



The Soldier: America's Most Deployed Combat System



PM Crew Served Weapons Overview for the Small Arms Symposium & Exhibition *National Defense Industrial Association*

BG R. Mark Brown
Program Executive Officer Soldier

7-10 May 2007

COL Carl A. Lipsit
Project Manager Soldier Weapons



Crew Served Weapons





PM Soldier Weapons Programs List



DEVELOPMENT

WEAPONS

1. XM25, Individual High Explosive Air Burst Weapon System Technology Demonstration
2. XM101, Common Remotely Operated Weapon Station (CROWS)
3. Advanced Crew Served Weapon (ACSW) Programs

SOLDIER ENHANCEMENT PROGRAMS

4. XM26, 12 Gauge Modular Accessory Shotgun System (MASS)
5. Future Handgun System
6. Family of Small Arms Suppressors (FoSASS)
7. M68 Close Combat Optics Re-competition
8. XM1116, 12 Gauge Extended Range Non-Lethal Cartridge
9. XM1022, Sniper Ammunition for M107
10. XM110, 7.62 Semi-Automatic Sniper System (SASS)
11. Close Quarters Battle (CQB) Kit
12. XM1041/XM1042/XM1071 - Close Combat Mission Capability Kit (M4/M16/M249/M9/M11)
13. Advanced Sniper Accessory Kit (ASAK)
14. XM320, Grenade Launcher Module (GLM)
15. M2 A12 Quick Change Barrel Kit Program

BLOCK MOD PROGRAMS

16. CROWS-Lightning Remote Weapons Station
17. XM150, Rifle Combat Optic (RCO)
18. M2E2 Machine Gun Lightweight Tripod Program
19. Swing Arm Mount for HMMWVs
20. HMMWV Improved Auxiliary Weapon Mount
21. XM240E6, Medium Machine Gun Weight Reduction Program
22. M249 SAW 200 Round Soft Pack

AMMO BLOCK MOD PROGRAMS

23. XM1037, Short Range Training Round For M4, M16 and M249
24. Lightweight Small Caliber Ammunition
25. Proximity Fuzed Door Breaching Cartridge
26. 40mm Day Night Training Cartridge (FCT)

RFI FY05 ITEMS

- TA31F - 4X ACOG
- Weapon Light
- M24 Small Binoculars
- M122/A1 Tripods
- M249/M240B Spare Barrel Bag
- Three Point Sling
- Improved Spotting Scope With Tripod
- Improved Cleaning Kit
- Improved Buttstock For M4 Carbine
- Forward Grip Bipod
- M203 Day/Night Sight
- Back Up Iron Sight
- M249 Rail
- M240B Rail
- M249 Ammo Soft Pack
- M240B Combat Ammo Pack
- M192 Lightweight Tripod
- M249 Short Barrel
- M249 Collapsible Buttstock
- M4/M5 Modular Weapon System
- M145 Machinegun Optic
- M68 Close Combat Optic

PROCUREMENT

27. M151E1 & M151E2 Protector Remote Wpn System (RWS)
28. MK19, Grenade Machine Gun
29. MK19 MODS
30. Mod Kit
31. Lightweight Adjustable Sight Bracket
32. Tactical Engagement Simulator (TES)
33. M107 Semi Automatic Long Range Sniper Rifle
34. M240B/H/E6, 7.62mm Medium MG
35. M240B MODS
36. M192, Light Weight Ground Mount For MG
37. Improved Bipod
38. M240B Collapsible Buttstock
39. Improved Flash Suppressor
40. Combat Ammunition Pack
41. M240B Short Barrel
42. M240B Improved Buttstock
43. Sling Assembly for the M240B
44. M249, 5.56mm Squad Automatic Weapon
45. M249 MODS
46. M192, Lightweight Ground Mount For MG
47. MG Front Rails
48. Improved Bipod
49. M249 Improved Collapsible Buttstock
50. Short Barrel for the M249
51. Sling Assembly For M249
52. M16A4 5.56mm Rifle
53. M16 Rifle Mods
54. M68 Close Combat Optics (CCO)
55. Close Quarters Battle (CQB) Kit (Production)
56. M4, 5.56mm Carbine
57. M4 Mods
58. M145 Machine Gun Optics
59. M25 Stabilized Binoculars
60. M24 Mini Binocular

AMMO PRODUCTION PROGRAMS*

61. M903/M962 Cal .50 SLAP/SLAPT
62. M1001, 40mm Canister Round
63. M100, Grenade Rifle Entry Munition (GREM)
64. M862 5.56mm Short Range Training Ammunition
65. M1030 12 Gauge Breaching Round
66. M973/M974, 7.62 Short Range Training Ammo
67. M992 IR Illumination Cartridge
68. M281 40mm Target Practice Cartridge

* Programs Managed By PM Soldier Weapons
For PEO Ammunition In Accordance With MOA



XM307/ 312



XM307



Description:

- The XM307 Is A Lightweight 2-man Portable Crew Served Weapon Which Will Provide Enhanced Capabilities To The Soldier Improving Lethality And Survivability

Capabilities:

- Lightweight, 2-man Portable, Crew Served Weapon
- System With 25mm Air Bursting Munitions
- Subsystems Include:
 - Weapon
 - Target Acquisition/Fire Control (TA/FC)
 - 25mm High Explosive Air Bursting And Armor Piercing Ammunition
 - Lightweight Tripod





XM307 And XM312



Swap Out Of Only 4 Unique Components
Required To Convert
A 25mm Weapon To .50 Caliber Weapon
(<1.5 min By User)



1. Barrel
2. Bolt
3. Cartridge Guide
4. Sprocket



Two Modern Weapons For Virtually the Cost Of One

- Low Recoil Reduces Vehicle Structural Mounting Requirements
- Lower Weight For Improved Transportability & Employment
- Lower Logistic Burden
 - Reduced Maintenance Due To Fewer Parts And Improved Design
 - Smaller Class IX Parts Inventory
- Operational Flexibility With Increased Lethality
- Low Cost Training Capability For The XM307
- Improved Safety & Reduced Maintenance – Soldier Uses One System

XM307 = Commonality With XM312



Mobility

Heavy Firepower For The Close Combat Fight



System	40mm MK19 Mod 3	Cal .50 M2HB	25mm XM307	Cal .50 XM312
Weapon Weight lbs	75.6	84.0	28.0	34.0
Tripod Weight lbs	65.4	46.1	13.0	18.8
Fire Control lbs	N/A	N/A	6.5	N/A
Unloaded System Weight lbs	141.0	130.1	47.5	52.8
Peak Recoil lbs	800	1000	250	250



- Low Recoil Burden On Weapon Station
- Quickly Dismountable From Vehicle Platform
 - Portable Over Rough Terrain
- Light & Compact
 - 80-90 lb Weight Savings

Enhances Close Combat Employment Flexibility



XM307/312 Firing





M2 Quick Change Barrel Kit

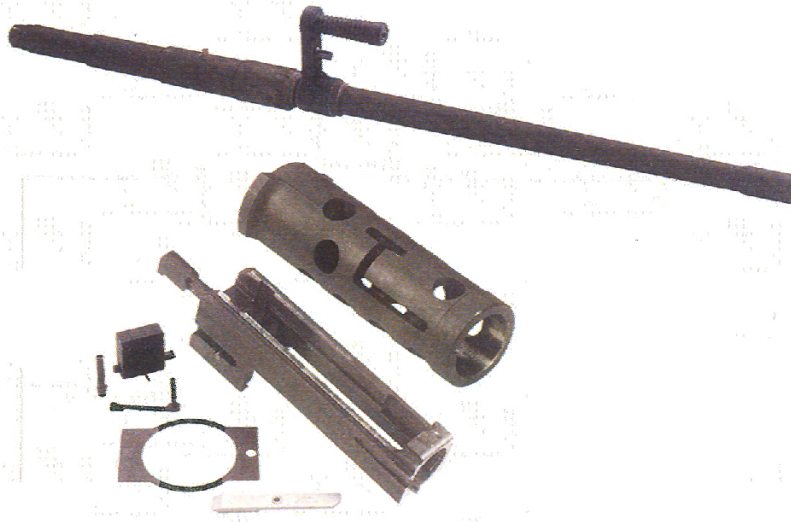


M2E2 System Description



M2E2 Quick Change Barrel (QCB) Kit capabilities:

- Fixed Headspace And Timing To Eliminate Safety Concerns Based On Exposure Time Associated With Barrel Changing
- Flash Hider To Reduce Signature Making The M2 Night-Vision Friendly
- Removable Carrying/Barrel Handle
- Barrel Retention System To Assure Barrel Is Securely Locked And Aligned
- Common Barrel Thread To Interchange With Standard Barrels



Flash Suppressor

QCB Example (Final Design TBD)



M2E2 Enhanced .50 Caliber



Full and Open Competition Strategy (F&OC):

- F&OC Is A Follow-On Effort To The Initial M2E2 Quick Change Barrel Kit Program To Compete The Requirement
- Solicitation To Be Released May 07
- Bid Sample Test Hardware To Be Evaluated; Down Select To One Vendor
- Award RDT&E Contract For Kits To Be Installed On New And Rebuilt M2s
- Conduct Production Qualification And User Assessment
- Proceed To Type Classification–Standard/FRP Decision



M240E6

Lightweight Medium Machine Gun



XM240E6, Medium Machine Gun Weight Reduction Program



Description:

- This Program Will Evaluate High Performance, Lightweight Material Alternatives And Alternate Manufacturing Methods In Fabricating Major M240B Components

Capabilities:

- Reduces The Soldier's Combat Load
- Allows Easier Handling And Movement Of Weapon
- Reduced Weapon Weight By 5 lbs



Status:

Past Events:

- Completed Coating Confidence Test – Sep 06

Current Events:

- Developmental Testing – Jan 2007

Next Milestone:

- Type Classification Standard – Aug 2007



M240H Medium Machine Gun



M240H 7.62mm MG (Aviation Version)



Description:

- 7.62mm Aviation Machine Gun Which Improves The Self Protection Capabilities Of The UH-60 And CH-47 Helicopters

Capabilities:

- Demonstrate Reliability Equal To The M240B
- Removable/Employable In A Ground Role

Pre-Planned Product Improvements (P3I):

- Hydraulic Buffer Added To Spade Grip
- Lightweight Aluminum Ammo Can
- Lightweight Receiver

High Capacity Feed System:

- Provides Two Minutes Of Continuous Suppressive Fire (UH60 Flight Tests May 06)



2,309 Systems Fielded To Date, Fielding Complete End Of FY07



Common Remotely Operated Weapon Station “CROWS”



M151 Protector Remote Weapon System



Weight:

- Above The Roof Including (4) M6 Smoke Grenade Launchers: 279 lbs (w/o M6 Smoke Grenade Launchers: 245 lbs)
- Total Weight: 372 lbs (w/o M6 Smoke Grenade Launchers: 338 lbs)

Supported Weapons:

- MK19, M2, M240 (Deferred)
- Growth To XM307/XM312, MK47 & Javelin

Sensor Suite:

- Color 27x Day Sight
- Dual FOV Night Sight (w/2x E-Zoom)
- Auto Focus
- STORM - Laser Range Finder
- IR Pointer (Low And High)
- Visible Pointer
- Low Ammo Sensor



Block II Features:

- Stabilized
- Four-axis Independent System – Automatically Corrects For Super Elevation And Drift
- Embedded Training & Diagnostics

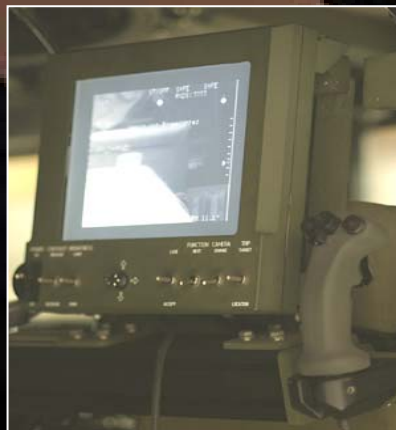
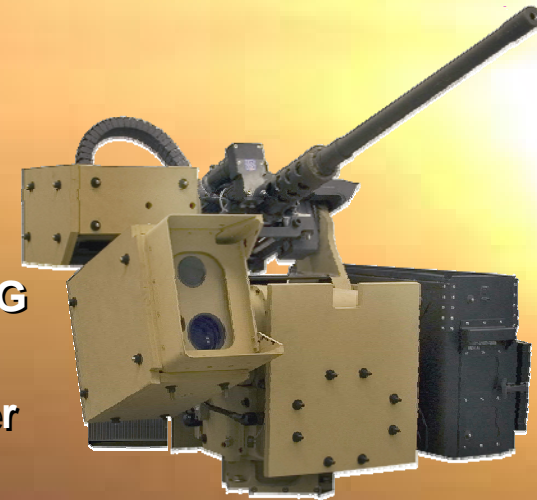




Common Remotely Operated Weapon Station (CROWS) Description



- Provide Soldiers With Capability To Acquire And Engage Targets At Maximum Effective Range While Protected By Vehicle Armor
- Supported Weapons
 - MK19 GMG, Cal .50 M2 MG, M249 SAW, M240B MG
 - Growth To M230 & XM307
 - Weapons Can Be Quickly Interchanged By Soldier
- Sensor Suite Supports Day/Night Engagements
- Can Zoom Optics On Target Independent Of Gun Super Elevation
- Two-axis Stabilized Mount, Laser Rangefinder & Fire Control Software Support On-the-move Target Acquisition & First Burst Target Engagements



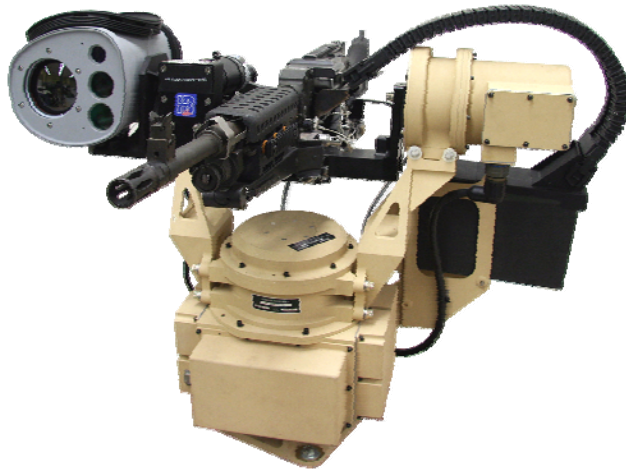
Provides Extended Range Surveillance And Detection Of IED Emplacements



CROWS-Lightning Description



- Lightweight Application For Various Wheeled & Tracked Vehicles (From HMMWVs & Heavy Trucks To Armored Personnel Carriers)
 - 200 lbs Above Roof Including Weapon & Ammo (200 Rds)
- Moves Unprotected Gunners Into Vehicle Interiors
- Day/Night Capability To Identify & Defeat Targets Out To Max Effective Range Of Weapons While On-The-Move
- M240 Or M249 Machine Guns W/Growth To Advanced Crew Served Weapon (XM307)



- Powered By Current Vehicle Capability
- 2-Axis Stabilization
- Traverse: 360° Continuous
- Range Of Elevation: -15° To +45° (Objective: -20° To +60°)
- Slew Rate: >30°/sec
- Safety Features:
 - Programmable Stops In Traverse
 - Manual/Emergency Back-Up Operation Of Weapons Through Top Hatch



M101 CROWS Operations





XM 110 Semi-Automatic Sniper System



XM110, 7.62mm Semi-Automatic Sniper System (SASS)



Description:

- Effective Against Personnel Targets And Light Materiel Targets
- Supplements Sniper's Role In Combat Operations
- Greater Firepower & Possible Standoff Ranges To Improve Sniper Survivability

Capabilities:

- Rapid Fire/Rapid Reload
- Suppressed Sniper Rifle
- Exceeds Rate Of Fire And Lethality Of M24 SWS
- Primarily Anti-personnel Ranges \geq M24 SWS
- Enhanced Sniper Spotting Scope (XM151) And Bipod

Status:

- Preparing For MS C/LRIP
- UMR Fielded To 10th Mtn.





XM110, SASS Specifications



- Ammunition: 7.62x51mm, M118 LR (Anti-Personnel) And M993 (Armor Piercing)
- Barrel Rifling And Twist: 20" Barrel (Not Including Flash Suppressor), 1:11 Right-Hand Twist, 5 Grooves
- Muzzle Velocity: 2,571 fps (784 mps) M118LR Ammunition / Barrel Length: 20" (508 mm)
- Max Effective Range: 1,000 meters (M118LR Vel: 1,099 fps @ 1km)
- Overall Length: 40.5" With Collapsed Buttstock (1028 mm)
- Max Height w/20-Rd. Magazine And Day Optic: 10.25" (260 mm)
- Rifle Weights Unloaded: w/o Sights/Adapters/Mounts: 10.81 lbs (4.90 kg)
 - w/ Front & Rear Iron Sights, Bipod Adapter: 11.06 lbs (5.01 kg)
 - w/ Iron Sights, Bipod Adapter, Leupold 3.5 x 10 SASS Scope: 12.82 lbs (5.81 kg)
- M110 Complete: w/Leupold 3.5 x 10 SASS Scope, Bipod Adapter w/ LM Type S Bipod: 13.7 lbs (6.21 kg)
- Sound Suppressor Weight: 1.96 lbs (.89 kg.), Weapon Length With Sound Suppressor: 46.5" (1,181 mm)
- Unloaded 20-Round Magazine: 0.46 lbs (.21 kg)
- Magazine w/20-Rounds Of M118 LR: 1.62 lbs (.73 kg)
- Bipod LM Type S Weight: 0.87 lbs (.39 kg)
- Bipod Adapter Weight: 0.12 lbs (.05 kg)
- Leupold 3.5x10x40mm w/ Illuminated TMR(0.5 MOA Elevation & Windage Adjustments) And 30mm SASS Mount: 1.76 lbs (.79 kg.), w/M2 Type (Double Revolution) Ballistic Cam

Fully Loaded
15.3 lbs



40.5"

Fully Loaded
17.3 lbs



46.5"



XM1041/XM1042, XM1071 Close Combat Mission Capability Kit



XM1041/XM1042, XM1071 Close Combat Mission Capability Kit



**Pistol
XM1041**



**Rifle
XM1042**



**SAW
XM1071**



Description:

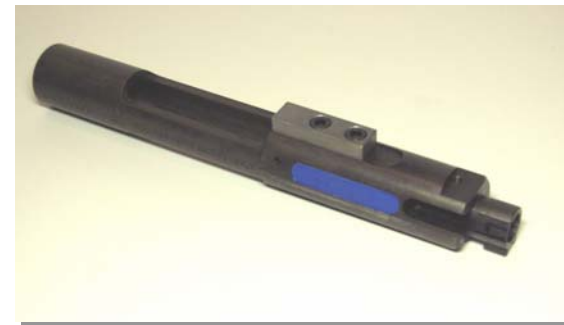
- Mission Rehearsal Exercise (MRE) System Consisting Of The M16/M4/M249/M9/M11 Family Of Weapons, Marker Munitions, And Personal Protective Gear
- Used To Rehearse Force-On-force Close Range Marksmanship Techniques, Tactics, And Procedures (TTP)
- Fires 5.56mm And 9mm Dye-Marker Munitions Through Standard Military Issue Weapons

Capabilities:

- Allows for Realistic Force-On-Force Training
- Identify Shooter And Shot Placement
- Operator Installed
- Must Not Penetrate Skin Thru Hot BDU At 5m(T) And 0M(O)
- Must Not Fire Service Ammo
- Must Not Fracture SWD Goggles At 12 Inches



Close Combat Mission Capability Kit



**“Every Soldier is a
Rifleman First”**

GEN Schoomaker





Back Up Slides



M101 CROWS Ongoing Applications



Integration Into Existing Platforms Is Critical



XM151 Enhanced Spotting Scope & Tripod



- Associated Support Item Of Equipment (ASIOE) To SASS
- Addresses Shortcomings of M144 Scope for the M24 SWS
- Makes RFI Item Army Standard & Supportable



XM107 Urgent Requirement Fieldings

FY02	150
FY03	258

Rapid Fielding Initiative Fieldings

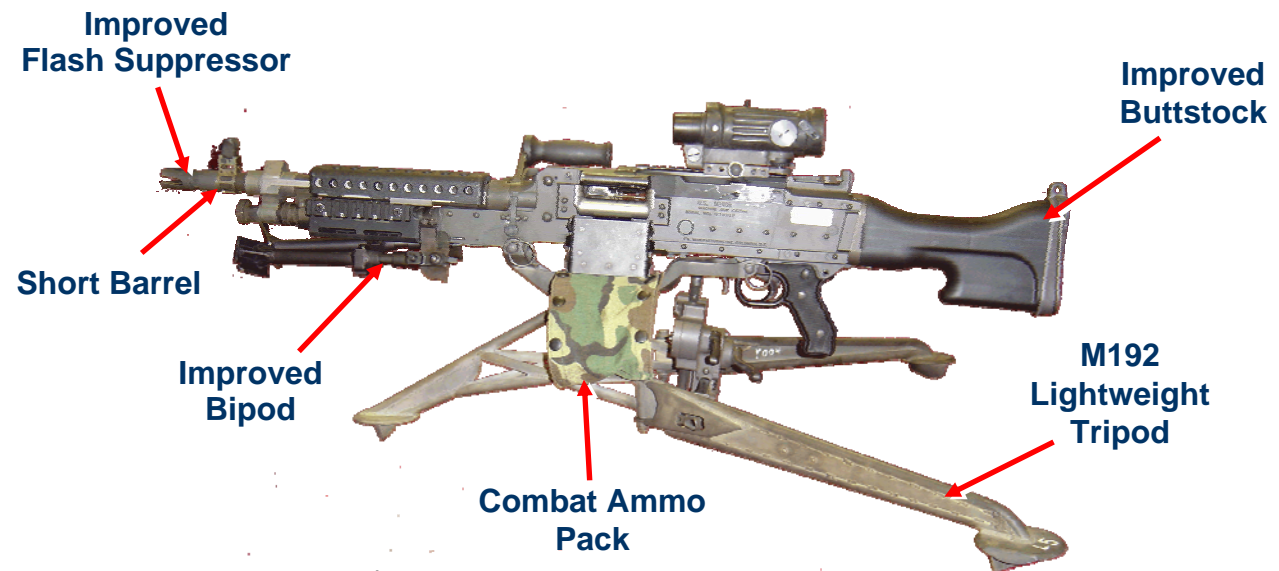
FY03	24
FY04	770
FY05	519
FY06	1545
FY07	948
FY08	105
TOTAL	4319



Answers CSA's Edict: Make RFI Items Army Standard & Supportable



M240B Medium Machinegun



Weight: 27.6 lbs

Length: 48.5 "

Rate Of Fire:

- Cyclic 650-950 rds/min
- Sustained 100 rds/min (4-5 sec Between Burst)
- Rapid 200 rds/min (2-3 sec Between Burst)

Max Range: 3725m

Max Effective Range:

- 800m (Point Target) w/M122A1 Tripod
- 1800 (Area Target) w/M122A1 Tripod

Capability:

- Delivers High Volume Of Fire
- Demonstrates 41,667 MRBS (1800 Req) And 83,000 MRBOMF (15,000 Req)



Target Effects





SDD System Description (Ground Mounted)

