SOPMOD PROGRAM OVERVIEW

For the National Defense Industrial Association Small Arms Symposium

17 April 2006
Agenda

- SOPMOD Program Overview
- Acquisition Top Map
- Miniature Day Night Sight (MDNS) Development
- Weapon Shot Counter (WSC) Development
- Weapon Shock Simulation
- New Initiatives and Business Opportunities
SOPMOD Mission

The SOPMOD Program Management Office at NSWC Crane, IN, will provide standardized, versatile weapons accessories to meet needs across SOF mission scenarios.

These accessories will increase operator survivability and lethality by enhanced weapon performance, target acquisition, signature suppression, and fire control. SOPMOD PMO will provide these accessories when they are operationally suitable, affordable, sustainable, and funded.
SOPMOD Client Weapons

**SOPMOD ORD 5 - Core Small Arms (Threshold) ...Design For Use On:**

- M4A1 Carbine
- M203 Grenade Launcher

**ORD Annexes - Additional Weapons (Objective)....Harden For Use On, and possibly develop versions for:**

- SCAR
- CQBR (Mark 18)
- MK46 LMG / M249 SAW Machineguns
- MK48/ M240-N/M240/M240-B Machineguns
- M14 and Mark 14 Enhanced Battle Rifle
- AK-47/AK74 Series Assault Rifle
- Mk-19 40mm Machinegun
- M2-HB .50 Cal Machinegun
- M72 LAAW
- AT4-CS
- MAAWS
- MK11, MK12, MK13, & MK15 Sniper Rifles
- M-24 Sniper Rifle

**SOPMOD Weapons of Interest**

**Limited Interest – Generally Covered by UNS (AN/PVS 22), MUNS, & DUNS**
Capabilities Required

- Standardized versatile weapons accessories
- Modular - meets needs across SOF mission scenarios
- Increased operator survivability and lethality by enhanced target acquisition, signature suppression, and fire control

Evolutionary Acquisition Subprograms:

- **Block I** (Plus Platform Mods and Phased Replacements)
- **Block II** (New and Combined Capabilities)
- **Block III** (Emerging Capabilities)
SOPMOD Guidance

PMS-NSW Navy Policy

PIPT Joint Operator Input

PEO-SOF WARRIOR Joint SOF Policy

Harnessing the Power of Technology for the Warfighter
Army Modular Weapon System (MWS)

Frequent Coordination

M16A2 -- TM 9-1005-319-10

Harnessing the Power of Technology for the Warfighter
Quality

SOPMOD, as part of NSWC Crane, is ISO 9001 Certified

Our Quality System is a set of formally documented activities that are carried out to ensure that we satisfy our customers’ requirements.

Our Quality System is based on, and officially certified to, the requirements of ISO 9001-1994, an international standard for quality assurance in design, development, production, installation and servicing.

Harnessing the Power of Technology for the Warfighter

*Distribution Statement A - Approved for public release; distribution unlimited.*
SOPMOD Sub-Program Structure

SOPMOD Sustainment

Miniature Day/Night Sight (MDNS) Development

Weapon Shot Counter (WSC) Development

Unclassified

Harnessing the Power of Technology for the Warfighter
SOF-Peculiar
M4A1 Carbine Product Improvements

Extended / Gas Deflecting Charging Handles

Extraction Parts Set #2

Redi-mag

Sloping Cheekweld Buttstock (SCB)

Ambidextrous Selector Switch

High Reliability Magazines (HRM)
Steel and Aluminum

Harnessing the Power of Technology for the Warfighter
Joint Weapon Accessory System Currently Used By Army Special Forces, Army Rangers, Navy SEALS, Air Force Special Tactics & USMC Special Operations.

Integrated Day And Night Aiming and Signature Suppression System

- 20 Varieties Of Subsystems
- 6 Varieties Of Minor Items And Parts Sets

Miniaturized Lights, Lasers, Optics, Image-Intensification Night Vision, Thermal Imaging, And Sound Suppressors
USSOCOM PEO-SW / SOPMOD

Accomplishments (2)

- 105,876 Total End Items Fielded To Joint SOF Forces-Currently Used In GWOT, with 3,317 End Items Currently In-Transit
- Over $128 Million Awarded On Contracts To Date
  - Additional $104M Programmed For Future Fielding
  - 10 Emerging Technology Subsystems approaching FRP

- Cradle-To-Grave Life Cycle Support To Customers, Controlled Through DoD Registry, Sustained Through A Joint Special Operations Logistics System
- Full Program Under One Roof at NSWC Crane.
SOPMOD Sustainment Sub-Program

**DESCRIPTION**

- **SOPMOD M4 Accessory Kit**
- Special Operations Forces Modification to the M4 Carbine

**KEY MILESTONES/ACTIVITIES**

- **Program Status:** GREEN
- Standardized, versatile weapons accessories to meet needs across SOF mission scenarios
- Increased operator survivability and lethality by enhanced weapon performance, target acquisition, signature suppression, and fire control

**APPROXIMATE BUDGET PROFILE**

- **FY-95 to Present, Invested:**
  - $9M R&D
  - $128M Procurement
  - $13M O&M

- **Planned Sustainment of Current and Future Systems through FY11:**
  - $34M O&M (Changing!)

**KEY MILESTONES/ACTIVITIES**

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<thead>
<tr>
<th></th>
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Harnessing the Power of Technology for the Warfighter
SOPMOD ACQUISITION
TOP MAP

17 May 2006
TOP MAP STRATEGY

Block III - Fielding 2007-?
Capstone of Emerging Technologies
Teamed with all Small Arms

Block II - Fielding 2005-2010
System Integrated Capabilities
Teamed with All SOF Weapons

Block 1 - Fielded 1995-2005
COTS/NDI Capabilities
Teamed with M4A1 Carbine & M203

Core Claimants
Cascade Fielding
TOP MAP STRUCTURE

- Overview Top Map Shows Entire System at a Glance
- Five Detailed SOPMOD Accessories Top Maps Show Main Subsystem Categories
  1. Carbine Improvement Subsystems
  2. Passive Day Aiming Subsystems
  3. Passive Night Aiming Subsystems
  4. Active Aiming Subsystems
  5. Weapons Shot Counter Subsystems
SOPOMD ACQUISITION TOPMAP OVERVIEW

<table>
<thead>
<tr>
<th>Year</th>
<th>Existing Systems</th>
<th>Emerging Systems</th>
<th>Objective Systems</th>
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SOPMOD ACCESSORY KIT OVERVIEW

SOPMOD Increment #1 (1994-2007+)

SOPMOD 1
1994-2012

SOPMOD 2: MDNS & WSC
2004 -2012+

SOPMOD 3
2008-Onward

SOPMOD 1 & 2 Compatible With both M4A1 Carbine and SCAR

SOPMOD 2 Compatible With All SOF Weapons

Harnessing the Power of Technology for the Warfighter
# SOPMOD ACQUISITION TOPMAP

## Carbine Improvement Subsystems

### Existing Systems
- **2001**: USSOCOM ORD Amendment 5, 29 October 1999
- **2006**: CDR USSOCOM Directive May 1999
- **2011**: MDNS CDD 16 December 2004

### Emerging Systems
- **2002**: RIS
- **2003**: BIS
- **2004**: HRM (Alum)
- **2006**: BIS 2
- **2007**: RIS 2
- **2008**: Competition Ongoing
- **2009**: System Life Ends When M4A1 Carbine Life Ends

### Objective Systems
- **2010**: Competition Ongoing
- **2011**: System Life Ends When M4A1 Carbine Life Ends
- **2012**: Managed By ARMY
- **2013**: HRM (Steel)
- **2014**: SOPMOD ACQUISITION TOPMAP
- **2015**: Harnessing the Power of Technology for the Warfighter

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**Distribution Statement A** - Approved for public release; distribution unlimited.
Miniature Day/Night Sight (MDNS) Development
MDNS Goals

- Based on Unrequested FY02 Congressional Plus-Up
- Update Aging Technology on Current SOPMOD Items
- Address Possible Improvements in Current SOPMOD Kit Items
- Miniaturize and Ruggedize SOPMOD
- Integrated System Approach
- Encourage Innovation through Competition
- RDT&E + Modified NDI: Best of Both Worlds
- Meet Objective Fielding Requirements for SOPMOD Kits
### Existing Systems

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**Notes:**
- USSOCOM ORD Amendment 5, 29 October 1999
- MDNS CDD 16 December 2004
- Weapon-Specific MNVS (e.g., Crew Served)
- Universal Pocketscope Mount
- Clip-on Night Vision Device – L2
- CNVD Sensor Fusion
- Clip-on Night Vision Device - Thermal

**Harnessing the Power of Technology for the Warfighter**
**Miniature Day/Night Sight (MDNS) Development - OVERVIEW**

**DESCRIPTION**

- **Block 2**
- **SU-200/PVS** Articulated Telescope
- **SU-200/PA3** Thermal Sight
- **AN/PVS-36** Night Vision Device
- **SU-32/PVS** Gun Light
- **SU-30/PVS** Integrated Gun Light
- **SU-31/PVS** Product Improvement Kit
- **SU-23/PVS** Night Unit

**APPROXIMATE BUDGET PROFILE**

- **FY-06 to FY11 Programmed:**
  - $0.8M R&D
  - $89M Procurement

**PERFORMANCE CHARACTERISTICS**

- **Sub-Program Status:** **GREEN**
  - Capability / technology upgrade to all SOPMOD day / night sighting subsystems for phased-replacement
  - Improved weight, ruggedness, and zero retention
  - New and combined capabilities: miniature thermal sighting, combined optics and lasers

**KEY MILESTONES/ ACTIVITIES**

- **Contract Award** (Mar04 – Sep 05)
- **DT/OT** (Aug 04 – May 06)
- **System Integration** (May 04 – May 06)
- **MS-C / FRP** (Oct 05 – Jul 06)
- **IOC** (Jan 07 – Dec 07)
Floating Rail Concept
Floating Grenade Launcher Capability
Improved Shooting Accuracy
3 Contracts Awarded in March 2005
- N00164-05-D-4863 (A.R.M.S.)
- N00164-05-D-4864 (Daniel Defense)
- N00164-05-D-4865 (Knight’s Armament)
Final Production Down-Selection In-Process
Backup Iron Sight II (BIS II)
OVERVIEW

- Program Status: GREEN
- Improved Aperture Flexibility
- Improved Set Position Features
- 2 Contracts Awarded in September 2005:
  - N00164-05-D-8559 ((Knight’s Armament)
  - N00164-05-D-4864 (A.R.M.S.)
- Final Production Down-Selection In-Process
SU-231/PEQ Reflex Sight

OVERVIEW

- Night Vision Compatible
- Increased Optical Field of View
- Holographic Technology
- Based upon EOTech 500 Series HWS
- 0.5 MOA Adjustments
- DL 123 Battery Powered
- Throw-Lever Mounts
- Contract N00164-04-D-4832 Awarded to EOTech
- Possible Spiral Developments Include Crew-Served Sizing and Ranging Reticles
SU-237/PVS 4X Dayscope w/ MRD

OVERVIEW

- 4X Magnification
- Incorporates Miniature Red Dot for CQB
- Improved Reticle Illumination
- 0.5 MOA Adjustments
- Throw Lever Mount
- Possible Spiral Developments
- Contract N00164-04-D-4834 Awarded to Trijicon
SU-230/PVS 1-4X Dayscope

OVERVIEW

- **1X - 4X Switchable Magnification**
- **Switchable CQB/Open Air Illuminated Reticle**
- **Compatible with Miniature Red Dots**
- **Adjustable Reticle Illumination**
- **0.5 MOA Adjustments**
- **Spiral Development Potential**
- **Throw Lever Mount**
- **Contract N00164-04-D-4833 Awarded to Elcan Optical Technologies**
LA-5/PEQ Integrated Small Arms Illuminator

OVERVIEW

- Combined Visible/Infrared Pointing & Illuminating Lasers
- Size and Weight Reductions
- Enhanced Performance over SOPMOD Baseline
- 0.5 MOA Adjustments
- System Integrated with Forward Handgrip
- Potential Wireless Remote Capability
- IFF Capable
- Contract N00164-05-D-8510 Awarded to Insight Technology

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Distribution Statement A - Approved for public release; distribution unlimited.
SU-233/PVS Visible Bright Light III (VBL III)
OVERVIEW

- Increased Luminosity
- Size and Weight Reduction
- Improved Durability
- Based Upon Insight Model M3X
- M6X VBL w/ Integrated Visible Laser Also Available for Spiral Developments
- Contract N00164-05-D-8568 Awarded to Insight Technology
AN/PVS-24 Night Vision Device

OVERVIEW

- Original ORD 5 Block II
- Sized and Scaled for Use on Carbines and Light Machineguns
- Gen III OMNI V Auto-Gated Image Tube
- Potential Sensor Fusion Spiral Development
- Lightweight
- Improved Zero Retention for Day Scopes
- Contract N00164-04-D-4839 Awarded to Litton
SU-232PAS Thermal Sight

OVERVIEW

- New Capability
- Significant Size/Weight Reduction
- Improved Target Detection Capability
- For Use as CNVD or Stand-Alone
- 1X-2X Zoom
- Dual Video Output, VGA and RS 170
- Throw Lever Mount
- Improved OLED for Enhanced Performance
- Potential CNVD-Sensor Fusion Spiral Development
- Contract N00164-04-D-4840 Awarded to Insight Technology
Final Round of Testing Underway

- Final Source Selection
- Integrated System Test
- Validation of Engineering Changes
- Validation of Hardware on Multiple Weapons
Miniature Day/Night Sight Development

Block 1 Phased Replacements

- SU-231/PEQ Reflex Sight
  - NSN: 1240-01-533-0941
- AN/PVS-17 Product Improvement Kit
  - NSN Pending
- SU-233/PVS Gun Light
  - NSN: 5865-01-533-0996

Block 2

- SU-230/PVS Articulated Telescope
  - NSN: 1240-01-533-0939
- SU-232/PAS Thermal Sight
  - NSN: 5865-01-533-0657
- AN/PVS-24 Night Vision Device
  - NSN: 5865-01-533-0940

Harnessing the Power of Technology for the Warfighter
Miniature Day/Night Sight (MDNS) Development

Barry Gatewood
USSOCOM SOPMOD Deputy Program Manager
NSWC Crane
Commercial: (812) 854-3842, DSN 482-3842
Email: barry.gatewood@navy.mil
Weapon Shot Counter (WSC) Development
# SOPMOD ACQUISITION TOPMAP

**Weapon Shot Counter Subsystems**

### Existing Systems

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<th>Year</th>
<th>WSC - Carbine</th>
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<td>2004</td>
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### Emerging Systems

- **WSC - Carbine**
- **WSC - Machinegun**
- **WSC – Future Weapons**

### Objective Systems

#### SOST Prototypes

- **Weapon Shot Counter**
- **Data Collection Device (DCD)**

#### WSC - Carbine

- **Maintenance Software**
- **Data Collection Device (DCD)**

#### WSC - Machinegun

- **Data Collection Device (DCD)**

#### WSC – Future Weapons

- **Maintenance Software**
- **Data Collection Device (DCD)**

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**Distribution Statement A** - Approved for public release; distribution unlimited.
Weapon Shot Counter (WSC)

**DESCRIPTION**

Shot Counter

Data Collection Device (DCD)

**PERFORMANCE CHARACTERISTICS**

- **Sub-Program Status:** GREEN
  - Enables unit armorers to determine number of rounds fired
  - Minimizes catastrophic parts failures and malfunctions in combat
  - More cost-effective...reliability, & maintenance

**APPROMXIMATE BUDGET PROFILE**

- **Funding On Hand to FY11:**
  - $0.8M R&D
  - $3M Procurement

**KEY MILESTONES/ ACTIVITIES**

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<td>MS-C / FRP (Apr06 – Jul 07)</td>
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<td>FY08</td>
<td>IOC (Jun 06 – Dec 08)</td>
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Distribution Statement A - Approved for public release; distribution unlimited.
The Overall Problem

- If His Gun Fails in Combat, He and His Companions May Die or Lose the Fight

- Worst Failure is a Catastrophic Breakage of Parts That Could Have Been Replaced, such as a Bolt, Leading to a Jammed Weapon That Is Not Repairable During a Firefight

- Second Worse Failure Is a Burned Out Barrel, Making a Hit on His Enemy Unlikely

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Bolt Failure Problem

Most Bolts Subjected to Harsh Firing Schedules Will Show Initial Cracking Around 3,000 to 6,000 Rounds

On Milder Schedules, Nearly All Bolts Will Show Initial Cracking at 6,000 to 10,000 Rounds

Once the Crack Is Initiated, the Bolt May Fail at Any Time, or May Last for Thousands of Rounds, Depending on Crack Propagation
Catastrophic Bolt Failure

Example

Cracked through here

Ready to let go here

Un-determined Quantity of Rounds After Initial Crack
Non - Catastrophic Bolt Failure

Lug broken out:

- Cracked Lugs Are Normally Impossible to Detect Ahead of Time Without a Microscope
- May Cause Weapon to Jam When Lug Breaks Loose
Non - Catastrophic Bolt Failure

- Worn Gas Rings
- Failure to Feed
- Failure to Eject
Most M4A1 Carbine Barrels Subjected to Harsh Firing Schedules Will Be Burned Out Between 4,000 and 6,000 Rounds

On Milder Firing Schedules, They May Last 10,000 Rounds

Barrel Gauges Are Only 60% Accurate and Are Expensive to Buy and Calibrate. After Barrel Inspection:

- The Armorer May Think the Gun Is OK, but There Is a 40% Chance That the Barrel Is Burned Out and the Shooter Cannot Reliably Hit His Enemies
- The Armorer May Have Turned the Gun in for Depot Overhaul, but There Is a 40% Chance That the Barrel Is Still Good…millions of Dollars Wasted in Unneeded Repairs
The Barrel Burn Problem – Throats

- The Throat Is the Rifled Area in Front of the Chamber
- Erodes Forward of the Chamber in a Cone-shaped Pattern or a Football-shaped Pattern
- Taper Barrel Gauges Do Not Adequately Measure Throat Erosion

- Throat Erosion is the Primary, Progressive Cause of Poor Accuracy

Harnessing the Power of Technology for the Warfighter
The Barrel Burn Problem – Gas Port Erosion

- Unburned Powder Particles Mixed in Hot Gasses Erode Port
- Decreases Gas Friction, but Without Increase of External Port Size
- Cannot Be Detected With Gauges

- Increases Rate of Fire
- Increases Bolt, Spring, and Part Fatigue
- Possible Cause of Failure to Eject and Poor Accuracy

Harnessing the Power of Technology for the Warfighter
Modify the Current Maintenance System From a Time Schedule to a Usage Schedule

Minimize Catastrophic Failures and Weapon Jamming, and Resultant Injuries or Deaths in Combat

Enable Weapons Maintenance Personnel (Armorer) to Easily Determine the Number of Rounds Fired Through a Weapon

Provide Data Collection Device (DCD)
Summary of WSC System

Shot Counter

Data Collection Device (DCD)

Load to PC or Laptop

Determine Weapon Status – Conduct Maintenance Actions

Harnessing the Power of Technology for the Warfighter
Devices

AccuCounter

ADC

Harnessing the Power of Technology for the Warfighter

Distribution Statement A - Approved for public release; distribution unlimited.
Potential Spiral Developments

**Shot Counters for Other SOF Small Arms**

- Light Machine Guns
- Sniper Rifles

**Distinguish Blanks From Ball Ammo**
**Distinguish Between Dry and Live Fire**
**Cadence of Fire**
**Barrel Temperature**

*Harnessing the Power of Technology for the Warfighter*
Weapon Shot Counter (WSC) Development

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Weapon Shock Simulation
The Challenge

- Development of Accessories for Small Arms
- Example Developmental Test Endurance Requirement
  - Live Fire
    - 30,000 Rounds per unit, 10 units tested
    - ~80 cents per Round (labor + ammo + maintenance)
    - $24,000 per unit, $240K total cost for endurance test
Data Acquisition
Data Acquisition
Typical Profile
## Typical Values

### ACOG Values G/100

<table>
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<th></th>
<th>Top Front X</th>
<th></th>
<th>Top Front Z</th>
<th></th>
<th>Top Rear X</th>
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<th>Top Rear Z</th>
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<td>5</td>
<td>11</td>
<td>4</td>
<td>9</td>
<td>2.5</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>M240B</td>
<td>5</td>
<td>11</td>
<td>4</td>
<td>9</td>
<td>3</td>
<td>6.5</td>
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<td>5</td>
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<td>4</td>
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<tr>
<td>MK48</td>
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<td>9</td>
<td>4</td>
<td>6</td>
<td>4.5</td>
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<td>24</td>
<td>42</td>
<td>8</td>
<td>16</td>
<td>8</td>
</tr>
</tbody>
</table>

- **MK46**: 5 11 4 9 2.5 6 3 6 4 11 5 10 2.5 5 2 5
- **M240B**: 5 11 4 9 3 6.5 3.5 8 6 12 6 20 3 4.5 3 7
- **M249**: 6 15 6 14 5 21 4 16 7 14 8 14 2.5 6 4 6
- **MK48**: 6 17 6 9 4 6 4.5 9 4 13 4 9 3 8 3 14
- **M4A1**: 20 36 24 42 8 16 8 16 8 17 9 20 4 12 6 9

Distribution Statement A - Approved for public release; distribution unlimited.
Shaker System

Previously-Purchased System

- TIRA 5880/LS-330 EDS
- Vibration Research Controller
<table>
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<th>Shaker</th>
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<tbody>
<tr>
<td>Amplifier</td>
<td>A 52318</td>
</tr>
<tr>
<td>Rated Force</td>
<td>16kN (3.6Kip)</td>
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<tr>
<td>Frequency Range</td>
<td>DC-3kHz</td>
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<tr>
<td>Displacement</td>
<td>50.8mm (2in)</td>
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<tr>
<td>Velocity</td>
<td>2.5m/s (100in/s)</td>
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<tr>
<td>Acceleration</td>
<td><strong>176g</strong></td>
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<tr>
<td>Moving Mass</td>
<td>9.3kg (20lb)</td>
</tr>
</tbody>
</table>

*All values are shock ratings*
Shaker System

Shock Amplifier

Hammer accepts various tips

Upto three masses (one shown)

Upto 12 springs
Test Setup
Data

Top Front X Time

Harnessing the Power of Technology for the Warfighter
Data

Top Front X SRS

SRS Response, 5% Damping

[Graph showing acceleration vs. frequency for SRS Response with 5% damping]
Data

Top Front Z
Top Front Z SRS
Data

* Representative Failures Have Been Reproduced On Several Accessories
  - Reticle Failure On Scope
  - Battery Failures On Several Devices
  - Accurate Counting Of Shot Counters
  - Mount Failures On Several Devices
  - Cable & Connector Failures Of Internal Electronics

* Simulation And HALT Testing Catch And Fix Design Weaknesses Prior To Fielding

* Need To Continue To Compare Lab And Field Failures

* Does Not Completely Replace Live-fire
NSWC Crane developed a shock simulation system that amplifies the impulse of an Electromagnetic Shaker to replicate firing shock profiles on small arms accessories.

Further testing needed to validate simulations through a comparison of field and lab failures.

Current shock simulation capability has demonstrated cost savings and contributed to design improvements.
Weapon Shock Simulation

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New Initiatives And Business Opportunities
Clip-on Night Vision Device - Sensor Fusion

CNVD-SF
CONCEPT IMAGE

Initial Objectives:
• Improved Target Acquisition
• Less than 2 Pounds
• Less than $30K Per Copy, Objective less than $10K
• Technology Readiness Assessment Complete
• Draft Specification and Acquisition Strategy Published, Open for Public Comment until End of June 2006
Infrared Laser Capability (and Visible Green Laser?) Out to 2.2 KM

Weight Less Than 1.5 lbs

DL123 Battery and External Power

MIL-STD-1913 Interface

Compatible with

- M2 50 Cal MG
- MK 47 ALGL?
- M240 MG (Series)
- MK15 .50 Caliber Sniper Rifle
- MK 44 Mini Gun Sys
- MK 48 LMG
- MK 19 (and Other Weapons?)

Specification Published for Comment – Open Until 15 June 2006
Crew-Served Visible Bright Light

Visible White Light and Infrared Illumination Capability Out to 2.2 KM?

Weight Less Than 2.5 lbs?

DL123 Battery and External Power

MIL-STD-1913 Interface

Compatible with

- M2 50 Cal MG
- MK 44 Minigun System
- MK 19?
- MK 47 ALGL?

Force Development Experimentation Ongoing

Market Survey and Performance Specification Being Drafted

Harnessing the Power of Technology for the Warfighter
Specific Specialized Range-Adjustable Quadrant Mounts for:

- M2 50 Cal MG
- MK 44 Minigun System
- MK 19
- MK 47 ALGL? (On Separate Announcement)

Compatible or Able to be Integrated into Current Ballistic Shields – NOTE: Shields Can be Modified

MIL-STD-1913 rail surfaces to accept various sights

A Conceptual Objective Sighting Combination would provide Range-Adjustable Quadrant Rails for:

- Rapid Aiming, e.g. SU-231/PEQ Reflex Sight
- Night Passive Aiming, e.g. SU-231 + Clip-ons (CNVD’s)
- Night Active Aiming: CSHWAL and CSVBL
Miniature Red Dot (MRD)

- Provides Attachable CQB Capability to Existing SOPMOD Sights
- Currently Available in COTS Configuration on Contract N00164-04-D-4834 Awarded to Trijicon

- Needs to be Improved:
  - Needs Durability to Meet All SOF Combat Requirements
  - Waterproof up to 66 Feet
  - Easier Battery Change
Boresight Training Aids

- BTA will provide small, inexpensive, easily transportable devices that can be quickly installed and removed from the weapon to provide a means of verifying the collimation of the point-of-impact/point-of-aim.

- Compatible with SOPMOD Aiming and Target Acquisition Systems and the following weapons:
  - M4A1 Carbine
  - M24 and M82 Sniper Rifles
  - Mk11 Rifle
  - MK12 Special Purpose Rifle (Series)
  - MK13 Series Sniper Rifle
  - M240 MG (Series)
  - M249 MG (Series)
  - Mk46 LMG
  - Mk48 LMG
  - MK16 SCAR Light
  - MK17 SCAR Heavy
Flash Hiders

- Product-Improved Attachable Flash Hider to 5.56mm Carbines and Machineguns
- Must be Compatible with SOPMOD Sound Suppressor
- Current Small Purchases for Force Development Test / Experimentation
SUMMARY: Free World Business Opportunities

Clip-on Night Vision Device – Sensor Fusion

Crew Served/Heavy Weapons Accessories

- Crew Served Heavy Weapons Aiming Laser (CSHWAL)
- Crew Served Visible Bright Light (CSVBL)
- Weapon Quadrant Mounts (WQMs)

Miscellaneous

- Miniature Red-Dot (MRD)
- Boresight Training Aids (BTA)
- Sound-Suppressor Compatible Flash Hiders
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