ARW Scott AFB, IL	190 ARW Forbes Fld, KS
101 ARW Bangor IAP, ME	168 ARW Eielson AFB, AK	108 WG Joint Base MDL, NJ
128 ARW Gen Mitchell IAP, WI	157 ARW Pease AGS, NH	121 ARW Rickenbacker AGS, OH
171 ARW Pittsburg IAP, PA	134 ARW McGhee-Tyson APT, TN	151 ARW Salt Lake City IAP, UT
141 ARW Fairchild AFB, WA	186 ARW Key Fld, MS	

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

Remaining Quantity Required	Unit Cost	Program Cost
107 Ground Cooling Units (3010)	\$40,000	\$4,280,000
<b>Total</b>		<b>\$4,280,000</b>

**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. ANG KC-135 aircraft do not possess jam-resistant GPS processors. Primary navigation relies on Global Positioning System (GPS); therefore, the KC-135 requires a robust jam-resistant GPS-based navigation system. To equip all ANG KC-135s each aircraft requires two GPS antennas and two electronic units. There are currently 170 KC-135s in the ANG inventory, therefore 340 GPS antennas and electronic units are required for the fleet. The additional 17 GPS antennas and electronic units provide spares at the 17 ANG KC-135 locations.

**2. Source of Need.** 2014 ARC WEPTAC Council.

**3. Units Impacted.**

155 ARW Lincoln MPT, NE	117 ARW Birmingham APT, AL	161 ARW Phoenix-Sky Harbor IAP, AZ
185 ARW Sioux Gateway APT, IA	126 ARW Scott AFB, IL	190 ARW Forbes Fld, KS
101 ARW Bangor IAP, ME	168 ARW Eielson AFB, AK	108 WG Joint Base MDL, NJ
128 ARW Gen Mitchell IAP, WI	157 ARW Pease AGS, NH	121 ARW Rickenbacker AGS, OH
171 ARW Pittsburg IAP, PA	134 ARW McGhee-Tyson APT, TN	151 ARW Salt Lake City IAP, UT
141 ARW Fairchild AFB, WA	186 ARW Key Fld, MS	

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

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

\*Includes 10% spares

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# Logistics

Air National Guard (ANG) logistics is integral to all combat and mobility air forces, affecting each of the Mission Design Series (MDS) represented at WEPTAC. The ANG logistics team accomplishes sustainment tasks ranging from aircraft maintenance and inventory management, to traffic management and petroleum, oils, and lubricants management. Maintainers and logisticians are key to getting people and supplies to where they need to be, when they need to be there, to generate sorties supporting domestic response and overseas contingency operations.



The ANG operates and maintains many of the oldest aircraft in the Air Force inventory. Aircraft support and test equipment is critical to daily maintenance operations at all ANG flying units. Much of the equipment used in testing aircraft systems is nearing the end of its designed life, and is increasingly difficult to sustain and expensive to repair.

Equipment such as the maintenance inspection platforms, leak detectors, and digital test equipment reduce aircraft downtime, allow logistics personnel to maintain a high rate of sortie generation, and ensure the longevity, relevance, reliability, and responsiveness of the aging fleet.



# Logistics

## 2015 Weapons and Tactics Conference

### *Critical Capabilities List*

- Multi-MDS Portable Aircraft Maintenance Stands
- Multi-MDS Articulating Boom/Man-Lift
- JSTARS Flight Control Surface Removal/Installation Device
- HH-60 Cribbing
- HH-60 Engine Test Cell
- Multi-MDS Active Bus Tester
- Multi-MDS Fuel Cell Leak Detector
- HH-60 Rescue Hoist Test Set
- Multi-MDS Improved Armament/Smart Weapons Pre-Load Tester
- Multi-MDS SATCOM Tester
- Multi-MDS Avionics Back Shop Tester
- Electronic Bomb Lift Equipment
- Isochronal Inspection and Maintenance Stands
- Multi-MDS Situation Awareness Datalink Tester
- Multipurpose Lifting Device

- USM-670 Couplers
- Secondary Power Tester F-15
- Dual Rail Assembly Tester
- TTU-205 Replacement
- Cabin Pressure Tester
- LITENING TGP Power Box

### *Desired Capabilities List*

- Wireless Intercom System
- Scissor Lift
- Enhanced Structural Repair
- Aux/Ext Fuel Tank Storage
- Improved Electronic Diagnostics
- Thermal Imaging
- Cockpit Engine Instrument Tester
- Improved Fire Loop Tester
- C-300 Bottom Loading

### *Essential Capabilities List*

- Universal Hydraulic Test Stands
- Fall Protection greater than 4 feet
- Improved Loading Ramps
- Equipment Transport Trailer
- 75kw Flightline Generator
- Power Transformer/Rectifier
- Alternative Towbarless Tow Vehicle
- Engine Installation And Removal Vehicle
- 670A RWR Tester

**MULTI-MDS PORTABLE AIRCRAFT MAINTENANCE STANDS**

**1. Background.** Current B-series maintenance stands no longer meet Air Force Occupational Safety and Health Administration (AFOSH), Occupational Safety and Health Administration (OSHA), or American National Standards Institute (ANSI) standards. Many stands in use are over 40 years old and require frequent maintenance repair actions to maintain their serviceability. These B-series stands are critical to accomplishing periodic inspection maintenance requirements, but are not inherently safe due to the lack of fall protection, fall arrest, and rescue capabilities. Maintenance personnel require deployable self-supporting maintenance platforms that are towable, easily transportable, and eliminate fall protection concerns associated with the use of legacy B-series stands. The multi-MDS improved portable aircraft maintenance stand capability required is inherently safe and comes equipped with fall protection measures throughout, including fall arrest and self-rescue devices. In order to meet the needs of multiple airframes, the maintenance stands must be equipped with height leveling to accommodate uneven floors, have height adjustments of less than or equal to 48 inches (4 feet) through greater or equal to 192 inches (16 feet), and have adjustable decks measuring 54 by 130 inches to 78 by 130 inches. The minimum working load of the stand should be no less than 1000 pounds at all working heights, in order to allow for multiple maintainers with equipment. The stand’s maintenance platform should be accessible via built-in stairs throughout the entire range of height adjustment on this system and permit maintenance personnel to transport components and tools without hoisting or overhead lifting. In order to support deployment, these stands must have a smaller footprint than the B-series stands, and completely collapse for easy roll-on roll-off air transportability. Specifically designed Davit fall arrest and fall restraint systems must be part of the stand design, meeting ANSI Z359.6 standards for engineered systems in order to permit maintenance personnel limited access off the stand to structural surfaces while all fall protection is maintained. Projected logistics requirement for each flying wing is estimated between three and six of these stands.

**2. Source of Need.** Occupational Safety and Health Administration (OSHA) Standards, 29 CFR 1910 Subpart D; American National Standards Institute Standards Z359.6; 2013-2015 ARC WEPTAC Conference.

**3. Units Impacted.** All ANG Flying units

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>307 Multi-MDS Portable Aircraft Maintenance Stand (3080)</b>	<b>\$55,000</b>	<b>\$16,885,000</b>
<b>Total</b>		<b>\$16,885,000</b>



*Agile Combat Support*

**MULTI-MDS ARTICULATING BOOM/MAINTAINER-LIFT**

**1. Background.** Current maintenance operations depend upon equipment with outdated technology or inadequate safety devices. Current maintenance man lift equipment exceeds 20 years of age, and no longer meets Air Force Occupational Safety and Health Administration (AFOSH), Occupational Safety and Health Administration (OSHA), or American National Standards Institute (ANSI) standards. The Mobility Air Force aircraft fleet has working height requirements that exceed existing maintenance man lift capabilities for activities such as life raft changes, emergency locator transmitter (ELT) maintenance, aircraft structural integrity program (ASIP) inspections, and additional work above the wing. Units have daily requirements to use man lifts to accomplish maintenance tasks. Maintenance activities currently use man lifts with no fall protection capability while performing maintenance activities outside hangars and/or flightline maintenance operations that exceed 38 feet in height. A man lift with a horizontal reach greater than 40 feet and a vertical reach exceeding 80 feet is required. The maintenance man lift facilitates: tail maintenance actions, including horizontal stabilizer repairs or remove and replace activities, life raft changes, ELT maintenance, ASIP inspections, and additional work above the wing. Man lift must have certified built-in fall protection, meet AFOSH, OSHA, and ANSI Standards, as well as all requirements spelled out in AFI 91-203. The logistics community needs one articulating boom/maintainer lift at each base with mobility aircraft, which totals 47.

**2. Source of Need.** Occupational Safety and Health Administration (OSHA) Standards, 29 CFR 1910 Subpart D; American National Standards Institute Standards Z359.6; 2014 - 2015 ARC WEPTAC Conference

**3. Units Impacted.**

- |                                    |                                  |                                |
|------------------------------------|----------------------------------|--------------------------------|
| 101 ARW Bangor IAP, ME             | 103 AW Bradley IAP, CT           | 105 AW Stewart ANGB, NY        |
| 106 RQW Gabreski Airport, NY       | 108 ARW JB McGuire, NJ           | 109 AW Schenectady Co APT, NY  |
| 113 FW JB Andrews, MD              | 117 ARW Birmingham IAP, AL       | 120 AW Great Falls IAP, MT     |
| 121 ARW Rickenbacker AGS, OH       | 123 AW Louisville, KY            | 126 ARW Scott AFB, IL          |
| 127 WG Selfridge ANGB, MI          | 128 ARW Gen Mitchell IAP, WI     | 129 RQW Moffett Field, CA      |
| 130 AW Yeager AP, WV               | 133 AW Mpls-St Paul IAP, MN      | 134 ARW McGhee-Tyson APT, TN   |
| 136 AW Forth Worth JRB, TX         | 137 AW Will Rogers Wld APT, OK   | 139 AW Rosecrans Mem APT, MO   |
| 143 AW Quonset SAP, RI             | 145 AW Charlotte-Douglas IAP, NC | 146 AW Channel Islands AGS, CA |
| 152 AW Reno-Tahoe IAP, NV          | 153 AW Cheyenne MPT, WY          | 154 WG Hickam AFB, HI          |
| 155 ARW Lincoln MAP, NE            | 156 AW Muniz AB, PR              | 157 ARW Pease AGS, NH          |
| 161 ARW Phoenix-Sky Harbor IAP, AZ | 164 AW Memphis IAP, TN           | 165 AW Savannah IAP, GA        |
| 166 AW New Castle County AP, DE    | 167 AW Eastern WV RAP, WV        | 168 ARW Eielson AFB, AK        |
| 171 ARW Pittsburg IAP, PA          | 172 AW Jackson IAP, MS           | 176 WG Elmendorf AFB, AK       |
| 179 AW Mansfield-Lahm APT, OH      | 182 AW Peoria IAP, IL            | 185 ARW Sioux Gateway APT, IA  |
| 186 ARW Meridian RAP, MS           | 189 AW Little Rock AFB, AR       | 190 ARW Forbes Fld, KS         |
| 193 SOW Harrisburg IAP, PA         |                                  |                                |

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>47 High Reach Maintainer Lift (3080)</b>	<b>\$200,000</b>	<b>\$9,400,000</b>
<b>Total</b>		<b>\$9,400,000</b>

**JSTARS FLIGHT CONTROL SURFACE REMOVAL/INSTALLATION DEVICE**

**1. Background.** In 2013, the E-8C Programmed Depot Maintenance (PDM) interval was extended from an 18- to 24-month cycle. In order to extend this cycle, field units have to perform additional Supplemental Structural Inspections and Service Bulletins during the Isochronal (ISO) Inspection. There are approximately 15 to 20 inspections required, which increases the workload as it relates to flight control surface removal. In addition to the inspections in ISO, the workload on the flight line for removing flight control surfaces has also increased as a result of the aging fleet. The Air Force does not have a standard crane to meet the maintenance requirements for E-8C aircraft. In most cases, the cranes are rented or borrowed, causing significant maintenance delays due to the lead time required to get the crane on site. For the last 15 years, the E-8C maintenance activity has borrowed a crane from the Robins AFB Depot; and depot management requires that two depot employees operate the crane for the E-8C maintenance personnel. It can take anywhere from 24 hours to one week to coordinate the use of the crane. This results in a significant increase of aircraft downtime and degradation of mission effectiveness. Due to the increase in required crane use, maintenance can no longer afford the delays and needs its own crane to better support the mission and decrease the down time created by the process of leasing or borrowing a crane. The crane must be capable of operating in open areas, across rough terrain, and in austere weather conditions. It will require a rugged structure for a versatile response, a 30-foot boom horizontal extension, and a 2500 pound operating load capacity.

**2. Source of Need.** E-8C PDM and ISO requirements, 2015 ARC WEPTAC Conference

**3. Units Impacted.**

116 ACW Robins AFB, GA

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>2 Multipurpose Lifting Device (3080)</b>	<b>\$84,000</b>	<b>\$168,000</b>
<b>Total</b>		<b>\$168,000</b>

*Agile Combat Support*

**HH-60 CRIBBING**

**1. Background.** HH-60 aircraft require the use of shoring kits (cradles) to support the aircraft in a stable and level configuration with weight off the landing gear to inspect, maintain and replace structural components, execute hoist repairs, perform phase maintenance, correct damage, and support depot-level repair maintenance. TO 1H-60(H)G-2-6 authorizes the local manufacture or procurement of cradles. Locally manufactured cradles are typically made of wood and are not adjustable. Some hangar floors are built with intentional slope for drainage, which makes leveling difficult. An improved HH-60 cradle system provides the maintainer with a rugged, adjustable cradle kit that allows for quick airframe leveling and easy set-up and break-down. The kit consists of a Folding Adjustable Tail Stand, three Airframe Stands, and a Cabin-to-Tail Section Support Stand. Additionally, a Pylon Support Stand, which is used to support the tail pylon when removed from the airframe to facilitate maintenance, is needed. The cradle system must be safe, reusable, and enable maintenance personnel to complete HH-60 inspections and maintenance. There is no current Air Force effort to modernize the HH-60 cradle system. This equipment will be sustained at the field level and no additional manpower or support equipment requirements are anticipated. Two cribbing sets are recommended per unit, plus one additional as a spare.

**2. Source of Need.** Occupational Safety and Health Administration (OSHA) Standards, 29 CFR 1910 Subpart D; 2013-2015 ARC WEPTAC Conference; 2014 maintenance stands and platforms industry day.

**3. Units Impacted.**

106 RQW Gabreski Airport, NY    129 RQW Moffett Field, CA    176 WG Elmendorf AFB, AK

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>7 HH-60 Cradle Systems (3080)</b>	<b>\$20,000</b>	<b>\$140,000</b>
<b>Total</b>		<b>\$140,000</b>

*Agile Combat Support*

**HH-60 ENGINE TEST CELL**

**1. Background.** Air National Guard HH-60 units lack ability to test their GE T700 engines after repairs have been made. HH-60 units package and ship their engines to a repair facility to be tested, or install the engine on the helicopter and hover a few feet off the ground to determine if it's serviceable. Shipping engines to a repair facility and receiving an engine in return takes between three to five days in the continental United States, and well over a week for overseas locations, and requires two to three maintainers to travel with the engines. The process of shipping the engine requires the use of operation and maintenance funds as well as the use of engine shop manpower to transport the engines to a contracted repair center. This reduces the amount of available manpower to work other engine issues and prolongs the time it takes to determine if an engine is serviceable after a repair. Units do not have the ability to test overhauled engines before installing them onto the aircraft; this has resulted in occasions where engine problems are not discovered until after installation, and resulted in engines needing to be removed again for further trouble-shooting. Also, catastrophic loss of the engine during troubleshooting while installed could cause considerable damage to the aircraft, as well as to the engine. The ability to test uninstalled HH-60 engines at the unit will increase engine availability, reduce engine repair man-hours, and improve safety, which all lead to greater aircraft availability and mission accomplishment.

**2. Source of Need.** 2014-2015 ARC WEPTAC Conference

**3. Units Impacted.**

106 RQW Gabreski Airport, NY    129 RQW Moffett Field, CA    176 WG Elmendorf AFB, AK

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>3 HH-60 Engine Test Stands (3080)</b>	<b>\$6,000,000</b>	<b>\$18,000,000</b>
<b>Total</b>		<b>\$18,000,000</b>

**MULTI-MDS ACTIVE BUS TESTER**

**1. Background.** The Bus Characterization and Integrity Toolset (BCIT) tester provides the capability to rapidly and accurately troubleshoot aircraft 1553 bus issues while the aircraft systems are powered. It is a portable, ruggedized analyzer designed to test, analyze cables, and monitor operations of a MIL-STD-1153 data bus network. The software toolset maps any MIL-STD-1153 data bus network and can act as a bus controller. The BCIT can also be used as a Time Domain Reflectometry (TDR) to find the distance to wiring faults (opens or shorts). The BCIT’s software is customizable within the Windows operating system, permitting future integration of additional MIL-STD BUS’s. The tester’s embedded software enable users to save and recall bus topology, test data, and historical references that can be used later for preventative maintenance and prognostics of an airframe’s BUS. The TDR function provides guidance to maintenance personnel to within six inches of a fault in wiring. The ANG is working with Air Force Research Labs to acquire these bus testers on existing ANG airframes that utilize the MIL-STD-1553 bus. The Joint Surveillance Target Attack Radar System (JSTARS) system program office approved this device on the E-8C, and the ANG plans to adapt the capability to other airframes such as the C-17 and KC-135 aircraft. The ANG is leading an effort to test the BCIT on additional mission and design series aircraft. Logistics recommends two BCITs per wing of E-8C, C-17, and KC-135.

**2. Source of Need.** 2013-2015 ARC WEPTAC Conference

**3. Units Impacted.**

101 ARW Bangor IAP, ME	105 AW Stewart ANGB, NY	108 WG Joint Base MDL, NJ
117 ARW Birmingham APT, AL	121 ARW Rickenbacker AGS, OH	126 ARW Scott AFB, IL
127 WG Selfridge AGB, MI	128 ARW Gen Mitchell IAP, WI	134 ARW McGhee-Tyson APT, TN
145 AW Charlotte-Douglas IAP, NC	151 ARW Salt Lake City IAP, UT	154 WG JB Pearl Harbor-Hickam, HI
155 ARW Lincoln MPT, NE	157 ARW Pease AGS, NH	161 ARW Phoenix-Sky Harbor IAP, AZ
164 AW Memphis IAP, TN	167 AW Eastern WV RAP, WV	168 ARW Eielson AFB, AK
171 ARW Pittsburg IAP, PA	172 AW Jackson IAP, MS	176 WG Elmendorf AFB, AK
185 ARW Sioux Gateway APT, IA	186 ARW Key Fld, MS	190 ARW Forbes Fld, KS

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

Remaining Quantity Required	Unit Cost	Program Cost
48 BCIT Bus Testers (3080)	\$70,000	\$3,360,000
NRE (3080)	N/A	\$600,000
<b>Total</b>		<b>\$3,960,000</b>

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**MULTI-MDS FUEL CELL LEAK DETECTOR**

**1. Background.** Current methods require technicians to refuel aircraft to determine the validity of a fuel system repair. If a leak is still noted, the aircraft must be defueled, repaired, and then refueled again to check the validity of the repair. The Hydrogen Leak Detector (HLD) uses tracer gas to identify fuel leaks, enabling maintenance personnel to trouble shoot and repair these leaks in a fraction of the time compared to legacy tools and methods. In addition, HLD reduces the physical footprint of the fuel cell equipment needs. The ANG is purchasing HLD equipment for F-16 maintenance, and is also moving to buy the HLD for other aircraft in the ANG fleet. The basic HLD requires an accessory kit for optimum utilization. The accessory kit includes a low-pressure regulator, a calibrated leak (used to calibrate the HLD in the field), various nozzles and rubber adapters used for blow-back procedures, and aircraft pressurization adapters. Current estimates place need of two testing units per aircraft wing.

**2. Source of Need.** 2011-2015 ARC WEPTAC Conference

**3. Units Impacted.**

128 ARW Gen Mitchell IAP, WI	117 ARW Birmingham APT, AL	161 ARW Phoenix-Sky Harbor IAP, AZ
185 ARW Sioux Gateway APT, IA	126 ARW Scott AFB, IL	190 ARW Forbes Fld, KS
101 ARW Bangor IAP, ME	186 ARW Key Fld, MS	108 WG Joint Base MDL, NJ
155 ARW Lincoln MPT, NE	157 ARW Pease AGS, NH	121 ARW Rickenbacker AGS, OH
171 ARW Pittsburg IAP, PA	134 ARW McGhee-Tyson APT, TN	168 ARW Eielson AFB, AK
138 FW Tulsa IAP, OK	180 FW Toledo Express AP, OH	177 FW Atlantic City IAP, NJ
169 FW McEntire AGS, SC	162 FW Tucson IAP, AZ	158 FW Burlington IAP, VT
151 ARW Salt Lake City IAP, UT	148 FW Duluth IAP, MN	141 ARW Fairchild AFB, WA
115 FW Truax Fld, WI	114 FW Joe Foss Fld, SD	113 FW JB Andrews, MD
154 WG JB Pearl Harbor-Hickam, HI	127 WG Selfridge AGB, MI	187 FW Dannelly Fld, AL
149 FW Kelly Fld, TX		

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>153 Hydrogen Leak Detector (3080)</b>	<b>\$33,000</b>	<b>\$5,049,000</b>
<b>306 Hydrogen Leak Detector MDS Accessory Kits (3080)</b>	<b>\$4,500</b>	<b>\$1,377,000</b>
<b>NRE (3080)</b>	<b>N/A</b>	<b>\$150,000</b>
<b>Total</b>		<b>\$6,576,000</b>

\*Only KC-135 Units and F-16 units are listed because approval to use on other MDS is pending; plan is to adapt across all airframes.

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**HH-60 RESCUE HOIST TEST AND MAINTENANCE SET**

**1. Background.** A commercially available automated cable testing and maintenance system can be adapted to the HH-60 hoist cable. A rescue hoist tester needs to provide: the ability to tension the wire rope on the cable drum and ensure proper wrap layering; condition a new cable as part of its initial installation on a hoist; magnetically inspect a cable and provide a permanent record of its condition; ability to wash, dry and lubricate the cable; store the cable in an unstressed state that facilitates removal and storage of the cable; perform everything mentioned with only one operator; operate in a remote location without any external power, water or air supply; and can be transported manually or by using ground carts or forklifts. An HH-60 rescue hoist cable tester enables hoist maintainers to detect indications of internal and external anomalies on the cable more quickly and make a determination on whether the wire rope should remain in service until the next inspection. A rescue hoist cable tester not only provides cable conditioning and inspection more efficiently, it also can be used with the 600-pound hook test per TM 1-1520-280-23. All of these capabilities reduce the time and manpower required to sustain rescue hoists, and lead to more efficient and safe rescue hoist cable maintenance.

**2. Source of Need.** 2015 ARC WEPTAC Conference

**3. Units Impacted.**

106 RQW Gabreski AP, NY

129 RQW Moffett Field, CA

176 WG Elmendorf AFB, AK

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>6 Rescue hoist Ground Support Equipment (3080)</b>	<b>\$65,000</b>	<b>\$390,000</b>
<b>2 Adapter for Ski Equipped HH-60 (3080)</b>	<b>\$5,000</b>	<b>\$10,000</b>
<b>Total</b>		<b>\$400,000</b>

**MULTI-MDS IMPROVED ARMAMENT/SMART WEAPONS PRE-LOAD TESTER**

**1. Background.** A replacement for the pre-load armament tester, also known as a stray voltage 50/60 tester, is needed. The replacement of existing, obsolete and uneconomical-to-repair pre-load testers with an enhanced model that retains the basic functions allows interaction with the aircraft weapons bus and perform operational checks of multiple breeches at the same time. Additionally, the tester must provide the capability to emulate smart weapons on stations. The replacement, a digital armament circuit preload test set (ACPTS), will be used prior to loading munitions to ensure the presence of firing voltage only when appropriate. This ensures the system is in a safe state prior to installation of ejection carts. The voltage detector shall be a reusable, repairable, hand held tester. It shall verify the absence of stray voltage on critical aircraft circuitry in an un-energized state, the presence of voltage in an energized state, and the presence of a voltage under load for firing electro-explosive devices. The voltage detector shall have the capability to perform tests and display the results of the test through the use of switches, indicators, and a numeric display. The voltage detector shall have the ability to perform a self-test of its own circuitry and an adapter test of interface cables and adapters to ensure correct operation of the test set. The ACPTS shall contain any MDS-specific accessories necessary to perform functions listed as system requirements on aircraft guns and racks. Need estimated at four per Close Air Support unit and an average of one spare per two units.

**2. Source of Need.** 2011-2015 ARC WEPTAC Conference

**3. Units Impacted.** All ANG CAF units

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>160 Armament Circuit Preload Test Set (3080)</b>	<b>\$30,000</b>	<b>\$4,840,000</b>
<b>Total</b>		<b>\$4,840,000</b>



**MULTI-MDS SATCOM TESTER**

**1. Background.** The Aeroflex 3515AR test set provides the maintainer a new tool to evaluate the aircraft Radio Frequency (RF) systems over-the-air, saving man-hours and reducing erroneous receiver and transmitter removals. However, the test set lacks accessories that enable the test set to be used over-the-air and in the direct connect mode coupled with scripting that automates the entire process. Without the accessories and scripting the maintainer cannot use the equipment effectively on aircraft radio maintenance, increasing down time. The accessory kit contains 2 crossover cables for loading MDS specific scripts into the 3515AR; a new connector for the ARC-210, 3 broadband antennas that cover the entire frequency range of the test set when used for ARC 164, ARC 190 and ARC 210 radios eliminating the need to continually change antennas during testing of specific frequencies; 1 script CD, a placard for all 3515AR connectors and 2 supplemental adapter kit documents detailing turn-in instructions. Integrated software for the Aeroflex 3515AR provides an automated user interface with on-screen instructions and automated test functionality to simplify and expedite test capabilities of the 3515AR. The accessory kit items along with the scripting enable a maintainer to conduct standoff testing of any radio frequency (RF) system and get instant details on system integrity; such as specific details (radio power output and frequency deviation) when completing "like" tests of the specific radio and frequency in question. If a failure is verified on ARC 164 and 210 radios during over-the-air tests, the test set can connect directly to the receiver/transmitter terminal and wire path in question to run the troubleshooting test, which will inform the maintainer with pass fail results for the radio, wire path and the antenna. Anticipate a need of two Aeroflex kits per flying wing.

**2. Source of Need.** 2011-2015 ARC WEPTAC Conference

**3. Units Impacted.** All ANG Flying units

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>176 Aeroflex Kits (3080)</b>	<b>\$10,000</b>	<b>\$1,760,000</b>
<b>NRE (3080)</b>	<b>N/A</b>	<b>\$300,000</b>
<b>Total</b>		<b>\$2,060,000</b>

**MULTI-MDS AVIONICS BACK SHOP TESTER**

**1. Background.** Improved Avionics Intermediate Stations (IAIS) are critical to maintenance troubleshooting and repair capabilities at ANG units. However, the current IAIS equipment has reached the end of its designed useful life. It faces diminishing manufacturing sources that causes increased difficulties in procuring and maintaining the current systems, which causes maintenance delays and reduces fully mission capable (FMC) rates. The very high speed improved avionics intermediate station (VXI-IAIS), a mid-life upgrade to the current system, rectifies these issues. VXI-IAIS eliminates diminishing manufacturing source issues and provides room for the future expansion and sustainability of repairable assets. VXI-IAIS provides onsite repair capability and assists validation and verification of unserviceable Line Replaceable Units (LRUs). VXI-IAIS equipment not only saves countless man hours in troubleshooting and on-sight repair, it also reduces unnecessary asset replacement costs and depot retests of serviceable components, saving the ANG millions of dollars annually. In addition, VXI-IAIS reduces the physical footprint of the IAIS, which increases unit deployment capabilities. There are currently eight test stations remaining in the ANG at A-10 units that require this upgrade.

**2. Source of Need.** 2011-2015 ARC WEPTAC Conference

**3. Units Impacted.**

127 WG Selfridge AGB, MI            175 WG Martin State APT, MD    122 FW Ft Wayne IAP, IN  
124 FW Boise Air Term, ID

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>8 VXI-IAIS Upgrade Kit (3080)</b>	<b>\$2,000,000</b>	<b>\$16,000,000</b>
<b>Total</b>		<b>\$16,000,000</b>

## ELECTRONIC BOMB LIFT EQUIPMENT

**1. Background.** Combat Air Force (CAF) Load crew exposure to the munitions jammer (MJ-1B/C) diesel engine emissions can cause headaches and dizziness can lead to long-term health-related issues. A common practice at northern tier locations is to use the diesel jammers with hanger doors closed during winter. Closing hangar doors prevents adequate ventilation and increases exposure to contaminants. Procurement of updated equipment enhances maintenance efficiency and safety while improving aircraft availability. The MJ-1E electric bomb lift truck, improves load crew effectiveness and safety by eliminating noise and pollution from diesel engines. This equipment is identical to the current munitions jammer used by the Air Force except the drive train consists of a 240-volt direct current 8-horsepower electric motor, onboard battery management system (charger), two trays of ten 12-volt Optima dry-cell batteries that are wired in series, and other minor associated components. Physical dimensions and operational characteristics of the MJ-1E are identical to the MJ-1B, MJ-1C, and MJ-1B/C, including lift capacity, table dimensions, table configuration capabilities, lift arm limits and performance, and vehicle speed and braking specifications. The MJ-1E onboard battery charger requires standard industrial 220-volt alternating current 3-phase power that is commonly available in aerospace ground equipment (AGE) shops and weapons load hangars. The charging system regulates incoming current and terminates charge when batteries are fully charged. It does not require external support equipment except for a power cord to connect it to the AC power source. Two to three MJ-1E electric bomb lift trucks are needed to safely support load crew training and operational needs at each CAF unit in the Air National Guard. Each unit will have a mix of electric and diesel powered MJ bomb lift trucks to support their Wing's missions. Independent air quality testing showed levels of diesel particulate matter (DPM) from the diesel MJ-1 exceeded the American Conference of Governmental Industrial Hygienists (ACGIH) standard by approximately three and a half times. Air Force munitions systems specialists are regularly exposed to this jammer's diesel exhaust. Use of the MJ-1E eliminates the exhaust fumes from the diesel jammers and reduces the noise, which enhances communication and safety among load crew members.

**2. Source of Need.** Presidential Directive on Energy Conservation; 2011-2015 ARC WEPTAC Conference

**3. Units Impacted.** All ANG CAF units

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

Remaining Quantity Required	Unit Cost	Program Cost
62 Munitions Loaders MJ-1E (3080)	\$140,000	\$8,680,000
<b>Total</b>		<b>\$8,680,000</b>

\*CAF Flying Units

**ISOCHRONAL INSPECTION AND MAINTENANCE STANDS**

**1. Background.** The Air National Guard does not possess C-17 home station check (HSC) inspection stands. C-17 aircraft maintenance is accomplished using a mix of ladders and B-series stands. These maintenance workaround activities do not meet Air Force Occupational Safety and Health Administration (AFOSH) or Occupational Safety and Health Administration (OSHA) standards. Current KC-135 isochronal (ISO) inspection stands no longer meet AFOSH or OSHA standards, since many are over 40 years old and require frequent maintenance actions and numerous man-hours to maintain their serviceability. Additionally, no standard KC-135 ISO stand exists in the Air Force inventory, and because of do not have a centrally managed supply chain for replacement parts. Stand sets for the C-17 and KC-135 are critical to accomplishing periodic inspection requirements, since C-17 maintenance workarounds and KC-135 stand maintenance delay completion of inspection requirements. Full wing and engine stands and platforms are critical for C-17 HSCs, and full wing, nose, and cargo door platforms are critical to accomplishing KC-135 ISOs. Inspection platforms and stands provide the capability to perform maintenance actions in conjunction with the inspection process. The stands must be safe, incorporate enhanced fall protection measures, and allow maintainers to complete aircraft specific tasks more efficiently; stands incorporate power, lighting, and pneumatics to the point of use, enabling maintainers to more effectively complete inspections and maintenance in a reduced time frame, leading to increased aircraft availability and enhanced mission effectiveness. By standardizing stands for maintenance activities, a smaller, more efficient supply chain with common parts and stock numbers can be established.

**2. Source of Need.** AFOSH and OSHA Standards; 29 CFR 1910 Subpart D; 2013-2015 ARC WEPTAC Conference; 2014 Stands and Platforms industry day.

**3. Units Impacted.**

- |                                  |                                |                                    |
|----------------------------------|--------------------------------|------------------------------------|
| 101 ARW Bangor IAP, ME           | 105 AW Stewart IAP, NY         | 108 ARW JB McGuire, NJ             |
| 117 ARW Birmingham IAP, AL       | 121 ARW Rickenbacker IAP, OH   | 126 ARW Scott AFB, IL              |
| 127 WG Selfridge ANGB, MI        | 128 ARW Gen Mitchell IAP, WI   | 134 ARW McGee Tyson AP, TN         |
| 145 AW Charlotte-Douglas IAP, NC | 151 ARW Salt Lake City IAP, UT | 154 WG Hickam AFB, HI              |
| 155 ARW Lincoln MAP, NE          | 157 ARW Pease AP, NH           | 161 ARW Phoenix-Sky Harbor IAP, AZ |
| 164 AW Memphis IAP, TN           | 167 AW Eastern WV RAP, WV      | 168 ARW Eielson AFB, AK            |
| 171 ARW Pittsburg IAP, PA        | 172 AW Jackson IAP, MS         | 176 WG Elmendorf AFB, AK           |
| 186 ARW Meridian RAP, MS         | 190 ARW Forbes Fld, KS         | 185 ARW Sioux Gateway APT, IA      |

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

Remaining Quantity Required	Unit Cost	Program Cost
6 C-17 Platforms and Stands (3080)	\$4,000,000	\$24,000,000
9 KC-135 Platforms and Stands (3080)	\$2,000,000	\$18,000,000
<b>Total</b>		<b>\$42,000,000</b>

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**MULTI-MDS SITUATION AWARENESS DATALINK TESTER**

**1. Background.** The installation of situation awareness datalink (SADL) on C-130 and HH-60 aircraft has created a requirement for maintenance support equipment needed to perform operational checks, troubleshooting, and radio firmware loading. The drawdown of F-16 aircraft has made some existing SADL support equipment (SSE) available to the C-130 community as an interim solution. However, the existing SSE is slowly becoming obsolete due to its aging and diminishing maintenance sources. There is also a growing need to provide additional support equipment with the same capability to maintenance organizations to maintain SADL-equipped aircraft. Advanced technology allows for a more compact and transportable solution, which makes some of the existing SADL equipment obsolete and changes the way software and firmware is loaded. An example is the replacement of the user readout unit (URO) with a virtual URO embedded within the SADL software. This new capability makes it possible to sustain multiple platforms with Common SSE (CSSE). The only variation necessary is the host Ethernet cable, which is specific to the model of radio receiver transmitter (R/T) being used. The CSSE consists of a wheeled transport/storage case, enhanced dual power adaptor (EDPA), EDPA AC power cable, manpack antenna, two attenuators (40Db), a commercially-available laptop with DVD/CD Reader/Writer, radio frequency cable (20ft), and Ethernet cables for SADL R/T 1719, 1720 and 1915. Two CSSE per C-130 unit provides the necessary tools and accessories, enabling maintenance personnel to trouble shoot and repair SADL-equipped aircraft faster than using the legacy SSE.

**2. Source of Need.** 2013-2015 ARC WEPTAC Conference

**3. Units Impacted.**

- |                                |                              |                                  |
|--------------------------------|------------------------------|----------------------------------|
| 103 AW Bradley IAP, CT         | 106 RQW Gabreski Airport, NY | 109 AW Schenectady Co APT, NY    |
| 120 AW Great Falls IAP, MT     | 123 AW Louisville, KY        | 129 RQW Moffett Field, CA        |
| 130 AW Yeager APT, WV          | 133 AW Mpls-St Paul IAP, MN  | 136 AW Forth Worth JRB, TX       |
| 139 AW St. Joseph AP, MO       | 143 AW Quonset SAP, RI       | 145 AW Charlotte-Douglas IAP, NC |
| 146 AW Channel Islands AGS, CA | 152 AW Reno IAP, NV          | 153 AW Cheyenne MAP, WY          |
| 156 AW Luis Munoz IAP, PR      | 165 AW Savannah IAP, GA      | 166 AW New Castle APT, DE        |
| 176 WG Elmendorf AFB, AK       | 179 AW Mansfield RAP, OH     | 182 AW Peoria IAP, IL            |
| 189 AW Little Rock AFB, AR     | 193 SOW Harrisburg IAP, PA   |                                  |

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>49 Common SADL Support Equipment (3080)*</b>	<b>\$11,225</b>	<b>\$550,025</b>
<b>Total</b>		<b>\$550,025</b>

\* Includes 5 percent spares

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**MULTIPURPOSE LIFTING DEVICE**

**1. Background.** Current maintenance operations routinely depend upon equipment with technology from the 1970s and 1980s, or specifically designed for other purposes such as the commercial cranes that are leased for assembling remotely piloted aircraft (RPA). This equipment is cumbersome and requires workarounds, is expensive to operate and lease, and often causes significant safety concerns because it is not specifically designed with the RPA mission in mind. The Air Force does not have a standard crane for performing many of the routine maintenance activities required to maintain the currently fielded RPAs. In most cases, the cranes are acquired through short term leases, but access varies on equipment availability. This lead time required to get suitable equipment causes significant maintenance delays. Sometimes it takes days, and other times it takes weeks to acquire the necessary crane suitable for the maintenance required. These cranes are used in a variety of maintenance activities from operational checks to packing and unpacking of the aircraft. A ruggedized multi-use telescopic material handling crane, capable of efficiently performing all required RPA maintenance actions is needed to ensure maximum aircraft availability on a daily basis. A crane is required for the majority of maintenance actions, including aircraft setup, software upgrades, testing or replacing landing gear servos, and various operational checks. The ruggedized multi-use telescopic material handler crane will meet all the lifting requirements and will also be capable of operating in open areas, across rough terrain, and in austere weather conditions. It will require a rugged structure for a versatile response, a 30-foot horizontal extension, a 41-foot vertical extension, and a minimum operating load capacity of 12,500-pounds. This crane is also required at each of the units that possess a geographically separated Launch and Recovery Element (LRE).

**2. Source of Need.** 2014 - 2015 ARC WEPTAC Conference

**3. Units Impacted.**

118 ISRG Nashville, TN	119 WG Fargo, ND*	147 RW Ellington Field JRB, TX*
162 FW Tucson IAP, AZ	163 RW March ARB, CA*	174 ATW Syracuse IAP, NY*
178 ISRG Springfield, OH	214 RG Tucson, AZ	

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>12 Multipurpose Lifting Device (3080)</b>	<b>\$300,000</b>	<b>\$3,600,000</b>
<b>Total</b>		<b>\$3,600,000</b>

\* Also required at units LRE

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# Intelligence, Surveillance, and Reconnaissance



RC-26B Condor - The RC-26B provides manned Incident Awareness and Assessment (IAA) and Intelligence, Surveillance, and Reconnaissance (ISR) capability with 11 aircraft in two configurations: Block 20 and Block 25. Additionally, the Air National Guard has acquired two C-26As that will be upgraded to the fleet baseline. This common configuration will include modern avionics, an upgraded EO/IR, advanced multi-mode mission radar, beyond line-of-sight communication, and a new mission management system. The RC-26B is a low density/high demand platform operating in the US and overseas,

supporting COCOM overseas contingency operations and Title-10 CONUS missions as well as domestic IAA requirements for disaster response, national special security events, counter-drug and border operations.

MC-12W –Thirteen aircraft with training, communications, and intelligence support are now based out of Will Rogers IAP, Oklahoma City, OK. The aircraft were delivered in the Block 3.1 configuration, to include Extended Range (ER), day/night full motion video (FMV), Line-Of-Sight (LOS) and Beyond-Light-Of-Sight (BLOS) video down links (VDL), and digitally integrated radios and mission management systems. Future modifications will allow a modular ISR capability, air-to-air data links, and self-protection systems conforming to combatant command requirements, along with enabling future domestic IAA operations.



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



# Intelligence, Surveillance, Reconnaissance

## 2015 Weapons and Tactics Conference

### *Critical Capabilities List*

#### DCGS

- Integrate an IMINT electronic attack mitigation capability
- Scalable Targeting Processors
- Scalable Network Technologies Program Licenses

#### MC-12W

- Line-Of-Sight (LOS) Tactical Data Link for Interoperability
- Ability to Operate in Global Positioning System Denied / Degraded AORs
- Exhaust Infrared (IR) Suppressor for Increased Survivability Against the Increasing Man Portable Air Defense Threat in the Area Of Responsibility (AOR)
- Improve Positive Identification with the Addition of an High Definition IR Sensor
- Slim-Fast Weight Reduction to Allow Max Fuel Load and Increased Loiter Time

#### RC-26B

- Avionics Modernization
- Block 25R Common Configuration
- Aircraft Performance Upgrade
- Multi-Function Radar Capability in a Configurable Package
- Interoperable Ku / Ka Beyond Line-Of-Sight (BLOS) Data Link

### *Essential Capabilities List*

#### DCGS

- None

#### MC-12W

- Second LOS Full Motion Video Data Link and Two Digital Video Encoders
- Second Modular High-Definition Full Motion Video Sensor with Interchangeable Synthetic Aperture Radar (SAR) and Ground Movement Target Indicator (GMTI)
- Automated Dependent Broadcast-Surveillance (ADS-B) Capable Military Transponder
- Add WESCAM Kinetic “Speed” And “MTP” Firmware Upgrades for The MX-15DiD
- TOLD Performance Improvement Package with Advanced Propellers

#### RC-26B

- Full Spectrum Battlespace Awareness Link
- Modern Weather Radar with Mission Capabilities
- Airborne Mobile Ad Hoc Data Distribution Network
- Full Crew DMO / LVC Simulator
- Single Sensor for Wide Area Overwatch

### *Desired Capabilities List*

In an effort to conserve excess pages, desired lists for the MC-12W and RC-26B are available upon request from NGB/A5. DCGS did not identify any desired capabilities.

**AIR FORCE DISTRIBUTED COMMON GROUND SYSTEM INTEGRATE AN IMINT ELECTRONIC ATTACK MITIGATION CAPABILITY**

**1. Background.** Air National Guard (ANG) Air Force Distributed Common Ground Station (AFDCGS) units are tasked to provide Imagery Intelligence (IMINT) in support of Combatant Commands (CCMDs) within Contested & Degraded Operations (CDO) environments. Given the limited capability and resiliency of current ISR assets to mitigate imagery sensor electronic attack (EA), AFDCGS units lack the effectiveness needed to deliver IMINT to CCMD requests in a CDO environment. By providing a computer system that mitigates jamming by detecting, removing and characterizing EA, ANG AFDCGS units will be able to provide IMINT during all contingency operations in all CCMD environments. There are currently three multiple intelligence medium and high altitude AFDCGS mission sites. These are the only AFDCGS units that require EA mitigation to perform their mission.

**2. Source of Need.** 2015 ARC WEPTAC Critical Item.

**3. Units Impacted.**

184 ISRG McConnell AFB, KS      101 ISRG Otis AFB, MA      181 ISRG Terra Haute, IN

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

Remaining Quantity Required	Unit Cost	Program Cost
3 EA Detection, Removal & Characterization Computer Systems (3080)	\$5,000	\$15,000
<b>Total</b>		<b>\$15,000</b>

**AIR FORCE DISTRIBUTED COMMON GROUND SYSTEM SCALABLE TARGETING PROCESSORS**

**1. Background.** Integrated Munitions Effects Assessment (IMEA) is used for producing weaponeering solutions by ANG targeting units. IMEA models the effects of specified munitions, fusing, and impact options against a target and delivers a probability of desired effects. IMEA scenarios are computationally intensive, often causing computer crashes, overheating, and lengthy processing times on standard Targeting Application Workstations (TAW). Units have upgraded random access memory (RAM) in TAW workstations and utilize the built-in distributed capabilities of IMEA to spread across networked workstations. However, the built-in distributed computing features of IMEA are insufficient to reliably produce results and upgraded RAM produces only nominal improvements. By providing six processing servers that are capable of handling the high computation loads of running targeting models, each ANG targeting unit will be better able to provide weaponeering solutions for Combatant Commands (CCMDs).

**2. Source of Need.** 2015 ARC WEPTAC Council

**3. Units Impacted.**

119 ISRG Fargo, ND	153 IS Ft. Smith, AR	250 IS Kirtland AFB, NM
118 ISRG Nashville, TN	194 IS Camp Murray, WA	132 ISRG Des Moines, IA

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

Remaining Quantity Required	Unit Cost	Program Cost
6 Processing Servers (3080)	\$75,000	\$450,000
<b>Total</b>		<b>\$450,000</b>

**AIR FORCE DISTRIBUTED COMMON GROUND SYSTEM SCALABLE NETWORK TECHNOLOGIES PROGRAM LICENSES**

**1. Background.** Air National Guard (ANG) non-kinetic targeting units are tasked with development of non-kinetic targeting solutions in support of target systems analysis and entity-level (person, place, or thing) target development. The products take the form of short and concise target vulnerability and effects assessments that recommend specific non-kinetic attack capabilities against a target vulnerability to achieve a specific effect. These products do not comprehensively assess complex scenarios of multiple partners working in sync against a complex target vulnerability. Further, current research tools do not make it possible for the targeting analyst to assess second and third order effects that may result from a targeting solution because the volume of data provided by the research tools is impractical for the targeting analyst to analyze. Consequently, it is a constant challenge to produce a target intelligence product that accurately assesses the effect and resulting collateral effects to a high degree of fidelity. Five scalable network technologies software programs are needed at two Cyber Targeting Units will provide the ability to inject behavior into target models and give the analyst the ability to create a high fidelity non-kinetic targeting solutions along with a more accurate assessment of actual effects.

**2. Source of Need.** 2015 ARC WEPTAC Council.

**3. Units Impacted.**

153 IS Ft. Smith, AR

177 IS Fargo, ND

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>10 Scalable Network Technologies Program Licenses (3080)</b>	<b>\$10,000</b>	<b>\$100,000</b>
<b>10 Maintenance for One License Per Year (3840)</b>	<b>\$2,500</b>	<b>\$25,000</b>
<b>Total</b>		<b>\$125,000</b>

**MC-12W LOS TACTICAL DATA LINK FOR INTEROPERABILITY**

**1. Background.** MC-12W Tactical Data Link (TDL) communication and information transfers are routed through the beyond line-of-sight (BLOS) system, which requires another ground or air based station to then pass the information to the supported units. This method creates significant latency delays to end-user agencies and delayed aircraft and sensor point of interest locations. If no such ground or air node exists in that Line-of-Sight (LOS) area of operations (AOR), then MC-12 track data will not be rebroadcast to participating air and ground stations, and conversely, the MC-12W crew will not see any local tracks. MC-12W aircrews need to share aircraft position, targeting data, sensor point of interest, cursor-on-target, and target track information derived from the multiple mission sensors onboard with various air and ground assets. The lack of a TDL on the MC-12W reduces situational awareness, increases time in the kill chain, and delays information to the supported units. A (LOS) tactical data link (TDL) radio is needed, with associated top and bottom L/S/C Tri-band antennas, to adequately employ across multiple AORs in the current operational environment. The system must be compatible with all current data link architectures in both domestic and combat areas of responsibility, to include Situational Awareness Data Link (SADL) and Link-16 with gateway capable software. This TDL system must include provisions for consistent, reliable, timely, and unrestricted TDL communications, and have open architecture for growth and advances in the TDL technology. This modification / upgrade will be applied to all thirteen aircraft and the parts required includes 10% spares.

**2. Source of Need.** 2015 ARC WEPTAC Conference, MIL-STD 6016D, MIL-STD 3011.

**3. Units Impacted.**

137 AW Will Rogers Wld  
APT,OK

**4. Program Details. PEC: 52601F**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	N/A	\$500,000
14 TDL Radios* (3010)	\$135,000	\$1,890,000
28 L/S/C Tri-Band Antennas* (3010)	\$5,000	\$140,000
<b>Total</b>		<b>\$2,530,000</b>

\*Includes 10% spares

**MC-12W ABILITY TO OPERATE IN GPS-DENIED / DEGRADED AREAS OF RESPONSIBILITY**

**1. Background.** MC-12W aircrews cannot adequately accomplish their mission in areas of denied or degraded Global Positioning System (GPS) signals. The design of the original commercial GPS antenna and receiver subsystem did not consider the threat of GPS jamming or GPS spoofing. Subsequently, its performance is insufficient during contested or degraded operations. MC-12W aircraft require an anti-jam and Selective Availability Anti-Spoofing Module (SAASM) capability with signal splitters for the aircraft navigation system and embedded mission equipment. In order to have full SAASM capability, this system must include an anti-jam Advanced Digital Antenna Production (ADAP) kit with a Controlled Reception Pattern Antenna (CRPA), the associated Antenna Electronics (AE), a Low Noise Amplifier (LNA), and by-pass filters. The protected positioning data this system provides will be available to all of the aircraft mission and navigational systems to ensure reliable and accurate navigation and mission performance. This system will allow MC-12W aircrews to continue to employ and provided accurate information to the supported units using the military Precise Position Service (PPS) P(Y) and M-coded signal while in a GPS compromised area. This modification / upgrade will be applied to all thirteen aircraft and the parts required includes 10% spares.

**2. Source of Need.** 2015 ARC WEPTAC Conference, Joint Program Office-GPS GRAM-S standard, DO-229 standard, TSO-C129A standard, CENTCOM AOR lessons learned.

**3. Units Impacted.**

137 AW Will Rogers Wld APT,  
OK

**4. Program Details. PEC: 52601F**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
NRE (3600)	N/A	<b>\$500,000</b>
<b>14 ADAP (CRPA+AE) GPS Antenna (3080)</b>	<b>\$5,000</b>	<b>\$70,000</b>
<b>14 SAASM and Signal Splitters (3010)</b>	<b>\$5,000</b>	<b>\$70,000</b>
<b>Total</b>		<b>\$640,000</b>

*Special Operations/Personnel Recovery*

**MC-12W EXHAUST INFRARED SUPPRESSOR FOR INCREASED SURVIVABILITY  
AGAINST MAN PORTABLE AIR DEFENSES**

**1. Background.** MC-12W aircraft are operating in areas with advanced infrared (IR) man-portable air defenses (MANPADs). The aircraft does not have any IR suppression system and due to size and weight carry only a small amount of flares. The addition of an IR suppression system will allow MC-12W aircrews the ability to operate at typical employment altitudes and ranges while degrading a MANPAD's ability to lock-on and engage the aircraft. The IR suppression system should not add significant weight to the aircraft nor should it negatively affect aircraft performance by more than 10%. Two kits per aircraft, with spares, are needed to outfit the 13 aircraft in the Air National Guard. IR suppressors will allow MC-12W aircrews to employ in areas of advanced MANPADs with reduced risk. This modification / upgrade will be applied to all thirteen aircraft and the parts required includes 10% spares.

**2. Source of Need.** 2015 ARC WEPTAC Conference, CENTCOM JUON 15-01.

**3. Units Impacted.**

137 AW Will Rogers Wld APT,  
OK

**4. Program Details. PEC: 52601F**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>28 IR Suppressor Kits* (3010)</b>	<b>\$125,000</b>	<b>\$3,500,000</b>
<b>Total</b>		<b>\$3,500,000</b>

\*Includes 10% spares

*Special Operations/Personnel Recovery*

**MC-12W IMPROVED POSITIVE IDENTIFICATION WITH THE ADDITION OF A HIGH DEFINITION INFRARED SENSOR**

**1. Background.** The MC-12W visual sensor includes high definition (HD) electro-optical wide (EOW) and narrow (EON) cameras but only a standard definition (SD) infrared (IR) camera. HD full motion video (FMV) is now the Special Operations Command minimum requirement for tactical Intelligence, Surveillance, and Reconnaissance (ISR) applications, allowing both the aircrew operator and ground command and control (C2) personnel to view a picture with over twice the resolution of SD. An HD camera facilitates positive identification of threats or hostile intent and an improved target description for follow, reacquisition, and targeting at longer aircraft ranges. An HD IR camera will show disturbed earth and trip wires leading to improvised explosive devices (IED) more readily. Additionally, the HD camera has a wider field of view. This modification / upgrade will be applied to all thirteen aircraft and the parts required includes 10% spares.

**2. Source of Need.** 2015 ARC WEPTAC Conference, CENTCOM JUON 15-01.

**3. Units Impacted.**

137 AW Will Rogers Wld APT,  
OK

**4. Program Details. PEC: 52601F**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>15 HD Cameras* (3010)</b>	<b>\$250,000</b>	<b>\$3,750,000</b>
<b>Total</b>		<b>\$3,750,000</b>

\*Includes 10% spares



*Special Operations/Personnel Recovery*

**MC-12W SLIM-FAST WEIGHT REDUCTION TO ALLOW MAX FUEL LOAD AND INCREASED LOITER TIME**

**1. Background.** The MC-12W cannot take a full fuel load due to heavy components. This disparity ranges from 800 lbs. with a standard combat crew of 4 to 1400 lbs. with a full training crew, equaling 1.4 hours to 2.5 hours of lost loiter, cruise, or training time. Most combat missions require maximum fuel load to provide flexibility and enable pursuit of enemy forces. Other small manned tactical ISR platforms have undergone Slim-Fast weight reduction programs as part of normal spiral development. The goal of this initial MC-12W weight reduction program is a weight savings and of 1000 lbs. This modification will be applied to all 13 aircraft.

**2. Source of Need.** 2015 ARC WEPTAC Conference

**3. Units Impacted.**

137 AW Will Rogers Wld APT,  
OK

**4. Program Details. PEC: 52601F**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>NRE (3010)</b>	<b>N/A</b>	<b>\$1,300,000</b>
<b>13 Slim-Fast Weight Reduction (3010)</b>	<b>\$750,000</b>	<b>\$9,750,000</b>
<b>Total</b>		<b>\$11,050,000</b>

**RC-26B AVIONICS MODERNIZATION**

**1. Background.** RC-26B avionics are obsolete and unsustainable due to diminishing manufacturing sources. Honeywell Bendix, the manufacturer of the RC-26 Flight Management System (FMS) KNS 660 stopped supporting navigational data updates to the outdated system in December 2015, rendering the fleet capable of only basic VOR to VOR navigational operations. 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 in part to comply with the Federal Aviation Administration’s (FAA) 2020 NextGen and the International Civil Aviation Organization (ICAO) Communication, Navigation, and Surveillance / Air Traffic Management (CNS/ATM) mandate. In addition to the FMS, the RC-26B navigation and communication radios are also obsolete. The navigation radios RC-26B do not have frequency modulation immunity, leaving the aircraft vulnerable to congestion and potentially unsafe aircraft operations when flying terminal area approaches and departures. 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 navigation systems to safely depart and land at austere and remote airfields. Modern avionics, to include a new FMS, new EFIS displays, an updated and certified GPS system, NVG compatibility, and upgraded radios are necessary to allow the aircraft to operate within all foreign and domestic airspace safely, efficiently, and comply with FAA/ICAO mandated navigation/communication requirements. The upgrade will be applied to all 13 aircraft.

**2. Source of Need.** FAA and ICAO mandates, 2009-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

115 FW Truax Fld, WI	141 ARW Fairchild AFB, WA	162 FW Tucson IAP, AZ
125 FW Jacksonville IAP FL	144 FW Fresno IAP, CA	186 ARW Meridian RAP, MS
130 AW Yeager AP, WV	147 RW Ellington IAP, TX	187 FW Montgomery RAP, AL
132RW Des Moines IAP, IA	150 FW Kirtland AFB, NM	

**4. Program Details. PEC: 52889**

Remaining Quantity Required	Unit Cost	Program Cost
13 Shipsets (3010)	\$1,570,000	\$20,410,000
NRE (3600)	N/A	\$1,700,000
<b>Total</b>		<b>\$22,110,000</b>

*Global Integrated ISR*

**RC-26B BLOCK 25R COMMON CONFIGURATION**

**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 the Block 25R, with a high definition (HD) electro-optical-infrared (EO/IR) full motion video (FMV) sensor, a Situational Awareness Data Link (SADL), mission equipment, and communications capability for DOMOPS and OCO mission sets. However, this upgrade does not include a laser designator or Link-16 tactical data link. With current COCOM requirements, these capabilities are critical for mission execution. The remaining five Block 20 and two C-26A aircraft must be added to this effort to standardize the fleet with the Block 25R configuration to include the laser designator and Link-16.

**2. Source of Need.** AF Form 1067, 22 Oct 2008; USSOCOM Manned Airborne Intelligence Surveillance, and Reconnaissance Capability Production Document, 23 Apr 2014; 2009-2015 ARC WEPTAC Conference.

**3. Units Impacted.**

115 FW Truax Fld, WI	141 ARW Fairchild AFB, WA	162 FW Tucson IAP, AZ
125 FW Jacksonville IAP FL	144 FW Fresno IAP, CA	186 ARW Meridian RAP, MS
130 AW Yeager AP, WV	147 RW Ellington IAP, TX	187 FW Montgomery RAP, AL
132RW Des Moines IAP, IA	150 FW Kirtland AFB, NM	

**4. Program Details. PEC: 52889**

Remaining Quantity Required	Unit Cost	Program Cost
<b>2 NRE (Block 20 and C-26A) (3600)</b>	<b>\$550,000</b>	<b>\$1,100,000</b>
<b>5 Block 20 --&gt; 25R Reconfiguration (3010)</b>	<b>\$1,150,000</b>	<b>\$5,750,000</b>
<b>2 C-26A Block 25R Reconfiguration (3010)</b>	<b>\$1,500,000</b>	<b>\$3,000,000</b>
<b>Total</b>		<b>\$9,850,000</b>

*Global Integrated ISR*

**RC-26B MULTI-FUNCTION RADAR CAPABILITY IN A CONFIGURABLE PACKAGE**

**1. Background.** An advanced multi-mode radar is needed for ground moving target indication, dismounted moving target indication, coherent change detection, and maritime search capabilities. This technology will allow the RC-26 to find and fix people, vehicles, water craft, vehicles in the open, through weather, and obscured by foliage, as well as the ability to detect the passage of ground targets over land both in real-time and after the movement has occurred. For the maritime mode, the system must also incorporate the ability to interact with the US Navy ship tracking and position reporting Automated Information System (AIS), allowing the RC-26 to fully integrate with the maritime mission set. The radar will augment the current EO/IR sensor, allowing for multi-int capability and organic self-cueing. A configurable package is needed to ensure that the system can be upgraded or swapped with a different sensor and system module as new or upgraded systems, sensor, or radars become available or required for operations. This re-configurable aspect will help drive lower cost and minimal integration efforts, providing quick-turn capability for the wide array of technologies needed for the varied missions the RC-26 is called upon to perform. This modification will be applied to all thirteen aircraft

**2. Source of Need.** NGB/J32; SOCOM, SOUTHCOM, NORTHCOM, JTF-N, JIATF-S; 2014-15 ARC WEPTAC Conference.

**3. Units Impacted.**

115 FW Truax Fld, WI	141 ARW Fairchild AFB, WA	162 FW Tucson IAP, AZ
125 FW Jacksonville IAP FL	144 FW Fresno IAP, CA	186 ARW Meridian RAP, MS
130 AW Yeager AP, WV	147 RW Ellington IAP, TX	187 FW Montgomery RAP, AL
132RW Des Moines IAP, IA	150 FW Kirtland AFB, NM	

**4. Program Details. PEC: 52889**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	N/A	\$500,000
<b>13 Advance Multi-Mode Radars (3010)</b>	<b>\$1,000,000</b>	<b>\$13,000,000</b>
<b>Total</b>		<b>\$13,500,000</b>

*Global Integrated ISR*

**RC-26B INTEROPERABLE KU / KA BEYOND LINE-OF-SIGHT (BLOS) 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 area-of-operations. It also permits platform-to-platform and platform-to-C2 data exchange and sensor slewing. These upgrade kits will 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 - 2015 ARC WEPTAC Conference;. US Special Operations Command (USSOCOM) Manned Airborne Intelligence Surveillance Reconnaissance (MAISR) Capability Production Document, 23 Apr 2014.

**3. Units Impacted.**

115 FW Truax Fld, WI	141 ARW Fairchild AFB, WA	162 FW Tucson IAP, AZ
125 FW Jacksonville IAP FL	144 FW Fresno IAP, CA	186 ARW Meridian RAP, MS
130 AW Yeager AP, WV	147 RW Ellington IAP, TX	187 FW Montgomery RAP, AL
132RW Des Moines IAP, IA	150 FW Kirtland AFB, NM	

**4. Program Details. PEC: 52889**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	N/A	\$1,000,000
<b>13 BLOS Antennas and installation kits (3010)</b>	<b>\$750,000</b>	<b>\$9,750,000</b>
<b>Total</b>		<b>\$10,750,000</b>

**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. The Air National Guard fleet consists of eleven B model and two A model aircraft. The numerous incremental modifications on all these aircraft, with added weight, airframe changes (antennas, fuselage mounted sensors and equipment), and increased power consumption have reduced overall aircraft performance and impact mission effectiveness. An aircraft performance upgrade will provide greater range and increased endurance, reduce ground acoustic signature, and increase sensor and airframe life. High-efficiency composite propellers and installation of airflow vanes and vortex generators will greatly reduce the overall aircraft drag. Additionally, the high-efficiency propellers will 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, or greater stand-off within the constraints of the sensors, depending on them mission. 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. New, higher output generators will increase the load limit, increasing safety margins and allow for additional sensors and mission equipment. Lastly, in order to match the rest of the fleet, the two C-26A aircraft will also need to be upgraded to the higher power Honeywell TPE 331-12G engines currently on the eleven B models. 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; 2014-15 ARC WEPTAC Conference.

**3. Units Impacted.**

115 FW Truax Fld, WI	141 ARW Fairchild AFB, WA	162 FW Tucson IAP, AZ
125 FW Jacksonville IAP FL	144 FW Fresno IAP, CA	186 ARW Meridian RAP, MS
130 AW Yeager AP, WV	147 RW Ellington IAP, TX	187 FW Montgomery RAP, AL
132RW Des Moines IAP, IA	150 FW Kirtland AFB, NM	

**4. Program Details. PEC: 52889**

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	N/A	\$1,200,000
26 5-Blade High Efficiency Propellers (3010)	\$240,909	\$6,263,634
26 400-Amp Generators (3010)	\$27,300	\$709,800
4 Honeywell TPE 331-12G Engines and Mounts (3010)	\$700,000	\$2,800,000
<b>Total</b>		<b>\$10,973,434</b>

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# 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 ANG has three Guardian Angel squadrons: the 103 RQS, Francis S. Gabreski Airport, NY; 131 RQS, Moffett Federal Airfield, CA; and 212 RQS, Joint Base Elmendorf-Richardson, AK, which consists of Combat Rescue Officers (CROs) and Pararescue Jumpers (PJ). Their primary mission is to recover downed and injured aircrew members in combat. Pararescue personnel provide recovery and emergency medical treatment necessary to stabilize and evacuate injured personnel.

The ANG has two Special Tactics Squadrons (STS): the 123 STS, Standiford Field, KY and 125 STS, Portland IAP, OR. Special Tactics Teams (STT) are quick-reaction, deployable SOF units, which are uniquely organized, trained, and equipped to conduct joint special operations and sensitive recovery missions. Special tactics personnel, including Combat Controllers (CCT), PJ, and Special Operations Weathermen (SOWT), provide quick-reaction Command and Control (C2), Close Air Support (CAS), positive air traffic control, and casualty recovery, treatment and evacuation staging during joint air, ground, and maritime operations including short notice, sensitive contingencies.

TACPs provide airspace integration and terminal attack control of CAS firepower onto enemy ground targets. TACPs also provide the planning and employment of assets, in full spectrum combat, in support of US Army ground combat units. TACPs advise Army ground commanders on the best use of airpower. They establish and maintain Command, Control, and Communications (C3) of all combat air assets, including the integration of surface-to-surface and air-to-surface fires.



# Guardian angel, Special Tactics and Tactical Air Control Party

## *Critical Capabilities List*

### Guardian Angel

- Combat Survivability System Modernization
- Preservation of the Force and Family Equipment
- Full Spectrum Personnel Recovery Simulators (see Tab Q)
- Guardian Angel Aircraft Interoperability System
- Medical Modernization System

### Special Tactics

- Mobility Systems
- Situational Awareness Systems
- Home Station Training solutions (see Tab Q)
- Survey System
- Modernized Aerial Delivery Systems

### TACP

- ASOC Tactical Datalink
- Portable Next Generation Power Management
- Dismounted Audio and Video Mission Recording System
- Rapidly Deployable Joint Operational Communications System
- Lightweight Dismounted Sensor and Targeting System

## *Essential Capabilities List*

### Guardian Angel

- Search Enhancement
- Terminal Area Simulator
- Signature Management Capabilities

- Single Pass Precision Airdrop

### Special Tactics

- Handheld Link-16 Radio
- Dual-Channel Multi-Band Voice & Data
- MPU-4 Wave-Relay Radios

### TACP

- Advanced JTAC Training Simulator
- JTAC Targeting pod
- Low Profile Vehicle and Dismounted Antennas
- Handheld Link-16 Terminals
- White Phosphorous Night Vision Goggles

## *Desired Capabilities List*

### Guardian Angel

- Physical Augmentation
- Air Deployable Recuse Vehicle
- Communications and Weapon Enhancements
- Search and Rescue Vehicle

### Special Tactics

- Compact Light Weight Air Traffic Control Gun

### TACP

- Enhanced ROVER Capability
- Clip-On Short Wave Infrared Device
- Video Down Link Movement Identification Software
- Multi-Channel Radios

**GUARDIAN ANGEL COMBAT SURVIVABILITY SYSTEM 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 designed 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 range of NVGs for different mission sets will operate day or night, incorporating thermal and night vision technology, provide improved field of view, and provides the operator “heads-up” information such as distance and bearing to a chosen objective will fill 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 after action reports and trending injuries to necks from extended night operations reveals a need for a more capable lighter NVG to replace the legacy version of the PVS-15 AN/PVS-31. The combat survivability system for modernization should include: 73x AN PVS31 BNVD, 36x Night/Day Target Designator, 30x Optics 1 E-COSI, and SOPMOD Block three for modernization of the M-4 Optics.

**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; 2010-2014 ARC WEPTAC Conference; 2015 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: 53119**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>73 AN PVS-31 BNVD (3080)</b>	<b>\$10,000</b>	<b>\$730,000</b>
<b>36 Night/Day Target Designators (3080)</b>	<b>\$18,500</b>	<b>\$666,000</b>
<b>30 Optics I E-COSI (3080)</b>	<b>\$14,750</b>	<b>\$442,500</b>
<b>120 SOPMOD Block Three (3080)</b>	<b>\$20,000</b>	<b>\$2,400,000</b>
<b>Total</b>		<b>\$4,238,500</b>

*Special Operations/Personnel Recovery*

**GUARDIAN ANGEL PRESERVATION OF THE FORCE AND FAMILY 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, GA require Preservation of the Force and Family (POTFF) systems that consist of both contracted physical training personnel and physical training equipment. Human Optimization System Phase Three is the procurement of physical training and strength conditioning/reconditioning equipment and a Human Performance Optimization (HPO) database. The HPO database will allow all ARC squadrons to record data points documenting a baseline, injury trends, and physical improvement of the participants. This can be used a tool to measure the success of the HPO program.

**2. Source of Need.** The 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; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

106 RQW Gabreski AP, NY                      123 STS Standiford Field, KY                      125 STS Portland IAP, OR  
129 RQW Moffett Field, CA                      176 WG JB Elmendorf, AK

**4. Program Details. PEC: 53119**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>5 Phase Two Units (3080)</b>	<b>\$355,700</b>	<b>\$1,778,500</b>
<b>5 Phase Three Units (3080)</b>	<b>\$300,000</b>	<b>\$1,500,000</b>
<b>Total</b>		<b>\$3,278,500</b>

**GUARDIAN ANGEL AIRCRAFT INTEROPERABILITY SYSTEM**

**1. Background.** Guardian Angel (GA) operators are tasked to perform mission and aircrew duties aboard legacy Air Force rescue C-130s, HH-60G as well as Joint and Coalition aircraft. The replacements for legacy rescue aircraft, as they are being currently fielded, are missing important features/capabilities of the legacy aircraft which reduce both GA’s ability to effectively operate with the aircrew, and perform required mission duties. For example, the HC-130J lacks the mission planning table, scanner windows, and flare tubes that are present in the HC-130P/MC-130P aircraft. The fielded Intercom System (ICS) cord configuration and electrical power available also affect GA interoperability with the flight crew and capability. Without the mission planning area and scanner windows, the GA is limited in Situational Awareness (SA), search and scanning ability, and enroute planning and preparation capability. ICS cord location and availability can significantly affect Jumpmaster duties, and degrades situational awareness for the entire GA team onboard. A/C electrical power location and availability can affect patient treatment during long flights when extended care and patient monitoring is needed. GA’s require modular approaches to enhance current SA and capability that can be transferred to newly fielded airframes. The GA community will work with the other rescue C-130 and HH-60G communities to find a modular solution that will ensure the best interoperability and use of existing airframes and technologies, while remaining transferable to newly fielded aircraft and upgradable for future requirements. Each affected unit should have a minimum of three complete systems capable of being easily transferred from one aircraft to another in order to cover future missions.

**2. Source of Need.** Active Duty 1067 dated 04 September 2014, submitted by 48 RQS. Lessons learned from 2014 long over water SAR mission. 2015 ARC WEPTAC Council.

**3. Units Impacted.**

106 RQW Gabreski Airport, NY    129 RQW Moffett Field, CA    176 WG JB Elmendorf, AK

**4. Program Details. PEC: 53119**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>3 Mission Planning / Situational Awareness Station (3080)</b>	<b>\$150,000</b>	<b>\$450,000</b>
<b>3 Aircraft Interoperability System (3080)</b>	<b>\$150,000</b>	<b>\$450,000</b>
<b>3 Wireless ICS System (3080)</b>	<b>\$30,000</b>	<b>\$90,000</b>
<b>3 A/C Power Inverter System (3080)</b>	<b>\$60,000</b>	<b>\$180,000</b>
<b>Total</b>		<b>\$1,170,000</b>

**GUARDIAN ANGEL MEDICAL MODERNIZATION SYSTEM**

**1. Background.** Air National Guard (ANG) Guardian Angel (GA) missions require modern medical real time telemetry. Patient vitals and treatment can be monitored by definitive care real time worldwide via Inmarsat transmission via standard internet. Acquisition of a lightweight and compact modernized medical monitoring system will dramatically improve GA capability. The fly away kit will provide the GA member the ability to interact through telemedicine with care professionals while operating from disconnected or austere locations. This will include the computer, screens, camera, microphone, diagnostic tools, and case to transport the medical modernization equipment. The system will significantly improve patient care and increase survivability.

**2. Source of Need.** Lessons learned from real world extended care over water SAR. Lessons learned from Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF); Mission Required Equipment Shortfalls identified in the Guardian Angel Modernization Initial Capabilities Document and the GA Capabilities-Based Assessment (CBA) Final Report; 2010-2015 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: 53119**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>40 Propaq MD Cardiac Resuscitation Device (3080)</b>	<b>\$30,000</b>	<b>\$1,200,000</b>
<b>6 MCD 4800 Inmarsat Terminal (3080)</b>	<b>\$13,000</b>	<b>\$78,000</b>
<b>3 Fly Away Kit (3080)</b>	<b>\$20,000</b>	<b>\$60,000</b>
<b>Total</b>		<b>\$1,338,000</b>

**SPECIAL TACTICS AND GUARDIAN ANGEL MOBILITY SYSTEMS**

**1. Background.** Special Tactics Squadrons (STS) and Guardian Angel tasked squadrons consist of Combat Controllers (CCT), Pararescue (PJ), and Special Operations Weather Teams (SOWT) who require unique mission support and mobility assets in order to infiltrate, execute, and exfil missions. With AFSOC increasing the unilateral mission sets for STS in the areas of assault zone establishment, survey, recovery, reconnaissance, and strike, STS must evolve and adapt to support these missions sets. The Multi-mission Unilateral Transporter (MUT) will provide an immediate response and critical mobility platform to Special Tactics Teams (STT) to support both permissive and low-visibility missions. The MUT is a systematically modified van that would create sufficient storage for tactical gear, weapons, and communications equipment for a multi-faceted and seamless interface with all levels of command and control. A 4-wheel drive chassis will be a key component of this response platform to ensure the vehicle’s performance in unimproved terrain and on hazardous road conditions. The SOCOM Ground Applications Program Office has already made an initial procurement for other SOCOM AF/JSOC units in a standard configuration that provides air-load tie downs with C-130 certification, tactical seating for 6 to 8 personnel in the back, radio interface panels for user radios with cabling to discrete roof mounted antennas, video display screens for real time VDL feeds, and blackout IR lighting. Five each required for STS and two each per Rescue Squadron (RQS).

**2. Source of Need.** Lessons learned from Operation ENDURING FREEDOM and INHERENT RESOLVE; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

106 RQW Gabreski AP, NY                      123 STS Standiford Field, KY                      125 STS Portland IAP, OR  
129 RQW Moffett FAF, CA                      176 WG JB Elmendorf, AK

**4. Program Details. PEC: 53130**

Remaining Quantity Required	Unit Cost	Program Cost
16 Modified Vans (3080)	\$200,000	\$3,200,000
<b>Total</b>		<b>\$3,200,000</b>

**SPECIAL TACTICS SITUATIONAL AWARENESS SYSTEMS**

**1. Background.** Special Tactics Squadrons (STS) consist of Combat Controllers (CCT), Pararescue (PJ), Special Operations Weather Teams (SOWT), and Tactical Air Control Parties (TACP) who engage the enemy at close range while coordinating precision air and indirect fire on targets from two hundred meters to three thousand meters distant. Based on Operation ENDURING FREEDOM (OEF) lessons learned, the next-generation Two-way Tactical ROVER (TACNET) will enhance fratricide prevention and target acquisition capability with no additional weight penalty. The TACNET ROVER provides the warfighter increased situational awareness and the ability to broadcast friendly position and targeting information to currently fielded Generation 4 targeting pods, in addition to receiving full-motion video. The solution fully integrates with existing battlefield airman situational awareness tablets in inventory and utilizes existing communications architecture to receive and transmit critical targeting information. The requirement is 5 per Air Support Operations Squadron (ASOS) and 10 per STS. The Handheld Precision Targeting Device (HHPTD) combines superior optics with advanced electronics and will be utilized to support the myriad of Special Tactics capabilities. This proven system is capable of detecting and identifying threats in real time while managing defensive systems and providing operators with passive search, surveillance, observation, and warning solutions. Two HHPTD’s are required per unit to meet requirements. The Enhanced Clip-on short-wave infrared (SWIR) E-COSI injects an SWIR image overlay into current night vision device technology. This optics solution provides out of band illumination in order to enhance situational awareness without activating visible or near-infrared illumination, minimizing detection while delivering dynamic ranges of imaging beyond thermal capabilities and resolution. These situational awareness components use augmented reality technology that increases effectiveness through enhanced detection capability and definitive identification of friendly and enemy forces. Each STS requires 10 ECOSIs.

**2. Source of Need.** Lessons learned from Operation ENDURING FREEDOM and INHERENT RESOLVE; 2013 ARC WEPTAC Conference; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

123 STS Standiford Field, KY	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	125 STS Portland IAP, OR	138 CTF Camp Gruber, OK
146 ASOS Will Rodgers, OK	147 ASOS Ellington Fld, TX	148 ASOS Indian Town Gap, PA
165 ASOS Garden City, GA	169 ASOS Peoria, IL	168 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: 53130**

Remaining Quantity Required	Unit Cost	Program Cost
<b>110 TACNET ROVER (3080)</b>	<b>\$35,000</b>	<b>\$3,850,000</b>
<b>24 HHPTD (3080)</b>	<b>\$85,000</b>	<b>\$2,040,000</b>
<b>20 E-COSI (3080)</b>	<b>\$40,000</b>	<b>\$800,000</b>
<b>Total</b>		<b>\$7,705,000</b>

**SPECIAL TACTICS MODERNIZED AERIAL DELIVERY SYSTEMS**

**1. Background.** Special Tactics Squadrons (STS) consist of Combat Controllers (CCT), Pararescue (PJ), and Special Operations Weather Teams (SOWT) who require multiple unique mission support equipment items in order to infiltrate and execute their various mission sets. Ten-person oxygen consoles allow Special Tactics Teams (STT) to field a higher number of military freefall (MFF) jumpers while reducing the number of consoles required. 4 consoles at each of two squadrons fulfills UTC requirements. This new system also provides greater mobility for the jumpers as well as the jumpmaster. The legacy system can only support 6 personnel at one time and is no longer compatible with current oxygen masks. The acquisition of 20 new MFF parachute systems for the 125 STS standardize them with the 123 STS by providing similar, state-of-the-art Bottom-of-Container (BOC) parachutes. Current systems in use at the 125 STS are ripcord activated. 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, safer equipment. At a recent domestic exercise, 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 contingency operations, there is no guarantee which set of equipment will arrive first. Therefore, it is imperative to ensure configuration control of shared equipment sets. In addition to the precision parachuting capabilities that freefall systems provide, precision delivery of equipment by parachute is also required. Four Microfly automated aerial delivery systems allow pinpoint accurate delivery of vital support equipment to ground personnel in the event an operator is unable or unavailable to execute the jump. Four of these systems (2 per squadron) will provide the needed capability.

**2. Source of Need.** Lessons learned from Operation ENDURING FREEDOM and INHERENT RESOLVE; 2014-105 ARC WEPTAC Council

**3. Units Impacted.**

123 STS Standiford Field, KY      125 STS Portland IAP, OR

**4. Program Details. PEC: 53130**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>8 Ten Person Oxygen Console (3080)</b>	<b>\$55,000</b>	<b>\$440,000</b>
<b>4 Microfly Parachute Devices (3080)</b>	<b>\$28,500</b>	<b>\$114,000</b>
<b>20 Freefall Parachute Systems (3080)</b>	<b>\$20,000</b>	<b>\$400,000</b>
<b>Total</b>		<b>\$954,000</b>



**SPECIAL TACTICS SURVEY SYSTEM**

**1. Background.** Special Tactics Squadrons (STS) consist of Combat Controllers (CCT), Pararescue (PJ), and Special Operations Weather Teams (SOWT) who are called on to complete a range of detailed survey missions for drop zones, helicopter landing zones, and improved and semi-improved landing zones in permissive and denied environments. Current collection equipment consists of survey grade GPS system with a base station, laser range finders connected to GPS units, and a clinometer. This new survey system would allow the survey team to downsize from five operators to two and enable them to autonomously complete necessary survey data collection in the span of 20 minutes using passive collection without the need for all terrain vehicles or a GPS base station. Active collection of similar data takes 1.5 hours by a 5-person team maneuvering around the survey area with a handheld GPS and laser range finder. The new survey system has a high-performance laser scanner, inertial measurement unit, and color sensor. This system produces photo realistic 3D imagery of large regions. The system has a large field of view and a high measurement rate for fast mapping that creates a 3D image with 1 cm accuracy out to 1 km from the sensor. The time savings alone with the new system allows for collection 5 times faster than the current method, and since the collection is automated the operators are free to complete other supporting tasks. Mission enhancements: very fast (one pass) survey collection in 3D; Reduced manpower and equipment footprint; Increased ability to conduct operations in low-visibility semi-denied environment; Ability to collect large complex areas in minimal ground time; Significant reduction to warfighter exposure to the enemy. The system includes a LiDaR camera, an autonomous mini-copter, and post-collection processing software. Affected mission sets: Assault Zone establishment, Integrated Survey Program support, and Non-Combatant Evacuation Operations. Risk to mission if not provided: unnecessary exposure to force due to need for personnel to physically cover terrain on foot or vehicle to collect measurements, longer time for collection, and potential need to return to survey site for additional collection.

**2. Source of Need.** Lessons learned from Operation ENDURING FREEDOM and INHERENT RESOLVE; 2014 Association for Unmanned Vehicle Systems International (AUVSI) conference after-action report; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

123 STS Standiford Field, KY      125 STS Portland IAP, OR

**4. Program Details. PEC: 53130**

<b>Remaining Quantity Required</b>	<b>Unit cost</b>	<b>Program Cost</b>
<b>4 LiDAR Survey Systems (3080)</b>	<b>\$350,000</b>	<b>\$1,400,000</b>
<b>Total</b>		<b>\$1,400,000</b>

**TACTICAL AIR CONTROL PARTY AIR SUPPORT OPERATIONS CENTER  
TACTICAL NETWORK 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 (FSCC) within the ground combat element. The ASOCs 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 ASOC's lack a lightweight, transportable, tactical network suite capable of linking JTACs, aircrews, and senior echelons in the TACS. This tactical network must include NIPR, SIPR, CENTRIX, DSN, 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 6 megabytes per second. It is also vital that this new system be tailored to the specific mission needs and to allow for expansion and modification as the ASOC mission evolves to meet the needs of the future warfighter. Additionally, a proper solution should reduce our overall footprint and be more cost effective.

**2. Source of Need.** AFRL request for solutions solicitation number BAA-RWK-10-0003; USSOCOM sponsored recommendation for deployable C4I requirements; Lessons learned from Operations IRAQI FREEDOM and ENDURING FREEDOM; 2012- 2013 ARC WEPTAC Conference; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

111 ASOS Camp Murray, WA      168 ASOS Peoria, IL

**4. Program Details. PEC: 27418**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>4 Tactical Network Systems (3080)</b>	<b>\$1,000,000</b>	<b>\$4,000,000</b>
<b>Total</b>		<b>\$4,000,000</b>

## **TACTICAL AIR CONTROL PARTY PORTABLE NEXT GENERATION POWER MANAGEMENT**

**1. Background.** Dismounted Joint Terminal Attack Controllers (JTAC) lack a lightweight portable power storage solution for man-portable and handheld radios. JTACs require a large number of batteries to maintain radio communications during field operations. Rechargeable battery systems offer reduced weight, extended battery life, and reduced long term costs both monetarily and to the environment. In the current configuration, JTACs carry several different batteries while performing dismounted operations. The batteries can add up to 25 pounds to a combat load. JTACs require a battery that can be used and recharged while conducting dismounted operations. The rechargeable batteries must withstand wet conditions (rain and humidity) for an extended period of time and not endanger the JTAC and their equipment. The batteries must also be rechargeable from a variety of sources (AC/DC power, NATO plugs from vehicles, 110/220 power output sources, trickle charge from other battery devices, alternate means of charging such as solar, etc.) without being removed from the radio. They must power PRC-117G, PRC-148, and PRC-152A radios, dismounted lasers, and other JTAC peripheral equipment. The battery must have an efficiency rating greater than 90%, weigh less than 1.50 kilograms, and meet all Federal Aviation Administration (FAA) transportation regulations for civilian and military air travel. Enhancing the portable power solutions currently used by JTACs will help decrease fatigue and injuries to JTACs by reducing the amount of weight taken into combat. Fielding requirements are one power source per UTC required dismounted radio system.

**2. Source of Need.** Lessons learned from Operations IRAQI FREEDOM and ENDURING FREEDOM. Department of Transportation Regulations (49 CFR, SEC. 175.10); 2010-2011 WEPTAC Conference and 2015 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 Beaugard, LA | 123 STS Standiford Field, KY |
| 124 ASOS Gowen Field, ID   | 125 STS Portland IAP, OR   | 138 CTF Camp Gruber, OK      |
| 146 ASOS Will Rodgers, OK  | 147 ASOS Ellington Fld, TX | 148 ASOS Indian Town 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: 27418**

Remaining Units Required	Unit Cost	Program Cost
<b>424 PRC-117G Portable Power (3080)</b>	<b>\$10,150</b>	<b>\$4,303,600</b>
<b>288 PRC-148/152 Radio Batteries (3080)</b>	<b>\$5,440</b>	<b>\$1,566,720</b>
<b>Total</b>		<b>\$5,870,320</b>

*Special Operations/Personnel Recovery*

**TACTICAL AIR CONTROL PARTY LIGHTWEIGHT DISMOUNTED SENSOR AND TARGETING SYSTEM**

**1. Background.** Joint Terminal Attack Controllers (JTAC) 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 (LTM) / Laser Target Designator (LTD) / Laser Range Finder (LRF) that should weigh less than 5lbs and have the capability to identify and designate a tank-sized target at distances greater than 2 kilometers and ability to mark greater than 3 kilometers. The LRF function should have integrated eye-safe magnified optics, capable of target identification at 5 kilometers for day and 1 kilometer for night and natively generate CAT II coordinates. The LTD must be capable of pulse interval modulation (PIM) 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 (WPAN) would increase the combat capability of JTACs while decreasing the weight carried and potential for equipment failure. The Fielding proposal for the Day/Night Spot Trackers is 10 per operational unit, and two each at the Air National Guard Test Center and Combat Training Flight. Fielding requirements for the WPAN capability are 20 each per operational unit in order to meet dismounted operator needs. Fielding requirements for the Lightweight Range Mark Designator are three per supported Army Brigade and four each per Special Tactics Squadron in order to meet mission needs.

**2. Source of Need.** ACC TACP RWG validated requirement; Air Force Research Lab request for solutions solicitation number BAA-RWK-10-0003; AFMC RFP Solicitation Number TACPCASS061512; ARC 2012-2013 WEPTAC Conference; 2014-2015 WEPTAC Council; Lessons learned from Operations IRAQI FREEDOM and ENDURING FREEDOM.

**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 Beaugard, LA	123 STS Standiford Field, KY
124 ASOS Gowen Field, ID	125 STS Portland IAP, OR	138 CTF Camp Gruber, OK
146 ASOS Will Rodgers, OK	147 ASOS Ellington Fld, TX	148 ASOS Indian Town 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: 27418**

Remaining Quantity Required	Unit Cost	Program Cost
<b>164 Day/Night Spot Trackers (3080)</b>	<b>\$60,000</b>	<b>\$9,840,000</b>
<b>340 WPAN Capability (3080)</b>	<b>\$15,000</b>	<b>\$5,100,000</b>
<b>120 Lightweight Range Mark Designator (3080)</b>	<b>\$120,000</b>	<b>\$14,400,000</b>
<b>Total</b>		<b>\$29,340,000</b>

*Special Operations/Personnel Recovery*

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

**1. Background.** Joint terminal attack controllers (JTACs) have historically utilized hand-written notes as the sole source of reference for mission debrief. This has led 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 will be remembered 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 will provide the fidelity needed to improve JTAC mission debrief. The system must record traffic for up to two radios, ambient sound, and “HUD” video (both day and night capable). It must be capable of time stamping significant event 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. Optimal fielding is one device per training and evaluation position, for a total of seven devices per operational unit. Additionally, the two Air Support Operations Centers (ASOC), the Test Center and the JTAC Combat Training Flight have a requirement for two devices per unit.

**2. Source of Need.** 66WPS JTAC Weapons Instructor Course (WIC) white paper titled *JTAC Debriefing Guide*; Lessons learned from Operations ENDURING FREEDOM and IRAQI FREEDOM, ARC 2015 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	123 STS Louisville, KY
125 STS Portland, OR	AATC Tucson, AZ	
238 ASOS Meridian, MS	274 ASOS Syracuse, NY	284 ASOS Smoky Hill, KS

**4. Program Details. PEC: 27418**

Remaining Quantity Required	Unit Cost	Program Cost
<b>120 JTAC MSN Recording and Debrief System</b> (3080)	<b>\$5,000</b>	<b>\$600,000</b>
<b>Total</b>		<b>\$600,000</b>

**TACTICAL AIR CONTROL PARTY RAPIDLY DEPLOYABLE JOINT  
OPERATIONAL COMMUNICATIONS SYSTEM**

**1. Background.** The legacy Tactical Air Control Party (TACP) vehicular communications system has proven 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 from within vehicles resulting in both unsafe conditions and ineffective communications. An integrated radio suite providing modern amplified multi-band and High Frequency (HF) radios is required to ensure mission critical communication with tactical and disaster response agencies. It should be modular in nature so that it can be installed, operated and maintained in various highly-mobile tactical vehicles. The system should be integrated and designed around amplified man-portable radios, compatible antennas, cables and human interfaces devices that allow centralized control of the entire suite. 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. JTACs vehicle crews require the ability to communicate internally within a single vehicle, externally to additional vehicles, command and control elements, and to combat aircraft operating on a broad spectrum between 2MHz-2GHz. Additionally, various tactical scenarios will require multiple JTACs to be able to utilize and control the communications system remotely from both static and dynamic tactical environments. Optimal fielding places 12 systems at each operational squadron to meet front line US Army battalion support UTC requirements. Also, the two Air Support Operations Centers require two systems each to meet Unit Type Code (UTC) deployment requirements.

**2. Source of Need.** ACC TACP RWG and LOGDET Review validated requirement; Air Force Material Command Pre-Solicitation reference number R1550; Air Force Research Lab request for solutions solicitation number BAA-RWK-10-0003; Lessons learned from Operations ENDURING FREEDOM and IRAQI FREEDOM; 2012-2013 ARC WEPTAC Conference; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

111 ASOS Camp Murray, WA	113 ASOS Terre Haute, IN	116 ASOS Camp Murray, WA
122 ASOS Camp Beauregard, LA	124 ASOS Gowen Field, ID	138 CTF Camp Gruber, OK
146 ASOS Will Rodgers, OK	147 ASOS Ellington Fld, TX	148 ASOS Indian Town Gap, PA
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: 27418**

Remaining Quantity Required	Unit Cost	Program Cost
<b>44 JTAC Intra Vehicle Comm System (3080)</b>	<b>\$120,000</b>	<b>\$5,280,000</b>
<b>Total</b>		<b>\$5,280,000</b>

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# MQ-1 and MQ-9

The MQ-1 and MQ-9 remotely piloted aircraft make up the largest Major Weapons System (MWS) and Formal Training Unit (FTU) community in the Air Force. These aircraft have poor cockpit configurations and the constraints of the aircraft and Ground Control Station (GCS) Operational Flight Programs (OFP) inhibit the rapid capability evolution demanded by Combatant Commands.



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 Predator is flown by ND, AZ, TX, and OH Air National Guard (ANG) units. The NV ANG supports active duty MQ-1 operational and training sorties.



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, faster, and more lethal 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.



# MQ-1 and MQ-9

## *Critical Capabilities List*

- Minimal Latency Tactical Data Link
- Communication Suite with Improved Interface
- Mission Debrief System
- Next Generation Tactical Situation Display
- Network-Capable Aircrew Training Device (See Tab Q)

## *Essential Capabilities List*

- Deployable Launch and Recovery Capability
- Enhanced Survivability in Contested Environments - Ku, Global Positioning System (GPS), and Multi-Spectrum Targeting System (MTS)
- Electronic Warfare (EW) Suite – Electronic Attack, Imminent Threat Warning, and Self-Protection
- Beyond Line Of Sight (BLOS) Bandwidth Enhancement
- Airborne Sense and Avoid

## *Desired Capabilities List*

- Isolated Personnel Locator
- Near Real-Time Inflight Weather Update Capability
- Targeting Pod (TGP) with Directed Energy Counter-Countermeasures
- All-Weather Weapon
- Mobile Sensitive Compartmented Information Facility (SCIF)
- Weapon Simulate Mode
- Auto Takeoff Land
- High Definition Full Motion Video

**MINIMAL LATENCY TACTICAL DATA LINK**

**1. Background.** MQ-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 a TDL 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-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. A line-of-sight (LOS) tactical data link (TDL) radio is needed, with associated hardware and antennas, to adequately employ across multiple AORs in the current operational environment. The system must be compatible with all current data link architectures in both domestic and combat areas of responsibility, to include Situational Awareness Data Link (SADL) and Link-16 with gateway capable software. All tracks, icons and messages must be integrated into current and future RPA Tactical Situation Displays (Zeus, Google Earth, Siris, Ares, etc). It must also have the ability to receive, transmit, and relay Variable Message Format (VMF) data. This TDL system must include provisions for consistent, reliable, timely, and unrestricted TDL communications, and have open architecture for growth and advances in the TDL technology. In order to be a stand-alone TDL platform, each MQ-1/9 will require one TDL capability per aircraft (36).

**2. Source of Need.** MIL-STD 6016D, MIL-STD 3011, 2014-15 ARC WEPTAC Council

**3. Units Impacted.**

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

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

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3600)	N/A	\$500,000
<b>36 TDL Radios and Installation Hardware (3010)</b>	<b>\$200,000</b>	<b>\$7,200,000</b>
<b>Total</b>		<b>\$7,700,000</b>

**COMMUNICATION SUITE WITH IMPROVED INTERFACE**

**1. Background.** The MQ-1 / 9 functions across multiple domains and mission sets simultaneously. Tasks often involve ISR, Strike, Special Operations, and Command & 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 with multiple mission players simultaneously. It requires a flexible tactical voice system that interconnects all mission players. This should be an Internet Protocol (IP)-based communications solution that integrates intercom, line-of-sight (LOS) radios, and telephone into a single headset with spatial audio. The system should feature an intuitive interface that does not increase aircrew workload through additional buttons, switches, or actuators. Any user should be able to talk directly to any other user on the system. Furthermore, the system should allow use of in-theater LOS repeater towers via the push of a button. This system would be ideal for MQ-1 / 9 crews who are limited by a single LOS radio on the aircraft, a single point of failure that 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 would give MQ-1 / 9 crews what is standard across the rest of the Air Force fleet: the ability able to monitor several LOS radio frequencies simultaneously—a key factor in mission effectiveness. Lastly, as MQ-1 / 9s are increasingly tasked to perform multi-ship tactics, the system would allow any GCS to talk directly to other geographically separated GCSs, vastly improving combat capabilities and situational awareness. A central server is needed to control the system, either one per unit, or a large central server for the enterprise hosted at one unit, with a back-up hosted at another. Operator stations are needed in each Ground Control Station (GCS), one each for the pilot and sensor operator, plus nine additional operator stations in each Squadron Operations Center. The operator station is a touchscreen interface that allows the user to select communication channels and graphically shows the status of each channel.

**2. Source of Need.** Capability Production Document (CPD) for MQ-9 HUNTER-KILLER paragraph 14c(2)(c), 8 Aug 06; AFCENT UON CAF 301-12, 17 Feb 12; ARC 2013 WEPTAC Critical Requirement.

**3. Units Impacted.**

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

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>36 GCS Operator Stations (3080)</b>	<b>\$150,000</b>	<b>\$5,400,000</b>
<b>12 Central Servers (3080)</b>	<b>\$250,000</b>	<b>\$3,000,000</b>
<b>108 SOC Operator Stations (3080)</b>	<b>\$150,000</b>	<b>\$16,200,000</b>
<b>NRE (3080)</b>	<b>N/A</b>	<b>\$1,000,000</b>
<b>Total</b>		<b>\$25,600,000</b>

includes 10% spares

*Global Integrated ISR*

**MISSION DEBRIEF SYSTEM**

**1. Background.** The MQ-1 / 9 cockpit contains multiple computer screens displaying flight parameters, mission data, weapons status, sensor information, maps, video feeds, and other data. The displays consist of the Ground Control Station (GCS) Heads Up Displays (HUD), Tracker Displays, four Heads Down Displays (HDD), two Multifunction Work Station (MWS) repeaters, and multiple peripheral computer repeaters. In all, the crew may have up to 16 screens, each containing a critical piece of situational awareness. Only two of these screens are recorded, the Pilot HUD and Sensor Operator HUD. For effective debriefs on the same level as the rest of the tactical aircraft in the USAF and ANG inventory, a 16-channel Digital Video Recorder (DVR) system is needed to simultaneously record each screen in a consistent format and send it to a central server for later viewing. The system will be able to time-sync the recordings and play them back in an intuitive way on a screen setup that mimics the setup of the cockpit. This will enable the capture of mission data and easy playback for debrief and application of lessons learned quickly and efficiently. One DVR will be needed for each GCS with the GCS screen setup for full playback to be installed in each RPA unit briefing room (approximately three per unit). Additionally, the server must be accessible from any computer in the Secure Compartmentalized Information Facility (SCIF) at each unit for viewing of individual and multiple recording for review, reference, and academics.

**2. Source of Need.** AFI11-2MQ-1&9V3, 2015 ARC WEPTAC Council

**3. Units Impacted.**

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

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

Remaining Quantity Required	Unit Cost	Program Cost
NRE (3080)	N/A	\$750,000
<b>36 Digital Video Recorders (3080)</b>	<b>\$3,000</b>	<b>\$108,000</b>
<b>36 GCS Screen Layouts (3080)</b>	<b>\$5,000</b>	<b>\$180,000</b>
<b>12 Central Servers (3080)</b>	<b>\$175,000</b>	<b>\$2,100,000</b>
<b>60 Mission Debrief System Software Applications (3080)</b>	<b>\$45,000</b>	<b>\$2,700,000</b>
<b>Total</b>		<b>\$5,838,000</b>

**NEXT GENERATION TACTICAL SITUATION DISPLAY**

**1. Background.** The Air National Guard (ANG) MQ-1/MQ-9 Common Operating Picture (COP) provides a web-based framework enabling a collaborative, fused framework that effectively supports the warfighter. The fusion, synchronization and simultaneous access of real-time communications, video and data it offers are often the difference between mission success and failure. However, the awkward and inefficient Human Machine Interfaces (HMI) in the current MQ-1/9 cockpit limits aircrew ability to fly the aircraft and manage the mission with maximum efficiency and effectiveness. The MQ-1/9 cockpit is fed information from the Squadron Operation Cell (SOC), which is connected to multiple sources of information and programs running on separate networks. The COP resides in the SOC and needs further integration with the cockpit to increase the efficiency of the current work flow. This in turn will reduce redundant manual inputs and present information in an intuitive way for the operator so it can be effectively acted upon. Enhancements to the Full-Motion Video (FMV) will include the ability to telestrate (share drawings on our video), extract CAT-1 targetable coordinates from the video and map, and depict synthetic mission participant ownership data inside the video, friendly and enemy locations, and other critical information. There is also a need for integration with a cross-domain solution to enable participants on different classification levels the ability to view, share, and transfer mission-critical data. Lastly, there is a need to integrate several critical applications that are currently stove-piped. These include PEX, ISR Tempal, SKYNET, MAT/ROME, and UNICORN. These improvements will save thousands of man-hours and provide significant combat capabilities.

**2. Source of Need.** ARC 2008-2010; 2013 ARC WEPTAC Critical Capability; CAF WEPTAC 2015 Requirement; 2015 DCP Book Master - Information and Planning (ESF 5).

**3. Units Impacted.**

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

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>COP Integration Enhancement (3080)</b>	<b>N/A</b>	<b>\$4,200,000</b>
<b>12 FMV / Cross-Domain Solution Add-On (3080)</b>	<b>\$670,000</b>	<b>\$8,040,000</b>
<b>Total</b>		<b>\$12,240,000</b>

# Simulation, Distributed Mission Operations, and Range Instrumentation

The Air National Guard's (ANG) simulator program spans the spectrum from immersive high fidelity to medium fidelity trainers. Although the ANG partners with the Air Force on some programs, the ANG has the internal capability to field both mission crew and flight simulators in direct partnership with industry. This approach has demonstrated innovative solutions that result in reduced risk, cost, and schedule.

ANG programs include the KC-135R Boom Operator Simulation System (BOSS), the Advanced ANG JTAC Training System (AAJTS); C-130 Multi-Mission Crew Trainer (MMCT); and the next generation F-16C Full Mission Trainer (FMT). In addition, the HH-60G MMCT will enter service in 2016 to support the school at Kirtland AFB.

Live, Virtual, Constructive Operational Training (LVC-OT) is a key component of readiness training. The Distributed Training Operations Center (DTOC), located at the 132WG, provides persistent networks, modeling and simulation expertise, and operational support for daily DMO by linking a wide array of simulators at Guard, Reserve, and Active AF units. In 2015, DTOC began supporting live-fly exercises with manned-constructive forces, and will continue to grow live training support as infrastructure is established.

The ANG Operational Training Enterprise (Airspace, Primary Training Ranges (PTR) Regional Training Centers (RTC), and Forward Operating Locations (FOL)) field realistic static, multispectral target surrogates to replicate real-world complex target sets, realistic simulators to replicate an Integrated Air Defense (IADS) environment, standardized, full spectrum, and immersive electronic training environments that include appropriate levels of communications and data link systems to support all current weapons systems in the Department of Defense (DoD) inventory. The constant evolution of these technologies requires new training space, equipment, infrastructure, and instrumentation to evolve and remain relevant. Further evolution of this enterprise will adapt to the Live, Virtual and Constructive environment through the Distributed Mission Operations construct.

# Simulation, Distributed Mission Operations & Range Instrumentation

## *Critical Capabilities List*

### Simulation

- Battle Command Center 4th/5th Generation Training Suite
- Security Forces Use-of-Force Simulator
- Guardian Angel Full Spectrum Personnel Recovery Simulators
- JSTARS Weapon System Trainer Motion Base
- RPA Network Capable Aircrew Training Device
- AOC Joint Range Extension / Link Training Tool
- Space Live, Virtual, Constructive Networked Training Solution
- AOC DMO Training Capability
- Special Tactics High Angle Training System

### Distributed Mission Operations

- Cross-Domain Solutions
- Enhanced Live-Fly Training with Virtual-Constructive Representation
- ARCNet Live Radar Feed, Datalink, and Two-Way Radio Capability
- Multi-Spectral Imaging Capability

### Range Instrumentation

- Mobile High Fidelity EW Threat Emitters
- Range Communications Instrumentation Systems, Architecture and Infrastructure
- Realistic, Static, Multispectral Targets
- Integrated Weapons Scoring Systems

## *Essential Capabilities List*

### Simulation

- LC-130 Mission Specific Simulator
- MC-12 DMO Capable Full Mission Simulator
- F-16 High Fidelity Ready Aircrew Program Quality Simulators
- EC-130J Weapon System Trainer
- Guardian Angel Terminal Area Simulator
- HH-60G DMO Capable Simulator
- HC-130J DMO Simulator

- CRC Internal and External Simulator Capability
- F-15 High Fidelity Networked Simulators
- RC-26 Full Crew DMO Simulator
- TACP / ASOC JTAC Training Simulator

### Distributed Mission Operations

- Range Instrumentation Live-Virtual-Constructive Operational Training
- Distributed Training Operations Center 5th Generation Environment Generation
- Live-Virtual-Constructive Operational Training and Cyber Security
- Virtual-Constructive Representation in Weapon System Displays
- Distributed Training Operations Center Joint Information Operations Node

### Range Instrumentation

- None

## *Desired Capabilities List*

### Simulation

- RPA Weapon Simulation Mode
- F-22 Deployable Simulator
- MC-12 Distributed Mission Operation Capable Full Mission Simulator

### Distributed Mission Operations

- Distributed Training Operations Center Virtualization
- TS/SCI ARCNet DMO Network
- Holographic Live-Virtual-Constructive Operational Training Capability

### 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: BATTLE COMMAND CENTER 4TH/5TH GENERATION TRAINING SUITE**

**1. Background.** The Battle Control Centers (BCC) provides surveillance, identification, and aircraft control / intercept to defend North America. The BCCs train the direction, deconfliction and employment of ground, surface and air assets for Homeland Defense in a sim over live operational environment. The BCC’s are also tasked with executing mandated initial qualification, upgrade and monthly training requirements to ensure operations personnel meet local, Major Command (MAJCOM) and North American Aerospace Defense Command (NORAD) requirements. The current training environment degrades daily mission operations capability by forcing simultaneous simulated training over the live air picture during real world operations. This does not allow for a robust and realistic training atmosphere. A BCC Mission Training Center (MTC) at each Air Defense Sector (ADS) will provide a separate operations center mirroring that of the BCC, creating a standalone virtual environment. The MTC will be housed in a Relocatable Simulation Shelter (RSS) certified for classified operations until permanent facilities are constructed. The MTC will support all training requirements while ensuring 4<sup>th</sup> and 5th generation fighter integration, providing a means to establish and evaluate Tactics, Techniques and Procedures (TTP). Most importantly, a BCC MTC provides integrated battle management training with other tactical Command and Control (C2) engagement platforms. BCC MTC’s will be designed to train with and integrate all fighter, C2 and future platforms on the Combat Air Force (CAF) Distributed Mission Operations (DMO) Network (DMON) in a Live Virtual Constructive (LVC) environment. This long term vision for a “multi-level/multi-use” LVC capability allows mission planning, briefing, mission execution and debriefing within the current BCC facilities. Relocatable Simulation Shelters (RSS) would be needed to conduct DMO training until permanent facilities are procured via MILCON. The four BCC’s that require a MTC are the 176 ADS, 224 ADS, 225 ADS and the 169<sup>th</sup> ADS.

**2. Source of Need.** Department of Defense Directive (DODD) 1322.18 Military Training; Air Force Instruction (AFI) 36-2251 Management of Air Force Training Systems; USAF DMO CONOPS Oct 2003; Contingency Plan (CONPLAN) 3310-12 Aerospace Defense and Maritime Warning; BCC RRB #2 FY18 POM; 1AF #7 FY18 POM; NORAD Master Gap List #4; 2009-2014 CAF WEPTAC Critical RDA; ACC training waiver for BCCs 2009-2014; 2011-2013 ARC WEPTAC Conference; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

224 ADG Rome, NY	225 ADG Joint Base Lewis-McChord, WA	169 ADS Wheeler Army Air Field, HI
176 ADS JB Elmendorf-Richardson, AK		

**4. Program Details. PEC: 51311**

Remaining Quantity Required	Unit Cost	Program Cost
4 BCC MTC (3080)	\$1,300,000	\$5,200,000
4 RSS (3080)	\$625,000	\$2,500,000
<b>Total</b>		<b>\$7,700,000</b>



**SIMULATION: SECURITY FORCES USE-OF-FORCE SIMULATOR**

**1. Background.** Due to the increase in active shooter incidents, a substantial need has been identified to provide Security Forces (SF) with a simulator that provides realistic, interactive training environments with force options and escalation of force scenarios. This interactive simulation system will be used to train single or multiple personnel in every aspect of defensive and judgmental, immediate threat discrimination decision making. In simulation, a trainee’s verbal commands, defensive tactics, situational awareness and integrated weapons systems, within the given scenario, determine the computer generated adversary actions displaying responsive video scenes and graphical target reactions. Additionally this Use-of-Force (UOF) system will incorporate a haptic discomfort feedback system to discourage improper tactics and reinforce performance under pressure. The force option aspect of these simulator systems can be used for mission-specific preparatory training, Air Force mandated recurring training, and Just-in-Time (JIT) training. Moreover, these systems enhance each installation's integrated home-station training capability. Security Forces need a mix of high, medium and low fidelity systems, which will offer a fully immersive, semi-immersive or lower, advanced interactive system. One option would be to modify the 16 currently fielded ANG Advanced Joint Terminal Attack Controller (JTAC) Training Systems (AAJTS) with a simulation capability to meet SF training requirements. Additionally, there is a need for 10 specialized, six-meter diameter, 320-degree simulators, incorporating AAJTS software, to provide dedicated regional immersive training capability. The Air National Guard (ANG)’s Relocatable Simulator Shelter (RSS) program provides a purpose built shelter to house simulators where on-base facilities are not available or programmed for Military Construction. To complete a triad of force option simulation, a low cost, portable, mobile upgradable system is needed for the remaining 65 SF units. This system would provide advanced interactive shoot / no shoot programs that challenge the user’s judgment and decision-making abilities in use-of-force scenarios in a smaller footprint. The triad of ANG trainers insures that all ANG SF units will have on-base training capability.

**2. Source of Need.** AFI 36-2226 Combat Arms Program, AFI 36-2646 Security Forces Training and Standardization Evaluation Program, AFI 31-101 Integrated Defense, AFI 31-117 Arming and Use of Force, DODD 5210.56, 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 (DOMOPS), Operations ENDURING FREEDOM (OEF), IRAQI FREEDOM (OIF), and NEW DAWN (OND), 2015 ARC WEPTAC Council.

**3. Units Impacted.** 91 SF units will receive one of the UOF trainers.

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

Remaining Quantity Required	Unit Cost	Program Cost
16 AAJTS Modifications (3080)	\$165,000	\$1,980,000
10 SF Simulator Systems (3080)	\$1,000,000	\$10,000,000
65 Portable Simulator Systems (3080)	\$75,000	\$4,875,000
5 Relocatable Simulator Shelters (3080)	\$350,000	\$1,750,000
<b>Total</b>		<b>\$18,605,000</b>

**SIMULATION: GUARDIAN ANGEL FULL SPECTRUM PERSONNEL RECOVERY SIMULATORS**

**1. Background.** Air National Guard (ANG) Guardian Angels (GA) lack the ability to get highly intensive training like other weapon systems that utilize simulators for Crew Resource Management (CRM), emergency procedures and refresher training. The Guardian Angel Simulator Skill Enhancer (GASSE) package focuses on core tasks within the GA career field. One GASSE is needed for the Battlefield Airmen Center at Gulfport MS that will support all GA simulator training. The GASSE package consists of: (1) Small Unit Tactics and Combat Marksmanship trainer that allows operators to effectively shoot, move and communicate. Limited ranges, munitions, and logistics limit the amount of live training available. (2) Terminal Control simulators that will allow Combat Rescue Officers (CRO) to ensure Joint Tactical Air Controller (JTAC) skills stay current and proficient. (3) SCUBA dive and search pool; the GA mission encompasses deep water scuba diving, lift procedures, dry suit and cold water operations. GA units lack a pool trainer with mockups that will enable GA to effectively train underwater recovering personnel and equipment from the ocean. (4) Proximity Combat Military Freefall (wind tunnel); with parachutes, tactical gear, jumping with Night Vision Goggles (NVG) and other mission specific equipment; training in a wind tunnel is the safest way to practice Tactics Techniques and Procedures (TTPs), emergency procedures (EP) and different equipment sets while in a freefall position. (5) High Angle Trainer; a tower to practice infiltration and exfiltration from a helicopter mock-up as well as practicing rope rescue work (raising and lowering patients and teams) in mountainous environments. GA require the resources and facilities to better train to meet Career Field Education and Training Plan (CFETP) requirements and TTPs in a controlled training environment.

**2. Source of Need.** The GASSE requirement identified by the GA Senior Leaders Working Group and supported by the Weapon System Council; Wing Commanders identified as a critical need; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

Battlefield Airmen Center  
Gulfport, MS

**4. Program Details. PEC: 53119**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>1 Small Unit Tactics and Combat Marksmanship (3080)</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>
<b>1 Terminal Control Simulators (3080)</b>	<b>\$2,400,000</b>	<b>\$2,400,000</b>
<b>1 Proximity Combat Military Freefall Wind Tunnel (3080)</b>	<b>\$3,000,000</b>	<b>\$3,000,000</b>
<b>1 High Angle Trainer (3080)</b>	<b>\$1,500,000</b>	<b>\$1,500,000</b>
<b>1 SCUBA Dive Search and Recovery Pools (3080)</b>	<b>\$7,000,000</b>	<b>\$7,000,000</b>
<b>Total</b>		<b>\$14,900,000</b>

**SIMULATION: JSTARS WEAPON SYSTEM TRAINER MOTION BASE**

**1. Background.** 14 Code of Federal Regulations (CFR) Part 60, also known as Federal Aviation Administration (FAA) Federal Aviation Regulation (FAR) Part 60, Table A1B requires full flight simulators to have a motion system, along with other requirements, to qualify a simulator for creditable approaches and landings. This means that pilots cannot update their currencies nor log takeoff and landings in the simulator if the motion system is not working properly. Since initial delivery of the E-8 Weapon System Trainer (WST), the hydraulic motion system components have failed and have become outdated due to technological obsolescence. In fact, modern motion systems no longer use hydraulic fluids due to the high cost of maintenance and Occupational Safety and Health Administration (OSHA) safety requirements. Instead, they use electro-mechanical actuators that more accurately replicate aircraft aerodynamic conditions and significantly reduce maintenance costs. E-8C WST #1 no longer has an operable motion system and WST #2's motion system cannot be repaired if it fails in the future. Once this motion system stops working, pilots will only be able to log takeoffs and landings, and update their currencies, in the aircraft. This will have an adverse impact on pilot training, significantly increase the costs of keeping pilots current, increase the wear and tear on the operational aircraft, and negatively impact aircraft availability for operational missions.

**2. Source of Need.** 14 CFR Part 60, 2015 ARC WEPTAC Council.

**3. Units Impacted.**

116 ACW Robins AFB, GA

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>2 WST Electric Motion System Bases and Integration (3080)</b>	<b>\$1,300,000</b>	<b>\$2,600,000</b>
<b>Total</b>		<b>\$2,600,000</b>

**SIMULATION: RPA NETWORK CAPABLE AIRCREW TRAINING DEVICE**

**1. Background.** Air National Guard MQ-1/9 equipped units lack an Aircrew Training Device (ATD) that integrates with Distributed Mission Operations (DMO) networks within the Live Virtual Constructive (LVC) environment. Aircrew are expected to be tactically proficient during integrated kinetic strike events but have limited training opportunities. Additionally, since Remotely Piloted Aircraft (RPA) execute combat operations 24 hours a day, 7 days a week, squadrons are unable to use embedded training on mission equipment. This limitation prevents realistic kinetic strike training elements not accomplished during current employment operations. A Continuation Training (CT) program that meets proficiency demands requires a standalone training system. MQ-1/9 crews require an ATD that is accredited at multiple levels of classification, is Defense Information Systems Agency (DISA) / DMO compliant, accurately replicates aircraft weapons employment capabilities, and captures Operational Flight Program (OFP) characteristics. This ATD must be a certified simulator to allow for accurate emergency procedures training and satisfy Ready Aircrew Program (RAP) currency requirements, to include check rides. Since MQ-1/9 systems change frequently, it is critical for the ATD to accept rapid concurrency updates, OFPs, upgrades and modifications. To maximize training opportunities, two ATDs are needed at each RPA unit.

**2. Source of Need.** 2015 ARC WEPTAC Conference.

**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**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>24 RPA Aircrew Training Device (3080)</b>	<b>\$1,000,000</b>	<b>\$24,000,000</b>
<b>NRE (3080)</b>	<b>N/A</b>	<b>\$465,000</b>
<b>Total</b>		<b>\$24,465,000</b>

**SIMULATION: AIR OPERATIONS CENTER JOINT RANGE EXTENSION / LINK TRAINING TOOL**

**1. Background.** Air Operations Center (AOC) Joint Interface Cell (JIC) operators lack the ability to train in a simulated environment. Unlike the Active Duty, Air National Guard (ANG) units cannot consistently accomplish training using “live” data and thus require a training simulation capability. Joint-Range Extension (JRE) and Air Defense Systems Integrator (ADSI) are hardware and software systems that receive information transmitted on a live tactical data link in a particular area of operations and forward that information to another tactical data link terminal beyond the line of sight. A JRE / Link training tool is needed to operate the software systems associated with JRE in a non-operational environment. This JRE / Link training tool would allow the JIC within the AOC Combat Operations Division (COD) to build, initiate, manage, manipulate, track, and link data. The current the simulation tools of record, Theater Battle Management Core System (TBMCS) and Part Task Trainer (PTT,) do not support link degradation and manipulation training. Consequently, ANG AOC units cannot conduct in-garrison training on a significant number of Air Combatant Command (ACC) mandated COD Joint Interface Cell Controllers (JICC) Task Training List (TTL) items. Air Force Instruction (AFI) 13-1 AOC Vol. 1 mandates continuation training on link systems by members of the CJIC Cell. Furthermore, the part task trainer is not forecast to support this critical link training requirement. AOCs therefore require a system which will support daily link training for its JIC and allow its team to remain current, qualified and proficient in link management systems.

**2. Source of Need.** AFI 13-1 Vol. 1, AFD 13-1, ANNEX A; 2012-2013 ARC WEPTAC Conference; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

101 AOG Tyndall AFB, FL	112 AOG State College, PA	152 AOG Syracuse, NY
157 AOG Jefferson Barracks, MO	183 AOG Springfield, IL	217 AOG Battle Creek, MI
286 AOG Meridian, MS		

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>7 AOC JRE Link Training Tools (3080)</b>	<b>\$40,000</b>	<b>\$280,000</b>
<b>7 Help Desk / Support * (3840)</b>	<b>\$11,600</b>	<b>\$81,200</b>
<b>Total</b>		<b>\$361,200</b>

\* Recurring annual expense.

**SIMULATION: SPACE LIVE-VIRTUAL-CONSTRUCTIVE NETWORKED TRAINING SOLUTION**

**1. Background.** Due to a lack of dedicated training equipment, Space operators cannot conduct interconnected training scenarios. By connecting local space trainers to the Joint Information Operations Range (JIOR), space units are able to utilize the Distributed Mission Operations Center - Space (DMOC-S) to train with each other and integrate training effects into Large Force Exercises (LFE) that effect intelligence units and Combat Air Force (CAF) aircraft. As an example, space forces can have an effect on the ability of an Integrated Air Defense System (IADS) to communicate between sites. Live-Virtual-Constructive (LVC) nodes would allow space forces to integrate effects and then provide those effects to a live range where participants could see the effects of the space units, allowing for realistic training scenarios and the ability to integrate effects with other units in a safe and secure manner. Additionally, if space forces have the ability to integrate effects with other Air Force systems (Cyber units, EC-130, RC-135), space units could practice integrating effects from distributed locations. Each Air National Guard (ANG) space squadron requires two sets of connectivity nodes to accommodate multi-scenario simultaneous training.

**2. Source of Need.** Air Force space Command (AFSPC) and Air Combat Command (ACC) LVC training memos; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

114 SPCS Patrick AFB, FL                      137 SWS Greeley AGS, CO                      216 SPCS Vandenberg AFB, CA

**4. Program Details. PEC: 53116**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>6 JIOR Connectivity Node (3080)</b>	<b>\$20,000</b>	<b>\$120,000</b>
<b>6 Fiber Runs (3080)</b>	<b>\$50,000</b>	<b>\$300,000</b>
<b>Total</b>		<b>\$420,000</b>

**SIMULATION: AIR OPERATIONS CENTER DISTRIBUTED MISSION OPERATIONS TRAINING CAPABILITY**

**1. Background.** The Air National Guard (ANG) Air Operation Centers (AOCs) require Distributed Mission Operations (DMO) training capabilities through realistic, focused virtual training events. ANG AOCs can best meet this requirement through increased joint training events offered through Distributed Mission Operations (DMO), similar to the F-15, F-16, AWACS and JSTARS, who currently use this system. The ARCNet-1 data network provides access to existing training networks that provide AOC operators with standardized training capabilities and reduce training expense through the ANG’s Distributed Training Operations Center (DTOC). These systems offer real-time multi-platform aircraft integration and up to date exercise scenarios for AOC members. The distributed network called ARCNet-1 is managed by the DTOC located at the Des Moines, Iowa ANG Base. The Web / Application Delivery Controller cloud within ARCNet 1 provides ANG AOCs the capability to extend their local AOC Weapon System applications to AF Reserve and Active Duty units across existing networks through the DTOC. This gateway allow external access to AOC hosted applications and provide data compression for increased performance over the network, and secures remote user connections by encrypting and encapsulating all network traffic.

**2. Source of Need.** AFPD 10-3 paragraph 1.3; 2012-2014 ARC WEPTAC, 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

101 AOG Tyndall AFB, FL	112 AOG State College, PA	152 AOG Syracuse, NY
157 AOG Jefferson Barracks, MO	183 AOG Springfield, IL	217 AOG Battle Creek, MI
286 AOG Meridian, MS		

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

Remaining Quantity Required	Unit Cost	Program Cost
7 ARCNet-1 Gateways (3080)	\$35,000	\$245,000
<b>Total</b>		<b>\$245,000</b>

**SIMULATION: SPECIAL TACTICS HIGH ANGLE TRAINING SYSTEM**

**1. Background.** Special Tactics Squadrons (STS) consist of Combat Control Teams (CCT), Pararescue (PJ), and Special Operations Weather Teams (SOWT) that are tasked with adverse terrain, high angle rescue, confined space, and Alternate Insertion and Extrication (AIE) operations. Training for these core-skillset tasks can be accomplished on a multipurpose climb and repel tower. 123<sup>rd</sup> STS operators currently travel 1.5 - 3.0 hours to train for these operations at off-base locations, minimizing effective use of training time and resources. All other active duty and Air National Guard (ANG) Special Tactics units have nearby or dedicated towers to meet training requirements. Training efficiency would be enhanced with an on-base training tower that can be utilized at a moment's notice and support full mission profile scenarios. The training system should include a minimum of a 75 foot multi-level tower with a mixed angle climbing wall, repel platform with anchors, FRIES (Fast Rope Insertion/Extraction System) bar, helicopter mock-up with floor anchors and a FRIES bar, and a confined space extraction area.

**2. Source of Need.** Multiple lessons learned from Overseas Contingency Operations (OCO) and Domestic Operations (DOMOPS) events. ARC 2014-2015 WEPTAC Council.

**3. Units Impacted.**

123 STS Standiford Field, KY

**4. Program Details. PEC: 53130**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>Climbing Wall (3080)</b>	<b>N/A</b>	<b>\$750,000</b>
<b>Total</b>		<b>\$750,000</b>



**DISTRIBUTED MISSION OPERATIONS: CROSS-DOMAIN SOLUTIONS**

**1. Background.** Warfighters that employ together as a team in combat should train together in both live and virtual environments. Network security requirements do not allow many simulators to connect to other mission simulators without technical solutions that protect network. These technical solutions are called Cross Domain Solutions (CDS). CDS are defined as information assurance solutions that provide the ability to access or transfer data between two or more differing security domains. They are integrated systems of hardware and software that enable connections between different security domains or classification levels. CDS hardware and software have been developed and are in use by Air Combat Command (ACC) and other DoD agencies. Each type of simulator intended to connect via CDS must have a solution tailored for it, thereby requiring integration testing. In addition, this effort will integrate the Expert Common Immersive Theatre Environment (XCITE), a software driven environment generator, common to nearly all ANG simulators. ANG CDS solutions would be hosted and managed at the Air National Guard (ANG) Distributed Training Operations Center (DTOC) at the 132 Wing, Des Moines IA.

**2. Source of Need.** 2014-2015 ARC WEPTAC Council; 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.

**3. Units Impacted.**

- 6 F-15C Units with connected simulators
- 12 F-16 Units (All Blocks) with projected connected simulators
- 2 ANG Mission Training Centers with connected simulators
- 4 A-10 Units with connected simulators
- 12 CRC/BCC Units with connected simulators
- 16 Air Support Operations Squadrons / Special Tactics squadrons with AAJTS Simulators
- 1 F-22 Unit with connected simulators

**4. Program Details. PEC: 81380**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>CDS 1-4(3080)</b>	<b>\$650,000000</b>	<b>\$2,600,000</b>
<b>F-15 Aircraft Simulators Integration (3080)</b>	<b>N/A</b>	<b>\$500,000</b>
<b>F-16 Aircraft Simulators Integration (3080)</b>	<b>N/A</b>	<b>\$1,500,000</b>
<b>XCITE Integration (3080)</b>	<b>N/A</b>	<b>\$500,000</b>
<b>Air Defense Sector Integration (3080)</b>	<b>N/A</b>	<b>\$250,000</b>
<b>Total</b>		<b>\$5,350,000</b>

**DISTRIBUTED MISSION OPERATIONS: ENHANCED LIVE-FLY TRAINING WITH VIRTUAL-CONSTRUCTIVE REPRESENTATION**

**1. Background.** This requirement includes components that will enable virtual and constructive entities to be represented in live aircraft cockpits and on live Command, Control, Intelligence, Surveillance and Reconnaissance (C2ISR) system displays. Advanced threat environments and improved aircraft capabilities have made realistic and robust training difficult to achieve with live aircraft, existing equipment, and existing airspace. Representation of virtual or manned-constructive assets in the live fly environment allows for robust threats, readily available joint blue air, and neutral entities to create a realistic picture in training airspaces. Similarly, injected man-in-the-loop surface threats, datalink messaging, and other Command and Control (C2) capabilities in daily live-fly training greatly enhance the value of that training. As 4th generation capabilities advance and the demand for 5th generation integration increases, Live-Virtual-Constructive (LVC) capability is essential to meet the training needs. Several Combat Air Force (CAF) active and Air National Guard (ANG) units have demonstrated enhanced live fly LVC training using off-the-shelf technology. Though the representation uses existing tactical datalinks and represents entities with link only, the capability provides a robust training capability compared to local intra-unit training using only live assets. In addition to the datalink representation, voice capability from virtual-constructive control stations to the live-fly airspace is essential to realistically integrate 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 requirements is to establish that connection at the Distributed Training Operations Center (DTOC), the ANG nexus for Distributed Mission Operations (DMO) activity. This capability benefits any Link 16 or Situational Awareness Datalink (SADL) capable aircraft, as well as Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR) platforms and agencies needing 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; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

24 F-22, F-15C, F-16, and A-10 Units

12 CRC / BCC Units

16 Air Support Operations Squadrons / Special Tactics Squadrons

**4. Program Details. PEC: 81380**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>4 Live-Constructive Gateway Systems * (3080)</b>	<b>\$500,000</b>	<b>\$2,000,000</b>
<b>4 Integrated L-V-C Systems for CRTS (3080)</b>	<b>\$1,800,000</b>	<b>\$7,200,000</b>
<b>8 ARCNet Gateway Racks (3080)</b>	<b>\$20,000</b>	<b>\$160,000</b>
<b>Total</b>		<b>\$9,360,000</b>

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

**DISTRIBUTED MISSION OPERATIONS: ARCNET LIVE RADAR FEED, DATALINK,  
AND TWO-WAY RADIO CAPABILITY**

**1. Background.** This requirement includes components that will enable live-fly radar feed and communication into the virtual environment. Availability of a variety of assets for realistic operations requires combinations of Live and Virtual participants in regular training. An essential technical capability to facilitate this persistent interoperability is the addition of a live radar feed into the virtual environment, as well as two-way radio capabilities. The live radar feed will populate displays in relevant simulators, as well as Consolidated Operating Pictures (COPs) at Distributed Training Centers (DTCs) such as the Distributed Training Operations Center (DTOC). Radio communications between virtual and live participants, as well as exercise control players and white forces, is provided through connection to Virtual-Constructive Environments. Twelve Air National Guard (ANG) tactical ranges will receive the Radio Bridge equipment. In addition, four ANG Air Defense Squadrons will receive the Radar System Interface Units.

**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; ARC 2014-2015 WEPTAC Council.

**3. Units Impacted.**

24 F-22, F-15C, F-16, and A-10 Units

12 CRC/BCC Units

16 Air Support Operations Squadrons / Special Tactics Squadrons

**4. Program Details. PEC: 81380**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>12 Radio Bridge Solutions (3080)</b>	<b>\$50,000</b>	<b>\$600,000</b>
<b>4 Radar System Interface Units and Track Correlators (3080)</b>	<b>\$555,000</b>	<b>\$2,220,000</b>
<b>Total</b>		<b>\$2,820,000</b>

**DISTRIBUTED MISSION OPERATIONS: MULTI-SPECTRAL IMAGING  
CAPABILITY**

**1. Background.** Many Air National Guard (ANG) simulator systems, including aircraft and Battlefield Airmen, need an unclassified Digital Airborne Multi-spectrum Multi-use Imaging Technology (DAMMIT) that captures both daytime Electro-Optical (EO) and nighttime Infra-Red (IR) cultural entity images in high sub meter resolution and with high thermal sensitivity for Night Vision Goggle (NVG) applications. In addition, a secondary role supports emergency responders including firefighters, security forces, search and rescue, explosive ordnance disposal, Homeland Response Force, CBRNE Enhanced Response Force Package, domestic operations such as pre- and post- disaster management. DAMMIT should address a variety of ANG applications, high fidelity geo-specific imagery, correlated terrain and automatic 3D feature extraction for enhanced training and simulation, mission rehearsal, search and rescue operations, firefighting, and object identification under canopy. ANG units, first responders, military planners, intelligence analysts, and decision-makers lack a single combined EO/IR imaging capability able to automatically capture, process, manage, and disseminate high fidelity geospatial data. DAMMIT imagery will be automatically processed, producing high quality and highly accurate data in near real-time. The system can be used for creating accurate orthophotos and high-resolution 3D models, fire mapping, search and rescue, interpretation and more. National Geospatial Agency (NGA) imagery, generally satellite based, does not provide the geospecific 3D imagery required for modeling cultural areas, such as airfields, for simulator use. Central management of the DAMMIT equipment will allow more cost effective acquisition of specialized visual database imagery at significant less cost than commercial sources. DAMMIT will be compatible with SABIR Arm currently in use by ANG C-130 aircraft.

**2. Source of Need.** Lessons learned for Hurricane KATRINA in 2005, Hurricane IKE in 2008, Superstorm SANDY in 2012; California Wildfires in 2007-2015, 2014-2015 Domestic Capability Priorities Conference; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

All ANG C-130 equipped units.

**4. Program Details. PEC: 81380**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>1 DAMMIT Camera System (3080)</b>	<b>\$1,400,000</b>	<b>\$1,400,000</b>
<b>SABIR Arm Integration (3080)</b>	<b>N/A</b>	<b>\$465,000</b>
<b>3rd Party 3D Modeling Software (3080)</b>	<b>N/A</b>	<b>\$100,000</b>
<b>Total</b>		<b>\$1,965,000</b>

**RANGES: MOBILE HIGH FIDELITY ELECTRONIC WARFARE THREAT EMITTERS**

**1. Background.** The Air National Guard (ANG) has a shortfall in realistic Electronic Warfare (EW) threat training. To support Ready Aircrew Program (RAP) requirements, the ANG Operational Training Enterprise (Airspace, Primary Training Ranges (PTR) Regional Training Centers (RTC) and Forward Operating Locations) require realistic simulators to replicate an Integrated Air Defense (IADS) environment. ANG owned and operated ranges have the airspace, real-estate and infrastructure necessary to fully utilize EW assets. EW system infrastructure consists of three major components: EW threat emitter, Identification Friend or Foe (IFF) radar systems to provide tracking and a Command and Control Unit (C2U) to provide system control and monitoring. The ANG currently has fixed systems at four of the twelve ranges listed below. Acquisition of the EW systems listed below will provide deployable capability for ANG flying unit to regional access to accomplish robust, realistic IADS training from home station and during deployments to the RTCs. The accurate re-creation of adversary threat signals will allow aviators to hone their EW skills and add increasingly difficult threat scenarios to simulate a constantly changing battlefield. Adding the Mobile Command and Control Unit (MC2U,) with the IFF trackers and JTEs, provides a deployable EW threat system that can be mobilized, set up and operated within any of the range complexes listed below to provide deployable threat capability to all ANG ranges. The quantity reflects the ability to either integrate within a range with existing fixed capability or in a standalone tactical deployed configuration using the MC2U.

**2. Source of Need.** RAP Tasking messages; ANG Training Ranges and Airspace Roadmap, FY 15; ANG Mission Directive 10.01; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

Adirondack Range, NY	Airburst Range, CO	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	Warren Grove Range, NJ

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>1 MC2U (3080)</b>	<b>N/A</b>	<b>\$2,600,000</b>
<b>4 EW Emitters (3080)</b>	<b>\$6,500,000</b>	<b>\$26,000,000</b>
<b>2 IFF Tracking systems (3080)</b>	<b>\$1,500,000</b>	<b>\$3,000,000</b>
<b>Total</b>		<b>\$31,600,000</b>

**RANGES: COMMUNICATIONS AND TACTICAL DATALINK ARCHITECTURE SUPPORT**

**1. Background.** The Air National Guard (ANG) continues to modernize range instrumentation and system integration. To support Ready Aircrew Program (RAP) requirements, the ANG Operational Training Enterprise (Airspace, Primary Training Ranges (PTR), Regional Training Centers (RTC), and Forward Operating Locations (FOL)) require realistic, standardized, full spectrum, and immersive electronic training environments that include appropriate levels of communications and data link systems. Range instrumentation systems are required to replicate the operating environment, record, score employment and relay data in a useable format back to the warfighter. Acquisition of these systems will provide ANG units the ability to accomplish realistic full-spectrum training from home station. Range instrumentation systems fully integrated with voice and data systems provide a range environment for ANG aircrew to exercise the full kill chain. It increased sortie effectiveness and provides a environment for multiple aircrews and joint training opportunities for ANG warfighters. It also provides capability to provide training within distributed mission operations in an LVC environment. The systems will be located at the RTC’s, PTRs and FOL’s with distributed AAR to the squadron level.

**2. Source of Need.** RAP Tasking messages; ANG Operational Training Enterprise Roadmap, FY 15; Training Range Infrastructure Connectivity CONOPS FY 09, ANG Mission Directive 10.01; 2014-2015 ARC WEPTAC Council.

**3. Units Impacted.**

Adirondack Range, NY	Warren Grove Range, NJ	Jefferson Range, IN
Bollen Range, PA	Smoky Hill Range, KS	Shelby Range, MS

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>6 Link-16 Radios (3080)</b>	<b>\$360,000</b>	<b>\$2,160,000</b>
<b>Battlefield Operational Support Systems (3840)</b>	<b>N/A</b>	<b>\$297,000</b>
<b>6 Joint Range Extension Systems (3840)</b>	<b>\$132,000</b>	<b>\$792,000</b>
<b>6 Range Radio Systems (3080)</b>	<b>\$150,000</b>	<b>\$900,000</b>
<b>Total</b>		<b>\$4,149,000</b>

**RANGES: HIGH AND MEDIUM FIDELITY SURROGATE TARGETS**

**1. Background.** The Air National Guard (ANG) continues to field realistic target acquisition and identification training. To support Ready Aircrew Program (RAP) tasking requirements, the ANG Operational Training Enterprise (Airspace, Primary Training Ranges (PTR) Regional Training Centers (RTC), and Forward Operating Locations (FOL)) field realistic static, multispectral target surrogates to replicate real-world complex target sets. These ranges have the airspace and real estate infrastructure necessary to fully utilize surrogate assets. 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. High and medium fidelity surrogate target arrays, used in conjunction with complex mission scenarios, advanced aviation targeting pods, electronic sensors and range instrumentation, provide a cost effective solution to providing visual target density as well as targeting pod identification and acquisition associated with physical and heat signatures of real systems. Acquisition of these systems will provide local access to ANG units to accomplish realistic training from home station and during deployments to ANG Regional Training Centers. Target density in conjunction with a constructive data link picture will support exercise of the full kill chain. This accurate re-creation of target systems will allow 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 (CAS) training and large force exercises. The remaining sixteen high fidelity targets complete the initial fielding plan developed through the Range and CRTC Councils working groups. The total fielding plan is based on a range minimum of two full EW threat systems per range. Ranges with additional EW threat system capabilities received additional systems based on a combination of number and type of EW threats they can generate with the simulators and the scenarios supporting the ANG regional large force exercises hosted. The medium fidelity target fielding is based on a similar logic. All ANG owned and operated Primary Training Ranges will be fielded with the minimum targets to support standard training scenarios.

**2. Source of Need.** RAP Tasking messages; ANG Operational Training Enterprise Roadmap FY15; ANG MD 10.01; 2014 and 2015 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

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

Remaining Quantity Required	Unit Cost	Program Cost
<b>16 High Fidelity Targets (3080)</b>	<b>\$150,000</b>	<b>\$2,400,000</b>
<b>250 Medium Fidelity Targets (3080)</b>	<b>\$18,000</b>	<b>\$4,500,000</b>
<b>Total</b>		<b>\$6,900,000</b>

**RANGES: JOINT ADVANCED WEAPON SCORING SYSTEM**

**1. Background.** The Joint Advanced Weapon Scoring System (JAWSS) upgrades the Tactical Ordnance Scoring System (TOSS) by providing night and laser scoring capabilities for pilots. JAWSS also provides greater accuracy and strafe scoring capability. JAWSS provides virtual reality Imaging Weapons Training System (IWTS), No-Drop Weapon Scoring (NDWS), and automated remote feedback for home-station debrief. JAWSS consists of five systems: Weapon Impact Scoring System (WISS), Laser Evaluation System-Mobile (LES-M), Large Scale Target Sensor System (LSTSS), Remote Strafe Scoring System (RSSS), and the Imaging Weapons Training System (IWTS). Upgrading systems at our 14 Air Gunnery Ranges would provide pilots immediate feedback while training to meet training and Ready Aircrew Program (RAP) requirements. The Fielding plan below reflects a system requirement for each ANG owned and operated Primary Training Range.

**2. Source of Need.** Range Advisory Council, Combat Training Range Group; Combat air Forces Ready Aircrew Program; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

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

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>12 Replacement WISS Systems (3080)</b>	<b>\$500,000</b>	<b>\$6,000,000</b>
<b>12 Site Communications Infrastructure (3080)</b>	<b>\$250,000</b>	<b>\$3,000,000</b>
<b>12 JAWSS Spares/Upgrade (3840)</b>	<b>\$200,000</b>	<b>\$2,400,000</b>
<b>Total</b>		<b>\$11,400,000</b>



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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) provides support to Air Force Space Command with over 900 personnel in seven squadrons located in CO, CA, NY, AK, FL, and WY. Missions include missile warning, space situational awareness, command and control, space control and satellite communications. Units provide direct support to the nuclear command and control community and combatant commands through the employment of personnel, support equipment and space weapon systems. Space operations provide targeting decisions, non-kinetic effects, and mission essential communications.

**Cyber Operations** - The ANG cyber operations force includes fourteen units in DE, KS, PA, MD, NJ, RI, TN, TX, VT, CA, and WA. Cyber capabilities support federal- and state-level agencies, the Air Force, and combatant commands. Cyber units provide cyberspace offensive and defensive capability to support operational and planning activities along with other cyberspace support as requested. Guardsmen participating in these missions draw upon skills from their related civilian careers. Specific missions assigned to ANG units include network vulnerability assessments, digital media and network analysis, and full-spectrum cyber warfare support in both exercises and operations. Execution of these activities occurs from home station and national facilities through distributed operations.

# Space Operations, Cyber Warfare & Information Operations

## *Critical Capabilities List*

### Cyber

- Cyberspace Operations Virtual Interconnected Training Environment
- Cyberspace Operations Secure Infrastructure Collaborative Capability
- Cyber Combat Maneuvering Instrumentation
- Cyber Infiltration Kit
- ANG Combat Communications Squadron Small Comm Package Capability

### Space

- Tactical Shelters for Space Missions
- Space Control Satellite Emulation Suite
- Space Live, Virtual, Constructive Connectivity (See Tab Q)
- Secure Headset Based Crew Communications System
- Secure Crew Force Management System

## *Essential Capabilities List*

### Cyber

- Portable / Temporary Secret Compartmented Information Facilities (SCIFs) for all ANG Cyberspace units
- Mission Mapping Tool to Enhance Cyber Protection Teams Capabilities
- Standardization of Cyber Protection Team and National Mission Team Facilities, Equipment, and Systems

### Space

- Family of Beyond Line of Site Terminal Simulator
- Prime mover / tractor trailers
- Radio Frequency Site Survey Equipment

## *Desired Capabilities List*

### Cyber

- None

### Space

- None

**CYBERSPACE 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. VITE provides a persistent training environment supporting implementation of the Cyber Mission Force construct and permit distributed training for integrated warfighter operations in both 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 DoD information network environments. The VITE operates as a standalone training environment and connects to the information operations ranges, the distributed training operations center (DTOC), 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. Four hubs will be needed to connect each of 17 VITE systems and four industrial control system modules. Additionally, the PICO node hardware and connection fees will allow each site to connect the VITE to the internet for distributed training operations.

**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 - 2015 ARC WEPTAC Council.

**3. Units Impacted.**

102 NWS Quonset ANGB, RI	143 IOS Camp Murray, WA	262 NWS McChord AFB, WA
111 COS Willow Grove, PA	166 NWS New Castle, DE	273 IOS Lackland AFB, TX
119 CACS McGhee-Tyson, TN	175 NWS Fort Meade, MD	275 COS Martin State, MD
127 COS McConnell AFB, KS	229 IOS Burlington, VT	275 OSS Martin State, MD
132 NWS Des Moines, IA	177 IAS McConnell AFB, KS	276 COS Martin State, MD
140 COS Joint Base MDL, NJ	261 NWS Sepulveda, CA	

**4. Program Details. PEC: 53056**

Remaining Quantity Required	Unit Cost	Program Cost
<b>4 Cyber Training Internet Simulator Hubs (3080)</b>	<b>\$452,000</b>	<b>\$1,808,000</b>
<b>17 VITE System (3080)</b>	<b>\$390,000</b>	<b>\$6,630,000</b>
<b>4 Industrial Control System Modules (3080)</b>	<b>\$10,000</b>	<b>\$40,000</b>
<b>17 Information Operation Range Pico Nodes (3080)</b>	<b>\$125,000</b>	<b>\$2,125,000</b>
<b>17 Interconnection Fee (3080)</b>	<b>\$72,000</b>	<b>\$1,224,000</b>
<b>17 Interconnection Fee (3840)</b>	<b>\$20,000</b>	<b>\$340,000</b>
<b>Total</b>		<b>\$12,167,000</b>

**CYBERSPACE OPERATIONS SECURE INFRASTRUCTURE COLLABORATIVE CAPABILITY**

**1. Background.** Air National Guard (ANG) Cyber Operations (CO), Information Operations (IO) and Network Warfare (NW) squadrons and cyber groups operate from locations that are distant from military and national cyber locations. The majority of planning, operations activities and cyber warfare information sharing, occur in classified, collaborative environments, primarily through the Joint Worldwide Intelligence Communication System (JWICS) and National Security Agency-Network (NSA-Net) infrastructure. ANG units lack the capability to access the secure, classified, real-time communications and networks used by the Air Force and US Cyber Command (USCYBERCOM) for collaboration, as well as threat and unique cyber situational awareness. The Secure Infrastructure Collaborative Capability (SIC2) provides a shared situational awareness in a secure collaborative environment and common operations picture to support near real-time full spectrum cyberspace operations and training opportunities. The SIC2 will result in travel and manpower cost reduction, while providing a system to conduct briefings, debriefings, and information sharing in a collaborative environment that is distributed amongst all cyber mission areas in the ANG. One SIC2 system is required for each of the 17 units.

**2. Source of Need.** USCYBERCOM Cyberspace Operations Capabilities, Dec 2013; Air Force Cyber Command (AFCYBER) Cyberspace Requirement Need (CRN), Aug 2011; Enabling Concept for Cyberspace Common Operations Picture, Aug 2011; 2013, 2014, 2015 ARC WEPTAC Critical Capability.

**3. Units Impacted.**

102 NWS Quonset ANGB, RI	143 IOS Camp Murray, WA	262 NWS McChord AFB, WA
111 COS Willow Grove, PA	166 NWS New Castle, DE	273 IOS Lackland AFB, TX
119 CACS McGhee-Tyson, TN	175 NWS Fort Meade, MD	275 COS Martin State, MD
127 COS McConnell AFB, KS	229 IOS Burlington, VT	275 OSS Martin State, MD
132 NWS Des Moines, IA	177 IAS McConnell AFB, KS	276 COS Martin State, MD
140 COS Joint Base MDL, NJ	261 NWS Sepulveda, CA	

**4. Program Details. PEC: 53056**

Remaining Quantity Required	Unit Cost	Program Cost
17 SIC2 Systems (3080)	<b>\$345,000</b>	<b>\$5,865,000</b>
<b>Total</b>		<b>\$5,865,000</b>

**CYBER COMBAT MANEUVERING INSTRUMENTATION**

**1. Background.** Air National Guard (ANG) Cyberspace Operations (CO) are conducted in a team environment where multiple operators sit on an operations floor working in tandem to accomplish their mission. Each operator works off an individual computer with little situational awareness of what is going on outside his or her individual screens. Additionally, little data is available to visually represent the cyberspace environment and the network traffic moving through it. ANG CO units require the ability to visualize the cyber battlespace at the tactical and operational levels through the presentation of information via a live feed to an operational display (data wall). This capability will enable training, planning, debrief, and Cyber Combat Maneuvering Instrumentation (CCMI) (like Air Combat Maneuvering Instrumentation (ACMI) but for cyber). The CCMI will provide the following capabilities: playback and/or real time situational awareness, ability to ingest external cyber telemetry data from multiple sources, display (aka. data wall), mission analysis modeling/display, shot validation, dependency based planning, kill-chain visualization, and operational and tactical display/instrumentation. The solution will work at the unclassified, secret, and top secret levels of classification. Of the 17 cyber units, 15 have an operational requirement and two have a support mission that do not require CCMI. One CCMI is needed for each operational unit’s operational floor.

**2. Source of Need.** Air Force Space Command (AFSPC) Guidance Memorandum 10-1, 2 and 3; Air Force Cyber Command (AFCYBER) Cyberspace Requirement Number (CRN), Jul 2011; 10th Air Force 2013 Prioritized Requirements, Aug 2013; 2015 ARC WEPTAC Critical Capability; Optic Fusion White Paper (Weapon System Council 2015)

**3. Units Impacted.**

102 NWS Quonset ANGB, RI	140 COS Joint Base MDL, NJ	261 COS Sepulveda, CA
111 COS Willow Grove, PA	166 COS New Castle, DE	262 COS McChord AFB, WA
119 CACS McGhee-Tyson, TN	175 COS Fort Meade, MD	275 COS Martin State, MD
127 COS McConnell AFB, KS	177 IAS McConnell AFB, KS	275 OSS Martin State, MD
132 COS Des Moines, IA	229 IOS Burlington, VT	276 COS Martin State, MD

**4. Program Details. PEC: 53056**

Remaining Quantity Required	Unit Cost	Program Cost
15 Operations Center Display (3080)	\$342,000	\$5,130,000
15 Dependency Modeling Software (3080)	\$577,000	\$8,655,000
15 Cyber Tactical Visualization (3080)	\$75,000	\$1,125,000
<b>Total</b>		<b>\$14,910,000</b>

**CYBERSPACE WARFARE AND INFORMATION OPERATIONS CYBER INFILTRATION KIT**

**1. Background.** Air National Guard (ANG) cyber offensive and defensive forces have a requirement for commercially available system vulnerabilities and access tools in order to provide training and increase situational awareness of the battlespace. Currently, cyberspace threat emulation teams (CTE) within Cyberspace Protection Teams (CPT) as well as cyberspace aggressor units lack an internal mechanism for generating realistic, threat-representative tactics against USAF cyberspace forces. CPT CTE have a requirement to train operators to detect enemies with the most current threat-representative capabilities, while cyberspace aggressor units are tasked with maintaining current, realistic threat replication. Providing these cyberspace units with the most up-to-date database of vulnerabilities will allow them to create training programs based upon current threats, improve tactics, and increase the overall defensive capabilities of the USAF. Of the 17 cyber units, 13 units have an operational mission requiring awareness of cyberspace threats. One infiltration kit is needed for each of these 13 units.

**2. Source of Need.** USCYBERCOM Cyberspace Operations Capabilities, Dec 2013; Air Force Cyber Command (AFCYBER) Cyberspace Requirement Need (CRN), Aug 2011; Executive Order to Incorporate Realistic Cyberspace Conditions into Major DOD Exercises, CJCSI 6510.01F dated 09 Feb 2011; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

111 COS Willow Grove, PA	166 COS New Castle, DE	262 COS McChord AFB, WA
127 COS McConnell AFB, KS	175 COS Fort Meade, MD	273 IOS Lackland AFB, TX
132 COS Des Moines, IA	177 IAS McConnell AFB, KS	275 COS Martin State, MD
140 COS Joint Base MDL, NJ	261 COS Sepulveda, CA	276 COS Martin State, MD
143 IOS Camp Murray, WA		

**4. Program Details. PEC: 53056**

Remaining Quantity Required	Unit Cost	Program Cost
<b>11 Cyber Infiltration Kits (3080)</b>	<b>\$500,000</b>	<b>\$6,500,000</b>
<b>Total</b>		<b>\$6,500,000</b>

**ANG COMBAT COMMUNICATIONS SQUADRON SMALL COMM PACKAGE CAPABILITY**

**1. Background.** Air National Guard (ANG) Combat Communications Squadrons (CBCS) lack Small Communication Package (SCP) equipment which provides command, control, and communication capability to ASOS, Contingency Response Forces, Partners for Peace and other directed missions. Current ANG CBCSs are postured to provide LCP (Large Comm. Package) and MCP (Medium Comm. Packages) which have large logistical footprints, require 12 to 18 personnel and 60Kw generator support. SCP provides initial communications to Combatant Commanders without burdening TRANSCOM with logistics requirements. SCP requires only 3 personnel to operate and uses standard commercial power. The system is designed to be airline transportable which reduces shipping costs. The SCP manpower requirements alleviates excessive CBCS personnel deploy-to-dwell ratio which is currently exceeding Air Force standards. One SCP is required for each of four CBCS'.

**2. Source of Need.** PAD 12-07, AMC Build the Base; Contingency Response Forces; ACC Deployable Radar Sites, Other Directed Mission and ASOS/ASOC; PACAF Other directed missions; ANG Partners for Peace; 2015 ARC WEPTAC Critical Capability.

**3. Units Impacted.**

242 CBCS Fairchild AFB, WA      264 CBCS Peoria, IL      291 CBCS Keaukaha, HI  
292 CBCS Kahului, HI

**4. Program Details. PEC: 53056**

Remaining Quantity Required	Unit Cost	Program Cost
4 Small Comm Package (3080)	\$500,000	\$2,000,000
<b>Total</b>		<b>\$2,000,000</b>



**TACTICAL SHELTERS FOR SPACE MISSIONS**

**1. Background.** Air National Guard Space Units support domestic operations and federal missions in space control, missile warning and satellite command and control. The National Military Strategy 2015 has called for further investments to space, and six of seven ANG space units have undergone, or are undergoing, weapon systems upgrades. In order to fulfill mission and training requirements, space units require mobile, temporary shelters that may act as classrooms, evaluation centers, and deployed operations centers. Shelters will house mission activities up to Top Secret and Special Access Program security levels. Rapid acquisition of portable structures will allow space units to continue upgrade, conversion, and training activities to achieve Initial Operations Capability (IOC) and permit on-time delivery of mission employment to supported COCOM and Joint Planning. Up to two tactical shelters are needed for each unit depending on their size and configuration.

**2. Source of Need.** AFSPC Commander’s Annual Prioritized Air Reserve Component (ARC) Initiatives; 2015-2016 ARC WEPTAC Critical Capability.

**3. Units Impacted.**

216 SPCS Vandenberg AFB, CA    114 SPCS Patrick AFB, FL

**4. Program Details. PEC: 53116**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>4 Tactical Shelters (3080)</b>	<b>\$1,400,000</b>	<b>\$5,600,000</b>
<b>Total</b>		<b>\$5,600,000</b>

**SPACE CONTROL SATELLITE EMULATION SUITE**

**1. Background.** The 114th and 216th Space Control Squadrons (SPCS) support domestic operations, global, and theater space control campaigns. The Space Control units have no ability to generate targets and threat environments for operators to train against. These units require a satellite emulation suite in order to maintain Combat Mission Ready (CMR) certification (to include training, evaluation, and proficiency), to support development and operational test events, and to support both service and joint exercise events. The system must be able to connect to multiple space and intelligence weapons systems while also supporting connectivity to live and virtual test and training ranges. The system must be ground mobile to allow transportability to support deployable weapons systems when tasked to participate in service and joint exercises such as Red Flag 16-3, Terminal Fury, and Austere Challenge.

**2. Source of Need.** Air Force Space Command Commander’s Annual Prioritized Air Reserve Component Initiatives, 21 October 2015, Attachment 1, Priority #1; 2015 ARC WEPTAC Council.

**3. Units Impacted.**

216 SPCS Vandenberg AFB, CA    114 SPCS Patrick AFB, FL

**4. Program Details. PEC: 53116**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>2 Satellite Emulation Suites (3080)</b>	<b>\$40,000</b>	<b>\$80,000</b>
<b>2 Help Desk/Support (3840)</b>	<b>\$11,600</b>	<b>\$23,200</b>
<b>Total</b>		<b>\$103,200</b>

**SPACE SECURE HEADSET BASED CREW COMMUNICATIONS SYSTEM**

**1. Background.** The 114th and 216th Space Control Squadrons (SPCS), and the 137th Space Warning Squadron (SWS) support domestic operations, global, and theater space control campaigns. These units require a headset based secure voice communications system with passive or active noise cancelling features in order to securely communicate tasking orders and facilitate crew coordination for between 5 to 7 crew positions in a high decibel operating environment. This will ensure accurate communication between crew positions, space units and their respective C2 agencies while reducing the risk of miss-communication and increasing COMSEC in a contested environment. Finally, a secure, headset based voice crew communication system will improve training, evaluation, and exercise events by allowing event coordinators to communicate between themselves and trainees.

**2. Source of Need.** Air Force Space Command Commander’s Annual Prioritized Air Reserve Component Initiatives, 21 October 2015, Attachment 1, Priority #1; 2016 ARC WEPTAC Council.

**3. Units Impacted.**

216 SPCS Vandenberg AFB, CA    114 SPCS Patrick AFB, FL

**4. Program Details. PEC: 53116**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>2 Secure Crew Communication Systems (3080)</b>	<b>\$185,000</b>	<b>\$370,000</b>
<b>Total</b>		<b>\$370,000</b>

**SPACE SECURE CREW FORCE MANAGEMENT SYSTEM**

**1. Background.** The 114th and 216th Space Control Squadrons (SPCS) support domestic operations, global, and theater space control campaigns. These units require a secure crew force management system in order to track Combat Mission Ready (CMR) certification to include training, evaluation, proficiency, readiness, and scheduling events. The required servers and software must reside and be managed at the Top Secret level with the ability to interface with Air Force Space Command’s Secure Global Network.

**2. Source of Need.** 2016 ARC WEPTAC Council.

**3. Units Impacted.**

216 SPCS Vandenberg AFB, CA    114 SPCS Patrick AFB, FL

**4. Program Details. PEC: 53116**

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>2 Crew Force Management Servers (3080)</b>	<b>\$1,000,000</b>	<b>\$2,000,000</b>
<b>Total</b>		<b>\$2,000,000</b>

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# Security Forces

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

Air National Guard security forces comprise over 7,500 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. Security Forces protect, defend, and fight to enable Air Force, Joint and Coalition missions at home station and abroad.

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 small arms ranges, close quarter combat training and safety kits, force options simulators, surveillance, target acquisition and night observation equipment, and active shooter response platforms.

# **Security Forces**

## **2016 Weapons and Tactics Conference**

### ***Critical Capabilities List***

- Modular Small Arms Ranges
- Close Quarter Combat Training Safety Kit
- Use of Force Simulator (See Tab Q)
- Surveillance, Target Acquisition, and Night Observation Equipment
- Active Shooter Response Kit

### ***Essential Capabilities List***

- Fly-Away Security Kits
- Precision Engagement and Assessment Suite
- Next Generation Lightweight Level 4 Small Arms Protective Insert
- Remote-Controlled Moving Target Training System
- Integrated Defense Enhancements

### ***Desired Capabilities List***

- Non-projectile force-on-force feedback firearms system
- Modular Multi-Purpose Training Container
- Small Form Factor, Squad-Level Remotely Piloted Aircraft with Video Surveillance
- Security Forces Modernized Helmet Initiative
- Weapons Modernization Suite

**SECURITY FORCES MODULAR SMALL ARMS RANGES**

**1. Background.** The Air National Guard (ANG) has 28 installations with a small-arms range of which only three are compliant with the Engineering Technical Letter (ETL) 11-18: Small Arms Range Design and Construction. Of the remaining 25 ranges, eight are permanently closed and the other 17, although degraded and operating with waivers, are operational until repairs become too costly or waivers are withdrawn. The remaining ANG Wings lack organic range capability and must find offsite locations to train and qualify. For most Wings, this involves lengthy preparation and travel time for both Combat Arms (CA) personnel and students in addition to substantial cost. This deficiency affects the ability for the CA personnel who are tasked with the training of all Air Force’s combat personnel—Security Forces (SF), Battlefield Airman, and Civil Engineering Red Horse units as well as all personnel deploying to a contingency operation ( just-in-time qualifications)—an average of over 250 personnel per installation. Because of significant health and safety concerns, the ETL states that “New partially contained ranges or fully contained outdoor ranges will not be designed or constructed. If planned major range or component repairs of an existing range will cost more than 50 percent of the estimated range replacement cost (plant replacement value), the entire facility must be upgraded to comply with this ETL”. The ETL identifies and authorizes only one replacement option that will meet a majority of ANG bases, a fully contained indoor range. A modular containerized indoor range will provide a fully enclosed zero Surface Danger Zone (SDZ) and Vertical Danger Zone (VDZ) environment, safely allowing personnel to train and qualify 365 days a year both Day and Night, regardless of external environmental conditions. The ANG assessed all small arms ranges and determined that at least 12 require replacement in accordance with the ETL.

**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.** 12 ANG SF Squadrons

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

Remaining Quantity Required	Unit Cost	Program Cost
12 Small Arms Ranges (3080)	\$3,700,000	\$44,400,000
<b>Total</b>		<b>\$44,400,000</b>



*Agile Combat Support*

**SECURITY FORCES CLOSE QUARTER COMBAT TRAINING SAFETY KIT**

**1. Background.** Air National Guard (ANG) Security Forces (SF) units have a critical need to respond to various situations that require different levels of force. The Close Quarter Combat Training Safety Kit is comprised of multiple components, each providing differing levels of weapons and hand-to-hand use of force across the threat spectrum. The first of these components is the Close Combat Mission Capability Kit (CCMCK) and associated training Personal Protective Equipment (PPE). CCMCK provides the capability to fire simulated munitions in small unit tactics training, force on force scenarios, and weapons systems proficiency evolutions; allowing dispersed forces to train to a common standard on the application of ground based warfare tactics. The 2760 training PPE kits ensure that directed safety measures are accomplished where Operational Risk Management techniques are not practical. The other components provide the hand-to-hand and apprehension combative training and safety tools necessary to hone the escalation of force skills of SF personnel. The equipment identified will be evenly divided throughout the 92 SF squadrons.

**2. Source of Need.** AFI 36-2646, AFI 31-101, Integrated Defense, AFI 31-117, Arming and Use of Force By Air Force Personnel, AFI 31-118, Security Forces Standards and Procedures, Air Force Security Forces Center Shoot Move Communicate Concept of Operations, Lessons Learned from Operations ENDURING FREEDOM (OEF), IRAQI FREEDOM (OIF), and NEW DAWN (OND).

**3. Units Impacted.** All 92 ANG SF Squadrons

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>552 M-4 CCMC Kit (3080)</b>	<b>\$531</b>	<b>\$293,112</b>
<b>552 M-9 CCMC Kit (3080)</b>	<b>\$390</b>	<b>\$215,280</b>
<b>368 M-249 CCMC Kit (3080)</b>	<b>\$835</b>	<b>\$307,280</b>
<b>2760 Training PPE Kits (3080)</b>	<b>\$212</b>	<b>\$585,120</b>
<b>920 Safety Mats (3080)</b>	<b>\$380</b>	<b>\$349,600</b>
<b>184 Combative Suits (3080)</b>	<b>\$1,000</b>	<b>\$184,000</b>
<b>920 Safety Training Bags (3080)</b>	<b>\$200</b>	<b>\$184,000</b>
<b>920 Batons (3080)</b>	<b>\$80</b>	<b>\$73,600</b>
<b>184 TASER Training Safety Suit (3080)</b>	<b>\$600</b>	<b>\$110,400</b>
<b>92 Cuffman (3080)</b>	<b>\$3,400</b>	<b>\$312,800</b>
<b>920 Training Cuffs (3080)</b>	<b>\$50</b>	<b>\$46,000</b>
<b>1196 M-4 Blue Guns (3080)</b>	<b>\$150</b>	<b>\$179,400</b>
<b>1196 M-9 Blue Guns (3080)</b>	<b>\$45</b>	<b>\$53,820</b>
<b>184 Shock Knives (3080)</b>	<b>\$500</b>	<b>\$92,000</b>
<b>184 Body Opponent Bags (3080)</b>	<b>\$350</b>	<b>\$64,400</b>
<b>Total</b>		<b>\$3,050,812</b>

*Agile Combat Support*

**SECURITY FORCES SURVEILLANCE, TARGET ACQUISITION, AND NIGHT OBSERVATION EQUIPMENT**

**1. Background.** ANG Security Forces (SF) personnel require detection devices that provide imagery in both daytime and nighttime operations through the use of active or passive surveillance, target acquisition, and night observation. This enhanced night vision (ENV) equipment increases the SF combat capability to navigate, identify targets, distinguish friend from 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 capability to transition between a night vision mode and thermal mode in one optic. This capability is specified by SF standard squad and smaller Unit Type Code (UTC) packages, postured at the unit level in concert with Headquarters, Air Force and Combatant Commander requirements at the time of writing. Each unit gets a minimum of one for home-station training, the rest are distributed among the 92 units based on wartime taskings.

**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; 2014 ARC WEPTAC Conference; 2015 ARC WEPTAC Council.

**3. Units Impacted.** All 92 ANG SF Squadrons

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>376 Enhanced Night Vision (3080)</b>	<b>\$17,000</b>	<b>\$6,392,000</b>
<b>Total</b>		<b>\$6,392,000</b>

*Agile Combat Support*

**SECURITY FORCES ACTIVE SHOOTER RESPONSE KIT**

**1. Background.** Air National Guard (ANG) Security Forces (SF) units must be better equipped to respond to an active shooter situation. Due to recent domestic real world events, SF unit personnel require additional individual personal protection equipment (PPE). The Department of Defense (DOD) Enhanced Small Arms Protective Insert (ESAPI) ballistic plates, lightweight soft ballistic inserts and body armor meet or exceed the DOD standards for responder PPE. Additional safety items include a maxillofacial mandible shield with visor that provides protection to the head and face and advanced hearing protection to enable communications. Other items include combat shirts and individual first aid kits. The combat shirt is designed to wear under the body armor and tactical vests, which reduce bulk for responders operating in extreme conditions. These shirts replace the ABU top, increasing mobility and assisting in regulating body temperature. The individual first aid kits will allow for the immediate treatment of wounds during a dynamic event before medical responders can enter an active shooting area. The maxillofacial mandible shield with visor, the advanced hearing protection, the combat shirts and individual first aid kits constitute the Personal Response Kits (PRK) and provide enhanced responder safety and mission effectiveness. There is an additional need for a breaching kit that includes a tool to penetrate locked rooms and a ballistic shield that provides a critical layer of protection for the entry team. Each of the 7649 defenders in the ANG will receive one PRK including; body armor (ESAPI Plate sets and Level III Soft armor), face shield and mandible kits, advanced communications headsets and individual first aid kits, as well as two (2) combat shirts. Additionally, each of the 92 SF squadrons will receive one (1) each of the ballistic shields and entry kits. 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.

**3. Units Impacted.** All 92 ANG SF Squadrons

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

<b>Remaining Quantity Required</b>	<b>Unit Cost</b>	<b>Program Cost</b>
<b>7649 ESAPI Plate Sets (3080)</b>	<b>\$1,225</b>	<b>\$9,370,025</b>
<b>7649 Level IIIA Soft Armor Insert Sets (3080)</b>	<b>\$358</b>	<b>\$2,994,865</b>
<b>7649 Face Shield and Mandible Kits (3080)</b>	<b>\$793</b>	<b>\$6,065,657</b>
<b>7649 Advanced Communication Headsets (3080)</b>	<b>\$217</b>	<b>\$1,659,833</b>
<b>7649 Individual First Aid Kits (3080)</b>	<b>\$137</b>	<b>\$987,633</b>
<b>15298 Combat Shirts (3080)</b>	<b>\$54</b>	<b>\$826,092</b>
<b>92 Ballistic Shields (3080)</b>	<b>\$3,833</b>	<b>\$352,636</b>
<b>92 Entry Kits (3080)</b>	<b>\$311</b>	<b>\$28,612</b>
<b>Total</b>		<b>\$21,519,541</b>