

# Army Guide monthly



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## Future Technologies

### Computerized Combat Glove



A new glove lets soldiers operate wearable computers while still holding their weapons.

Some U.S. soldiers in Iraq are already equipped with wearable computer systems. But the lack of efficient input devices restricts their use to safer environments, such as the interior of a Humvee or a base station, where the soldier can set down his weapon and use the keyboard or mouse tethered to his body. Now RallyPoint, a startup based in Cambridge, MA, has developed a sensor-embedded glove that allows the soldier to easily view and navigate digital maps, activate radio communications, and send commands without having to take his hand off his weapon.

For soldiers carrying a plethora of equipment, finding and using electronic controls on their bodies can be awkward, says Forrest Liao, the president and cofounder of RallyPoint. "We wanted to make a device that would have all the necessary components in a combat-ready way," he says. The Natick Soldier Systems Center in Natick, MA, has a contract with RallyPoint and is currently testing a prototype of the glove, called a Handwear Computer Input Device (HCID), for use with its electronic systems.

A sensor-laden glove for wearable computing is not an entirely new concept. Researchers at MIT, the University of Toronto, and the Georgia Institute of Technology have been working on systems that focus on detecting hand and arm movements by using accelerometers, gyroscopes, and other high-tech sensors. But Gerd Kortuem, an assistant professor of computing at Lancaster University, in England, says that most of these prototypes "don't work reliably and are not robust enough." Microsoft and Sony have also worked on gesture recognition and wearable-mouse technologies, but their research has yet to yield usable devices.

RallyPoint has a "very clever design and has actually created something practical by focusing on a particular domain--the military," says Kortuem.

A typical wearable computer system consists of a helmet-mounted display and hardware the soldier wears around his waist. RallyPoint's engineers have designed their glove so that soldiers can grip other objects, such as their weapons or a steering wheel, and still be able to use their electronic systems. The glove has four custom-built push-button sensors sewn into the fingers. Sensors on the

tips of the middle and fourth fingers activate radio communications, a different channel for each finger. Another sensor on the lower portion of the index finger changes modes, from "map mode" to "mouse mode." In map mode, the fourth sensor, located on the pinky finger, is used to zoom in on and out of the map; in mouse mode, it serves as a mouse-click button.

Also sewn into the pad of the middle fingertip of the glove is an "anywhere mouse" that uses force sensors and acts as a track pad. "When a soldier presses down against the side of his weapon, a wall, or any hard surface and rolls his finger around, he can manipulate things on the screen," says Liao.



## Robots

### Israeli Military Unveils Armed Patrol Robot



NES TZIONA, Israel — Israel's newest soldier can see at night, never nods off on sentry duty and can carry 660 pounds without complaining.

The Guardium, an unmanned ground vehicle commissioned by the Israeli military and shown to The Associated Press on Monday, is essentially a robotic soldier, among the first in the world to be operational. It can replace human soldiers in dangerous roles, cutting casualty rates.

Like the pilotless drones that have become a mainstay of air forces in Israel, the U.S. and elsewhere, the four-wheeled Guardium is operated from a command room that can be far from the front line.

It can be mounted with cameras, night-vision equipment and sensors, as well as more lethal tools like machine guns.

Following pre-programmed routes, it can navigate alone through cities — the vehicle knows how to deal with intersections, traffic and road markings. It can patrol borders, its cameras scanning 360 degrees at all times,

and alert operators if it spots anything suspicious.

The Guardian never mentally wanders or falls asleep, as soldiers have been known to do during mind-numbing guard or patrol missions. And it doesn't have a family that will miss it when it's away on reserve duty.

"Representatives of armies with troops who are taking high casualties in asymmetric warfare from threats like roadside bombs get excited about this product," said Erez Peled, general manager of G-Nius Unmanned Ground Systems, the company that developed the robot.

The control panel includes two large screens and a joystick. If the operator wants to take control, he can do so from a steering wheel and gas and brake pedals that lend the console the look of a video arcade game.

"Any kid who grew up with a PlayStation will be able to come in here and learn this in seconds," Peled said.

A vehicle alone costs approximately \$600,000. With the operating system, the price runs to several million dollars, depending on what equipment is installed on the robot.

The Israeli military said the Guardian has yet to enter operational service, and would provide no further comment.

John Pike, director of the Virginia-based military think tank Globalsecurity.org, said there is only one other similar vehicle operational — a South Korean robot used to patrol the demilitarized zone with North Korea.

With the details of the Korean vehicle classified, Pike could not say which was more advanced.

Robots like this are potentially the future of ground warfare, Pike said.

"A robot does what it's told, and you'll be able to get them to advance in ways its hard to get human soldiers to do. They don't have fear, and they kill without compunction."

But more importantly, he said, "A robot means you don't have to write a condolence letter."

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## Defence Industry

### DRS Technologies Receives \$51 Million in New Orders for Thermal Weapon Sights from US Army

PARSIPPANY, N.J. -- DRS Technologies, Inc. announced today the receipt of new contract orders totaling over \$51 million to produce Thermal Weapon Sights II (TWS II).

The contracts were awarded by the U.S. Army's Research, Development & Engineering Command's (RDECOM) Acquisition Center at the U.S. Army Garrison Aberdeen Proving Ground in Maryland, acting on behalf of Program Executive Office Soldier at Fort Belvoir, Virginia.

Contract work will be performed by two of the DRS Sensors & Targeting Systems divisions - the Optronics Division in Palm Bay and Melbourne, Florida, and the Infrared Technologies Division in Dallas, Texas.

These new orders are part of a five-year, \$2.3-billion Indefinite Delivery/Indefinite Quantity (ID/IQ) TWS II

Bridge contract awarded to DRS in 2007. Additional ID/IQ contracts are expected as funding is available enabling the Army to order up to 150,000 TWS II systems to support fielding needs.

"The Warfighter demand for night vision equipment remains robust, and the requirement for thermal weapon sights continues to increase," said James M. Baird, president of DRS' Reconnaissance, Surveillance & Target Acquisition (RSTA) Segment. "We're committed to supporting our nation's front-line Warfighters with increased production to meet that demand, and it's an honor to be helping them to accomplish their missions safely and effectively."

The DRS family of light, medium and heavy TWS II sights use advanced, uncooled thermal imaging sensors, enabling Army Soldiers and Marines to see the battlefield and engage the enemy through smoke, dust, fog and degraded weather conditions. Currently deployed with U.S. Army, Marine Corps, Air Force and Special Operations forces, TWS II systems offer superior image quality for increased threat detection and situational awareness. The DRS-produced TWS II systems provide longer battery life, ease of use and reduced carry weight.

The company's RSTA Segment develops, manufactures and supports electro-optical technologies, including advanced cooled and uncooled thermal-imaging solutions for Soldier systems, ground vehicle, airborne, maritime, industrial, security, public safety and firefighting applications.

DRS Technologies, headquartered in Parsippany, New Jersey, is a leading supplier of integrated products, services and support to military forces, intelligence agencies and prime contractors worldwide. The company employs approximately 10,000 people. For more information about DRS Technologies, please visit the company's web site at [www.drs.com](http://www.drs.com).

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## Contracts

### BAE Systems Receives \$15.5 Million Bradley Contract Modification For Kit Installations



SANTA CLARA, California -- BAE Systems was awarded a \$15.5 million contract modification from the U.S. Army TACOM Life Cycle Management Command to install modification kits on 952 Bradley Combat Systems vehicles in Iraq and the U.S.

The modification improves the survivability of the Bradley Combat Systems in combat. This award is part

of a larger \$25.6 million contract which calls for additional modernization work.

“We have made several modifications to the Bradley over the past few years to maintain its superior survivability as the threat continues to change,” said Andy Hove, vice president of Combat Systems Programs “These modifications will improve the survivability of the systems that are deployed in theater and protect the soldiers even better than we do today.”

Kit installation will be performed in Iraq and will include Bradley Advanced Survivability Seats, a “Hot Box” ammunition restraint system and an improved Fire Suppression System. Air conditioning will also be installed in one Brigade Combat Team vehicle set. Work on the modifications will begin this summer.

The Bradley Advanced Survivability Seats address the need to provide a more survivable seating system. The seats offer a number of improvements, including a four-point restraint system with a quick release, independent energy dissipation for each position and an integrated foot rest. The Hotbox Restraint Kits provide an enhanced method of storing ammunition for the Bradley’s 25 mm main gun and allows soldiers to upload ammunition in to the weapon in a safe and efficient manner.

Work under this contract will be completed by December 2011.

When combined with previous awards this modification brings the total contract value to \$387.2 million.

Bradley Combat Systems continue to provide outstanding survivability, mobility and lethality to U.S. soldiers in close-combat urban situations as well as in open-combat. The Bradley fulfills five critical mission roles - infantry fighting vehicle, cavalry fighting vehicle, fire support vehicle, battle command vehicle and engineer squad vehicle - for the Army's Heavy Brigade Combat Teams.



**Contracts**

**Force Protection, Inc. Receives \$94 Million in UK Contracts for Additional Cougar Vehicles**



LADSON, S.C.--Force Protection, Inc. today announced that Congress has approved two Cougar Foreign Military Sales to the United Kingdom.

The first contract for six Cougar Category I Mine Resistant Ambush Protected (MRAP) vehicles and

associated services was awarded on April 29. The second contract for 151 Cougar MRAP vehicles and associated services was awarded on May 1. The total value of the contracts for the 157 vehicles, named Ridgebacks by the British, is approximately \$94 million. These contracts are not subject to the terms of Force Protection’s joint venture.

“We are pleased to note the ongoing interest in and demand for the company’s proven blast protection technology around the world,” said Damon Walsh, Force Protection Executive Vice President for Customer Operations. “Our vehicles’ record for survivability and sustainability leads the industry. Force Protection is proud to have the continued support of our British customer.”

Vehicle production will take place at the Company’s Ladson, SC facility and is scheduled for completion by July 2009. The UK Ministry of Defence has ordered more than 330 Cougar vehicles from the Company since February 2008.



**Contracts**

**U.S. Army Awards Navistar Defense Multi-Year Truck Contract For Rebuilding, Security Efforts In Afghanistan And Iraq**



WARRENVILLE, Ill. -- Thousands of trucks from Navistar Defense, LLC will support rebuilding and security efforts in Afghanistan and Iraq as the U.S. Army today awarded Navistar Defense a multi-year contract valued at nearly \$1.3 billion.

The U.S. Army TACOM Life Cycle Management Command awarded Navistar Defense a follow-on contract to provide Medium Tactical Vehicles and spare parts to the Afghanistan National Police, Afghan National Army and the Iraqi Ministry of Defense. Previously known as International Military and Government, LLC, Navistar Defense is an affiliate of Navistar International Corporation.

Under the multi-year contract, Navistar will supply tactical vehicles built on Navistar’s severe service International® 7000 Series platform. It follows a \$430 million contract awarded in 2005 to Navistar by TACOM for more than 2,900 vehicles and spare parts.

“This contract award reflects Navistar’s strong performance in providing quality vehicles and reliable service to the military;” said Archie Massicotte, president, Navistar Defense. “We have stepped up to the challenge to become a leader. We continue to deliver on our commitment to provide the U.S. military and allies with a comprehensive value solution that includes

military vehicles, and worldwide parts and field service support.”

The three-year contract is valued at \$1,282,939,624 for 7,072 vehicles and parts. Approximately half of the order will be delivered during the first year of the contract with nearly 1,000 units expected to be delivered in fiscal year 2008.

Navistar will supply several vehicle variants, including General Troop Transporter, POL vehicles (petroleum, oil and lubricant), water tankers, wreckers and hazardous material trucks. In addition, Navistar will supply all required spare parts necessary to support several years of scheduled maintenance.



### Defence Industry

#### **BAE Systems Receives \$12 Million U.S. Army Contract For M915A3 Truck Cab Field Kits**

CINCINNATI, Ohio -- BAE Systems has been awarded a \$12 million contract by the U.S. Army for Cab Field Kits for M915A3 semi-trucks with previously installed Add-on Armor kits.

When finalized, this contract will be worth approximately \$24 million.

With this contract, BAE Systems has orders to deliver approximately 2,000 Cab Field Kits. The Cab Field Kit reinforces the cab structure to better handle the weight of the armor. The M915A3 vehicle is used by the U.S. Army for transport of fuel and supplies in South West Asia.

“These kits will enable the M915A3 trucks to better perform their mission in the demanding terrain experienced by the Army,” said Tony Russell, vice president of Vehicle Armor for BAE Systems. “It will also reduce the operational and maintenance costs for the Army.”

Production for the M915A3 armor kits will be performed in Cincinnati, Ohio and is expected to be completed by January 31, 2009.

BAE Systems employs more than 1,600 people in Cincinnati, Ohio and has almost 1 million square feet of manufacturing and office space. The Cincinnati operations have played a vital role in the Caiman and RG33 Mine Resistant Ambush Protected vehicles program by providing armor systems for both vehicles.

Other products include up-armored vehicles, commercial armored vehicles, integrated armor kits and accessories for a full range of tactical wheeled vehicles, combat vehicles and construction equipment. Cincinnati operations also include a state-of-the art ballistic glass plant.



### Defence Industry

#### **BAE Systems To Provide Bar-Armor Kits For 545 U.S. Army Vehicles**

MANASSAS, Virginia -- BAE Systems will deliver

545 lightweight bar-armor kits to the U.S. Army for installation on ground vehicles.



The company received a \$23.7 million contract from the Army’s Tank-Automotive and Armaments Command Life Cycle Management Command to equip 371 RG-31 vehicles and 174 mine-protected Joint Explosive Ordnance Disposal Rapid Response Vehicles with its L-ROD™ aluminum armor, used widely on Army Buffalo ordnance disposal vehicles.

“The L-ROD system is a low-cost and lightweight solution that protects vehicles from rocket-propelled grenade attacks,” said Dr. Jim Galambos, advanced technologies business development director for BAE Systems. “L-ROD is easily adaptable to just about any type of vehicle.”

L-ROD is a modular system made of lightweight aluminum alloy that protects vehicles without adding significant additional weight or compromising their operational capabilities. It weighs less than half of comparable steel systems and is bolted to the vehicle, avoiding the need for welding or cutting. It also can be repaired easily in the field.

BAE Systems originally developed the system as part of a fast-response Defense Advanced Research Projects Agency program to provide rocket-propelled grenade protection for High-Mobility Multipurpose Wheeled Vehicles. Army officials conducted more than 50 live-fire tests to validate the system’s performance and optimize the engineering design.

L-ROD is standard equipment on the Army Buffalo explosive ordnance disposal vehicle. BAE Systems has delivered more than 500 L-ROD kits to the Army. The company has completed L-ROD designs for BAE Systems’ Caiman II and RG33-series mine-protected vehicles.

Work will be performed at BAE Systems facilities in Manassas, Virginia, and Austin, Texas.



### Defence Industry

#### **Raytheon to Provide Communications Solutions for the Defense Department's Joint Tactical Radio System**

FORT WAYNE, Ind. -- Raytheon Company will provide a critical communications solution for the Department of Defense's Joint Tactical Radio System.

FORT WAYNE, Ind. -- Raytheon Company will provide a critical communications solution for the Department of Defense's Joint Tactical Radio System.

JTRS is the next generation of radios for the U.S. military. Raytheon will be a subcontractor on the \$766

million JTRS Airborne, Maritime and Fixed contract, which was awarded to Lockheed Martin in March 2008.

The AMF domain will provide network and interoperable communications for more than 160 platform types, including fixed and rotary wing aircraft, submarines and surface ships, and fixed stations worldwide.

Raytheon will co-lead the design, development and manufacture of the joint airborne radio of the JTRS AMF communications simulation efforts, and the company will design, develop and manufacture ancillary products for the system including power supplies and filters.

Raytheon will also lead the Army aviation platform piece of the contract with responsibility for overall integration of the communications systems on all Army aviation platforms.

"We have more than 40 years of experience solving the military's communications challenges," said Jerry Powlen, vice president, Raytheon Network Centric Systems' Integrated Communications Systems. "Applying our systems integration experience and building on our communications expertise to deliver this solution assure our troops have the very best capability."

Raytheon Company, with 2007 sales of \$21.3, is a technology leader specializing in defense, homeland security and other government markets throughout the world. With a history of innovation spanning 86 years, Raytheon provides state-of-the-art electronics, mission systems integration and other capabilities in the areas of sensing; effects; and command, control, communications and intelligence systems, as well as a broad range of mission support services. With headquarters in Waltham, Mass., Raytheon employs 72,000 people worldwide.

## Defence Industry

### General Dynamics selected for FRES



LONDON, United Kingdom -- General Dynamics United Kingdom Limited, a wholly owned subsidiary of General Dynamics, has been selected by the UK Ministry of Defence as the provisionally preferred bidder for the Utility Vehicle Design (UVD) for the Future Rapid Effect System (FRES).

Subject to satisfactory completion of the package of work on risk reduction and confirmation of preferred bidder status the team, led by General Dynamics UK Limited, will develop the PIRANHA V as the FRES Utility Vehicle for the British Army. The company will now enter negotiations with the MoD to determine the scope of development work required.

Dr Sandy Wilson, president and managing director,

said: "We are delighted that PIRANHA V is the British Army's choice for the FRES Utility Vehicle. With over 9,000 PIRANHAs already in service, the family's pedigree speaks for itself. We have continued development work at our own initiative, and we will work closely with the Ministry of Defence to de-risk the programme. At the same time, we will be continuing our strong bids for the Utility Vehicle Integrator (UVI) role and for the follow on FRES Specialist Vehicles (SV)."

PIRANHA V will deliver an extremely reliable platform with superb protection and mobility to meet the Army's FRES requirement, together with the necessary growth potential to meet future challenges. General Dynamics' comprehensive experience of delivering wheeled armoured fighting vehicle (AFV) programmes to tight timelines reduces potential risk considerably and will be invaluable in delivering PIRANHA V to the MoD. The vehicle offers a cost-effective and robust solution that complies fully with the Defence Industrial Strategy.

## Defence Industry

### Raytheon Teams with Emirates Advanced Investments to Develop Laser Guided Rocket

ABU DHABI, United Arab Emirates -- Raytheon Company and Emirates Advanced Investments of the United Arab Emirates have signed a cooperative development agreement for a semiactive laser guided 70 mm (2.75-inch) rocket designed to provide increased precision and lethality compared with conventional unguided rockets.

"The Laser Guided Rocket project with Raytheon is a very important defense industry initiative for the United Arab Emirates," said Hussain I. Al Hammadi, Emirates Advanced Investments' chief executive officer. "This program represents a hands-on development effort for our engineers that will provide future benefits for the armed forces of both our countries. It is designed to destroy targets ranging from tactical armored vehicles to high-speed naval craft and will provide a very affordable precision weapon for attack helicopters."

Under the cooperative development agreement, the Laser Guided Rocket program represents a transfer of technology to the United Arab Emirates. Subject to approval of the respective companies' governments, Raytheon Missile Systems and Emirates Advanced Investments will produce the laser guided rocket for national and international customers.

The agreement details a complete development and qualification program and provides for a follow-on proposal to supply a commercial off-the-shelf laser guided rocket for military customers in the United Arab Emirates, United States and other countries. Initially, the laser guided rocket will be qualified on a single United Arab Emirates' platform, with later integration onto additional platforms.

"This program is also intended to benefit the United States Army, Navy and Marine Corps," said Richard

Janik, Missile Systems' Laser Guided Rocket program manager, "because they would be able to obtain a fully qualified laser guided rocket that meets or exceeds all the guided 70 mm rocket requirements of the United States, without expending tens of millions of dollars of investment in research, evaluation, and testing."

In addition to the cooperative development agreement, Emirates Advanced Investments and Raytheon have signed a collaborative agreement to explore similar, future joint programs. "The current Laser Guided Rocket project can be a model for a collaborative agreement," said Hussain I. Al Hammadi, "under which we would work together to develop future products and establish a long-term partnership between our companies."

Emirates Advanced Investments, located in Abu Dhabi, United Arab Emirates, was incorporated in 2005 to develop advanced technologies and high-quality services through strategic global partnerships with world-class manufacturing and service organizations.

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### Defence Industry

## Kongsberg Wins French Army Contract



Kongsberg has signed a framework agreement worth up to MNOK 500 with Renault Trucks Defense of France.

The agreement will run for about eight years, and applies to the delivery of the Protector weapon control system to upgrade the French Army's Renault VAB 4x4 armoured personnel carriers. The first order under the framework agreement is for approx. MNOK 74, and deliveries will begin towards the end of this year.

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### Defence Industry

## ITT receives two additional orders for systems to thwart improvised explosive devices

WHITE PLAINS, N.Y. -- ITT Corporation- announced it has received two follow-on orders, together worth \$70 million, for its CREW 2.1 Vehicle Receiver Jammers, vehicle-mounted systems designed to prevent the detonation of improvised explosive devices (IEDs).

The contracts valued at \$25 million and \$45 million were awarded by the U.S. Naval Sea Systems Command, and announced recently by the U.S. Department of Defense. Under the two contracts, ITT will build and deliver an additional 900 CREW 2.1 devices, plus spares and related equipment.

The CREW program is helping the Department of Defense meet urgent system requirements and increased production demands to prevent the detonation of radio controlled IEDs. These counter-IED devices will be

mounted on Mine Resistant Ambush Protected (MRAP) armored vehicles, and other military transport equipment, and deployed to current military operations in Iraq and Afghanistan.

"These two follow-on orders demonstrate our customer's confidence in ITT to meet the aggressive demands for this critical equipment," said Chris Bernhardt, president of ITT's Electronic Systems business. "We are proud to be developing the advanced technologies that provided increased protection to the men and women who put their lives at risk in support of U.S. and allied military operations."

The CREW 2.1 jammers are being built at ITT's Electronic Systems facility in Thousand Oaks, Calif.

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### Defence Industry

## ATK Success Demonstrates the Reality of Affordable Precision for Artillery

MINNEAPOLIS -- Alliant Techsystems and the U.S. Army recently conducted a series of successful flight tests of the company's 155mm Howitzer Precision Guidance Kit (PGK) at the Yuma Proving Grounds, Yuma, Arizona.

PGK is a GPS guidance kit with fuzing functions for artillery projectiles. It allows the projectile to steer itself toward a tight, pre-programmed position, thereby accomplishing reduced ballistic dispersion of artillery projectiles.

PGK features a GPS-based, fixed canard guidance and control package with gun-hardened electronics, a self-generated power supply, and a minimum number of moving parts that fits into the existing fuze well of 155mm high explosive projectiles. The successful tests are milestones in the rapid System Design and Development-phase of the program, supporting a Critical Design Review (CDR) this summer.

Testing included the first guide-to-hit demonstration of a PGK installed on an M795 high explosive projectile. This test confirmed PGK's accuracy at a range of ~14 kilometers. The round performed preprogrammed maneuvers during the first 20 seconds of flight, then commenced guidance and impacted ~17.5 meters from the target, well within objective requirements. Previous successful guide-to-hit testing on the program has focused on the M549 rocket assisted projectile. Other testing, including demonstration of the tactical form factor GPS subsystem, completed all planned technical demonstrations required for entrance into this subsystem's CDR.

PGK is a low-cost, fuze-sized module designed to be compatible with conventional M795, M549 and M107 high explosive rounds. Because it works with the Army's existing inventory of artillery shells and its current gun systems, PGK will quickly and affordably bring next-generation accuracy to battlefield commanders of artillery units.

"PGK provides the 155 Howitzer with unprecedented affordability and performance, turning it into a precision

weapon system that reduces collateral damage and effectively changes the mission scope of artillery in the field," said ATK Advanced Weapons Vice President and General Manager Dave Wise. "Not only will PGK's affordable precision revolutionize the way artillery is used, it will significantly reduce the cost of operations required when using unguided artillery rounds."



**Contracts**

**Saab Receives US Order for Carl-Gustaf**



Saab has received an order from the United States Government for the Carl-Gustaf system. The order contains both weapons and ammunition to a value of about 48 million USD.

Deliveries will take place during 2009.

Saab serves the global market with world-leading products, services and solutions ranging from military defence to civil security. Saab has operations and employees on all continents and constantly develops, adopts and improves new technology to meet customers' changing needs.



**Contracts**

**BAE Systems Receives \$9.7 Million Defense Logistics Agency Contract For Advanced Combat Helmets**

PHOENIX, Arizona -- BAE Systems has received a \$9.7 million contract from the Defense Logistics Agency for 45,000 Advanced Combat Helmets (ACH).

Issued under a multi-year contract received in August 2005 with a current ceiling of \$1.2 billion, this order brings the total accumulated amount awarded to \$88.9 million.

"The award will provide a state-of-the-art helmet system for our joint armed forces," said Sean Martin, director, business development of Individual Equipment for BAE Systems. "The helmet provides vital ballistic protection, and also a platform for the integration of technologies critical to the warfighter's situational awareness."

The ACH is the most advanced ballistic helmet being worn by U.S. forces today. BAE Systems' design offers the highest level of protection and flexibility available and incorporates the latest technology in ballistic

composite construction.

Production will be completed at facilities located in Jessup, Pennsylvania, will commence in June and is expected to be complete in September 2008.



**Contracts**

**General Dynamics Awarded U.S. Army Contract to Develop Lightweight .50 Caliber Machine Guns**

CHARLOTTE, N.C. – The U.S. Army Joint Munition and Lethality Life Cycle Management Command has awarded General Dynamics Armament and Technical Products a contract to develop a Lightweight .50 Caliber (12.7mm) Machine Gun (LW50MG) weapon system.

The \$9 million contract will fund development of the gun and system components such as the tripod, vehicle adapter assembly and Blank Firing Adapter (BFA). General Dynamics Armament and Technical Products is a business unit of General Dynamics (NYSE: GD).

The LW50MG has significantly less recoil and is lighter than current weapons. It will be easier for warfighters to carry and will provide them with the potential for increased accuracy and lethality in combat.

Production and fabrication work will be performed at the General Dynamics Armament and Technical Products facility in Saco, Maine, with development work performed at the company's technology center in Burlington, Vt.

"Our Lightweight .50 Caliber machine gun represents a new generation of weapon systems," said Robert Cavoretto, senior program manager of General Dynamics Armament and Technical Products' gun systems. "It offers unprecedented mobile lethality to warfighters, giving them the critical edge. We are proud to work with the U.S. Army to develop this important technology for our country's current and future warfighters."

The Saco facility is the General Dynamics' core production facility for single- and multi-barrel aircraft and crew-served (requiring more than one person to operate) weapon systems. The site provides complete production capabilities, from design and development to manufacturing, testing and integration. Products manufactured at the facility include the MK47 40mm Grenade Weapon System and the M2HB 12.7 mm (caliber .50) machine gun.



**Army**

**BAE Systems Receives \$21.8 Million Contract for Paladin Integrated Management Vehicles**

YORK, Pa. -- BAE Systems has been awarded a \$21.8 million contract modification from the U.S. Army TACOM Life Cycle Management Command for the design and development of M109A6 Paladin Integrated Management (PIM) self-propelled howitzer vehicles.



The M109A6-PIM uses the existing Paladin main armament and cab structure, replacing hydraulics with electric gun drives that share commonality with the Future Combat Systems Non-Line-Of-Sight Cannon. Outmoded chassis components are replaced with up-to-date components from the Bradley Combat Systems and integrated into a highly producible, new-design chassis structure to increase sustainability and commonality across the Heavy Brigade Combat Teams (HBCT).



“The M109A6 Paladin Integrated Management vehicle leverages available technology and stresses commonality with fielded platforms,” said Andy Hove, vice president of Combat Systems Programs for BAE Systems. “This award represents the initial phase of the long term PIM program efforts to sustain the Paladin fleet into 2050.”

This modification, when combined with the previous PIM contract worth \$5 million, brings the total value to \$26.8 million.

Under the contract, design and engineering analysis work for the vehicle structure, automotive systems and electric and vehicle electronics will be performed at BAE Systems facilities in Pennsylvania, California and Michigan as well as U.S. government facilities at the Army Research and Development Center in Picatinny, New Jersey. This development work will ultimately lead to a remanufacture program for the Paladin fleet. The remanufacture program itself will be performed in partnership with the Anniston Army Depot and at BAE Systems facilities in York, Pennsylvania and Elgin, Oklahoma.

The M109A6-PIM is supported by the Army as a vital technology enhancement program to sustain the M109 Family of Vehicles well into the future, and maintain the combat capability of the HBCT.

BAE Systems is the premier global defense and aerospace company delivering a full range of products and services for air, land and naval forces, as well as advanced electronics, information technology solutions and customer support services. With 97,500 employees worldwide, BAE Systems' sales exceeded \$15.7 billion (US \$31.4 billion) in 2007.

(M-ELROB) will take place from 30 June to 3 July in Hammelburg, Germany.



The purpose of the trial is to identify robotic systems which have the capabilities to master daily defence and security tasks. Featured scenarios this time include:

- reconnaissance and surveillance;
- camp security;
- transport;
- mule;
- explosive ordnance disposal (EOD)/chemical, biological, radiological and nuclear (CBRNE).

ELROB 2008 focuses on the question of whether robot systems can support users effectively in the near future. Developers of robotic systems are invited to present their systems in operation, enabling visitors and organisers alike to gain insights for future projects, research and development activities. The trial will be accompanied by an exhibition covering a wide variety of robotics aspects.

Representatives of military, border patrol, special forces, police, fire brigades, and civil protection agencies from all European countries will attend.

The event is organised by the German Federal Armed Forces, the NATO Research Task Group 'Military Applications for Multi-Robot Systems' and European Robotics.



## Robots

### Foster-Miller delivers 2,000th Talon robot to US military



Talon UGV McLean, VA, May 6, 2008 -- QinetiQ North America, a global developer of innovative technology solutions for national defense, today announced that the Foster-Miller subsidiary of its Technology Solutions Group has delivered the 2,000th TALON® robot to the U.S. military.

More TALON robots are deployed with the U.S. military than any other robot.

TALON robots are deployed in Afghanistan and Iraq, primarily to assist military personnel with the extremely dangerous job of detecting and disabling roadside bombs – the Improvised Explosive Devices (IEDs) planted by hostile forces to attack troops. The TALON robot is able to remotely disarm the IED without placing the explosive ordnance disposal (EOD) and combat engineers in

## Robots

### Military European Land-Robot Trial, Hammelburg, Germany

The third Military European Land-Robot Trial

harm's way. Many robots have been damaged in their mission, some multiple times, but today they are rapidly repaired by military personnel at Joint Robot Repair facilities located throughout the world, a type of robot hospital. TALON robots, on average, can be repaired after blast damage and returned to service more than 10 times, before complete replacement is necessary – a testament to TALON's ruggedness and sustainability.

TALON robots were first deployed in 2000, when EOD teams in Bosnia used the robots to safely remove and dispose of live grenades. In 2001, TALON robots were used at the World Trade Center, searching through the rubble for 45 days and nights to help find survivors and victims. The robots were also used to evaluate the structural integrity of the Hudson River's retaining walls. According to Dr. William Ribich, President of the Technology Solutions Group, QinetiQ North America, this performance demonstrated TALON's ruggedness, ease of use and ability to withstand repeated decontaminations without failure and led to the deployment of TALON in record numbers for service in Afghanistan and Iraq.

From 2001 to 2007 the company delivered 1,000 TALON robots to the U.S. military. Today, just 13 months later, the number of deployed TALON robots has doubled to reach 2,000 – far surpassing any other military-use robot.

“Our government and our company are dedicated to finding innovative solutions that better protect our warfighters,” said Ribich. “The TALON robot has helped save thousands of EOD and combat engineers from injury or possible death in the performance of their primary mission of disarming IEDs.”

Since its initial deployment in 2000, the TALON product line has expanded to include robots devoted to specific tasks, such as IED disarmament, reconnaissance, hazardous materials work, combat engineering support and SWAT/MP unit assistant. The TALON robot is modular, allowing for many types of mission-specific arm attachments and negating the need for multiple, specialized robots. It is also man-portable, easily transported and instantly ready for action. TALON moves as fast as its human counterpart on flat terrain, is highly mobile in rough and urban terrain, and has the longest battery life of all in-theatre ground robots.

The family of TALON robots has grown both smaller and larger in size with the respective robotic developments of Dragon Runner™ and MAARS™ this year. These new robots address the military's need for standoff protection from the enemy, over and above the successful use of TALON for counter-IED missions.

According to Ribich, this expansion of the TALON line of robots is QinetiQ North America's response to the military's growing interest in using robots not only for combat support, but for future combat operations as well.

“We're developing and expanding our line of products to meet the military's future needs because we're dedicated to delivering the best robotic solutions in the industry,” added Ribich. “With today's full logistics pipeline for robot maintenance, training and support,

we're entering a new era of military robotics, and TALON robots stand ready to assist troops on any battlefield in the world.”

## Defence Industry

### BAE Systems Receives \$60 Million Thermal Imaging Module Contract For U.S. Army Remote Weapon Systems



LEXINGTON, Massachusetts — BAE Systems has received a \$60 million order to provide thermal imaging modules to Kongsberg Defense & Aerospace AS for its contract with the U.S. Army's Common Remotely Operated Weapon Station (CROWS) II program awarded in August 2007.

The award is the first phase of a five-year contract with a maximum quantity of 6,500 TIM1500 thermal sights for use on CROWS II-equipped U.S. Army vehicles such as the M1114 up-armored HMMWV (High Mobility Multi-Wheeled Vehicle) and Mine Resistant Ambush Protected vehicles.

“TIM1500 is the longest-range uncooled imager in service on remote weapon stations,”

said Michael Mawn, deputy program director for platform imaging programs at BAE Systems in Lexington, Massachusetts. “It allows soldiers to detect and identify targets while remaining protected inside their vehicles.” Uncooled thermal sensors are smaller and use less power than those that must be cryogenically cooled to attain the necessary thermal sensitivity.

Additional contracts could increase the value of the work to \$200 million, depending on demand for Kongsberg's PROTECTOR remote weapon station. BAE Systems already has delivered more than 1,800 weapon sights to Kongsberg for use on its remote weapon stations.

## Defence Industry

### The starting shot sounds for a new vehicle family from Rheinmetall and Krauss-Maffei Wegmann



Rheinmetall Defence of Düsseldorf and Krauss-Maffei Wegmann of Munich have launched a joint programme to develop a highly protected new vehicle family in the 5 to 9 ton weight class.

The first of the four-wheel drive Armoured Multi Purpose Vehicle (AMPV) vehicles should be ready for serial delivery by 2011. A life-size mock-up of the vehicle will be on show at Eurosatory 2008 in Paris this June, one of the world's leading venues for land systems. Completion of the first prototype is planned for 2009.

Responding to the Bundeswehr's current GFF ("protected command and role-specific vehicle") procurement programme, Rheinmetall and Krauss-Maffei Wegmann have decided to develop a family of GFF 1/2-class vehicles which will fully comply with user requirements. The two defence contractors are financing the development project on their own.

The objective of the joint project is to supply the armed forces of Germany and other nations with a vehicle that sets an entirely new standard for mobility, modularity and protection technology; and to safeguard and promote certain technologies vital to German national security.

### AMPV vehicle family

The vehicle family encompasses two type series. The agile AMPV 1 is the smaller of the two, and makes an ideal liaison vehicle. A higher level of protection and a heavier payload are the primary characteristics of the bigger AMPV 2. However, the entire vehicle family is based on standardized engineering principles and technologies.

Both type series feature a patrol vehicle with an unprotected floor in the rear section, and an equipment kit carrier with a safety cell extending all the way to the rear of the vehicle.

Also planned is a special patrol version of the AMPV1 that can be airlifted in a CH53 transport helicopter.

### Protection and mobility are the driving forces behind the AMPV



Two of the world's best-known suppliers of land systems, KMW and Rheinmetall both bring extensive experience from previous programmes to the AMPV development project.

The highly protected vehicle cell is an autonomous armoured steel structure with a spoor liner, while the reinforced undercarriage and reinforced cell structure offer optimum protection against landmines and IEDs. Moreover, add-on armour modules make sure that the various vehicle versions receive the required level of ballistic protection.

Drawing on past experience, the designers of the AMPV family have equipped the vehicles with a robust, high-performance running gear, independent wheel suspension, outstanding spring deflection and high ground clearance – all specifically designed with military requirements in mind. These engineering principles are

borrowed from the Boxer programme. Special combat wheels with run-flat tyres assure continued mobility even in critical situations.

A powerful 3.2-liter diesel engine with an output of around 200 kW guarantees excellent performance in all conditions. The vehicles all feature permanent four-wheel drive as well as automatic transmission and automatic differential lock management, relieving the strain on the driver.

The AMPV1 and AMPV2 are both extremely compact, and differ only slightly in height, length and wheelbase.

All vehicles in the AMPV family consist largely of identical components; the workstations in the fighting compartment are also identical, ensuring uniform operation. The advantages in terms of simplified logistics and training are readily evident.



### Defence Industry

#### FLIR Systems Receives \$358.4 Million IDIQ Contract Modification From the U.S. Army

PORTLAND, OR -- FLIR Systems, Inc. announced today that it has been awarded a new contract modification adding \$358.4 million to an existing indefinite delivery, indefinite quantity contract from the U.S. Army Space and Missile Defense Command in Huntsville, Alabama for its Star SAFIRE(R) III stabilized multi sensor systems.

The units delivered under this contract will support ongoing U.S. Armed Forces force protection programs. Work will be performed in FLIR's Portland, Oregon facility.

"We are pleased that the U.S. Army and Marines have once again chosen FLIR products for this critically important force protection mission," said Earl R. Lewis, President and CEO of FLIR.



### Defence Industry

#### Russia to supply some 100 armoured police vehicles to China



Moscow, 20 May: Russia is to supply about 100 multi-purpose Tigr vehicles, built at the Arzamas machine-building plant, which is part of the Military-Industrial Company, in fulfilment of the two countries' military-technical cooperation plans, a source in the Russian defence industry has told Interfax-AVN.

"Under the agreement signed in 2007 between China and the plant, Russia is to supply about a hundred Tigr vehicles, which are Russia's most formidable all-road personnel carriers featuring armour protection of the fifth category of the six possible," he said, noting that the first batch of vehicles, designed for special police role and capable of carrying nine personnel, will be dispatched to China in early June.

"The first batch of Tigrs will be delivered assembled, while the rest will be shipped as complete sets to be assembled at Chinese factories under the agreement," the source added, refusing to disclose information about the contract price.

### Defence Industry

#### M113 upgrade project back on track



Greg Combet, Parliamentary Secretary for Defence Procurement, today announced that the M113 upgrade project was now back on track and estimated to meet its original schedule and specifications within budget.

The Land 106 project will deliver 350 upgraded M113 Armoured Personnel Carrier vehicles with improvements in their protection, firepower, mobility and supportability.

"The M113 project experienced some well-known technical problems in the development phase, and it was feared these problems would impact on the cost and schedule of the project," Mr Combet said.

"I am now advised that the serious technical risks faced by the project have now been resolved, the schedule pressures have been reduced, and the project does not face cost pressures," said Mr Combet.

"The upgraded Armoured Personnel Carriers have successfully concluded a long and rigorous testing program and our troops are receiving a reliable vehicle that delivers increased firepower, protection and mobility."

Sixteen vehicles have now been delivered to the Army's 7RAR (mechanised infantry). Another nine vehicles (six initial production vehicles and three pre-production vehicles) are being operated in training at Puckapunyal and Bandiana. A further ten vehicles will be issued for training shortly.

"Production at Tenix's Bandiana facilities is now being ramped up from approximately four vehicles per month to more than 10 vehicles per month to achieve the delivery of the final vehicle by December 2010, in accordance with the original schedule," Mr Combet said.

"Under the project, a total of 329 vehicles are due to be upgraded to the 18 tonne M113AS4 standard, and 21 vehicles will be upgraded to the 15 tonne M113AS3 standard. I would like to thank both Tenix and DMO for all of hard work in providing a way forward for this project," Mr Combet said.

Mr Combet recently inspected a number of upgraded M113 vehicles over two visits to Puckapunyal.

### Defence Industry

#### DRS Technologies-Smiths Detection Team to Produce Chemical/Biological Protective Shelters

PARSIPPANY, N.J.-- DRS Technologies, Inc. and Smiths Detection recently formalized a teaming agreement for the joint development and production of the model 4A Chemical/Biological Protective Shelter (CBPS-M4A).

The agreement stems from a request by the customer, the Joint Program Executive Office for Chemical and Biological Defense, for DRS Technologies and Smiths Detection to explore the idea of a single design by working jointly to meet the CBPS Model 4A requirements.

Under the arrangement, the company's DRS Sustainment Systems unit in St. Louis, Missouri, and Smiths Detection, headquartered in Edgewood, Maryland, jointly will develop the M4A system. DRS will provide major subsystems to Smiths Detection for integration under a 10-year indefinite delivery, indefinite quantity contract. This production work could be valued at up to \$190 million over the period of the contract. Manufacturing for DRS Technologies will take place at its West Plains, Missouri, location.

"This unique partnership is a win-win-win for DRS Technologies, for Smiths Detection, and ultimately, for our customer - the warfighter," said Thomas G. Cornwell, president of the DRS' Sustainment Systems Segment. "Adopting a single, common configuration also will produce significant lifecycle savings to the customer."

"DoD's joint chemical and biological community welcomes this teaming agreement and greatly appreciates the efforts of all who took on the difficult task of developing this beneficial partnership," added Stanley A. Enatsky, Joint Project Manager for Collective Protection.

The CBPS-M4A is a highly mobile, self-contained collective protection system that provides a contamination free, environmentally controlled working area for medical combat services and combat service support personnel to work freely without continuously wearing chemical-biological protective clothing.

DRS Technologies, headquartered in Parsippany, New Jersey, is a leading supplier of integrated products, services and support to military forces, intelligence agencies and prime contractors worldwide. The company employs approximately 10,000 people. For more information about DRS Technologies, please visit the

company's web site at [www.drs.com](http://www.drs.com).

## Contracts

### ATK Receives Additional \$89 Million in Military Small-Caliber Ammunition Orders and Modernization Funding

Minneapolis -- Alliant Techsystems, the largest supplier of ammunition to the United States military, has received an additional \$89 million in military small-caliber ammunition orders and modernization funding from the U.S. Army Sustainment Command in Rock Island, Ill.

Work on the contracts will be performed by ATK at the Lake City Army Ammunition Plant (LCAAP), Independence, Missouri. The Army has awarded ATK \$72 million for small-caliber ammunition. The remainder of the funds will be devoted to various plant modernization projects.

ATK operates the U.S. Army's LCAAP where it produces a mix of 5.56mm, 7.62mm, .50-caliber and 20mm cartridges. Working in partnership with the Army, ATK has expanded manufacturing capacity at the plant to 1.6 billion rounds. ATK began operating the plant in 2000, and is now under contract to modernize the facility, which has remained largely unchanged from the plant's groundbreaking in 1940.

"We are pleased with the contract awards and maintain our high-level commitment to produce quality ammunition," said ATK Armament Systems President Mark DeYoung. "We are grateful for the opportunity to continue delivering performance and survivability solutions to our nation's defenders."

## Future Technologies

### Northrop Grumman and the University of Central Florida Join Forces to Develop Next-Generation Optic and Photonic Technologies

LINTHICUM, Md. -- Northrop Grumman Corporation has further strengthened its long-standing relationship with the University of Central Florida by forming a strategic research partnership aimed at facilitating the co-development of advanced optic and photonic technologies.

Under the five-year Master Sponsored Research and License Agreement, Northrop Grumman will provide financial support and engineering expertise to the Center for Research and Education in Optics and Lasers (CREOL) and the Florida Photonics Center of Excellence (FPCE), two research centers within the College of Optics & Photonics. In exchange, Northrop Grumman will receive preferential rights to any resulting technology developed through the partnership.

"The College of Optics & Photonics is recognized as one of the top three independent optics academic departments in the nation," says Jim Armitage, chief technology officer and vice president and deputy of

Advanced Concepts and Technologies Division for Northrop Grumman's Electronic Systems sector. "Through this partnership, Northrop Grumman will continue its tradition of developing breakthrough technologies that provide discriminating capabilities for our military and government customers."

"Northrop Grumman's leadership in optic and photonic technologies will be a tremendous asset to our students," says Dr. M.J. Soileau, vice president for Research and Commercialization at the University of Central Florida. "We're looking forward to leveraging their expertise in this field in order to develop new technologies that have military, intelligence, homeland defense and civil applications."

The company has long-established operations in Central Florida, where it conducts work in airborne ground-surveillance and battle management systems and also manufactures military laser systems such as ground-based laser rangefinders for target location. Northrop Grumman has enjoyed a strong relationship with the university both in funding research and by hiring its graduates.

Northrop Grumman Corporation is a global defense and technology company whose 120,000 employees provide innovative systems, products, and solutions in information and services, electronics, aerospace and shipbuilding to government and commercial customers worldwide.

## Army

### British Army Takes Delivery of 500th Upgraded Bulldog Infantry Armored Vehicle



The British Army has today, Wednesday 21 May 2008, taken delivery of the 500th upgraded Bulldog infantry troop carrier, large numbers of which are deployed in Iraq where they have been praised by the troops operating them.

The delivery is part of a programme to upgrade 900 of one of the Army's workhorse vehicles, the Bulldog FV430 Mk 2. Soldiers from the First Battalion the Duke of Lancaster's Regiment, who have just returned from Basra, were at Bovington in Dorset today to thank the workers of the Defence Support Group (DSG) as the 500th vehicle came off the production line.

Minister for Defence Equipment and Support (DE&S), Baroness Taylor, said:

"This is a hugely impressive achievement. It demonstrates both the technical ability of the DSG staff and their dedication to ensuring our forces on operations have the equipment they need. The uparmoured Bulldog deployed on operations is doing an excellent job in Iraq and I'd like to thank everyone involved for the work they have done upgrading the vehicles so quickly. The Bulldog has earned high praise from soldiers and commanders alike."

Major General Alan Macklin, Leader of the DE&S Armoured Fighting Vehicles Group, added:

"People from my team have worked alongside DSG and industry to successfully deliver to the front line, in record time, effectively and efficiently and with great commitment. We aim to deliver the best to our armed forces and in Bulldog we have a great example of that."

Under the BJ235 million upgrade programme, the Bulldog FV432 which is a tracked armoured personnel carrier, receives a new engine, transmission and other systems, which increases reliability and reduces support cost. Vehicles destined for Iraq also receive a package of armour, a remotely operated machine gun and other equipment to enhance the protection of personnel; these are known as Bulldog uparmoured.

The conversion programme is scheduled for completion in March 2011. Some 30 vehicles are converted each month and at the same time those that require it receive a major overhaul at DSG's Bovington facility.

The Bulldog upgrade is managed by a Joint MOD/BAE Systems integrated project team working under the auspices of the Defence Industrial Strategy carried out by the DSG. The standard Bulldog weighs 13 tonnes in its modified form, has a top speed of 44 mph (71 kph) and can carry eight infantrymen, who dismount from the vehicle to carry out operations, and a crew of two.

The primary role of the FV432 vehicle has been as an Armoured Personnel Carrier. Additional key roles are as Command Post, Mortar Carrier and Ambulance. The first 12 vehicles were deployed on the streets of Basra in November 2006. They have seen active service in a variety of roles with 1 Lancs, 4 The Rifles, 1 Scots Guards, UK Medical Group and the Welsh Guards.

**Robots**

**iRobot Receives Orders Totaling \$22 Million**

Bedford, Mass. -- iRobot Corp. announced it received orders under two separate contracts from the U.S. Army Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI), that manages these contracts on behalf of the Robotic Systems Joint Project Office at Warren, Mich. and Huntsville, Ala.

PEO STRI placed a \$16 million order, the third under the xBot contract, to put more than 200 robots and spare parts into the hands of infantry by October 31, 2008. Orders to date now total \$27 million under this \$286

million Indefinite-Delivery/Indefinite-Quantity (IDIQ) contract.



iRobot also received a delivery order totaling \$6.3 million under the PEO STRI contract for a combination of iRobot® PackBot® 510 with EOD kit robots, the iRobot PackBot with ICx Fido Explosives Detection Kits, as well as spare parts and equipment. Total orders under this \$64 million IDIQ contract equal \$52 million, and iRobot expects to complete delivery by the end of September 30, 2008.

"Each day, the military is using our robots to perform missions that leverage the benefits of robots in theater," said Joe Dyer, president of iRobot Government and Industrial Robots. "Continued investment by the U.S. Army further validates these advantages, especially the ability to complete critical missions at safe standoff distances."

The robots ordered under both contracts will help warfighters address critical mission needs, including reconnaissance, building clearance, chemical sensing, investigation of suspicious objects and identification of roadside bombs, as well as other IEDs.

iRobot has delivered more than 1,500 PackBot robots, which make a difference everyday by conducting dangerous missions that keep warfighters out of harm's way.

**Robots**

**QinetiQ North America announces new \$400 million IDIQ contract for Talon robots and spares**



QinetiQ today announced that QinetiQ North America's Technology Solutions Group has been awarded a new \$400 million IDIQ (indefinite delivery, indefinite quantity) contract for additional

TALON robots and replacement parts for service with the US military in Iraq and Afghanistan.

GMLRS rockets flew a pre-planned trajectory and successfully engaged their targets.

The contract award was made by the Robotic Systems Joint Program Office (RSJPO) administered by the Naval Air Warfare Training Systems Division (NAVAIR). It is a follow-on to the \$150 million IDIQ awarded in the spring of 2007 that has now been fully funded.

Over 2,000 TALON robots are now deployed around the world, with a significant number located in Iraq and Afghanistan. They are used primarily to assist military personnel with the extremely dangerous job of detecting and disabling roadside bombs – the Improvised Explosive Devices (IEDs) planted by hostile forces to attack troops. TALON robots have been used in more than 80,000 counter-IED missions to date.

“This contract is further evidence of the growing acceptance and willingness on the part of the military to use TALON robots to keep US soldiers and marines as safe as possible,” said Dr William Ribich, president of QinetiQ North America’s Technology Solutions Group. “We are proud that TALON is deployed with all branches of the US military for counter-IED missions because of its ruggedness and ease of use.”

**About QinetiQ North America Technology Solutions Group**

QinetiQ North America’s Technology Solutions Group includes the businesses of Foster-Miller Inc and its subsidiaries Planning Systems Incorporated (PSI), Automatika and Applied Perception plus the research and development activities of Apogen Technologies, Inc. It is a technology and product development business with an international reputation for delivering innovative products and systems that perform under the most demanding conditions. For more information, please visit [www.QinetiQ-NA.com](http://www.QinetiQ-NA.com).

The UFCS is an evolutionary block upgrade of the MLRS Fire Control System that provides Warfighters the capability to fire GMLRS munitions that incorporate anti-jamming technology. The upgrade enhances reliability, mitigates obsolescence and reduces the sustainment cost of current systems.

"The UFCS is now a demonstrated, cost-effective solution that will improve the reliability and extend the life of the MLRS family of rockets and launchers," said Jim Gribshaw, director of Precision Fires at Lockheed Martin Missiles and Fire Control. "This new capability will enable more Warfighters to have the dependable, long-range precision of the GMLRS at their command."

Deliveries of UFCS, which recently completed its Development and Qualification Program, have commenced under the HIMARS Full-Rate Production program. In March, Lockheed Martin also launched an ATACMS missile from a HIMARS equipped with UFCS.

GMLRS is an all-weather, precision strike, artillery rocket system that achieves greater range and precision accuracy requiring fewer rockets to defeat targets, thereby reducing the number of rockets necessary to defeat current targets as well as limiting collateral damage. GMLRS is a Future Force system that provides the joint Warfighter with immediate, precision fires to engage, destroy and deny terrain to the enemy.

GMLRS is effective against counter fire, air defense, light materiel and personnel targets. GMLRS incorporates a Global Positioning System-aided inertial guidance package integrated on a product improved rocket body. Additionally, small canards on the Guided Rocket nose add basic maneuverability to further enhance the accuracy of the system.

HIMARS can accommodate the entire family of MLRS munitions, including all variants of the GMLRS rocket and ATACMS missiles. Designed to enable troops to engage and defeat artillery, air defense concentrations, trucks, light armor and personnel carriers, as well as support troop and supply concentrations, HIMARS can move away from the area at high speed following missile launch, well before enemy forces are able to locate the launch site.

Because of its C-130 transportability, HIMARS can be deployed into areas previously inaccessible to heavier launchers and provides a force multiplier to the modular brigade. It also incorporates the self-loading, autonomous features that have made MLRS the premier rocket artillery system in the world. HIMARS carries a single six-pack of MLRS rockets, or one ATACMS missile. HIMARS is currently employed in support of the Global War on Terrorism.

Headquartered in Bethesda, Md., Lockheed Martin employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation reported 2007 sales of \$41.9 billion.

**Defence Industry**

**Lockheed Martin Successfully Launches GMLRS Rocket From HIMARS With New GPS-Aided Fire Control System**



DALLAS, TX -- Lockheed Martin launched the first Guided Multiple Launch Rocket System (GMLRS) rockets from a High Mobility Artillery Rocket System (HIMARS) wheeled vehicle launcher using the new Universal Fire Control System (UFCS) during a recent test at White Sands Missile Range, NM. Four

## Defence Industry

### Patria's vehicle deal in Slovenia



The Finnish National Bureau of Investigation started on 13 May, 2008 a preliminary investigation concerning Patria's vehicle deal in Slovenia. The suspected crime is bribery.

In the preliminary phase some persons involved in Patria's deal in Slovenia have been questioned. Three have been arrested for questioning. Two of them have been released and one imprisoned. Also, some other Patria employees have been questioned.

Patria cooperates with the NBI in order to clear the open questions.

Patria's understanding is that its personnel have followed all relevant legislation both in Slovenia and Finland.

