UNITED STATES AIR FORCE RESERVE

MODERNIZATION

2020

Foreword

The Air Force Reserve (AFR) is an operational force of 70,100 Airmen charged to "Provide ***Combat-Ready*** Forces to Fly, Fight, and Win." We are called upon to compete, deter, and win alongside the joint force, our allies, and partners to prevail in conflict and preserve peace through strength.

Our Reserve Citizen Airmen provide strategic depth, rapid surge capability, and daily operational support to the joint force enabling quick response to unexpected and emerging threats, national crises and catastrophes while maintaining our day-to-day operational capability to support ongoing missions. On any given day, we have over six thousand (6,000) Reserve Citizen Airmen in support of overseas and stateside operations, providing effective Global Vigilance, ensuring Global Reach and projecting Global Power. The AFR provides expertise in all Air Force Core Missions and contribute to the homeland by flying missions such as Hurricane Hunters, Aerial Spray, and Aerial Firefighting.

To build the future force we must "provide strategic depth and accelerate readiness." Sustained equipment modernization efforts are critical to meeting this priority. The National Guard and Reserve Equipment Appropriation (NGREA) is essential to maintaining the ability of the Reserve Component to meet national defense requirements and commitments. The average age of our Air Force inventory is 30 years old, and the average age of Air Force Reserve airframes is 40 years old. Historically, the AFR has used NGREA to sustain our capability and replace obsolete equipment. We remain grateful for prior year funding, and continue to faithfully execute that trust. The resources are primarily used to recapitalize equipment in Rapid Global Mobility, Air Superiority, Personnel Recovery, and Special Operations arenas. The support, modernization, and procurement actions undertaken directly enable our ability to deploy and operate as part of the Total Force and respond to future threats. This funding is even more crucial when we are under continuing resolutions as they negatively impact our readiness.

The AFR prioritizes modernization proposals by collecting and validating warfighter-requirements to develop and approve a Prioritized Integrated Requirements List (PIRL). PIRL items that can be executed comprise the AFR Modernization List, which determines the AFR's Fiscal Year Procurement List. This edition describes the AFR's highest modernization and NGREA-related priorities needed to sustain and maintain our warfighting capability.

Our Nation has called on us to support national security objectives across the full spectrum of military operations since our foundation over 70 years ago. We stand ready to "Provide ***Combat-Ready*** Forces" to answer the call. Properly equipped and modernized, the Air Force Reserve will continue to provide strategic depth and an operational capability for Combatant Commanders. Thank you again for supporting our "Reserve Citizen Airmen – An ***agile,*** combat ready force answering our Nation's call…always there!"

RICHARD W. SCOBEE
Lieutenant General, USAF
Chief of the Air Force Reserve

Foreword

As the budget environment continues to be fiscally constrained, investments in Reserve programs are ideal solutions that reap an outstanding return for taxpayers' dollars. Created by Congress in 1948, the Air Force Reserve provides our nation vital capacity in times of national emergency. In past years, we have seen this capacity used for combat operations in Iraq and Afghanistan, in support of humanitarian missions in New Orleans, Haiti and the Gulf oil spill, as well as the hurricane hunters continuously providing vital weather information to National Oceanic and Atmospheric Administration (NOAA) and our citizens. As I write this, Reservists are assisting with our Nation's response to the COVID 19 virus. The high operations tempo results in wear and tear on our aging equipment and requires a holistic approach to the Reserve's modernization programs.

The National Guard and Reserve Equipment Appropriation (NGREA) has played an increased role in providing the Reserve Component with equipment and technology upgrades to remain relevant by increasing combat effectiveness and survivability in support of the joint fight. These Congressionally appropriated funds are critical to maintain leading-edge combat capability on the Reserve's aging equipment across all of our forces. Whether they are Combat Air Forces aligned with Air Combat Command, or Mobility Air Forces associated with Air Mobility command, NGREA-funded programs are used to maintain combat capability and interoperability with our Active Duty counterparts. AFRC also has the lead responsibility for WC-130J aircraft, executing all modernization and sustainment functions of the peculiar equipment needed to accomplish the hurricane hunter mission.

The Air Force Reserve continues to pursue a requirements process that solicits, validates and prioritizes modernization proposals based on inputs from the warfighters themselves. These proposals are then ranked into the Prioritized Integrated Requirements List (PIRL), for CAFR Approval. The executable PIRL items then form the AFR modernization list, which in turn is used to determine the AFR's fiscal year procurement list. This book highlights the command's highest priorities to maintain our Reserve warfighting capability and summarizes courses of action, background data and mission impacts.

JAY D. JENSEN
Major General, USAF
Director, Plans, Programs, and Requirements
Headquarters Air Force Reserve Command

Contact Information

Air Force Reserve
1150 Air Force Pentagon
Washington, DC 20330-1150

Directorate of Plans,
Programs, and Requirements
HQ USAF/REX

Reserve Policy Integration
Legislative Liaison
(703) 695-9441

Air Force Reserve Command
555 Robins Parkway, Bldg 555
Robins AFB, GA 31098

Directorate of Plans,
Programs and Requirements
HQ AFRC/A5A8

Requirements Division
HQ AFRC/A5R
(478) 327-0862

http://www.afrc.af.mil

Table of Contents


AIR FORCE RESERVE COMMAND

Introduction

The Air Force Reserve provides our nation's Reserve Citizen Airmen - an agile, combat-ready force answering our nation's call...always there! As an integral component of the Air Force team, the Air Force Reserve (AFR) supports the National Defense Strategy (NDS) in every Air Force core function and in several unique homeland missions with operational capability, strategic depth, and an unparalleled capacity to surge forces quickly, when America needs us most.

For the AFR to remain an integrated, flexible, and combat-ready force and to ensure both the effectiveness and survivability of our Citizen Airmen in future contingencies, we must continue to invest in the modernization of the AFR's aging fleet of aircraft and equipment.

The 2020 Air Force Reserve Modernization Book captures the most critical capabilities and associated resources to achieve the AFR's near-term modernization requirements.

Requirements Process – Requirements are evaluated, validated, and prioritized through the AFR's bottom-up process, which begins at the AFR's Combat Planning Councils (CPCs) and culminates with the AFR's Prioritized Integrated Requirements List (PIRL). The PIRL is subsequently vetted through the AFR's corporate structure, as well as socialized with partner MAJCOMs, the AFMC Life Cycle Management Center (AFMC/LCMC) Program Executive Officers (PEOs), and associated System Program Offices (SPOs) to ensure a comprehensive acquisition strategy is developed to meet AFR's requirements.

Critical Requirements – The following pages present the AFR's highest priority, critical modernization requirements, each of which are needed and ready to procure immediately or within the next three to five years. Mission failure and/or loss of life become increasingly likely without continued modernization efforts.

Modernization Investment Today…

…Combat Capability, Effectiveness & Survivability Tomorrow!

Summary of AFR's Critical Modernization Requirements ($M)

A-10

Communication Upgrades	47.7
Avionics and GPS Upgrades	28.0
Defensive System Upgrades	52.9
Combat Operations Enabler	27.8
Total	**$156.4**

B-52

Digital Mission Data Recorder (DMDR)	0.1
LITENING Advanced Targeting Pod *	12.0
LITENING PVI Desktop Emulator/Trainer	4.0
Total	**$16.1**

C-5

Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC)*	17.5
Mobile User Objective System (MUOS)	5.2
Secure On-board Storage	5.0
Total	**$27.7**

C-17

Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC)*	32.0
Mobile User Objective System (MUOS)	8.2
Total	**$40.2**

C-130H

Integrated Data Link and Defensive System Suite	6.3
Improved Night Vision Compatible Lighting	17.3
APN-241 Radar Upgrade	21.0
LED Position Lighting	2.5
Large Aircraft Infrared Countermeasures (LAIRCM) Block 30 Upgrade	107.0
C-130H Propulsion System Upgrades*	200.3
Total	**$354.4**

C-130J / WC-130J

Radar Warning Receiver (RWR)	8.5
Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC)*	2.0
APN-241 Radar Upgrade	5.0
Radar Image Capability*	9.0
Total	**$24.5**

Summary of AFR's Critical Modernization Requirements ($M)

C-40

High Speed Data	20.0
Total	**$20.0**

F-16

Communication Upgrades	12.5
Avionics and GPS Upgrades	2.4
Defensive System Upgrades	50.2
CAF Targeting and Radar Enhancements	50.7
Combat Operations Enabler	6.0
Total	**$121.8**

Guardian Angel

Personnel Recovery Mission Equipment *	5.0
Total	**$5.0**

HH-60

Personnel Recovery Situational Awareness *	1.6
Total	**$1.6**

HC-130J

Weapons Systems Trainer (WST)	30.0
Electro-Optical Infrared Sensor	10.5
KU/KA Communications Suite	4.5
Defensive System Integration Suite (DSIS)*	12.0
Total	**57.0**

KC-135

Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC)	61.0
Mobile User Objective System (MUOS)	19.6
Anti-Jam Global Positioning System (GPS)	7.8
Large Aircraft Infrared Countermeasure (LAIRCM) *	76.0
Total	**$164.4**

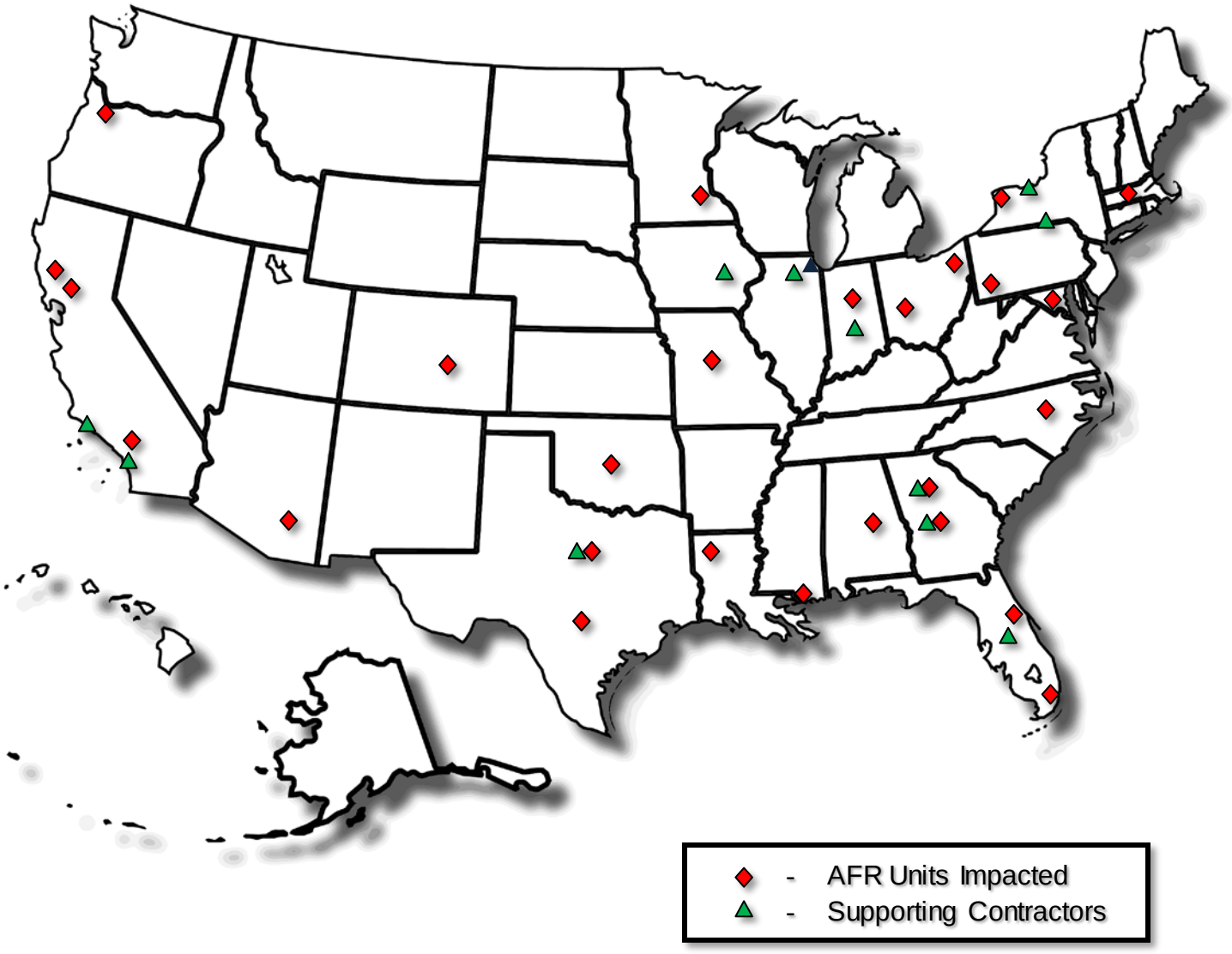
Agile Combat Support

Support Equipment	20.0
Vehicles	16.0
Total	**$36.0**

AFR Total	**$1,025.1**

**Currently funded with NGREA*

Economic Impact



Weapon Systems by State

AFRC Inventory	A-10	B-52	C-5	C-17	C-40	C-130H	C-130J WC-130J	HC-130J	F-16	HH-60	KC-135
AL						9					
AZ	28									6	
CA				9							22
CO						8					
FL								2	28	10	
GA						8					
IL					4						
IN											16
LA		18									
MA			8								
MD											8
MN						8					
MO	27										
MS							20				
NC											5
NY											8
OH				9		9					
OK											8
PA				8							
TX			8						26		
TOTAL	**55**	**18**	**16**	**26**	**4**	**42**	**20**	**2**	**54**	**16**	**67**

A-10

Close Air Support (CAS)
Forward Air Control – Airborne (FAC-A)
Combat Search and Rescue (CSAR)
Precision Engagement / Attack

The A-10 is the Air Force's go-to ground attack fighter for CAS, FAC-A, and CSAR missions, due to its excellent maneuverability at low altitude and airspeeds, its ability to loiter near battle areas for extended periods of time, and its precise, low-collateral damage engagement capability. Ideally suited to conducting its missions during day or night from austere, forward operating locations, the A-10 brings its potent GAU-8/A 30mm Gatling gun and impressive array of precision guided ordnance to defeat the most hardened ground threats, including tanks and armored vehicles that pose a direct threat to U.S. and coalition forces.

The Air Force Reserve operates 55 A-10s in two A-10 units: the 442nd Fighter Wing, Whiteman AFB, MO; and the 924th Fighter Group, Davis-Monthan AFB, AZ. The AFR also teams with Air Combat Command (ACC) to maintain the 476th Fighter Group, an associate unit of over 200 Reservists supporting ACC's 23rd Wing at Moody AFB, GA. Air Force Reserve Command's A-10s require communication, avionics, defensive system and combat enabler upgrades to increase their combat effectiveness and survivability.

Requirements Summary

Communication Upgrades:

- **3D Audio –** Increases pilot situational awareness by spatially separating radio audio in the pilot's headset while providing active and electronic noise reduction and dynamic threat location
- **LINK 16** – DoD standard battlefield integration technology. Link 16 is secure jam-resistant, near-real time, high-speed, digital data link, supports the exchange of text messages, imagery data and digital voice

Avionics and GPS Upgrades:

- **Anti-Jam GPS –** Upgrades aircraft GPS making it resistant to GPS jamming and spoofing
- **High Resolution Display System (HRDS)** – Replaces obsolete mechanical/analog flight instruments with a color high resolution display, improving targeting and coordination with ground forces

Defensive System Upgrades:

- **Missile Warning System (MWS)** – Replaces current outdated sensors and processors using newer off-the-shelf missile warning systems
- **ALR-69A Digital Radar Warning Receiver** – Replaces obsolete analog system with an all-digital system, greatly improving surface-to-air and air-to-air radar-guided missile warning

Combat Operations Enabler:

- **Combat Fuel Tanks –** External center-line fuel tank that can support combat maneuvering, significantly increasing range and on-station time
- **LITENING Targeting Pod** - Replaces legacy black and white sensors in the LITENING Advanced Targeting Pod (ATP) with digital color sensors enabling high definition video

A-10 Programs	Cost ($M)
Communication Upgrades	**47.7**
Avionics and GPS Upgrades	**28.0**
Defensive System Upgrades	**52.9**
Combat Operations Enabler	**27.8**
Total Cost of Remaining Requirements	**$156.4**

3-Dimensional (3D) Audio

Replace A-10 analog radio control system with a digital radio control to take advantage of the new digital radio and threat warning systems capabilities.

Background

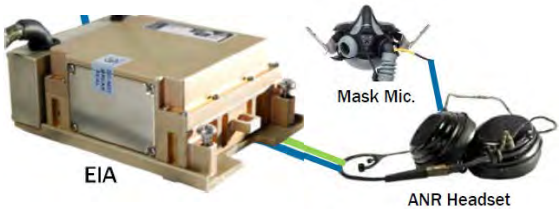
- Replace A-10 mechanically switched analog radio controls with digital controls
- Pilots will have information from five radios and threat warning and aircraft generated audio.
- 3D Audio digitally spatially-separates the audio so that each radio can be distinguished by the pilot.
- Audio threat warnings sound as if they are coming from the direction of the threat, greatly improving the pilot's initial reaction to enemy fire.
- 3D Audio uses Active Noise Reduction to reduce ambient background noise such as air flow around the cockpit and engine sound. Electronic noise reduction removes static and other repeatable sounds inherent in the radio system.
- Result is significantly improved pilot situational awareness increasing mission success and pilot survivability.

IMPACT IF NOT FUNDED

- Pilot situational awareness reduced placing mission and pilots at greater risk.

UNITS IMPACTED

- 357th Fighter Group, Davis-Monthan AFB, AZ
- 442nd Fighter Wing, Whiteman AFB, MO



CONTRACTOR

- TERMA North America, Warner Robins GA

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group B Kits / install	**56**	**.375**	**21.0**
Group C Kits	**80**	**4**	**.3**
Total Cost of Remaining Requirements			**$21.3**

A-10 Thunderbolt II

LINK-16 CAPABILITY WITH GROWTH POTENTIAL FOR FIFTH-FOURTH GENERATION FIGHTER INTEROPERABILITY

Provides a secure jam-resistant, high-speed digital data link near-real time, supports the exchange of text messages, imagery data and provides two channels of digital voice

Background

- Reserve A-10 aircraft require Link-16 data link capability to effectively employ in the current operational environment.
- Link-16 is the Air Force standard for airborne fighter data links.
- Legacy Situational Awareness Data Link equipment has proven inadequate due to lack of fielded support infrastructure, frequency band constraints, and Joint Interface Control Cell support.
- Link 16 will provide the potential for 5th to 4th generation aircraft data link communications

IMPACT IF NOT FUNDED

- Aircraft will become increasingly data-link isolated

UNITS IMPACTED

- 357th Fighter Group, Davis-Monthan AFB, AZ
- 442nd Fighter Wing, Whiteman AFB, MO

CONTRACTOR

- Data Link Solutions (BAE & Collins Aerospace), Cedar Rapids, IA & Wayne, NJ
- ViaSat, Carlsbad, CA

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration	**1**	**4,000**	**4.0**
Group A Kits/Install	**56**	**110**	**6.2**
Group B Kits	**56**	**285.7**	**16.0**
Support Equipment	**4**	**60**	**.2**
Total Cost of Remaining Requirements			**$26.4**

Anti-Jam GPS

Improve resistance to GPS jamming/spoofing by updating GPS

Background

- Hardware solution to improve mission capability in GPS jamming environments
- Replace current single antenna with a multi-element antenna, install a new Spatial Temporal Anti-Jam Receiver (GSTAR) system to process the new signals, Update Selective Availability Anti-Spoofing Module (SAASM) GPS receiver card, within the EGI
- Result is significantly improved GPS accuracy in the presence of enemy jamming pilot workload is reduced increasing mission success and pilot survivability.

IMPACT IF NOT FUNDED

- Pilot situational awareness reduced placing mission and pilots at greater risk.

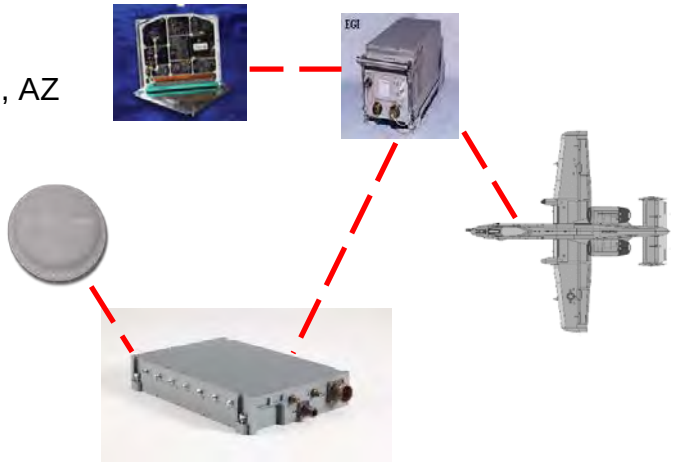
UNITS IMPACTED

- 357th Fighter Group, Davis-Monthan AFB, AZ
- 442nd Fighter Wing, Whiteman AFB, MO

CONTRACTOR

- Lockheed Martin, Owego, NY
- Honeywell, Clearwater, FL

PROGRAM ELEMENT CODE: A-10: 52713F



FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A Kits / Install	**56**	**12**	**.7**
Group B Kits	**56**	**96**	**5.4**
Total Cost of Remaining Requirements			**$6.1**

High Resolution Display System (HRDS)

Replace A-10 mechanical/analog flight instruments with a digital display. Provides a modern high definition display compatible with the capabilities of the targeting pods used on the A-10.

Background

- Replace A-10 mechanical/analog flight instruments with a digital display.
- Analog instruments are becoming increasingly difficult to maintain and are affected by diminishing material and manufacturing sources.
- Digital instruments reduce maintenance, and significantly increase aircraft processing capacity
- Digital displays allow the pilot to make full use of available aircraft sensors increasing targeting accuracy and aircraft survivability by increasing standoff range.

IMPACT IF NOT FUNDED

- Aircraft will become increasingly difficult to maintain and mission/pilots placed at greater risk.

UNITS IMPACTED

- 357th Fighter Group, Davis-Monthan AFB, AZ
- 442nd Fighter Wing, Whiteman AFB, MO

CONTRACTOR

- Scientific Research Corp (SRC) , Warner Robins, GA
- AVALEX Technologies, Pensacola, FL
- KIHOMAC, Layton, UT

PROGRAM ELEMENT CODE: A-10: 52713F

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A Kits/Install	**56**	**15**	**.8**
Group B Kits	**56**	**375**	**21.0**
Support Equipment	**4**	**25**	**.1**
Total Cost of Remaining Requirements			**$21.9**

Missile Warning System

Replaces current AAR-47 IR missile warning system

BACKGROUND

- The Air Force Reserve's A-10 missile warning system has not kept pace with advancements in battlefield shoulder-fired anti-aircraft weapons. The outdated AAR-47 system places pilots and mission success at an increasing risk, given the proliferation of missile threats
- Current outdated sensors and processors are to be replaced using newer off-the-shelf missile warning systems

IMPACT IF NOT FUNDED

- Aircraft will remain increasingly vulnerable to missile threats and survivability will be degraded

UNITS IMPACTED

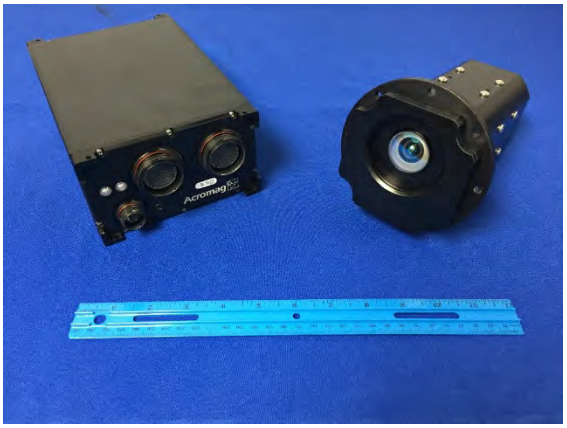
- 357th Fighter Group, Davis-Monthan AFB, AZ
- 442nd Fighter Wing, Whiteman AFB, MO

CONTRACTOR

- To Be Determined (sensors/processors)

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:



Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**6.0**
Group B Kits	**60**	**60**	**3.6**
Support Equipment	**5**	**125**	**.6**
Total Cost of Remaining Requirements			**$10.2**

ALR-69A Digital Radar Warning Receiver (RWR)

Replaces obsolete analog RWR with an all-digital system, providing improved survivability with improved surface-to-air and air-to-air radar-guided missile warning

BACKGROUND

- The current analog RWR in AFR A-10s is obsolete and needs to be replaced with an all-digital system
- The ALR-69A reduces pilot workload by providing 360-degree detection and warning of unobserved radar-guided missile threats, and automatically cueing onboard countermeasures dispensers to help defeat incoming missiles
- The all-digital system provides enhanced spectral and spatial coverage for high-sensitivity detection in dense signal environments

IMPACT IF NOT FUNDED

- Current analog RWR does not provide sufficient radar-guided missile warning, degrading survivability

UNITS IMPACTED

- 357th Fighter Group, Davis-Monthan AFB, AZ
- 442nd Fighter Wing, Whiteman AFB, MO

CONTRACTOR

- Raytheon Corp, Goleta, CA

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration	**1**		**8.0**
Group A Kits/Install	**56**	**196**	**10.9**
Group B Kits	**56**	**425**	**23.8**
Total Cost of Remaining Requirements			**$42.7**

Combat Fuel Tank

External fuel tank that can support combat maneuvering, significantly increasing range and on-station time.

Background

- The A-10 does not have an external combat fuel tank
- Convert excess F-15 combat fuel tanks into combat fuel tanks for the A-10
- Tanks are stressed to support the entire A-10 maneuvering envelope
- A-10 30MM gun can be reloaded with the tank mounted
- Significantly increases range, on-station time and austere field operations
- Reduces stress on airborne tanker support

IMPACT IF NOT FUNDED

- Aircraft range and on-station time remains limited

UNITS IMPACTED

- 357th Fighter Group, Davis-Monthan AFB, AZ
- 442nd Fighter Wing, Whiteman AFB, MO

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Conversion Tank	**30**	**27**	**0.8**
Total Cost of Remaining Requirements			**$0.8**

LITENING Advanced Targeting Pod (ATP) Color Sensor Upgrades

Replaces legacy black and white sensors in the LITENING Advanced Targeting Pod (ATP) with digital color sensors enabling high definition video

BACKGROUND

- LITENING ATPs currently display cockpit video via a black and white Narrow Field of View (NFOV) and a black and white Wide Field of View (WFOV) sensor. These sensors are reaching the end of their useful life and are due for replacement
- The display of the high resolution color video on the Center Display Unit (CDU) or tablet is expected to bring increased capability and situational awareness to the pilot. This upgrade will provide A-10 pilots improved resolution of air-to-ground (A/G) targets
- The color sensors will add NFOV & WFOV color sensors, a laser spot tracker, an extended laser range finder, recording of digital video and the ability to display feeds on a tablet

IMPACT IF NOT FUNDED

- If not funded, A-10 aircrews ability to detect, acquire, auto-track and identify targets at long ranges for weapon delivery or non-traditional intelligence, surveillance and reconnaissance missions will decline

UNITS IMPACTED

- 442d Fighter Wing, Whiteman AFB, MO
- 924th Fighter Wing, Davis-Monthan AFB, AZ

CONTRACTOR

- Northrop Grumman Corp, Rolling Meadows, IL

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Color Sensor Upgrades	**27**	**1,000**	**27.0**
Total Cost of Remaining Requirements			**$27.0**

THIS PAGE INTENTIONALLY BLANK

B-52

Global Attack
Precision Engagement

The B-52 Stratofortress has been the backbone of the strike capability of the U.S. Air Force. The B-52 heavy bomber is capable of performing a variety of missions, including strategic attack, precision strike, air interdiction, offensive counter-air, and maritime interdiction. Due to its high mission-capable rate, long range, persistence and ability to employ accurate standoff weapons, the B-52 continues to be a major contributor to the U.S. and allied forces.

The Air Force Reserve maintains and operates B-52 aircraft assigned to the 307th Bomb Wing, Barksdale AFB, Louisiana. Currently, the 307th BW is the only unit that produces new aircrews for this aircraft through the Flying Training Unit (FTU), providing 100 percent of the formal training for B-52 aircrew combat employment.

The B-52 will remain an integral asset in any significant air campaign in the future. Its long range, ability to operate at high altitudes and capability to carry nuclear or precision-guided conventional ordnance to any point on the globe, has made it a key component of nuclear deterrence and U.S. National Security Strategy. As such, continued modernization investments are required to ensure the airframe's viability in an ever-challenging mission environment.

Requirements Summary

- **B-52 Digital Mission Data Recorder (DMDR) Interim Contract Support (ICS)** – Sustainment and Maintenance of the B-52 DMDR is required to keep the equipment functional
- **LITENING Advanced Targeting Pod (ATP) Color Sensor Upgrades** – Provides upgraded targeting capability in full color and high definition enhancing pilots ability to identify ground based targets
- **LITENING PVI Desktop Emulator/Trainer** – Provide instructors and students initial familiarization and proficiency training in basic Advanced Targeting Pod (ATP) operations without using valuable flight time

B-52 Programs	Cost ($M)
Digital Mission Data Recorder (DMDR) ICS	**0.1**
LITENING Advanced Targeting Pod Color Sensor Upgrades	**12.0**
LITENING PVI Desktop Emulator/Trainer	**4.0**
Total Cost of Remaining Requirements	**$16.1**

Digital Mission Data Recorder (DMDR)

Provides mission playback station software and event cueing capabilities to enhance training evaluation and mission reconstruction

BACKGROUND

- The 93rd BS, 307th Bomb Wing, Barksdale AFB, LA, requires a multi-channel audio/video mission data recording system to effectively accomplish their B-52 Flying Training Unit (FTU) mission; DMDR will include crash-survivable capability
- Currently, the only means of data capture on the B-52 is manual/mental note taking by the student and instructor; this method is most vulnerable during task saturation when the need for data capture is often the most important
- The ability to recreate the mission from all of the various data sources on the aircraft would be an invaluable training aid enabling the 93rd BS to more effectively satisfy their mission requirements
- Installing DMDRs in AFR B-52s would yield significant training, mission re-construction, and crew resource management improvements by providing the capability to record and playback video, audio and data from targeting pods, radios and intercom sources

IMPACT IF NOT FUNDED

- Quality of training provided to newly-assigned B-52 crews will be degraded, resulting in the subsequent degradation of combat capability and/or increased training costs to overcome resulting deficiencies

UNITS IMPACTED

- 307th Bomb Wing, Barksdale AFB, LA

CONTRACTOR

- Calculex Corp, Las Cruces, NM

PROGRAM ELEMENT CODE: B-52: 51720F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
DMDR Interim Contractor Supt (ICS)	**1**	**100**	**.1**
Total Cost of Remaining Requirements			**$.1**

LITENING Advanced Targeting Pod (ATP)
Color Sensor Upgrades

Procures additional pods and upgrades current pods replacing legacy black and white sensors with digital color sensors enabling high definition video

BACKGROUND

- Legacy LITENING ATPs currently display cockpit video via a black and white Narrow Field of View (NFOV) and a black and white Wide Field of View (WFOV) sensor. These sensors are reaching the end of their useful life and are due for replacement
- Color sensors will add NFOV & WFOV color sensors, a laser spot tracker, an extended laser range finder, recording of digital video and the ability to display feeds on a tablet

IMPACT IF NOT FUNDED

- Precision engagement capabilities and the mission to train to them will be degraded
- Aircrews ability to detect, acquire, auto-track and identify targets at long ranges for weapon delivery or non-traditional intelligence, surveillance and reconnaissance missions will decline

UNITS IMPACTED

- 307th Bomb Wing, Barksdale AFB, LA

CONTRACTOR

- Northrop Grumman Corp, Rolling Meadows, IL

PROGRAM ELEMENT CODE: B-52: 51720F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Color Sensor Kits & Upgrades	**16**	**.750**	**12.0**
Total Cost of Remaining Requirements			**$12.0**

LITENING PVI Desktop Emulator/Trainer

Provides instructors and students initial familiarization and proficiency training in basic ATP operations without using valuable flight time

BACKGROUND

- Current B-52 Weapon System Trainer (WST) will not be upgraded to LITENING configuration in the foreseeable future
- The 307th Bomb Wing (BW), Barksdale AFB, LA, has an approved Flying Training Unit (FTU) syllabus requiring Advanced Targeting Pod (ATP) training on all sorties
- The LITENING Pilot Vehicle Interface (PVI) desktop trainer will provide instructors and students initial familiarization and/or re-familiarization and proficiency training in basic ATP operations without having to use valuable flight time
- A LITENING PVI desktop trainer will result in better utilization of valuable flight time for ATP training for all FTU students

IMPACT IF NOT FUNDED

- Without the desktop trainer, the FTU will be forced to use lower quality training methods (classroom academics) to make up for the lack of a “hands-on” basic function training device
- For initial qualification students, lack of a basic desktop trainer will result in the need for additional sorties to gain LITENING proficiency
- For instructors, valuable flight time will be wasted covering basic functions that could be better covered using a desktop trainer

UNITS IMPACTED

- 307th Bomb Wing, Barksdale AFB, LA

CONTRACTOR

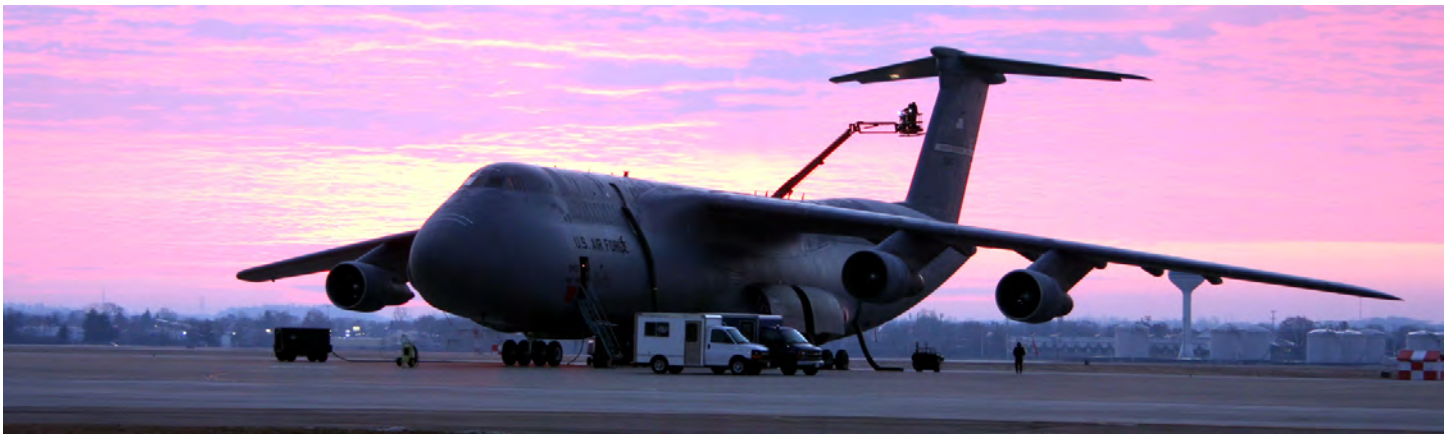
- Northrop Grumman Corp, Rolling Meadows, IL

PROGRAM ELEMENT CODE: B-52: 51720F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
LITENING PVI DESKTOP EMULATOR/TRAINER	**10**	**400**	**4.0**
Total Cost of Remaining Requirements			**$4.0**

THIS PAGE INTENTIONALLY BLANK



C-5

Rapid Global Mobility
Strategic Airlift
Outsized / Oversized Cargo Airlift

The C-5 is the largest airlift aircraft in the Air Force inventory and is capable of simultaneously carrying 36 standard pallets and 81 troops. It is also capable of rapidly transporting outsize and oversize cargo over intercontinental ranges to airfields as short as 6,000 feet. Entering the Air Force inventory in 1970, the C-5 has been extensively modernized over the past several decades. Today, the C-5 teams with the C-17 to provide the Air Force's strategic airlift capacity. Continued modernization efforts are required to maximize the C-5's effectiveness and survivability.

The Air Force Reserve operates C-5 aircraft at the 433rd Airlift Wing, Lackland AFB, TX, and the 439th Airlift Wing, Westover ARB, MA. The 433rd Airlift Wing is home to the Air Force's C-5 Formal Training Unit (FTU), which provides aircrew training for the entire C-5 fleet. Air Force Reserve Airmen also associate with active component C-5 aircraft at the 512th Airlift Wing, Dover AFB, DE and 349th Air Mobility Wing, Travis AFB, CA.

Requirements Summary

- **Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC) with Link-16/Airborne Networking/Tactical Data Link (TDL))** – Upgrades C-5's voice, data link, and data transfer capabilities to provide aircrews the ability to report and receive battlespace information from command and control platforms, including Air Operations Centers and airborne assets
- **Mobile User Objective System (MUOS) –** Provides global Command and Control (C^2) secure satellite communications (SATCOM) that is essential to interoperability and mission success
- **Secure On-board Storage –** Allows C-5 crews to securely transport and store material during deployments/missions

C-5 Programs	Cost ($M)
Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC) Link-16/Airborne Networking/Tactical Data Link (TDL))	**17.5**
Mobile User Objective System (MUOS)	**5.2**
Secure On-board Storage	**5.0**
Total Cost of Remaining Requirements	**$27.7**

Common MAF Mission Computer
Real-Time Information in the Cockpit (RTIC) with Link-16 / Airborne Networking

Upgrades voice, data link, and data transfer capabilities to provide aircrews the ability to report and receive battlespace information from command and control (C2) platforms

BACKGROUND

- Effective air operations in today's information-reliant battlespace requires secure voice and data communications between coalition aircraft, command and control (C^2) platforms, and Joint Forces
- Increased situational awareness and near real-time communications between aircrews and C^2 assets will benefit decision making and optimize operational flexibility, thus significantly improving the synchronization of supporting and supported forces

IMPACT IF NOT FUNDED

- Without communications and data link upgrades to Air Force Reserve's C-5 fleet, aircrew and associated C^2 platforms will not adequately interface in current and evolving mission environments, resulting in degraded mission performance, including the inability to adjust mission profiles real time, and increased risk to aircrew and passengers

UNITS IMPACTED

- 433rd Air Mobility Wing, Lackland AFB, TX
- 439th Air Mobility Wing, Westover ARB, MA

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-5: 54219F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**2.1**
Group A & B Kits / Spares	**14**	**1,000**	**14.0**
Installs	**14**	**100**	**1.4**
Total Cost of Remaining Requirements			**$17.5**

C- 5 Mobile User Objective System (MUOS) Voice

Provides global C² secure satellite communications (SATCOM) that are essential to interoperability and mission success

BACKGROUND

- The C-5 requires secure ultra-high frequency (UHF) satellite communications (SATCOM) that includes anti-jam capabilities, simultaneous crystal-clear voice, video and mission data on a high-speed internet protocol-based system
- Upgrades/replaces the C-5s current system due to obsolescence and impeding end of life issues. Replaces existing ARC-164 UHF radios with ARC-210 generation 6 radios, new control head, high & low powered amplifiers, and a SATCOM antenna

IMPACT IF NOT FUNDED

- Potential loss of secure military satellite communications (MILSATCOM) which can delay dynamic, direct retasking of C-5s

UNITS IMPACTED

- 433rd Air Mobility Wing, Lackland AFB, TX
- 439th Air Mobility Wing, Westover ARB, MA

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-5: 54219F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**1.0**
Group A & B Kits / Spares	**14**	**250**	**3.5**
Installs	**14**	**50**	**0.7**
Total Cost of Remaining Requirements			**$5.2**

C- 5 Secure On-board Storage

Allows C-5 crews to securely transport and store material during deployments / missions

BACKGROUND

- Current classified storage capability on the C-5M are inefficient because crews are forced to store material on the aircraft at locations without suitable facilities
- Installs secure storage on the C-5M to enable the carrying of required COMSEC keys, radios, etc. which will therefore provide proper security and protection during transport

IMPACT IF NOT FUNDED

- Without proper on-board storage, aircrews will be greatly challenged to properly store and secure classified material during missions

UNITS IMPACTED

- 433rd Air Mobility Wing, Lackland AFB, TX
- 439th Air Mobility Wing, Westover ARB, MA

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-5: 54219F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group B Kits	**16**	**250**	**4.0**
Installs	**16**	**62.5**	**1.0**
Total Cost of Remaining Requirements			**$5.0**

THIS PAGE INTENTIONALLY BLANK

C-17

Rapid Global Mobility
Strategic Airlift
Aeromedical Evacuation

The C-17 Globemaster III provides the Air Force with inter-theater and intra-theater airlift in support of U.S. national security. It is capable of performing combat airdrop and is able to land on short, austere airfields. The inherent flexibility and performance of the C-17 fleet improves the ability of the total airlift system to meet the worldwide air mobility requirements of the United States.

The Air Force Reserve maintains and operates C-17s at the 452nd Air Mobility Wing, March ARB, CA; the 445th Air Mobility Wing, Wright-Patterson AFB, OH; and the 911th Airlift Wing, Pittsburgh International Airport Air Reserve Station (IAP ARS), PA. The Air Force Reserve also associates with active component C-17 aircraft at the 315th Airlift Wing, Charleston AFB, SC; the 446th Airlift Wing, McChord AFB, WA; the 514th Air Mobility Wing, McGuire AFB, NJ; the 512th Airlift Wing, Dover AFB, DE; 349th Air Mobility Wing, Travis AFB, CA; and the 730th Air Mobility Training Squadron, Altus AFB, OK.

Requirements Summary

- **Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC) and Link-16) -** Upgrades voice, data link, and data transfer capabilities to provide aircrews the ability to report and receive battlespace information from command and control platforms, including Air Operations Centers and airborne assets
- **Mobile User Objective System (MUOS)** - Provides global Command and Control (C^2) secure satellite communications (SATCOM) that is essential to interoperability and mission success

C-17 Programs	Cost ($M)
Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC) and Link-16)	**32.0**
Mobile User Objective System (MUOS)	**8.2**
Total Cost of Remaining Requirements	**$40.2**

Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC) with Link-16)

Upgrades C-17's voice, data link, and data transfer capabilities to provide aircrews the ability to report and receive battlespace information from command and control platforms

- Effective air operations in today's information-reliant battlespace requires secure voice and data communications between coalition aircraft, command and control (C^2) platforms, and Joint forces
- Increased situational awareness and near real-time communications between aircrews and C^2 assets will benefit decision making and optimize operational flexibility, thus significantly improving the synchronization of supporting and supported forces

IMPACT IF NOT FUNDED

- Without communications and data link upgrades to the Air Force Reserve's C-5 fleet, aircrew and associated C^2 platforms will not adequately interface in current and evolving mission environments, resulting in degraded mission performance, including the inability to adjust mission profiles real time, and increased risk to aircrew and passengers

UNITS IMPACTED

- 452nd Air Mobility Wing, March ARB, CA
- 445th Air Mobility Wing, Wright-Patterson AFB, OH
- 911th Airlift Wing, Pittsburgh IAP ARS, PA

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-17: 54214F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**2.0**
Group A & B Kits / Spares	**24**	**750**	**18.0**
Installs	**24**	**500**	**12.0**
Total Cost of Remaining Requirements			**$32.0**

C-17 Mobile User Objective System (MUOS)

Provides global C^2 secure satellite communications (SATCOM) that is essential to interoperability and mission success

BACKGROUND

- The C-17 requires secure ultra-high frequency (UHF) satellite communications (SATCOM) that includes anti-jam capabilities, simultaneous crystal-clear voice, and video and mission data on a high-speed Internet Protocol-based system
- Upgrades/replaces the current system due to obsolescence issues and impending end of life system. Replaces existing ARC-164 UHF radios with UHF ARC-210 Generation 6 Radios, the control head, high & low powered amplifiers, and SATCOM antenna

IMPACT IF NOT FUNDED

- Potential loss of secure military satellite communications (MILSATCOM) which will prevent dynamic, direct retasking of C-17s

UNITS IMPACTED

- 452nd Air Mobility Wing, March ARB, CA
- 445th Air Mobility Wing, Wright-Patterson AFB, OH
- 911th Airlift Wing, Pittsburgh IAP ARS, PA

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-17: 54219F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**1.0**
Group A & B Kits / Spares	**24**	**250**	**6.0**
Installs	**24**	**50**	**1.2**
Total Cost of Remaining Requirements			**$8.2**

C-130H

Rapid Global Mobility
Tactical Airlift / Specialized Missions
Aeromedical Evacuation

The C-130 Hercules is the Air Force's tactical airlift workhorse with the capability to take-off and land on short, unimproved strips often found during austere, downrange operations. The C-130H has an unrefueled range of 1,300 nautical miles with a 35,000 pound payload and a maximum payload of 42,000 pounds, and is the primary intra-theater airlift vehicle for delivering troops and equipment into hostile territory.

Legacy C-130H aircraft make up the bulk of the Air Force Reserve's C-130H fleet. These provide responsive airlift of personnel and cargo for delivery day or night by parachute or landing, as well as aeromedical evacuation of critically-injured personnel. Specially-equipped C-130Hs also provide aerial spray and aerial firefighting capabilities.

The Air Force Reserve maintains and operates C-130H2 aircraft at airlift wings located at Maxwell AFB, AL; Youngstown ARS, OH; and with C-130H3 aircraft at Dobbins ARB, GA; Minneapolis-St Paul IAP ARS, MN; and Peterson AFB, CO.

C-130H Specialized Missions

Aerial Spray – The Department of Defense's only aerial spray capability resides exclusively within the Air Force Reserve at the 910 Airlift Wing, Youngstown ARS, OH, where C-130H2s are equipped with Modular Aerial Spray System (MASS) modules when needed in support of Defense, Homeland, or Center for Disease Control Requirements.

Aerial Firefighting – In a shared homeland support mission with the Air National Guard, the Air Force Reserve maintains Modular Airborne Fire Fighting System (MAFFS)-equipped C-130H3 aircraft at the 302nd Airlift Wing, Peterson AFB, CO.

C-130H Requirements Summary

- **Integrated Data Link and Defensive System Suite** – Upgrades to the C-130 RTIC system increase the overarching network capability providing a common processing and display platform for previously federated systems resulting in a consolidated situational awareness picture
- **Improved Night Vision (NVIS) Compatible Lighting** – Installs permanent NVIS compatible lighting to enhance aircrew performance and situational awareness while operating with night vision goggles
- **APN-241 Radar upgrade** - Upgrades the analog APN-241 radar to digital allowing better Terrain Avoidance (TA) and 1 meter Synthetic Aperture Radar (SAR)
- **LED Position Lighting** – Replaces current position lights with LED position lights

C-130 Hercules

- **Large Aircraft infrared Countermeasures (LAIRCM) Block 30 upgrade** – Upgrades current Block 10 configuration with Block 30 components (upgraded MWS, GLTA-tracking, jamming and LSPR processor)
- **C-130H Propulsion System Upgrades** – Upgrades engines and propellers to enhance performance in high density altitudes, improve fuel efficiency, and extend service life of the aircraft
- **Improved Propeller (NP2000)** – Replaces four-bladed propellers with eight-bladed propellers, increasing thrust for heavy weight and short field operations; increases fuel efficiency
- **T56 Series 3.5 Engine Enhancement Package (EEP)** – Increases engine life cycle, improves fuel economy, reduces takeoff distances, and increases the max acceptable cargo load

C-130H Programs	Cost ($M)
Integrated Data Link and Defensive System Suite	**6.3**
Improved Night Vision (NVIS) Compatible Lighting	**17.3**
APN-241 Radar Upgrade	**21.0**
LED Position Lighting	**2.5**
Large Aircraft Infrared Countermeasures (LAIRCM) Block 30 Upgrade	**107.0**
C-130H Propulsion System Upgrades:	
Improved Propeller (NP2000)	**81.3**
T56 Series 3.5 Engine Enhancement Package (EEP)	**119.0**
Total Cost of Remaining Requirements	**$354.4**

Integrated Data Link and Defensive System Suite

Upgrades to the C-130H 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

BACKGROUND

- C-130H real-time information in the cockpit (RTIC) system allows C-130H aircraft to participate on multiple data link networks by utilizing technologies already fielded on other DoD assets
- Integration with the advanced integrated electronic combat system provides the capability for on-board/off-board threat correlations, data sharing, on-board radar threat system geo-location, route re-planning, and automated countermeasures
- Combining the control and outputs of multiple systems into one common graphical interface reduces crew workload, decreases “heads-down” time, and provides improved decision support for aircrews operating in the tactical environment

IMPACT IF NOT FUNDED

- Without this capability aircrews lack situational awareness, terrain awareness warning system, electronic takeoff and landing data systems

UNITS IMPACTED (Based on FY19 C-130H inventory)

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 910th Airlift Wing, Youngstown ARS, OH
- 908th Airlift Wing, Maxwell AFB, AL
- 934th Airlift Wing, Minn-St. Paul IAP, MN

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A & B Kits/Installs	**42**	**150**	**6.3**
Total Cost of Remaining Requirements			**$6.3**

Improved Night Vision (NVIS) Compatible Lighting

Installs permanent NVIS compatible lighting to enhance aircrew performance and situational awareness while operating with night vision goggles

BACKGROUND

- The current NVIS lighting wiring harness installed on Air Force Reserve C-130Hs was intended to serve as a temporary solution, pending the installation of the C-130H Avionics Modernization Program (AMP)
- Given the indefinite delay with AMP implementation, along with increased Night Vision Goggles (NVG) employment requirements and a more complex and demanding night tactical environment, a permanent and more effective NVIS lighting solution is required to maintain combat effectiveness and maximize survivability

IMPACT IF NOT FUNDED

- Unimproved C-130H NVIS lighting places aircrews at increased risk of task saturation and loss of situational awareness during night operations due to poor and obstructive cockpit lighting

UNITS IMPACTED (Based on FY19 C-130H inventory)

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 910th Airlift Wing, Youngstown ARS, OH
- 908th Airlift Wing, Maxwell AFB, AL
- 934th Airlift Wing, Minn-St. Paul IAP, MN

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**0.5**
Group A Kits/Installs	**42**	**200**	**8.4**
Group B Kits	**42**	**200**	**8.4**
Total Cost of Remaining Requirements			**$17.3**

APN-241 Radar Upgrade

Upgrades current analog APN-241 radar to digital incorporating Terrain Avoidance (TA) along with 1 meter Synthetic Aperture Radar (SAR)

BACKGROUND

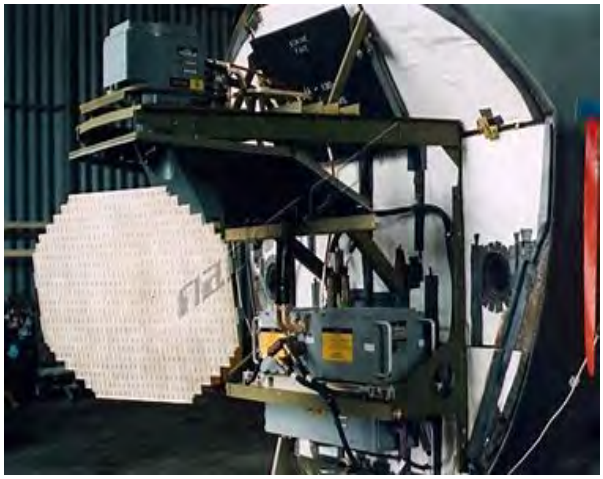
- C-130H fleet requires the ability to conduct accurate combat aerial delivery in both day/night Instrument Meteorological Conditions (IMC) and Visual Meteorological Conditions (VMC) while operating in Contested, Degraded, and Operationally (CDO) limited environments against near peer / peer-to-peer adversaries
- Current APN-241 ground mapping capability is outdated and does not provide the required resolution to ensure required navigation performance for combat aerial delivery in GPS-denied environments while it additionally lacks terrain avoidance capability for night or IMC low level ingress/egress to mitigate enemy capabilities
- Increased resolution, to include 1-meter Synthetic Aperture Radar (SAR) fidelity, is needed for radar updates of the navigation solution and a selectable active and/or passive integrated terrain avoidance/flight director capability is needed for employment at lower altitudes during night or IMC operations

IMPACT IF NOT FUNDED

- C-130H aircrews must fly at higher altitudes during night or IMC low level employment because the aircraft lacks an integrated terrain avoidance/flight director capability. Aircrews must fly at varying preplanned altitudes (not modified contour altitudes) depending on terrain/obstacles which ensures at least 500' AGL clearance of the obstacle or terrain feature. This restriction could expose the aircrew/aircraft to increased risk of hostile action, potentially resulting in mission failure

UNITS IMPACTED

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 910th Airlift Wing, Youngstown, ARS, OH
- 908th Airlift Wing, Maxwell AFB, AL
- 934th Airlift Wing, Minn-St. Paul IAP, MN



CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A & B Kit/Install	**42**	**500**	**21.0**
Total Cost of Remaining Requirements			**$21.0**

Light Emitting Diode (LED) Position Lighting

Replaces current incandescent position lights with LED position lights

BACKGROUND

- Current incandescent position lights are required to be set in the dim setting to allow adequate night vision goggle (NVG) operations in formation. New LED lights are not only more user friendly for NVG use, but it provides better visibility to the unaided eye
- The current lighting scheme may not be compliant with required Federal Aviation Regulation lighting with increased sustainment costs compared to LED lighting

IMPACT IF NOT FUNDED

- Without LED Position Lighting, aircrew will continue to operate under less than safe conditions, especially during NVG operations. Further, incandescent lights drive higher sustainment costs

UNITS IMPACTED

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 934th Airlift Wing, Minn-St. Paul IAP, MN
- 908th Airlift Wing, Maxwell AFB, AL
- 910th Airlift Wing, Youngstown ARS, OH

CONTRACTORS

- To Be Determined

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration	**1**	**200**	**0.2**
Group A Kits/Installs	**42**	**50**	**2.1**
Group B Kits	**42**	**5**	**.2**
Total Cost of Remaining Requirements			**$2.5**

Large Aircraft Infrared Countermeasures (LAIRCM) Block 30 Upgrade

Provides integral self-protection system to defend large aircraft against infrared (IR) missile threats

BACKGROUND

- C-130Hs are the only aircraft in the Mobility Air Force (MAF) fleet that do not have the Block 20 or Block 30 LAIRCM upgrade as the baseline configuration to counter potential IR missile threat envelopes
- As threats continue to proliferate, the aircraft is placed at ever-increasing risk without effective countermeasures
- Shoulder-fired, Man-Portable Air Defense Systems (MANPADs) are a significant threat to C-130H aircraft during takeoffs and landings
- An advanced IRCM Block 30 system is required to counter the proliferation of IR missile threats

IMPACT IF NOT FUNDED

- Without effective defensive systems, advanced IR missile systems maintain a high probability of success against C-130H aircraft. C-130H operational effectiveness will be limited and survivability degraded

UNITS IMPACTED (Based on FY19 C-130H inventory)

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 910th Airlift Wing, Youngstown, ARS, OH
- 908th Airlift Wing, Maxwell AFB, AL
- 934th Airlift Wing, Minn-St. Paul IAP, MN

CONTRACTOR

- Northrop Grumman Electronics Systems, Rolling Meadows, IL

PROGRAM ELEMENT CODE: C-130: 54543F

FUNDING PROFILE:

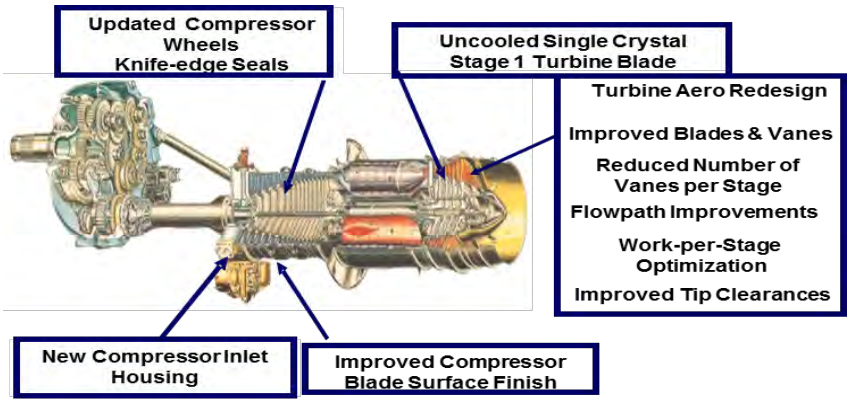
Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**2.0**
Group A Kits/Installs	**42**	**500**	**21.0**
Group B Kits	**42**	**2,000**	**84.0**
Total Cost of Remaining Requirements			**$107.0**

Propulsion System Upgrades

Upgrades engines and propellers to enhance performance in high density altitudes, improve fuel efficiency, and extend service life of the aircraft

BACKGROUND

- The current C-130H propulsion system performs deficiently in high density altitude environments and drives excessive maintenance costs; it requires a comprehensive upgrade to improve performance and reliability; increase fuel efficiency; reduce airframe fatigue due to excessive vibration; decrease maintenance costs; and increase safety margins during critical phases of flight
- Fuselage, avionics and wing box life-span considerations have driven initiatives to reduce the sources of airframe stress due to excessive vibrations; aircrew fatigue and other human factors are also impacted
- Upgrading the T-56 engine with the 3.5 Engine Enhancement Package (EEP) will increase engine life span, improve fuel economy, reduce takeoff distances, and increase the effective cargo capacity
- Replacing dated four-bladed propellers with improved, modular eight-bladed propellers (NP2000) will provide improved thrust for heavy weight and short field operations, while increasing fuel efficiency



IMPACT IF NOT FUNDED

- C-130H performance and reliability will remain deficient, while sustainment costs will continue to increase, placing an increased risk to a significant portion of the Air Force's tactical airlift capacity

UNITS IMPACTED (Based on FY19 C-130H inventory)

- 94th Airlift Wing, Dobbins ARB, GA (3.5 Engines installed)
- 302nd Airlift Wing, Peterson AFB, CO (Props Funded)
- 910th Airlift Wing, Youngstown ARS, OH (Props Funded)
- 908th Airlift Wing, Maxwell AFB, AL
- 934th Airlift Wing, Minn-St. Paul IAP, MN

CONTRACTOR

- Rolls Royce, Reston, VA
- Collins Aerospace, Charlotte, NC

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Improved Propeller (NP2000)	**26**	**3,125**	**81.3**
T56 3.5 Engine Enhancement Package (EEP)	**34**	**3,500**	**119.0**
Total Cost of Remaining Requirements			**$200.3**

WC/C-130J

Rapid Global Mobility
Tactical Airlift / Specialized Missions
Aeromedical Evacuation
C-130J Hercules

The C-130J is the US Air Force principal tactical cargo and personnel transport aircraft. The C-130J Hercules is the latest model, featuring a glass cockpit, digital avionics and a new propulsion system with a six-bladed propeller. The improvements built into the C-130J, which entered production in 1997, have enhanced the performance of the aircraft in terms of its range, cruise ceiling time to climb, speed and airfield requirements.

The C-130J climbs faster, higher and further and takes off in a shorter distance than the C-130H while reducing the cost of ownership by as much as 45%. The C-130J has an unrefueled range of 2,100 nautical miles with a 35,000 pound payload and a maximum payload of 44,000 pounds.

The Air Force Reserve maintains and operates C-130J aircraft at Keesler AFB, MS. Keesler AFB is also home to the 53rd Weather Reconnaissance Squadron.

WC-130J Specialized Mission

Hurricane Hunting – The Air Force Reserve exclusively operates the WC-130J, a J-model variant flown by the 403rd Wing, Keesler AFB, MS, which provides weather reconnaissance—also known as "Hurricane Hunting"—in partnership with the National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service's National Hurricane Center (NHC) in Miami. They are the only Department of Defense organization providing surveillance of tropical storms and hurricanes in the Atlantic/Central Pacific Oceans, Caribbean Sea, and Gulf of Mexico for the NHC since 1944.

C-130J/WC-130J Requirements Summary

- **C-130J Radar Warning Receiver (RWR)** – Provides an advanced, all-digital RWR system to increase survivability with improved surface-to-air and air-to-air radar-guided missile warning
- **C-130J Common MAF Mission Computer** – Provides voice, datalink, and data transfer capabilities to provide aircrews the ability to report and receive battlespace information from command and control platforms
- **C-130J APN-241 Radar upgrade-** Upgrades the analog APN-241 radar to digital allowing better Terrain Avoidance (TA) and 1 meter Synthetic Aperture Radar (SAR)
- **WC-130J Radar Image Transmission Capability** – Transmits storm radar imagery to the National Hurricane Center in real time

C-130J Programs	Cost ($M)
C-130J Radar Warning Receiver (RWR)	**8.5**
C-130J Common MAF Mission Computer	**2.0**
C-130J APN-241 Radar Upgrade	**5.0**
WC-130J Radar Image Transmission Capability	**9.0**
Total Cost of Remaining Requirements	**$24.5**

Digital Radar Warning Receiver (RWR) Upgrade

Replaces obsolete analog 56M RWR with an all-digital system, providing improved survivability with improved surface-to-air and air-to-air radar-guided missile warning

BACKGROUND

- All C-130H aircraft are currently being upgraded/equipped with a digital Radar Warning Receiver. Current C-130Js are using an analog RWR with Diminishing Manufacturing Sources shortfalls which should be replaced with a Digital RWR at same time as C-130H fleet
- An upgraded digital RWR will enable aircrew to detect and operate in a contested environment against Radio Frequency (RF) threats
- The currently-fielded analog RWR system is not capable of ensuring adequate defensive situational awareness against some legacy and the majority of new radar missile threats
- The all-digital ALR-69A reduces aircrew workload by providing precise 360-degree detection, identification, and warning of unobserved missile engagements, and automatic cueing of onboard countermeasures to help defeat incoming missiles
- The ALR-69A also provides enhanced spectral and spatial coverage for high-sensitivity detection in dense signal environments

IMPACT IF NOT FUNDED

- MAF aircraft are at a high risk for Radio Frequency threat and must be prepared to operate in contested environments. To increase aircraft survivability, aircrew need to detect and defend against RT threats to increase mission effectiveness

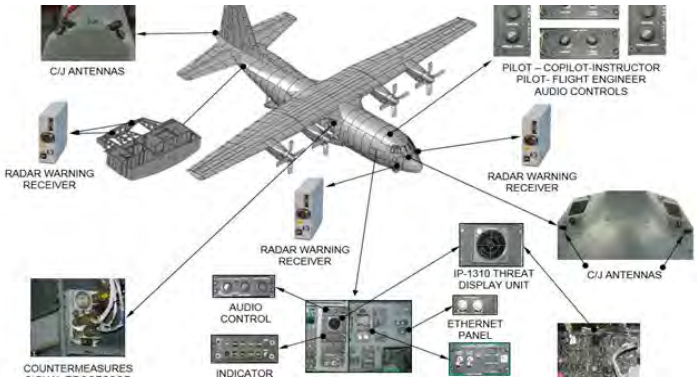
UNITS IMPACTED

- 403rd Airlift Wing, Keesler AFB, MS

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-130: 54343F



FUNDING PROFILE:

Program Data	#	Unit Cost $K)	Cost ($M)
Integration			**1.0**
Aircraft Broker/ Special Mission Processor Kits	**10**	**750**	**7.5**
Total Cost of Remaining Requirements			**$8.5**

Common MAF Mission Computer

Provides voice, datalink, and data transfer capabilities to provide aircrews the ability to report and receive battlespace information from command and control platforms

BACKGROUND

- Global mobility operations highlight the need for integrated battlespace awareness. Dynamic retasking capability (DRC) system is an Air Mobility Command (AMC) solution to a US Central Command Urgent Operational Need (UON). DRC allows select C-130J aircraft to participate on multiple data link networks by utilizing current, fielded technologies. Unfortunately, only eight AFRC C-130J aircraft were modified with the DRC A-kits, and due to limited B-kit availability and sustainment issues, AFRC has no B-kits
- 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 involve a C-130J Mission Computer (MC) change to implement
- Tactical Airlift Mission Software Suite (TAMSS) is government-owned software used to manage the airborne executive processor. TAMSS is a 1067 approved software 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)

IMPACT IF NOT FUNDED

- 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. Without this capability aircrews lack situational and networked battlespace awareness

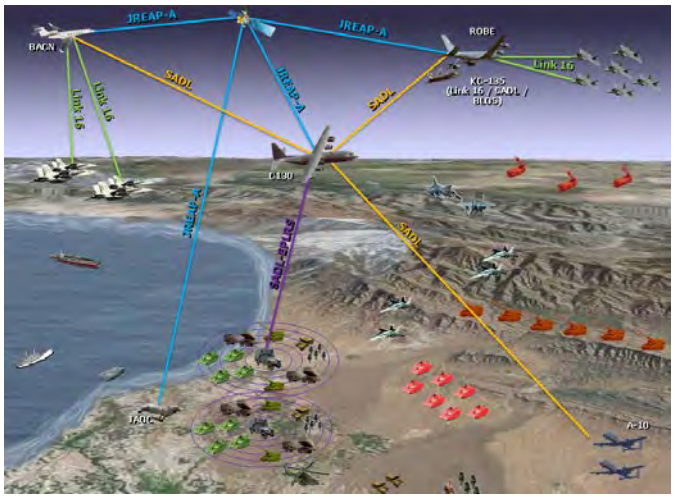
UNITS IMPACTED

- 403rd Airlift Wing, Keesler AFB, MS

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-130: 54343F



FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Kits/Installs	**8**	**250**	**2.0**
Total Cost of Remaining Requirements			**$2.0**

APN-241 Radar Upgrade

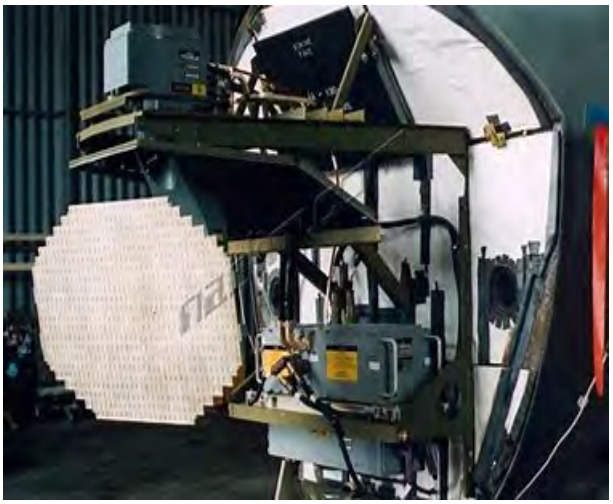
Upgrades current analog APN-241 radar to digital incorporating Terrain Avoidance (TA) along with 1 meter Synthetic Aperture Radar (SAR)

BACKGROUND

- C-130J fleet requires the ability to conduct accurate combat aerial delivery in both day/night Instrument Meteorological Conditions (IMC) and Visual Meteorological Conditions (VMC) while operating in Contested, Degraded and Operationally (CDO) limited environments against near peer / peer-to-peer adversaries
- Current APN-241 ground mapping capability is outdated and does not provide the required resolution to ensure required navigation performance for combat aerial delivery in GPS denied environments while it additionally lacks terrain avoidance capability for night or IMC low level ingress/egress to mitigate enemy capabilities
- Increased resolution, to include 1-meter Synthetic Aperture Radar (SAR) fidelity, is needed for radar updates of the navigation solution and a selectable active and/or passive integrated terrain avoidance/flight director capability is needed for employment at lower altitudes during night or IMC operations

IMPACT IF NOT FUNDED

- C-130J aircrews must fly at higher altitudes during night or IMC low level employment because the aircraft lacks an integrated terrain avoidance/flight director capability. Aircrews must fly at varying preplanned altitudes (not modified contour altitudes) depending on terrain/obstacles which ensures at least 500' AGL clearance of the obstacle or terrain feature. This restriction could expose the aircrew/aircraft to increased risk of hostile action, potentially resulting in mission failure



UNITS IMPACTED

- 403rd Airlift Wing, Keesler AFB, MS

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A & B Kits/Installs	**10**	**500**	**5.0**
Total Cost of Remaining Requirements			**$5.0**

Radar Image Transmission Capability

Transmits real-time storm radar imagery to the National Hurricane Center

BACKGROUND

- National Hurricane Operations Plan requires radar imagery to be captured and transmitted with each hurricane fix so forecasters can access storm structure changes in real time
- The capability to make timely decisions on warning changes is critical when storms are 24-48 hours from landfall. Rapid storm intensification has been documented on numerous falling storms and is critical information for the protection of life and property
- The requirement is mitigated by the Aerial Reconnaissance Weather Officer (ARWO) taking snapshots of the radar during each fix using whatever means are available (i.e., cellphone, digital camera), and emailing those images to the National Hurricane Center after landing. The usefulness is limited because the images can be 3-6 hours late

IMPACT IF NOT FUNDED

- The 53rd WRS will not meet the requirements of the National Hurricane Operations Plan. Critical storm information may not get to the customer in time to make critical life and property decisions

UNITS IMPACTED

- 403rd Airlift Wing, Keesler AFB, MS

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: WC-130J: 53124F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
NRE		**1,500**	**1.5**
Group A,B Kits/software upgrades	**10**	**750**	**7.5**
Total Cost of Remaining Requirements			**$9.0**

C-40

Rapid Global Mobility
Operational Support Airlift
Distinguished Visitor Airlift

The C-40 provides worldwide air transportation for high-ranking Executive Branch and Legislative Branch officials, including Congressional Delegations (CODELs), in support of National Defense requirements. C-40s are also tasked to transport special envoys and foreign dignitaries, as well as fulfilling other operational support needs.

The 932nd Airlift Wing, Scott AFB, IL, operates the Air Force Reserve's C-40C fleet and is dedicated to providing the highest level of service in supporting Operational Support Airlift (OSA) travel teams, high-level critical missions, special envoys supporting national defense, Congressional oversight and diplomatic missions during peacetime and in war.

C-40 Requirements Summary

- **High Speed Data Upgrade** – Upgrades AFRCs C-40C aircraft with reliable, world-wide commercial wideband connectivity

C-40 Programs	Cost ($M)
High Speed Data Upgrade	**20.0**
Total Cost of Remaining Requirements	**$20.0**

High Speed Data Upgrade

Upgrades AFRCs C-40C aircraft with reliable, world-wide commercial wideband connectivity

BACKGROUND

- The C-40 provides worldwide air transportation to Congressional Members and Delegations (CODELs), the Executive Branch, Department of Defense officials and other dignitaries
- As commercial industry moves away from legacy voice and data transmission systems, the C-40 fleet must adapt to a new internet service model. The legacy system is outdated and has received multiple complaints by customers, to include, high billing rates for usage
- The effort to upgrade the internet system will diminish the loss of connectivity and will enhance the airborne working environment

IMPACT IF NOT FUNDED

- Not providing this service to the customer significantly impacts the travels of U.S. high level dignitaries due to the loss of productivity and access to data during transport. *(Note: Not being pursued at this time due to C-40 Sunset Restrictions)*

UNITS IMPACTED

- 932nd Airlift Wing, Scott AFB, IL

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-40: 54324F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A & B Kits / Installs	**4**	**5,000**	**20.0**
Total Cost of Remaining Requirements			**$20.0**

THIS PAGE INTENTIONALLY BLANK

F-16

Precision Attack / Interdiction
Close Air Support / Forward Air Control
Air Superiority / Homeland Defense
Destruction of Enemy Air Defenses

The F-16 Fighting Falcon is a compact, highly-maneuverable, multi-role fighter aircraft that provides air-to-air and air-to-ground combat power. It is a relatively low cost yet high performance weapon system capable of performing day/night precision strike, close air support, and air-to-air beyond-visual-range interception missions. F-16s can detect targets in all weather conditions and engage low-flying aircraft in ground clutter.

The Air Force Reserve flies Block 30 F-16s at the 301st Fighter Wing, NAS JRB Fort Worth, TX, and the 482nd Fighter Wing, Homestead ARB, FL. The Air Force Reserve has teamed with Air Combat Command to provide over 600 Reservists to man three F-16 associate units: 944th Fighter Wing, Luke AFB, AZ; 419th Fighter Wing, Hill AFB, UT; and a detachment of the 482nd Operations Group at Shaw AFB, SC.

Requirements Summary

Communication Upgrades:

- **3D Audio –** Increases pilot situational awareness by spatially separating radio audio in the pilots headset while providing active and electronic noise reduction and dynamic threat location
- **LINK 16** – DOD standard battlefield integration technology. Link 16 is secure jam-resistant, near-real time, high-speed, digital data link, supports the exchange of text messages, imagery data and digital voice

Avionics and GPS Upgrades:

- **Anti-Jam GPS –** Upgrades aircraft GPS making it resistant to GPS jamming and spoofing
- **Center Display Unit (CDU)** – Replaces obsolete mechanical/analog flight instruments with a color high resolution display, improving targeting and coordination with ground forces

Defensive System Upgrades:

- **Missile Warning System (MWS)** – Replaces current outdated sensors and processors using newer off-the-shelf missile warning systems
- **ALR-69A Digital Radar Warning Receiver** – Replaces obsolete analog system with an all-digital system, greatly improving surface-to-air and air-to-air radar-guided missile warning

Targeting and Radar Enhancements:

Radar Upgrade – Replaces analog mechanical-scan radar with new digital Active Electronically Scanned Array (AESA)

LITENING Targeting Pod - Replaces legacy black and white sensors in the LITENING Advance Targeting Pod (ATP) with digital color sensors enabling high definition video

F-16 Falcon

Combat Operations Enabler:

- **Automatic Ground Collision Avoidance System (AGCAS) –** Predicts Aircraft Trajectory and If ground collision is determined to be imminent, AGCAS commands a recovery maneuver

F-16 Programs	Cost ($M)
Communication Upgrades	**12.5**
Avionics and GPS Upgrades	**2.4**
Defensive System Upgrades	**50.2**
CAF Targeting and Radar Enhancements	**50.7**
Combat Operations Enabler	**6.0**
Total Cost of Remaining Requirements	**$121.8**

3 Dimensional (3D) Audio

Replace F-16 analog radio control system with a digital radio control to take advantage of current digital radio and threat warning systems capabilities.

Background

- Replace F-16 mechanically switched analog radio controls with digital controls
- Pilots will have information from four radios and threat warning and aircraft generated audio.
- 3D Audio digitally spatially-separates the audio so that each radio can be distinguished by the pilot
- Audio threat warnings sound as if they are coming from the direction of the threat greatly improving the pilot's initial reaction to enemy fire
- 3D Audio uses Active Noise Reduction to reduce ambient background noise such as air flow around the cockpit and engine sound. Electronic noise reduction removes static and other repeatable sounds inherent in the radio system
- Result is significantly improved pilot situational awareness increasing mission success and pilot survivability

IMPACT IF NOT FUNDED

- Pilot situational awareness reduced placing mission and pilots at greater risk

UNITS IMPACTED

- 301st Fighter Wing, Carswell JRB, TX
- 482nd Fighter Wing, Homestead ARB, FL

CONTRACTOR

- TERMA North America, Warner Robins GA

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Install	**56**	**35.7**	**2.0**
Total Cost of Remaining Requirements			**$2.0**

LINK-16 CAPABILITY

Provides a secure jam-resistant, high-speed digital data link near-real time, supports the exchange of text messages, imagery data and provides two channels of digital voice

Background

- Reserve F-16 Block 30 aircraft require Link-16 data link capability to effectively employ in the current operational environment
- Legacy Situational Awareness Data Link equipment has proven inadequate due to lack of fielded support infrastructure, frequency band constraints, and Joint Interface Control Cell support
- Selected system must have the potential to provide 5th to 4th generation aircraft data link communications

IMPACT IF NOT FUNDED

- Aircraft will become increasingly data-link isolated

CONTRACTOR

- Data Link Solutions (BAE & Collins Aerospace), Cedar Rapids, IA/Wayne, NJ
- ViaSat, Carlsbad, CA

UNITS IMPACTED

- 301st Fighter Wing, Carswell JRB, TX
- 482nd Fighter Wing, Homestead ARB, FL

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A Kits/Install	**56**	**187.5**	**10.5**
Total Cost of Remaining Requirements			**$10.5**

Anti-Jam GPS

Improve resistance to GPS jamming/spoofing by updating GPS

Background

- Hardware solution to improve mission capability in GPS jamming environments
- Install a new Digital GPS Anti-Jam Receiver (DIGAR) replaces GPS Antenna System-1 Antenna Electronics Unit (GAS-1 AEU)
- System to process the new signals, update GEM II Selective Availability Anti-Spooling Module (SAASM) GPS receiver card to a GEM IV, within the EGI
- Result is significantly improved GPS accuracy in the presence of enemy jamming; pilot workload is reduced increasing mission success and pilot survivability

IMPACT IF NOT FUNDED

- Pilot situational awareness reduced placing mission and pilots at greater risk

UNITS IMPACTED

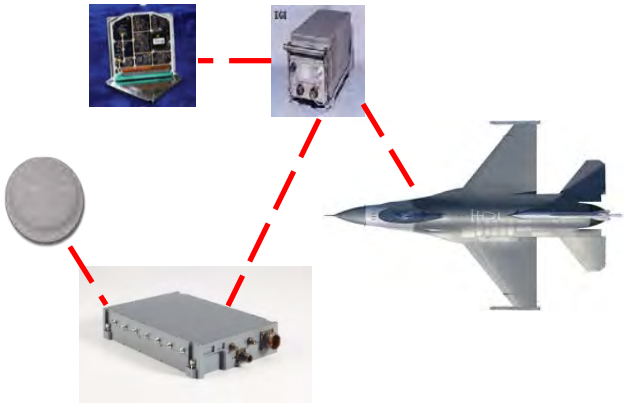
- 301st Fighter Wing, Carswell JRB, TX
- 482nd Fighter Wing, Homestead ARB, FL

CONTRACTOR

- Collins Aerospace, Charlotte, NC
- Honeywell, Clearwater, FL

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:



Program Data	#	Unit Cost ($K)	Cost ($M)
Group B kits/Install	**56**	**35.7**	**2.0**
Total Cost of Remaining Requirements			**$2.0**

Center Display Unit (CDU)

Replaces obsolete mechanical/analog flight instruments with digital instrumentation in front and rear cockpits, improving targeting and coordination with ground forces and command & control assets

Background

- F-16D analog cockpit instruments are obsolete both in terms of the information fidelity provided to pilots and the maintainability due to diminishing material and manufacturing sources
- Upgraded CDUs will replace analog flight instruments with digital instrument displays
- The upgraded CDUs will provide pilots the ability to securely transfer still images, such as a targeting pod images, joint tactical air controller taskings, and target area imagery
- The capabilities provided are critical to effective coordination with ground forces during CAS missions and with command and control assets during time sensitive target operations

IMPACT IF NOT FUNDED

- F-16D pilot situational awareness and task management will be sub-optimal, placing the pilot and supported ground forces at increasing risk as threat environments grow in complexity
- F-16D maintainability will be increasingly degraded as aircraft availability becomes more problematic due to diminishing material and manufacturing sources of obsolete instruments

UNITS IMPACTED

- 301st Fighter Wing, Carswell JRB, TX
- 482nd Fighter Wing, Homestead ARB, FL

CONTRACTOR

- Raytheon, Indianapolis, IN

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A & B Kits and installs	**1**	**425**	**0.4**
Total Cost of Remaining Requirements			**$.4**

Missile Warning System

Integrates an active missile warning system into the F-16

BACKGROUND

- The Air Force Reserve's F-16s do not have an active missile warning system, placing pilots and mission effectiveness at an increasing risk, given the proliferation of missile threats
- This modification integrates an active missile warning system into the Pylon Integrated Dispenser System Universal (PIDSU) pylon
- No hardware or software changes are required for the aircraft, minimizing cost to upgrade
- The pylons can be moved between aircraft thereby reducing the total number of sets required

IMPACT IF NOT FUNDED

- Aircraft will remain increasingly vulnerable to missile threats and survivability will be degraded

UNITS IMPACTED

- 301st Fighter Wing, Carswell JRB, TX
- 482nd Fighter Wing, Homestead ARB, FL

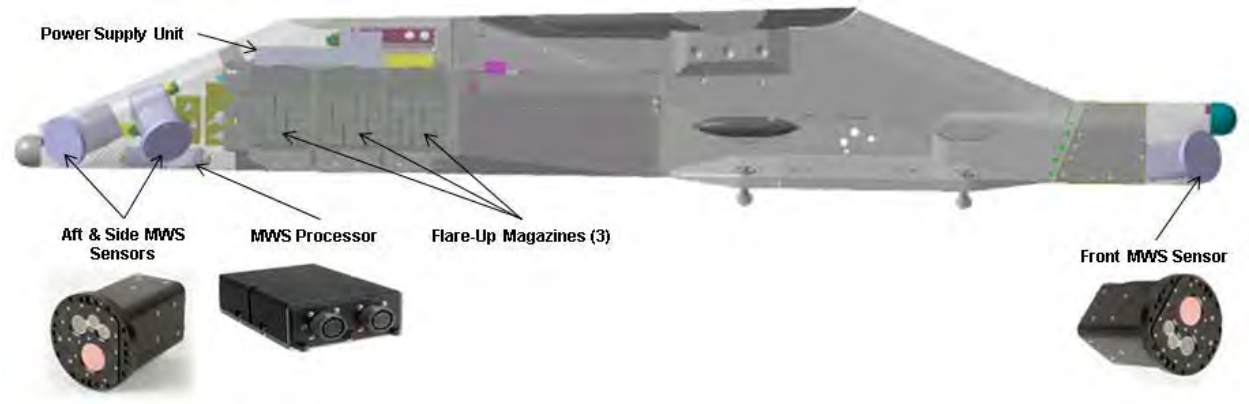
CONTRACTOR

- Elbit Systems, Ft Worth, TX (Sensors)
- TERMA International, Warner Robins, GA (pylon)

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group B Kits (two pylons per shipset)	**27**	**1,200**	**32.4**
Support Equipment	**2**	**500**	**1.0**
Total Cost of Remaining Requirements			**$33.4**



ALR-69A Digital Radar Warning Receiver (RWR)

Replaces obsolete analog RWR with an all-digital AESA Radar compatible system, providing improved survivability with improved surface-to-air and air-to-air radar-guided missile warning

BACKGROUND

- The current analog RWR in AFR F-16s is obsolete and needs to be replaced with an all-digital system
- The ALR-69A reduces pilot workload by providing 360-degree detection and warning of unobserved radar-guided missile threats, and automatically cueing onboard countermeasures dispensers to help defeat incoming missiles
- The all-digital system provides enhanced spectral and spatial coverage for high-sensitivity detection in dense signal environments

IMPACT IF NOT FUNDED

- Current analog RWR does not provide sufficient radar-guided missile warning, degrading survivability

UNITS IMPACTED

- 301st Fighter Wing, Carswell JRB, TX
- 482nd Fighter Wing, Homestead ARB, FL

CONTRACTOR

- Raytheon Corp, Goleta, CA

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A Kits/Install	**27**	**196**	**5.3**
Group B Kits	**27**	**425**	**11.5**
Total Cost of Remaining Requirements			**$16.8**

F-16 Radar Upgrade

Replaces mechanically scanned radar with digital Active Electronically Scanned Array (AESA) Radar

BACKGROUND

- This modification replaces the current mechanically scanned radar with an Active Electronically Scanned Array (AESA) Radar
- Current F-16 Block 30 radar (APG-68 (V)1) is becoming unreliable and repair costs are spiraling upward
- AESA radars have a low probability of intercept and detection, high jamming resistance, increased reliability, and can actively track a much larger number of targets than legacy radars
- AESA optimizes situational awareness and provides superior air-to-air and air-to-surface capability

IMPACT IF NOT FUNDED

- AFRC will continue to operate a fighter fleet with outdated radars. Our ability to detect targets will be compromised placing mission success and survivability at significant risk
- AFRC will continue to experience higher radar sustainment costs and lower mission capable rates than could be realized with the AESA. We will not have the advantage of AESA's significant radar image resolution improvement nor its improved targeting and tracking fidelity, capacity, and range

UNITS IMPACTED

- 301st Fighter Wing, NAS Fort Worth JRB, TX
- 482nd Fighter Wing, Homestead ARB, FL

CONTRACTOR

- Northrop Grumman, Baltimore, MD

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A Kits/Install	**27**	**350**	**9.5**
Group B Kits (Radomes)	**30**	**268**	**8.0**
Support Equipment/spares	**1**	**5,200**	**5.2**
Total Cost of Remaining Requirements			**$22.7**

LITENING Advanced Targeting Pod (ATP) Color Sensor Upgrades

Replaces legacy black and white sensors in the LITENING Advanced Targeting Pod (ATP) with digital color sensors enabling high definition video

BACKGROUND

- LITENING ATPs currently display cockpit video via a black and white Narrow Field of View (NFOV) and a black and white Wide Field of View (WFOV) sensor. These sensors are reaching the end of their useful life and are due for replacement
- The display of the high resolution color video on the Center Display Unit (CDU) or tablet is expected to bring increased capability and situational awareness to the pilot. This upgrade will provide F-16 pilots improved resolution of air-to-ground (A/G) targets
- The color sensors will add NFOV & WFOV color sensors, a laser spot tracker, an extended laser range finder, recording of digital video and the ability to display feeds on a tablet

IMPACT IF NOT FUNDED

- If not funded, F-16 aircrews ability to detect, acquire, auto-track and identify targets at long ranges for weapon delivery or non-traditional intelligence, surveillance and reconnaissance missions will decline

UNITS IMPACTED

- 301st Fighter Wing, NAS Fort Worth JRB, TX
- 482 Fighter Wing, Homestead ARB, FL

CONTRACTOR

- Northrop Grumman Corp, Rolling Meadows, IL

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Color Sensor Upgrades	**28**	**1,000**	**28.0**
Total Cost of Remaining Requirements			**$28.0**

Automatic Ground Collision Avoidance System (AGCAS)

System predicts possible aircraft ground impact and initiates automatic recovery

BACKGROUND

- The F-16 ability to pull and sustain high G maneuvers makes the pilot susceptible to G induced loss of consciousness
- This modification automatically maneuvers the aircraft to avoid ground collision
- Predicts aircraft trajectory over the earth using on-board digital terrain database
- If a collision is determined to be imminent, an avoidance maneuver is automatically performed by commanding a roll to wings-level and +5G pull
- Control returned to pilot as soon as aircraft flight path clears terrain
- Nine confirmed saves in active duty aircraft

IMPACT IF NOT FUNDED

- Possible avoidable loss of aircraft and pilot, impacting readiness and mission success

UNITS IMPACTED

- 301st Fighter Wing, Carswell JRB, TX
- 482nd Fighter Wing, Homestead ARB, FL

CONTRACTOR

- Locked Martin, Ft Worth, TX

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Group B Kits and install	**27**	**222**	**6.0**
Total Cost of Remaining Requirements			**$6.0**

GUARDIAN ANGEL

Personnel Recovery
Combat/Civil Search and Rescue
Medevac / Disaster Response

Personnel Recovery is comprised of three weapons systems: the HC-130J, HH-60G, and Guardian Angel (GA) weapon systems, working in concert to fulfill an Air Force responsibility to our Airmen—that we will never leave a downed Airman behind. Combat search and rescue (CSAR) is the Air Force's preferred mechanism for personnel recovery in uncertain or hostile environments and denied areas. With combat rescue asset recapitalization overdue, modernization and sustainment of the existing fleet is critical.

Personnel Recovery Weapon Systems

Guardian Angel – GA is uniquely designed and dedicated to conduct personnel recovery across the full range of military operations and during all phases of joint, coalition and combined operations. These elite warriors are the soul of a non-aircraft, equipment-based, human weapon system. GA's fundamental tasks are to prepare potential isolated personnel before operations and, during operations, execute personnel recovery. GA may be visualized as the ground element of the USAF Rescue triad, and commonly functions in conjunction with USAF HH-60 helicopters and HC-130 aircraft. This equipment-based weapon system is comprised of Combat Rescue Officers (CRO); Pararescuemen (PJ); Survival, Evasion, Resistance, and Escape (SERE) Specialists and enabled by uniquely trained combat support personnel. GA can work autonomously or be integrated with joint or coalition vertical airlift, airdrop, command and control and other platforms or weapon systems. Air Force Reserve GA personnel and equipment are assigned to the 920th Rescue Wing (RQW), Patrick AFB, FL and subordinate 920th RQW GA units located at Davis-Monthan AFB, AZ and Portland IAP, OR.

Guardian Angel Requirements Summary

Guardian Angel Personnel Recovery Mission Equipment – Replaces and upgrades existing communication equipment, recovery equipment, and self-defense systems to increase effectiveness and survivability of Guardian Angel personnel forces committed to recovery of any isolated personnel

Guardian Angel Programs	Cost ($M)
Personnel Recovery Mission Equipment	**5.0**
Total Cost of Remaining Requirements	**$5.0**

HH-60

Personnel Recovery
Combat/Civil Search and Rescue
Medevac / Disaster Response

Personnel Recovery is comprised of three weapons systems: the HC-130J, HH-60G, and Guardian Angel (GA), working in concert to fulfill an Air Force responsibility to our Airmen—that we will never leave a downed Airman behind. Combat search and rescue (CSAR) is the Air Force's preferred mechanism for personnel recovery in uncertain or hostile environments and denied areas. With combat rescue asset recapitalization overdue, modernization and sustainment of the existing fleet is critical.

Personnel Recovery Weapon Systems

HH-60G Pave Hawk – The HH-60G Pave Hawk's core mission is recovery of personnel under hostile conditions, including combat search and rescue. This versatile helicopter conducts day and night operations into hostile environments to recover downed aircrew or other distressed personnel. Because of its versatility, the HH-60G may also perform peacetime operations such as civil search and rescue, emergency aeromedical evacuation (MEDEVAC), disaster relief, and humanitarian assistance. The Air Force Reserve maintains and operates HH-60 aircraft at the 920th Rescue Wing at Patrick AFB, FL, and the 943rd Rescue Group at Davis-Monthan AFB, AZ.

Requirements Summary

HH-60 Personnel Recovery Situational Awareness (PRSA) – Upgrades situational awareness and data link capabilities to provide a more complete picture of the battlefield via both Line of Sight (LOS) and Beyond Line of Sight (BLOS) information

- **Link 16** provides a secure, jam-resistant, high-speed digital data link which allows forces to exchange their tactical picture at near real-time
- **Blue Force Tracker 2 (BFT2)** brings real-time situational awareness and better networking capabilities to the warfighter
- **Remotely Operated Video Enhanced Receiver (ROVER)** allows pilots to transmit real-time video to ground forces laptop receivers during close-air-support missions
- **Smart Multi-Function Color Display (SMFCD)** displays navigation and tactical inputs for enhanced situational awareness and reduced aircrew workload

HH-60 Programs	Cost ($M)
Datalinks (Link 16/BFT2/ROVER Install/Software Sustainment)	.6
Smart Multi-Function Color Display (SMFCD ICS)	1.0
Total Cost of Remaining Requirements	$1.6

Personnel Recovery Situational Awareness (PRSA)

Provides improved communications suite, Intelligence, Surveillance, and Reconnaissance (ISR) video feed capability, and full integration with Blue Force Tracker (BFT2) to significantly enhance situational awareness

BACKGROUND

- The HH-60G requires a communication suite upgrade to provide an improved secure radio capable of broadcasting and receiving on civil frequencies and capable of supporting the Airborne Network Waveform commonly used by ground personnel
- Blue Force Tracker 2 (BFT2) brings real-time situational awareness and better networking capabilities to the warfighter
- Remotely Operated Video Enhanced Receiver (ROVER) allows pilots to transmit real-time video to ground forces laptop receivers during close-air-support missions
- Smart Multi-Function Color Display installed should be fully integrated with Blue Force Tracker (BFT) to enable aircrews to receive near real-time data and text messaging from the battlefield via beyond-line-of-sight (BLOS) data link capability

IMPACT IF NOT FUNDED

- The lack of direct communication capability with on-scene ground forces and/or first-responders increase response time to conduct personnel recovery, combat search and rescue, and other response missions, placing ground forces, downed Airmen, isolated personnel, and casualty evacuation candidates at increased risk of capture or loss of life

UNITS IMPACTED

- 920th Rescue Wing, Patrick AFB, FL
- 943rd Rescue Group, Davis-Monthan AFB, AZ

CONTRACTORS

- Various

PROGRAM ELEMENT CODE: HH-60: 53122F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Datalinks (BFT2/ROVER Install)	**15**	**40**	**.6**
Smart Multi-Function Color Display ICS	**1**		**1.0**
Total Cost of Remaining Requirements			**$1.6**

THIS PAGE INTENTIONALLY BLANK

HC-130J

Personnel Recovery
Combat/Civil Search and Rescue
Medevac / Disaster Response

Personnel Recovery, based on a uniquely American value, is comprised of three weapons systems: the HC-130J, HH-60G, and Guardian Angel weapon system, working in concert to fulfill an Air Force responsibility to our Airmen—that we will never leave a downed Airmen behind. Despite the high priority our nation places on this capability, Personnel Recovery falls in the Low Density, High Demand (LDHD) category and is increasingly strained due to small numbers and aging equipment. With combat rescue asset recapitalization overdue, modernization and sustainment of the existing fleet is critical.

Personnel Recovery Weapon Systems

HC-130J – The HC-130 is the only fixed-wing Personnel Recovery platform in the Air Force inventory. HC-130 crews provide expeditionary, all weather personnel recovery capabilities, including the air refueling of HH-60G helicopters and tactical delivery via airdrop or air-land of rescue personnel watercraft, all-terrain vehicles, and/or direct assistance in advance of recovery vehicles.

Requirements Summary

- **Weapons Systems Trainer (WST)** – Purchase simulator for Patrick AFB to increase fixed wing Personnel Rescue readiness and mission effectiveness
- **Electro-Optical Infrared Sensor (EO/IR)** - Upgrades HC-130J's with an Electro-Optical Infrared (EO/IR) sensor to accurately identify and track targets for enhanced situational awareness
- **KU/KA Comm Suite** – Upgrades HC-130J's with a KU/KA broadband system for real time situational awareness
- **Defensive System Integration Suite (DSIS)** – Integrate the Electronic Warfare (EW) and countermeasure dispense systems on a single controller to automatically monitor and operate the aircraft's entire EW suite

HC-130 Programs	Cost ($M)
Weapons System Trainer (WST)	**30.0**
Electro-Optical Infrared Sensor	**10.5**
KU/KA Comm Suite	**4.5**
Defensive System Integration Suite (DSIS)	**12.0**
Total Cost of Remaining Requirements	**$57.0**

Weapons Systems Trainer (WST)

Purchase Weapons System Trainer (WST) for Patrick Air Force Base to increase aircrew training and mission effectiveness

BACKGROUND

- ARC units have limited man days and funding to train at active duty locations
- The increased capabilities of the HC-130J have driven an increase in training requirements which strain aircrew's ability to attain and maintain Ready Aircrew Program (RAP) requirements as well as meet Combatant Commander taskings
- A simulator located at Patrick would increase Personnel Rescue (PR) readiness and incorporate HC-130J capabilities with 5th Generation aircraft to meet future high end conflicts

IMPACT IF NOT FUNDED

- Patrick TR's do not have the part-time availability or man-days to utilize geographically separated WSTs while maintaining additional Total Force training requirements demand signal for the WSTs at active duty locations competes with increased utilization for refresher, RAP/CMR and CT requirements for active duty and foreign military partners

UNIT IMPACTED

- 920th Rescue Wing, Patrick AFB, FL

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: HC-130: 53122F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Simulator	**1**	**30,000**	**30.0**
Total Cost of Remaining Requirements			**$30.0**

Electro-Optical Infrared Sensor (EO/IR)

Upgrades HC-130J's with an Electro-Optical Infrared (EO/IR) sensor to accurately identify and track targets for enhanced situational awareness

BACKGROUND

- HC-130s lack the ability to accurately identify and track friendly and enemy forces, identify drop zone (DZ) and landing zones (LZ) areas, and transmit imagery to the Combat Search and Rescue Task Forces (CSARTF)
- The need for high definition imagery to locate and track survivors and provide high fidelity coordinates for points of interest is a critical capability to members of the CSARTF
- Capabilities provided by an EO/IR sensor enhances the ability of the HC-130 to locate and identify isolated personnel with precision

IMPACT IF NOT FUNDED

- Without an EO/IR sensor, aircrew lack situational awareness for suitable DZ or LZ insertion and exfiltration of rescue forces and isolated personnel.

UNIT IMPACTED

- 920th Rescue Wing, Patrick AFB, FL

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: HC-130: 53122F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**2.5**
EO/IR Sensor	**4**	**2,000**	**8.0**
Total Cost of Remaining Requirements			**$10.5**

KU/KA Communication Suite

Upgrade HC-130's with a KU/KA broadband system for real time situational awareness

BACKGROUND

- HC-130Js lack an organic beyond line of sight video data link capability to on/off board sensor data
- Command and Control (C2) requires timely digital information that's secure and accurate. Increased data requirements require a system to handle large amounts of bandwidth
- A KU/KA broadband system would allow aircrew to update mission planning data, enroute mission planning systems, and other Situational Awareness (SA) tools such as Video Data Link (VDL) steaming capabilities

IMPACT IF NOT FUNDED

- Without this capability, rescue forces will be constrained to conduct airborne data communications with no ability for real-time data stream. Lack of connectivity precludes consistent, reliable, real-time information increasing mission risk for military forces and isolated personnel

UNIT IMPACTED

- 920th Rescue Wing, Patrick AFB, FL

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: HC-130: 53122F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
KU/KA Comm Suite	**6**	**750**	**4.5**
Total Cost of Remaining Requirements			**$4.5**

Defensive System Integration Suite (DSIS)

Integrate the Electronic Warfare (EW) and countermeasure dispense systems (AAR-47, ALE-47, ALR-56M, and AAQ-24) on a single controller to automatically monitor and operate the aircraft's entire EW suite including simulated threat training capability

BACKGROUND

- The HC-130J operates in environments of increasing levels of threat and lethality and therefore must have a more robust self-defense capability in order to get to the Isolated Personnel
- The current countermeasures dispenser forces the Combat Systems Operator (CSO) or pilot to change the configuration of the system to select only chaff or flare reducing the ability for crews to quickly react to threats reducing survivability
- Without on-board simulated threat training, crews will rely on limited ground-based military threat emitter ranges or Weapon System Trainers which are not located at all bases

IMPACT IF NOT FUNDED

- Without an integrated defensive system, reaction time and survivability will continue to put pilots at risk flying at low altitude until we field a more capable and user friendly system

UNIT IMPACTED

- 920th Rescue Wing, Patrick AFB, FL

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: HC-130: 53122F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Defensive System Integration Suite	**6**	**2,000**	**12.0**
Total Cost of Remaining Requirements			**$12.0**

KC-135

Rapid Global Mobility
Air Refueling / Strategic Airlift
Aeromedical Evacuation

The KC-135 Stratotanker provides worldwide air refueling, strategic airlift, and aeromedical evacuation capacity in support of U.S. national defense requirements. It is a critical enabler of nearly every Air Force Core Function and provides the necessary air refueling capacity to enable Air Force Global Reach and Global Power.

The Air Force Reserve operates KC-135R aircraft at the 434th Air Refueling Wing, Grissom ARB, IN; the 452nd Air Mobility Wing, March ARB, CA; the 459th Air Refueling Wing, Andrews AFB, MD; the 507th Air Refueling Wing, Tinker AFB, OK; the 914th Air Refueling Wing, Niagara Falls Air Reserve Station, NY; and the 940th Air Refueling Wing, Beale AFB, CA. The Air Force Reserve associates with the active component on KC-135R at the 931st Air Refueling Wing, McConnell AFB, KS; the 927th Air Refueling Wing, MacDill AFB, FL; and the 730th Air Mobility Training Squadron, Altus AFB, OK.

Requirements Summary

- **Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC) with Link-16)** – Upgrades KC-135's voice, data link, and data transfer capabilities to provide aircrews the ability to report and receive battlespace information from command and control platforms, including Air Operations Centers and airborne assets
- **Mobile User Objective System (MUOS) -** Provides global Command and Control (C^2) secure satellite communications (SATCOM) that is essential to interoperability and mission success
- **Anti-Jam Global Positioning System (GPS) –** Provides protection against GPS jamming and interference during refueling missions
- **Large Aircraft Infrared Countermeasures (LAIRCM)** – Provides integral self-protection system to defend large aircraft against infrared (IR) missile threats

KC-135 Programs	Cost ($M)
Common MAF Mission Computer (Real-Time Information in the Cockpit (RTIC) with Link-16)	**61.0**
Mobile User Objective System (MUOS)	**19.6**
Anti-Jam Global Positioning System (GPS)	**7.8**
Large Aircraft Infrared Countermeasures (LAIRCM)	**76.0**
Total Cost of Remaining Requirements	**$164.4**

Common MAF Mission Computer
Real-Time Information in the Cockpit (RTIC) with Link-16

Upgrades voice, data link, and data transfer capabilities to provide aircrews the ability to report and receive battlespace information from command and control (C^2) platforms

BACKGROUND

- Effective air operations in today's information-reliant battlespace requires secure voice and data communications between coalition aircraft, command and control (C^2) platforms, and Joint Forces.
- Increased situational awareness and near real-time communications between aircrews and C^2 assets will benefit decision making and optimize operational flexibility, thus significantly improving the synchronization of supporting and supported forces.

IMPACT IF NOT FUNDED

- Without communication and data link upgrades to Air Force Reserve's KC-135 fleet, aircrew and associated C^2 platforms will not adequately interface in current and evolving mission environments, resulting in degraded mission performance, including the inability to adjust mission profiles in real-time, and increased risk to aircrew and passengers.

UNITS IMPACTED

- 434th Air Refueling Wing, Grissom ARB, IN
- 452th Air Mobility Wing, March ARB, CA
- 459th Air Refueling Wing, Joint Base Andrews, MD
- 507th Air Refueling Wing, Tinker AFB, OK
- 914th Air Refueling Wing, Niagara Falls ARS, NY
- 940th Air Refueling Wing, Beale AFB, CA

CONTRACTOR

- Rockwell Collins, Cedar Rapids, IA

PROGRAM ELEMENT CODE: KC-135: 51421F

FUNDING PROFILE

Program Data	#	Unit Cost ($K)	Cost ($M)
Group A Kits/Installs	**61**	**500**	**30.5**
Group B Kits	**61**	**500**	**30.5**
Total Cost of Remaining Requirements			**$61.0**

KC-135 Mobile User Objective System (MUOS)

Provides global C^2 secure satellite communications (SATCOM) that is essential to interoperability and mission success

BACKGROUND

- The KC-135 requires secure ultra-high frequency (UHF) satellite communications (SATCOM) that includes anti-jam capabilities, simultaneous crystal-clear voice, and video and mission data on a high-speed Internet Protocol-based system
- Upgrades/replaces the current legacy system due to obsolescence issues and end of life system. Replaces existing ARC-164 UHF radios with an UHF ARC-210 Generation 6 Radio, a control head, new high & low powered amplifiers, and a SATCOM antenna

IMPACT IF NOT FUNDED

- Potential loss of secure military satellite communications (MILSATCOM) which will prevent dynamic directing and/or retasking of fueling missions for the KC-135

UNITS IMPACTED

- 434th Air Refueling Wing, Grissom ARB, IN
- 452th Air Mobility Wing, March ARB, CA
- 459th Air Refueling Wing, Joint Base Andrews, MD
- 507th Air Refueling Wing, Tinker AFB, OK
- 914th Air Refueling Wing, Niagara Falls ARS, NY
- 940th Air Refueling Wing, Beale AFB, CA

CONTRACTOR

- Rockwell Collins, Cedar Rapids, IA

PROGRAM ELEMENT CODE: KC-135: 51421F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**1.0**
Group A & B Kits / Spares	**62**	**250**	**15.5**
Installs	**62**	**50**	**3.1**
Total Cost of Remaining Requirements			**$19.6**

Anti-Jam Global Positioning System (GPS)

Provides protection against GPS jamming and interference during refueling missions

BACKGROUND

- Traditional GPS antennas are susceptible to a number of jamming threats. An antenna modification is required to ensure the freedom of operation in future taskings
- The current tanker force would be capable of operating closer to the combat zone with an improved anti-jam GPS antenna(s). The standoff distance of tankers to an operation is directly related to the effectiveness of supported aircraft. For this reason, it is paramount that the tanker antenna(s) are upgraded to ensure it meets Military Code (M-Code) upgrade requirements in the near future

IMPACT IF NOT FUNDED

- Potential loss of GPS capabilities due to jamming during refueling missions could result in an untimely arrival to refuel supported aircraft.

UNITS IMPACTED

- 434th Air Refueling Wing, Grissom ARB, IN
- 452th Air Mobility Wing, March ARB, CA
- 459th Air Refueling Wing, Joint Base Andrews, MD
- 507th Air Refueling Wing, Tinker AFB, OK
- 914th Air Refueling Wing, Niagara Falls ARS, NY
- 940th Air Refueling Wing, Beale AFB, CA

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: KC-135: 51421F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration/Installs			**1.0**
Group B Antenna(s)	**62**	**110**	**6.8**
Total Cost of Remaining Requirements			**$7.8**

Large Aircraft Infrared Countermeasures (LAIRCM)

Provides integral self-protection system to defend large aircraft against infrared (IR) missile threats

BACKGROUND

- KC-135 employment environments increasingly place the aircraft within potential IR missile threat envelopes. As threats continue to proliferate, the aircraft are placed at ever-increasing risk without effective countermeasures
- Low-altitude refueling, forward positioning and additional taskings as communication relays for command and control purposes subject KC-135 aircraft to hostile operational environments Shoulder-fired, Man-Portable Air Defense Systems (MANPADs) are a significant threat to KC-135 aircraft during takeoffs, landings, and low altitude refueling missions

IMPACT IF NOT FUNDED

- Without effective defensive systems, protection against advanced IR missile systems will be limited and survivability degraded

UNITS IMPACTED

- 434th Air Refueling Wing, Grissom ARB, IN
- 452th Air Mobility Wing, March ARB, CA
- 459th Air Refueling Wing, Joint Base Andrews, MD
- 507th Air Refueling Wing, Tinker AFB, OK
- 914th Air Refueling Wing, Niagara Falls ARS, NY
- 940th Air Refueling Wing, Beale AFB, CA

CONTRACTOR

- Northrop Grumman, Rolling Meadows, IL

PROGRAM ELEMENT CODE: KC-135 - 51421F

FUNDING PROFILE:

Program Data	#	Unit Cost ($K)	Cost ($M)
Integration			**2.0**
Group A Modifications	**57**	**500**	**28.5**
Group B Kits & Support Equipment	**13**	**3.5**	**45.5**
Total Cost of Remaining Requirements			**$76.0**

ACS

Aircraft Maintenance Logistics

Just as the Air Force Reserve must invest in the modernization of its aircraft to remain an integrated, flexible, and combat-ready force, investment must also be made in the equipment used to support and enable the agility and operational readiness of its units. Agile Combat Support (ACS) is an Air Force core competency that provides the essential capabilities to deploy, establish, operate, maintain and sustain air operations. ACS capabilities are the integrated activities that are imbedded and performed by various combat support functional communities. Despite the criticality of these capabilities, fiscal constraints have driven an increasing gap between the Air Force Reserve's equipment modernization requirements and current funding levels.

Air Force Reserve Command's ACS equipment modernization requirements include support equipment and mission support vehicles. ACS integrated support is fundamental to effective air, space, and cyber power.

AFRC operational readiness requirements include mission support equipment and vehicle procurement.

ACS Equipment Requirements Summary

- **Support Equipment** – Funds current aircraft and flight line maintenance mission-essential equipment shortfalls
- **Vehicles** – Replace mission-support vehicles including fuel trucks, utility vans, pick-up trucks, fire fighting vehicles, and construction vehicles- ensuring readiness to meet mission demand

ACS Equipment Programs	Cost ($M)
Support Equipment	**20.0**
Vehicles	**16.0**
Total Cost of Remaining Requirements	**$36.0**

Support Equipment

Enables all other Air Force core functions by providing the essential capabilities and functions to deploy, establish, operate, and maintain operations of an airbase

BACKGROUND

- Support equipment (SE) shortfalls range across all functional areas. Funding is needed to replace automatic test systems, propulsion test equipment, mechanized material handling/loading equipment, fuels operational readiness capability equipment and mobility pallets
- Lack of an adequate support equipment replacement program has had a detrimental effect on unit mobility capability, base maintenance and unit training
- Historically, the support equipment account has historically provided easy offsets for aircraft modernization, leading to lack of availability of critical equipment, which delays new and current units from becoming fully operational

IMPACT IF NOT FUNDED

- Risk of injury from old and broken equipment that requires complete deconstruction / rebuild and equipment that no longer has spare or replacement parts available

UNITS IMPACTED

- All Functional Areas Impacted

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: Vehicles & Support Equipment - Reserve: 52834F

FUNDING PROFILE

Program Data	#	Unit Cost ($K)	Cost ($M)
Support Equipment	**various**	**various**	**20.0**
Total Cost of Remaining Requirements			**$20.0**

Vehicles

Replaces mission-support vehicle fleets including fuel trucks, utility vans, fire fighting vehicles, pick-up trucks, graders, cranes, and tow trucks - ensuring readiness to mission demand

BACKGROUND

- Vehicle shortfalls range across all functional areas. Funding is needed to replace aging vehicle fleet and for new missions requirements in AFRC
- Aging AFRC vehicle fleet has been deteriorating for many years. Maintenance costs to keep aging fleet running are going up every year. Vehicle down time is a result of vehicles still in service that have greatly exceeded their life expectancy

IMPACT IF NOT FUNDED

- Lack of sufficient vehicles has a negative effect on unit capability and training. Inadequate funding extends the use of vehicles beyond its projected life cycle and increases sustainment costs

UNITS IMPACTED

- Various

CONTRACTOR

- Support Equipment & Vehicle Program Office, Robins AFB, GA

PROGRAM ELEMENT CODE: Vehicles & Support Equipment - Reserve: 52834F

FUNDING PROFILE

Program Data	#	Unit Cost ($K)	Cost ($M)
Vehicles (Various)			**16.0**
Total Cost of Remaining Requirements			**$16.0**


AIR FORCE RESERVE COMMAND

3-D..... Three-dimensional
ACC..... Air Combat Command
ADE..... Airdrop Damage Estimation
AESA..... Active Electronically Scanned Array
AEU..... Antenna Electronics Unit
AFR..... Air Force Reserve
AFRC..... Air Force Reserve Command
AFMC/LCMC..... Air Force Material Command/Life Cycle Management Center
A/G..... Air to Ground
AGCAS..... Automatic Ground Collision Avoidance System
AGL..... Above Ground Level
AMC..... Air Mobility Command
AMP..... Avionics Modernization Program
ARS..... Air Reserve Station
ARWO..... Aerial Reconnaissance Weather Officer
AS..... Air Superiority
ATP..... Advanced Targeting Pod
BFT..... Blue Force Tracker
BLOS..... Beyond Line-of-Sight
C2..... Command and Control
CAF..... Combat Air Force
CAFR..... Chief of the Air Force Reserve
CAS..... Close Air Support
CDO..... Contested, Degraded, and Operationally
CDU..... Center Display Unit
CPC..... Combat Planning Council
CSAR..... Combat Search and Rescue
CSARTF..... Combat Search and Rescue Task Force
CRO..... Combat Rescue Officer
CSO..... Combat System Operator
CODEL…… ..... Congressional Delegation
COMSEC..... Communication Security
DIGAR..... Digital GPS Anti-Jam Receiver
DMDR..... Digital Mission Data Recorder
DoD..... Department of Defense
DRC..... Dynamic Retasking Capability
DSIS..... Defensive System Integration Suite
DZ..... Drop Zone
EEP..... Engine Enhancement Package

EGI ..... Embedded GPS INS
EO/IR..... Electro-Optical/Infrared
FAC-A..... Forward Air Control - Airborne
FTU ..... Flight Training Unit
GA ..... Guardian Angel
GAS-1 AEU..... GPS Antenna System-1 Antenna Electronics Unit
GEM ..... GPS Embedded Module
GLTA ..... Guardian Laser Turret Assemblies
GPS..... Global Positioning System
GSTAR ..... GPS Spatial Temporal Anti-Jam Receiver
HRDS ..... High Resolution Display System
IAP..... International Airport
ICS ..... Interim Contract Support
IMC..... Instrument Meteorological Conditions
INS ..... Inertial Navigation System
IR..... Infrared
IRCM ..... Infrared Countermeasure
ISR ..... Intelligence, Surveillance, and Reconnaissance
JRB..... Joint Reserve Base
K..... Thousands
LAIRCM..... Large Aircraft Infrared Countermeasures
LDHD..... Low Density, High Demand
LDP ..... LITENING Digital Port
LED ..... Light Emitting Diode
LOS ..... Line-of-Sight
LSPR ..... LAIRCM System Processor Replacement
LZ ..... Landing Zone
M ..... Millions
M-Code..... Military Code
MAF..... Mobility Air Force
MANPADs ..... Man-Portable Air Defense Systems
MASS ..... Modular Aerial Spray System
MAFFS ..... Modular Airborne Fire Fighting System
MC..... Mission Computer
MILSATCOM ..... Military Satellite Communication
MUOS..... Mobile User Objective System
MWS..... Missile Warning System
NAS ..... Naval Air Station
NDS..... National Defense Strategy
NFOV..... Narrow Field of View

NGREA..... National Guard / Reserve Equipment Appropriation
NHC..... National Hurricane Center
NOAA ..... National Oceanic and Atmospheric Administration
NVG..... Night Vision Goggles
NVIS ..... Night Vision
OSA..... Operational Support Airlift
PEC ..... Program Element Code
PIDSU..... Pylon Integrated Dispenser System Universal
PIRL..... Prioritized Integrated Requirements List
PJ ..... Pararescue Jumper or Pararescueman
PR ..... Personnel Recovery
PRSA..... Personnel Recovery Situational Awareness
PVI..... Pilot Vehicle Interface
RAP ..... Ready Aircrew Program
RC ..... Reserve Component
ROVER..... Remotely Operated Video Enhanced Receiver
RF..... Radio Frequency
RTIC ..... Real-Time Information Cockpit
RWR..... Radar Warning Receiver
SA..... Situational Awareness
SAASM ..... Selective Availability Anti-Spoofing Module
SAR ..... Synthetic Aperture Radar
SATCOM ..... Satellite Communications
SE..... Support Equipment
SERE..... Survival, Evasion, Resistance, and Escape
SMFCD..... Smart Multi-Functional Color Display
SPPAD ..... Single Pass Precision Air Drop
TA..... Terrain Avoidance
TAMSS ..... Tactical Airlift Mission Software Suite
TDL..... Tactical Data Link
TR..... Traditional Reservist
UHF ..... Ultra-high Frequency
UON..... Urgent Operational Need
VDL ..... Video Data Link
VMC..... Visual Meteorological Conditions
WFOV..... Wide Field of View
WRS ..... Weather Reconnaissance Squadron
WST..... Weapon System Trainer

UNITED STATES AIR FORCE RESERVE