SPECIAL OPERATIONS FORCES ACQUISITION, TECHNOLOGY, & LOGISTICS

Campaigning with Partners for Integrated Deterrence

Mr. Geoff Downer, SES, Program Executive Officer

ROTARY WING

SOF AT&L

160th Video

ARMY SPECIAL OPERATIONS AVIATION ACQUISITION TEAM

- Customer Focus – Access to User
- Smaller Teams/Offices
- Multiple Engagements at All Levels
- High Risk Tolerance
- Decisions Pushed Down to Lowest Level
- Direct Access to MDA and AW Authority

US Army Special Operations Aviation Command
(Resource Sponsor)
FT Bragg, NC

160th SOAR

Systems Integration Management Office (SIMO) & Aviation Maintenance and Sustainment Office (AMSO)
(User Rep / Requirements)
FT Campbell, KY

US Army
Aviation & Missile Command (AMCOM),
Director, Special Programs (Aviation)
USSOCOM PEO-Rotary Wing,
(Milestone Decision Authority)
FT Eustis, VA

TAPO / PEO STRI
(Materiel Developer)
FT Eustis, VA / Orlando, FL

Daily / Continual coordination with dedicated user representative (SIMO), Component Resource Sponsor (ARSOAC), and Title 10 Headquarters (PEO-RW & PEO-FW @ USSOCOM)

PROGRAM EXECUTIVE OFFICE ROTARY WING (RW)

MOBILITY

A/MH-6 Light Attack/Assault

MH-60 Medium Attack/Assault

MH-47 Heavy Assault

Airframe Recapitalization

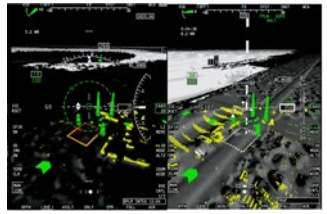
MISSION EQUIPMENT

Active Aircraft Survivability Equipment

Airborne Communications

Common Avionics Architecture System (CAAS)

Sensors



Common Hardware and Software

TRAINING SYSTEMS

A/MH-6M (Little Bird) CMS

MH-47G CMS

MH-60M CMS

Mission Rehearsal Exercise Training System (MRETS)

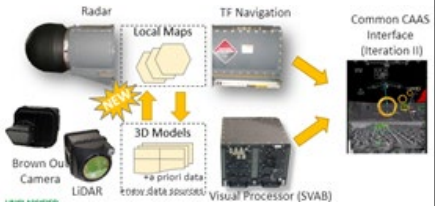
Stimulated vs Simulated

FUTURES EFFORTS

FARA

FLRAA

Data Fusion



Future Investments

SOF ROTARY WING PLATFORM ROADMAP

Near Term (Prior to FY 23) | POM (Fiscal Years 23-27) | Extended Planning Period (Fiscal Years 28-38)

2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038

Light Attack/Assault
A/MH-6 MELB

Next Gen Tactical Radio System

Improved EO/IR Sensor

Performance Kit, zero-time fuselage

BLK 2.2 | BLOCK 3.0 | BLOCK 4.0

SOA FARA Design | SOA FARA

Sustain / Divest

Army FARA First Unit Issued (FUI)

SOA FARA FUE

Attack/Assault
MH-60M

Silent Knight Radar

Improved Turbine Engine

BLK 1.0 | BLOCK 2.0

SOA FLRAA Design | SOA FLRAA

Sustain / Divest

Army FLRAA FUE

SOA FLRAA FUE

Heavy Assault
MH-47G

Active Parallel Actuator System

Improved Drive Train

Next Gen Counter Measures

BLK II | BLK IIv1 | BLOCK "X"

A/MH-6 ACTIVITIES

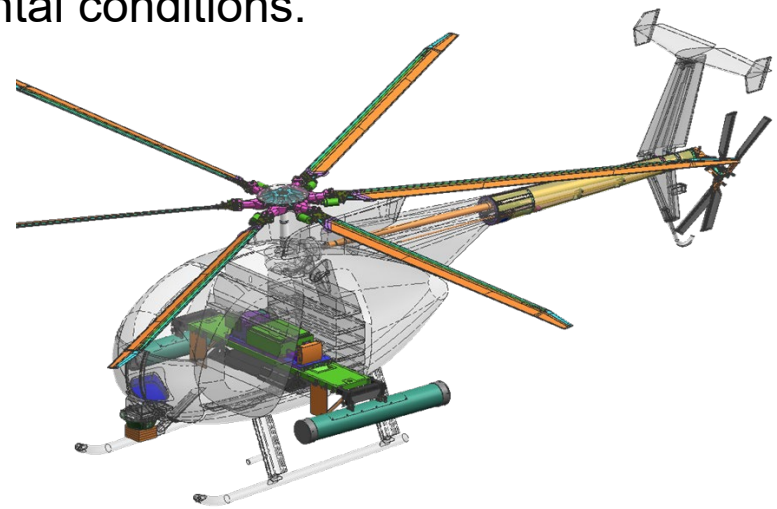




What We Do: The Mission Enhanced Little Bird (MELB) office manages two uniquely configured militarized commercial derivatives of the McDonnell Douglas 530 series helicopter. The AH-6M Little Bird is a highly modified light attack aircraft primarily employed in close air support of ground troops, target destruction raids and armed escort of other aircraft. The MH-6M Little Bird is a light utility helicopter that has been modified to externally transport several combat troops and their equipment. It is capable of conducting infiltration, exfiltration, combat assaults and reconnaissance over a wide variety of terrain and environmental conditions.

Ongoing Advancements: Improvements to the A/MH-6M focus on aircraft safety enhancements and mission equipment upgrades.

Future Efforts: The A/MH-6 is entering a Block 3.0 Modification, designated the “R” model, to address aging airframe issues, increase performance capability, and enhance navigation and situation awareness.



A/MH-6 ACTIVITIES

Improved Safety Margins, Reduced Sustainment, & Enhanced Situational Awareness
Bridge to Future Attack Reconnaissance Aircraft

MH-60M ACTIVITIES





What We Do: The MH-60M office manages two uniquely configured variants of the UH-60M helicopter for the 160th Special Operations Aviation Regiment (Airborne). An armed version, the Defensive Armed Penetrator, has the primary mission of armed escort and fire support. Secondary missions of the MH-60 include external load, combat search and rescue and medical evacuation operations. The MH-60M is capable of conducting infiltration, exfiltration, combat assaults and Close Air Support over a wide variety of terrain and environmental conditions.

Ongoing Advancements: MH-60M Block 1 increased operational capability and technology insertions for mission equipment including ASE, Degraded Visual Environment (DVE), Airborne Mission Networking, and other sustainment improvements.

Future Efforts: Block 2.0 modification will replace a SOF Peculiar engine with the Army common Improved Turbine Engine (ITE), improved communication, and provide performance enhancements.

MH-60M ACTIVITIES

GE T901 Improved Turbine Engine

Engine Inlet Barrier Filter

Common Fill Port

AN/APQ-187 Silent Knight Radar (SKR) + Nose door re-config

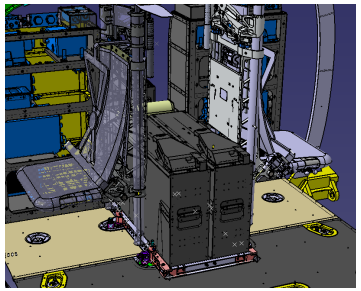
Avionics CG Optimization

DVE

IRES

Avionics Rack Reconfiguration

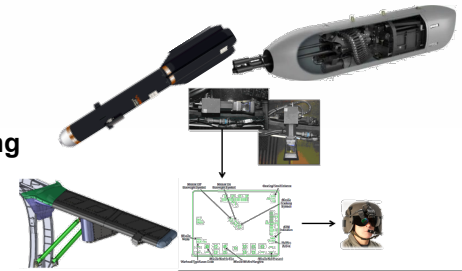
New C/E Seats and Ammo Cans



Next Generation Tactical Communications (NGTC)

Weapons Upgrades

Joint Air to Ground Missile (JAGM)
Conformal Lightweight Armament Wing (CLAW)
M-230 Recoil Dampers / Muzzle Brake
GAU-19 Gun Pod (GP-19)
Helmet Display Tracking System



Modifications driven by restoration of payload and cg

SOA FUTURE VERTICAL LIFT (FVL) ACTIVITIES

FARA

FLRAA

What We Do: ARSOA units must prepare for a fight with multidimensional conventional and asymmetric non-conventional threats and requires the ability to expand its reach beyond conventional operating environments depriving the enemy of safe havens. Future Vertical Lift (FVL) is a family of systems intended to meet Army Aviation's roles and missions in the Multi-Domain Operations environment. FVL includes leap-ahead capabilities for air vehicles, unmanned systems, and munitions all with modular open system approach. FVL includes such items as FLRAA, FARA, FTUAS, MOSA, SCI, and ALE.

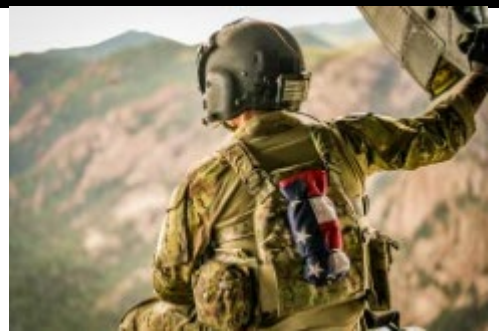
Ongoing Advancements: Engineering design studies are being conducted in conjunction with the Army Program offices to investigate:

- **FARA:** Aerial Refueling; Troop Transport, Air/Sea Transport and incorporation of SOF unique Mission Equipment Packages
- **FLRAA:** Air/Sea Transport, Electro-Optical/Infrared sensor, Terrain Following Terrain Avoidance radar, Degraded Visual Environment system, Advanced Aircraft Survivability Equipment, Nose structure commonality
- **MOSA:** ARSOA MOSA enabled Common Cockpit Analysis, MOSA Cyber Security Analysis
- **Mission Equipment Package:** Advanced Avionics, Advanced Mission Equipment

Future Efforts: Continue engineering study work to reduce design and production risk for SOA unique capability and prepare for a SOF development programs.

MH-47G ACTIVITIES





What We Do: The MH-47 Chinook helicopter conducts infiltration, exfiltration, air assault, resupply, and sling-load operations over a wide range of environmental conditions. The aircraft can perform a variety of other missions including shipboard, platform, urban, water, parachute, forward arming and refueling point, mass casualty, and combat search and rescue operations. Using special mission equipment and night vision devices, MH-47 aircrews can operate in hostile mission environments over all types of terrain at low altitudes during periods of low visibility and low ambient lighting conditions with pinpoint navigation accuracy.

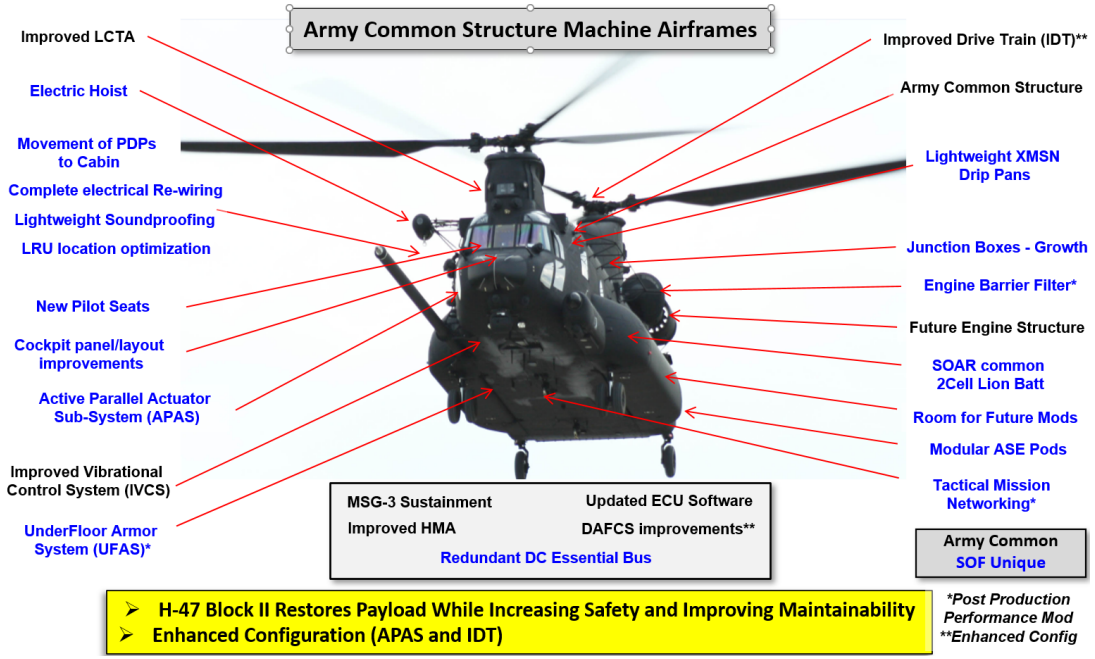
Ongoing Advancements: Replaces MH-47G legacy sheet metal constructed airframes with newly built machined airframes incorporating emerging technologies to maintain mission effectiveness at reduced sustainment cost. MH-47G Renew program will harvest mission equipment from legacy fleet in order to reduce procurement costs.

Future Efforts: Advanced Parallel Actuator System (APAS), Improved Communications, and Improved Drive Train/Improved Rotor System (IDT/IRS)

MH-47G ACTIVITIES

Block II Renew

- Modernization and Recap program for the remaining legacy airframes
- Executed in collaboration with the Army

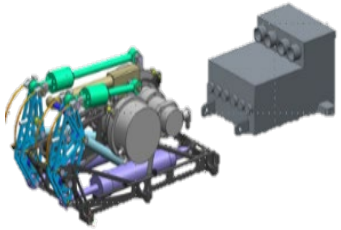


- H-47 Block II Restores Payload While Increasing Safety and Improving Maintainability
- Enhanced Configuration (APAS and IDT)

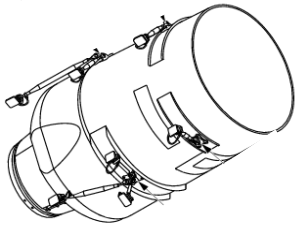
**Post Production Performance Mod*
***Enhanced Config*

Development efforts

- Advanced Parallel Actuator System (APAS)
- Engine Barrier Filter

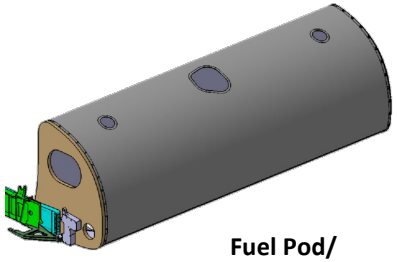


APAS / Performance Enhancements



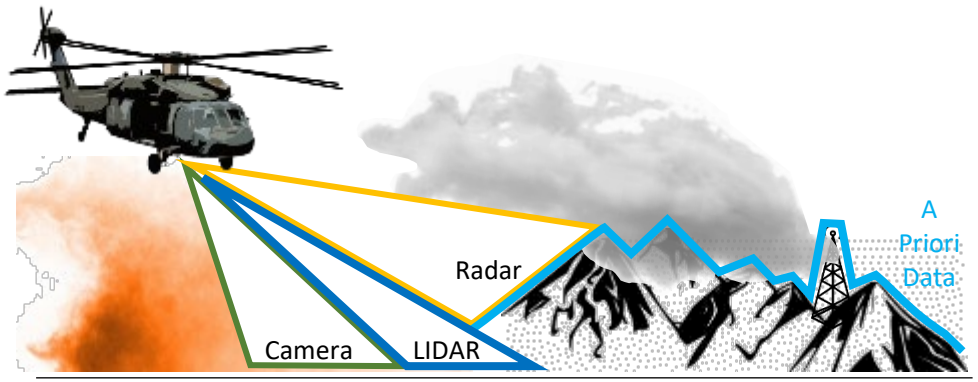
Infrared Exhaust Suppressor-47

Improved Gun Mount ECP



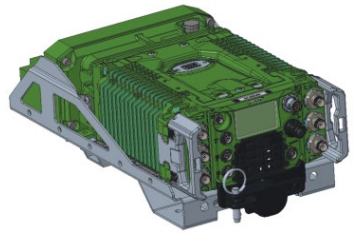
Fuel Pod/ Avionics Pod ECP

MISSION EQUIPMENT ACTIVITIES



What We Do: The Mission Equipment office manages navigation, communication and survivability across the Army Special Operations Aviation fleet. The Common Avionics Architecture System (CAAS) cockpit efficiently pulls together flight data, capabilities and communications into an interactive display for our aircrew. Our Aircraft Survivability Equipment (ASE) office fields active and passive aircraft survivability equipment for MH-47G, MH-60M and A/MH-6M aircraft. The Sensors office delivers advanced systems to provide our aircrew with a safe and reliable understanding of the surrounding area regardless of environmental conditions.

Ongoing Advancements: CAAS software update, ASE upgrades, integration of Degraded Visual Equipment (DVE), Improved Rotary wing Electro-optical Sensor (IRES)

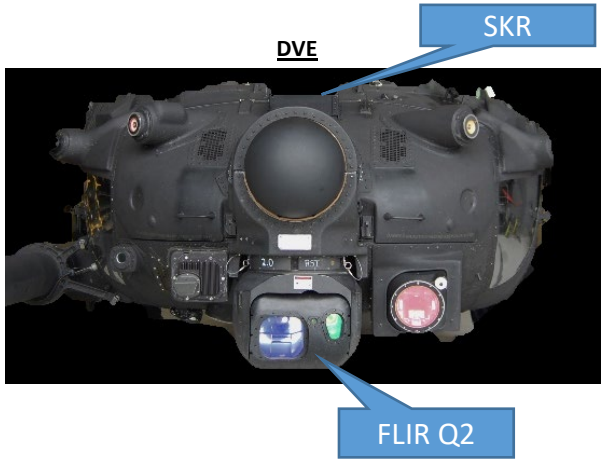


Future Efforts: Next Generation Tactical Communications, advanced ASE systems, and Sensor Data Fusion

MISSION EQUIPMENT ACTIVITIES

Aircraft Survivability Equipment:

- IR Countermeasure Development
- RF Countermeasure Improvements

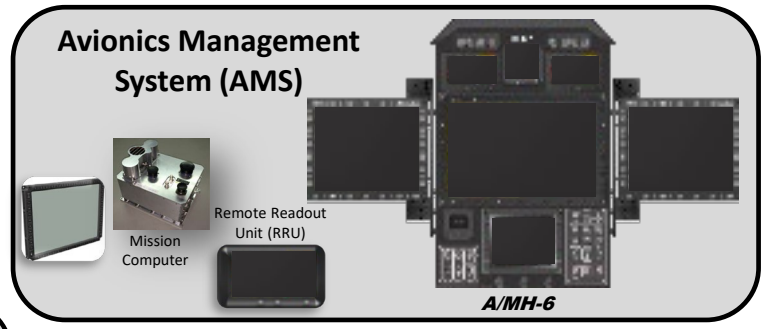


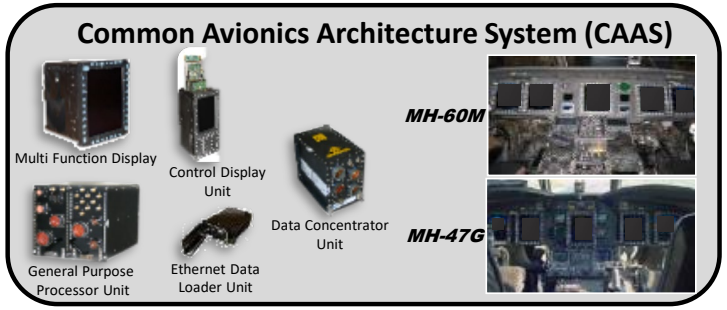
Sensors:

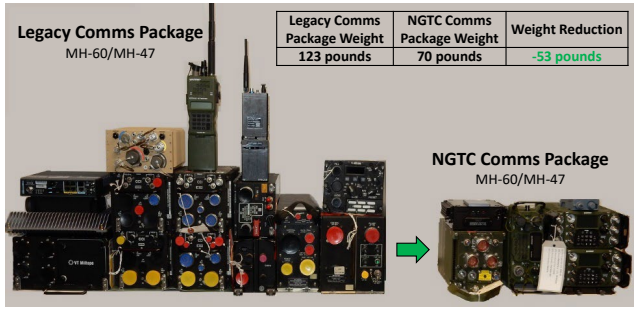
- Degraded Visual Environment Development
- Improved RW Electro Optical Sensor (IRES)
- New Terrain Following / Terrain Avoidance Capability

Avionics:

- Tactical Mission Network Integration
- Mission Processor Upgrades







MISSION TRAINING ACTIVITIES

What We Do: The training products provided under the simulator program consist of combat mission simulators and academic and desk top task training aids. The combat mission simulators (CMS) utilize aircraft components to ensure the highest fidelity replication of aircraft systems and functions. The CMS can operate individually or in teams and can be linked to the Mission Rehearsal Exercise Training System (MRETS). This allows the CMS to support training from individual pilot skills up to full mission rehearsal against an opposing force. The CMS are used for incident investigation allowing flight data recorder information to be seen in a synthetic environment.

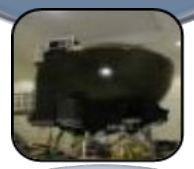
Ongoing Advancements: Delivery of second A/MH-6 CMS, integrated Degraded Visual Environment (DVE), and refresh MH-47G CMS to BLK 2 configuration

Future Efforts: The program will leverage technologies such as artificial intelligence to improve training and decision making from basic pilot skills to full mission teams. Key to this will be the expansion of the mission rehearsal and incident investigation tools to create an ability to prototype solutions prior to investing in the full development.

MISSION TRAINING ACTIVITIES

A/MH-6

MH-47G-1



MH-60M-1

A/MH-6

MH-47G-2

MH-60M-2

Universal Mission Simulator (UMS)

Combat Mission Simulators

Peripherals

Integration and Sustainment

Mission Rehearsal/ Simulation Training Exercises

Augmented Reality / Virtual Reality

Desk Top Trainers (DTT)

Cockpit Academic Procedural Tool (CAPT)

Mission Rehearsal Exercise Training System (MRETS)

Mission Rehearsal Operations Center

Incident Investigation

SOA Program Management Office

SOF Training, Engineering and Maintenance Support (SOF TEAMS)

SOF Aviation System Trainer – Enhancements (SOFAST-E)

ROTARY WING CAPABILITY INTERESTS

CAPABILITY ENHANCEMENTS:

- Fleet Capability Restoration
- Increased survivability, multi-spectral survivability solutions
- Spectral Signature Management
- Mobile Data Center like aircraft computing hardware for navigation, communication, flight operations and data fusion
- Digital component/system maintenance monitoring and trend analysis

CAPABILITY EXPANSION:

- Disparate Data Fusion, Data Science, and Computer Science
- Future Airborne Capabilities Environment (FACE) compliant MOSA systems
- Reduce Crewmember workload, hyper-enabled aircrews and operators
- Increased situational awareness, right amount, format and display of information at the right time

QUESTIONS