

UNITED STATES AIR FORCE RESERVE
MODERNIZATION
2017



Leveraging NGREA since 1981

The National Guard and Reserve Equipment Appropriation (NGREA) is essential to Total Force integration and interoperability. It allows the Reserve Component (RC) to meet national defense requirements and commitments with a combat ready force and modernized equipment. The Air Force Reserve (AFR) provides critical increased capacity and capability to the joint force in support of national defense and humanitarian objectives.



Today, the AFR balances operational agility while simultaneously providing the strategic depth needed to respond to unexpected and emerging threats to our nation. Every day, Combatant Commanders benefit from the capabilities and experience our Reserve Citizen Airmen bring to the fight. On any given day, there are approximately 6,000 Air Force Reservists on active duty orders supporting overseas contingency efforts or stateside operations. Reserve Citizen Airmen provide expertise in all Air Force Core Missions: air and space superiority; intelligence, surveillance and reconnaissance (ISR); rapid global mobility; global strike; and command and control. In 2016, Air Force Reserve Command was the 4th largest contributor to Air Expeditionary Forces.

However, the average age of the Air Force fleet is 27 years old, and the Air Force Reserve is currently flying some aircraft that are almost 60 years old. To build the future total force, we must recapitalize our fleet. In order to maintain operational readiness and acquisition excellence, sustained equipment modernization efforts are critical. Historically, the AFR has used NGREA to bolster our capability and replace obsolete equipment; it is used to recapitalize equipment in Rapid Global Mobility (RGM), Air Superiority (AS), Personal Recovery (PR), and Special Operations arenas. All of these modernization and procurement actions enable the AFR to operate as part of the joint force and respond to future threats. This funding is even more crucial in our fiscally constrained environment.

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.

The nation has called on the Air Force Reserve to support national security objectives in all types of military operations since our foundation more than 69 years ago. Reserve Citizen Airmen live and work in your local communities and serve globally. Properly equipped and modernized, the AFR will stand ever ready to provide agile, daily combat capability, strategic depth and surge capacity. Thank you for supporting your Reserve Citizen Airmen.

Maryanne Miller
MARYANNE MILLER
Lieutenant General, USAF
Chief of the Air Force Reserve

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

155 Richard Ray Blvd, Bldg. 210
Robins AFB, GA 31098

Directorate of Strategic Plans,
Programs and Requirements
HQ AFRC/A5A8

Requirements Division
HQ AFRC/A5R
(478) 327-2232

Table of Contents

| | |
|--|-----|
| Foreword | i |
| Contacts | ii |
| Table of Contents | iii |
| Introduction..... | 1 |
| Summary of Critical Requirements | 2 |
| Economic Impacts | 4 |
| Weapon Systems by State | 5 |
| A-10..... | 6 |
| B-52..... | 14 |
| C-5 | 18 |
| C-17 | 22 |
| C-130H | 26 |
| C-130J / WC-130J | 36 |
| Cyber..... | 42 |
| F-16..... | 46 |
| Guardian Angel..... | 54 |
| HH-60 | 56 |
| KC-135 | 60 |
| Agile Combat Support..... | 64 |
| Abbreviations and Acronyms | 69 |



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 supports our national defense 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 2017 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 Fiscal Year Procurement List. This procurement list is subsequently vetted through the AFR's corporate structure, as well as socialized with partner MAJCOMs, the AFMC Life Cycle Sustainment 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

| | |
|--|------|
| HIGH RESOLUTION DISPLAY SYSTEM | 21.5 |
| ANTI-JAM GPS | 16.2 |
| COMMUNICATIONS UPGRADES | 21.1 |
| ALR-69A DIGITAL RADAR WARNING RECEIVER | 62.1 |
| 3-D INTERCOM/SPATIAL AWARENESS AUDIO | 8.8 |
| LINK 16 | 26.2 |

| | |
|--------------|----------------|
| TOTAL | \$155.9 |
|--------------|----------------|

B-52

| | |
|---------------------------------------|------|
| LITENING PVI DESKTOP EMULATOR/TRAINER | 5.1 |
| LITENING ADVANCED TARGETING POD | 12.0 |

| | |
|--------------|---------------|
| TOTAL | \$17.1 |
|--------------|---------------|

C-5

| | |
|--|-----|
| SECURE LINE-OF-SIGHT/BEYOND LINE-OF-SIGHT COMMUNICATIONS | 8.0 |
|--|-----|

| | |
|--------------|--------------|
| TOTAL | \$8.0 |
|--------------|--------------|

C-17

| | |
|--|-----|
| SECURE LINE-OF-SIGHT/BEYOND LINE-OF-SIGHT COMMUNICATIONS | 9.5 |
|--|-----|

| | |
|--------------|--------------|
| TOTAL | \$9.5 |
|--------------|--------------|

C-130H

| | |
|---|-------|
| INTEGRATED DATA LINK AND DEFENSIVE SYSTEM SUITE | 6.3 |
| SINGLE PASS PRECISION AIRDROP | 64.6 |
| IMPROVED NIGHT VISION COMPATIBLE LIGHTING | 17.3 |
| DIGITAL RADAR WARNING RECEIVER | 65.0 |
| INFRARED SUPPRESSION | 30.0 |
| LED POSITION LIGHTING | 2.5 |
| C-130H PROPULSION SYSTEM UPGRADES | 245.7 |

| | |
|--------------|----------------|
| TOTAL | \$445.8 |
|--------------|----------------|

C-130J / WC-130J

| | |
|-------------------------------------|-----|
| AIRCRAFT INTEGRATED PROCESS /BROKER | 2.2 |
| COMMON MAF MISSION COMPUTER | 2.0 |
| RADAR IMAGE CAPABILITY | 5.0 |

| | |
|--------------|--------------|
| TOTAL | \$9.2 |
|--------------|--------------|

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

CYBER

SMALL COMMUNICATIONS PACKAGE 4.4

TOTAL \$4.4

F-16

MISSILE WARNING SYSTEM (PIDS+) 49.5

ANTI-JAM GPS 6.9

3-D INTERCOM/SPATIAL AWARENESS AUDIO 6.6

ALR-69A DIGITAL RADAR WARNING RECEIVER (RWR) 75.8

LINK-16 CAPABILITY 26.2

TOTAL \$165.0

GUARDIAN ANGEL

PERSONNEL RECOVERY MISSION EQUIPMENT 4.4

TOTAL \$4.4

HC-130

PERSONNEL RECOVERY SITUATIONAL AWARENESS 3.1*

TOTAL \$0.0*

* COSTS CAPTURED IN THE HH-60G REQUIREMENTS

HH-60

PERSONNEL RECOVERY SITUATIONAL AWARENESS 56.4

TOTAL \$56.4

KC-135

SECURE LINE-OF-SIGHT/BEYOND LINE-OF-SIGHT COMMUNICATIONS 48.6

LARGE AIRCRAFT INFRARED COUNTERMEASURE (LAIRCM) 52.5

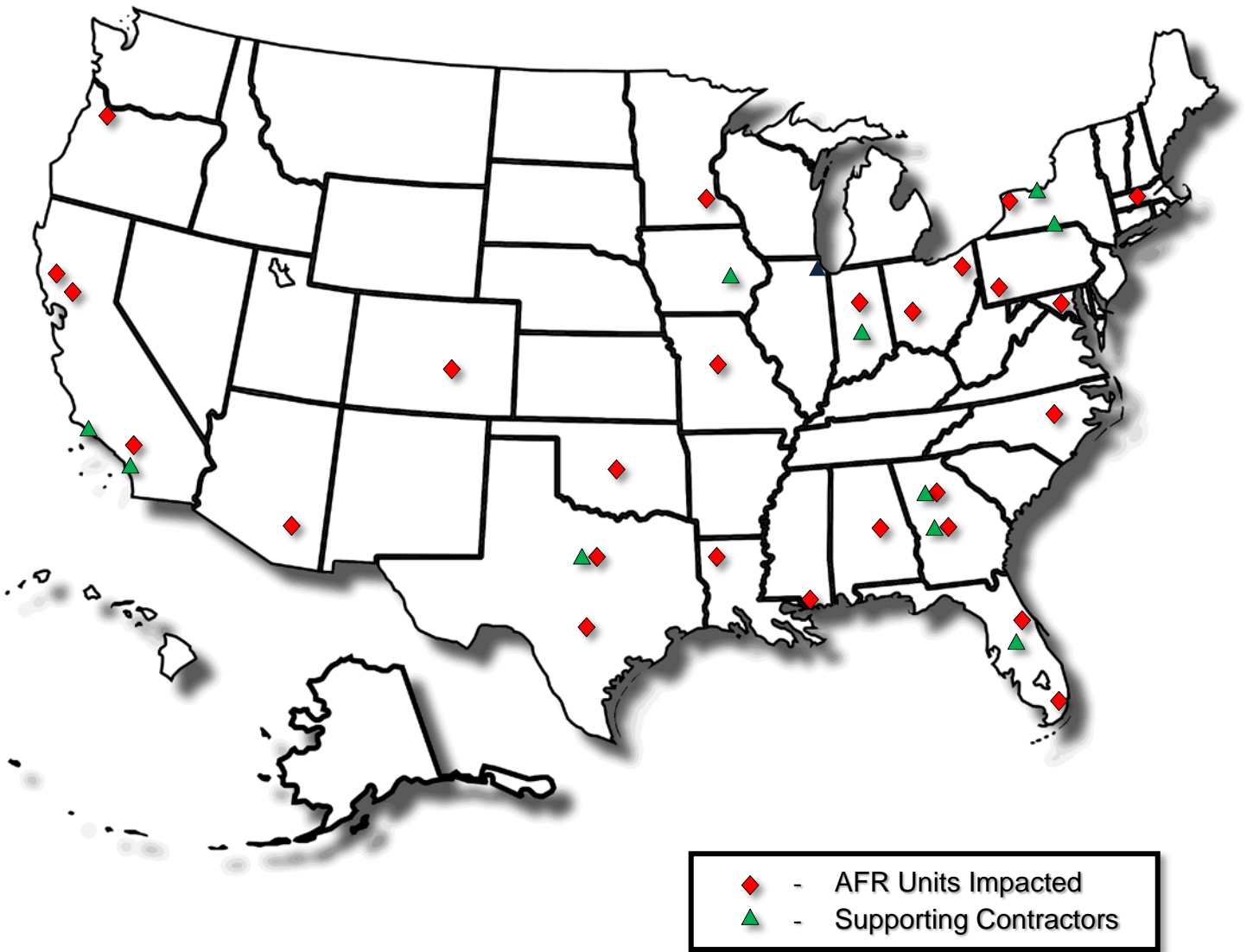
EXTERIOR LIGHTING 3.9

JAM RESISTANT GLOBAL POSITIONING SYSTEM 13.2

TOTAL \$118.2

AFR TOTAL \$993.9

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-130N/P | F-16 | HH-60 | KC-135 |
|----------------|-----------|-----------|-----------|-----------|----------|-----------|----------------|-----------|-----------|-----------|-----------|
| AL | | | | | | 9 | | | | | |
| AZ | 28 | | | | | | | | | 6 | |
| CA | | | | 9 | | | | | | | 22 |
| CO | | | | | | 8 | | | | | |
| FL | | | | | | | | 2 | 28 | 9 | |
| GA | | | | | | 8 | | | | | |
| IL | | | | | 4 | | | | | | |
| IN | | | | | | | | | | | 16 |
| LA | | 18 | | | | | | | | | |
| MA | | | 9 | | | | | | | | |
| MD | | | | | | | | | | | 8 |
| MN | | | | | | 8 | | | | | |
| MO | 27 | | | | | | | | | | |
| MS | | | | | | | 20 | | | | |
| NC | | | | | | | | | | | 16 |
| NY | | | | | | 8 | | | | | |
| OH | | | | 9 | | 8 | | | | | |
| OK | | | | | | | | | | | 8 |
| PA | | | | | | 8 | | | | | |
| TX | | | 6 | | | | | | 28 | | |
| TOTAL | 55 | 18 | 15 | 18 | 4 | 57 | 20 | 2 | 56 | 15 | 70 |



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 only purpose-built platform to provide Combatant Commanders with dedicated Close Air Support (CAS), Combat Search and Rescue (CSAR) and Special Operation Forces (SOF) support. The A-10 is the only platform with the capability to engage the enemy in close proximity to friendly ground forces in the most challenging environments. It carries 16,000 pounds of external ordnance and 1,150 rounds of 30mm cannon ammunition, has triple-redundant flight controls and a titanium “bathtub” capable of accepting severe battle damage.

The AFR operates two A-10 units: the 442nd Fighter Wing, Whiteman AFB, MO; and the 924th Fighter Group, Davis Monthan AFB, AZ. AFRC 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. AFRC’s A-10s require avionics and systems modernization upgrades to enhance their combat effectiveness and survivability.

Requirements Summary

- **High Resolution Display System (HRDS)** – Replaces obsolete fight instruments with digital instrumentation, improving targeting and coordination with ground forces and C² assets
- **Anti-Jam GPS** – Replaces jam-vulnerable GPS system with sophisticated, jam-resistant GPS antenna, switching unit, and processor, providing ability to overcome GPS jamming capabilities
- **ALR-69A Digital Radar Warning Receiver** – Replaces obsolete analog system with an all-digital system, providing improved surface-to-air and air-to-air radar-guided missile warning
- **Communications Upgrade** – Upgrades primary radios to operate at new robust crypto standards and provides compatibility with modern satellite communication technology
- **LINK 16** – 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
- **3-Dimensional Spatial Awareness Audio** – Provides a spatial acoustical environment in which threat warnings and radio transmissions are intelligible, improving situational awareness

| A-10 Programs | Cost (\$M) |
|--|------------|
| High Resolution Display System | 21.5 |
| Anti-Jam GPS | 16.2 |
| Communications Upgrade | 21.1 |
| ALR-69A Digital Radar Warning Receiver | 62.1 |
| 3-D Spatial Awareness Audio | 8.8 |
| LINK 16 | 26.2 |
| Total Cost of Remaining Requirements | 155.9 |

A-10 Thunderbolt II

High Resolution Display System (HRDS)

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

BACKGROUND

- The A-10's analog cockpit instruments are becoming obsolete both in terms of the information fidelity provided to pilots and the maintainability due to diminishing material and manufacturing sources
- HRDS will replace analog flight instruments with digital instrument displays
- HRDS will provide pilots the ability to securely transfer still images, such as targeting pod images, joint tactical air controller taskings, and target area imagery
- The improved capabilities provided by these 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

- A-10 pilot situational awareness and task management will be sub-optimal, placing the pilot and any supported ground forces at increasing risk as threat environments grow in complexity and potency
- A-10 maintainability will be increasingly degraded and costly, as aircraft availability becomes more problematic due to diminishing material and manufacturing sources of obsolete instruments

UNITS IMPACTED

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

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | | | 2.0 |
| Group A Kits/Install | 55 | 195 | 10.7 |
| Group B Kits | 55 | 160 | 8.8 |
| Total Cost of Remaining Requirements | | | \$21.5 |

Anti-Jam GPS

Replaces jam-vulnerable GPS system with sophisticated, jam-resistant GPS antenna, switching unit, and processor, providing ability to overcome adversary GPS jamming capabilities

BACKGROUND

- Current early generation GPS antennas on the A-10 possess no anti-jam capability
- Adversary GPS jamming tactics and capabilities have advanced to the point where A-10s are vulnerable to GPS jamming, placing at risk the pilots situational awareness, navigation, and targeting capabilities
- A new sophisticated antenna, antenna switching unit and GPS processor is required to overcome adversary GPS jamming capability

IMPACT IF NOT FUNDED

- Precision weapon accuracy and pilot situational awareness may be significantly compromised

UNITS IMPACTED

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

CONTRACTOR

- Lockheed Martin, Owego, NY
- ITT Exelis Geospatial Systems, Rochester, NY
- Rockwell Collins, Cedar Rapids, IA

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | 1 | 5,100 | 5.1 |
| Group A Kits/Install | 56 | 23 | 1.3 |
| Group B Kits | 56 | 175 | 9.8 |
| Total Cost of Remaining Requirements | | | \$16.2 |

A-10 Thunderbolt II

Communications Upgrade

Upgrades primary radios to operate at new robust crypto standards and provides compatibility with modern satellite communication technology

BACKGROUND

- New DOD cryptographic and satellite communication standards have made the A-10's primary radios obsolete
- Legacy A-10 radios lack the capability to maintain secure communications as crypto requirements become more stringent
- New Mobil User Objective System (MUOS) SATCOM communication waveforms are also out of reach of the legacy A-10 radios
- Rapidly establishing and maintaining intelligible secure line of sight and beyond line of sight communications is essential to interoperability and mission success.
- Upgrading the A-10's radios to the ARC-210 Generation 6 radio is a form/fit solution that meets new crypto and SATCOM requirements

IMPACT IF NOT FUNDED

- If not funded A-10 radios will become non-crypto compliant, isolating the A-10 from all battlefield communication and will not be able to communicate beyond line of sight using current satellite technology
- Mission success and aircraft survivability will be in jeopardy

UNITS IMPACTED

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

CONTRACTOR

- Rockwell Collins, Cedar Rapids, IA

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | 1 | 5,100 | 5.1 |
| Group A Kits/Install | 56 | 23 | 1.3 |
| Group B Kits | 56 | 263 | 14.7 |
| Total Cost of Remaining Requirements | | | \$21.1 |

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's A-10s is obsolete and needs to be replaced with an improved all-digital system
- The ALR-69A reduces pilot workload by providing 360-degree detection and warning of unobserved 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 missile warning, degrading survivability

UNITS IMPACTED

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

CONTRACTOR

- Raytheon Corp, Goleta, CA

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | 1 | | 10.0 |
| Group A Kits/Install | 56 | 280 | 15.7 |
| Group B Kits | 56 | 850 | 36.4 |
| Total Cost of Remaining Requirements | | | \$62.1 |

A-10 Thunderbolt II

Three-Dimensional (3-D) Spatial Awareness Audio

Provides a spatial acoustical environment in which threat warnings and communications transmissions are intelligible, thereby improving situational awareness and threat reaction time

BACKGROUND

- Currently, audio information comes to the A-10 pilot from many competing sources, including four radios, the threat warning receivers and the aircraft itself, resulting in unclear auditory information
- 3D audio provides a spatial acoustical environment in which threat warnings and communications are easy to distinguish
- The 3D audio system integrates a digital intercom system, active and electronic noise reduction, three-dimensional spatial separation of multiple radio channels, and three-dimensional auditory threat cueing to significantly improve situational awareness and task management

IMPACT IF NOT FUNDED

- Pilots will be placed at greater risk of task saturation and loss of situational awareness due to information overload or confusion, resulting in degraded mission effectiveness and survivability

UNITS IMPACTED

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

CONTRACTOR

- TERMA North America, Warner Robins, GA

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | 1 | | 0.6 |
| Group A Kits/Install | 56 | 55 | 3.1 |
| Group B Kits | 60 | 84 | 5.0 |
| Support Equipment | 8 | 8 | 0.64 |
| Total Cost of Remaining Requirements | | | \$8.8 |

LINK-16 Capability with Growth Potential for Fifth-to-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
- 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 in the operational environment

UNITS IMPACTED

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

CONTRACTOR

- ViaSat – Carlsbad, CA
- Data Link Solutions - a joint venture between BAE Systems (Preston, UK) and Rockwell Collins (Cedar Rapids, IA)

PROGRAM ELEMENT CODE: A-10: 52713F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | 1 | 5,000 | 5.0 |
| Group A Kits/Install | 56 | 125 | 7.0 |
| Group B Kits | 56 | 250 | 14.0 |
| Support Equipment | 4 | 60 | 0.2 |
| Total Cost of Remaining Requirements | | | \$26.2 |

B-52



Global Attack Precision Engagement



The B-52 Stratofortress is the United State Air Force's long-range, air refuelable, large-payload multi-role bomber. It primarily provides the United States with immediate nuclear and conventional global strike capability. The B-52 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 and Joint Direct Attack Munitions, the B-52 continues to be a major contributor to the U.S. and allied forces.

The AFR 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. As such, continued modernization investments are required to ensure the airframe's viability in an ever-challenging mission environment.

Requirements Summary

- **LITENING PVI Desktop Emulator/Trainer** – Provides instructors and students initial familiarization and proficiency training in basic Advanced Targeting Pod operations. An existing Pilot Vehicle Interface (PVI) emulator will be enhanced by integrating three main pieces of existing equipment: a B-52 LITENING emulator software program; a commercial off-the-shelf laptop computer and an off-the-shelf Integrated Track Handle (ITH) to emulate controlling the LITENING pod while on board the aircraft
- **LITENING ATP** - Acquires additional pods and provides spiral upgrades to maintain training and combat effectiveness and enhance precision targeting capabilities

| B-52 Programs | Cost (\$M) |
|---------------------------------------|------------|
| LITENING PVI Desktop Emulator/Trainer | 3.0 |
| LITENING Advanced Targeting Pod | 12.0 |
| Total Cost of Remaining Requirements | \$15.0 |

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 candidates, 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 | 18 | 166 | 3.0 |
| Total Cost of Remaining Requirements | | | \$3.0 |

LITENING Advanced Targeting Pod (ATP) Upgrades

Acquires additional pods and provides spiral upgrades to maintain training and combat effectiveness and enhance precision targeting capabilities

BACKGROUND

- Primary Aircraft Inventory at the 307th BW has increased from 8 to 16 aircraft. Acquisition of ten LITENING Pods including the upgrades below ensures continued combat effectiveness:
 - Current LITENING pods require spiral upgrades to maintain the sensors' relevance and usefulness
 - The Goal is to standardize AFRC's LITENING pods to a single LITENING SE/LDP configuration.
 - AFRC's Gen 4 pods were upgraded to Gen 4 Sensor Enhanced/LITENING Digital Port pods
 - LITENING Digital Port (LDP) upgrade significantly enhances the sensor's processing speed and the video quality available to the aircrew; this optimizes the sensor's interface with the cockpit's color multi-function displays
 - Plug and Play III (PnP III) is also part of AFRC's pod upgrade program. PnP III is a two-way, digital datalink that allows U.S. and coalition ground forces to exchange targeting data and video feeds with the Pod

IMPACT IF NOT FUNDED

- Precision engagement capabilities and the mission to train to them will be degraded
- Sensor will fail to provide the level of fidelity required of the system to effectively interface with cockpit displays

UNITS IMPACTED

- 307th Bomber 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 SE/LDP | 10 | 1,200 | 12.0 |
| Total Cost of Remaining Requirements | | | \$12.0 |

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 a mix of C-5A, C-5B, and recently upgraded C-5M 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

- **Secure Line-of-Sight/Beyond Line-of-Sight (SLOS/BLOS) Communications** – 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

| C-5 Programs | Cost (\$M) |
|--|--------------|
| Secure Line-of-Sight/Beyond Line-of-Sight (SLOS/BLOS) | 8.0 |
| Total Cost of Remaining Requirements | \$8.0 |

Secure Line-of-Sight/Beyond Line-of-Sight (SLOS/BLOS) Communications (Common MAF Mission Computer)

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

BACKGROUND

- Effective air operations in today's information-reliant battlespace requires secure voice and data communications between coalition aircraft, command and control (C²) platforms, and Joint forces
- Communications upgrades to C-5 fleet will provide aircrews the ability to report and receive battlespace and mission information to and from C² platforms and others
- Increased situational awareness and near real-time communications between aircrews and C² assets will benefit decision making and optimize operational flexibility, thus significantly improving the synchronization of supporting and supported forces

IMPACT IF NOT FUNDED

- Without SLOS/BLOS communications and data link upgrades to the Air Force Reserve's C-5 fleet, aircrew and associated C² 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 Wing, Lackland AFB, TX
- 439th Air 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 |
| Installs | 16 | 25 | 0.4 |
| Group B Kits/GFE | 16 | 415 | 6.6 |
| Total Cost of Remaining Requirements | | | \$8.0 |

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 and the 445th Air Wing, Wright-Patterson AFB, OH. 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

- **Secure Line-of-Sight/Beyond Line-of-Sight (SLOS/BLOS) Communications** – Upgrades the 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, including Air Operations Centers and airborne assets

| C-17 Programs | Cost (\$M) |
|--|------------|
| Secure Line-of-Sight/Beyond Line-of-Sight (SLOS/BLOS) Communications | 9.5 |
| Total Cost of Remaining Requirements | \$9.5 |

Secure Line-of-Sight/Beyond Line-of-Sight (SLOS/BLOS) Communications (Common MAF Mission Computer)

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

BACKGROUND

- Effective air operations in today's information-reliant battlespace requires secure voice and data communications between coalition aircraft, command and control (C2) platforms, and Joint forces
- Communications upgrades to C-17 fleet will provide aircrews the ability to report and receive battlespace and mission information to and from C2 platforms and others
- Increased situational awareness and near real-time communications between aircrews and C2 assets will benefit decision making and optimize operational flexibility, thus significantly improving the synchronization of supporting and supported forces

IMPACT IF NOT FUNDED

- Without SLOS/BLOS communications and data link upgrades to the Air Force Reserve's C-17 fleet, aircrew and associated C2 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 Wing, Wright-Patterson AFB, OH

CONTRACTOR

- To Be Determined

PROGRAM ELEMENT CODE: C-17: 54214F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | | | 1.0 |
| Installs | 18 | 25 | 0.45 |
| Group B Kits/GFE | 18 | 415 | 8.1 |
| Total Cost of Remaining Requirements | | | \$9.55 |

THIS PAGE INTENTIONALLY BLANK



C-130H



Rapid Global Mobility Tactical Airlift / Specialized Missions Aeromedical Evacuation

The C-130H 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 3,000 nautical miles with 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 combined C-130 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; Niagara Falls ARS, NY; Pittsburgh IAP ARS, PA; Youngstown ARS, OH; and with C-130H3 aircraft at Dobbins ARB, GA; Minneapolis-St Paul IAP ARS, MN; and Peterson AFB, CO.

Specialized Missions

Aerial Spray – The Department of Defense's only aerial spray capability resides exclusively within the Air Force Reserve at the 910th 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.

Requirements Summary

- **Integrated Data Link and Defensive System Suite** – Upgrades to the C-130 RTIC system increase the overarching network capability provide a common processing and display platform for previously federated systems resulting in a consolidated situational awareness picture
- **Single-Pass Precision Airdrop** – Incorporates LITENING ATP applications to provide highly accurate, all-weather, single-pass airdrop capability and minimize human-induced errors
- **Improved Night Vision (NVIS) Compatible Lighting** – Installs permanent NVIS compatible lighting to enhance aircrew performance and situational awareness while operating with night vision goggles
- **Digital 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
- **Infrared Suppression** – Modifications to the exhaust/tailpipe section greatly reduces IR signature and susceptibility to IR MANPADS
- **LED Position Lighting** – Replaces current position lights with LED position lights
- **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
 - **In-Flight Propeller Balancing System (IPBS)** – Provides automatic propeller balancing system to reduce airframe and engine stress caused by excessive vibration; improves aircraft reliability and longevity
 - **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 |
| Single-Pass Precision Airdrop | 64.6 |
| Improved Night Vision (NVIS) Compatible Lighting | 17.3 |
| Digital Radar Warning Receiver (RWR) | 65.0 |
| Infrared Suppression | 30.0 |
| LED Position Lighting | 2.5 |
| C-130H Propulsion System Upgrades: | |
| Improved Propeller (NP2000) | 84.0 |
| In-Flight Propeller Balancing System (IPBS) | 14.7 |
| T56 Series 3.5 Engine Enhancement Package (EEP) | 147.0 |
| Total Cost of Remaining Requirements | \$445.8 |

Integrated Data Link and Defensive System Suite

Upgrades to the C-130 RTIC system increase the overarching network capability and provide a common processing and display platform for previously federated systems, resulting in a consolidated situational awareness picture

BACKGROUND

- C-130 real-time information in the cockpit (RTIC) system allows C-130 aircraft to participate on multiple data link networks by utilizing technologies already fielded on other DoD assets
- 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

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 908th Airlift Wing, Maxwell AFB, AL
- 910th Airlift Wing, Youngstown ARS, OH
- 911th Airlift Wing, Pittsburgh IAP, PA
- 914th Airlift Wing, Niagara Falls IAP, NY
- 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 |

Single-Pass Precision Airdrop

Incorporates precision targeting pod features to provide highly accurate, all-weather, single-pass airdrop capability and minimize human-induced errors.

BACKGROUND

- The C-130's ability to precisely deliver loads via airdrop in contested environments is currently deficient, resulting in degraded mission effectiveness and increased exposure in threat envelopes
- Current precision airdrop methods require multiple passes over the drop zone for atmospheric calculations before dropping actual bundles, significantly increasing threat exposure
- Effective single-pass precision airdrop operations require early identification of the drop zone, regardless of environmental conditions, including both day and night, and both Visual Meteorological Conditions (VMC) and Instrument Meteorological Conditions (IMC)
- LITENING Advanced Targeting Pods with Light Detection and Ranging (LIDAR) can provide this capability during VMC operations; software and hardware upgrades to the APN-241 radar will provide Synthetic Aperture Radar (SAR) and wind sensing data to meet these requirements for IMC airdrops

IMPACT IF NOT FUNDED

- Without improved precision airdrop capabilities, C-130s will likely not meet Army airdrop criteria, while subjecting aircrews and passengers to excessive threat exposure

UNITS IMPACTED

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 908th Airlift Wing, Maxwell AFB, AL
- 910th Airlift Wing, Youngstown ARS, OH
- 911th Airlift Wing, Pittsburgh IAP, PA
- 914th Airlift Wing, Niagara Falls IAP, NY
- 934th Airlift Wing, Minn-St. Paul IAP, MN

CONTRACTORS

- To Be Determined

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| APN-241 Radar Upgrade | 42 | 750 | 31.5 |
| Hard-point Pylons | 42 | 350 | 14.7 |
| LITENING ATP | 12 | 1,200 | 14.4 |
| LITENING Pod Integration | | N/A | 4.0 |
| Total Cost of Remaining Requirements | | | \$64.6 |

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-130s was intended to serve as a temporary solution, pending the installation of the C-130 Avionics Modernization Program (AMP)
- Given the indefinite delay with AMP implementation, along with increased 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-130 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

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 908th Airlift Wing, Maxwell AFB, AL
- 910th Airlift Wing, Youngstown ARS, OH
- 911th Airlift Wing, Pittsburgh IAP, PA
- 914th Airlift Wing, Niagara Falls IAP, NY
- 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 | 88.4 |
| Group B Kits | 42 | 200 | 8.4 |
| Total Cost of Remaining Requirements | | | \$17.3 |

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

- Most of Air Force Reserve C-130s are not equipped with an RWR; those that are equipped rely upon an obsolete, analog RWR system that suffers from significant performance, reliability, and maintainability shortfalls
- 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

- Detection, identification, and warning of unobserved missile threats will be insufficient against a growing number of surface-to-air missile systems, risking the loss of aircraft, cargo, and people

UNITS IMPACTED

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 908th Airlift Wing, Maxwell AFB, AL
- 910th Airlift Wing, Youngstown ARS, OH
- 911th Airlift Wing, Pittsburgh IAP, PA
- 914th Airlift Wing, Niagara Falls IAP, NY
- 934th Airlift Wing, Minn-St. Paul IAP, MN

CONTRACTOR

- Raytheon Corporation, Goleta, CA

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | | | 2.0 |
| Group A Kits/Installs | 42 | 500 | 21.0 |
| Group B Kits | 42 | 1,000 | 42.0 |
| Total Cost of Remaining Requirements | | | \$65.0 |

Infrared Signature Suppression

Modifications to the exhaust/tailpipe section greatly reduces IR signature and susceptibility to IR MANPADS

BACKGROUND

- The C-130 creates a significant infrared signature during operation
- C-130 aircraft operate worldwide in support of AEF deployed U.S. forces and various contingencies ranging from low to medium threat levels. The proliferation of shoulder-fired infrared missiles has become an increasingly growing concern to the U.S. supporting contingency operations.

IMPACT IF NOT FUNDED

- Without IR suppression, aircraft and aircrew operating in contested environments will remain vulnerable for IR MANPADS threats

UNITS IMPACTED

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 908th Airlift Wing, Maxwell AFB, AL
- 910th Airlift Wing, Youngstown ARS, OH
- 911th Airlift Wing, Pittsburgh IAP, PA
- 914th Airlift Wing, Niagara Falls IAP, NY
- 934th Airlift Wing, Minn-St. Paul IAP, MN

CONTRACTORS

- To Be Determined

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| IR Suppression | 42 | TBD | 30.0 |
| Total Cost of Remaining Requirements | | | \$30.0 |

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 provide better visibility to the unaided eye during non-NVG operations

IMPACT IF NOT FUNDED

- Without LED Position Lighting, aircrew will continue to operate less safe, 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
- 908th Airlift Wing, Maxwell AFB, AL
- 910th Airlift Wing, Youngstown ARS, OH
- 911th Airlift Wing, Pittsburgh IAP, PA
- 914th Airlift Wing, Niagara Falls IAP, NY
- 934th Airlift Wing, Minn-St. Paul IAP, MN

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 | 0.2 |
| Total Cost of Remaining Requirements | | | \$2.5 |

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. Benefits of a comprehensive upgrade include improving performance and reliability, increasing fuel efficiency, reducing airframe fatigue due to excessive vibration, decreasing maintenance costs; and achieving increased safety margins.
- Fuselage, avionics and wingbox life-span considerations drive 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 will provide improved thrust for heavy weight and short field operations, while increasing fuel efficiency
- Installing the In-Flight Propeller Balancing System (IPBS) will reduce airframe and engine stress caused by excessive vibration, thus improving aircraft reliability and sustainability

IMPACT IF NOT FUNDED

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

UNITS IMPACTED

- 94th Airlift Wing, Dobbins ARB, GA
- 302nd Airlift Wing, Peterson AFB, CO
- 908th Airlift Wing, Maxwell AFB, AL
- 910th Airlift Wing, Youngstown ARS, OH
- 911th Airlift Wing, Pittsburgh IAP, PA
- 914th Airlift Wing, Niagara Falls IAP, NY
- 934th Airlift Wing, Minn-St. Paul IAP, MN

PROGRAM ELEMENT CODE: C-130: 54343F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|---|----|-----------------|------------|
| Improved Propeller (NP2000) | 42 | 2,000 | 84.0 |
| In-Flight Propeller Balancing System (IPBS) | 42 | 350 | 14.7 |
| T56 3.5 Engine Enhancement Package (EEP) | 42 | 3,500 | 147.0 |
| Total Cost of Remaining Requirements | | | \$245.7 |

C-130J





Rapid Global Mobility Tactical Airlift / Specialized Missions Aeromedical Evacuation

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 AFR exclusively operates the WC-130J, a J-model variant, 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.

The Air Force Reserve maintains and operates both C-130J and WC-130J aircraft, flown by the 403rd Wing at Keesler AFB, MS. Keesler AFB is also home to the nationally recognized 53rd Weather Reconnaissance Squadron (WRS).

Specialized Missions

Weather Reconnaissance – The 53rd WRS, utilizing the WC-130J aircraft, provides surveillance of tropical storms and hurricanes in the Atlantic Ocean, the Caribbean Sea, the Gulf of Mexico, and the central Pacific Ocean for the National Hurricane Center in Miami. The unit also flies winter storm missions off both coasts of the United States.

Requirements Summary

- **C-130J Aircraft integrated Process/Broker** – Provides an agile processing system to negotiate the dynamic tactical environment allowing immediate access to the 1553 bus
- **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
- **WC-130J Radar Image Transmission Capability** – Transmits storm radar imagery to the National Hurricane Center in real time

| (W)C-130J Programs | Cost (\$M) |
|--------------------------------------|------------|
| Aircraft Integrated Processor/Broker | 2.2 |
| Common MAF Mission Computer | 2.0 |
| Radar Image Transmission Capability | 5.0 |
| Total Cost of Remaining Requirements | \$9.2 |

C-130J Hercules

Aircraft Integrated Processor / Broker

Provides an agile processing system to negotiate the dynamic tactical environment allowing immediate access to the MIL-STD-1553 data bus

BACKGROUND

- Examples of emerging systems processed by an integrated processor/broker include tactical data link, communications, navigation and surveillance/air traffic management, next generation self-protection systems, single pass precision airdrop, electronic flight bag, and new parachute ballistic calculations for airdrop
- Current aircraft modernization process hinders system enhancements until programmed block upgrades occur for 7.0/8.1 (FY 2018-2029). This yields complicated, non-integrated workarounds while aircrew
- This rapid plug-and-play capability is more cost effective, meets time-sensitive mission requirements, and presents a system-integrated solution, which is pivotal to the C-130J two-man cockpit

IMPACT IF NOT FUNDED

- Without an aircraft integrated Processor/Broker, C-130Js lack an integrated solution to handle increased mission demands from the growing number of emerging systems

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 | 120 | 1.2 |
| Total Cost of Remaining Requirements | | | \$2.2 |

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 AEP. TAMSS is an AMC and SPO 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 |

Radar Image Transmission Capability

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

BACKGROUND

- National Hurricane Operations Plan requires radar imagery to be captured and transmitted with each hurricane fix enabling forecasters to 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) |
|--------------------------------------|----|-----------------|------------|
| Group A,B Kits/software upgrades | 10 | 500 | 5.0 |
| Total Cost of Remaining Requirements | | | \$5.0 |

THIS PAGE INTENTIONALLY BLANK

Cyber



Cyber/Space Command & Control Communications



The emerging 21st Century battleground is cyberspace; the computer networks and communication systems that manage our national defense and almost every aspect of our lives. The Air Force Reserve supports the Air Force mission to defend the United States through the control and exploitation of air and space by supporting Global Engagement and continues to change with the strategic environment to meet warfighter needs in the areas of Special Operations, Space, Cyberspace, Intelligence, and Surveillance & Reconnaissance. The AFR directly supports these evolving missions by both execution of mission in the cyber-space domain, as well as by supporting the full Range of Military Operations (ROMO), and by providing C2 reach back at and above the tactical level for a variety of Air Force missions.

Requirements Summary

- **Small Communications Package (SCP)** - Provides air transportable initial communications capabilities to combatant commanders at a cost effective level and with minimum logistical constraints

| Cyber Programs | Qty | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|-----|-----------------|------------|
| Small Communications Package | 3 | 1.5 | 4.4 |
| Total Cost of Remaining Requirements | | | \$4.4 |

Small Communications Package (SCP)

Provides command, control, and communication capability to Contingency Response Forces, Partners for Peace and other directed cyber missions

BACKGROUND

- Combat Communications Squadrons (CBCS) lack SCP equipment which provides C2 capability. Current AFRC CBCS units are postured to provide Large Communications Packages (LCP) which have large logistical footprints, require military airlift and need 18 to 20 personnel as well as 60kw generator support
- SCP provides initial communications to Combatant Commanders without burdening TRANSCOM with logistics requirements and increased cost savings. Furthermore, the SCP requires only three personnel to operate and uses standard commercial power. The system is designed to be airline transportable, reducing shipping costs

IMPACT IF NOT FUNDED

- CBCS personnel deploy-to-dwell ratio will continue to exceed Air Force set standards, therefore continuing to burden the Active Component resources

UNITS IMPACTED

- 23rd Combat Communications Squadron, Travis AFB, CA
- 35th Combat Communications Squadron, Tinker AFB, OK
- 55th Combat Communications Squadron, Robins AFB, GA

CONTRACTOR

- United States Army acquisition source

PROGRAM ELEMENT CODE: Combat Communications (AFR) – 53012F

FUNDING PROFILE:

| Program Data | Qty | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|-----|-----------------|------------|
| Hardware/Software | 3 | 1.03 | 3.1 |
| Installs/Integration | 3 | .45 | 1.3 |
| Total Cost of Remaining Requirements | | | \$4.4 |

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 AFR flies Block 30 F-16s at the 301st Fighter Wing, NAS JRB Fort Worth, TX, and the 482nd Fighter Wing, Homestead ARB, FL. AFRC has teamed with ACC 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

- **Missile Warning System (PIDS+)** – Integrates an active missile warning system into the Pylon Integrated Dispenser System Universal (PIDSU) pylon
- **Anti-Jam GPS** – Replaces jam-vulnerable GPS system with sophisticated, jam-resistant GPS switching unit and processor providing ability to overcome adversary GPS jamming capabilities
- **3-Dimensional Spatial Awareness Audio** – Provides a spatial acoustical environment in which threat warnings and transmissions are intelligible, improving situational awareness and threat reaction time
- **ALR-69A Digital Radar Warning Receiver** – Replaces obsolete analog system with an all-digital system, providing improved survivability with improved surface-to-air and air-to-air radar-guided missile warning
- **Link-16** – 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

| F-16 Programs | Cost (\$M) |
|--|------------|
| Missile Warning System (PIDS+) | 49.5 |
| Anti-Jam GPS | 6.9 |
| 3-Dimensional Spatial Awareness Audio | 6.6 |
| ALR-69A Digital Radar Warning Receiver | 75.8 |
| Link-16 Capability | 26.2 |
| Total Cost of Remaining Requirements | \$165.0 |

F-16 Fighting Falcon

Missile Warning System (PIDS+)

Integrates an active missile warning system and countermeasure dispensers into the Pylon Integrated Dispenser System Universal (PIDSU) pylon

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
- The PIDS+ 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

IMPACT IF NOT FUNDED

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

UNITS IMPACTED

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

CONTRACTOR

- TERMA International, Arlington VA; Warner Robins, GA (pylon)
- To Be Determined (sensors/processors)

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|---------------------------------------|----|-----------------|------------|
| Integration | | | 6.0 |
| Group A Kits/Install | 53 | 70 | 3.7 |
| Group B Kits (two pylons per shipset) | 26 | 1,493 | 38.8 |
| Support Equipment | 2 | 482 | 1.0 |
| Total Cost of Remaining Requirements | | | \$49.5 |

Anti-Jam GPS

Replaces jam-vulnerable GPS system with sophisticated, jam-resistant GPS switching unit and processor, providing ability to overcome adversary GPS jamming capabilities

BACKGROUND

- Current early generation GPS systems on the F-16 possess no anti-jam capability
- Adversary GPS jamming tactics and capabilities have advanced to the point where F-16s are vulnerable to GPS jamming, placing at risk the pilots situational awareness, navigation, and targeting capabilities
- A new sophisticated GPS system, including antenna switching unit and processor, is required to overcome adversary GPS jamming capability

IMPACT IF NOT FUNDED

- Precision weapon accuracy and pilot situational awareness may be significantly compromised

UNITS IMPACTED

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

CONTRACTOR

- Lockheed Martin, Owego, NY
- ITT Exelis Geospatial Systems, Rochester, NY
- Rockwell Collins, Cedar Rapids, IA

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | | | 1.2 |
| Group A Kits/Install | 56 | 9 | 0.5 |
| Group B Kits | 56 | 93 | 5.2 |
| Total Cost of Remaining Requirements | | | \$6.9 |

F-16 Fighting Falcon

Three-Dimensional (3-D) Spatial Awareness Audio

Provides a spatial acoustical environment in which threat warnings and communications transmissions are intelligible, thereby improving situational awareness and threat reaction time

BACKGROUND

- Currently, audio information comes to the F-16 pilot from many competing sources, including four radios, the threat warning receivers and the aircraft itself, resulting in unclear auditory information
- 3-D audio provides a spatial acoustical environment in which threat warnings and communications are easy to distinguish
- The 3-D audio system integrates a digital intercom system, active and electronic noise reduction, three-dimensional spatial separation of multiple radio channels, and three-dimensional auditory threat cueing to significantly improve situational awareness and task management
- Many European F-16s have already been upgraded with 3-D audio

IMPACT IF NOT FUNDED

- Pilots will be placed at greater risk of task saturation and loss of situational awareness due to information overload or confusion, resulting in degraded mission effectiveness and survivability

UNITS IMPACTED

- 301st Fighter Wing, NAS JRB Fort Worth, 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) |
|--------------------------------------|----|-----------------|------------|
| Group A Kits/Installs | 45 | 40 | 1.8 |
| Group B Kits | 56 | 84 | 4.7 |
| Support Equipment | 8 | 8 | 0.06 |
| Total Cost of Remaining Requirements | | | \$6.6 |

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 F-16's are obsolete and need to be replaced with all-digital systems
- The ALR-69A reduces pilot workload by providing 360-degree detection and warning of unobserved 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 missile warning, significantly degrading survivability

UNITS IMPACTED

- 301st Fighter Wing, NAS JRB Fort Worth, 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) |
|--------------------------------------|----|-----------------|------------|
| Integration | | | 20.5 |
| Group A Kits/Install | 55 | 305 | 16.8 |
| Group B Kits | 55 | 700 | 38.5 |
| Total Cost of Remaining Requirements | | | \$75.8 |

LINK-16 Capability with Growth Potential for Fifth-to-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 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 compatibility

IMPACT IF NOT FUNDED

- Aircraft will become increasingly data-link isolated

UNITS IMPACTED

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

PROGRAM ELEMENT CODE: F-16: 52716F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|--------------------------------------|----|-----------------|------------|
| Integration | 1 | 5,000 | 5.0 |
| Group A Kits/Install | 56 | 125 | 7.0 |
| Group B Kits | 56 | 250 | 14.0 |
| Support Equipment | 4 | 60 | 0.2 |
| Total Cost of Remaining Requirements | | | \$26.2 |

THIS PAGE INTENTIONALLY BLANK



Guardian Angel



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-130N/P, HH-60G, and Guardian Angel (GA) 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

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. This Air Force weapon system is comprised of Combat Rescue Officers (CRO); Pararescuemen (PJ); Survival, Evasion, Resistance, and Escape (SERE) Specialists and uniquely trained support personnel dedicated to the Air Force core function of Personnel Recovery. Together, these warriors are the soul of a non-aircraft, equipment-based, human weapon system. 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 Angels

| Guardian Angel Programs | Cost (\$M) |
|--------------------------------------|------------|
| Personnel Recovery Mission Equipment | 4.4 |
| Total Cost of Remaining Requirements | \$4.4 |



HH-60

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-130N/P, 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

HH-60G Pave Hawk – The HH-60G conducts day or night operations into hostile environments to recover downed aircrew or isolated coalition personnel. The HH-60G is also tasked to perform military operations other than war, including civil search and rescue, medical evacuation, disaster response, 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 LOS and 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
 - **Helmet Mounted Heads-up Display (HHUD)** – Integrates a helmet-mounted cueing capability to reduce aircrew workload and increase situational awareness, especially during terminal area search and rescue operations
 - **EO/IR Sensor/ALQ-29A Upgrade** – Provides the capability to digitally communicate, provide adequate video imagery, and the ability to find, fix, and track points of interest as well as increase situational awareness in the degraded visual environment

| HH-60 Programs | Cost (\$M) |
|---|---------------|
| HH-60 Personnel Recovery Situational Awareness (PRSA): | |
| Blue Force Tracker Grp A Kits/Install | 6.0 |
| Link 16 | 4.5 |
| HHUD | 23.7 |
| EO/IR Sensor/ALQ-29A Upgrade | 22.2 |
| Total Cost of Remaining Requirements | \$56.4 |

HH-60 Pave Hawk

Personnel Recovery Situational Awareness (PRSA)

Provides improved communications suite, ISR video feed capability, and full integration with Blue Force Tracker 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
- Full Motion Video (FMV) capability will allow critical visual Drop Zone and Landing Zone data to be received from Intelligence, Surveillance and Reconnaissance (ISR) assets before dangerous insertion and extraction operations
- Smart Multi-Function Color Display installed must be fully integrated with Blue Force Tracker (BFT) to enable aircrews to receive near real-time data and text messaging from the battlefield
- Heads-down time required by pilots without Helmet-mounted Heads-Up Display (HHUD) during typical HH-60G flight profiles in the low-level environment increases the likelihood of a mishap due to aircraft collision with terrain or failure of the crew to observe and react to threats
- The HH-60G requires an upgraded Electro-Optical/Infrared (EO/IR or Q-29A) sensor to provide improved visual acuity, enable interoperability via laser designation/ranging capability, and improved operational capability in the degraded visual environment

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) |
|---------------------------------------|----|-----------------|------------|
| Blue Force Tracker Grp A Kits/Install | 15 | 400 | 6.0 |
| Link 16 | 15 | 300 | 4.5 |
| HHUD | 15 | 1,580 | 23.7 |
| EO/IR Sensor/ALQ-29A Upgrade | 15 | 1,480 | 22.2 |
| Total Cost of Remaining Requirements | | | \$56.4 |

THIS PAGE INTENTIONALLY BLANK

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 916th Air Refueling Wing, Seymour-Johnson AFB, NC; 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.

KC-135 Requirements Summary

- **Secure Line-of-Sight/Beyond Line-of-Sight (SLOS/BLOS) Communications** – 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
- **Large Aircraft Infrared Countermeasures (LAIRCM)** – Provides integral self-protection system to defend large aircraft against infrared (IR) missile threats
- **Exterior Lighting Upgrades** – Provides Federal Aviation Administration (FAA) and Military Specification (MIL-SPEC) compliant overt and covert external lighting
- **Jam Resistant Global Positioning System** – Upgrades navigation system to a robust jam resistant system

| KC-135 Programs | Cost (\$M) |
|--|------------|
| Secure Line-of-Sight/Beyond Line-of-Sight (SLOS/BLOS) Communications | 48.6 |
| Large Aircraft Infrared Countermeasures (LAIRCM) | 52.5 |
| Exterior Lighting Upgrades | 3.9 |
| Jam Resistant Global Positioning System | 13.2 |
| Total Cost of Remaining Requirements | \$118.2 |

Secure Line-of-Sight/Beyond Line-of-Sight (SLOS/BLOS) Communications (Common MAF Mission Computer)

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

BACKGROUND

- Effective air operations in today's information-reliant battlespace requires secure voice and data communications between coalition aircraft, command and control (C²) platforms, and Joint forces
- Communications upgrades to KC-135 fleet will provide aircrews the ability to report and receive battlespace and mission information to and from C² platforms, thus significantly improving the synchronization of supporting and supported forces

IMPACT IF NOT FUNDED

- Without SLOS/BLOS communications and data link upgrades to the Air Force Reserve's KC-135 fleet, aircrew and associated C2 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

- 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
- 916th Air Refueling Wing, Seymour Johnson AFB, NC
- 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 | | | 1.0 |
| Group A Kits/Installs | 68 | 350 | 23.8 |
| Group B Kits | 68 | 350 | 23.8 |
| Total Cost of Remaining Requirements | | | \$48.6 |

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 command and control relays 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
- An advanced IRCM 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 kill against KC-135 aircraft. KC-135 operational effectiveness 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
- 916th Air Refueling Wing, Seymour Johnson AFB, NC
- 940th Air Refueling Wing, Beale AFB, CA

CONTRACTOR

- Lockheed Martin, Orlando, FL
- Elbit Systems of America, Fort Worth, TX
- Northrop Grumman Electronics Systems, Rolling Meadows, IL

PROGRAM ELEMENT CODE: KC-135 - 51421F

FUNDING PROFILE:

| Program Data | # | Unit Cost (\$K) | Cost (\$M) |
|---|---------|-----------------|------------|
| Integration | | | 4.0 |
| LRIP Installs & LRIP Pods | 2 | N/A | 17.0 |
| Group B Kit, Production Installs, Support Equip | various | N/A | 31.5 |
| Total Cost of Remaining Requirements | | | \$52.5 |

Exterior Lighting Upgrades

Provides FAA and MILSPEC-compliant overt and covert external lighting

BACKGROUND

- Current KC-135 lighting does not meet MIL-SPEC illumination standards
- LED lighting increases safety margins by providing significantly better aircraft visual acquisition during ground and airborne operations, especially during low-illumination night operations involving night vision devices
- Replacing existing incandescent lighting with updated Light Emitting Diode (LED) lighting, KC-135 combat and peacetime operations benefit in three areas: safety, survivability, and sustainability
- The upgraded lighting will increase Mean Time Between Failures from 40 to 60 hours for incandescent bulbs to over 10,000 hours with LEDs, significantly reducing supply costs and maintenance requirements

IMPACT IF NOT FUNDED

- Potential for mid-air collision in low-illumination conditions, especially when operating covertly on night vision devices, remains elevated

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
- 916th Air Refueling Wing, Seymour Johnson AFB, NC
- 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 | | | 0.2 |
| Group A Kits/Installs | 68 | 50 | 3.4 |
| Group B Kits | 68 | 5 | 0.3 |
| Total Cost of Remaining Requirements | | | 3.9 |

Jam Resistant Global Positioning System

Upgrades GPS based navigational system to be more resilient in a contested environment

BACKGROUND

- KC-135 support combat forces by directly operating in or near contested environments. The adversary's ability to affect GPS based navigation directly impacts the USAF's ability to execute the mission
- The proliferation of small GPS Jammers is continuing to accelerate. Widely available GPS Jammers are powered by a simple 12-volt cigarette lighter, and have the capability to deny GPS reception within a line of sight range of 5-10 miles
- Primary navigation relies on Global Positioning System (GPS) to provide position, velocity, and timing data; therefore, the KC-135 requires a robust GPS-based navigation system to counter emerging threats to operations

IMPACT IF NOT FUNDED

- Air Force Reserve KC-135 aircraft will remain vulnerable to GPS jamming in contested operating environments

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
- 916th Air Refueling Wing, Seymour Johnson AFB, NC
- 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 | | | 3.0 |
| GPS Antennas/Electronic Units | 68 | 150 | 10.2 |
| Total Cost of Remaining Requirements | | | \$13.2 |

Agile Combat Support



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, so must it invest 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, IT network improvements, night vision goggles, civil engineering (CE) equipment, security forces and mission support vehicles. ACS integrated support is fundamental to effective air, space, and cyber power.

AFRC operational readiness requirements include mission support equipment, vehicle procurement, expeditionary forces equipment and items from the AFR Chief Information Officer (CIO) Board Project List.

ACS Equipment Requirements Summary

- **Support Equipment** – Funds current aircraft and flight line maintenance mission-essential equipment shortfalls
- **Vehicles** – Replaces mission-supporting vehicle fleets including fuel trucks, utility vans, firefighting vehicles, pick-up trucks, graders, cranes, and tow trucks - ensuring readiness to mission demand
- **Expeditionary Tactical Equipment** – Updates/replaces required AFRC security forces, explosive ordnance disposal (EOD), civil engineering and RED HORSE equipment – standardizes units with RegAF capabilities
- **Chief information Officer (CIO) Project List** – Replaces/enhances various assets to support AFRC's IT infrastructure (radio, telephone, network, and combat communication assets). Ensures AFRC units are postured to optimally execute missions and operations that require the use of information systems and contribute to the nations' readiness and defense

| ACS Equipment Programs | Cost (\$M) |
|--------------------------------------|------------|
| Support Equipment | 16.9 |
| Vehicles | 9.8 |
| Expeditionary Tactical Equipment | 9.0 |
| CIO Project List | 6.0 |
| Total Cost of Remaining Requirements | \$41.7 |



Abbreviations and Acronyms

| | |
|------------|---------------------------------------|
| 3-D..... | Three-dimensional |
| ACC..... | Air Combat Command |
| ADE..... | Airdrop Damage Estimation |
| AEF..... | Air and Space Expeditionary Force |
| AFR..... | Air Force Reserve |
| AFRC..... | Air Force Reserve Command |
| AMC..... | Air Mobility Command |
| AMP..... | Avionics Modernization Program |
| 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 |
| CAS..... | Close Air Support |
| CBCS..... | Combat Communications Squadron |
| CPC..... | Combat Planning Council |
| CSAR..... | Combat Search and Rescue |
| DRC..... | Dynamic Retasking Capability |
| EEP..... | Engine Enhancement Package |
| EO/IR..... | Electro-Optical/Infrared |
| FAA..... | Federal Aviation Administration |
| FAC-A..... | Forward Air Control - Airborne |
| FMV..... | Full Motion Video |
| FTU..... | Flight Training Unit |
| G4..... | Generation Four |
| GA..... | Guardian Angel |
| GPS..... | Global Positioning System |
| HHUD..... | Helmet-mounted Heads Up Display |
| HRDS..... | High Resolution Display System |
| IAP..... | International Airport |
| IMC..... | Instrument Meteorological Conditions |
| IPBS..... | In-Flight Propeller Balancing System |
| IQT..... | Initial Qualification Training |
| IR..... | Infrared |
| IRCM..... | Infrared Countermeasure |

Abbreviations and Acronyms

| | |
|---------------|--|
| ISR | Intelligence, Surveillance, and Reconnaissance |
| ITH..... | Integrated Track Handle |
| JITC | Joint Interoperability Test Command |
| JRB..... | Joint Reserve Base |
| K..... | Thousands |
| LAIRCM | Large Aircraft Infrared Countermeasures |
| LCP | Large Communications Package |
| LDHD..... | Low Density, High Demand |
| LDP | LITENING Digital Port |
| LED | Light Emitting Diode |
| LIDAR | Light Detection and Ranging |
| LOS | Line-of-sight |
| LRU | Line Replacement Unit |
| M | Millions |
| MAF | Mobility Air Force |
| MANPADs | Man-Portable Air Defense Systems |
| MASS | Modular Aerial Spray System |
| MAFFS | Modular Airborne Fire Fighting System |
| MC..... | Mission Computer |
| MILSPEC..... | Military Specification |
| MUOS..... | Mobile User Objective System |
| NAS | Naval Air Station |
| NGREA..... | National Guard / Reserve Equipment Appropriation |
| NOAA | National Oceanic and Atmospheric Administration |
| NVG..... | Night Vision Goggles |
| NVIS | Night Vision |
| PEC | Program Element Code |
| PIDS | Pylon Integrated Dispenser System |
| PIDSU..... | Pylon Integrated Dispenser System Universal |
| PIRL..... | Prioritized Integrated Requirements List |
| PJ | Pararescue Jumper/ Pararescueman |
| PnP..... | Plug and Play |
| PR | Personnel Recovery |
| PRSA..... | Personnel Recovery Situational Awareness |
| PVI..... | Pilot Vehicle Interface |
| RC | Reserve Component |
| RGM | Rapid Global Mobility |
| RTIC | Real-Time Information Cockpit |

Abbreviations and Acronyms

| | |
|-------------|---|
| RWR..... | Radar Warning Receiver |
| SAR..... | Synthetic Aperture Radar |
| SATCOM..... | Satellite Communications |
| SCP..... | Small Communications Package |
| SE..... | Sensor Enhanced |
| SERE..... | Survival, Evasion, Resistance, and Escape |
| SLOS..... | Secure Line-of-Sight |
| SOC..... | Senior Officer Course |
| SOF..... | Special Operations Forces |
| SPPAD..... | Single Pass Precision Airdrop |
| TAMSS..... | Tactical Airlift Mission Software Suite |
| TX..... | Transition Training |
| UON..... | Urgent Operational Need |
| VMC..... | Visual Meteorological Conditions |
| WRS..... | Weather Reconnaissance Squadron |
| WST..... | Weapon System Trainer |



AIR FORCE RESERVE