



CALL TO DUTY
BOOTS ON THE GROUND



Utility Helicopters Update

LTC Sean Clark
APM Desert Modifications

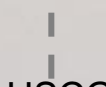
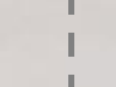
GREGORY D. GORE
ACTING PROJECT MANAGER

MARK J. JEUDE
ACTIONG DEPUTY PROJECT MANAGER





This Is Our Team



UH-60
Modernization

UH-60ALM

UH-72A

PD-T700

MEDEVAC

FMS

MODs

Readiness
& Fleet
Management

TADSS

USCG
Navy
Air Force

FALCON
Fly-by-Wire

PRODUCTION

PRODUCTION
UH-72A Lakota

T-701D

MEP

H-60

H-60

H-60

H-60

H-60

ECP Cut In

RECAP

TDA

ITEP

UH-72A

UH-72A

UH-72A

Digital
Cockpit

OGA

ARNG
Fielding

- 4 PHD's
- 89 Engineers
- 3413 Years of Rotary Wing Experience
- 70 Personnel with Combat Experience
- 14 External Awards this Year

Vision:
Utility Helicopters Forces –
Trained, Modernized, Equipped, Ready,
Your Best Friend – Your Worst Enemy

Commitment to Soldiers & Acquisition Excellence



Utility Helicopters Project Mission



FULL SPECTRUM AVIATION

RESILIENT - ADAPTIVE - PROFESSIONAL - COMMITTED - RESPONSIVE

Execute Life Cycle Management of Utility Helicopters Aviation Systems for the Current Force and for the Transformation to the Future Force

What We Do:

- Centralized Management for UH-60 Black Hawk, UH-72A Lakota, T700 Engine and associated FMS / OGA Programs
- Full Life-Cycle Management of Assigned Systems
- Improve Interoperability
- Enhance Reliability and Safety
- Maintain Combat Overmatch thru Recapitalization & Modernization

What We Manage:

- Three Product Offices / One Product Director:
- Five Assistant Project Offices
- Support to Homeland Defense, OND/OEF and other Overseas Contingency Operations

The Magnitude:

- ~\$20B: FY10-15
- FMS Total Case Value \$5.023B FY10-13
- 19 FMS Cases — 28 Countries



Total Workforce:
~ 564 on board
(Civilian, Military & Contractors)

Managing:
Total FY11
Resources: ~\$11B

**Qualified Professionals
Oriented on Rapid Results:
to Support the
WarFighter**



**Providing the World's Finest Utility Aircraft to Meet Ground
Commander's Requirement- Impossible to Duplicate**



What's Important



Our #1 Priority Is Support Of Deployed And Deploying Units

Theater Support/Sustainment/Readiness

- ONS Process – Manage Operational Needs Statements IAW HQDA Directives
- RESET / RECAP Restore To FMC, And Incorporation Of Current MWO's
- Sustain Deploying Units > 80% CFSR – LAR - PLL – ASL – Mods
- Spares (Keep Parts Flowing To OIF/OEF)

Improve Fleet Safety

- Design Innovation And System Integration
- Training/Maintenance/Sustainment/Material Improvements
- Diligence On Details

Aircraft and Engine Acquisition

- Production Program On Or Ahead Of Schedule
- FMS/ OGA Production On Or Ahead Of Schedule
- Boost Production Throughput At CCAD To 48/Yr
- Reduce Aircraft Production Delivery Times And Production Costs
- Produce Field TBOS with each CAB

Maintenance Improvement

- Invest In Productive, Innovative Initiatives Using CBM Data & Information
- Record Data With The Fidelity Required To Perform Trend Analysis.
- Support More Proactive Maintenance Management
- Produce and Deliver more Robust Maintenance Trainers (BHET, BHAT, etc)



Program Accomplishments



Prepared 1st, 3rd, 4th, 10th, 12th, 40th and 101st CABs for OCO Deployment

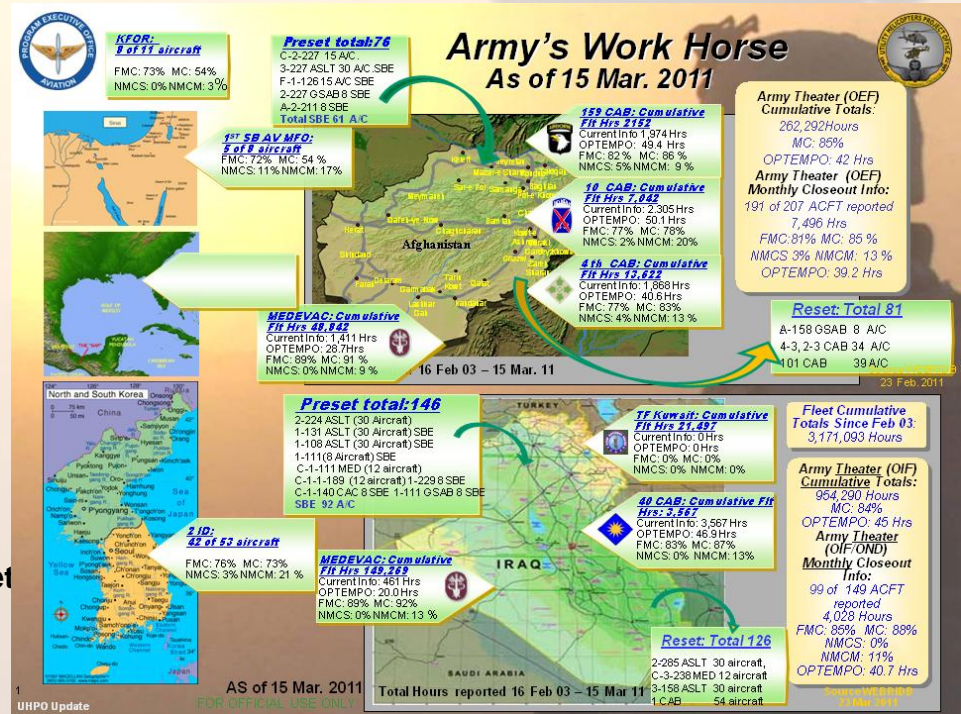


- 118 New HH / UH-60M
- We have 435 more T701D engines
- Our OR Rates on Black Hawks in theater exceeds 84%
- The time on wing of the 701D engine is 6 months longer.....(than previous engines)
- RECAPITALIZED 38 UH-60s
- Successful NET: 1ID, 82d, & ARNG
- UH-60 Deliveries: FBI, DOS, CBP
- TEAMHAWK: Navy/Air Force/Coast Guard
- FMS 845 – 28 Countries, 41 Active Cases
 - Sweden, Taiwan, Mexico, Others
- 54 New UH-72A
- Exceeded 90% Operational Availability on UH-72A Fleet
- Exceeded 52,000 UH-72A Fleet Hours

Untold

- Lives Saved
- Assaults Accomplished
- Soldiers Moved
- Supplies Delivered
- VIPs Transported
- Ambushes Avoided
- Equipment Transported

Army's Work Horse Worldwide





Current Utility Fleet

USARC
UH-60s - 61

TRADOC
UH-60s - 160
UH-72A - 8

USMA
UH-72A - 2

FORSCOM
UH-60s- 476
UH-72A - 40

NGB
UH-60s- 745
UH-72A - 83

USAREUR
UH-60s - 86
UH-72A - 10



EUSA / USARPAC
UH-60s - 137

OTHER
UH-60s - 127
UH-72A - 11

AMC/AMCOM/ATEC
UH-60s - 121
UH-72A - 5

EH-60 = 54
HH-60A = 4
HH-60L = 31
HH-60M = 67
MH-60K = 23
UH-60A = 814
UH-60L = 707
UH-60M = 222
UH-72A = 154

1922 Total
UH-60s
154 Total
UH-72A



Utility Helicopters Fleet Strategy

UH-60 BLACK HAWK

MISSION

(FY09 - 11)
(Near Term)

(FY12-17)
The POM Years

(FY18-25)
The EPP Years

(FY25 - Beyond)
Beyond the EPP

Current Planned

UTILITY

UH-60A/L

UH-60M

UH-60A	872	0
MH/UH-60K or L	761	760
MH/UH-60M	289	1375



Retirement Starts 2015

UH-60A

Retirement Complete 2023

729

MH/UH-60L (not digitized or bussed)

2135

UH/HH-60L/M

31

HH-60L

419

HH-60M

956

UH-60M

UH/HH-60L 760

UH/HH-60M 1375

UH-72A LAKOTA

MISSION

(FY09)
(Near Term)

(FY10-15)
The POM Years

(FY16-23)
The EPP Years

(FY23 - Beyond)
Beyond the EPP

Current Planned

UTILITY

UH-1



OH-58A/C (Divest)

UH-60	5	0
UH-1	41	0
OH-58A/C	229	0
UH-72A	154	345



219 OH-58A/C
16 UH-1

TOE Units

Retire by 2015



28 UH-60
25 UH-1
10 OH-58A/C

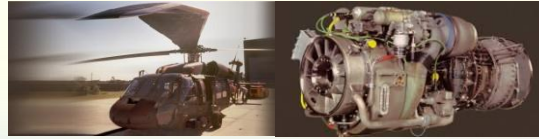
TDA Units

Retire / Reassign by 2015

345 UH-72A LAKOTA In TDA and TOE

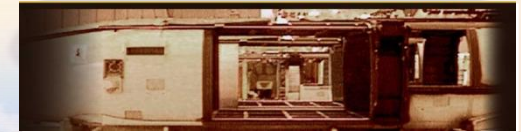


UH-60M BLACK HAWK



Propulsion

- Wide Chord Blades
- T700-GE-701D Engine
- Rotor Brake



New Cabin Section

- Monolithic Machined Parts
- Transmission Beams
- Corrosion Protection



Logistics Initiatives

- On- Board Diagnostics (HUMS)
- Conditioned Based Maintenance (CBM)
- Organic Support for Logistics
- Engine Inlet Barrier Filter
- APU Inlet Barrier Filter
- Windshield Mylar



Mission

- Crew Chief Seat
- FRIES



Survivability

- Enhanced Laser Warning System (AVR2B)
- Improved IR Suppression
- Crashworthy Fuel System (CEFS)
- Common Missile Warning System (CMWS)



Integrated Digital Cockpit

- 4 Multifunction Displays
- Improved Data Modem
- Enhanced GPS / INS System
- Integrated ARC-231 (TACAN)
- BFT
- Dual Digital Flight Controls
- Digital Map
- Integrated Storm Scope & ASE Displays

Commitment to Soldiers & Acquisition Excellence



UH/HH-60M FY11 Production



FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
------	------	------	------	------	------	------	------	------

Acquisition Schedule

2UE \diamond \diamond 3UE \diamond 4UE \diamond 82nd CAB \triangle MY VIII CA

UH-60M
(ACAT ID)

53	59	49	51	54	50	53	48	48
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HH-60M

13	22	25	24	24	24	24	24	24
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FY11 Delivery Schedule

FY2011	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Army UH	5	5	6	3	4	4	5	6	8	5	3	3	57
Army HH	2	3	3	1	1	2	2	2	2	2	3	2	25
FMS (UAE)	2	3	4	2	3	1	2	1	1	1	1	1	22
Mexico Navy	2												2
FMS (Jordan)		1								1			2
OGA			(DoS)	1	2	(USAF)			2	(DoS)			5
											Total		113

Sikorsky H-60M Production Facilities

West Palm Beach, FL (FAFO)



Stratford, CT



**113 Production Aircraft
On Time – On Budget**



UH/HH-60M New Equipment Training (NET)



101st CAB NET: JUN 11 – FEB 12

- Contractor Flight Instructors
- Contractor Maintenance
- Army Maintenance Instructors
- CAB Training (MTOE Based)
 - 144 AQC, 24 MTPC
 - 36 15F, 36 15N, 240 15T
- Flight hours funded by FORSCOM



Personnel Trained as of 18 MAR 11:

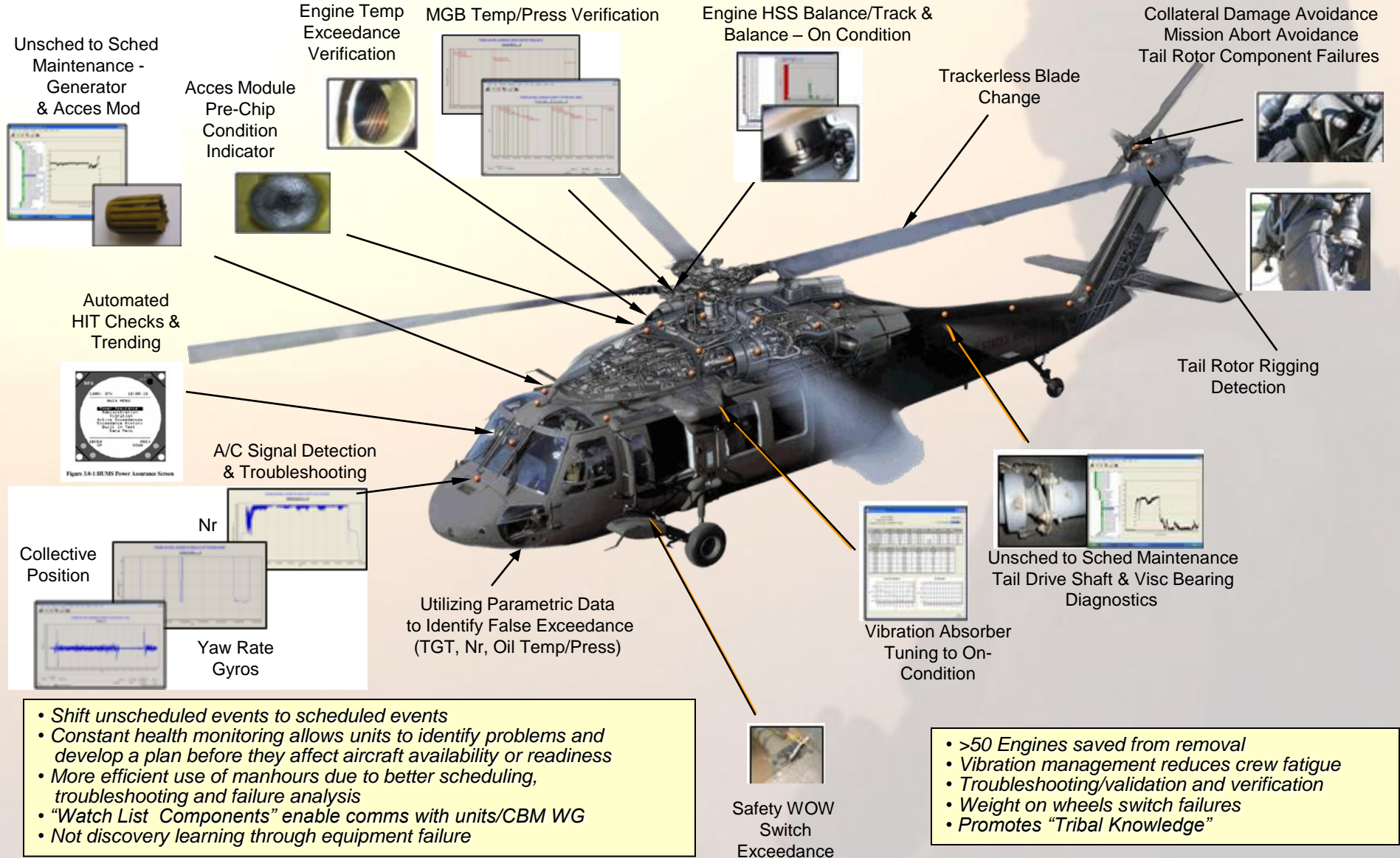
- 3-1 AHB, Ft. Riley: 39 AQC, 4 IPC, 2 MTPC, 50 15T
- 1-147 AHB, Madison, WI: 25 AQC
- 82d CAB, Ft. Bragg: 160 AQC, 24 MTPC, 275 15T, 29 15F, 44 15N

NET increases Soldier's Dwell Time
NET increases Aviator Throughput

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CBM Good News Stories



- Shift unscheduled events to scheduled events
- Constant health monitoring allows units to identify problems and develop a plan before they affect aircraft availability or readiness
- More efficient use of manhours due to better scheduling, troubleshooting and failure analysis
- "Watch List Components" enable comms with units/CBM WG
- Not discovery learning through equipment failure

- >50 Engines saved from removal
- Vibration management reduces crew fatigue
- Troubleshooting/validation and verification
- Weight on wheels switch failures
- Promotes "Tribal Knowledge"

Commitment to Soldiers & Acquisition Excellence



Modernization



- **Part I: Modernization Through Developmental Testing:**
 - Complete Development Testing
 - Demonstrate ADS-33 Testing Level 1 Handling Qualities
 - Follow-on Evaluations of FBW in Tactical Scenarios

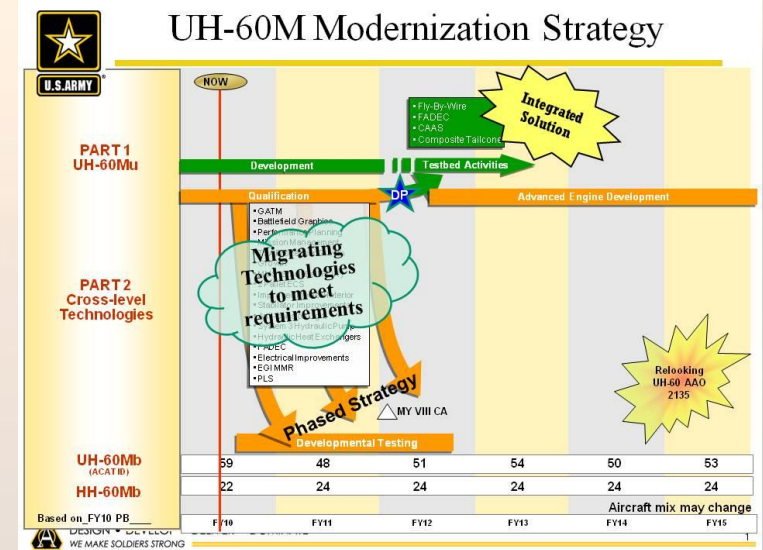
- **Part II: Modernization Through Technology Insertion:**

- Obsolescence
- Software Build Enhancements
 - GATM
 - Degraded Visual Environment
 - Hostile Fire Indicator

- MEDEVAC ECPs

- **Part III: Modernization Through Digitization:**

- Initiate Program NRE effort
- ECP by FY13 on L-L Recap Production Line



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Modernization Through Digitization



- Integrated Digital Moving Map
- Commonality of UH-60M software functionality enables new functionality
 - Global Air Traffic Management (GATM)
 - Helicopter Terrain Awareness and Warning System (HTAWS)
 - Joint Tactical Radio System (JTRS)
 - Joint Precision Approach and Landing System (JPALS)
- Integrated displays via the data bus
- Integrated Performance Planning

Same Situational Awareness as UH-60M

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Requirements Comparison



Requirement	M	L	LCD
External Load	Meets Requirement	Meets Requirement	Meets Requirement
Net Ready	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Survivability – IR Signature	Meets Requirement	Meets Requirement	Meets Requirement
Survivability – ASE	Meets Requirement	Meets Requirement	Meets Requirement
Survivability – Fuel Cells	Meets Requirement	Meets Requirement	Meets Requirement
Force Protection – Armor Plating	Meets Requirement	Meets Requirement	Meets Requirement
Troop Movement Mission	Meets Requirement	Meets Requirement	Meets Requirement
Internal Lift Capability	Meets Requirement	Meets Requirement	Meets Requirement
C2 Mission Endurance	Meets Requirement	Meets Requirement	Meets Requirement
Avionics – Information Exchange	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Avionics – Architecture	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Avionics – Cockpit Mgmt System	Meets Requirement	Does not meet	Meets Requirement
Avionics – Growth Capability	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Avionics – Data Bus	Meets Requirement	Does not meet	Meets Requirement
Avionics – AMPS/JMPS	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Avionics – Communications	Meets Requirement	Meets Requirement	Meets Requirement
Avionics – Situational Awareness	Meets Requirement	Meets in Degraded Mode	Meets Requirement

Requirement	M	L	LCD
Avionics – Navigation	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Avionics – Mission Mgmt	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Night Vision Capabilities	Meets Requirement	Meets Requirement	Meets Requirement
Deployability	Meets Requirement	Meets Requirement	Meets Requirement
Self-Deployability	Meets Requirement	Meets Requirement	Meets Requirement
Air Transportability	Meets Requirement	Meets Requirement	Meets Requirement
Sea Transportability	Meets Requirement	Meets Requirement	Meets Requirement
Susceptibility Reduction	Meets Requirement	Meets Requirement	Meets Requirement
Crew Protection	Meets Requirement	Meets Requirement	Meets Requirement
Self-Protection Capability	Meets Requirement	Meets Requirement	Meets Requirement
Agility & Maneuverability	Meets Requirement	Meets Requirement	Meets Requirement
Maintainability	Meets Requirement	Meets Requirement	Meets Requirement
Design Growth	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Soldier-System Integration	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Geospatial Info & Services	Meets Requirement	Meets in Degraded Mode	Meets Requirement
Natural Environmental Support	Meets Requirement	Meets Requirement	Meets Requirement
Soldier Survivability	Meets Requirement	Meets Requirement	Meets Requirement

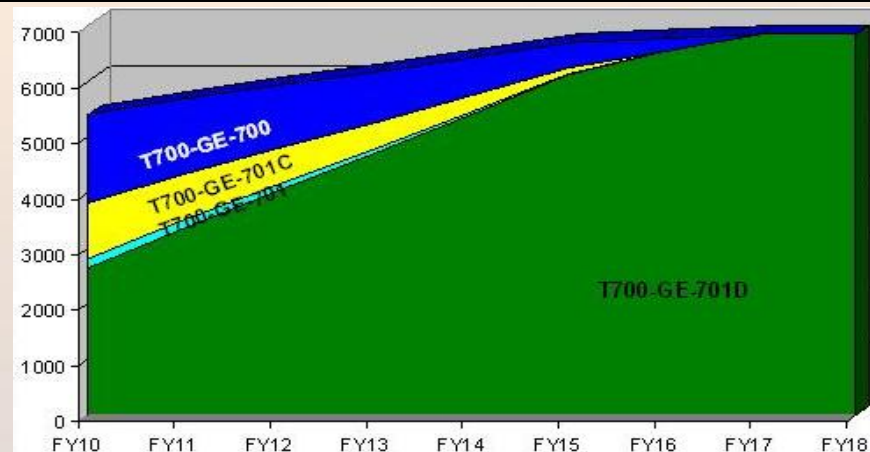
Meets Requirement
 Meets in Degraded Mode
 Does not meet

UH60L w/ Digitized Cockpit Meets Threshold Requirements

Common Engine Program



Future Force: Common Core Engine ~ Common HMU ~ Common Controls



-701D Current Status:

- 3022 - 701D Engines Issued
 - 2589 - CCAD Converted Engines
 - 445 - 701D Recap CCAD/GE
- 635 701D Engines - FY 11
- GE/CCAD TAT - reduced from 250 to 97 Days
- UH-60A w/701D/CC - Current Ops, 227 ea UH-60A
- 2576 Production Engines FY09 – FY15
- UH-60M 701D/DC - 271 A/C fielded as of JAN 11



ITEP

System Description

UH-60M Block 1 ORD, Jan 2007; Apache Block III CPD, Apr 2010

Parameter	Block-1 Threshold	Block-2 Threshold	Objective
External Lift* (UH-60 M)	4,500 lbs*	9,000lbs*	10,000bs
VROC ¹ (UH-60 M)	200 fpm	200 fpm	500 fpm
Combat Radius ² (UH-60 M)	135 km +20 Min reserve	135 km +20 Min reserve	275 km +20 Min reserve
Range (Apache)	-	Block-3 250 km	Block-3 275 km
Endurance (Apache)	With 3900 lb. payload	Block-3 2 hrs 40 min	Block-3 3 hrs

Notes: * Key Performance Parameter
 1 From hover out of ground effect, zero wind conditions, at zero airspeed
 2. 95° F, 4K ft pressure altitude

TCM 5 Nov 2009 Memo: Requirement 6K 95° F

ITEP/Block 2 Schedule

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
ITEP S&T										
ITEP Development & Qualification										
Airframe / Aircraft Integ & Qual										



Future

Apache Block III; Joint Multi-Role (JMR), Improved Fuel Efficiency, Range, Payload, and High/Hot Performance

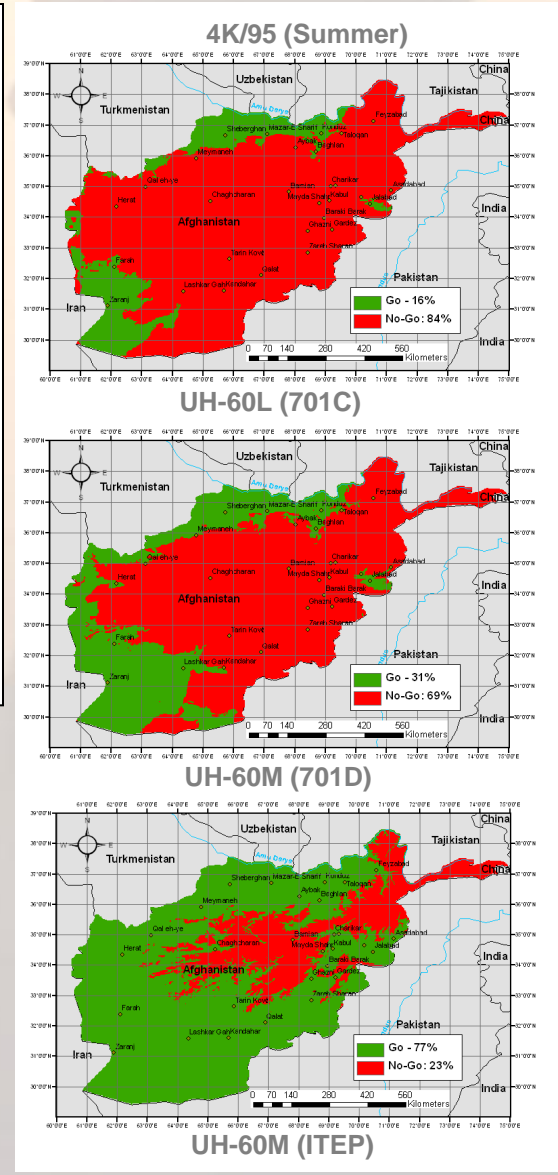
Requirements:

Block 2 requirements w/ITEP – defined in April 2005 UH-60 ORD. Performance Requirements:

- FCS Mule (6500lb+)
- M119A2, 105mm Howitzer (4100lb)
- M777 lightweight 155mm Howitzer (< 10,000lb)
- Up-armored Heavy HMMWV, M997A1 (9280lb)
- Variant HMMWV 4x4 (9000lb)
- Avenger Low Level Air Defense Systems (8600lb+)
- Mounted ISU-90 Mobile Containers (3500-5000lb)
- Robotic Combat Support Systems (3500lb+)
- Sustainment loads palletized for forward BCTs

UH-60 empty weight increased 2245 lbs in 29 years. With continuing increases, UH-60 will lose the ability to perform its basic missions. Block 2 is required to maintain existing mission capability.

- Provides required power for Block 2 Lift requirements
- Lowers Specific Fuel Consumption (SFC) 25% @ 3000 nominal shp
- Returns savings in fuel cost, fuel transport, and maintenance costs through improved reliability



Theater Mission Equipment

Note: **Red Unit Funded**, **Blue Other PM Funded**, **Black PM Funded**

OIF/OND

+

OEF



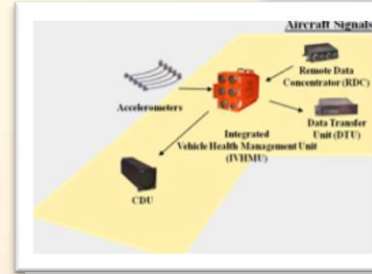
APU Inlet Barrier Filter



Blade Erosion Protection



Engine Inlet Barrier Filter
"OIF Threshold"



IVHMS: Integrated Vehicle Health Management System



SATCOM



CMWS including 5th Sensor



IR Strobe



M-4 Mounts



Blue Force Tracker w/EDM



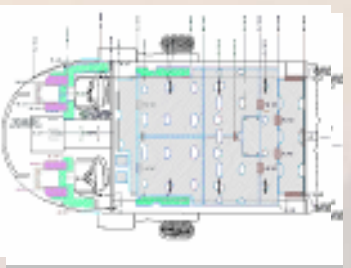
SPONSON FLIR MEDEVAC



CEFS GSAB/MEDEVAC



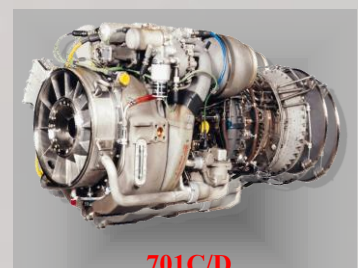
Air Warrior



Ballistic Armor Protection System



M240-H Gun



701C/D MEDEVAC

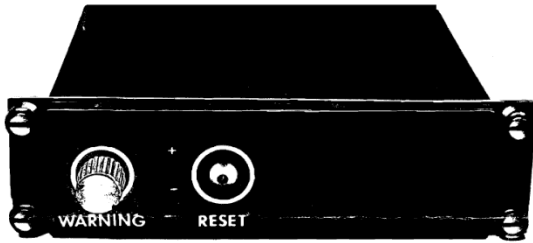


Army Responds to the Field - Example Voice Altitude Warning System



AL-9003-11 VOICE ALTITUDE WARNING (VAW) SYSTEM

UH-60 INSTALLATION INSTRUCTIONS



SYSTEM DESCRIPTION:

On UH-60A/L aircraft the APN-209 radar altimeters lacks voice annunciation when settable low/high altitude threshold is breached. The system requires a voice activation system to be added to the aircraft for the audio annunciations called VAWS. Some units (primarily Korea) have VAWS installed on their aircraft as a nonstandard modification. New production VAWS boxes require delta testing.

STATUS:

- Nine VAWS with A Kits have been delivered to OEF.
- AATD manufacturing A kits
- AATD on contract to purchase 320 new production VAWS B Kits (290 plus 10% spares)
 - Kit fieldings begin – April 2011
 - Kit fieldings conclude – June 2011

DISTRIBUTION:

- VAWS kits will be shipped direct from AATD to TAMP in Kandahar. TAMP will handle distribution to units. VAWS kits will be handled as TPE (same as BAPS, IR Strobe).



BLACK HAWK Helicopters Operate In 28 Countries



Commitment to Soldiers & Acquisition Excellence



UH-72A Fleet



Unclassified

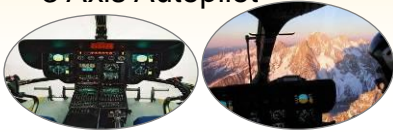


UH-72A Standard Configuration



Cockpit

- Glass Cockpit
- Wide Field of View
- LCD Displays
- 3 Axis Autopilot



Performance

- Low-noise Rotor Blades
- Twin Engine Reliability
- Speed up to 268 km/h
- Endurance up to 3.2 hours

Capacity

- 1107 lbs Payload Load (High, Hot)
- HOGE with Gross Weight 7,760 lbs

Communications

- ARC-231 (Exportable)
- Interagency VHF/UHF Communications
- Cabin Intercom System



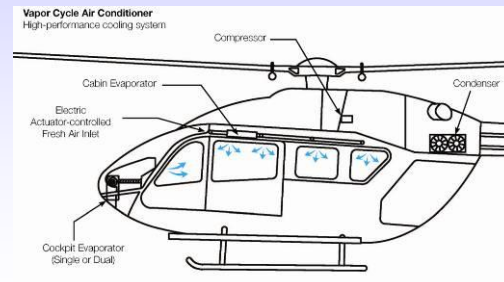
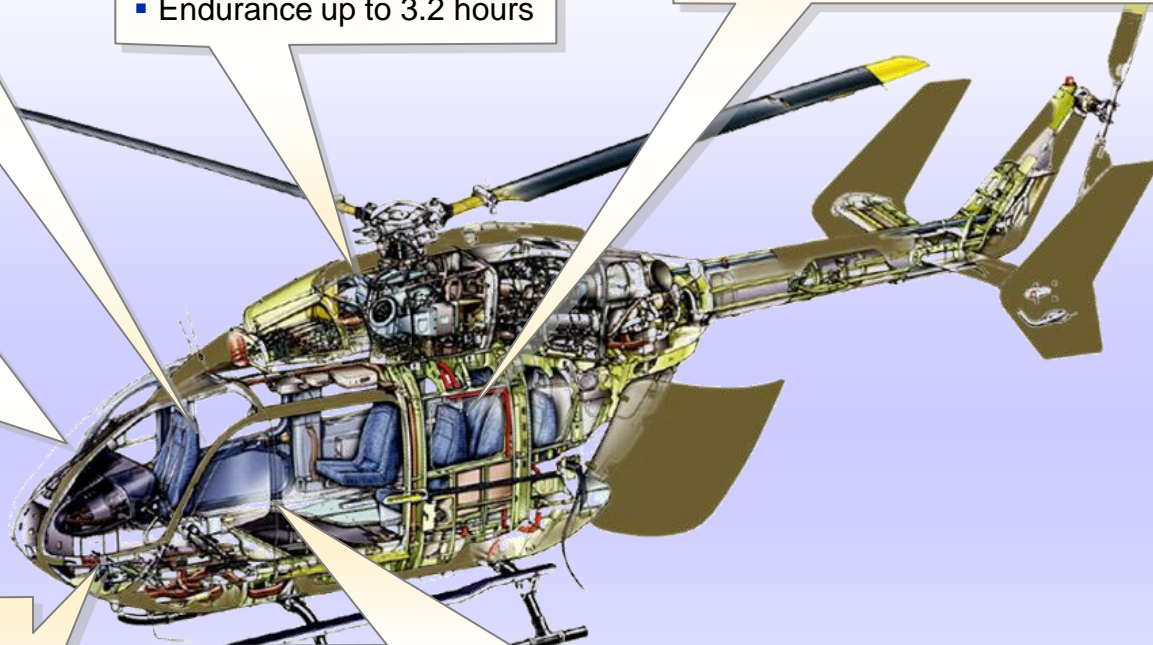
Navigation

- IFR/VFR
- Night Vision Goggles
- Mode S Transponder
- GPS
- Radar Altimeter



Cabin

- Unobstructed Cabin/ Cargo Flat Floor
- 6 Energy-Absorbing Seats
- Passenger and Cargo Capability





Acquisition Strategy



Now

Program		FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Program		▲ PY4 Option	▲ PY5 Option	▲ PY6 Option	▲ PY7 Option	▲ PY8 Option	▲ PY9 Option	▲ PY10 Option	<div style="border: 2px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> FY11 218 of 345 aircraft procured </div>	
Procurements		44	54	50	39	34	26	14		
Logistics / Training		8	9	13	18	10	5	10	2	Sites Fielded
		NET Training (OEM)								
		Sustainment Training (EAATS)								
Modifications	ARC-231			50	39	34	26	14	Production (72124)	
		52	22	20	16	10	0	60	Retrofit	
	Vent System	44	54	50	39	34	26	14	Production (72029)	
	ECU	12	36	14	0	0	10	4	Production (72052)	
	EIBF		15	3	8	6	6	2	Production (72149)	
		12							Retrofit	
	Medical Storage	6	32	14	0	0	10	2	Production (72052)	
	VIP	4	4	0	0	0	0	2	Production (72117)	
CTC	15	7	0	4	11	3		Retrofit		
S&S			20	32	18	13		Production (72220)		

Production Cut In indicated by UH-72A tail number

Maximum Production Capability of 55 A Year

Commitment to Soldiers & Acquisition Excellence



Mission Equipment Packages (MEPs)



Security & Support

- FLIR, day camera/low light TV, laser pointer
- External mounted search light
- External mounted electric hoist
- Real time video downlink
- ARC-231 radio
- 2 x Wulfsberg RT-5000 Radios
- Digital video recorder
- 2 x Cockpit touch screen displays
- Observer Console touch screen display
- Moving map



CTC / OPFOR

- 2nd ARC-231
- Electronic Data Manager
- SMODIM
- Public Address System (OC Only)
- Paint Scheme (OPFOR only)
- MILES Sensors (OPFOR only)
- Aircraft Kill Indicator (OPFOR only)

Commitment to Soldiers & Acquisition Excellence



Mission Equipment Packages (MEPs)



MEDEVAC

- 2 NATO Standard Litters
- External Mounted Electric Hoist
- Medical Supply Unit
- Engine Inlet Barrier Filter
- Environmental Control Unit

VIP

- 6 Energy-Absorbing Seats in Cabin
- Carpeted Cabin
- Environmental Control Unit



Commitment to Soldiers & Acquisition Excellence



Two Level Maintenance Concept

SUSTAINMENT

120 Day Depot Turn Around

FIELD

Performed by OEM Under Firm-Fixed Price Contract

CLS Contractor Maintenance

- All Maintenance Performed by A&P Contractor using FAA Forms and Records
- All Spares and Tools Provided by the Contractor
- Contractor Assists with 1352 and 1352-1
- Unit Responsible for Readiness Reports

Hybrid CLS Soldier Maintenance

- All Maintenance Performed by Unit (A&P) using FAA Forms and records
- Basic Mission Tools at Each Fielded Location (Contractor Owned)
- All Spares and Special Mission Tools Provided by Contractor as Needed
- Unit Completes 1352 and 1352-1

- Component Overhaul and Repair
- Publications and Service Updates
- Major Structural Repair
- Over-Stress, Accidents, Incidents
- All Scheduled Inspections and Services
- Component Removal and Replacement
- All Maintenance Guidelines Specified in the OEM Master Service Manual

80% OA Rate

85% PSFR
Parts Shipped within
- 48 hrs CONUS
- 72 Hrs Puerto Rico / Kwaj
- 96 hrs Germany

Active Component TDA Sites
EAATS

Army National Guard MTO&E Sites

All Maintenance Will Be...

- IAW FAA Approved OEM Aircraft Maintenance Manuals
- Signed Off by FAA Certified A&P Mechanics
- Documented IAW FAA Regulations

Commitment to Soldiers & Acquisition Excellence



Summary

- The UH-60 is the DoD Workhorse in our Overseas Contingency Operations and with our Allied Forces
- Utility Helicopters sustain the force around the World in all environments
- The UH-60M Program has Full Army Commitment and is Fully Funded in the POM
- Fleet Management Systems based on Health Monitoring devices are revolutionizing Sustainment
- 154 UH-72A fielded to Army and ARNG
- Lakota on cost and schedule meeting Army's needs
- > 3022 T701D Engines installed in Army A/C
- TBOS and Other TADSS on Schedule
- On the horizon: Digitize UH-60L Fleet
- ITEP – a new Requirement



Commitment to Soldiers & Acquisition Excellence



A million moving pieces...

... One Mission: Supporting the Soldier