

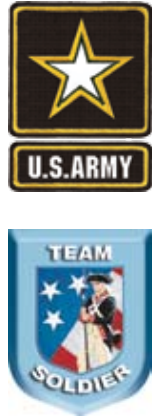
PROGRAM EXECUTIVE OFFICE SOLDIER **PORTFOLIO FY2008**

**THE BEST
FOR THE BEST**



To the Reader:

i



Program Executive Office (PEO) Soldier, which was established in April 2002, remains committed to providing the best equipment to the best Soldiers in the world—and strives to make that equipment even better. American Soldiers deserve nothing less.

The Portfolio for Fiscal Year 2008 includes detailed descriptions of the nearly 400 products that PEO Soldier provides under our mission to increase Soldiers' combat effectiveness, to safeguard them, and to improve their quality of life wherever they serve. Our 10 Project and Product Managers take that mission very seriously.

Soldiers can confidently use all of the gear in this portfolio with the knowledge that it has been thoroughly researched and rigorously tested. The featured clothing and equipment are designed to work together as a system, to bring success in the Global War on Terrorism, and to protect our Soldiers as they carry out their missions. Our Soldiers are smarter, tougher, and more capable than any fighting force in history, and we owe them the best equipment, both to ease their burden and to bring them home safely. At PEO Soldier, we will maintain our commitment to providing “the Best for the Best.”

A handwritten signature in black ink, reading "R. Mark Brown". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

R. Mark Brown

Brigadier General, USA

Program Executive Officer Soldier



IT IS THE SOLDIER

It is the Soldier, not the minister
Who has given us freedom of religion.
It is the Soldier, not the reporter
Who has given us freedom of the press.
It is the Soldier, not the poet
Who has given us freedom of speech.
It is the Soldier, not the campus organizer
Who has given us freedom to protest.
It is the Soldier, not the lawyer
Who has given us the right to a fair trial.
It is the Soldier, not the politician
Who has given us the right to vote.
It is the Soldier who salutes the flag,
Who serves beneath the flag,
And whose coffin is draped by the flag,
Who allows the protester to burn the flag.

Charles Michael Province, U.S. Army



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The information in this book is current as of August 2007.

The background image shows two U.S. Army soldiers in full combat gear, including helmets, sunglasses, and camouflage uniforms. They are holding rifles and standing in a desert environment with a military vehicle in the background. The scene is dusty and appears to be a combat or training area.

Introduction

The brave men and women of the U.S. Army make up the best fighting force in history, and Program Executive Office (PEO) Soldier intends to uphold that supremacy. Our mission is to provide our Soldiers with the best clothing and individual equipment, the best protection, the best individual and crew served weaponry, and the best systems to improve their communication and situational awareness. We strive constantly to improve Soldiers' combat effectiveness, heighten their ability to survive in even the most dangerous conditions, and ensure their physical comfort as they work day in and day out to defend our basic freedoms.

Quite simply, we provide “The Best for the Best.”



Since its inception in 2002, PEO Soldier has been the vanguard of Army transformation with its strategic Soldier-as-a-System (SaaS) approach to designing, producing, and fielding Soldier equipment. Soon PEO Soldier will equip the one-millionth Soldier through the Rapid Fielding Initiative (RFI). Even as we approach that milestone, we are preparing to support Army Force Generation (ARFORGEN) to ensure that our troops are prepared for a new era of operational readiness.

PEO Soldier designs, develops, procures, fields, and sustains virtually everything the Soldier wears or carries. By employing innovative concepts and technologies, PEO Soldier has made great strides in quickly getting improved equipment into the hands of Soldiers, especially those in Iraq and Afghanistan. As the Global War on Terrorism (GWOT) continues and as the Army looks to future missions, PEO Soldier remains dedicated to equipping Soldiers to enable peak performance across the spectrum of military operations. The SaaS strategy is designed to ensure that each piece of Soldier equipment integrates with other equipment for maximum efficiency and effectiveness. The Air Force doesn't deliver fighter aircraft without engines. The Navy doesn't deliver submarines without torpedoes. The Army doesn't deliver tanks without cannons. And the Army does not deploy our Soldiers—our most deployed combat system—without the gear they need to accomplish their mission.



BUILDING ON OUR SUCCESS

Many PEO Soldier initiatives demonstrate the effectiveness of the SaaS strategy. Some examples include:

Total Life Cycle Systems Management (TLCSM) ensures that we maintain clear lines of responsibility and accountability to support the warfighter and to meet requirements from acquisition to disposal of a system. With TLCSM, there is no longer a transition of management from the Program Manager (PM) to a sustainment command after production and fielding. Instead, during the entire system life cycle, the PM ensures cost, schedule, and performance requirements are met. PEO Soldier strategic objectives for TLCSM include:

- Development of a responsive, cradle-to-grave, Life Cycle Management (LCM) system for Organizational Clothing and Individual Equipment (OCIE) that provides a common battle picture for readiness at strategic, operational, and tactical levels
- Establishment of OCIE as an integral component to SaaS, managed in concert with our strategic partners, including our sister services, across the full spectrum of operations
- Alignment of the new Soldier Life Cycle Management system with the ARFORGEN Operating Cycle.

To meet these objectives, TLCSM is developing management systems that include standardized procedures for cataloging and disposal, requirement packages to support equipment decisions, and an automation process.

Soldier-as-a-System Unit Set Fielding (SaaS USF) originated under the auspices of the RFI program. Reflecting the natural evolution of the Army's commitment to modernizing Soldier equipment initiated under the RFI program, SaaS USF represents a significant paradigm shift. SaaS USF synchronizes the modernization and reset requirements of units deploying to and from theater with the overarching deployment schedule dictated by the ARFORGEN model and focuses the long-term equipping efforts of the PEO Soldier. Additionally, SaaS USF synchronizes the efforts of the various Project Managers within PEO Soldier to ensure the fully coordinated projection of requirements, and subsequent procurement and fielding of equipment to maximize acquisition efficiencies and to minimize disruption to training schedules of the gaining commands.

Land Warrior (LW) is a first-generation, integrated digital fighting system for dismounted Soldiers that has been hailed by Soldiers in Iraq for improving situational awareness and survivability. LW combines state-of-the-art technologies to create a lethal, survivable Soldier system to optimize and integrate multiple capabilities with minimal impact on combat load and logistical footprint. LW was sent into theater for the first time in spring 2007, deploying with the 4th Battalion, 9th Infantry Regiment, 4th (Stryker) Brigade, 2nd Infantry Division.

The Improved Outer Tactical Vest (IOTV), the latest improvement to Interceptor Body Armor (IBA), streamlines previous improvements to body armor into a lighter and less bulky piece of equipment. The IOTV is a side-opening vest that increases the area of soft ballistic coverage, incorporates Enhanced Side Ballistic Insert (ESBI) carriers into the vest, and adjusts for better comfort and coverage. One of the most significant improvements is a new quick-release handle that allows the Soldier to quickly remove the vest in emergency situations, such as escaping a vehicle. The IOTV integrates with auxiliary components, such as Enhanced Small Arms Protective Inserts (ESAPI) and Deltoid

Axillary Protectors (DAP), allowing the Soldier to tailor the level of protection to the level of threat. Ongoing work on body armor illustrates our commitment to providing our Soldiers with the best personal protective gear available.

The **M110 7.62mm Semi-Automatic Sniper System (SASS)** is an anti-personnel and light materiel weapon that fires out to a maximum effective range of 800 meters. It leverages a rapid fire/rapid reload design, variable day optic sight, and a 10- or 20-round magazine. The weapon system exceeds the rate of fire and lethality of the M24 Sniper Weapon System.

The **M26 12-Gauge Modular Accessory Shotgun System (MASS)** attaches underneath the barrel of the M4 and M16 Modular Weapon Systems and fires lethal and non-lethal 12-gauge rounds, as well as door breaching ammunition. The MASS gives the Soldier the capability of a stand-alone shotgun without carrying a second weapon.

The **Soldier Enhancement Program (SEP)** is managed for the Army by PEO Soldier and Training and Doctrine Command (TRADOC) Capabilities Manager (TCM) Soldier. SEP commercial off-the-shelf items enhance Soldiers' overall effectiveness and performance. SEP also provides items fundamental to sustained operations such as water, shelters, and ancillary support equipment. SEP solicits suggestions from individual Soldiers, field commanders, industry leaders, and combat and materiel developers worldwide. PEO Soldier, in coordination with TCM Soldier, reviews submissions and decides whether to evaluate an item further, buy or produce it, conduct field testing, or standardize and issue it to Soldiers in the field. Anyone can submit a proposal for evaluation against SEP criteria. Initiatives must be of no more than three years' duration and must involve commercially available, off-the-shelf technology.

THE PEO SOLDIER TEAM

Headquartered at Fort Belvoir, Virginia, PEO Soldier is supported by the SaaS USF team and three Project Managers (PMs): PM Soldier Warrior, PM Soldier Equipment, and PM Soldier Weapons.

PROGRAM EXECUTIVE OFFICE SOLDIER

Project Manager Soldier Warrior	Project Manager Soldier Equipment	Project Manager Soldier Weapons	Soldier-as-a-System Unit Set Fielding
Product Manager Air Warrior	Product Manager Soldier Sensors and Lasers	Product Manager Crew Served Weapons	Planning
Product Manager Land Warrior	Product Manager Clothing and Individual Equipment	Product Manager Individual Weapons	Logistic Support
	Product Manager Soldier Survivability		Fielding
			Accountability

PROJECT MANAGER SOLDIER WARRIOR

PM Soldier Warrior (PM SWAR) supports Soldiers through the acquisition of Land Warrior, Air Warrior, Mounted Warrior and Ground Soldier Systems, all of which provide significant improvements in tactical awareness, lethality, survivability and mobility.

The Product Managers apply the SaaS concept to develop components into integrated systems designed to increase combat effectiveness, decrease combat load, and improve mission flexibility:

- **Product Manager Air Warrior** integrates all aviation life support and mission equipment into a single aircrew ensemble that enhances cockpit synergy and aircraft mission capability. This system leverages several joint-service technology efforts to create a total, modular system that increases freedom of movement at the flight controls, enhances mobility to safely operate aircraft systems, and facilitates ease of entry to and exit from the aircraft.
- **Product Manager Land Warrior** integrates the Soldier into the digital battlefield and improves individual Soldier and small-unit battle command and tactical awareness. Mounted Warrior extends platform-based capabilities to vehicle crew members, including commanders, drivers, and gunners. **Ground Soldier Systems** is intended to improve Land Warrior’s capabilities to meet the needs of all Soldiers who conduct ground combat and to provide the dismounted Soldier with interoperability with the Future Combat System.

PROJECT MANAGER SOLDIER EQUIPMENT

PM Soldier Equipment (PM SEQ) provides capabilities that enhance Soldier lethality, survivability, and mobility on the battlefield. It supports the Soldier with a variety of highly advanced night-vision and other technologies that enable Soldiers to “own the night.” Its products also include: state-of-the-art personal and unit clothing and equipment, and protective clothing that enhances survivability against man-made threats, such as fire, and biological/chemical agents, as

well as environmental threats such as extreme weather conditions or biological/chemical agents. PM SEQ also provides individual airdrop equipment to equip Soldiers with enhanced capabilities for strategic battlefield insertion. PM SEQ consists of three **Product Managers: Product Manager Clothing and Individual Equipment, Product Manager Soldier Sensors and Lasers, and Product Manager Soldier Survivability.**

- **Product Manager Clothing and Individual Equipment** provides state-of-the-art individual and unit clothing and gear that enhances survivability, mission effectiveness, and comfort.
- **Product Manager Soldier Survivability**, the newest addition to PM SEQ, uses advanced technology to provide protection against ballistic, blast, and flame threats.
- **Product Manager Soldier Sensors and Lasers** provides Soldiers with the capability to see, acquire, and target in smoky, hazy, or dark conditions, using forward-looking infrared technology, image intensification, and fused imaging, which combines the two. Additionally, Soldier Sensors and Lasers provides low-light solid state sensors, targeting and illuminating lasers, high-resolution miniature displays, integrated optics, and man-portable rangefinders and target designators.

PROJECT MANAGER SOLDIER WEAPONS

PM Soldier Weapons (PM SW) provides decisive overmatch capability through increased lethality and range and decreased weight of weapons, accessories, and ammunition. Two Product Managers under PM SW drive the mission: **Product Manager Individual Weapons** and **Product Manager Crew Served Weapons**. In addition to weapons and ammunition, PM SW manages the development and procurement of suppressors, weapons accessory kits, optics, tripods, mounts, and binoculars.

- **Product Manager Individual Weapons** maintains and improves current equipment, such as rifles, carbines, pistols, and grenade launchers

for the Army and other services while also developing the next generation of individual weapons.

- **Product Manager Crew Served Weapons** maintains and improves light, medium, and heavy machine guns, automatic grenade launchers, sniper systems, and associated fire control and target acquisition products for the Army and other services. It also manages the research and development of all small arms ammunition, such as the family of 25mm rounds.

SAAS USF TEAM

The SaaS USF Team supports Soldiers through the planning, coordination, scheduling, and execution of fielding events intended to modernize and reset units deploying to and returning from frontline duty in the Global War on Terrorism. The SaaS USF Team consists of three closely integrated cells: Planning Cell, Logistic Support Cell, and Fielding Cell. All SaaS USF operations are conducted with an abiding concern for the accountability of the equipment procured and fielded to enhance the capabilities of our deployed Soldiers. Working in conjunction with HQDA and Forces Command, the SaaS USF team ensures Soldiers and units are equipped in a timely manner to support pre-deployment training and subsequent operations of Soldiers deployed in conjunction with the GWOT.

CONCLUSION

PEO Soldier plays an integral role in keeping America safe by supporting the enduring commitment and heroic efforts of our Soldiers, who make up the best military force in history. As the demands of war change and new technologies evolve, PEO Soldier stands ready to equip Soldiers with the best gear, in the shortest time, wherever our global interests dictate. The technologies that we develop and field are crucial components in meeting the challenges of today and those of the future. They ensure that we continue to provide the Best for the Best.

Soldier-as-a-System Effectiveness Evolution

The Soldiers in today’s Army make up the best-prepared and best-equipped force in the history of warfare.

The American Soldiers who served in World War II went into battle well-trained and armed with the trusted M1 Garand rifle, but with little in the way of protection beyond a steel helmet. All Soldier equipment was carried in a bulky backpack, with smaller components stored in a combat belt. As American interests took Soldiers into Southeast Asia, improvements to training and Soldier equipment were incorporated. The standard issue weapon provided greater firepower, and a flak vest was included for personal protection. Uniforms had evolved to help the Soldier blend with the combat environment, and improvements were made for better weight distribution of combat equipment.

The challenges facing the American Soldier in the Global War on Terrorism prompted the establishment of Program Executive Office (PEO) Soldier in 2002. To address the needs of our fighting men and women, the Army initiated its Soldier-as-a-System strategy, whereby Soldier equipment is designed to work in an integrated manner that increases Soldier survivability,

provides improved quality of life, and enhances mission effectiveness and lethality.

PEO Soldier ensures that our Soldiers have the best clothing and individual equipment, the best weapons, the best protection, and the best tools to enhance situational awareness—all of this at no cost to Soldiers. Soldiers, who are thoroughly trained in the use of their gear, can go into battle confident that they have the most up-to-date equipment—and with the knowledge that PEO Soldier remains vigilant in seeking the best possible equipment for the best fighting force in history.

Approx. 1941-1946

WWII



EQUIPMENT SPENDING PER SOLDIER*

\$170

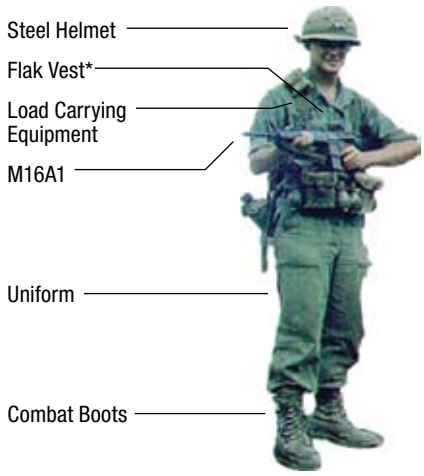
MEASURES OF EFFECTIVENESS

- Trained
- Armed

** Adjusted to 2006 dollars using FY2007 inflation indices (DACS PPBC Memo 2006-05)*

Approx. 1961-1973

Southeast Asia



- Steel Helmet
- Flak Vest*
- Load Carrying Equipment
- M16A1
- Uniform
- Combat Boots

* Item not shown

\$1,112

- Trained
- Armed
- Lightly Protected

Approx. 2001-2007

GWOT



- Advanced Combat Helmet & Accessories
- AN/PVS-14 Monocular Night Vision Device & Accessories
- Interceptor Body Armor
- Close Combat Optic
- Gloves
- AN/PEQ-2A Infrared Light
- Army Combat Uniform (ACU)
- Knee & Elbow Pads
- M4 Carbine (Modular)
- Army Combat Boot
- Protective Eyewear (Wiley X)
- Thermal Weapons Sight II (Light)

* Item not shown

\$17,472

- Trained
- Armed
- Well Protected
- 24 Hour
- Precision Engagement

Future



- 7.62 Head Protection
- Small Unit Common Operating Picture
- Counter Defilade Weapon
- Collaborative Situational Awareness
- Networked Lethality
- Embedded Training
- Reduced Weight
- Sustained Power (>24 Hrs)
- Reliability
- JTRS HMS
- Leaders' Planning Tool

Approx. \$28,000-60,000

- Trained
- Armed
- High Threat Protection Over All Critical Body
- Precision Engagement w/ Counter Defilade
- Part of Battle Command Network

Project Manager Soldier Warrior (PM SWAR) supports the Soldier-as-a-System concept through the acquisition of all warrior systems. Air Warrior, Land Warrior, and Mounted Warrior programs provide significant improvements in:

- Tactical awareness
- Lethality
- Survivability
- Mobility
- Sustainment

Air Warrior integrates all aviation life support and mission equipment into a single aircrew ensemble that enhances cockpit synergy and aircraft mission capability.

Land Warrior integrates the Soldier into the digital battlefield and improves individual Soldier and small unit battle command and tactical awareness.

Mounted Warrior combines cordless communications and personal displays with Soldier mission equipment and leverages capabilities developed in other warrior programs.

**Project Manager
Soldier Warrior**

Product Manager
Air Warrior

Product Manager
Land Warrior

**Project Manager
Soldier Equipment**

Product Manager Soldier
Sensors and Lasers

Product Manager Clothing
and Individual Equipment

Product Manager
Soldier Survivability

**Project Manager
Soldier Weapons**

Product Manager
Crew Served Weapons

Product Manager
Individual Weapons

**Soldier-as-a-System
Unit Set Fielding**

Planning

Logistic Support

Fielding

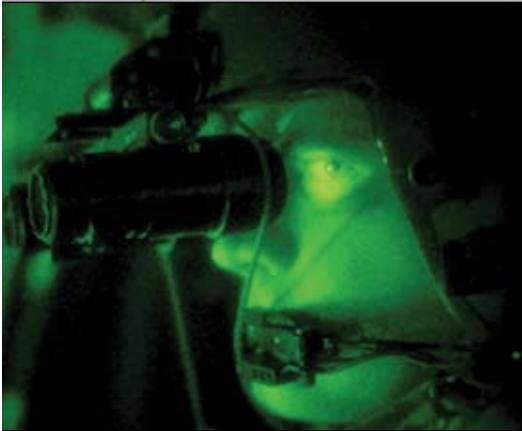
Accountability



PROJECT MANAGER

SOLDIER WARRIOR

THE BEST FOR THE BEST



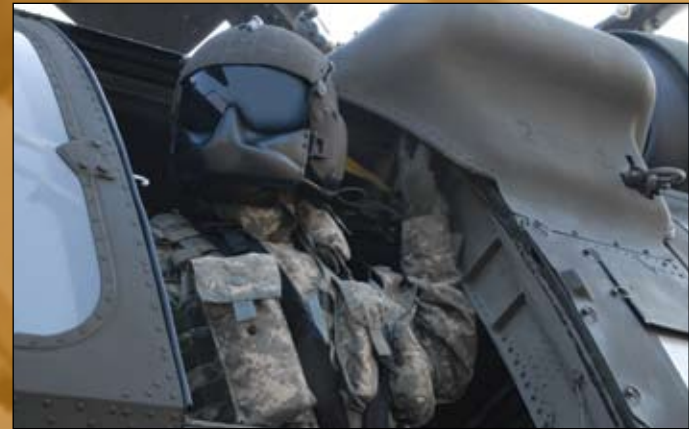
“The Air Warrior ensemble is a lot more comfortable to fly in, and that just reduces a lot of fatigue and stress that you have in the daily flight situation.”

*CW2 Blake Leibach, Black Hawk Pilot,
C Company, 3rd Battalion, 158th Aviation Regiment*

Air Warrior

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Product Manager Air Warrior (PM AW) develops and fields integrated Soldier systems for Army helicopter crew members. The Air Warrior development leverages several joint-service technology efforts to create a total, modular system that increases freedom of movement at flight controls, increases mobility to safely operate aircraft systems, facilitates entering and exiting the aircraft, and, by enhancing comfort, increases mission duration in full, mission-oriented, protective posture gear. Air Warrior also enhances downed crew member survivability in an escape and evasion situation.



Air Warrior (AW)

Provides the capability for a downed aircrew member to evade the enemy, survive, and return to safety.

DESCRIPTION & SPECIFICATIONS

Air Warrior (AW) is a modular, integrated, rapidly reconfigurable combat aircrew ensemble that saves lives and maximizes Army aircrew mission performance. Previous aviation life support equipment was a non-integrated assemblage of protective and survival gear. AW uses a systems approach to equipping the aircrew and closes the capability gap between human and machine. Fielded incrementally in blocks to rapidly provide enhanced capabilities to the warfighter, AW leverages and integrates other PM products such as the Army Aircrew Combat Uniform and ballistic protection.

AW Block 1 provides:

- Survival Equipment Subsystem (SES), integrates first aid, survival, signaling, and communications equipment with body armor and over-water survival subsystems
- Microclimate Cooling System, which increases effective mission duration in heat-stress environments by more than 350 percent
- Aircrew Integrated Helmet System, a lighter helmet with increased head and hearing protection

AW Block 2 provides:

- Electronic Data Manager (EDM), which features digital mission planning and enhanced situational awareness capabilities through connectivity to Blue Force Tracking-Aviation
- Aircraft Wireless Intercom System (AWIS), which provides cordless, hands-free aircrew communications





Aircraft Modular Survival System (AMSS)

Provides supplemental survival equipment to allow downed aircrew to survive for up to 72 hours without support.

DESCRIPTION & SPECIFICATIONS

The **Aircraft Modular Survival System (AMSS)** is a portable, self-contained survival kit that enables an aircrew to survive in severe environments if immediate recovery is not possible. The system supplements the personal equipment worn or carried by the crew members. AMSS provides minimum survival equipment and sustenance for each aircrew member to survive for 72 hours, with degraded survival capability for 15 days. Components can be tailored to meet environmental conditions. The program is managed by the U.S. Army Aviation and Missile Command (AMCOM) Lifecycle Management Center.



**Aircraft Modular Survival
System (AMSS)**

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Aircraft Wireless Intercom System (AWIS)

Provides secure wireless communication between crew members during high-risk medical evacuation missions.

DESCRIPTION & SPECIFICATIONS

The **Aircraft Wireless Intercom System (AWIS)**, a joint development with the U.S. Navy, provides increased safety and mission performance for medical evacuation (MEDEVAC) helicopter crew members and medical personnel during hoist rescue, and whenever flight medical crew members are conducting dismounted patient recovery missions in proximity to the aircraft. AWIS supplements the current aircraft corded intercom system for both flight and ground operations for the Army's CH-47 and HH/UH-60 aircraft, and the Navy's CH-46, SH-60, and CH/HH-53 aircraft. The system consists of one aircraft interface unit, up to six mobile equipment units, and one support station including battery charger. AWIS provides:

- Hands-free communication between hoist operators and rescue personnel on the hoist
- Full duplex, voice-activated, hands-free mode, and a push-to-talk mode
- Fifty independent channels (aircraft networks) with up to six crew members on each aircraft network
- Simultaneous omni-directional communications among all users within the aircraft network within 200 feet of the center of the aircraft



Aircraft Wireless Intercom System (AWIS)

17



Aircrew Integrated Helmet System (AIHS), HGU-56/P Helmet

Provides aircrews with a lightweight helmet that increases mission effectiveness by offering enhanced comfort, improved impact protection, and improved retention and sound attenuation.

DESCRIPTION & SPECIFICATIONS

The **Aircrew Integrated Helmet System (AIHS)**, HGU-56/P Helmet is composed of an advanced composite of graphite and Spectra and is available in six sizes to fit male and female crew members. The AIHS HGU-56/P is 15 to 20 percent lighter than the previous SPH-4 flight helmet it replaces, as reflected in the following specifications:

Weight: 3 pounds vs. 3.5 pounds

Resulting Impact: 150 G vs. 400 G

Chinstrap Retention: 440 pounds vs. 300 pounds

Acoustic: 82 decibels (A) vs. 85 decibels (A)



**Aircrew Integrated Helmet
System (AIHS), HGU-56/P
Helmet**

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Cockpit Air Bags System (CABS)

Protects the aircrew from multiple cockpit strike hazards with a crash-activated, inflatable protection system that prevents or reduces injuries and lowers mortality risk.

DESCRIPTION & SPECIFICATIONS

The **Cockpit Air Bags System (CABS)** protects the aviator from multiple strike hazards in the cockpit, including the flight controls, armor panels, instrument panels, glare shields, doors, and gun sights. CABS is designed to supplement the current restraint systems on helicopters. Although the system concept is similar to automotive air bags, CABS has been designed specifically for rotary wing applications.

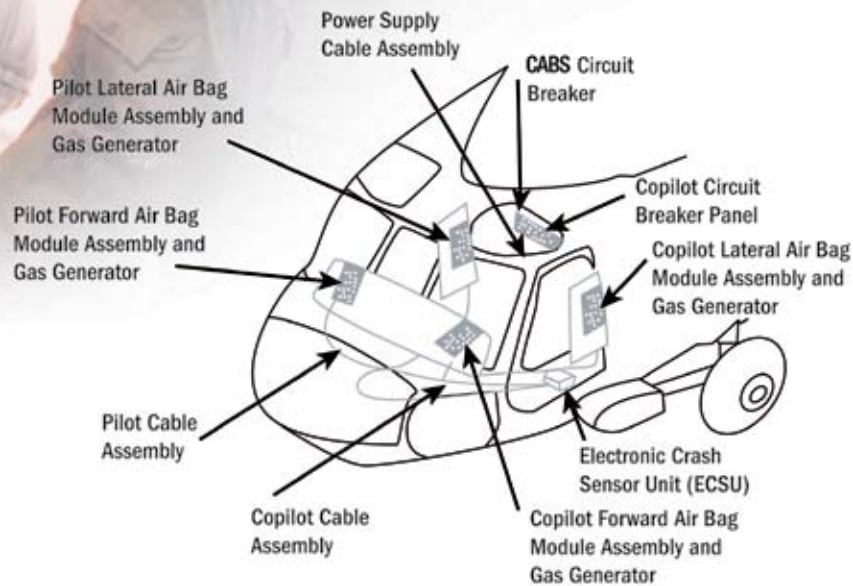
When a crash occurs, the electronic crash sensor unit triggers inflation of the air bags, providing supplemental restraint that prevents or mitigates injuries and risk of death for the Army aviator. The crash sensor detects accelerations in three axes for a greater refinement of crash data input over its automotive counterparts. The gas generator/air bag assembly is designed to operate within the confines of a helicopter cockpit, ensuring extended occupant protection for secondary impacts, while allowing unobstructed egress from the aircraft after deployment.

Qualification testing addressed safety and airworthiness requirements, as well as suitability for use in Army weapon systems.



Cockpit Air Bags System (CABS)

21



Communication Ear Plugs (CEP)

Provides improved sound attenuation and improved speech intelligibility for Army aircrews.

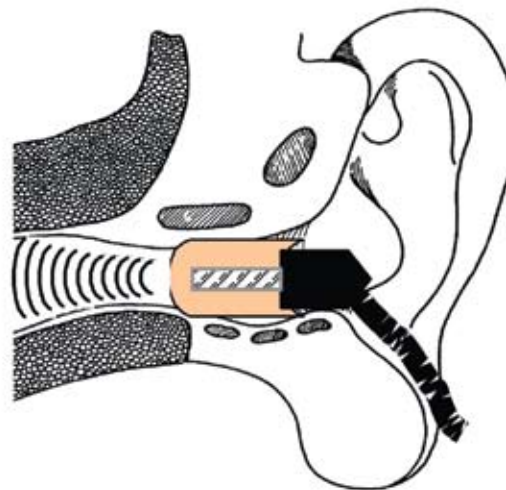
DESCRIPTION & SPECIFICATIONS

Communication Ear Plugs (CEP) is a pair of small sound transducers paired with hollow foam ear tips. The foam ear tips increase the sound attenuation already provided by the earcups on the HGU-56/P (Aircrew Integrated Helmet System), and the sound transducers provide a clear signal through the hollow foam ear tips. As a result, the Soldier hears clear communications not degraded by ambient noise. CEP were initially added to fielded HGU-56/P (Aircrew Integrated Helmet System [AIHS]) helmets through a Modification Work Order (MWO) and are now integrated into new helmets during production.



**Communication Ear Plugs
(CEP)**

23

**EXTERNAL EAR**

Electronic Data Manager (EDM)

Enables aircrew members to plan missions quickly and react to mission changes while in-flight.

DESCRIPTION & SPECIFICATIONS

The **Electronic Data Manager (EDM)** is a light, portable touch-screen computer in the form of a kneeboard that provides the aviator with Global Positioning System (GPS) moving map capability, sunlight readability, and the ability to use Windows-based software to replace the current kneeboard.

The EDM includes the following:

- Moving map display (GPS aircraft position and waypoints)
- Tactical graphics
- Two-way BFT-A Situational Awareness
- Beyond Line of Sight text messaging
- Displays of checklists, manuals, and approach plates in PDF format
- Capability to import mission planning data from AMPS
- Weight and balance calculations
- Aircraft performance planning calculations
- Electronic notes



Electronic Data Manager (EDM)

25



Helicopter Oxygen System (HOS)

Provides approximately one and a half hours of supplemental oxygen for six personnel for high-altitude and certain search-and-rescue operations employing utility and cargo helicopters.

DESCRIPTION & SPECIFICATIONS

The **Helicopter Oxygen System (HOS)** is a portable, multi-user oxygen system for high-altitude operations up to 25,000 feet above mean sea level, such as search-and-rescue missions for selected units with utility and cargo helicopters. HOS is integrated with the standard MBU-12/P Oxygen Mask mounted to aviation helmets. The system is used by all services and weighs approximately 125 pounds. No aircraft modification is required. HOS works up to 25,000 feet above mean sea level.



Helicopter Oxygen System (HOS)

27



Laser Eye Protection Visor, Joint Advanced

Protects aircrew members' eyes from multiple low-energy laser hazards and threats.

DESCRIPTION & SPECIFICATIONS

The **Joint Advanced Laser Eye Protection Visor (JALEPV)** is a polycarbonate ballistic visor that uses holographic, dielectric reflective, and dye technologies to provide aircrew protection from multiple-threat wavelengths. This visor is being fabricated for the Army in the HGU-56/P configuration. It will be suitable for day or unaided night flight. Current protection includes the two- and three-wavelength HGU-56/P visors and the four-wavelength Clear Laser Eye Protection for Infrared (CLEPIR) spectacles. The JALEPV program is a joint Army-Navy development program led by the Navy.



**Laser Eye Protection Visor,
Joint Advanced**

29



Laser Eye Protection Visor, Two- and Three-Wavelength

Protects aircrew members from low-energy laser threats.

DESCRIPTION & SPECIFICATIONS

Polycarbonate visors provide aircrews protection from the current primary laser threats and hazards on today's modern battlefield.



**Laser Eye Protection Visor,
Two- and Three- Wavelength**

31



Maxillofacial Shield (MFS)

Provides maxillofacial ballistic protection for Army aircrew wearing the HGU-56/P helmet, compatible with visors, Aviator Night Vision Imaging System (ANVIS), Communication Ear Plugs (CEP), spectacles, microphones, and lip lights.

DESCRIPTION & SPECIFICATIONS

The **Maxillofacial Shield (MFS)** provides maxillofacial ballistic protection from fragments and structure impacts. It also provides improved field of view and anti-fogging capability over the previous MFS design.





Microclimate Cooling System (MCS)

Protects the individual aircrew member from heat stress injuries with personal climate control in chemical or biological warfare in hot weather environments.

DESCRIPTION & SPECIFICATIONS

The **Microclimate Cooling System (MCS)** reduces heat stress to Army helicopter crew members, especially while they are wearing chemical protective equipment in hot weather. The MCS gives Army aviators an increase of more than 350 percent (from 1.6 hours to 5.7 hours) in heat-stress mission endurance times while they are wearing chemical protective equipment or other crew member clothing. MCS includes a quick-disconnect function to allow air crew members to safely and quickly exit an aircraft without a snagging hazard.

The MCS includes a **Microclimate Cooling Garment (MCG)**, a vest worn as an undergarment, and a small **Microclimate Cooling Unit (MCU)**, an autonomous vapor compressor system that chills water and pumps it through small tubes embedded in the vest. The vest is worn beneath chemical protective clothing or other crew member clothing. The system enables crew members to function in chemical, biological, or hot weather environments without suffering heat stress.



Microclimate Cooling System (MCS)

35



Survival Equipment Subsystem (SES)

Supplements the aircrew ensemble with advanced life support, ballistic protection, and chemical-biological protection in rapidly tailorable, mission-configured modules.

DESCRIPTION & SPECIFICATIONS

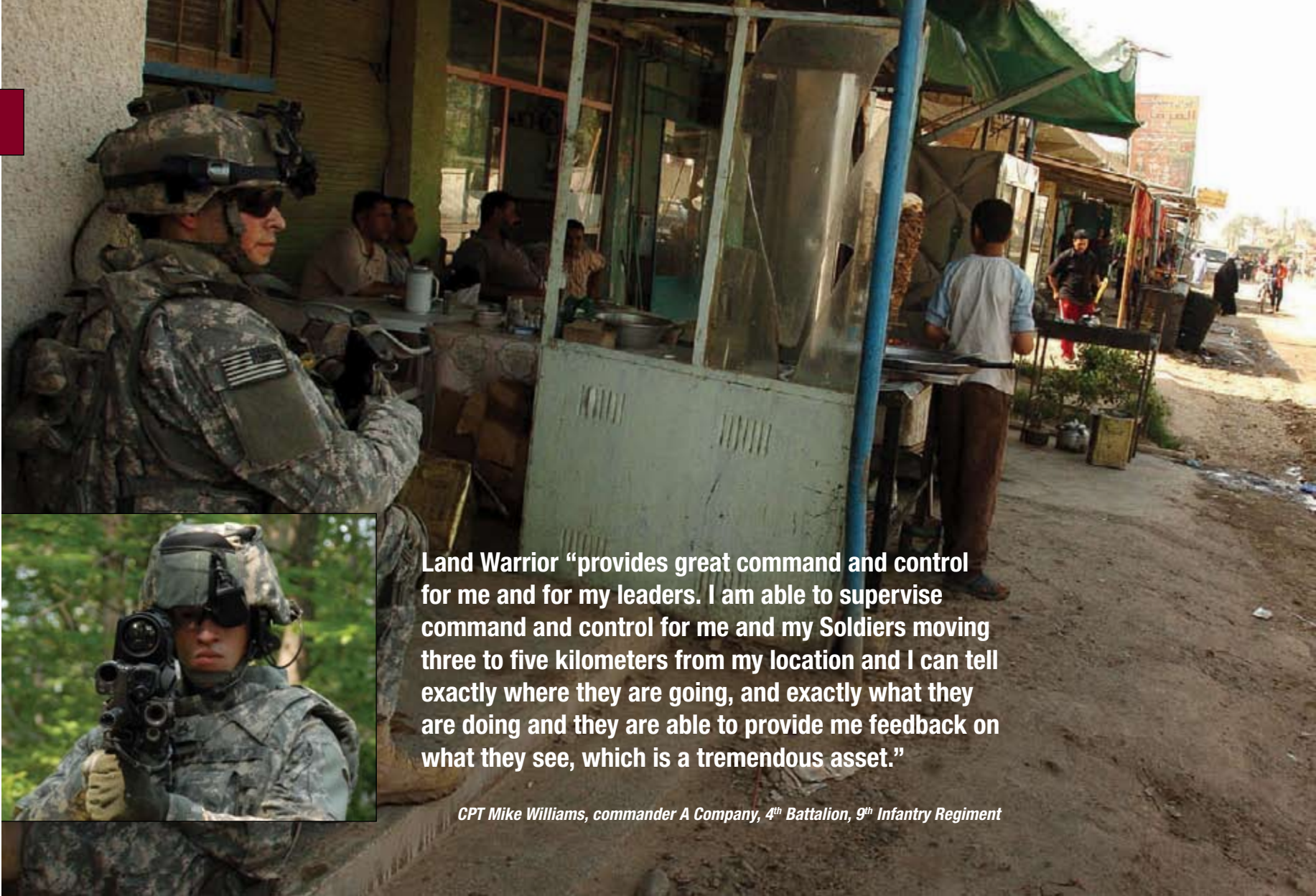
The **Survival Equipment Subsystem (SES)** consists of components integrated to maximize safe aircraft operation and human performance without encumbering the aircrew. These components include a primary survival gear carrier that includes first aid, survival, signaling, and communications equipment; an aircrew survival egress knife; a universal holster with ambidextrous Modular Lightweight Load-Carrying Equipment; thigh and shoulder configurations; and flexible body armor with a ballistic upgrade plate. For over-water missions, the ensemble includes a flotation collar and an over-water gear carrier with a single-place life raft and underwater breathing device).



Survival Equipment Subsystem (SES)

37





Land Warrior “provides great command and control for me and for my leaders. I am able to supervise command and control for me and my Soldiers moving three to five kilometers from my location and I can tell exactly where they are going, and exactly what they are doing and they are able to provide me feedback on what they see, which is a tremendous asset.”

CPT Mike Williams, commander A Company, 4th Battalion, 9th Infantry Regiment

Land Warrior

39

Product Manager Land Warrior (PM LW) provides the dismounted Soldier with unprecedented situational awareness and battle command. Digital imagery and GPS locations provided by Land Warrior enable thorough mission planning, ramp-side convoy briefings, on-the-fly changes during missions for high-value targets (HVTs). Land Warrior allows teams, squads, and platoons to get the exact building or location of improvised explosive devices (IEDs), cells or HVTs with better speed and precision, resulting in kill or capture of the enemy. Land Warrior enhances dismounted Soldiers' survivability by rapidly sending locations of suspected enemy IEDs and snipers. Land Warrior also helps prevent fratricide by providing locations of mounted and dismounted Soldiers.



Commander's Digital Assistant (CDA)

Enhances situational awareness, supports communications, provides Blue Force Tracking, and gives leaders a capability for mission planning and support.

DESCRIPTION & SPECIFICATIONS

The **Commander's Digital Assistant (CDA)** provides Blue Force Tracking Battle Command capabilities to commanders in the field. The CDA (Version 5) consists of the following integrated and ruggedized components:

- Computer with satellite communications
- Military Global Positioning System (GPS) (GB-GRAM)
- Interface to terrestrial radios
- 20GB hard disk
- 6.5-inch sunlight readable LCD screen
- Force XXI Battle Command, Brigade-and-Below (FBCB2) battle command software



Commander's Digital Assistant (CDA)

41



Land Warrior (LW)

Provides unprecedented Soldier tactical awareness and significant improvements in lethality, survivability, mobility, and sustainment.

DESCRIPTION & SPECIFICATIONS

Land Warrior (LW) is a first-generation, integrated modular fighting system for dismounted Soldiers. LW combines state-of-the-art technologies to create a lethal, survivable Soldier System linked to the digital battlefield. LW combines computers, lasers, geolocation, and radios with Soldiers' equipment to substantially improve the individual Soldier's situational awareness, mobility, sustainability, survivability, and lethality. The systems approach optimizes and integrates multiple capabilities with minimal impact on the Soldier's combat load and logistical footprint. LW is interoperable with the Army Battle Command System.

The Army is terminating the Land Warrior program as a result of competing fiscal priorities during the development of the FY08 presidential budget. As a result of a very successful Land Warrior system development and demonstration as documented in the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) assessment and limited user test, the Army has approved and is supporting LW deployment with the 4th Battalion, 9th Infantry Regiment, 4th (Stryker) Brigade, 2nd Infantry Division in Operation Iraqi Freedom (OIF) through 2008.



Mounted Warrior (MW)

Improves the survivability, situational awareness, lethality, mobility, and sustainability of combat vehicle crewmen.

DESCRIPTION & SPECIFICATIONS

Mounted Warrior (MW) leverages capabilities developed in other warrior programs such as Land Warrior and Air Warrior. An integrated group of systems, it combines communications and personal displays with Soldier equipment. MW outfits all crew members, including vehicle commanders, drivers, and gunners, who operate ground platforms. Systems and components include the following:

- Integrated headgear with helmet-mounted display to provide remote viewing of platform-based displays and optical sensors such as thermal sights
- Enhancements to protective clothing and individual equipment

MW-equipped crew members can communicate with dismounted LW-equipped Soldiers. The system interfaces with other Army communications and command and control systems. MW includes lightweight, modular, mission-tailorable equipment, including command, control, communications, and computer (C4) devices worn, carried, or used by crewmen when conducting tactical operations with their assigned combat vehicles.



Mounted Warrior (MW)

45



Ground Soldier System (GSS)

Provides overmatch operational capabilities to all ground combat Soldiers, their attachments, and small units.



DESCRIPTION & SPECIFICATIONS

Ground Soldier System (GSS) integrates multiple Soldier systems and components and leverages emerging technologies. GSS capabilities begin with improvements over the Land Warrior (LW) and build upon the Core Soldier System capabilities to meet the needs of all Soldiers who conduct ground combat and to provide the dismounted Soldier components of the Future Combat System (FCS). GSS will include the following capabilities that are new or enhanced beyond Land Warrior capabilities:

- Networked communications based on Soldier Radio Waveform and Joint Tactical Radio System
- Interoperability with FCS assets (e.g., Tactical Unattended Ground Sensors [T-UGS], Unmanned Aerial Vehicles [UAV]), and current forces

GSS will employ a system-of-systems approach, optimizing and integrating capabilities, while reducing the Soldier's combat load and logistical footprint. Soldier system spiral development that began with LW will continue with GSS, integrating those successful Soldier system technologies developed in the Future Force Warrior advanced technology demonstration.

Ground Soldier Systems (GSS)

47



PM Soldier Equipment (PM SEQ)

develops, fields, and sustains the world's best Soldier equipment to advance Soldiers' warfighting capabilities. PM Soldier Equipment procures, adapts, or develops state-of-the-art sensors, lasers, clothing, other individual equipment, and survivability items, including:

- Helmet-mounted vision enhancements for improved situational awareness in all visibility conditions
- Weapon sights for enhanced target acquisition
- Weapon-mounted and Soldier-carried sensors and lasers for accurate location of targets by pointing, illuminating, locating, and/or designating
- Ballistic and fragmentation protection
- Technologically advanced tactical equipment for the individual Soldier
- Environmental protective clothing
- Individual chemical protective gear
- Personnel airdrop equipment
- Flame resistant clothing
- Clothing Bag items

**Project Manager
Soldier Warrior**

Product Manager
Air Warrior

Product Manager
Land Warrior

**Project Manager
Soldier Equipment**

Product Manager Soldier
Sensors and Lasers

Product Manager Clothing
and Individual Equipment

Product Manager
Soldier Survivability

**Project Manager
Soldier Weapons**

Product Manager
Crew Served Weapons

Product Manager
Individual Weapons

**Soldier-as-a-System
Unit Set Fielding**

Planning

Logistic Support

Fielding

Accountability



A close-up, low-angle shot of a soldier in camouflage gear, wearing a helmet with a night vision device and aiming a rifle with multiple attachments. The soldier is in the foreground, looking through the sights. In the background, two other soldiers are visible in a desert environment, one of whom is firing a rifle, creating a cloud of dust or smoke. The overall scene is set in a desert with a yellowish tint.

PROJECT MANAGER

SOLDIER EQUIPMENT

THE BEST FOR THE BEST



“The PVS-14s are great. They are small, they are light. I love the ability to just be able to take it off and put it on your weapon. And it only took a single double A battery. We can power an infantry squad for days on double A’s.”

*SFC Landon Ranker, B Company,
2nd Battalion, 506th Infantry Regiment*

Soldier Sensors and Lasers

Product Manager Soldier Sensors and Lasers (PM SSL) develops, produces, and fields advanced sensor and laser devices that provide Soldiers with improved lethality, mobility, and survivability. Soldier-borne sensors and lasers enhance the Soldier's ability to see in all battlefield and lighting conditions, to acquire objects of military significance before the Soldier is detected, and to target threat objects accurately for engagement by Soldiers or guided munitions. In short, PM SSL provides Soldiers the ability to see always, acquire first, and target once.



Aviator's Night Vision Imaging System (ANVIS), AN/AVS-6

Enables aviators to operate more effectively and safely during low-light and degraded battlefield conditions.

DESCRIPTION & SPECIFICATIONS

The **Aviator's Night Vision Imaging System (ANVIS) AN/AVS-6** is a helmet-mounted, direct-view, third-generation, image-intensification device that enables flight operations under very low (starlight) ambient-light conditions. Power is supplied by a helmet-mounted low profile battery pack or from aircraft-supplied power.

The AN/AVS-6 or ANVIS-6 used by the Army has lenses that incorporate Class-A minus-blue filtering, which significantly reduces the radiance of the low night sky. The ANVIS-6 has been issued in several versions since its original fielding in the mid-1980s. The latest version incorporates improved tubes capable of operating down to near starlight conditions; 25mm eye relief; dual-span adjustment knobs; gated power supply; either film-less or thin-film tube designs; fine-focus objective lens; and a low-profile battery pack.

The low-light sensitivity is a 10 percent improvement over its predecessor and a 35 to 40 percent improvement over the earliest ANVIS. Additionally, the gated power supply enables the latest version to operate at significantly higher light levels than any of the previous designs. All ANVIS systems are capable of operating for 24 hours on a pair of AA batteries.



**Aviator's Night Vision
Imaging System (ANVIS),
AN/AVS-6**

53



Enhanced Night Vision Goggle (ENVG), AN/PSQ-20

Provides the Soldier with enhanced situational awareness day or night in all weather and degraded battlefield conditions.

DESCRIPTION & SPECIFICATIONS

The **Enhanced Night Vision Goggle (ENVG)** is a helmet-mounted passive device for the individual Soldier that incorporates image intensification and long-wave infrared sensors into a single, integrated image. ENVG improves the Soldier's situational awareness by providing the capability to rapidly detect and recognize man-sized targets while maintaining the ability to see detail and to use rifle-mounted aiming lights.

A digital upgrade package for ENVG will take advantage of image processing techniques to improve image clarity and situational awareness for the Soldier. A digital system lends itself to the battlefield of the future with the ability to import and export digital files (data/map injection).

The ENVG will weigh two pounds or less, including batteries, and provide target recognition ranges comparable to, or better than, the AN/PVS-14. ENVG will be compatible with multifunction aiming lights currently in the Army inventory.



**Enhanced Night Vision
Goggle (ENVG), AN/PSQ-20**

55



Integrated Laser/White Light Pointer (ILWLP), AN/PEQ-14

Enables Soldier acquisition and engagement of targets in periods of limited visibility or darkness using either unaided vision or night vision devices, especially in an urban environment.

DESCRIPTION & SPECIFICATIONS

The **AN/PEQ-14 Integrated Laser/White Light Pointer (ILWLP)** combines the functions of a flashlight, visible aiming laser, an infrared (IR) aiming laser, and an IR illuminator into one lightweight system.

The ILWLP weighs six ounces and attaches to the M9 pistol with a MIL-STD-1913 rail adapter and uses two DL 123 standard commercial disposable batteries. It has a visible aiming laser range of 25 meters in daylight, and flashlight facial recognition out to 20 meters in dark conditions. The ILWLP has IR aiming and illumination capability of up to 100 meters, well beyond the maximum effective range of the weapon.



Integrated Laser/White Light
Pointer (ILWLP), AN/PEQ-14

57



Laser Target Locating Systems (LTLS), Mark VII, Mark VII E (Enhanced), Vector 21

58

Provides fire support teams and forward observers with daylight and limited night capability to observe and accurately locate targets for transmission of target data to the fire support command, control, communications, computer, and intelligence system.

DESCRIPTION & SPECIFICATIONS

The **MK VII** and **Vector 21 Laser Target Locating Systems (LTLS)** are handheld or tripod-mounted lightweight laser target locators.

The **MK VII** incorporates an eye-safe laser rangefinder and a digital, magnetic compass to determine range, azimuth, and vertical angle from the observer to targets of interest. When targeting data are sent to a Precision Lightweight Global Positioning System Receiver (PLGR), the system can compute and display target location. MK VII can range to tactical targets out to five kilometers (3.1 miles) on a seven-kilometer (4.45 miles) visibility day. The MK VII can locate targets to within 45 meters out to a range of five kilometers. An internal image intensifier is incorporated for night operations. Night capability to tactical targets is approximately 500 meters. The day optic is a 7.25-power monocular. Night optics are four-power.

The **MK VII E** is an improved MK VII, with 8 power day optics, a thermal sight for increased night performance (up to 900 meters), and an embedded GPS receiver for self and target location.

The **Vector 21** integrates a Vector Binocular Laser Rangefinder (BLRF) with a PLGR equipped with PLGR+96 software to provide target grid coordinates. The Vector BLRF is rugged and waterproof and can locate targets to within 45 meters out to a range of four kilometers (2.5 miles) on a clear day (20-kilometer/12-mile visibility). When used in conjunction with an AN/PVS-14, the Vector 21 provides a limited night capability to 500 meters for the system. The Vector 21 is powered by lithium batteries.

Handheld weight: MK VII - 4.2 pounds; MK VII E - 5.5 pounds; Vector 21 - 3.5 pounds

Total system weight: MK VII - 6 pounds; Vector 21 (daylight) - 5.9 pounds; Vector 21 (night) - 9.2 pounds



**Laser Target Locating Systems
(LTLS), Mark VII, Mark VII E
(Enhanced), Vector 21** 59



Lightweight Laser Designator Rangefinder (LLDR), AN/PED-1

Enables fire support teams and forward observers to observe and accurately locate targets, digitally transmit target location data to the tactical network, and laser-designate high-priority targets for destruction by precision munitions.

DESCRIPTION & SPECIFICATIONS

The **AN/PED-1 Lightweight Laser Designator Rangefinder (LLDR)** is a man-portable, modular target location and laser designation system. The two primary components are the **Target Locator Module (TLM)** and the **Laser Designator Module (LDM)**. The TLM can be used as a stand-alone device or in conjunction with the LDM. Total system weight to conduct a 24-hour mission is 35 pounds.

The TLM incorporates a thermal imager, day camera, electronic display, eye-safe laser rangefinder, digital magnetic compass, Selective Availability Anti-Spoofing Module (SAASM), Global Positioning System (GPS) electronics, and digital export capability. The TLM has an integral capability for boresighting with the LDM, enabling the operator to see the laser spot and align the system. The LDM emits coded laser pulses compatible with Department of Defense and North Atlantic Treaty Organization laser-guided munitions. LLDR is highly accurate and operable during the day, at night, and in obscured battlefield conditions.



**Lightweight Laser
Designator Rangefinder
(LLDR), AN/PED-1**

61



Monocular Night Vision Device (MNVD), AN/PVS-14

Provides Soldiers with the capability to engage and execute close combat, combat support, and combat service support operations in very low (starlight) ambient conditions.

DESCRIPTION & SPECIFICATIONS

The **AN/PVS-14 Monocular Night Vision Device (MNVD)** is a lightweight head or helmet-mounted device that also can be mounted to the M16/M4 receiver rail. It is designed for use in conjunction with rifle-mounted aiming lights.

The AN/PVS-14 also incorporates an infrared (IR) illuminator with a momentary and continuous-on switching function. IR operation and low battery indicators are displayed within the user's field of view. The AN/PVS-14 comes complete with a lightweight, fully adjustable military head strap that allows for comfortable long-term use. A wide range of optional accessories includes high-magnification lenses and a helmet-mounting bracket.

The field of view is ≥ 40 degrees, and the range is 150 meters. It operates on one AA battery for ≥ 15 hours and weighs .88 pounds.



**Monocular Night Vision
Device (MNVD), AN/PVS-14**

63



Multifunctional Aiming Lights (MFAL); AN/PEQ-2A, AN/PEQ-15, AN/PEQ-15A

64

Provides the Soldier with highly accurate aiming laser capabilities for use in darkness at maximum firing distances and in conjunction with appropriate image-intensification devices.

DESCRIPTION & SPECIFICATIONS

AN/PEQ-2A, AN/PEQ-15, and AN/PEQ-15A Multifunctional Aiming Lights (MFAL) are used in conjunction with night vision goggles to engage targets at night. When zeroed to the weapon, these devices provide an invisible continuous infrared beam along the weapon's line of fire. MFAL devices contain Class IIIB lasers that emit a highly collimated beam of invisible infrared light for precise aiming of a Soldier's weapon and adjustable focus infrared illumination for improved situational awareness. MFAL devices are equipped with safety blocks for training that limit the operator from unintentionally selecting the high power, non-eye-safe operating modes. Both the aiming and illuminator beams can be zeroed to the weapon and to each other, and can be operated individually or in combination.

An MFAL device includes a carrying case, operator's and unit maintenance manual, a Rail Grabber Bracket Assembly (in accordance with MIL-STD-1913), batteries, a 12-inch remote cable switch, and a quick reference card.





**Multifunctional Aiming
Lights (MFAL); AN/PEQ-2A,
AN/PEQ-15, AN/PEQ-15A**

65



AN/PEQ-2A



AN/PEQ-15



AN/PEQ-15A

Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Rangefinder (MLRF), AN/PSQ-23

66

Enables dismounted leaders to determine distant target and terrain locations with the use of laser range-finding and digital direction-finding and to control night firing with a laser pointer and illuminator.

DESCRIPTION & SPECIFICATIONS

The **Small Tactical Optical Rifle Mounted (STORM) Micro-Laser Rangefinder (MLRF)** is a lightweight (1.2 pounds), multifunctional laser system designed to operate on individual and crew served weapons. It combines the functionality of a laser rangefinder, the AN/PEQ-2A Aiming Light, the Multiple Integrated Laser Engagement System (MILES), a digital compass and a visible pointer into a single package. Combined with a Precision Lightweight GPS Receiver (PLGR) or a Defense Advanced GPS Receiver (DAGR) the system can compute and display highly accurate target locations.



**Small Tactical Optical Rifle
Mounted (STORM) Micro-
Laser Rangefinder (MLRF),
AN/PSQ-23**

67



Sniper Night Sight (SNS), AN/PVS-10

Enables acquisition and engagement of targets using the M24 Sniper Weapon System to a range of 600 meters at night or 800 meters during daylight.

DESCRIPTION & SPECIFICATIONS

The **AN/PVS-10 Sniper Night Sight (SNS)** is a lightweight, weapon-mounted, self-contained, image-intensified passive device designed primarily for use by the sniper for day and night operations. A day/night lever enables the user to alternate between day and night modes. The SNS employs a variable-gain image intensifier that can be adjusted depending on ambient light levels. The SNS includes a black-line reticle for day use, which can also be illuminated for night operation. An eyepiece diopter adjustment is provided so the SNS can be used without corrective glasses. A rail mounting interface is integrated into the base of the sight to enable quick mounting or dismounting from the weapon.



**Sniper Night Sight (SNS),
AN/PVS-10**

69



Thermal Weapon Sight (TWS), AN/PAS-13

Enables the Soldier to detect and engage targets, day or night, in all weather and obscurant conditions.

DESCRIPTION & SPECIFICATIONS

The **AN/PAS-13 Thermal Weapon Sight (TWS)** family enables Soldiers with individual and crew served weapons to see deep into the battlefield, increase surveillance and target acquisition range, and penetrate obscurants, day or night. TWS systems use uncooled forward-looking infrared technology and provide a standard video output for training, image transfer, or remote viewing. Thermal Weapon Sights are lightweight systems that are mountable onto a weapon rail and operate to the maximum effective range of the weapon. They operate on standard AA batteries.



TWS Family	Weight	Field of View (N/W)	Weapons Supported
Light Weapon Thermal Sight (LWTS)	1.95 pounds	≥ 15 degrees	M16, M4, M136
Medium Weapon Thermal Sight (MWTS)	2.9 pounds	≥ 6 and 18 degrees	M249, M240B
Heavy Weapon Thermal Sight (HWTS)	3.7 pounds	≥ 3 and 9 degrees	M2 HB, M107, MK19, M24, M4/M16 Squad Leader

Thermal Weapon Sight
(TWS), AN/PAS-13

71





“During Operation Mountain Lion I found myself praying for bad weather, the first time in my military career I was actually begging for a cold front to come through. I knew my Soldiers could handle it and the enemy couldn’t. ECWCS allowed my men to outlast the enemy on their own terrain. When the enemy was forced out of the mountains due to the bitter cold to take shelter, that’s when we got them.”

*LTC Christopher Cavoli, commander 1st Battalion,
32nd Infantry Regiment, 10th Mountain Division*

Clothing and Individual Equipment

73

Product Manager Clothing and Individual Equipment (PM CIE) supports Soldiers in operational environments and improves their lethality, survivability, situational awareness, health, safety, mobility, and sustainability by providing state-of-the-art ballistic protection and safe, durable, and operationally effective individual and unit equipment. PM CIE enhances survivability through technologically advanced tactical and environmental protective clothing, individual chemical protective gear, personnel airdrop equipment, and flame-resistant clothing.



Army Combat Shirt (ACS)

Provides the Soldier improved comfort and enhanced flame and thermal protection.

DESCRIPTION & SPECIFICATIONS

The **Army Combat Shirt (ACS)** is a flame-resistant shirt (FR). The torso is made of a moisture-wicking cotton/rayon blend that increases moisture vapor transmission, heat stress relief, and comfort underneath the Interceptor Body Armor. The FR sleeves are in the universal camouflage pattern and have cargo pockets, infrared identification tags, hook and loop fasteners for the American flag, and integrated anti-abrasion elbow pads. The shirt also features seamless shoulders and side panels for comfort, and is treated using a state-of-the-art flame-resistant process that fuses to the fibers. It is washable and maintains its flame resistance for the life of the garment.



Army Combat Shirt (ACS)

75



Army Combat Uniform (ACU)

Enhances the Soldier's performance with a functional, ergonomic uniform that can be tailored to the mission.

DESCRIPTION & SPECIFICATIONS

The **Army Combat Uniform (ACU)** is the product of months of research and development by Soldiers for Soldiers and is the uniform of choice for the majority of the Army's leaders and Soldiers. The ACU consists of a jacket, trousers, and patrol cap in a universal camouflage pattern, moisture-wicking T-shirt, and improved hot-weather and temperate-weather Army combat boots. The ACU was constructed with direct involvement of Soldiers throughout the design and evaluation process. The result is a combat uniform with improved functionality and greater Soldier acceptance than the Battle Dress Uniform (BDU).

The ACU enhances Soldier performance because it can be tailored to the individual mission, provides enhanced functionality and ergonomics over the BDU and Desert Camouflage Uniform (DCU), and does away with requirements to procure uniforms focused on specific environments. The ACU fabric is a 50 percent cotton/50 percent nylon blend, ripstop poplin that is treated to be wrinkle-free.

The Flame-Resistant ACU (FR ACU) has the same design as the ACU but is made of advanced flame-resistant fabrics. The flame-resistant version is identified by a tab of green webbing sewn to the left sleeve cuff and left leg cargo pocket flap.



Army Combat Uniform (ACU) 77



Army Service Uniform (ASU)

Provides a basic set of components that allows Soldiers to dress from the lowest to the highest end of service uniforms with little variation required, thus reducing the need for numerous uniforms.

DESCRIPTION & SPECIFICATIONS

The **Army Service Uniform (ASU)** reflects simplicity, quality, utility, and tradition. Streamlining various dress uniforms into one ASU reduces the burden on Soldiers. The Army Service Uniform is based on the Army Blue Uniform. The designs of the men's and women's Army Blue Uniform coats remain unchanged. The belted trousers and slacks with a traditional low waistline will be available for daily wear. The high waist men's trousers traditionally worn with suspenders will be retained for wear with the Army Blue Dress Uniform. The men's coat, women's coat, and women's skirt, General Officer trousers and slacks are shade Army Blue 450. The Enlisted and Officer/Non-Commissioned Officer men's trousers and women's slacks are shade Army Blue 451.

The ASU is made of durable materials that do not require special care. The ASU coat, trousers, slacks, and skirt fabric is a 55 percent polyester and 45 percent wool blend. A new gray herringbone shirt will be worn for daily wear, and white shirts will be worn for ceremonial and formal occasions. The gray shirt fabric is a 65 percent polyester and 35 percent cotton blend. Officers and Non-Commissioned Officers (corporal and above) will wear the service cap and gold stripes on the trouser/slacks. Enlisted Soldiers (specialist and below) will wear the beret and will have plain legs on the trousers/slacks. The current black accessories, such as the windbreaker, all-weather coat, overcoat and sweaters, may be worn with the ASU.



Army Service Uniform (ASU) 79



Boots – Cold (Wet & Dry) Weather & Specialty

Provides the Soldier with environmental foot protection suitable for the spectrum of wet and dry cold weather conditions.

DESCRIPTION & SPECIFICATIONS

The white **Extreme Cold Weather Boot (ECWB)** protects feet in dry-cold conditions between -20 degrees Fahrenheit and -60 degrees Fahrenheit. Boots have six pairs of eyelets and insulation consisting of three layers of needle-punched polyester foam hermetically sealed within an outer and inner layer of rubber. The boot has a pressure-release valve to adjust internal air pressure in the boot during high altitude operations.

The **Intermediate Cold Wet Boot with Removable Liner (ICWB w/ RL)** is a tan, cold-wet weather combat boot with a moisture-resistant, rough-side-out cattle hide leather upper measuring 10 inches in height. Boots are worn in cold, wet environments where the mean monthly temperature ranges between 14 degrees and 32 degrees F. This boot contains a waterproof breathable membrane and is issued with two pairs of insulated removable booties. It has a shock attenuating soling system with a slip-and abrasion-resistant rubber outsole. It has a combination eyelet and speed-lace lacing system.

The **U.S. Army Modular Boot System (MBS)** is a multifunctional, multi-theatre footwear system that will afford the Soldier environmental protection and added capability in environmental conditions ranging from -20 to 110 degrees F. It is a developmental program designed to replace the current ACB(HW), ACB(TW), ICWB w/RL and black Cold Weather Boot, which has already been phased out.



**Boots – Cold (Wet & Dry)
Weather & Specialty**

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Extreme Cold Weather Boot (ECWB)



Intermediate Cold Wet Boot with
Removable Liner (ICWB w/RL)

Boots – Hot (Wet & Dry) Weather

Provides combat personnel with environmental and camouflage foot protection in wet and dry hot-weather battle-space environments.

DESCRIPTION & SPECIFICATIONS

The **Army Combat Boot (Hot Weather) [ACB(HW)]** is a tan-colored, hot weather combat boot made with moisture-resistant, rough-side-out cattle hide leather and nylon duck upper with two drainage eyelets on the inner arch. The sole of this boot consists of a three-layer, shock absorbing soling system with a solid rubber, abrasion-resistant outsole. It has a combination eyelet and speed-lace lacing system.

The **Army Combat Boot (Hot Weather-Flame Resistant) [ACB(HW-FR)]** is a tan-colored, flame- and conductive heat-resistant hot weather combat boot made with moisture-resistant, rough-side-out cattle hide leather and fabric upper designed for U.S. Army Flight and Combat Vehicle Crewman personnel. The sole of this boot consists of a three-layer, shock absorbing soling system with a solid rubber, abrasion-resistant outsole. It has a combination eyelet and speed-lace lacing system.

The **Army Combat Boot (Hot Weather-Safety Toe) [ACB(HW-ST)]** is safety toe version of the ACB(HW). It is a tan-colored, hot weather combat boot made with moisture-resistant, rough-side-out cattle hide leather and nylon duck upper. The sole of this boot consists of a three-layer, shock absorbing soling system with an abrasion-resistant solid rubber outsole. It has a combination eyelet and speed-lace lacing system and contains an ASTM F13-compliant steel toe.



**Boots – Hot (Wet & Dry)
Weather**

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Army Combat Boot (Hot Weather-Safety Toe) [ACB(HW-ST)]



Army Combat Boot (Hot Weather-Flame Resistant) [ACB(HW-FR)]



Army Combat Boot (Hot Weather)
[ACB(HW)]

Boots – Temperate Weather (General Purpose)

Provides combat personnel with environmental and camouflage foot protection in a variety of battle-space environments.

DESCRIPTION & SPECIFICATIONS

The **Army Combat Boot (Temperate Weather) [ACB(TW)]** is a tan-colored, temperate weather combat boot with a moisture-resistant, rough-side-out cattle hide leather and nylon duck upper. It contains a waterproof breathable membrane and integrated safety features for limited flame-, conductive heat-, and liquid fuel penetration-protection. The sole consists of a three-layer, shock absorbing soling system with an abrasion- and slip-resistant solid rubber outsole. It has a combination eyelet and speed-lace lacing system.



**Boots – Temperate Weather
(General Purpose)**

85



Camouflage Systems – Face Paint

Provides camouflage solutions for the Soldier in the visible and near infrared regions of the electromagnetic spectrum as well as protection against thermal imagers and insects.

DESCRIPTION & SPECIFICATIONS

Camouflage Face Paint (CFP) is used on all exposed skin to provide passive camouflage protection in the visible and near-infrared regions of the electromagnetic spectrum, as well as against thermal imagers, which operate in the mid- and far-infrared regions of the spectrum. The current camouflage compact is a cosmetic-like container with an acrylic mirror and compartments containing four colors.



Camouflage Systems – Face Paint

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Camouflage Systems – Ghillie Suit Accessory Kit (GSAK) Upgrade

Offers the Soldier improved counter-surveillance protection, increased multi-climate protection, comfort, and protection from flame and thermal threats, as well as enhanced mobility and agility, multi-system operability, and anti-odor/anti-microbial properties.

DESCRIPTION & SPECIFICATIONS

The **Ghillie Suit Accessory Kit (GSAK) Upgrade** provides surveillance units and snipers with various camouflage multifunctional materials to construct, repair, and modify Ghillie Suits to meet unique mission and climatic requirements. The lightweight kit consists of 17 items, including head net, over-white trousers, over-white mittens, over-white parka, flame-resistant jute, universal netting, nylon cord, sewing kit, camouflage paste, zip ties, flame-resistant burlap mats, body net, seam grip, gun sleeve, hook and loop fasteners, suspenders, and other items that are used to fabricate and maintain one Ghillie Suit.



**Camouflage Systems –
Ghillie Suit Accessory Kit
(GSAK) Upgrade**

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Chemical Protective Clothing

Protects Soldiers from chemical and biological contamination in battle and other operations.

DESCRIPTION & SPECIFICATIONS

The **Chemical Protective Undergarment (CPU)** is a two-piece “form-fitting” design worn under armor crew or aviators’ uniforms. When worn with a new duty uniform, the system will provide 12 hours of liquid and vapor protection from chemical agents. The CPU is snug-fitting and air permeable. The CPU is also worn with the Toxicological Agent Protective (TAP) Ensemble by Department of the Army civilians who are engaged in routine surveillance, demilitarization, and destruction of chemical agents inside the United States. In addition to the shirt and drawers worn by armor and aviator crews, Army civilians wear socks and gloves made from the same material to provide enhanced protection.

The **U.S. Army Firefighter’s Integrated Suit-Combat (FIS-C)** protects military firefighters in accordance with National Fire Protection Association standards and provides chemical and biological (CB) protection during firefighting. The FIS-C consists of proximity coat, proximity trousers, gloves, helmet, standard firefighting boots, Nomex balaclava, self-contained breathing apparatus with chemical kit, Joint Service Lightweight Integrated Suit Technology (JSLIST) overgarment, CB gloves/liners, and carrying bag.

Suit, Contamination Avoidance, Liquid Protective (SCALP) is an impermeable, lightweight, inexpensive disposable ensemble that provides supplemental protection when worn over standard chemical protective garments. SCALP consists of a jacket, trousers, and two footwear covers worn over the chemical protective overgarment and overboots. All components provide protection from liquid contamination for up to one hour.

The **Joint Service Lightweight Integrated Suit Technology (JSLIST) Chemical Biological Coverall for Combat Vehicle Crewmen (JC3)** provides CB protection for armored crew members. The JC3 is a one-piece coverall and is intended to provide flame resistance. The JC3 is compatible with legacy CB clothing items and chemical masks.

The **Joint Protective Aircrew Ensemble (JPACE)** is a one-piece coverall that provides CB protection for aircrew personnel. JPACE also provides flame resistance and integrates with other system components.



Joint Service Lightweight
Integrated Suit Technology
(JSLIST)

Chemical Protective
Undergarment (CPU)



JPACE



JC3

Suit, Contamination Avoidance,
Liquid Protective (SCALP)



U.S. Army Firefighter's Integrated
Suit-Combat (FIS-C)



Chemical Protective Clothing – Accessories

Protects Soldiers from chemical and biological contamination in battle and other operations.

DESCRIPTION & SPECIFICATIONS

The **CB Protective Equipment Bag** is designed to consolidate and transport the CB Protective Ensemble. It is made of an abrasion-resistant nylon and incorporates a unique closure system, using hook-and-loop closures, two compression straps, and quick-release buckles for protection from the outside environment. Web loops have been stitched to the carrier to accept cargo tie-down straps for attachment to the current and developmental load carrying equipment.

The **Chemical Protective Helmet Cover** is a one-piece configuration made of butyl rubber-coated nylon cloth and gathered at the opening by elastic webbing enclosed in the hem. It provides any standard helmet with protection from chemical and biological contamination.

The **Chemical Protective Glove Set** includes the impermeable butyl rubber gloves with cotton knit liners, which protect the hands in a chemical-threat environment. The gloves are manufactured in right and left hand, five-fingered configurations, and shaped to follow the natural curvature of the hand in a relaxed position, while the inner permeable cotton five-finger gloves fit either hand.

The **Green Vinyl Overboot/Black Vinyl Overboot (GVO/BVO)** are made of an impermeable molded vinyl plastisol and have a slip-resistant outsole design. Elastic loops are pulled over three metal fasteners to close the gusset expansion after donning. The **GVO/BVO** are worn over standard combat boots to provide chemical protection when needed and moisture protection during wet weather. The **GVO/BVO** provides 24 hours of protection against all known CB agents after a maximum wear of 60 days.

The **Alternative Footwear System** is made from an impermeable molded butyl rubber improved traction and durability over the GVO/BVO. Fastening and usage are identical to the BVO. The AFS provides 24 hours of protection against all known CB agents after a maximum wear of 30 days.

Chemical Protective Clothing – Accessories

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Chemical and Biological
Protective Equipment Bag



Chemical Protective Helmet Cover



Green Vinyl Overboot/Black Vinyl
Overboot



Chemical Protective Glove Set



Cold Weather Accessory Garments

Provides Soldiers with comprehensive cold weather protection and camouflage for wet and dry environments.

DESCRIPTION & SPECIFICATIONS

Cold Weather Accessory Garments include fur ruff parka hoods, masks, neck gaiters, snow camouflage garments, and the cold/wet glove system.

The **Extreme Cold Weather Mask** protects the face against wind, cold, and blowing snow. The mask has an adjustable insulating face piece and removable oro-nasal thermal control barrier and insulating bib-type throat covering. It covers the forehead, cheeks, nose, ears, chin, and mouth; the face piece and throat covering are white.

The **Balaclava** is made of wool and provides full head coverage for use in extreme cold weather.

The **Neck Gaiter** can be worn six ways: as neck warmer, hood, balaclava, hat, ski band, or as a headband. The brown, one-size-fits-all Neck Gaiter is compatible with Battle Dress Uniforms.

The **Arctic Camouflage Parka and Trousers** (overwhites) provide camouflage in snow terrain. The thigh-length parka has a two-way, full-front zipper with snap fasteners and a split bottom in back with an elastic draw cord to tie the parka bottom around each leg. The parka and trousers are not substitutes but are worn over other garments in extremely cold environments or for snow camouflage. The single-ply trouser has draw cords at the waist and leg bottoms with slash-through pocket openings on each hip.

The **Wool Winter Sock** is a knitted seamless sock worn with the ski mountain boot. The inside of the wool sock has terry tuft stitches throughout. It is made of wool and cotton in a natural color.



Cold Weather Accessory Garments

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Neck Gaiter



The Extreme Cold
Weather Mask



Wool Winter Sock



Ruff Parka Hood



Balaclava

Fire Protection – Army Aircrew Combat Uniform (A2CU)

Enhances aircrew comfort and provides flash fire protection during pre-flight, flight, post-flight, refueling, and other aviation operations.

Description & Specifications

The **Army Aircrew Combat Uniform (A2CU)** is a two-piece flight suit in the universal camouflage pattern that offers protection from flash fires. The coat is similar to the ACU in design, with a stand-up collar featuring a front extension, shoulder patches, a front zipper, two inside hanging chest pockets with flaps; a biswing back; adjustable waist; two-piece set-in sleeves with elbow patches; two sleeve utility pockets with flaps and “identification friend or foe” (IFF) tabs; and two lower sleeve pencil pockets with flaps. It can be worn with the Microclimate Cooling Vest. The trousers have nine pockets: two thigh pockets; two calf pockets with external tool pockets; one knife pocket with lanyard (on the left thigh); and two side hanging pockets. Pockets (except for the side hanging pockets and the lower leg external tool pockets) have flaps and zippers.

The A2CU upgrades the current aviation protective clothing system to improve operational effectiveness, fit, suitability, and durability, addressing near-term Air Warrior requirements and adding the universal camouflage pattern to all outer layers. All materials offer superior flame resistance and comfort. The A2CU is made of a blend of 92 percent Nomex, five percent Kevlar, and three percent static dissipative fiber.



**Fire Protection – Army
Aircrew Combat Uniform
(A2CU)**

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Fire Protection – Improved Combat Vehicle Crewman (iCVC) Coverall

Provides combat vehicle crewmen with extraction capability and improved protection from flame and flash fires in all weather conditions.

DESCRIPTION & SPECIFICATIONS

The **Improved Combat Vehicle Crewman (iCVC) Coverall** is a one-piece flame-resistant garment with a front entry, zippered closure with dual sliders, drop seat, upper back extraction strap, collar with front throat protection, with zippers on the sleeves and legs, and nine pockets. The coverall is made in a blend of 92 percent Nomex, five percent Kevlar, and three percent static dissipative fiber. It is available in the universal camouflage pattern.

The **Anti-Flash Hood** is shoulder length, conforms to the head, and flares into a yoke at the bottom. The circular face opening is edged with bias binding that covers elastic webbing. The top portion of the hood has two layers of the basic material, while the yoke is a single layer. It is a blend of 80 percent flame resistant Rayon and 20 percent polybenzimidazole high-performance fiber in a natural color.

The **CVC Coverall Liner** is worn under the coverall and provides additional thermal insulation and protection from flash fires. It is a set of upper and lower garments that separate at the waist. The upper is a waist-length jacket configuration with sleeves. The lower trousers attach to the upper garment and are compatible with the drop seat of the coverall. The coverall can be worn with both sections of the liner attached or with just the upper section alone. The liners are made from a quilted Aramid batting material.

The **High Temperature Resistant Cold Weather Jacket** protects from cold and flash fires. The jacket is single breasted with a front

zipper and inside protective flap. The back has a yoke and a retrieval strap opening with a hook-and-pile closure.

The left sleeve has utility and pencil pockets and the sleeves have elbow patches. The cuffs and waistband are rib knit. The jacket is made from an oxford weave cloth in a blend of 92 percent Nomex, five percent Kevlar, and three percent static dissipative fiber. It is currently available in solid colors OG-106, CG-483, and Tan 380 and is fully lined with a quilted Aramid batting material.



**Fire Protection – Improved
Combat Vehicle Crewman
(iCVC) Coverall**

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Improved Combat Vehicle Crewman
(iCVC) Coverall



CVC Coverall Liner



High Temperature Resistant
Cold Weather Jacket

Anti-Flash Hood



Fire Resistant Environmental Ensemble (FREE)

Provides Combat Vehicle Crews and Aviation Crews with flame protection in a variety of cold and wet climates.

DESCRIPTION & SPECIFICATIONS

The Fire Resistant Environmental Ensemble (FREE) is a multilayered, versatile, insulating system that is adaptable to varying mission requirements and environmental conditions. The system consists of male and female undergarments, a base layer, midweight under layer, light weather outer layer, intermediate weather outer layer, cold weather gloves, balaclavas for hot and cold weather, an extreme/wet weather parka, a rigger belt, and wool socks.

FREE is designed to be functional in and out of aircraft and combat vehicles. It will replace aviation and combat vehicle crewmen cold-weather clothing.

FREE is color-compatible (universal camouflage and foliage green) with ground Soldier uniforms and provides armor and aircrew members with the flexibility needed for field operations in rapidly changing environments.

The ensemble will be functional in multiple cold and wet weather climates and activities. Additionally, it is designed to increase comfort and ergonomic efficiency for wear in the confines of aircraft and armored vehicles. New materials enhance breathability and environmental protection, providing greater versatility in meeting Soldiers' needs. FREE is a comprehensive clothing system from skin to outerwear, from head to toe.



Fire Resistant Environmental Ensemble (FREE) 101



Ancillaries/
Under-layers



Base Layer



Midweight Layer



Fleece Vest



Light Weight
Outer Layer



Intermediate
Outer Layer



Extreme
Outer Layer

Generation III Extended Cold Weather Clothing System (GEN III ECWCS)

Protects the Soldier from cold weather conditions with clothing adjustable to the Soldier's personal preference and prevailing weather conditions.

DESCRIPTION & SPECIFICATIONS

The Generation III Extended Cold Weather Clothing System (GEN III ECWCS) is a multi-layered, versatile, insulating system that allows the Soldier to adapt to varying mission requirements and environmental conditions. The modularity of the system is based on the mission and the individual requirement of the Soldier. It is designed to be broken down into several possible configurations.

GEN III ECWCS consists of 12 components:

Lightweight Cold Weather Undershirt/Drawers: These consist of long-sleeve top and full-length bottom garments constructed out of "silk weight" moisture-wicking polyester. The fabric aids in the movement of moisture from the skin to the outer layers while the wearer is moving or static.

Midweight Cold Weather Shirt/Drawers: These consist of long-sleeve top and full-length bottom garments constructed out of polyester "grid" fleece. They will provide light insulation for use in mild climates as well as act as a layer for colder climates, and They provide an increased surface area for the transporting moisture away from the wearer during movement.

Fleece Cold Weather Jacket: This jacket acts as the primary insulation layer for use in moderate to cold climate. Insulation mimicking animal fur provides an increase in the warmth-to-weight ratio along with a reduction in volume when packed.

Wind Cold Weather Jacket: This jacket acts as a low-volume shell layer, optimizing the performance of moisture wicking along with insulation layers when combined with Interceptor Body Armor (IBA) and/or Army Combat Uniform (ACU) in mild to transitional environments such as desert day to desert evening. It is made of a lightweight, windproof, and water-repellent material. Design features include full-zip front, draw cord at the bottom, shoulder pockets, and a no-hood simple collar.

Soft Shell Cold Weather Jacket and Trousers: These replace the ACU in extended cold weather environments. They are made of a highly water-resistant, windproof material that increases moisture vapor permeability over current hard-shell garments. The garments provide a reduction in weight, bulk, and noise signature during movement. Increased breathability improves performance of insulation layers by decreasing saturation from moisture vapor accumulation.

Extreme Cold/Wet Weather Jacket and Trousers: These include a waterproof layer for use in prolonged and/or hard rain and wet conditions.

Extreme Cold Weather Parka/Trousers: These are used in extreme cold weather. They are highly water-resistant and windproof to provide wind and moderate moisture protection. They provide superior warmth and high compactability, low weight and low volume, and are sized to fit over the during movement or static activities requiring maximum insulation.

**Generation III Extended Cold
Weather Clothing System
(GEN III ECWCS)**

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Gloves – Cold (Wet & Dry) Weather

Provides Soldiers with full cold weather hand protection and camouflage for wet and dry environments.



DESCRIPTION & SPECIFICATIONS

Men's and Women's Anti-Contact Gloves are for use in cold climates to protect against cold burns caused by touching cold metal objects and when performing tasks requiring dexterity. They consist of an unlined Gunn-cut design made of fabric with a leather palm.

The **Intermediate Cold Weather Flyer's Gloves** are designed to protect against flash flame and cold weather. The gloves have a Nomex knit fabric on the back of the hand and black sheepskin leather on the palm and extending to the back of the fingertip area.

Cold Weather Glove Inserts consist of ambidextrous, knitted wool fabric designed to be worn under other gloves to provide extra protection from cold.

The **Extreme Cold Weather (ECW) Mitten Set** is worn over other hand-wear to provide environmental protection in extreme cold climates. The ECW can be removed for short periods when Soldiers must perform tasks requiring dexterity in extreme cold climates. The mittens can be easily retained via the suspension harness and then replaced to re-warm the hands. The set consists of an outer shell, a removable insulating liner, and a suspension harness. The outer shell has a fabric and leather palm with a layer of pile material on the back of the hand. The mittens have a long gauntlet with adjustable closure straps on the back of the outer shell across the wrist and top of gauntlet. The harness consists of a breast piece and a suspension piece. The outer shell of the mitten set is made of wind-resistant and water-repellent cotton, nylon sateen with a deerskin leather palm, and wool pile material on the back of the hand. The removable insulating

liner is made of polyester batting with a lightweight ripstop nylon cover fabric. The suspension harness is made of cotton tape and cotton braid.

Snow Camouflage White Mitten Shells are worn over ECW mittens and trigger finger mittens for camouflage in snowy terrain. The shell is made of a single layer of fabric and has a long gauntlet with an elastic take-up at the top of the gauntlet and an adjustable closure strap on the back across the wrist. The mitten shells are made of cotton warp/nylon filling oxford cloth that has a water-resistant finish.

**Gloves – Cold (Wet & Dry)
Weather**

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Snow Camouflage White Mitten Shells



Cold Weather Glove Inserts



Extreme Cold Weather (ECW) Mitten Set



Intermediate Cold Weather
Flyer's Gloves



Men's and Women's Anti-
contact Gloves



Gloves – Hot (Wet & Dry) Weather

Protects Soldiers' hands while moving objects and navigating in rough terrain.

DESCRIPTION & SPECIFICATIONS

The **Combat Glove** is 96 percent Kevlar and four percent P140 conductive anti-flash fiber. The glove is form fitting, offering maximum dexterity and tactility. The back and fingers of the glove increase cut and flame protection with a unique blend knit. The leather is hair sheepskin or goat kidskin. Thread materials consist of 100 percent Kevlar classified under MIL-A-A-55195. The cloth portion of the glove is inherently flame-resistant Kevlar that does not melt or drip and can be laundered without losing its protective properties.

The **Combat Vehicle Crewman's (CVC) Glove** and the **Summer Flyer's Glove** are lightweight unlined cloth and leather gloves. The CVC glove is made of flame-resistant jersey knit Nomex with leather palms of water-resistant cattle hide or horse hide. The **Summer Flyer's Glove** is made of flame-resistant jersey knit Nomex with palms made of water-resistant Hairsheep leather. Both gloves can be laundered without losing their flame resistance.



**Gloves – Hot (Wet & Dry)
Weather**

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Combat Gloves

Combat Vehicle Crewman's Gloves

Summer Flyer's Gloves

Gloves – Temperate Weather (General Purpose)

Protects Soldiers' hands.

DESCRIPTION & SPECIFICATIONS

The waterproof **Intermediate Cold Wet Glove (ICWG)** protects hands in conditions of approximately zero to 40 degrees Fahrenheit. It is worn alone or over lightweight inserts; the March 2005 redesign eliminates the flexor design and allows multiple waterproof/breathable membranes.



**Gloves – Temperate Weather
(General Purpose)**

109



Gloves – Utility

Protects Soldiers' hands in a variety of situations, settings, and temperatures.

DESCRIPTION & SPECIFICATIONS

Barbed Wire Handler's Gloves offer protection when handling barbed tape or wire and similar materials. The gloves have a four-finger-and-thumb Clute design with a five-inch gauntlet, the split leather cowhide palms are lined with cotton flannel and the gauntlet areas with cotton duck. The palm and the palm side of the fingers and thumb are reinforced with leather strips stapled one-quarter inch apart.

Men's and Women's Heavy Duty Gloves are Gunn-cut of cowhide or horsehide and intended for heavy work, with an adjustable strap and buckle on the back. The gloves have a continuous thumb, with a leather welt inserted in the thumb seam. The seam at the base of the fingers incorporates a reinforcing leather welt, turned up to cover the stitching. An additional layer of leather reinforces the palm.

Light Duty Work Glove/Utility Gloves are multifunctional but are normally worn for performing light work and are a bag item. The gloves use a flexor design, which improves durability through fewer seams in the fingers, and incorporates a three-dimensional shape with less bulk.

Fuel Handlers Gloves (FHG) protect against kerosene-based fuels (JP-8). The gloves consist of Nomex knit with leather palms, and are liquid-proof and flame-resistant to provide fuel handlers' with protection, performance, and compatibility, and to maximize protection and comfort. They are green, and have full Gore-Tex® direct grip glove inserts for waterproofing.

The **Protective Ensemble** consists of three components: riot control gloves, cut protective gloves, and forearm guards. This glove ensemble has excellent dexterity and tactility for use by the Military Police in pat-down situations and to provide Soldiers with cut and puncture protection.





Fuel Handler's Gloves



Men's and Women's Heavy Duty Gloves



Light Duty Work Glove/Utility Glove



Barbed Wire Handler's Gloves

Individual Soldier Hydration

Provides Soldiers with a portable means of hydration that interfaces with chemical-biological (CB) masks.

DESCRIPTION & SPECIFICATIONS

The **One-Quart Canteen** is a rigid plastic container that interfaces with the drinking tube of the chemical-biological protective mask, allowing Soldiers to drink from the canteen without removing their masks. It has a pocket on the outside for water purification tablets. The cover attaches to the Soldier's equipment belt or load-carrying equipment.

The **Two-Quart Collapsible Canteen** is a flexible, plastic container that also interfaces with the drinking tube of the chemical-biological protective mask, allowing Soldiers to drink without removing their masks. It also has a pocket containing water purification tablets. The canteen may be carried slung over the shoulder using the carrying strap or attached to the field pack webbing using the belt clips.

The **Cold Weather Canteen System** will provide a means for hydration during operations in extreme cold environments (i.e., -40 degrees Fahrenheit). It is stainless steel with an insulated carrier and has a one-liter capacity. It interfaces with the drinking tube of the chemical-biological protective mask using a cap adapter/mouthpiece of low thermal conductive material. The insulated carrier is designed to attach to the Soldier's equipment belt or load-carrying equipment.

The **Modular Lightweight Load-Carrying Equipment (MOLLE) Hydration System** is an ergonomically designed water bladder that can be worn individually or integrated with load-bearing equipment or web harness systems. It includes a drink tube with bite valve and positive

shut-off and an exterior fill port with a handle for filling on the go. The outside pouch is made of abrasion-resistant 1000D Cordura™ nylon and has a sternum strap for added stability.

Water purification devices are intended to interface and operate with existing Soldier hydration systems to filter and purify indigenous surface waters collected under emergency conditions where potable water is not available. The device is being addressed in a development program and will be compact, lightweight, and effective in removing water contaminants of microbiological, chemical, and particulate nature.



Individual Soldier Hydration 113



Cold Weather Canteen System



Two-Quart Collapsible Canteen

Modular Lightweight
Load-Carrying Equipment
(MOLLE) Hydration
System



One-Quart Canteen

Load Carriage-Related Equipment

Enables Soldiers to carry mission-essential equipment with minimal effect on mobility and survivability.

DESCRIPTION & SPECIFICATIONS

The **Combat Patrol Pack** is textured nylon with nylon webbing and plastic hardware that is used during assaults on obstacles and targets that do not require sustainment loads.

The **Medium Field Pack** carries the existence load with or without a frame and has a main pouch, draw cord closure, and three outside pockets and hangers to carry equipment.

The **Field Pack Cover** is a layer of fabric with an elastic cord sewn in the hem; it fits over a large or medium field pack and is white, three-color desert camouflage, or four-color woodland camouflage.

The **Combat Medic Vest** is designed to carry 40 percent of the medic's load and provides efficient organization of medical equipment.

The **Enhanced Tactical Load-Bearing Vest** has permanently attached ammunition and grenade pockets and is compatible with the standard equipment belt.

The **Compression Sack** compresses clothing and spare items and reduces bulk by as much as 50 percent. The **Entrenching Tool (E-Tool)** is used for digging in the field and is "D" handled, collapsible, and used as a shovel. The **Mattock** is a supplement to the E-Tool and has a 12-inch steel head with mattock and axe blades, and a wooden 24-inch handle. It cuts tree roots and limbs, breaks rock, and loosens ground more easily. The **Equipment Belt Extender (EBE)** is a 4-inch equipment belt and has triple layers of 2.25-inch wide webbing with 2.25 inch side-release buckles sewn on each end. The **Field Case** holds a first aid kit or compass and is attached to an equipment belt or suspenders with a slide keeper.

Load Carriage-Related Equipment

115

Equipment Belt Extender



E-Tool



Mattock

Compression Sack



Military Combat Eye Protection (MCEP) – Goggles

Provides laser and ballistic eye protection for Soldiers; improves Soldier acceptance of approved protective eyewear to reduce risk of eye injuries.

DESCRIPTION & SPECIFICATIONS

The Military Combat Eye Protection (MCEP) program enhances the Soldier's battlefield capabilities when wearing eye protection. MCEP provides laser protection (maintaining ballistic protection), and ultimately protects against more laser weapon systems operating in the optical region of the electromagnetic spectrum while providing sufficient light transmission to enable Soldiers to wear the system both in daylight and at night during all missions, including airborne operations. It provides goggles for both prescription and nonprescription wearers.

The MCEP replaces standard eye protection products such as **Sun, Wind and Dust Goggles** that are out-of-date with modern battlefield requirements. To increase the overall use of protective eyewear, the MCEP program qualifies commercial eyewear products by testing to numerous ballistic, optical, and operational standards. Those items that pass the testing are included in an Authorized Protective Eyewear List (APEL). Each product on the APEL has been qualified to the American National Standards Institute (ANSI) Z87.1 Standard for Occupational and Educational Personal Eye and Face Protection Devices and meets the ballistic fragmentation testing for goggles. Goggles currently listed include: **Arena Flakjak, ESS Land Ops, ESS Vehicle Ops, ESS Profile NVG, and Revision Desert Locust.**

For Soldiers who require corrective lenses, two goggles have approved prescription lens carriers. The goggle systems are supply items that may be purchased as complete kits or as individual parts. All items have assigned National Stock Numbers and may be purchased through normal supply channels. All optical inserts/carriers for those who wear glasses are available by orders placed at any optometry or ophthalmology clinic, including those in theater.

Military Combat Eye Protection (MCEP) – Goggles

117



ESS Land OPS



Arena Flakjak



ESS Vehicle OPS



ESS Profile NVG



Revision Desert
Locust



Military Combat Eye Protection (MCEP) – Spectacles

Provides laser and ballistic eye protection for Soldiers; improves Soldier acceptance of approved protective eyewear to reduce likelihood of eye injuries.

DESCRIPTION & SPECIFICATIONS

The MCEP program enhances the Soldier's battlefield capabilities when wearing eye protection. MCEP provides laser protection (maintaining ballistic protection) and ultimately protects against more laser weapon systems operating in the optical region of the electromagnetic spectrum while providing sufficient light transmission to enable Soldiers to wear the system both in daylight and at night during all missions, including airborne operations. It provides spectacles for both prescription and nonprescription wearers.

The MCEP replaces standard eye protection products such as **Ballistic Laser Protection Spectacles (BLPS), Special Protective Eyewear Cylindrical System (SPECS)** that are out-of-date with modern battlefield requirements. To increase the overall use of protective eyewear, the MCEP program qualifies commercial eyewear products by testing to numerous ballistic, optical, and operational standards. Those items that pass the testing are included in an Authorized Protective Eyewear List (APEL). Each product on the APEL has been qualified to the American National Standards Institute (ANSI) Z87.1 Standard for Occupational and Educational Personal Eye and Face Protection Devices and meets the ballistic fragmentation testing for spectacles. Spectacles currently listed include: **ESS ICE 2, ESS ICE NARO, Oakley SI Ballistic M Frame, Revision Sawfly, Uvex XC, Wiley-X SG-1, and PT-1SC.**

For Soldiers who require corrective lenses, five of the spectacles have approved prescription lens carriers. The spectacle systems are supply items that may be purchased as complete kits or as individual parts. All items have assigned National Stock Numbers and may be purchased through normal supply channels. All optical inserts/carriers for those who wear glasses are available by orders placed at any optometry or ophthalmology clinic, including those in theater.

Military Combat Eye Protection (MCEP) – Spectacles

119



Uvex XC



Wiley-X SG-1



Wiley X PT-1SC



ESS ICE 2



ESS ICE NARO



Oakley M Frame

Military Police and Law Enforcement Equipment

Provides Military Police with appropriate tools and equipment for law enforcement.

DESCRIPTION & SPECIFICATIONS

The **Military Police (MP) Law Enforcement Ensemble** includes an equipment belt, flashlight holder, chemical spray holder, baton holder, radio holder, handcuff case, dual magazine pouch, ambidextrous and removable flap holster, and belt keepers. Components are made of Cordura nylon and other heavy duty materials. The white nylon **Disposable Restraint System (DRS)** is a self-locking restraint band that encircles wrists or ankles and requires a cutting tool for removal.

The **Family of Batons and Nightsticks (FBN)** consists of two collapsible batons made of hard aluminum and polycarbonate materials; a straight baton with a side-handle for patrol use, and an extended-length civil disturbance control baton.

The **Family of Restraint Systems (FORS)** comprises existing restraint systems, as well as new or improved restraint devices to provide a standardized prisoner/detainee control capability. FORS includes existing leg irons, the full body restraint system, and the new improved metal handcuff, the temporary cinch strap, and DRS.

The shoulder-carry **Mid-Size Riot Control Disperser, M37 (MRCD)** system includes a pressurized riot agent tank with a spray nozzle. This MP non-lethal, personal defensive system covers the gap between vehicle-mounted systems and dismounted Soldier systems, adding flexibility in conducting crowd control operations and protecting individual Soldiers.

The **Law Enforcement (LE) and Special Reaction Team Bags** are Soldier Enhancement Programs (SEP). The LE is the smaller bag and is designed for everyday use in LE vehicles for carrying flashlights, batons, maps, flares, first aid kits, flex-cuffs, and other equipment. The larger Special Reaction Team/Civil Disturbance (SRT/CD) bag holds the special equipment used for civil disturbance operations (helmets, vests, gloves, batons, knee and elbow guards, and other equipment). Both bags must be constructed of durable 1000-denier fabric (minimum) and be water resistant. Both must have carrying handles and a removable/adjustable shoulder strap. Both bags must have a fully accessible main compartment. The LE bag must be 20 inches long by 8 inches wide and 12 inches high and have five exterior pockets. The SRT/CD bag is oversized at approximately 28 inches long by 10 inches wide and 14-20 inches high. The bag will have a closed side pocket (28 x 2-4 x 14-20 inches) that allows moisture to escape for storing tactical body armor that may have gotten wet after use.

The **Individual Riot Control Agent Disperser (IRCAD)** can deliver at least 15 one-second bursts of one of several approved riot control agents (RCA), or a training device capable of replicating the

characteristics of the IRCAD with an inert solution. The IRCAD will be used by individual MPs and by other Soldiers in dismounted tactical security operations, military operations in urban terrain (MOUT), LE, and SRT/CD operations in a wide variety of tactical environments when authorized by the commander and applicable law and treaties.

Search Mirrors (SM), readily available commercially, may be categorized as either individual pocket (tactical SM) or large living area viewing security types (inspection SM).

Optional features consist of telescopic extension, integrated illumination, multi-angle viewing, and wheels. Inspection SMs enable searches of vehicles at checkpoints, gates, and roadblocks. Tactical SMs enable Soldiers conducting MOUT to see around corners, into rooms, and over/around obstacles without exposure to threats.

Military Police and Law Enforcement Equipment

121



Disposable Restraint System



Family of Restraint Systems



Individual Riot Control Agent Systems



Law Enforcement and Special Reaction Team Bags

Search Mirrors



Family of Batons and Nightsticks

Mid-Size Control Dispenser, M37



Military Police Law Enforcement Ensemble



Modular Lightweight Load-Carrying Equipment (MOLLE)

Enables Soldiers to tailor individual loads to meet mission needs with modular, flexible, load-carrying equipment.

DESCRIPTION & SPECIFICATIONS

The **Modular Lightweight Load-Carrying Equipment (MOLLE)** system was developed to replace the All-Purpose Lightweight Individual Carrying Equipment (ALICE) and Integrated Individual Fighting System (IIFS).

The MOLLE consists of a modular rucksack with removable components and a fighting load carrier that can accept removable pockets for rifleman, pistol, squad automatic weapon, medic, and grenadier configurations. For short-duration missions, there is an assault pack and waist pack. The modularity allows individuals to tailor the load to meet mission needs.

The **Tactical Thigh Holster Extender (TTHE)** system is designed for the mounted or dismounted Soldier to attach to the Army Combat Uniform trouser belt to provide the ability to lower the holster to arm's length while standing, as well as place the holster in a ready access position while seated. The TTHE will work with the Soldier Enhancement Program (SEP) initiative M9/M11 Pistol Mount Interface with or without the Integrated Laser/White Light Pointer, also a SEP program.



Modular Lightweight Load-Carrying Equipment (MOLLE)

123



Tactical Thigh Holster



Tactical Thigh Holster Extender



Mountaineering Equipment

Provides three level kits to enhance performance of infantry Soldiers operating in all Operational Terrain Levels.



DESCRIPTION & SPECIFICATIONS

The Mountain Kits will be independent and synchronized in overall use, enabling infantry platoons to move through mountainous terrain with the support of assault climbers. The kits will include equipment for minimally trained as well as well-trained mountain Soldiers. The kit will contain:

- **Ascender:** mechanical devices for ascending on a rope
- **Belay/rappel device:** mechanical friction brake devices used when belaying
- **Rock and Ice Protection:** rock/ice climbing and mountaineering protection equipment used to provide safety for Assault Climbers
- **Carabineers, locking/non locking:** metal loops with spring-loaded gates (openings), used as connectors
- **Harness:** used for securing a person to a rope
- **Chock pick/nut tool:** used to extract nuts from cracks in the rock
- **Ropes, dynamic/static:** dynamic usually used as belay ropes; static usually used for rope installations
- **Accessory rope/cord/webbing:** typically constructed with high strength nylon cores and polyester sheaths that resist abrasion, UV degradation and chemical contamination
- **Snowshoes:** used to move over snow covered terrain
- **Crampons:** used to move over ice and hard packed snow-covered terrain

- **Rope washer and cutter:** devices used to prepare and maintain ropes and webbing
- **Avalanche equipment:** equipment to protect and rescue personnel from avalanches

Mountaineering Equipment 125



Parachute, Maneuverable Canopy 6 (MC-6) Personnel Parachute System

Enables parachuting Soldiers to steer toward a specific impact point in the drop zone.

126

DESCRIPTION & SPECIFICATIONS

The **MC-6** provides the airborne Soldier with a new tactical static line-deployed, steerable personnel parachute replacing the legacy M1 series parachute assembly, associated harness, and reserve. The MC-6 has a lower rate of descent, lower opening shock, reduced canopy damage, better turn ratio, and a better glide ratio than the MC1-1C. It was designed specifically to operate at higher altitudes above mean sea level with heavier weights. These improvements result in better maneuverability, greater canopy control, reduced jumper injury, and reduced canopy damage. This program is a combined U.S. Army and Special Operations Command (SOCOM) project.

The MC-6 will be used throughout the full spectrum of operational and environmental conditions for specific Army units and Special Operations Forces (SOF). MC-6 integrates a non-standard main canopy (SF-10A) parachute with the harness (T-11) and reserve parachute (T-11R) from the **Advanced Tactical Parachute System (ATPS)**.

The MC-6 main and reserve canopies are made of 1.1 oz., low-porosity ripstop nylon, using block construction to facilitate manufacturing and repair. The main container bag is made of Cordura, an abrasion and water-resistant fabric. The harness is made of Type 7 webbing.

The Main Canopy Assembly weight with T-11 Harness is 26 pounds. The T-11R Reserve Assembly weight is 15 pounds.

Main canopy is 32 feet in diameter; the reserve canopy is 24 feet in diameter.

The **MC1-1C** is utilized by small teams during airborne operations and training. The parachute has a parabolic shape with an H-TC shape configuration in the rear with 60 square feet of canopy removed. It has a nominal diameter of 35 feet and weighs 28 pounds.



**Parachute, Maneuverable
Canopy 6 (MC-6) Personnel
Parachute System**

127



Parachute, Military Freefall (MFF) System

Maximizes success of Special Operations freefall missions.

DESCRIPTION & SPECIFICATIONS

The **Military Freefall (MFF) Special Operations Advanced Ram Air Parachute System (SOARAPS)** provides a multi-mission high-altitude parachute delivery system and allows personnel to exit at altitudes between 3,500 feet and 35,000 feet. The parachute, which replaces the current MC-4 parachute, supports a total jumper weight of 450 pounds. It also provides non-MFF personnel with a ram parachute that is static-line deployed.

Also under development are three accessory systems: the **Electronic Automatic Activation Device (EAAD)**, the **Navigation Aid (NAVAID)**, and the **Parachutist Oxygen Mask (POM)**.

The EAAD will be used with the current and next generation of parachute systems, replacing the Automatic Ripcord Release (AR2) and providing a simpler and more reliable method of activation in the event the parachutist is unable to activate the parachute at the appropriate altitude. The EAAD activates and cuts the reserve parachute closing loops if the jumper is falling at 78 mph or greater upon reaching the minimum deployment altitude.

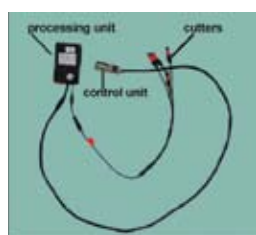
NAVAID provides in-flight navigation and mission planning capability, allowing parachutists under canopy to locate themselves and the intended drop zone easily. The system utilizes a global position system that integrates with the Joint Precision Airdrop System (JPADS).

The POM provides supplemental oxygen above 12,999 feet and is more efficient than the current MBU-12P mask. POM will not interfere with the parachutist's vision or range of motion.



Parachute, Military Freefall (MFF) System

129



Electronic Automation Activation Device (EAAD)



Military Freefall Navigation Aid (NAVAID)



MFF Advanced Ram Air Parachute System



Parachutist's Oxygen Mask (POM)



Parachute, Non-Maneuverable Canopy (T-11)

Personnel Parachute System

130

Enables parachuting Soldiers to have a stable, low rate of decent parachute that reduces injuries and allows for heavier jump weights.

DESCRIPTION & SPECIFICATIONS

The **Advanced Tactical Parachute System (ATPS)/T-11** is the next generation personnel parachute system. The T-11 will provide the airborne Soldier with the first wholesale modernization of the tactical parachute system since the 1950s. The ATPS/T-11 includes a completely redesigned main and reserve parachute and an integrated harness system and is suitable for the 5th percentile to the 95th percentile Soldier.

The main canopy is a highly modified version of a cross/cruciform platform and has an increased inflated diameter of 14%, and a 28% increase in surface area when compared to the T-10D assembly. The reserve canopy is a proven derivative of the British Low Level Parachute (LLP) aero-conical design that includes apex scoop pockets at the top of the reserve canopy and skirt assist lines at the system's hem to promote fast opening of the reserve system during low speed malfunctions. Unlike the current reserve parachute system, the T-11R reserve is an omni-directional, center-pull deployment system. The T-11 harness, due to higher placement of the D-rings, is designed to displace opening shock forces of the reserve parachute equally along the long axis of the jumper's body. Additionally, the T-11 main canopy utilizes a slider to reduce the opening shock and control the opening of the canopy contributing to the dramatic reduction in canopy oscillation. The T-11 is designed to have an average rate of descent of 18 fps for the 95th percentile Soldier, compared to 22 fps with the T-10D. This reduction will result in lower landing injury rates for jumpers along with increased jumper weight.

Weight: System - 52.7 lbs., main parachute w/T-11 harness - 38 lbs., T-11 reserve assembly - 14.7 lbs.

Size: Main canopy is 30.6 inflated diameter at the hem, reserve canopy is 24' nominal diameter.



**Parachute, Non-Maneuverable
Canopy (T-11) Personnel
Parachute System**

131



Parachute, T-10D

Enables the safe delivery of the parachutist, weapon systems, and equipment to the drop zone in winds up to 13 knots.

DESCRIPTION & SPECIFICATIONS

The static line-deployed **T-10D Parachute** is used for combat mass assault airborne operations and training. Depending upon air density and the jumper's total weight, the average rate of descent for the parachute is 22 feet per second; total suspended weight limitation is 360 pounds. The parachute is deployed using either a 15- or 20-foot static line, allowing the parachutist to be delivered by either C-130 or C-17 U.S. Air Force aircraft.

The T-10D main parachute is a parabolic shape and has a nominal diameter of 35 feet, 30 suspension lines, and a mesh anti-inversion net. The T-10D Parachute assembly consists of five components: pack tray, troop harness, deployment bag, riser, and canopy. The parachute has a combined service life of 16.5 years: service life is 12 years and shelf life is 4.5 years. The T-10D Parachute must be repacked every 120 days. The T-10D Parachute is made of nylon materials commonly used in the manufacturing of parachutes.

The **Modified Improved Reserve Parachute System (MIRPS)** includes a standard T-10 reserve parachute canopy assembly integrated with a commercial deployment assistance device, composed of a bridle line, pilot parachute, and spring. The pack tray includes a line bag for stowing suspension lines and an inner staging flap that holds the reserve parachute until sufficient tension is achieved through the bridle/pilot parachute assembly during deployment. The **MIRPS**

pack tray is slightly larger than that of the T-10 reserve pack tray so it accommodates a larger pilot chute, spring, and bridle. The pack tray has a yellow stripe along the rip cord protector flap and is made of nylon textile materials commonly used to make parachute systems.



Parachute, T-10D

133



Parachutist Equipment

Secures individual mission-essential equipment to the parachutist while in the aircraft, during exit, and during main parachute deployment.



DESCRIPTION & SPECIFICATIONS

The **Harness, Single-Point Release (HSPR)** assembly is used to secure equipment to the parachutist and is made of nylon webbing with friction adapters, two adjustable leg straps, two D-ring attaching straps, and a lowering line. The harness is secured around the equipment load and allows for a simultaneous release of the load and leg straps from the parachutist and parachute harness.

The **Parachutist Drop Bag (PDB)** is a commercial, load-carriage item incorporating a single point release; it is used with a seven-foot lowering line when conducting military freefall or 15-foot lowering line when conducting static line parachuting operations. It has exterior pockets for easy access to maps and water and can be worn front- or rear-mounted.

The retention strap consists of nylon webbing with an attachment eyelet in the center and hook and pile tape on each end of the strap.

The **Universal Static Line (USL)** is composed of a 15-foot static line, a five-foot extension, and a snap hook.

During C-17 operations, the extension is added to the 15-foot static line, thereby meeting the requirement for the 20-foot length. USL is made of water-repellent coated and textured tube-edge 6.6 nylon.

The **M-1950 Weapons Case** is a padded case made of cotton duck or nylon designed to carry individual or crew served weapons. It protects both the jumper and the weapon from injury/damage during airborne operations. It must be rigged with a lowering line when the case and weapons weight is more than 35 pounds.

Parachutist Equipment

135



Harness Single Point Release (HSPR)



M-1950 Weapons Case



Universal Static Line (USL)



Parachutist Drop Bag (PDB)

Personal/Optional Clothing and Equipment

Provides a variety of standard issue and new clothing, insignia, and personal equipment to enhance fit, comfort, alterability, and appearance.

DESCRIPTION & SPECIFICATIONS

Gold-Plated Anodized Insignia replaces the clothing bag yellow brass insignia. The **Beret** is the standard issue headgear. The beret is a one-piece, unlined wool shell with leather headband, draw cord, and lined badge-stay for attachment of insignia. The standard beret is black; airborne Soldiers wear maroon berets, Special Forces wear green, and Rangers wear tan berets. The **All-Weather Coat** functions as a raincoat and a topcoat. The **Maternity Cardigan Sweater** is an optional item worn with maternity service uniforms. The **Women's Service Uniform** was redesigned, improving fit, comfort, alterability, and appearance. The **Women's Dress Mess Uniform** is an optional dress uniform for formal social events. The **Men's Green Class A Service Uniform** consists of a coat, trouser, shirt, necktie, belt, and buckle. The **Class B Service Uniform** omits the coat and tie if the short-sleeve shirt is worn.

In March 2003, the Chief of Staff, Army approved an optional purchase overcoat for wear by Soldiers who want more warmth and a dressier appearance than that provided by the **All-Weather Coat**.

All-weather coats are double-breasted with a six-button front; set-in sleeves; pointed, button-down shoulder and sleeve straps; a front gun patch flap; two vertical welt pockets with pass-through slits; belt;

center back pleat vent and half cape back; in black polyester/cotton blend. The maternity sweater is a V-neck cardigan, longer in front than in back with elbow and shoulder patches, epaulets with hook-and-loop attachments, and a six-button front.

Poromeric Oxfords are plain-toed shoes with removable cushioned insoles, skid-resistant soles, and breathable comfort lining.

The **Women's Class A Uniform** consists of slacks, skirt, coat, shirt, neck tab, belt, and buckle. The **Class B Service Uniform** omits the coat or coat and neck tab, depending upon the shirt worn. The **Women's Dress Mess Uniform** has a waist-length jacket with ornamented sleeve, long or short skirt, and formal white blouse with ruffled front and dome-shaped buttons.

The **Cardigan Sweater, White (Optional)**, is a V-neck cardigan design with a rib knit trim around the front opening and neckline and rib knit cuffs, two lower front pockets, and a six button front.



Personal/Optional Clothing and Equipment

137



Beret



White Cardigan Sweater



Maternity Cardigan Sweater

Sleeping Systems

Provides combat personnel with modular-concept sleep equipment that allows for environmental and physical comfort in a variety of situations.



DESCRIPTION & SPECIFICATIONS

The **Modular Sleeping Bag System (MSBS)** is a bag-within-a-bag concept. MSBS consists of a camouflaged, waterproof, breathable bivy cover, lightweight patrol and intermediate cold weather sleeping bags, and a compression sack to store and carry the system. The MSBS is available in colors of the universal camouflage pattern. The patrol bag provides cold weather protection from 35 to 50 degrees Fahrenheit. The intermediate bag provides cold weather protection from minus 5 to 35 degrees Fahrenheit. When the patrol bag and intermediate bags are mated, the combined system provides extreme cold weather protection in temperatures ranging to minus 30 degrees Fahrenheit. The bivy cover can be used in any configuration (warm, intermediate, or extreme cold weather). Sleeping bags are made of ripstop nylon fabrics and continuous filament polyester insulation; camouflage bivy cover is made with waterproof, breathable, coated or laminated nylon fabric; the compression sacks are made with water-resistant, durable nylon fabric. The system is augmented with the use of insulated layers of the **Extended Cold Weather Clothing System (ECWCS)**.

The **Sleeping Mat** is a foliage green, closed-cell polyethylene foam pad with two tying straps permanently attached to secure the mat when in a rolled configuration. The mat is used as a ground insulator under the MSBS to provide insulation from the cold ground.

The **Self-Inflating Sleeping Mat** is used in the same manner as the sleeping mat, but has an open cell foam core sandwiched between, and laminated to, a foliage green, air impermeable, coated nylon fabric with a plastic valve in one corner. It inflates by unrolling it and opening the air valve at one corner of the mat, allowing air to enter the mat.

Modular Sleeping Bag System (MSBS)



Self-Inflating Sleeping Mat



Sleeping Mat

Toxicological Ensembles

Protects personnel working in highly toxic, oxygen-deficient, or unknown environments that are immediately dangerous to life and health.

DESCRIPTION & SPECIFICATIONS

The **Improved Toxicological Agent Protective (ITAP) Suit** is a National Fire Protection Agency (NFPA) 1992 and 1994 Class-2 certified ensemble that will provide protection during peacetime and wartime for short-term operations. ITAP will be deployed in “immediately dangerous to life and health” (IDLH) toxic chemical environments (up to 1 hour), for emergency lifesaving response, incident response, and routine chemical activity operations.

The **Self-Contained Toxic Environment Protective Outfit (STEPO)** is a NFPA 1991 and 1994 certified totally encapsulating system that provides protection for personnel working in highly toxic, oxygen-deficient, or unknown environments that are IDLH. STEPO will replace the M3 Toxicological Agents Protective (TAP) ensemble for use in highly toxic areas (OSHA Level-A environments), while the ITAP ensemble is used for routine chemical activity operations in non-IDLH environments.

STEPO and ITAP are both composed of five layers of Nomex and Teflon. The ITAP has an integral hood that is composed of three layers of Nomex and Teflon. STEPO and ITAP provide respiratory protection and cooling to the user in addition to being compatible with the user's radio.

STEPO provides 4 hours of percutaneous protection against chemical-biological agents, toxic industrial chemicals, unknown chemicals, rocket fuels, petroleum, oil, and lubricants.





Urban Utility Equipment

Enables entry or escape from potentially volatile situations and a means to gain entry or exit from second or higher floors with lightweight, portable, and reusable devices.

DESCRIPTION & SPECIFICATIONS

The **Grappling Hook, Collapsible (GHC)** can support loads of 1,800 pounds or more without bending and can be folded, collapsed, or retracted into a more compact shape (cube) between 60 and 100 cubic inches. It allows Soldiers to hand-loft the item (with attached climbing rope) over obstructions or through building apertures. It can be secured to a structure by extended tines, thereby aiding in ascending or descending objects or buildings. It is made of aluminum or tempered steel in anodized black or other subdued finish. The three adopted variants range from 1.4 to 1.6 pounds each. The GHC is compatible with standard Soldier equipment and clothing.

GHC can be carried in a rucksack, backpack, or Modular Lightweight Load-Carrying Equipment cargo pocket.

The **Micro-Rappel System (MRS)** augments existing rappel ropes, provides an option for rappel activities, and is used when weight or bulk problems prevent use of the standard military rope system. MRS is five millimeters thick and weighs 1.6 pounds per 100 feet (.73 kilograms per 30.5 meters) compared with the current static rope, which is one-half inch (12.7 millimeters) and weighs 7.2 pounds per 100 feet (3.2 kilograms per 30.5 meters). The MRS consists of a rappel harness, descender, carabineer, deployment bag, and 82 feet of five-millimeter rope. It weighs less than 2.75 pounds. Tensile strength exceeds 3,000 pounds, which equals a safety factor of 10 for a 95th percentile Soldier with equipment. With leg straps stowed, the MRS harness can be used as a belt.

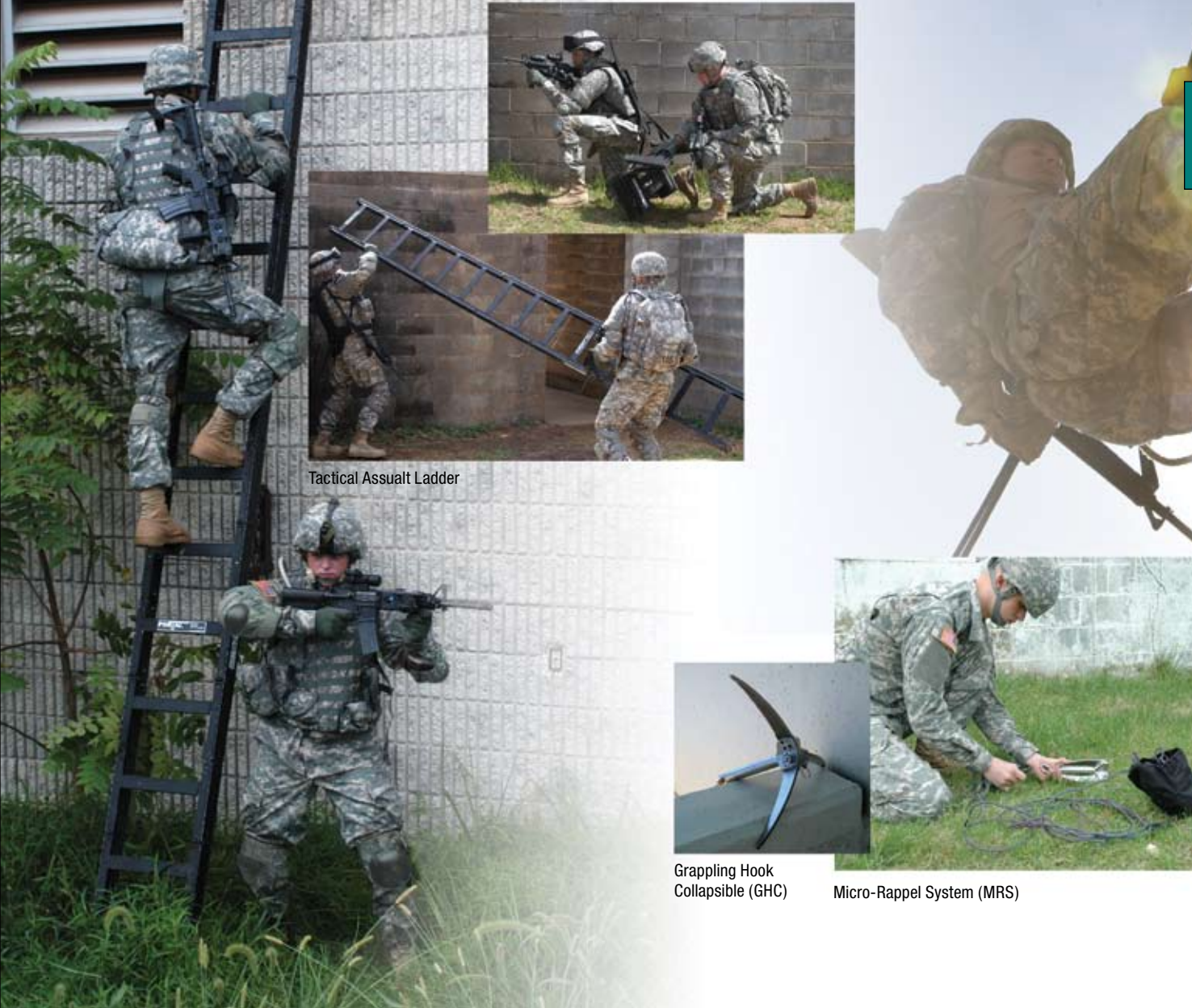
The system permits safe and efficient descent from rooftops, windows, or steep terrain. MRS is Cordura nylon and Technora, with metal alloys in black.

The **Tactical Assault Ladder System (TALS)** is a man-portable, adjustable height system capable of being assembled, emplaced, and used in three minutes or less.

TALS weighs approximately 40 pounds. TALS is subdued in color and will not interfere with movement techniques or weapons emplacement while being carried or climbed.

The **Modular Entry Tool Kit (METK)** weighs 25 pounds and contains three tools: the Haligan tool, a sledgehammer and bolt cutters. The tools are packaged in a nylon backpack with waist strap and are designed to enable entry into secured areas as well as rescue operations and combat operations in an urban environment.





Tactical Assault Ladder

Grappling Hook
Collapsible (GHC)

Micro-Rappel System (MRS)

Utility Uniforms and Accessories

Improves Soldier comfort with climate-appropriate utility uniforms and accessories that function as combat clothing or duty uniforms.

DESCRIPTION & SPECIFICATIONS

The **Cold Weather Coat (Field Jacket)** is lined, hip-length, with a biswing back, convertible stand-up collar with adjustable tab closure, horizontal slide fastener closure on the collar, an attached hood with draw cord adjustment, two piece set-in sleeves, adjustment tab cuff closure, zippered fly-front closure with snap fasteners, two bellows-type breast pockets and two lower inside hanging pockets with snap fastener flap closures, waist and hem draw cords, and inside buttons for attaching the insulating liner. The coat is a 50 percent cotton and 50 percent nylon blend, wind-resistant sateen fabric. It is available in the same patterns as the ACU.

The **Polypropylene Underwear, Extended Cold Weather** acts as a moisture-wicking layer. The polypropylene turtleneck has a center front zipper that extends to the middle of the chest area.

The **Lightweight Cold Weather System** is thin, quick-drying, moisture-wicking all polyester long drawers and zippered neck long undershirt. The garments can be laundered using standard commercial equipment. The T-shirt has quarter-length sleeves with a crewneck. The drawers and T-shirt are made from an improved material that wicks moisture and helps increase comfort and control odor. Both are sand-colored.

The **Improved Boot Sock** is an over-the-calf style with a double welt top and a double covered elastic yarn that is continuous in every course from the welt to the ankle area. The fully reciprocal heel, toe, and foot area is padded with a half-cushion terry for blister protection. The entire ankle, heel, toe, and foot is knit 360 degrees with a main body yarn (terry yarn) and a silver-coated nylon yarn knit simultaneously in the same position. The nylon yarn is permanently coated with 99.9 percent pure silver, and is non-allergenic, antimicrobial, and provides protection against bacteria and fungi.

The **Insect Hat and Insect Net** are worn in tropical and semitropical areas when helmets are not worn. The hat has a soft crown and stitched brim, chin strap, and camouflage band. The net attaches to the hat by an elastic cord with two loops at the bottom to fasten buttons.

The **Fleece Cap**, in foliage green, is a synthetic micro fleece, 100 percent polyester bell-shaped, pull-on style cap. It provides increased comfort and durability.

The **Hat, Sun Hot Weather (Boonie Hat)** has a soft crown with a standard width quilted stitched brim, chinstrap, and camouflage band. The cloth is ripstop poplin, 50/50 percent cotton/nylon and is Type III water-repellent. It comes in the universal camouflage pattern.

The **Rigger Belt** is made of nylon rigger webbing and a parachute buckle and comes in desert sand.

This belt provides increased comfort, durability, and functionality.

The **Sock Liner, Dress Sock** is a dual-purpose item worn by male and female Soldiers under all types of boot socks with all types of combat boots to prevent blisters. Male and female Soldiers also wear it as a dress sock when wearing the black dress shoes. The socks are made of cotton yarn plied with stretch nylon yarn.

The **Brown Bath Towel** is 20 x 40 inches and is issued to Soldiers in the clothing bag for use in garrison and field environments. The terry cloth fabric is 70 percent polyester and 30 percent cotton.

Utility Uniforms and Accessories

145



Fleece Cap



Hat, Sun Hot Weather (Boonie Hat)



Insect Hat and Insect Net



Cold Weather Coat



Polypropylene Underwear,
Extended Cold Weather



Moisture Wicking T-Shirt



Brown Bath Towel



Improved Boot Sock



Rigger Belt



“The body armor and the new advanced combat helmet routinely stop rounds. In our own unit we had, on several occasions, Soldiers pulling bullets out of their helmet or their body armor. It clearly saved their lives.”

CPT Daniel Leard, 1st Battalion, 3rd Infantry Regiment (TOG)

Soldier Survivability

147

Product Manager Soldier Survivability (PM SSV) is the newest addition to Project Manager Soldier Equipment. PM SSV provides Soldiers with enhanced capability for battlefield survivability, with state-of-the-art technology to defeat ballistic and blast threats.



Advanced Bomb Suit (ABS)

Protects Explosive Ordnance Disposal personnel against the effects of exploding ordnance and improvised explosive devices.

DESCRIPTION & SPECIFICATIONS

The **Advanced Bomb Suit (ABS)** is a full-body ensemble that protects the Explosive Ordnance Disposal (EOD) Soldier from fragmentation, blast overpressure, impact, heat and flame. The system leverages new material technology and design to improve protection, comfort, and ergonomics.

To minimize weight and maximize flexibility, fragmentation protection is provided at various levels, specific to body regions, based on wounding potential. Blast overpressure protection is provided to the front of the thorax. Impact protection is provided to the head and spine. Heat and flame protection are provided by resistant materials. The suit includes an ice-based cooling system to extend mission duration. A hand protection module and face shield upgrade module extend protection. The system can be doffed in less than 30 seconds. All ballistic inserts are removable to facilitate laundering and repair. The system is equipped with provisions that allow future communications, performance and capability upgrades.





Advanced Combat Helmet

Enhances ballistic protection, stability, and comfort without degrading the Soldier’s field of vision and hearing.

DESCRIPTION & SPECIFICATIONS

The **Advanced Combat Helmet (ACH)** is available in four sizes. The modular pads of the suspension system provide blunt force protection and physical comfort. The edge of the ACH shell is finished with a rubber trim. The cotton/polyester chin strap, a four-point design, allows for quick adjustment and includes a neck cushion for improved comfort and stability. The helmet shell is Aramid fabric in foliage green 504. It weighs between 3 and 3.25 pounds, depending upon size, and the helmet cover is available in universal camouflage pattern.





Ballistic and Non-Ballistic Protection

Provides the Soldier with face, torso, and leg protection from a wide variety of threats during stability and support operations throughout the world.

DESCRIPTION & SPECIFICATIONS

Civil Disturbance Protective Gear provides face, torso, and leg protection from debris, liquids, hand-thrown objects, direct or indirect fire. Ballistic protection items meet the National Institute of Justice (NIJ) Level IIIA requirements for 9mm and .44 magnum bullet resistance. The **Ballistic Body Shield** is made of Spectra-Shield; **Shin Guards** are made of Kevlar KM2; and **Ballistic Face Shields** are made of acrylic and bullet-resistant polycarbonate materials.

Non-ballistic Face and Body Shields are made of transparent polycarbonate materials; non-ballistic shin guards are made of hard plastics. **Knee and Elbow Pads (KEP)** provide dismounted Soldiers with protection for knees and elbows while engaged in tasks that subject these areas to possible injury or discomfort caused by impact, pressure, or protruding objects and debris (e.g., rocks, gravel, or glass).



Ballistic and Non-Ballistic
Protection



Body Armor Set, Individual Countermine (BASIC)

Provides dismounted Soldiers who encounter anti-personnel mines with improved ballistic protection.

DESCRIPTION & SPECIFICATIONS

The **Body Armor Set, Individual Countermine (BASIC)** is an armored clothing system for use by dismounted Soldiers during mine-clearing exercises. In addition to the Advanced Combat Helmet (ACH) and Interceptor Body Armor (IBA), BASIC includes ballistic protective trousers, overboots to protect against fragmentation, the **Blast Protective Footwear System (BPFS)**, and fragmentation-resistant face shield.

The BPFS is standoff device that may supplement or replace the overboot and provides more than six times more protection for feet and lower legs. The BPFS does not significantly impair Soldier mobility during mine sweeping and probing operations, nor does it interfere with the Soldier's operation of hand-held mine detectors



Body Armor Set, Individual
Countermine (BASIC)

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Body Armor, Concealable

Provides 9mm handgun ballistic protection and protection from ice picks and other sharpened metal objects fashioned as weapons.

DESCRIPTION & SPECIFICATIONS

The **Concealable Body Armor (CBA)** is intended for the Military Police (MP) and Criminal Investigators (CID). The CBA provides concealable, minimum-weight, ballistic protection that is comfortable for extended periods. The CBA offers maximum concealable torso coverage for 9mm, full metal jacket 124-grain bullet protection.

The **Concealable, Stab-Protection Body Armor (CSPBA)** is intended to be worn by Soldiers performing law enforcement operations, correction or confinement of enemy prisoners of war, and civilian internees to protect Soldiers from homemade weapons and handguns. CSPBA will provide the individual Soldier with soft armor protection to the torso against a 9mm, full metal jacket 124-grain bullet and meet the California Ice Pick standard to protect against other crude stab/slash weapons.



Concealable Body Armor (CBA)



Concealable,
Stab-Protection
Body Armor (CSPBA)



Body Armor, Cupola Protective Ensemble (CPE)

Protects Soldiers from blast and fragmentation effects of rocket propelled grenades (RPGs) and improvised explosive devices (IEDs) while manning crew-served, weapon-ring mount cupolas on military vehicles.

DESCRIPTION & SPECIFICATIONS

The **Cupola Protective Ensemble (CPE)** is a modified countermine ensemble with a blast and fragmentation protective visor, trousers, jacket, front and rear blast plates, and an upper torso cooling system. The CPE is worn over the standard Interceptor Body Armor (IBA), extending protection to the head, neck, face, and extremities. The integrated cooling system offsets heat effects. A contoured Kevlar neck guard provides protection for neck and temporal lobes. The CPE consists of the following:

- Base jacket
- Sleeves with rigid composite inserts (forearm and bicep)
- Blast plate assembly – chest and groin
- Rear blast plate
- Pants and integrated groin protector (IGP)
- Removable explosive ordnance disposal collar
- Optional neck/nape guard
- Visor System worn with Advanced Combat Helmet (ACH)
- Hand guards



Body Armor, Cupola
Protective Ensemble (CPE)



Body Armor, Interceptor

Protects Soldiers and increases their survivability by stopping or slowing bullets and fragments and reducing the number and severity of wounds.

DESCRIPTION & SPECIFICATIONS

Interceptor Body Armor (IBA) is the most up-to-date body armor available. IBA is a modular system that consists of an outer vest, ballistic plates and attachments that increase area of coverage.

The **Outer Tactical Vest (OTV)** and **Improved Outer Tactical Vest (IOTV)** protect against fragments and 9mm rounds. The addition of the **Enhanced Small Arms Protective Inserts (ESAPI)** plates and the **Enhanced Side Ballistic Inserts (ESBI)** add protection and can withstand multiple small arms hits, including armor-piercing rounds.

The OTV is compatible with the **Deltoid and Axillary Protectors (DAP)**, which provide additional fragmentation and 9mm protection to the upper arm and underarm areas, as well as the **Groin Protector** and **Throat Protector**. The IOTV has throat protection and underarm protection built in, and is compatible with the Deltoid and Groin Protectors. The side-opening IOTV also increases area of coverage over the front-opening OTV. The IOTV comes in 11 sizes, including three tall sizes, whereas the OTV comes in eight sizes.

The IOTV is also lighter than the OTV, and features a quick-release handle so Soldiers can instantly remove the vest in emergency situations. The IOTV is more than three pounds lighter than the OTV, and includes multiple adjustment points to improve fit, weight distribution and load-carriage capabilities. The IOTV also has a mesh lining for better ventilation.

With all inserts and plates, the total system weight for the IOTV, size medium, is 30 pounds, compared with 33.11 pounds for an OTV.





Helmet, Combat Vehicle Crewman (CVCH)

Provides ballistic protection to the head, temple, ear, and neck against fragmenting munitions without degradation to the Soldier's field of vision, stability, and hearing.

DESCRIPTION & SPECIFICATIONS

The **Combat Vehicle Crewman Helmet (CVCH)** consists of a rigid, compression-molded, outer shell constructed of Aramid Kevlar fabric coated with phenolic and polyvinyl butyral resins. The shell has rubber-edging adhesive along its peripheral contour.

The liner is constructed with energy-absorbing foam sections enclosed in a flame-resistant Nomex mesh fabric. The CVCH is attached to a fabric mesh inner liner by snap fasteners and hook-and-pile tape.

Located on the front of the helmet are leather fastener mounts for attaching the shell to the chin strap.



**Helmet, Combat Vehicle
Crewman (CVCH)**

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Project Manager Soldier Weapons (PM SW) supports Soldiers through the development, production, and procurement of future and current weapons systems, ammunition, and associated target acquisition/ fire control products. Soldiers are equipped with the best products industry has to offer, resulting in decisive overmatch capability through increased lethality and range as well as decreased weight. Two Product Managers under PM SW drive the mission: Product Manager Individual Weapons and Product Manager Crew Served Weapons.

In addition to weapons and ammunition, PM SW manages the development and procurement of suppressors, weapons accessory kits, optics, tripods, mounts, and binoculars.

Project Manager Soldier Warrior
Product Manager Air Warrior
Product Manager Land Warrior
Project Manager Soldier Equipment
Product Manager Soldier Sensors and Lasers
Product Manager Clothing and Individual Equipment
Product Manager Soldier Survivability

Project Manager Soldier Weapons
Product Manager Crew Served Weapons
Product Manager Individual Weapons

Soldier-as-a-System Unit Set Fielding
Planning
Logistic Support
Fielding
Accountability





PROJECT MANAGER

SOLDIER WEAPONS

THE BEST FOR THE BEST



“When we first got there during OIF-2, one of our CROWS teams was detached to go into Fallujah. ...It was a capability enhancer because it has the night vision and has thermal. It just greatly increases what you’re able to do because with these buildings, you think there’s a sniper there, well the gunner just flips that sight from regular to thermal and you can just see the guy there. It vastly increases your capability.”

CPT Eric S. Archer, 709th MP Battalion

Crew Served Weapons

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Product Manager Crew Served Weapons (PM CSW) is responsible for research and development of current and future light to heavy machine guns, grenade launchers, sniper systems, small arms ammunition, remote weapons stations, and related target acquisition/ fire control products.



Ammunition Research, Development, Testing, and Evaluation

Manages the research, development, testing, and evaluation of ammunition products for use in small arms weapon systems.

DESCRIPTION & SPECIFICATIONS

XM1037 Short-Range Training Round for M249: This ammunition for 5.56mm weapon systems has a maximum range of 300 meters and an effective training range of 100 meters. It is used with M4, M16, and M249 series weapons with no weapon modification.

XM1041/XM1042/XM1071 Close Combat Mission Capability Kit: This commercially available system contains a soft projectile filled with a colored marking compound and weapon modification kits. It allows realistic force-on-force training by providing a felt impact signature. The weapon modification kits prevent use of service ammunition in the force-on-force training environment.

XM1116 12 Gauge Extended Range Non-Lethal Cartridge: The XM1116 Cartridge is a Soldier Enhancement Program that will type-classify a new 12-gauge Non-Lethal (NL) cartridge with extended range capabilities. This cartridge will supplement the current suite of NL munitions with a capability ranging from 5-75 meters.

XM1130 40mm Extended Range Non-Lethal Cartridge: The XM1130 Cartridge is a Soldier Enhancement Program that will type-classify a new 40mm Non-Lethal (NL) cartridge with extended range capabilities. This cartridge will also employ a nontoxic agent to mark individuals. This cartridge will supplement the current suite of NL munitions with a capability ranging from 5-75 meters.

Lightweight Ammunition: The lightweight ammunition program will reduce weight of the 7.62mm ammunition by 20 percent. Weight savings will be obtained by utilizing new technologies to fabricate the cartridge case in lieu of the standard brass cartridge case. Technologies to be explored include alternative composite materials and stainless steel.

40mm Door Breaching Proximity Fuzed Cartridge: The proximity fuzed door breaching cartridge program will design a munition that has a standoff airbursting capability which allows for formation of a pressure wave optimized for door breaching. The proximity fuze technology will be applied to obtain NL capabilities as a technology integration initiative.

XM1110 40mm Day/Night TP-cartridge: Designed to produce an impact signature visible both day and night. It fires from the M203/M320 Grenade Launchers.

XM1022 Caliber .50 Sniper Category: A Caliber .50 cartridge used for anti-personnel capability in the M107 Long Range Sniper Rifle. The cartridge complements the MK211 cartridge. It also provides a non dud-producing training capability for the M107.



40mm Door Breaching Proximity Fuzed Cartridge



XM1110 40mm Day/Night TP-cartridge



XM1116 12 Gauge Extended Range Non-Lethal Cartridge



XM1037 Short-Range Training Round for M249



XM1041/XM1042/XM1071 Close Combat Mission Capability Kit



XM1022 Caliber .50 Caliber Sniper Cartridge



Lightweight Ammunition

Common Remotely Operated Weapon Station (CROWS) and CROWS–Lightning

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Provides Soldiers with the ability to acquire and engage targets, using a common mounting station, while inside an armor-protected vehicle.

DESCRIPTION & SPECIFICATIONS

Common Remotely Operated Weapon Station (CROWS) is a two-axis stabilized mount that contains a sensor suite and fire control software, allowing on-the-move target acquisition and first-burst target engagement. The CROWS sensor suite includes a daytime video camera, second-generation forward-looking infrared (FLIR), and laser rangefinder, enabling target engagement under day and night conditions.

CROWS is designed to mount on any armored vehicle and supports the MK19 Grenade Machine Gun, .50 Caliber M2 Machine Gun, M240B Machine Gun, and M249 Squad Automatic Weapon (SAW).

CROWS allows the Soldier to view a target independent of gun elevation. Its manual/emergency backup operation capability offers improved firing stability over the current pintle mount. More than 250 systems have been fielded to support Operation Iraqi Freedom (OIF).

CROWS–Lightning is a lightweight remote weapon station that mounts to the M240B Medium Machine Gun and the M249 SAW. Based on the CROWS concept, CROWS–Lightning is capable of identifying and defeating targets out to the effective range of the weapon while on the move during day and night operations. It is intended for use with High Mobility Multipurpose Wheeled Vehicles (HMMWVs) and heavy trucks. It is integrated with an acoustic sensor that allows for detection of snipers firing at the system and to slew the weapon station toward the threat on command.



**Common Remotely Operated
Weapon Station (CROWS) and 171
CROWS–Lightning**



Common Remotely Operated Weapon Station (CROWS)



CROWS–Lightning

M107 Semi-Automatic Long Range Sniper Rifle (LRSR)

Enables sniper teams to employ greater destructive force against light materiel and personnel targets at longer ranges and higher rates of fire.

DESCRIPTION & SPECIFICATIONS

The **M107 Semi-Automatic Long Range Sniper Rifle (LRSR)** is a commercial, off-the-shelf, anti-materiel and counter-sniper semi-automatic, direct-line-of-sight .50 caliber rifle. Based on the U.S. Marine Corps M82A3 Special Application Scoped Rifle, it greatly exceeds the terminal effect capability of the M24 (7.62mm, bolt-action). It can complete missions that cannot be accomplished with current sniper rifles. It supplements a sniper role by supporting combat operations to discriminately and precisely engage high-value targets and provides a counter-sniper capability, especially in military operations in urban terrain engagements, with greater firepower and standoff ranges to improve sniper survivability.

The rifle is reliable, capable of delivering precise rapid fire on targets out to 2,000 meters. Major components include: rifle with detachable 10-round box magazine; variable-power day optic sight; hard carrying case for storage, transportation, and protection; soft case for tactical operations; bipod; detachable sling; extra magazines; and cleaning/maintenance equipment and manuals. Maximum overall length is 57 inches. Weight with components attached does not exceed 35 pounds. The M107 fires standard .50 caliber ammunition with the MK211 .50 caliber, multipurpose cartridge designated as the primary tactical round.



**M107 Semi-Automatic Long
Range Sniper Rifle (LRSR)**

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M110 7.62mm Semi-Automatic Sniper System (SASS)

Supplements the sniper’s role to support combat operations with greater firepower, greater versatility and more focused target engagements to improve sniper survivability.

DESCRIPTION & SPECIFICATIONS

The **M110 7.62mm Semi-Automatic Sniper System (SASS)** is an anti-personnel and light materiel weapon that fires out to a maximum effective range of 800 meters. It leverages a rapid fire/rapid reload design, variable day optic sight, along with 10- and 20-round magazines. The weapon system exceeds the rate of fire and lethality of the M24 Sniper Weapon System. The M110 (combat ready with suppressor) weighs 17.3 pounds and includes detachable folding bipod, enhanced spotting scope (M151), and a MIL-STD-1913 rail.



**M110 7.62mm Semi-
Automatic Sniper System
(SASS)**

175



M145 Machine Gun Optic

Enables better target detection, identification, and improved hit probability with a telescopic sight for the M240B Medium Machine Gun and M249 Squad Automatic Weapon in the light machine gun role.

DESCRIPTION & SPECIFICATIONS

The **M145 Machine Gun Optic** (with anti-reflective device) provides machine gunners with the capability to detect, identify, and engage targets at extended ranges. The three-to-four power magnification and wide field of view make this product configurable to mission profiles, operational modes, and environmental conditions. It fits on the M240B for Infantry, Armored Cavalry, Special Forces, and Combat Engineer Units. In a light machine gun role, it fits on the M249.



M145 Machine Gun Optic

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M192 Lightweight Ground Mount for Machine Guns

Provides a stable, lightweight, easy-to-use, low-profile mounting platform for the M249 Squad Automatic Weapon and M240B Medium Machine Gun for delivering controlled, sustained, and accurate fire at extended ranges.

DESCRIPTION & SPECIFICATIONS

The **M192 Lightweight Ground Mount for Machine Guns** is a compact and collapsible ground mount that features a lower profile and provides an integral, unique traverse and elevation mechanism. At 11.5 pounds, it reduces Soldier combat load and improves Soldier mobility.



**M192 Lightweight Ground
Mount for Machine Guns**

179



M2 .50 Caliber Machine Gun

Improves Soldier effectiveness and lethality with a versatile, automatic weapon for offensive and defensive operations, in either ground or vehicle-mounted roles.

DESCRIPTION & SPECIFICATIONS

The **M2 .50 Caliber Machine Gun** is automatic, belt-fed, recoil-operated, and air-cooled. It mounts on the M3 tripod and on most vehicles, and serves as an anti-personnel and anti-aircraft weapon. It is highly effective against light armored vehicles, low- and slow-flying aircraft, and small boats. The M2 provides automatic weapon suppressive fire for offensive and defensive purposes. It is capable of single-shot (ground M2 machine gun) and automatic fire.



M2 .50 Caliber Machine Gun 181



M2 Heavy Barrel (HB) (Enhanced) .50 Caliber Machine Gun (M2E2)

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Provides increased lethality and survivability on the battlefield over the standard M2 Heavy Barrel Machine Gun by modifying it for greater ease of use and safety.

DESCRIPTION & SPECIFICATIONS

The **M2 Heavy Barrel (HB) (Enhanced) .50 Caliber Machine Gun (M2E2)** offers the Soldier the proven performance and in-place logistics support of the existing M2HB Machine Gun, along with new features and design improvements that make it easier and safer to use. Upgrades such as the Quick Change Barrel (QCB) system, flash hider, and carrying handle will increase the performance of the battle-proven M2 and can be fitted to existing M2HB weapons. The QCB system speeds target engagement and improves survivability and safety because of reduced time in changing the barrel. The flash hider reduces muzzle flash, making the M2 night-vision friendly. All of these capabilities ensure that the commander has constant firepower and less downtime.



**M2 Heavy Barrel (HB)
(Enhanced) .50 Caliber
Machine Gun (M2E2)**

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M24 Sniper Accessory Kit

Provides ancillary equipment to improve overall performance of M24 sniper rifle teams.

DESCRIPTION & SPECIFICATIONS

The **M24 Sniper Accessory Kit** includes a wind meter, improved cleaning kit, polarized filter, improved adjustable bipod, shooter's stock pack, marksman data book, weapon drag bag, ammo pouch, and analog ballistic calculator.



M24 Sniper Accessory Kit

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- Wind Meter
- Improved Cleaning Kit
- Polarized Filter

- Improved Bipod
- Shooter's Stock Pack
- Marksman Data Book

- Weapon Drag Bag
- Ammo Pouch
- Analog Ballistic Calculator

M24 Sniper Weapon System (SWS)

Enables sniper teams to engage enemy personnel with a 7.62mm bolt-action rifle using precision fire at extended ranges.

DESCRIPTION & SPECIFICATIONS

The **M24 Sniper Weapon System (SWS)** is a 7.62mm bolt-action, six-shot, repeating rifle, chambered for the .308 Winchester M118 special ball ammunition. Components include a day optic sight with 10 power magnification and adjustable focus, metallic iron sights, deployment kit, cleaning kit (rifle and optic), soft rifle carrying case, optic and system cases, operator's manual, and an optional bipod.

Associated support items of equipment include a Sniper Night Sight and an improved spotting scope. The SWS is a non-developmental item. The combat weight with sling, day optic, and full magazine is 14.25 pounds; 17 pounds with bipod and tools. Maximum effective range is 800 meters, and the length is 40.75 inches.



**M24 Sniper Weapon System
(SWS)**

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M240B 7.62mm Medium Machine Gun

Provides significantly improved reliability and more lethal medium support fire for ground units such as infantry, armor, field artillery, and combat engineers.

DESCRIPTION & SPECIFICATIONS

The **M240B 7.62mm Medium Machine Gun** is a variant of the M240 mounted on Bradley Fighting Vehicles and Abrams tanks, reconfigured for ground applications with buttstock, bipod, iron sights, and forward rail assemblies. The M240B has a maximum effective range of 1,800 meters, a cyclic rate of fire of 650 rounds per minute, and a muzzle velocity of 2,800 feet per second.



**M240B 7.62mm Medium
Machine Gun**

189



M240B Combat Ammo Pack

Enables the direct attachment of a lightweight ammunition magazine/container to the M240B Medium Machine Gun.

DESCRIPTION & SPECIFICATIONS

The **M240B Combat Ammo Pack** holds up to 85 rounds of linked 7.62mm ammunition and protects the linked belt from dirt and debris. It allows better movement of the M240B during initial insertions and engagements.





M240B Weight Reduction Program (M240E6)

Reduces Soldier combat load by decreasing the weight of the M240B without compromising reliability.

DESCRIPTION & SPECIFICATIONS

The **M240B Weight Reduction Program** is intended to reduce the weight of the existing M240B by four pounds (minimum) to seven pounds (objective).

This program will evaluate high-performance lightweight materials and alternative manufacturing methods in fabricating major M240B components. These improvements will reduce the Soldier's combat load while allowing easier handling and movement of the weapon.



**M240B Weight Reduction
Program (M240E6)**

193



M240H 7.62mm Machine Gun (Aviation Version)

Improves the self-protection capabilities of Black Hawk and Chinook helicopter crews by replacing the aging M60D Machine Gun.

DESCRIPTION & SPECIFICATIONS

The **M240H 7.62mm Machine Gun (Aviation Version)** is designed for aviation application and demonstrates reliability equal to the M240B. It delivers two minutes of continuous suppressive fire and is removable for employment in a ground role.



**M240H 7.62mm Machine Gun
(Aviation Version)** 195



M249 Squad Automatic Weapon (SAW)

Fulfills automatic rifle role in infantry squads and provides light machine gun capabilities in combat service/combat service support units.

DESCRIPTION & SPECIFICATIONS

The **M249 Squad Automatic Weapon (SAW)** serves as an automatic rifle and light machine gun to infantry squads. The M249 weighs 22 pounds with 200 rounds of ammunition. It replaced the M16A1 Automatic Rifle at the squad level and some M60 multi-purpose machine guns in non-infantry units.



**M249 Squad Automatic
Weapon (SAW)**

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M249 Squad Automatic Weapon (SAW) Collapsible Buttstock

Provides the Soldier using the M249 Squad Automatic Weapon with a more secure weapon/shoulder interface in both extended and collapsed positions.

DESCRIPTION & SPECIFICATIONS

The **M249 Squad Automatic Weapon (SAW) Collapsible Buttstock** will allow the weapon to be fired from the shoulder in the extended and collapsed positions, unlike the current product. It maintains a vertical buttstock position for full interface with the operator's shoulder at all times and provides intermediate, locking firing positions. Weapon control improves when fired in confined spaces such as military operations on urban terrain and air assault operations. Additionally, the buttstock allows ease of ingress/egress from Stryker Brigade Combat Team (SBCT) vehicles and reduces storage space requirements in SBCTs.



**M249 Squad Automatic
Weapon (SAW) Collapsible
Buttstock**

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M249 Squad Automatic Weapon (SAW) Improved Bipod

Enhances bipods for the M249 Squad Automatic Weapon to improve durability.

DESCRIPTION & SPECIFICATIONS

The **M249 Squad Automatic Weapon (SAW) Improved Bipod** leverages the design of the existing bipod and incorporates several features that improve the performance of the M249 weapon. The newer configuration of the bipod provides a rugged design that is more durable than the previous version, with increased reliability and weapon accuracy. Additionally, the length of the bipod legs can be adjusted to different heights, providing improved stability on uneven terrain.



**M249 Squad Automatic
Weapon (SAW) Improved
Bipod**

201



M249 200-Round Soft Pack

Provides a durable, reusable M249 pack similar to the combat proven 100-round hard pack.

DESCRIPTION & SPECIFICATIONS

The **M249 200-Round Soft Pack** Program is a follow-on effort to the soft packs provided under the Rapid Fielding Initiative (RFI). Based on requests from the field, RFI fielded a 200-round soft pack for the M249 designed to improve weapon retention and reduce the noise signature associated with the standard plastic ammunition container. The program will evaluate all potential candidates and select the 200-round soft pack that meets program requirements.





M25 Stabilized Binoculars

Enhances surveillance and battle image assessment with high-powered, stabilized binoculars.

DESCRIPTION & SPECIFICATIONS

M25 Stabilized Binoculars have 14X optics that, regardless of movement, deliver brilliantly focused and steady imagery equivalent to seeing a golf ball a mile away. They are direct view optical devices (in the day mode) and have accessory night vision image intensifier lenses. The binoculars can be hand-held or mounted on a tripod, and can be powered by two AA batteries or vehicle power units via adapter cables. Broadband multi-layer coating on the optics enables greater than 90 percent transmission of light. Optional Interchangeable Image Intensifier GEN III eye pieces are available for night-time missions.





MK19 Grenade Machine Gun

Provides offensive and defensive Soldier support via a tripod- or vehicle-mounted grenade machine gun capable of engaging personnel and light armor targets out to 1,500 meters and providing suppressive fire to 2,000 meters.

DESCRIPTION & SPECIFICATIONS



The **MK19 Grenade Machine Gun** supports the Soldier in offensive and defensive roles by delivering a heavy volume of close, accurate, and continuous firepower against enemy personnel and lightly armored vehicles. The MK19 can be mounted on a tripod or on multiple vehicle platforms and is the primary suppressive weapon for combat support and combat service support units. The weapon can be used to protect motor movements, assembly areas, and supply trains in bivouac.

In addition, it can defend against hovering rotary-wing aircraft, destroy lightly armored vehicles, fire on suspected enemy positions, and provide high volumes of fire into an engagement area and indirect fires from defilade (hidden) positions. The MK19 increases the capability of U.S. forces to defeat opposing armored, mechanized, and infantry forces with high-explosive dual-purpose ammunition. Effective (sight) range is 1,500 meters. Maximum range is more than 2,000 meters, with a firing rate of 350 rounds per minute.

MK19 Grenade Machine Gun 207



MK19 Tactical Engagement System with GEO-Bearing (TES-GB)

Enables realistic combat training exercises without using live ammunition.

DESCRIPTION & SPECIFICATIONS

The **MK19 Tactical Engagement System with Geo-Bearing (TES-GB)** will be used primarily during Force-on-Force (FOF) and Force-on-Target (FOT) exercises at Combat Training Centers and home stations from squad through brigade levels. It will simulate the firing and effects of the actual weapon system for line-of-sight direct fire and non-line-of-sight indirect fire.

The TES-GB incorporates communication protocols that operate with existing training equipment and systems to fulfill indirect fire training, communication, recoil and jamming requirements. The system uses GPS position location and pointing sensors to calculate and evaluate likely target engagement probabilities. The accuracy can be greatly improved with the use of high-resolution terrain mapping that effectively simulates and trains for the engagement of protected targets (behind berms, buildings, etc.).

The TES-GB consists of a Simulation Player Unit (SPU) that houses a laser module, operator module, audio cue device (ACD), trigger assembly, RF equipment and associated software.

For direct fire training, the laser module emits visible flash cues and an invisible (infrared) laser beam toward a target. A blue LED Laser Firing Indicator located on the rear of the Laser Module provides the gunner with an indication that the laser has fired. A target is outfitted with a detector assembly that senses the laser beam from the Laser Module to cause a target kill or near miss.

The Operator Module provides the individual with the means to display ammo type, ammo remaining, and the selected range. The Operator Module also allows a review of events.

The ACD provides realistic sound effects. While the Trigger Assembly senses the MK-19 firing trigger and signals the Laser Module and Operator Module to fire the laser.

Separate support equipment includes a Controller Gun (CG), used by the controller of the training exercise. The MK-19 SPU system kit includes alignment targets for performing boresight verification and an interface bracket to mount the ACD on a tripod or pintle mount.

**MK19 Tactical Engagement
System with GEO-Bearing
(TES-GB)**

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XM312 Lightweight .50 Caliber Machine Gun

Provides vehicle and weapon squads with a very lightweight .50 caliber weapon system that is easily dismounted from vehicles for ground mount applications.

DESCRIPTION & SPECIFICATIONS

The **XM312 Lightweight Machine Gun** is capable of firing all of the current .50 caliber ammunition in the inventory. This includes, but is not limited to, the standard M33 ball round, the M8 armor piercing incendiary (API), the M903 sabot light armor penetrator (SLAP), and the MK211 multipurpose round that penetrates, fragments, and starts fires.

The XM312 weapon can replace most of the currently fielded M2 .50 Caliber Machine Guns. By replacing the 75-year-old M2 Machine Gun, the Army achieves significant reductions in weight and recoil force. The XM312 weighs approximately one-third as much as the M2 and imparts only one-quarter of the recoil. This lighter weight permits easy dismount and ground transportability when necessary, and the reduced recoil will lead to greater lethality through increased first burst accuracy and control. Safety will be improved through the elimination of the requirement for the operator to adjust headspace and timing.



**XM312 Lightweight
.50 Caliber Machine Gun**

211





**“I think the M4 is a really great
weapon, really accurate.
I don’t think there’s a weapon
that beats that.”**

*SGT Joseph McLelland, B Company,
2nd Battalion, 506th Infantry*

Individual Weapons

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Product Manager Individual Weapons (PM IW) is responsible for research and development of current and future rifles, carbines, pistols, shotguns, grenade launchers, small arms ammunition, and related target acquisition/fire control products.



Back-up Iron Sight

Provides the Soldier with a full range auxiliary rear sight for the M16A4 Rifle and M4 series carbine.

DESCRIPTION & SPECIFICATIONS

The M16A4 Rifle and M4 series carbines are “flat top” weapons that have a MIL-STD-1913 accessory mounting rail integral with the upper receiver. The **Back-up Iron Sight (BUIS)** provides an immediately available iron sight capability adjustable to 600 meters range if the primary optical sight becomes inoperative. The BUIS weighs 3.4 ounces.

Back-up Iron Sight

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Close Quarters Battle Kit (CQB Kit)

Increases Soldier lethality and survivability.

DESCRIPTION & SPECIFICATIONS

The **Close Quarters Battle Kit (CQB Kit)** will provide several low-cost, commercial off-the-shelf accessories for the M4 Carbine and M16 Rifle. These items were identified by Soldiers during Operation Enduring Freedom, by the Joint Readiness Training Center Muddy Boots Council, by after-action reports, and by the Rapid Fielding Initiative. The CQB Kit will include the following:

- Multi-Magazine Holder w/Storage Pouch and Dust Cover
- Forward Rail Bracket
- SDM Bipod
- Forward Grip/Bipod
- Improved Cleaning Kit
- Tactical Sling



M16A4 Rifle

Increases the lethality and operational flexibility of the Soldier with improvements to the M16A2, the major infantry combat weapon used throughout the U.S. Armed Forces.



DESCRIPTION & SPECIFICATIONS

The fourth-generation M16, the **M16A4 Rifle**, features a performance equal to the M16A2 with enhanced operational flexibility. The M16A4 is a flat-topped M16A2 that incorporates a MIL-STD 1913 rail integral with the weapon's upper receiver, four additional rails surrounding the barrel, and a full-range back-up iron sight. Accessories devices, such as an optical sight and aiming lasers, can be mounted on the weapon with a rail grabber. The M203A2 Grenade Launcher is easily attached to the rifle offering the user both point and area firing capabilities.

- Caliber:** 5.56mm x 45mm North Atlantic Treaty Organization
- Weight without magazine:** 7.8 pounds
- Empty 30-round magazine:** 0.25 pounds
- Loaded 30-round magazine:** 1 pound
- Overall length:** 39.6 inches
- Barrel length:** 20 inches
- Muzzle velocity:** 3,100 feet per second
- Effective range:** 600 meters (area target)
- Front sight:** Adjustable front
- Rear sight:** Target sight adjustable for wind and elevation to 600 meters

- Sight radius:** 19.75 inches
- Cyclic rate of fire:** 700-900 rounds per minute
- Fire control selection:** Safe, semi, 3-round burst
- Upper receiver:** Flat top with Backup Iron Sight (BUIS)

M16A4 Rifle

219



M16/M4 Magazine

Provides Soldiers with M16 series rifles, M4 series carbines, and M249 Squad Automatic Weapons (SAWs) reliable, quick change, 30-round capacity ammunition feed equipment.

DESCRIPTION & SPECIFICATIONS

The **M16/M4 magazine** is the only device the Soldier has to feed ammunition to these weapons. The magazines are durable and may be reloaded repeatedly until unserviceable.

- Weight Empty:** 0.25 pounds
- Weight Loaded:** 1.0 pound
- Capacity:** 30 rounds





M203 Day-Night Sight

Increases the lethality and operational flexibility of the Soldier with an aiming device for the M203 Grenade Launcher for all lighting conditions.

DESCRIPTION & SPECIFICATIONS

The **M203 Day/Night Sight (DNS)** provides the Soldier the ability to rapidly and precisely fire the M203 Grenade Launcher in all lighting conditions to the maximum range of the M203. The DNS provides increased accuracy over the current quadrant and leaf sight systems for both point and area targets out to 400 meters. The DNS is equipped with integral iron sights in case of electronics failure or situational expediency.

- Length:** 6.5 inches
- Width:** 4.5 inches
- Height:** 4.0 inches
- Weight:** 17.7 ounces
- Range:** 0 to 400 meters
- Accuracy:** 5 meters

M203 Day-Night Sight

223



M203A2 Grenade Launcher

Increases the lethality and operational flexibility of the Soldier via a grenade capability to fill the gap between the hand grenade and mortar.

DESCRIPTION & SPECIFICATIONS

The **M203A2** is the latest modification to the M203 40mm Grenade Launcher. It provides a mounting system compatible with the M16A4 Rifle and M4 series carbines. The modification includes a quick attach bracket for the grenade launcher and a leaf sight to attach to the Adapter Rail System.

- Weight:** 3.0 pounds
- Length:** 15.0 inches
- Height:** 3.15 inches
- Width:** 3.15 inches



M203A2 Grenade Launcher

225



M26 12-Gauge Modular Accessory Shotgun System (MASS)

Enhances Soldier effectiveness with lethal, non-lethal, and door breaching capabilities via a 12-gauge accessory shotgun attachment that provides faster transition time between the primary weapon and shotgun.

DESCRIPTION & SPECIFICATIONS

The **M26 12-Gauge Modular Accessory Shotgun System (MASS)** attaches underneath the barrel of the M4 and M16 Modular Weapon Systems (MWSs) and fires lethal and non-lethal 12-gauge rounds, as well as door breaching ammunition. The MASS provides a capability to transition between lethal and non-lethal rounds and is equivalent to a stand-alone shotgun without carrying a second weapon.



**M26 12-Gauge Modular
Accessory Shotgun
System (MASS)**

227



M320 Grenade Launcher Module (GLM)

Provides the Soldier with a lighter, safer, and more reliable grenade launcher with a day/night sighting capability, as well as the ability to fire all existing and improved 40mm low-velocity ammunition.

DESCRIPTION & SPECIFICATIONS

The **M320 Grenade Launcher Module (GLM)** is a 40mm low-velocity grenade launcher weapon module that will replace selected M203 series grenade launchers mounted on the M16/M4 series of rifles and carbines. The M320 GLM improves upon the current M203 Grenade Launcher system in that it has an integral day/night sighting system that provides day/night targeting capability, possesses an open architecture that allows mounting on M16/M4 series rifles and carbines, and converts to a stand alone system thus enabling an increase in modularity. The M320 GLM has a side-loading unrestricted breech that allows the system to fire longer 40mm low-velocity projectiles (standard and non-standard), and is more reliable and safer because it uses a more modern double action trigger/firing system.



M320 Grenade Launcher Module (GLM)

229



M4 Carbine

Increases the lethality and operational flexibility of the Soldier with a carbine-length version of the M16 rifle.



DESCRIPTION & SPECIFICATIONS

The **M4 Carbine** replaces the M3 Submachine Gun, select M9 Pistols, and M16A2 Rifles for unit leaders, crew served gunners, vehicle crews, radio operators, light infantry, airborne/air assault, and combat engineers. It provides improved firepower compared with the M3 and M9 and allows mounting of the latest generation of fire control accessories without tools. It is one pound lighter than the M16 and more portable than the M16 series of rifles. The M4 series of carbines can also be mounted with the M203A2 grenade launcher or M26 Modular Accessory Shotgun System (MASS).

Caliber: 5.56mm X 45mm North Atlantic Treaty Organization (NATO)

Weight without magazine: 6.5 pounds

Empty 30 round magazine: 0.25 pounds

Loaded 30 round magazine: 1.0 pounds.

Overall Length

Buttstock retracted: 29.75 inches

Buttstock extended: 33.00 inches

Barrel length: 14.5 in.

Muzzle velocity: 2,900 feet per second

Effective range: 600 meters (Area Target)

Front sight: Adjustable Elevation

Rear sight: Full range back-up sight adjustable for windage and elevation to 600 meters

Sight radius: 14.5 inches

Cyclic rate of fire: 700 to 950 rounds per minute

Fire control selector: Safe-Semi-3 Round Burst

Upper receiver: Flat Top with Backup Iron Sight (BUIS)

M4 Carbine

231



M4 Adapter Rail System

Provides Soldiers with an M4 series carbine as the base for a Modular Weapon System (MWS), which allows for the use of the full range of rail mounted accessories.

DESCRIPTION & SPECIFICATIONS

The **M4 Adapter Rail System (ARS)** replaces the hand guards, allowing a Soldier with an M4 series carbine additional Military Standard (MIL-STD) 1913 rails to attach mission specific accessories to enhance lethality and Soldier effectiveness. These accessories can be added or deleted as the mission dictates without the use of special tools.

- Number of rail surfaces:** Four
- Location:** Every 90 degrees starting at the top
- Length:** 6.125 inches typical rail



M5 Adapter Rail System

Provides Soldiers with M16A4 Rifles the base for a Modular Weapon System (MWS), which allows for the use of the full range of rail mounted accessories.

DESCRIPTION & SPECIFICATIONS

The **M5 Adapter Rail System (ARS)** replaces the hand guards, allowing a Soldier with an M16A4 Rifle additional MIL-STD 1913 rails to attach mission specific accessories to enhance lethality and Soldier effectiveness. These accessories can be added or deleted as the mission dictates without the use of special tools.

- Number of rail surfaces:** Four
- Location:** Every 90 degrees starting at the top
- Length:** 11.75 inches (Top and Bottom rail), 9.5 inches (Side rails)

M5 Adapter Rail System

235



M68 Close Combat Optic

Provides the Soldier armed with an M16 series rifle or M4 series carbine with a robust, precision, electronic optical red dot sight for use with both eyes open to improve effectiveness.

DESCRIPTION & SPECIFICATIONS

The **M68 Close Combat Optic (CCO)** is a red dot aiming device that enhances Soldier battlefield situational awareness and target acquisition speed. The sight has no magnification and can be used with all current night vision equipment.

Length: 5.3 inches

Width: 3.0 inches

Weight: 14.4 ounces (M16A4/M4 configuration); 14.1 ounces (M16A2 configuration with auxiliary mounting rail)



M68 Close Combat Optic

237



M9 Pistol

Enhances lethality, survivability, and situational awareness in close combat situations via an improved pistol with rail attachment capabilities.

DESCRIPTION & SPECIFICATIONS

A semi-automatic, double-action pistol, the **M9 Pistol** is more lethal, lighter, and safer than its predecessors. The M9 is carried by crew served weapon crewmen and by others who have a personal defense requirement, such as law enforcement personnel, unit leaders, and aviators. It replaces the M1911A1 .45 caliber pistol and the .38 caliber revolver.

The M9 Pistol Rail System will enable the attachment of an Integrated Laser White Light Pointer (ILWLP) to the M9 Pistol, resulting in an increase in lethality and survivability of the Special Forces Soldier or Military Police (MPs) by providing a tactical advantage in close combat operations. The rail system enhances situational awareness, and enables the user to identify or designate targets prior to engaging and to rapidly engage multiple targets.

Caliber: 9mm x 19mm North Atlantic Treaty Organization

Weight: 33.9 ounces (with empty magazine)

Weight: 40.9 ounces (with loaded 15-round magazine)

Length: 8.5 inches

Width: 1.5 inches

Height: 5.5 inches



M9 Pistol

239



XM150 Rifle Combat Optic (RCO)

Provides designated Soldiers with increased probability of a first-round hit at distances of zero to 600 meters through optical enhancements.

DESCRIPTION & SPECIFICATIONS

The **XM150 Rifle Combat Optic (RCO)** will provide an improved capability to recognize and engage targets from 300 to 600 meters with the M4, M16A2, M16A4 and M249 weapons. This optic will not degrade the Soldier's ability to conduct reflexive fire techniques and will allow for the Soldier to transition rapidly between long-range and close quarters engagements. The scope can be used to scan an area. When a target is acquired, the ranging reticle can be used to get an accurate range to the target. The range aiming point on the bullet drop compensator can then be used to engage target.

**XM150 Rifle Combat Optic
(RCO)**

241



XM25, Individual Air Burst Weapon Technology

Provides the infantry Soldier with a decisive overmatch capability in a weapon system that will dramatically increase lethality, range, and capability through the use of a family of airbursting ammunition.

DESCRIPTION & SPECIFICATIONS

The **Individual Airburst Weapon System, XM25** fires 25mm munitions including high-explosive airburst (HEAB), armor piercing, anti-personnel, non-lethal, training and breaching rounds. The XM25 comes with a target acquisition/fire control (XM104) that integrates thermal capability with direct-view optics, laser rangefinder, compass, fuze setter, ballistic computer, and an internal display. The XM25 has a 500-meter point target range and a 700-meter area target range. It is capable of defeating defilade (hidden) targets. The Soldier places the aim point on target and activates the laser rangefinder. The fire control system then provides an adjusted aim point that the Soldier adjusts for distance. The range data is communicated to a chambered 25mm round, which speeds down range at a precisely programmed distance to explode over the target.



**XM25, Individual Air Burst
Weapon Technology**

243



**Project Manager
Soldier Warrior**

Product Manager
Air Warrior

Product Manager
Land Warrior

**Project Manager
Soldier Equipment**

Product Manager Soldier
Sensors and Lasers

Product Manager Clothing
and Individual Equipment

Product Manager
Soldier Survivability

**Project Manager
Soldier Weapons**

Product Manager
Crew Served Weapons

Product Manager
Individual Weapons

**Soldier-as-a-System
Unit Set Fielding**

Planning

Logistic Support

Fielding

Accountability





Soldier-as-a-System Unit Set Fielding

The newly designated Soldier-as-a-System Unit Set Fielding (SaaS USF) originated under the auspices of the Army's Rapid Fielding Initiative (RFI). SaaS USF ensures that our Soldiers receive the finest individual and small unit equipment the Army can provide—as rapidly as it can be procured and fielded. RFI enhanced the capabilities of our fighting forces—whether regular Army, Reserve or National Guard—in the daily performance of their missions. SaaS USF continues that legacy by providing an equitable distribution of capabilities across our force and facilitating Soldier modernization in a systematic and integrated manner commensurate with the principles of the Soldier-as-a-System philosophy.



BACKGROUND

PEO Soldier began fielding RFI equipment in November 2002 after PEO Soldier representatives met directly with Soldiers in the field to gather feedback about inadequacies in equipment, how to address them, and what new or additional equipment the Soldiers needed. Since that time, nearly one million Soldiers have been equipped with state-of-the-art equipment, providing significant enhancements to their lethality, mobility, survivability, and operational quality of life.

In November 2006, Headquarters, Department of the Army (HQDA) amended PEO Soldier's original RFI mission to complete equipping of the Operating Army by the end of FY07. The continuing obligation to equip all deploying forces, many of whom were deploying for their second or third combat tours, required resources beyond those originally allocated for the finite number of forces in the Operating Army.

Therefore, HQDA directed PEO Soldier to focus all available resources on equipping Deployment Expeditionary Forces in the Army Force Generation (ARFORGEN) Ready Pool, and to limit distribution

of equipment to the remainder of the Operating Army to essential safety and modernization equipment. This amendment to the RFI mission assured the Army's ability to meet near-term equipping requirements for deploying forces while the Army implemented the ARFORGEN model for sustained capabilities over time.

The list of equipment fielded under RFI was refined and updated based on continuous Soldier feedback to leverage lessons learned in the Global War on Terrorism. In March 2007, as a result of a HQDA-approved update, PEO Soldier began fielding the latest iteration of the approved RFI list, 58 items, on a revised role-based Basis of Issue Plan. This change from a standard unit-based list of equipment reflected further efforts to achieve improves responsiveness and greater efficiencies in equipping operations conducted by PEO Soldier.

The RFI program expedited the process of acquiring and fielding state-of-the-art, government off-the-shelf and commercial off-the-shelf individual equipment and weapons technology to support Soldiers

engaged in combat operations. Specifically, the RFI program ensured our Soldiers received the most current technology to enhance their mission effectiveness.

For selected items, PEO Soldier was successful in achieving dramatic increases in production by U.S. industry to meet the critical demands of the GWOT. Because of the RFI program, the turnaround time for getting equipment into Soldiers' hands, or from "warehouse to foxhole," improved significantly. What used to take months or even years was reduced to as little as days or weeks from date of order to date of delivery to the Soldier. The procedures and lessons learned from RFI are invaluable in meeting future equipping requirements.

SaaS USF is the vanguard for Army logistics, sustainment, and transformation. As we implement ARFORGEN, unit set fielding programs will be crucial to meeting Soldier equipping requirements as outlined in the Army Campaign Plan (2006). Throughout this process, PEO Soldier remains committed to increasing Soldiers' combat effectiveness, saving Soldiers' lives, and improving Soldiers' quality of life.

FIELDING RESPONSIBILITIES AND PROCESSES

PEO Soldier's vision is the synchronized planning, programming, and execution of the entire PEO Soldier portfolio to ensure systematic equipping of the Soldier in accordance with the principles of ARFORGEN. To meet this vision, PEO Soldier is transforming from decentralized to centralized planning, staging and fielding operations for all PEO Soldier commodities.

This transition is required to meet the myriad responsibilities of equipping Soldiers in accordance with the cyclical requirements of ARFORGEN and to transform the resource model from supplemental funding to Program Objectives Memorandum (POM)-based support for SaaS USF. When complete, all PEO Soldier-managed commodities will be centrally resourced, integrated and fielded in a synchronized manner that supports unit training and readiness requirements of the Operating Army.

SaaS USF fielding requirements are a function of the policies and procedures established by HQDA for the equipping of units entering the operating cycles of the approved ARFORGEN schedule. Equipping packages are set by HQDA on a role-based basis for Soldiers and units of Brigade Combat Teams and support units.

PLANNING

The SaaS USF Planning Cell conducts external coordination with HQDA, Forces Command, and other Major Commands (MACOMs) necessary to identify fielding requirements in support of ARFORGEN. This coordination includes:

- An assessment of unit equipping status
- Review of forecasted modernization
- A determination of the specific equipment demand for each fielding event
- Placement of that demand with the supporting PMs for procurement.

Projections of demand are made by the Planning Cell to support strategic, operational and tactical level planning for Soldier equipping operations. Supporting PMs, in turn, develop coordinated POM requirements and place orders with their respective vendors to support the projected Soldier fielding requirements of the Army over time.

The SaaS USF Planning Cell is also responsible for coordinating the details for each SaaS USF fielding event with the various installations and locations around the world, as well as internally with the Logistic Support and Fielding Cells. Anchored on the ARFORGEN Operating Cycle, this entails identifying specific gaining units, coordinating specific fielding windows, and procuring necessary installation support to ensure the full integration and orchestration of all aspects of the fielding event.



LOGISTIC SUPPORT

The SaaS USF Logistic Support Cell coordinates the storage, repackaging and transportation of unit set items in support of fielding operations. Many of the items to be fielded are shipped from the vendors to the SaaS USF storage facility. Others may be shipped from vendors directly to the fielding event. Still others are managed/ distributed by an external Army logistics facility or entity (e.g., Defense Logistics Agency or depots). Upon receipt of shipping orders from the SaaS USF Planning Cell, the Logistic Support Cell coordinates with vendors and agencies, and prepares equipment items for shipment to designated fielding sites based on the specific shipping orders for a fielding event.

FIELDING



The SaaS USF Fielding Cell conducts the fielding events scheduled and coordinated by the Planning Cell. Generally, the Logistic Support Cell arranges shipments of designated items to the fielding sites to ensure the phased arrival, unloading, verification, and fielding of the equipment by an on-site fielding team to support the flow through the fielding event. As the fielding event unfolds, specific shortages may be identified and transmitted to the Logistic Support Cell for immediate shipment to the fielding site for fielding prior to the end of the scheduled fielding event. When such in-place support is not feasible, known shortages are transshipped to either a forward SaaS USF fielding site in theater or directly to the unit in theater.

ACCOUNTABILITY

In most cases, accountability of SaaS USF fielding equipment is transferred from the Fielding Cell to the gaining command, generally through the unit's Property Book Office. For individuals deploying to theater as replacements or individual augmentees through the Continental United States (CONUS) Replacement Centers (CRC), individual Soldier equipment is recorded on hand receipts and transferred to the individual clothing record of the Soldier. PEO Soldier is charged by HQDA to ensure the full and complete accountability of equipment fielded through the SaaS USF program.

SUMMARY

Centrally planned and executed SaaS USF at the PEO Soldier level is a prerequisite for meeting the long-term equipping requirements of the Operating Army. The operating tempo of today's Army requires optimal use of available time, and SaaS USF must set the standard in that area. Additionally, equipping and resetting Soldiers as a system in unit sets, in accordance with ARFORGEN force pool cycles, benefits both the Army and the industrial base by establishing the stable and predictable resource and production requirements necessary to support Army readiness requirements now and in the future.

PEO Soldier Offices

Program Executive Office Soldier integrates 376 programs, enabling the Soldier to dominate the full spectrum of peace and war, now and in the future.

PEO Soldier comprises the following Project Management and special activities offices:

Project Manager Soldier Warrior

Ft. Belvoir, VA

Product Manager Air Warrior

Redstone Arsenal, AL

Product Manager Land Warrior

Ft. Belvoir, VA

Project Manager Soldier Equipment

Ft. Belvoir, VA

Product Manager Clothing and Individual Equipment

Ft. Belvoir, VA

Product Manager Soldier Sensors and Lasers

Ft. Belvoir, VA

Product Manager Soldier Survivability

Ft. Belvoir, VA

Project Manager Soldier Weapons

Picatinny Arsenal, NJ

Product Manager Crew Served Weapons

Picatinny Arsenal, NJ

Product Manager Individual Weapons

Picatinny Arsenal, NJ

Soldier-as-a-System Unit Set Fielding

Ft. Belvoir, VA

For more information about Program Executive Office Soldier, please contact:

Strategic Communications Office

703-704-2802/DSN 654-2802

<http://www.peosoldier.army.mil>

Glossary

Acquisition Category (ACAT)

Categories established to facilitate decentralized decision making and execution and compliance with statutorily imposed requirements. The categories determine the level of review, decision authority, and applicable procedures. The ACATs are listed below:

ACAT I programs are Major Defense Acquisition Programs (MDAPs). An MDAP is defined as a program estimated by the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD (AT&L)) to require eventual expenditure for Research, Development, Test, and Evaluation (RDT&E) of more than \$365 million (Fiscal Year (FY) 2000 constant dollars) or procurement of more than \$2.19 billion (FY 2000 constant dollars), or those designated by the USD (AT&L) to be ACAT I. ACAT I programs have two sub-categories:

The USD (AT&L) designates programs as ACAT ID or ACAT IC.

ACAT ID for which the Milestone Decision Authority (MDA) is USD (AT&L). The D (in ACAT ID) refers to the Defense Acquisition Board (DAB), which advises the USD (AT&L) at major decision points.

ACAT IC for which the MDA is the DoD Component Head or, if delegated, the DoD Component Acquisition Executive (CAE). The C (in ACAT IAC) refers to Component.

ACAT IA programs are Major Automated Information Systems (MAISs) or programs designated by the Assistant Secretary of Defense for Networks and Information Integration (ASD (NII)) to be ACAT IA. An MAIS is an Automated Information System (AIS) program that is: 1) designated by the ASD (NII) as an MAIS; or 2) estimated to require program costs in any single year in excess of \$32 million (FY 2000 constant dollars), total program in excess of \$126 million (FY 2000 constant dollars), or total Life Cycle Costs (LCCs) in excess of \$378 million (FY 2000 constant dollars). MAISs do not include Information Technology (IT) that involves equipment that is an integral part of a weapon system or is an acquisition of services program. ACAT IA programs have two sub-categories:

ACAT IAM for which the MDA is the Chief Information Officer (CIO) of the DoD, the ASD (NII). The M (in ACAT IAM) refers to MAIS.

ACAT IAC for which the DoD CIO has delegated MDA to the CAE or Component CIO. The C (in ACAT IAC) refers to Component.

The ASD (NII) designates programs as ACAT IAM or ACAT IAC.

ACAT II programs are defined as those acquisition programs that do not meet the criteria for an ACAT I program but do meet the criteria for a major system. A major system is defined as a program estimated by the DoD Component Head to require eventual expenditure for RDT&E of more than \$140 million in FY 2000 constant dollars or for procurement of more than \$660 million in FY 2000 constant dollars or those designated by the DoD Component Head to be ACAT II. The MDA is the DoD CAE.

ACAT IIA programs are AIS programs that do not meet the criteria for ACAT IA but are designated by the Army Acquisition Executive (AAE) or Army CIO for Program Manager (PM) management and Army Major Automated Information System Review Council (MAISRC) review. (Army only)

ACAT III programs are defined as those acquisition programs that do not meet the criteria for ACAT I, ACAT IA, or ACAT II programs. The MDA is designated by the CAE and shall be at the lowest appropriate level. This category includes less-than-major AISs.

ACAT IV are programs in the Army not otherwise designated as ACAT I, II, or III. ACAT IV programs

are managed by a systems manager within a materiel command, as opposed to ACAT I-III programs, which are managed by a PM.

Acquisition Phase

All the tasks and activities needed to bring a program to the next major milestone occur during an acquisition phase. Phases provide a logical means of progressively translating B-4 broadly stated mission needs into well-defined system-specific requirements and ultimately into operationally effective, suitable, and survivable systems.

Advanced Technology Demonstration (ATD)

Used to demonstrate the maturity and potential of advanced technologies for enhanced military operational capability or cost effectiveness, and reduce technical risks and uncertainties at the relatively low costs of informal processes. ATDs are funded with Advanced Technology Development (ATD) funds.

Advanced Technology Development (ATD)

Budget Activity (BA) 3 within a Research, Development, Test and Evaluation (RDT&E) appropriation account that includes development of subsystems and components and efforts to integrate subsystems and components into system prototypes for field experiments and/or tests in a simulated environment. ATD also includes Concept and Technology Demonstrations (CTDs) of components and subsystems or system models. The models may be Form, Fit and Function (F3)

prototypes or scaled models that serve the same demonstration purpose. Projects typically have a direct relevance to identified military needs. The result of these type efforts are proof of technological feasibility and assessment of subsystem and component operability and producibility rather than the development of hardware for Service use. Program Elements (PEs) funded under this BA typically involve pre-Milestone B efforts such as system concept demonstrations, joint and Service-specific experiments or technology demonstrations. Advanced Technology Demonstrations are funded with ATD funds. (DoD 7000.14-R)

Block Approach

See Evolutionary Acquisition.

Capability Development Document (CDD)

A document that captures the information necessary to develop a proposed program(s), normally using an evolutionary acquisition strategy. The CDD outlines an affordable increment of militarily useful, logistically supportable and technically mature capability. The CDD supports a Milestone B decision review. The CDD format is contained in CJCSM 3170.01. (CJCSI 3170.01C and CJCSM 3170.01)

Capability Production Document (CPD)

A document that addresses the production elements specific to a single increment of an acquisition program. The CPD must be validated and approved before a Milestone C decision review. The refinement of performance attributes and Key Performance

Parameters (KPPs) is the most significant difference between the CDD and CPD. The CPD format is contained in CJCSM 3170.01. (CJCSI 3170.01C and CJCSM 3170.01)

Commercial and Non-Developmental Items

Market research and analysis shall be conducted to determine the availability and suitability of existing commercial and non-developmental items prior to the commencement of a development effort, during the development effort, and prior to the preparation of any product description. For ACAT I and IA programs, while few commercial items meet requirements at a system level, numerous commercial components, processes, and practices have application to DoD systems.

Commercial off-the-Shelf (COTS)

Commercial items that require no unique government modifications or maintenance over the life cycle of the product to meet the needs of the procuring agency.

Concept and Technology Development

Concept and technology development refers to the development of a materiel solution to an identified, validated need. During this phase, the Mission Needs Statement (MNS) is approved, technology issues are considered, and possible alternatives are identified. In this phase, the initiation concept is approved, a lead component is designated, and exit criteria are established. The leader of the concept development team will work with the integrated test team to develop an evaluation strategy that

describes how the capabilities will be evaluated once the system is developed.

Major components of this phase are Concept Exploration, Decision Review, and Component Advanced Development. Concept Exploration evaluates the feasibility of alternative concepts and assesses the merits of these concepts. This phase ends with a Decision Review, at which the preferred concept for the technologies that are available is selected. The Decision Review may also determine whether additional component development is necessary before key technologies can enter System Development and Demonstration. Component Advanced Development occurs when the project leader has a concept for the needed capability, but does not yet know the system architecture. The project exits Component Advanced Development when a system architecture has been developed and the component technology has been demonstrated in the relevant environment or the Milestone Decision Authority (MDA) decides to end this effort. This effort is intended to reduce risk on components that have only been demonstrated in a laboratory environment and to determine the appropriate set of subsystems to be integrated into a full system. Concept Decision (CD)

First decision point of the Defense Acquisition Management Framework. It authorizes entry into the Concept Refinement (CR) phase. The principal document at this decision point is the Initial Capabilities Document (ICD) which also contains an approved plan for conducting an Analysis of

Alternatives (AoA). A successful CD does not mean that a new acquisition program has been initiated since funding is normally limited to the CR phase which follows. (DoDI 5000.2) See Program Initiation.

Critical Design Review (CDR)

A multi-disciplined technical review to ensure that a system can proceed into fabrication, demonstration, and test and can meet stated performance requirements within cost, schedule, risk, and other system constraints. Generally this review assesses the system final design as captured in product specifications for each configuration item in the system's product baseline, and ensures that each configuration item in the product baseline has been captured in the detailed design documentation. Normally conducted during the System Development and Demonstration (SDD) phase. (Defense Acquisition Guidebook)

Design Readiness Review (DRR)

Provides for a mid-phase assessment of design maturity during the System Development and Demonstration (SDD) phase. According to DODI 5000.2, design maturity may be gauged by the number of subsystem and system design reviews successfully completed; the percentage of drawings completed; planned corrective actions to hardware/software deficiencies; adequate Developmental Testing (DT); an assessment of Environmental, Safety and Occupational Health (ESOH) risks; a completed Failure Modes and Effects Analysis (FMEA); the identification of key

system characteristics and critical manufacturing processes; an estimate of system reliability based on demonstrated reliability rates; and other indicators, as appropriate.

Developmental Test and Evaluation (DT&E)

1. Any testing used to assist in the development and maturation of products, product elements, or manufacturing or support processes.
2. Any engineering-type test used to verify status of technical progress, verify that design risks are minimized, substantiate achievement of contract technical performance, and certify readiness for initial Operational Testing (OT). Development tests generally require instrumentation and measurements and are accomplished by engineers, technicians, or soldier operator-maintainer test personnel in a controlled environment to facilitate failure analysis.

DODD 5000.1

DoD Directive 5000.1, "The Defense Acquisition System."

DODI 5000.2

DoD Instruction 5000.2, "Operation of the Defense Acquisition System."

Down Select

To reduce the number of contractors working on a program by eliminating one or more for the next phase.

Engineering Change Proposal (ECP)

A proposal to the responsible authority recommending that a change to an original item of equipment be considered, and the design or engineering change be incorporated into the article to modify, add to, delete, or supersede original parts.

Evolutionary Acquisition (EA)

The preferred DoD strategy for rapid acquisition of mature technology for the user according to DoDI 5000.2. An evolutionary approach delivers capability in increments, recognizing up front the need for future capability improvements. There are two approaches to achieving an EA: Spiral Development and Incremental Development as noted below:

1. Spiral Development: In this process, a desired capability is identified, but the end-state requirements are not known at program initiation. Requirements are refined through demonstration, risk management and continuous user feedback. Each increment provides the best possible capability, but the requirements for future increments depend on user feedback and technology maturation. According to DoDD 5000.1, spiral development is the preferred process for executing an EA strategy.
2. Incremental Development: In this process, a desired capability is identified, an end-state requirement is known, and that requirement is met over time by developing several increments, each dependent on available mature technology.

First Unit Equipped (FUE) Date

The scheduled date system or end item and its agreed upon support elements are issued to the designated Initial Operational Capability (IOC) unit and training specified in the new equipment training plan has been accomplished.

Fiscal Year (FY)

For the United States Government (USG), the period covering October 1 to September 30 (12 months).

Full Operational Capability (FOC)

The full attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics, which is manned and operated by a trained, equipped, and supported military unit or force.

Full Rate Production (FRP)

Contracting for economic production quantities following stabilization of the system design and validation of the production process.

Initial Capabilities Document (ICD)

Documents the need for a materiel approach to a specific capability gap derived from an initial Analysis of Materiel Approaches (AMA) executed by the operational user and, as required, an independent analysis of materiel alternatives. The ICD defines the gap in terms of the functional area, the relevant range of military operations, desired effects and time. It also summarizes the results of Doctrine, Organization, Training, Materiel, Leadership, Personnel, and Facilities (DOTMLPF)

analysis and describes why nonmaterial changes alone have been judged inadequate in fully providing the capability. (CJCSI 3170.01C)

Initial Operational Capability (IOC)

The first attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics with the appropriate number, type, and mix of trained and equipped personnel necessary to operate, maintain, and support the system. It is normally defined in the Capability Development Document (CDD) and the Capability Production Document (CPD).

Initial Operational Test and Evaluation (IOT&E)

Dedicated Operational Test and Evaluation (OT&E) conducted on production, or production representative articles, to determine whether systems are operationally effective and suitable, and which supports the decision to proceed Beyond Low Rate Initial Production (BLRIP).

In-Process Review/Interim Program Review (IPR)

Review of a project or program at critical points to evaluate status and make recommendations to the decision authority.

Live Fire Test and Evaluation (LFT&E)

A test process to evaluate the vulnerability and/or lethality aspects of a conventional weapon or conventional weapon system. LFT&E is a statutory requirement (Title 10 U.S.C. § 2366) for covered systems, major munitions programs, missile programs, or product improvements to a

covered systems, major munitions programs, or missile programs before they can proceed Beyond Low Rate Initial Production (BLRIP). By law, a covered system is any vehicle, weapon platform, or conventional weapon system that includes features designed to provide some degree of protection to users in combat and that is an Acquisition Category (ACAT) I or ACAT II program. (Note: The term “covered system” can also be taken to mean any system or program covered by Title 10 U.S.C. § 2366, including major munitions and missile programs.)

Joint Requirements Oversight Council (JROC)

Assists the Chairman, Joint Chiefs of Staff (CJCS) in identifying and assessing the priority of joint military requirements (including existing systems and equipment) to meet the National Military Strategy (NMS). The Vice Chairman of the Joint Chiefs of Staff (VCJCS) chairs the Council and decides all matters before the Council. The permanent members include the Vice Chiefs of the U.S. Army (VCSA) and U.S. Air Force (VCSAF), the Vice Chief of Naval Operations (VCNO), and the Assistant Commandant of the Marine Corps (ACMC). The Council directly supports the Defense Acquisition Board (DAB) through the review, validation, and approval of key cost, schedule, and performance parameters at the start of the acquisition process, prior to each milestone review, or as requested by the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD(AT&L)).

Low Rate Initial Production (LRIP)

1. The first effort of the Production and Deployment (P&D) phase. The purpose of this effort is to establish an initial production base for the system, permit an orderly ramp-up sufficient to lead to a smooth transition to Full Rate Production (FRP), and to provide production representative articles for Initial Operational Test and Evaluation (IOT&E) and full-up live fire testing. This effort concludes with a Full Rate Production Decision Review (FRPDR) to authorize Full Rate Production and Deployment (FRP&D).
2. The minimum number of systems (other than ships and satellites) to provide production representative articles for Operational Test and Evaluation (OT&E), to establish an initial production base, and to permit an orderly increase in the production rate sufficient to lead to Full Rate Production (FRP) upon successful completion of Operational Testing (OT). For Major Defense Acquisition Programs (MDAPs), LRIP quantities in excess of 10 percent of the acquisition objective must be reported in the Selected Acquisition Report (SAR). For ships and satellites LRIP is the minimum quantity and rate that preserves mobilization.

Material Release Order*

An order issued by an accountable supply system manager (usually an inventory control point or accountable depot or stock point) directing a non-accountable activity (usually a storage site

or materiel drop point) within the same supply distribution complex to release and ship materiel.

Milestone (MS)

The point at which a recommendation is made and approval sought regarding starting or continuing an acquisition program, i.e., proceeding to the next phase. Milestones established by DoDI 5000.2 are:

MS A approves entry into the Technology Development (TD) phase

MS B approves entry into the System Development and Demonstration (SDD) phase

MS C approves entry into the Production and Deployment (P&D) phase

Also of note are the Concept Decision (CD) that approves entry into the Concept Refinement (CR) phase; the Design Readiness Review (DRR) that ends the System Integration (SI) effort and continues the SDD phase into the System Demonstration (SD) effort; and the Full Rate Production Decision Review (FRPDR) at the end of the Low Rate Initial Production (LRIP) effort of the P&D phase that authorizes Full Rate Production (FRP) and approves deployment of the system to the field or fleet.

Milestone Decision Authority (MDA)

Designated individual with overall responsibility for a program. The MDA shall have the authority to approve entry of an acquisition program into

the next phase of the acquisition process and shall be accountable for cost, schedule, and performance reporting to higher authority, including congressional reporting. (DoDD 5000.1)

Mission Need Statement (MNS)

Legacy document. A formatted non-system-specific statement containing operational capability needs and written in broad operational terms. It describes required operational capabilities and constraints to be studied during the Concept Refinement (CR) and Technology Development (TD) phases. MNSs that have initiated staffing in the Joint C4I (Command, Control, Communications, Computers, and Intelligence) Program Assessment Tool (JCPAT) (Knowledge Management/Decision Support (KM/DS) tool) will continue through the normal staffing process, but no new MNSs will be accepted for staffing. Initial Capabilities Documents (ICDs), developed in accordance with CJCSI 3170.01C, will be used instead. Programs that have already completed Milestone A, or beyond, are not required to update the MNS with an ICD. However, no MNS greater than two years old will be used to support a Milestone A (or Milestone B or C for programs proceeding directly to these milestones) acquisition decision. (CJCSI 3170.01C)

New Start

An item or effort appearing in the President’s Budget (PB) for the first time; an item or effort that was previously funded in basic or applied research and is transitioned to Advanced Technology Development (ATD) or engineering development;

or an item or effort transitioning into procurement appearing in the PB for the first time in the investment area. Often confused with program initiation, an acquisition term that describes the milestone decision that initiates an acquisition program.

Non-Developmental Item (NDI)

A NDI is any previously developed item of supply used exclusively for government purposes by a Federal Agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement; any item described above that requires only minor modifications or modifications of the type customarily available in the commercial marketplace in order to meet the requirements of the processing department or agency.

Off-the-Shelf

Procurement of existing systems or equipment without a Research, Development, Test and Evaluation (RDT&E) program or with minor development to make system suitable for DoD needs. May be commercial system/equipment or one already in DoD inventory. See Commercial and Non-Developmental Item.

Operational Capability

The measure of the results of the mission, given the condition of the systems during the mission (dependability).

Operational Requirements Document (ORD)

Legacy document. A formatted statement containing performance and related operational performance parameters for the proposed concept or system. ORDs will be accepted for Joint Staff review until late December 2003. After this date, only ORD updates/annexes, Capability Development Documents (CDDs) and Capability Production Documents (CPDs) developed in accordance with CJCSI 3170.01C will be accepted. A validated and approved ORD, developed under CJCSI 3170.01A or CJCSI 3170.01B, may be used to support a Milestone B or Milestone C decision in lieu of a CDD or CPD until late June 2005. See Capability Development Document and Capability Production Document. (CJCSI 3170.01C)

Operational Test and Evaluation (OT&E)

The field test, under realistic conditions, of any item (or key component) of weapons, equipment, or munitions for the purpose of determining the effectiveness and suitability of the weapons, equipment, or munitions for use in combat by typical military users; and the evaluation of the results of such tests.

Operations and Support

The objective of the Operations and Support phase is the execution of a support program that meets operational support performance requirements and sustainment of systems in the most cost-effective manner throughout their life cycle. The sustainment program includes all elements necessary to maintain the readiness and operational capability

of deployed systems. The scope of support varies among programs but generally includes supply, maintenance, transportation, sustaining engineering, data management, configuration management, manpower, personnel, training, habitability, survivability, safety, IT supportability, and environmental management functions. This activity also includes the execution of operational support plans.

Preliminary Design Review (PDR)

A multi-disciplined technical review to ensure that a system is ready to proceed into detailed design and can meet stated performance requirements within cost (program budget), schedule (program schedule), risk, and other system constraints. Generally, this review assesses the system preliminary design as captured in performance specifications for each configuration item in the system (allocated baseline), and ensures that each function in the functional baseline has been allocated to one or more system configuration items. Normally conducted during the System Development and Demonstration (SDD) phase. (Defense Acquisition Guidebook) See Functional Baseline and Allocated Baseline.

Product Manager (PM)

The Product Manager is delegated authority and assigned responsibility for centralized management of a development or acquisition program that does not qualify for project management. PM positions are usually at the rank of Lieutenant Colonel or GS-14.

Production and Deployment (P&D) phase

The fourth phase of the life cycle as defined and established by DoDI 5000.2. This phase consists of two efforts, Low Rate Initial Production (LRIP) and Full Rate Production and Deployment (FRP&D), and begins after a successful Milestone C review. The purpose of this phase is to achieve an operational capability that satisfies the mission need. LRIP is intended to result in completion of manufacturing development to ensure adequate manufacturing capability and to produce the minimum quantity necessary for initial operational test and evaluation. The Full-Rate Production Decision Review considers the cost estimate, manpower, results of test and evaluation, compliance and interoperability certification. Following the completion of a Full-Rate Production Decision Review, the program enters FRP&D.

Production Qualification Test (PQT)

A technical test completed prior to the Full Rate Production (FRP) decision to ensure the effectiveness of the manufacturing process, equipment, and procedures. This testing also serves the purpose of providing data for the independent evaluation required for materiel release so that the evaluator can address the adequacy of the materiel with respect to the stated requirements. These tests are conducted on a number of samples taken at random from the first production lot, and are repeated if the process or design is changed significantly, and when a second or alternative source is brought on line.

Production Readiness Review (PRR)

A formal examination of a program to determine if the design is ready for production, production engineering problems have been resolved, and the producer has accomplished adequate planning for the production phase. Normally performed as a series of reviews toward the end of System Development and Demonstration (SDD) phase or early in Production and Deployment (P&D) phase.

Program Initiation

The point at which a program formally enters the acquisition process. Under DoDI 5000.2, program initiation normally occurs at Milestone B, but may also occur at other milestones/decision points depending upon technology maturity and risk. At program initiation, a program must be fully funded across the Future Years Defense Program (FYDP) as a result of the Program Objectives Memorandum (POM)/budget process, that is, have an approved resource stream across a typical defense program cycle, for example Fiscal Year (FY) 2006-2011. Concept Refinement (CR) and Technology Development (TD) phases are typically not fully-funded and thus do not constitute program initiation of a new acquisition program in the sense of DoDI 5000.2. This term is often confused with the financial management term new start. See New Start, Concept Refinement, and Technology Development.

Program Management

The process whereby a single leader exercises centralized authority and responsibility for

planning, organizing, staffing, controlling, and leading the combined efforts of participating/assigned civilian and military personnel and organizations, for the management of a specific defense acquisition program or programs, throughout the system life cycle.

Qualification

The formal process by which a manufacturer's product is examined for compliance with the requirements of a source control drawing for the purpose of approving the manufacturer as a source of supply.

Qualification Test

Simulates defined operational environmental conditions with a predetermined safety factor, the results indicating whether a given design can perform its function within the simulated operational environment of a system.

- 1. Activities for the development of a new system or to expand the performance of fielded systems.
- 2. An appropriation.

Soldier Enhancement Program (SEP)†

Approved by Congress in 1989 and revised in 1992 with the aim speeding the "factory to foxhole" process to enhance Soldier lethality, survivability, mobility, command and control, and sustainability with improved weapons and equipment.

Spiral Development

See Evolutionary Acquisition.

Sustainment

- 1. The first effort of the Operations and Support (O&S) phase established and defined by DoDI 5000.2. The purpose of the Sustainment effort is to execute the support program to meet operational support performance requirements and sustain the system in the most cost effective manner over its life cycle. Sustainment includes supply, maintenance, transportation, sustaining engineering, data management, Configuration Management (CM), manpower, personnel, training, habitability, survivability, environment, safety (including explosives safety), occupational health, protection of critical program information, anti-tamper provisions, Information Technology (IT) (including National Security Systems (NSS)), supportability, and interoperability functions. Sustainment overlaps the Full Rate Production (FRP) and Deployment effort of the Production and Deployment (P&D) phase. (DoDI 5000.2)
- 2. The provision of personnel, logistic, and other support required to maintain and prolong operations or combat until successful accomplishment or revision of the mission or of the national objective. (CJCSI 3170.01C)

System Development and Demonstration (SDD)

- 1. The third phase of the life cycle as defined and established by DoDI 5000.2. This phase consists of two efforts, System Integration (SI) and System Demonstration (SD), and begins after Milestone B. It also contains a Design Readiness Review (DRR) at the conclusion of the SI effort. A successful Milestone B can place the program

in either SI or SD. A program planning to proceed into SD at the conclusion of SI will first undergo a DRR to confirm that the program is progressing satisfactorily during the phase.

- 2. Budget Activity (BA) 5 within a Research, Development, Test and Evaluation (RDT&E) appropriation account. Involves mature system development, integration and demonstration to support Milestone C decisions and the conduct of Live Fire Test and Evaluation (LFT&E) and Initial Operational Test and Evaluation (IOT&E) of production representative articles. A logical progression of program phases and development and production funding must be evident in the Future Years Defense Program (FYDP) consistent with DoD's full funding policy. (DoD 7000.14-R)

System Integration

The first effort of the System Development and Demonstration (SDD) phase. A program enters System Integration (SI) when the Program Manager (PM) has a technical solution for the system, but has not yet integrated the subsystems into a complete system. The Capability Development Document (CDD) guides the effort which typically includes demonstration of prototype articles or Engineering Development Models (EDMs). A successful Design Readiness Review (DRR) ends the SI effort. (DoDI 5000.2)

System of Systems (SoS)

A set or arrangement of interdependent systems that are related or connected to provide a given

capability. The loss of any part of the system will degrade the performance or capabilities of the whole. (CJCSI 3170.01C)

Test and Evaluation (T&E)

Process by which a system or components are exercised and results analyzed to provide performance-related information. The information has many uses including risk identification and risk mitigation and empirical data to validate models and simulations. T&E enables an assessment of the attainment of technical performance, specifications and system maturity to determine whether systems are operationally effective, suitable and survivable for intended use, and/or lethal. There are three distinct types of T&E defined in statute or regulation: Developmental Test and Evaluation (DT&E), Operational Test and Evaluation (OT&E), and Live Fire Test and Evaluation (LFT&E). See Operational Test and Evaluation, Initial Operational Test and Evaluation (IOT&E),

Type Classification (TC)

Process that identifies the life cycle status of a materiel system after a production decision by the assignment of a type classification designation. The process records the status of a materiel system as a guide to procurement, authorization, logistical support, asset, and readiness reporting. Satisfies DoD requirement to designate when a system is approved for Service use. (Army)
Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD (AT&L)); Office of the Under Secretary of Defense (Acquisition,

Technology, and Logistics) (OUSD (AT&L))

The OUSD (AT&L) is organized around services, Research and Development (R&D), and materiel acquisition. Several organizational elements report directly to the USD (AT&L) including the Principal Deputy USD (PDUSD (AT&L)), the Director, Defense Research and Engineering (DDR&E), the DUSD (Logistics and Materiel Readiness), and the Director, Ballistic Missile Defense Organization (BMDO). Also, reporting into staff elements within OUSD (AT&L) are a number of Defense agencies such as the Defense Logistics Agency (DLA) and the Defense Advanced Research Projects Agency (DARPA).

All acquisition-related definitions are taken from the Defense Acquisition University (DAU) Glossary. For further information on acquisition-related terminology, see DAU's site at <http://akss.dau.mil/jsp/Glossary.jsp>.

*Those entries marked with * derive from the DoD Dictionary of Military Terms, <http://www.dtic.mil/doctrine/jel/doddict/>.

†Those marked with the † symbol are adapted from other sources.

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Alabama

Alabama Industries for the Blind
American Apparel
American Power Source
Communications & Ear
Protection Inc.
Federal Marketing Service Corp.
Huntsville Rehabilitation
Foundation
Westwind Technologies Inc.

Arizona

ArmorWorks
BAE Systems
Black Diamond Advanced
Technology
GG & G Inc.
General Dynamics C4S
Northrop Grumman Electro-Optical
Systems
Simula, an Armor Holdings
Aerospace and Defense Group

Arkansas

The Glove Corp.

California

Advanced Countermeasures
Systems

Aqua Lung
Arena Industries
Armacef
BAE Systems Advanced Ceramics
Bijan Protective Equipment
Bobby Weiner Enterprises, LLC
CamelBak-SW Motorsports
Ceradyne Inc.
Design West Aratech
DRS Optronics
G & M
Hatch Worldwide Imports
Intevac Inc.
Irvin Aerospace Inc.
Laser Devices Inc.
Oakley USA
Paulson Manufacturing
Safariland
Summit Travelware
Raytheon
Rockwell Collins
Secure Communications
Systems Inc.
Teledyne Imaging Sensors
Wiley X Eyewear by Protective
Optics Inc.

Colorado

Capco Inc.

Connecticut

Colt Defense
Colt's Manufacturing Co.
Interspiro
Okay Industries Inc.

Delaware

Masley Enterprises Inc.

District of Columbia

Federal Prison Industries
General Services Administration
Global Supply

Florida

American Body Armor
Armor Holdings
Bernard Cap
Coastal Enterprises
DRS Optronics
Grip Pod Systems
Knight's Armament Co.
Northrop Grumman Laser Systems
Point Blank Body Armor
Protective Materials Co.
Source One Technical

Georgia

Altama Delta Corp.
Bremen-Bowdon

Macon Garment Manufacturing
Omega Training Group
Woolrich Inc.
UNICOR

Idaho

Dawn Enterprises Inc.
Eye Safety Systems Inc.

Illinois

Airtronic Services Inc.
Belleville Shoe Manufacturing Co.
Nationwide Glove Manufacturing
Norcross Safety Products
Recon Optical Inc.
Safety Systems Corp.
Schuessler Knitting Mills Inc.
Thor Defense Inc.

Indiana

Dwyer
Raytheon Technical Services
UNICOR

Iowa

Brownell's Inc.
Hawkeye Glove Manufacturing
Rockwell Collins

Kansas

Center Industries Corp.
Marlow White Uniform Co.

Kentucky

Ashland Sales/Macon
Campbellsville Apparel
Harris Corp.
Pioneer Vocational Industrial
Services
Southeastern Kentucky
Rehabilitation Industries
UNICOR

Louisiana

Wellstone Apparel

Maine

Creative Apparel
General Dynamics Armament and
Technical Products
Group Home Foundation

Maryland

Beretta U.S.A. Corp.
Machining Technologies Inc.

Massachusetts

BAE Systems
Fosta-Tek Optics Inc.
General Dynamics C4S
Kopin Corp.
Michael Bianco Inc.
New England Ropes

Neptune Garment Co.
Protech Armored Products
Sterlingwear
Tenabraex Corp.

Michigan

Bates Uniform Footwear
General Dynamics Land Systems
Peckham Vocational Industries
Telex Communications Co.
Wolverine Worldwide

Minnesota

Alliant Techsystems
Ames True Temper
DBA Pur/Recovery Engineering
HDM Inc.
Katadyn North America Inc.

Mississippi

Golden Manufacturing
Pioneer Aerospace Corp.
Wellstone Apparel

Missouri

Best Tool & Manufacturing Co.
Eagle Industries
Lake City Army Ammunition Plant
(Alliant Techsystems)

New Hampshire

Insight Technology Inc.
Saint-Gobain

New Jersey

Bethel Industries
Complete Parachute Systems
Computer Sciences Corp.
DeRossi and Son Co.
Employment Horizons Inc.
Guardian Protective Devices
Hamilton Uniforms
Harris Manufacturing Co.
Industries for the Blind
Intertek Laboratories Inc.
Military Equipment Corp.
of America
Para-Flite
Polymer Technologies Inc.
Savit Corp.
Sonetronics

New Mexico

General Technologies Corp.
Mildot Enterprises

New York

Albest Metals Stamping Corp.
Astrocom Electronics Inc.
Carleton Technologies Inc.
Hercules Glove Manufacturing
Holographic Optics
Human Technologies
Industries for the Blind
Med-Eng Systems Inc.
Otis Products Inc.
Remington
RJS Scientific Inc.

Sam Bonk Uniform Cap Inc.
Sandina Enterprises
Seneca-Cayuga Counties Chapter,
NYSARC Inc.
Telephonics Corp.
Tennier Industries Inc.
Tri-Technologies Inc.

North Carolina

Comfort Technologies Inc.
Federal Covers and Textiles
General Dynamics Armament and
Technical Products Inc.
Industries for the Blind
Industries of the Blind Inc.
Lion Services Inc.
McRae Industries Inc.
Menzie's Southern Hosiery Mills Inc.
Mills Manufacturing Corp.
Paraclete Armor and Equipment
Pickett Hosiery Mills
Raleigh Lions
Special T Hosiery Mills
UNICOR
Wellco Enterprises Inc.

Ohio

Guardian Manufacturing
Morning Pride Manufacturing
Vocational Guidance Services Inc.
SSK Industries

Oregon

Massif Mountain Gear Co.

Pennsylvania

Brashear
Fraser-Volpe Corp.
Gentex
Indogem Inc.
Industries for the Blind
Kongsberg Defense & Aerospace
MXL Industries
Specialty Defense Systems
Woolrich Inc.

Rhode Island

Uvex

South Carolina

Fabrique National Manufacturing
North Safety Products

South Dakota

Aerostar International

Tennessee

Barrett Firearms Manufacturing
Lions Volunteer Blind Industries
Protective Apparel Corp. of America
SSM Industries
Tennessee Apparel Corp.
Tullahoma Industries
Universal Technologies Inc.

Texas

Best Made Designs
Benchmark Electronics
DRS Optronics

Industries for the Blind
Northrop Grumman Electro-Optical
Systems
Rabintex
Raytheon
ReadyOne
Reyes Industries Inc.
Sidron Inc.
Tactical and Rescue Systems
Travis Association for the Blind
UNICOR

Vermont

Revision Eyewear
Mine Safety Appliance

Virginia

ADS Inc.
Aerial Machine and Tool Corp.
Aimpoint Inc.
Ashbury International Group Inc.
Capps Shoe Co.
Dorothea Knitting Mills
ECOTAT Systems Co.
Heckler & Koch
ITT Industries Night Vision
Industries for the Blind
London Bridge Trading Co.
National Institute for the Severely
Handicapped Inc.
Tactical & Survival Specialties Inc.
Vertu Corp.

Washington

Cascade Designs Inc.
General Dynamics
National Institute for the Blind
Outdoor Research
Seattle Lighthouse for the Blind

Wisconsin

Visions Upholstery
Weinbrenner Shoe Co.

Wyoming

Defense Technology Corp.

**INTERNATIONAL
CONTRACTORS**

Puerto Rico

Propper International
SNC Manufacturing

Canada

Acton International
Airboss Defense
Arc'teryx Equipment Inc.
ELCAN Optical Technologies
GD OTS
Med-Eng Systems Inc.

Germany

Heckler & Koch
GmbH
NICO

United Kingdom

Civil Defense Supply
Ultimate Training Missions, Ltd.

