

# Army Guide monthly



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## Defence Industry

### Oshkosh Defense Completes 7,500 Miles of M-ATV Durability Testing



OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, is on target to complete 10,000 miles of on- and off-road durability testing of its MRAP All Terrain Vehicle (M-ATV) at the Nevada Automotive Test Center, further proving the vehicle's endurance through extended operations in challenging environments.

Oshkosh Defense has already performed more than 7,500 miles of independent testing using its own time and resources to ensure the vehicle would be ready for operations on Afghanistan's harsh terrain and to identify any possible enhancements that could be made. Rigorous testing is part of the Oshkosh standard process to make certain its vehicles are ready to withstand the demanding environments in which they operate.

"This is a significant milestone that showcases the durability and off-road capabilities of the Oshkosh M-ATV," said Andy Hove, Oshkosh Corporation executive vice president and president, Defense. "We are committed to providing the U.S. Armed Forces with a high-performance vehicle that answers the urgent-need requirement in Afghanistan. Our independent testing is helping us accomplish that."

The testing has confirmed the vehicle's exceptional off-road performance, which is benefited by the integration of the Oshkosh TAK-4® independent suspension system, and validated the durability of its entire integrated system. Utilizing vehicle components and technologies that are already in combat, the Oshkosh M-ATV is the most mission-proven option available to the U.S. Armed Forces. It is based on the combat-tested Oshkosh® Medium Tactical Vehicle Replacement (MTVR) chassis and features the same C7 engine used on the U.S. Army's current medium fleet. The vehicle's superior armor and survivability system was provided by Plasan North America, which contributed the armor for more than 5,000 MRAPs in theater.

The TAK-4 system is the only readily available and theater-tested off-road suspension system used by the U.S. military for this class of vehicle. Oshkosh recently received a contract to equip more than 1,500 MRAPs with TAK-4 suspension and continues to work with the military to evaluate using it on additional MRAP models. The advanced suspension system, which has undergone more than 400,000 miles of government testing, is also featured on the U.S. Army's Palletized Load System (PLS-A1) as well as the U.S. Marine Corps' MTVR and Logistics Vehicle System Replacement (LVSr).

The Oshkosh M-ATV is delivered with the survivability, mobility, mission-proven and production-ready solutions required for Afghanistan. The vehicle is based on a combat-proven chassis that has

been successfully operating for years in the most difficult off-road missions in Afghanistan, Iraq and around the world.

### About Oshkosh Defense

Oshkosh Defense, a division of Oshkosh Corporation, is an industry-leading global designer and manufacturer of tactical military trucks and armored wheeled vehicles, delivering a full product line of conventional and hybrid vehicles, advanced armor options, proprietary suspensions and vehicles with payloads that can exceed 70 tons. Oshkosh Defense provides a global service and supply network including full life-cycle support and remanufacturing, and its vehicles are recognized the world over for superior performance, reliability and protection. For more information, visit [www.oshkoshdefense.com](http://www.oshkoshdefense.com).

### About Oshkosh Corporation

Oshkosh Corporation is a leading designer, manufacturer and marketer of a broad range of specialty access equipment, commercial, fire & emergency and military vehicles and vehicle bodies. Oshkosh Corp. manufactures, distributes and services products under the brands of Oshkosh®, JLG®, Pierce®, McNeilus®, Medtec®, Jerr-Dan®, BAI®, Oshkosh Specialty Vehicles, Frontline™, SMIT™, Geesink™, Norba™, Kiggen™, CON-E-CO®, London® and IMT®. Oshkosh products are valued worldwide in businesses where high quality, superior performance, rugged reliability and long-term value are paramount. For more information, log on to [www.oshkoshcorporation.com](http://www.oshkoshcorporation.com).



## Defence Industry

### MBDA, Panhard and Sagem Anvailed New WASP MILAN ER Turret



To provide land forces with new operational capabilities, MBDA, Panhard and Sagem have modified the WASP remote-controlled turret to enable crews to fire MILAN ER medium-range missiles under armour protection.

The WASP MILAN ER turret is being presented at the 2009 Paris International Air Show on the Panhard stand, mounted on a light armoured vehicle (VBL).

This new turret includes most of the components of the WASP turret (launched by Panhard and Sagem in 2008) including, in particular, the capability of operating a 7.62 mm machine gun under armour for close defence of the vehicle. The WASP's Sagem camera has, however, been replaced with a multi-sensor camera of the CM3

type to provide the crew with long-distance observation capability by day and night and in all weather plus the capability of firing a MILAN ER missile to engage and destroy any battlefield threat within a range of 3000 m.

The WASP MILAN ER turret thus offers new capabilities for armoured vehicles engaged in operations, providing support for dismounted infantry or for logistic convoy escorts. Operating the missile from the vehicle protects the battery crew from enemy fire and increases the responsiveness of the weapon system's operation.



## Defence Industry

### New helmets and armour for troops in Afghanistan



New and improved helmets and body armour which will provide better personal protection and comfort will be making their way to British troops in Afghanistan this autumn.

The enhanced Mark 7 helmet and Osprey Assault body armour, which will provide excellent ballistic protection and an improved fit for personnel to ensure free movement, were unveiled at the Defence Vehicle Dynamics (DVD) equipment show this week.

The MOD has ordered over 10,000 sets of the new helmets and armour under initial contracts worth BJ16m, with companies including NP Aerospace, Morgan Armour Ltd, Aegis Engineering Ltd, Seyntex and Solo International Ltd.

Minister for Defence Equipment and Support, Quentin Davies, said:

"The Osprey body armour that we issue to all troops on operations provides excellent personal protection, as recent stories of troops surviving due to their armour show.

"However, we can never be complacent, and the new Osprey Assault body armour and Mark 7 helmet offer an improvement in the way that these items fit and feel. The contracts that I am announcing today for this new personal protection system demonstrate that we're listening to what our troops need by continuously upgrading their equipment."

The updated helmet has the same protection as the current Mark 6A, but will improve the effectiveness of the soldier.

It is equipped with a new harness keeping the helmet more stable on the head when night-vision equipment is fitted to it and is also better integrated with new weapon

sights, making it easier to use weapons in a variety of fighting positions.

The new Osprey Assault body armour has all the stopping power of the current Osprey but is closer fitting, less bulky and easier to move in.

Chief of Defence Materiel, General Sir Kevin O'Donoghue, who unveiled the new kit at MOD's DVD equipment show, said:

"Osprey is a proven world-class system and is undoubtedly a success story in terms of providing better protection to our troops. It is specifically developed to meet our requirements using cutting-edge materials and manufacturing technology.

"Osprey Assault is a development of this success that allows us to ensure our troops are getting the best kit for the job they are doing. Specifically the troops will be issued with a new ballistic plate that is much thinner, considerably reducing their bulk and burden and improving their endurance.

"There will also be a new body armour cover to hold this plate and the soft fragmentation armour. This has been designed for an improved fit, based on user feedback, and includes a new system for carrying ammunition, first aid equipment and other vital kit."

The DVD event is an equipment showcase organised by Defence Equipment and Support, which highlights the importance of diverse areas such as fuel delivery, clothing, food and vehicles that have been bought or upgraded under the Urgent Operational Requirements programme.



## Contracts

### Oshkosh Corporation Awarded \$1.05 Billion Delivery Order to Supply M-ATV to Soldiers, Marines



OSHKOSH, Wis. -- The U.S. Department of Defense (DoD) announced today it has selected Oshkosh Corporation to supply MRAP All Terrain Vehicles (M-ATV) for its fighting forces.

Oshkosh has received an initial delivery order from the U.S. Army Tank-automotive and Armaments Command (TACOM) Life Cycle Management Command (LCMC) for 2,244 M-ATVs valued at \$1.05 billion, following months of government testing on multiple production-ready vehicles.

"We are proud that Oshkosh was chosen to provide its M-ATV offer to the the U.S. Armed Forces. Our M-ATV design combines the crew protection warfighters have

## Defence Industry

## Iraqi Military Commanders to meet US Defense companies During USDID Delegation to Iraq

Washington -- With three weeks remaining until the U.S. Defense Industry Delegation to Iraq, Iraqi Military Commanders and Defense Procurement Specialists are making plans to meet USDID/Iraq delegates, scheduled for July 25-31.

Since a major focus of delegation will be a series of one-on-one meetings between leading US defense executives and their Iraqi counterparts, New-Fields knowledgeable staff will be on the ground matching participating US companies with potential buyers including meetings with government officials and Military Commanders.

The delegation has the full support of the Iraqi Ministry of Defense and Iraqi Military Commanders who are looking for products and technologies that will strengthen Iraq's sovereignty and security.

### About US Defense Industry Delegation to Iraq

The USDID/Iraq delegation's goal is to provide market entry or increased sales in Iraq for US Security, Sea, Land and Air Defense products and technologies. In addition, first hand market information and access to potential business partners.

Delegates will be holding a series of meetings with defense and security agencies, officials, and procurements specialists.

### About Prescheduled one-on-one meetings

Prescheduled one-on-one meetings with Iraqi officials, military commanders (Air Force, Army, Intelligence, internal security and special forces. As well as follow-up meeting with Iraqis whom shown interest or requested additional information.

New Fields knowledgeable staff will be available on site to assist as needed.

### About New-Fields Exhibitions, Inc.

New Fields, the organizer of the delegation was founded in 1994; New-Fields today is a leading information provider and conference and trade delegations on defense and homeland security to governments, industries and academia around the world.

## Defence Industry

## BAE Systems Teams With Kongsberg Protech Systems In Australia



ADELAIDE, Australia -- BAE Systems and

come to expect in MRAP vehicles with the extreme mobility and durability needed to negotiate Afghanistan's mountainous off-road terrain," said Robert G. Bohn, Oshkosh Corporation chairman and chief executive officer. "Due to the urgent need of our Armed Forces for a survivable and highly mobile vehicle, our Corporation's number one priority is meeting the Department's accelerated delivery schedule of the Oshkosh M-ATV. Oshkosh Corporation will put whatever resources are necessary to meet or exceed the government's delivery schedule. While we believe we can meet or exceed the government's current delivery requirements, we intend to enter into discussions with other manufacturers to determine if they can assist in the production of the Oshkosh M-ATV."

Bohn went on to say, "As we begin supplying our advanced, high-performance vehicles, our full-service aftermarket support network will be available with replacement parts, technical support, and repair or refurbishment services. If demands for technology or component upgrades should arise, our team is ready to deliver."

Andy Hove, Oshkosh Corporation executive vice president and president, Defense said, "Much has already been done to ensure we can meet the government's delivery schedule. In recognition of the urgent need, we began daily production of Oshkosh M-ATVs on our flexible manufacturing line a few weeks ago. We and our suppliers have already made significant investments in materials and are well positioned to accelerate our manufacturing capabilities."

The Oshkosh Defense investments, planning and engineering activities, and production of M-ATVs in advance of this award will allow for accelerated delivery of the Oshkosh M-ATV, with initial vehicles available to TACOM LCMC in July.

In order to achieve the off-road mobility that soldiers and Marines need in Afghanistan, Oshkosh integrated its TAK-4® independent suspension system onto the vehicle. As further testament to the government's confidence in this suspension system, the company recently received a supply order to equip more than 1,500 legacy MRAPs with the TAK-4 system and continues to work with the Army to evaluate using the system on additional legacy MRAP models. The TAK-4 suspension system is used on more than 10,000 Medium Tactical Vehicle Replacements (MTVR) supplied to the Marines and Seabees, as well as on the Marines' Logistics Vehicle System Replacement (LVSr) and the Army's next-generation Palletized Load System (PLS).

Oshkosh Defense teamed with Plasan North America for the M-ATV armor system to provide an advanced armor solution. Plasan also developed the armor system used on more than 5,000 legacy MRAPs and thousands of Oshkosh Armored Cab MTVRs already in theater.

Oshkosh performed more than 7,500 miles of independent off-road testing to identify possible enhancements to the vehicle so it would meet or surpass the performance requirements in the rugged terrain in Afghanistan.

Kongsberg Protech Systems have signed a teaming agreement to sell and support Kongsberg's Remote Weapon Stations (RWS) in Australia.

Kongsberg is a market leader in Remote Weapon Stations development and production with more than 10,000 systems sold with deployment in 16 countries, including on the Australian Army's ASLAV. It also supplies the US Army with RWS through the CROWS II program.

Ian Sharp, Director Land Business Unit, for BAE Systems Australia said, "Kongsberg's stabilised RWS enables armoured vehicle crews to effectively engage threats while on the move or stationary and all the time protected under armour – a life saving capability in high threat deployments.

"Through this teaming the Australian Defence Force will benefit from comprehensive, responsive and cost effective local support for the Kongsberg RWS originally acquired under an Urgent Operational Requirement," Mr Sharp said.

Egil Haugsdal, Executive Vice President Kongsberg Protech Systems, said, "Kongsberg looks forward to expanding its global relationship with BAE Systems through this wide ranging RWS agreement for the Australian market. BAE Systems in the US is already a key supplier of uncooled thermal imaging sensors to our US CROWS II program and this agreement will take full advantage of BAE Systems Australia's comprehensive platform, systems and equipment through life support capabilities.

"Kongsberg will train BAE Systems in the sales, integration, operation, maintenance and support of our expanding range of RWS equipment to provide the necessary expertise and back up in the Australian region. Additional opportunities will be available for BAE Systems to become part of the Kongsberg RWS global supply chain," Mr Haugsdal said.

A RWS assembly, integration and test facility will be established at BAE Systems Australia's electro-optic facility at Holden Hill in Adelaide. Heavy grade repairs and calibration of RWS electro-optic sensors, precision mechanisms and electronics will also be conducted at this facility. RWS medium grade repair will be undertaken by BAE Systems at the Albury Wodonga Military Area facility and other customer sites.

BAE Systems combines key skills in engineering and systems integration to provide efficient, value for money solutions that ensure the protection of Australia and its defence forces across the maritime, land, air and security sectors. In Australia, the Company employs 6,100 people who support customers at more than 70 locations.

Kongsberg Gruppen (KONGSBERG) is an internationally-oriented, knowledge-based corporation with more than 4,600 employees in some 25 countries. KONGSBERG supplies high-technology systems to customers engaged in offshore oil and gas production, the merchant marine, and the defence and aerospace industries.

### About BAE Systems

BAE Systems is the premier global defence, security

and aerospace company delivering a full range of products and services for air, land and naval forces, as well as advanced electronics, security, information technology solutions and customer support services. With approximately 105,000 employees worldwide, BAE Systems' sales exceeded BJ18.5 billion (US \$34.4 billion) in 2008.



### Contracts

#### Billion EURO-contract for PUMA IFV



Munich -- Krauss-Maffei Wegmann (KMW) has received the largest single order in its recent history with a commission for series production of the Puma Infantry Fighting Vehicle (IFV).

PSM GmbH (Project System and Management), a joint venture in which KMW and Rheinmetall AG of DIJsseldorf each hold a 50% stake, was awarded a contract by the Federal German Defence Technology and Procurement Agency (BWB) for the delivery of 405 newly developed combat vehicles. The total contract value is approximately EUR 3.1 billion. The delivery of the IFVs to the German Bundeswehr will start 2010.

The Budget as well as the Defence Committee of the German Parliament (Bundestag) have previously given the green light for the start of what is currently the largest European armaments project for land forces.

The PUMA contract is of key significance both for the Bundeswehr and the industry. It sets unique technical standards and will ensure that decisive system skills are retained in Germany, which are vital for maintaining our international competitiveness, said Frank Haun, CEO of KMW, on signing the contract.

#### Puma sets new standards - best possible protection for crew

The Puma is the most important modernisation project in the Bundeswehr's armaments procurement programme. It offers its occupants until now unequalled protection against mines, anti-tank weapons and improvised explosive devices commonly encountered in modern conflict areas. Its air portability, its mobility in difficult terrain and its scalability all go to make the Puma a vehicle that will take on important tasks in international conflict management while providing its occupants with the best possible degree of protection. It is also without equal in terms of endurance and firepower. The menless turret design developed by KMW sets new standards, as does a decoupled running gear that is completely isolated from the vehicle

bodypan, which means that even at high speeds noise and vibrations inside the vehicle can be reduced in comparison with existing IFVs by around 90 percent.

More than 30 years after the Marder IFV entered service with the Bundeswehr, the Puma, with its extended scope of performance, establishes a completely new vehicle category. In international comparison it is taking a leading position among armoured combat vehicles.

In September 2002, the German Parliament gave the go-ahead for the new IFV by issuing the development order. It was decided to procure five pre-production series vehicles with a value of around EUR 350 million at the end of 2004. These preseries vehicles are now in service with the Bundeswehr for trials and optimisation having successfully completed numerous tests in March 2009.

### Defence Industry

#### First prototype of artillery system Archer



The week before midsummer the first prototype of artillery systems Archer rolled out from Bofors. A rebuilt Dumper full of new technologies.

The week before midsummer the first prototype of artillery systems Archer rolled out from Bofors. Archer is a joint project between the Swedish FMV and the Norwegian counterpart FLO.

Archer, which is a joint project between the Swedish FMV and the Norwegian counterpart FLO. The delivery of the prototype one is an important milestone for the project and an important part in the forthcoming series of contract negotiations with Bofors.

Project Archer has previously had two experimental pieces which, for an untrained eye, might look like prototypes. The experimental pieces aim was to test and develop the idea of a wheeled autonomous artillery system and test the new technology in different environments and contexts and in particular to develop methods for the use of artillery.

"The result of testing and development is now in a final phase. This is a completely new type of artillery system that few will be able to compare with," says Jan Nee, project manager at FMV.

Then there is still some developments, there will be some differences on the prototype one and two. The cab of the prototype which has not, for example, the same protection as the cab at the prototype two and on the next series of products. Prototype one has the Swedish configuration and prototype two, Norwegian configuration.

The two prototypes will be verified and completed in

spring 2010. Archer Artillery System is then fully mature and the first production delivery to Sweden and Norway starting in 2011.

### Exhibitions

#### Nordic Defence 2009 - Berns Salonger, Stockholm, Sweden - October 28, 29, 2009



Uniquely placed to assess the impact of the current economic climate on the defence industry, sector-leading, media company Defence IQ have recognised the importance of the Scandinavian defence market with their landmark event that will assist companies to advance their business, even in these challenging times.

Nordic Defence 2009 gathers together the most influential military customers from Sweden, Norway, Denmark and Finland. Scheduled to take place in Stockholm this October, a panel of regional military and government figures will discuss the direction of defence cooperation in the coming years and how this will impact upon force development and procurement programmes. Commercial participants take part can look forward to meeting a rare line-up of operational and procurement staff who are eager to engage with both their military colleagues and industry vendors.

The event happens against the backdrop of a challenging security environment that is hastening regional efforts to upgrade military capabilities. Meeting speakers like Major General Berndt Grundevik, Chief of Staff of the Swedish Army and Major General Henrik Roboe Dam Chief of Staff, Tactical Air Command, Royal Danish Air Force has proved tempting for many defence organisations already and more are hastening to join.

More details can be found at the event website: <http://www.nordicdefence.org/Event.aspx?id=205136&MAC=ARMYGUIDE>

### Contracts

#### U.S. Army and Oshkosh Defense Start Preproduction Efforts for the New Heavy Equipment Transporter (HET A1)

OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, received a \$9.4 million contract modification from the U.S. Tank-automotive and Armaments Command (TACOM) Life Cycle Management Command (LCMC) to begin durability and performance testing of the new Oshkosh® Heavy Equipment Transporter (HET) A1 model. Testing of the HET A1, which includes several performance, maintenance and survivability enhancements, will take place at Yuma Proving Ground.



The Oshkosh HET A1 is designed to rapidly transport battle tanks, fighting and recovery vehicles, armored vehicles and construction equipment, as well as their crews, so they arrive in mission-ready condition. The latest Oshkosh HET A1 configuration includes increased horsepower, higher capacity front suspension, an armor-ready cab, electrical upgrades and improved diagnostics.

Once testing is completed, full-rate production of the Oshkosh HET A1 is scheduled for early 2010. Oshkosh manufactures the HET A1 as well as the new Palletized Load System (PLS A1) and Heavy Expanded Mobility Tactical Truck (HEMTT A4) as part of the Army's Family of Heavy Tactical Vehicles (FHTV).

### About Oshkosh Defense

Oshkosh Defense, a division of Oshkosh Corporation, is an industry-leading global designer and manufacturer of tactical military trucks and armored wheeled vehicles, delivering a full product line of conventional and hybrid vehicles, advanced armor options, proprietary suspensions and vehicles with payloads that can exceed 70 tons. Oshkosh Defense provides a global service and supply network including full life-cycle support and remanufacturing, and its vehicles are recognized the world over for superior performance, reliability and protection. For more information, visit [www.oshkoshdefense.com](http://www.oshkoshdefense.com).



### Contracts

#### Force Protection, Inc. Awarded \$70 Million of Contracts to Install Cougar Independent Suspension Upgrade Kits

LADSON, S.C. -- Force Protection, Inc., a leading designer, developer and manufacturer of life saving survivability solutions and provider of total life cycle support for those products, today announced that it has received contracts for both Phase 1 and Phase 2 installation of specifically redesigned TAK-4 independent suspension kits for 1,317 Cougar MRAPs.

The Phase 1 award under modification to Contract M67854-07-D-5031 from the United States Marine Corps Systems Command was made on June 16, 2009 for \$21.4 million and the Phase 2 was awarded on Friday, July 2, 2009 for an additional \$48.9 million. The work is expected to be completed prior to February, 2010 and will be performed by both Force Protection's staff of field service representatives (FSR) and by FSRs from Oshkosh Corporation under subcontract to Force Protection.



The modification for the purchase of the hardware associated with this installation work was awarded on April 8, 2009 in the amount of \$158.1 million, bringing the total cost for this independent suspension upgrade program, thus far, to approximately \$228 million. The awards under these contract modifications are subject to definitization.

Michael Moody, Chief Executive Officer of Force Protection, commented, "We are pleased to have received these awards to install this much needed, high-performance mobility upgrade package for approximately a third of our deployed fleet of Cougar MRAPs. This award demonstrates our ability to capture a range of opportunities to provide service, support, spares and training. We are excited to leverage our recent investment in our Kuwait-based logistics and service depot, which we believe has significantly increased our ability to serve our customer and the war-fighter with faster response and more comprehensive service."

Force Protection, Inc. is a leading American designer, developer and manufacturer of survivability solutions, predominantly blast- and ballistic-protected wheeled vehicles currently deployed by the U.S. military and its allies to support armed forces and security personnel in conflict zones. The Company's specialty vehicles, the Cougar, the Buffalo and the Cheetah, are designed specifically for reconnaissance and urban operations and to protect their occupants from landmines, hostile fire, and improvised explosive devices (IEDs, commonly referred to as roadside bombs).



### Future Technologies

#### Oshkosh Defense Awarded Two Contracts to Continue Research of Advanced Vehicle Technologies

OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, announced it has received two contracts from the Office of Naval Research for research of next-generation vehicle technologies.

## Lockheed Martin UK To Unveil Innovative New Vehicle Design At DVD



Lockheed Martin UK will unveil a new approach to military vehicle design at this year's DVD event when it displays AVA-1, its first prototype vehicle to be produced using the Lockheed Martin Adaptive Vehicle Architecture (AVA).

These contracts will help advance diesel-electric and hybrid-electric drive technologies to improve fuel efficiency and on-board power capabilities. In collaboration with the Office of Naval Research, Marine Corps PEO Land Systems is providing technical and program support for each effort. Work for both contracts is scheduled to go through 2011.

“Oshkosh Defense is a leader in military vehicle technology development and these contracts will further the innovative work we have done for future military fleets,” said Andy Hove, Oshkosh Corporation executive vice president and president, Defense. “Building on existing diesel-electric and hybrid-electric technologies will help Oshkosh develop more efficient, powerful and versatile vehicles.”

Under the first contract, Oshkosh Defense will conduct hybridization and repower research efforts for the U.S. Marine Corps' Medium Tactical Vehicle Replacement (MTVR). These efforts are targeted to improve the vehicle's fuel efficiency and deliver industry-leading exportable power while maintaining the MTVR's mobility, performance and effectiveness. In addition to integrating a lighter, higher-powered engine and maximizing common intake, exhaust and cooling system components, Oshkosh will incorporate a capacitor-based energy storage system to store energy during vehicle deceleration and idle periods. These advanced technologies will reduce engine and fuel demands during acceleration.

Under a second contract, Oshkosh will develop an advanced and lightweight synchronous generator that can be used on diesel-electric military vehicles. The goal is to reduce the generator's weight by 40 percent while maintaining the vehicle's performance and power qualities. A second component of this contract includes the development of a next-generation traction system for improved off-road mobility with increased efficiency of operation.

The Oshkosh diesel- and hybrid-electric drive technologies offer fuel economy improvements over conventional power trains, and provide enough electricity through an on-board generator to power a command center, airfield or city block.

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Primarily designed and developed in the UK, the prototype vehicle has the potential to meet several emerging UK requirements. Six metres long and weighing in at 12,000kg, the vehicle also features a modified V-shaped hull which is as survivable as the Mine Resistant Ambush protected (MRAP) platforms while having greater mobility and sprint speeds.

The AVA concept offers potential users the same chassis components in different configurations, allowing for commonality across a fleet with the ability to customise individual vehicle role specification.

“This vehicle has superb on and off-road capability, has a minimal turning circle and a sprint speed in excess of 50 mph as well as MRAP standards of protection,” said Scott Lustig, director for Land Vehicle Systems. “AVA-1 is not intended to address a specific current requirement, but to generate interest and see where the customer wants Lockheed Martin technology to go.”

AVA-1 is the first in a family of vehicles Lockheed Martin intends to build, including 4x4 and 6x6 variants adaptable to a range of roles including flatbed transporters, troop carriers and scout vehicles.

Lockheed Martin UK will also be displaying its Land Environment Air Picture Provision (LEAPP) solution, its Joint Asset Management Engineering Solution (JAMES) system and its newly-developed Kudos force protection system at the DVD show on June 25 and 26.

Lockheed Martin UK, a unit of Lockheed Martin Corporation, is a leader in systems integration working on major programmes spanning the aerospace, defence and civil sectors. Lockheed Martin works with more than 100 business partners and employs over 1700 people at 12 sites across the UK.

Headquartered in Bethesda, Maryland, 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**

**Government of Canada Names General Dynamics Land Systems-Canada as Prime Contractor for LAV III Upgrade Program**



LONDON, Ontario -- The Honourable Peter MacKay, Minister of National Defence, with Lieutenant-General Andrew Leslie, Chief of the Land Staff, announced today that the Government of Canada has approved an upgrade program for the LAV III family of vehicles.

General Dynamics Land Systems-Canada will be the prime contractor and systems integrator for this program.

General Dynamics will now work closely with the Department of National Defence in defining the scope of the LAV III upgrades. At the heart of the upgrade program is a high-capacity driveline and suspension that significantly increases the vehicle's payload. Increased payload will allow the vehicle the ability to deliver even better protection for Canadian soldiers. Other features of the upgrade package will be determined through discussions with the Department of National Defence.

Dr. Sridhar Sridharan, senior vice-president of General Dynamics Land Systems-Canada, said, "We are proud of the LAV III's performance in theatres such as Afghanistan and have continually worked with DND in making the vehicle better. With this upgrade program, we can now incorporate the latest lessons learned in-theatre and evolve the vehicle to a significantly higher standard of performance. We are grateful for this opportunity to keep the LAV III at the forefront and our soldiers safe."

Once the scope of work is fully defined and a contract is issued, significant work will be performed at General Dynamics Land Systems-Canada facilities in London, Ontario, and Edmonton, Alberta, as well as by the company's nationwide network of over 400 Canadian suppliers. All regions of Canada will benefit from this work, including South Western Ontario.



BAE Systems Global Combat Systems and General Dynamics (UK) are to receive a draft Invitation to Tender for the vehicles in the next few days.



The programme, termed by the MOD the Future Rapid Effect System Specialist Vehicle (FRES SV), is intended to provide reconnaissance and reconnaissance support variants to replace the existing Scimitar and Spartan vehicles now on operations in Afghanistan.

The final Invitation to Tender is expected to be issued later this month following this initial assessment phase.

Minister for Defence Equipment and Support, Quentin Davies, said:

"This follows the announcement of the strategy for the procurement of armoured vehicles which I made on 23 June. These vehicles will play a major role in current operations and in equipping the Army to stand ready to respond to a wide range of contingencies in the future.

"[This] announcement shows that the Government puts the provision of the best vehicles that money can buy at the heart of its priorities."

The issue of the draft Invitation to Tender for the FRES SV programme follows on from the announcement of the Armoured Fighting Vehicles Sector Strategy last week.

The FRES programme, of which FRES SV forms a part, aims to deliver a medium-weight armoured vehicle fleet with higher levels of deployability and protection than in-service vehicles, and with the potential to accommodate changes in technology.

It will replace a number of vehicles that have reached or are reaching the end of their service lives, including the Combat Vehicle Reconnaissance (Tracked) [CVR(T)] Scimitar, and introduce some new capabilities.

The Equipment Examination decided that FRES SV should, with the Warrior Capability Sustainment Programme, be prioritised ahead of the FRES Utility Vehicle.

FRES SV is a medium-weight capability comprising three families of vehicles: Reconnaissance, Medium Armour and Manoeuvre Support.



**Defence Industry**

**UK companies asked to tender for new armoured vehicles**

The Ministry of Defence has named the two British companies that are to go forward into the next stage of a project to provide the British Army with a new fleet of armoured reconnaissance vehicles.

**Defence Industry**

**Patria and ThalesRaytheonSystems signed an agreement related to the Finnish Defence Force's recently announced surveillance system projects**

Patria and ThalesRaytheonSystems have on 3 July signed in Massy France, an agreement on Patria's part in the Finnish Defence Force's medium and

long range radar systems programs following the decision by the Finnish Ministry of Defence to award the supply of medium range radars and the modernisation of long range radars to ThalesRaytheonSystems.

The value of the Patria agreement is approximately EUR 10 million.

Patria, together with its subcontractors, will contribute a significant part of the program including the software design, equipment shelter rearmament and modifications. The project's employment effect, for Patria's Systems Business Unit in Tampere and Espoo will be approximately 40 man-years. This program further develops Patria as industrial radar competence centre in Finland. With these skills Patria will be able to provide local maintenance and future software development.

Patria is a defence and aerospace group with international operations delivering its customers competitive solutions based on own specialist know-how and partnerships. Patria is owned by the State of Finland and the European Aeronautic Defence and Space Company EADS N.V.

able to immediately perceive the consequences of their actions and the reaction of their adversary," says Andreas Herren. "Thanks to SIMUG, this wish has been made a reality, and I am delighted that we can enable our customers to carry out their operations successfully."

After several years of development work, SIMUG was approved by the Swiss Federal Council and authorized by Swiss Parliament under the Armament Programme 2004. The procurement scope of 95 million Swiss francs for SIMUG comprises the facilities at Bure and St. Luzisteig. Operation of SIMUG will be privatized by way of a pilot test, with RUAG Electronics taking on operational responsibility. The pilot project will run until 2015.

### **RUAG Electronics Ltd**

RUAG Electronics Ltd, headquartered in Berne (Switzerland) is one of the five subsidiaries of the RUAG international technology group. Its CEO is Andreas P. Herren. The staff headcount for 2008 was 790. The company operates in three segments: Simulation & Training (S&T), Network Enabled Operations Services (NEO Services) and Homeland Security (HLS).

## **Defence Industry**

### **Key handed over for the SIMUG live simulation platform in Bure**

On 3 July 2009 at the Bure training ground (Switzerland), RUAG Electronics handed over the system key for the SIMUG live simulation platform to armasuisse, the Swiss Armed Forces' centre of excellence for procurement.

The Swiss Army has thus now received the first of three state-of-the-art combat training centres.

SIMUG, which is a simulation support platform for field training exercises, enables battlefield environments to be trained for in line with today's needs. Training is highly realistic and takes place using laser-based simulators. All weapons can be employed, including direct-hit, high angle and area weapons. Fire and its effects in the battlefield are simulated in a lifelike manner using charge boxes specially developed for the purpose.

All exercise participants such as vehicles and infantrymen are kitted out with laser firing simulators.

This enables combined arms training that reflects the relative forces of the weapons involved. All participants are connected by transponders and W-LAN to the control centre. The position and status of all involved, plus the battlefield events that occur, are recorded in real time and are then available in a multimedia format for debriefing after the exercise. Training can be carried out up to reinforced company level.

The Swiss Army has been training for years with laser firing simulators. These simulators can now be united under SIMUG and put to combined use. On 3 July 2009 at a celebratory ceremony, CEO of RUAG Electronics Andreas Herren handed over the symbolic system key to Chief of Armaments Jakob Baumann and the Swiss Army. "For effective, good training, soldiers must be

## **Contracts**

### **DRS Technologies Receives \$49 Million Infrared Sighting Systems Order For U.S. Army Tanks And Combat Vehicles**

PARSIPPANY, N.J., -- DRS Technologies, Inc. announced July 2 that it has received a \$49 Million follow-on order for Second Generation Forward Looking Infrared (SGF) sighting systems and components from the Raytheon Company's Network Centric Systems business in McKinney, Texas.

The products will be used to provide critical thermal-imaging technology to warfighters aboard U.S. Army combat and tactical-wheeled vehicles, including Abrams Main Battle Tanks, Bradley Fighting Vehicles and High Mobility Multipurpose-Wheeled Vehicles (HMMWV).

Under the terms of this order, DRS will manufacture and provide systems and components that support the U.S. Army's SGF initiatives. Included are Block 1 B-Kit components for Abrams Thermal Receiver Units (TRUs) and circuit-card assembly sets for the Commander's Independent Thermal Viewer (CITV). The company will also provide B-Kits for the Improved Bradley Acquisition System (IBAS) and the Long Range Advanced Scout Surveillance System (LRAS3).

The work for this contract will be conducted by the Palm Bay and Melbourne, Florida operations of the DRS Reconnaissance, Surveillance & Target Acquisition business group. Deliveries will run through January 2011.

Soldiers in ground vehicles use DRS' advanced high-resolution Second Generation Forward Looking Infrared sighting systems to detect, identify and engage tactical enemy targets at any time during day or night, even in zero visibility conditions. The technology also

provides them with digital battlefield imagery that promotes interoperability among military platforms, therefore contributing to their goal of having information dominance.

“In modern warfare, superior power is often trumped by superior situational awareness, battlefield visibility and networked intelligence,” said RSTA president Terry Murphy. “Our leading-edge SGF systems give warfighters a distinct advantage in each of these areas. We’re proud of the role we’re playing in equipping them with these lifesaving capabilities.”

DRS Technologies, headquartered in Parsippany, NJ, is a leading supplier of integrated products, services and support to military forces, intelligence agencies and prime contractors worldwide. The company is a wholly owned subsidiary of Finmeccanica S.p.A. (FNC.MI) which employs more than 73,000 people worldwide. For more information about DRS Technologies, please visit the company’s website at [www.drs.com](http://www.drs.com)



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## Defence Industry

### New Artillery Cannon for Namer APC



The Ground Forces of Israel are revising the possibility of installing a 30cm cannon on the advanced Armored Personnel Carrier - Namer.

The installment of the cannon will enable the vehicle new abilities, such as breaking through buildings that are used for hiding, and having the ability to aim a shot in a sharp angle. This will enable Infantry Forces to become more independent against their threats, without the help of tanks. The target data will be entered in the cannon automatically, with help of the control and inspection system of the Namer.

Battalion soldiers of the Golani Brigade that are in the midst of finishing their training on the Namer, practice the use of a machine gun. The Ground Forces are considering if they should change the machine gunner in the Namer for a gunner. In order to do that, a series of tests will be conducted which will examine the use of the cannon in the Namer.

The vehicle is capable of carrying up to 12 fighters, amongst them three professionals (the Namer Commander, the driver, and the machine gunner), and nine Infantry fighters. The cannon will be found outside the vehicle, and will not penetrate the inner area of the APC.

“If the cannon will be installed in the Namer, we won’t have to use other vehicles for Infantry,” explains Major Shlomi Ben Lulu, head of the Namer project in the

Infantry Corps. “I wouldn’t want the tank to help me against Infantry threats, however tanks will confront tanks, and Infantry will confront Infantry. The cannon will upgrade the Infantry’s abilities.”

The cannon can turn the Namer to a near perfect vehicle, says Major Ben-Lulu. The reversibility, survivability, the speed, and the mobile abilities – are more advanced than those of the IDF Achzarit, and of other Infantry Armored Personnel Carriers used in the IDF. From the instant the Namer will be part of the battle field, the Infantry and Armored Corps will start to be active together, without having the Armored Corps wait for the Infantry Forces during a battle.

The Namer will enable the Infantry Corps to destroy a threat while remaining in the APC, without having the combat soldiers take out their heads from the vehicle. This is with the help of 360 degree cameras, a control and inspection system, and computerized weapon systems. In addition to that, the control and inspection system in the Namer will enable the Division Commander to be in direct contact, and watch the progress of each class in a direct manner.



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## Robots

### International Challenge To Develop Military Robots



Greg Combet, Minister for Defence Personnel, Materiel and Science, today announced a million dollar international competition challenging research organisations to build fully autonomous ground robots able to operate effectively in military operations.

The competition, known as the Multi-Autonomous Ground-robotic International Challenge (MAGIC), is being organised by Australia’s Defence Science & Technology Organisation (DSTO) in partnership with the US Department of Defense.

“This competition aims to attract the most innovative solutions from around the world to address a technology gap currently faced by coalition forces operating in urban combat zones,” Mr Combet said.

“While remote-controlled robots are being deployed in operational areas, we need smart, intelligent and fully autonomous systems that can take over from humans in

conducting intelligence, surveillance and reconnaissance missions,” Mr Combet said.

“The ultimate aim is to make these operations much safer for our military personnel, leaving the robots to carry out the dirty and dangerous work.”

“The challenge for the competitors is to develop a proposal demonstrating teams of robotic vehicles that can autonomously coordinate their activities and execute a mission in a changing urban environment. The robots must detect, monitor and neutralise a number of potential threats to meet the challenge goals and an international panel of experts will judge the entries.”

“The first five short-listed competitors will each receive research grants of \$US100,000 to develop their proposals into prototypes,” Mr Combet said.

“After they have successfully demonstrated their prototypes at a location in South Australia next year, the top three finalists will receive research awards of \$US750,000, \$US250,000 and \$US100,000 respectively.”

“These finalists also have the unique opportunity to qualify for further funding under the US Joint Concept Technology Demonstrator (JCTD) Program, so that their prototypes can be transitioned into operational capability. If an Australian competitor is among the top three finalists, that organisation would also be considered for funding under the Capability & Technology Demonstrator Program managed by DSTO”

“Australia will also have access to these capability developments,” Mr Combet added.

The five shortlisted competitors will be invited to present their projects at the Land Warfare Conference in November 2010.

The competition is valued at US\$1.6 million.

Competition details are at:

[www.dsto.defence.gov.au/MAGIC2010/](http://www.dsto.defence.gov.au/MAGIC2010/)



## Robots

### EDA gives the go-ahead for new unmanned high-tech platform

The European Defence Agency (EDA) has given a green light to an ambitious development project under the leadership of Rheinmetall Defence of Dusseldorf, Germany.

The EDA has contracted with Rheinmetall Defence and three other companies (Diehl BGT Defence, ECA and Thales Optronique) to develop an unmanned vehicle platform and construct a demonstrator version that should show the potential of systems of this kind. In particular, the project seeks to demonstrate the future role that unmanned vehicles could play in protecting troops deployed in hazardous operations.

The EDA development contract is an important strategic coup for Rheinmetall, which has been placed in charge of this groundbreaking research and development project. In monetary terms, the order is worth some €4 million.

The Semi-Autonomous Unmanned Ground Vehicle

System Demonstrator (SAM-UGV), as it is tentatively known, will be a wheeled, all-terrain vehicle weighing between 300 and 400 kilos, roughly the size of a quad bike. Thanks to its built-in navigation system and sophisticated computer technology, it will be able to conduct a variety of missions by remote control as well as operating autonomously. The vehicle is to have a range of 400 kilometres, and be able to operate for periods of up to 24 hours.

As well as performing long-range patrolling and monitoring missions, the SAM-UGV will be able to carry out NBC reconnaissance operations in potentially contaminated terrain. The system’s suitability as a means of searching for improvised explosive devices will also be studied, responding to the acute threat these currently pose to forces deployed in global conflict zones. Besides a satellite-supported inertial navigation system, the vehicle will feature a 3D laser radar, a camera system and ultrasonic sensors, enabling it to cope with its surroundings and avoid obstacles.

Today, in an era of mounting cost pressure, creating a sophisticated system of this kind would be all but impossible for a single, company-financed research and development programme. To develop the SAM-UGV system, Rheinmetall Defence is pooling its knowledge and experience with the capabilities of three other defence contractors; this cooperative endeavour was brokered by the European Defence Agency, which also arranged financial backing. This project is thus a good example of the way the European defence industry is bundling its strengths – one of EDA’s prime objectives.

In terms of content, this development project is strongly oriented to current and future military scenarios involving significant operational risks such as out-of-area deployments of the German Bundeswehr, whose troops are now subject to continuous, low-intensity attack by insurgent elements. Be it in Afghanistan, Iraq or elsewhere, forces operating in crisis regions face an array of operational risks that are now as familiar as they are unpredictable: conflicts without clearly defined frontlines, where enemy combatants are generally difficult or impossible to identify, and whose callous, indiscriminate attacks often draw innocent civilians into the conflict.

Furthermore, nations taking part in international peacekeeping and peace enforcement missions are understandably eager to keep casualties as low as possible to avoid losing public support at home. One way of meeting this challenge is to use unmanned systems which operate autonomously and can perform a variety of missions, making sure that friendly personnel are not exposed to danger unnecessarily.



## Robots

### New technology to neutralise improvised explosive devices

The Minister for Defence Science and Personnel the Hon. Warren Snowdon MP, today unveiled a new

robot called SPIKER designed to counter improvised explosive devices (IED).



The robot has been developed by the Defence Science and Technology Organisation (DSTO) and was demonstrated at the Land Warfare Conference in Brisbane.

“Innovations like this robot are part of DSTO’s program to support our troops on operation in various theatres, particularly in the Middle East,” Mr Snowdon said.

SPIKER, Special Purpose IED Killer Experimental Robot, is a remotely controlled tracked vehicle which deploys a number of different devices, including explosives, to render IEDs safe.

Also on display was another remotely controlled vehicle known as RASP (Remote Advanced Sensor Platform) which DSTO has developed to identify radioactive threats from a distance.

“These technologies are vital for carrying out dirty and dangerous work and helping to save the lives of our soldiers,” Mr Snowdon said.

He said industry was also making innovative contributions to support soldiers through the Capability and Technology Demonstrator (CTD) Program.

Two technologies developed under the program and displayed at the conference included flexible solar panels to generate power during operations in the field; and a smart power management system which provides a miniature energy source for multiple devices carried by soldiers, so they can operate more effectively over longer periods with less weight.

“These are only some examples of innovative technologies that can be achieved when DSTO and industry work together to enhance Defence capability in priority areas,” Mr Snowdon said.

“This financial year the total budget for the CTD program is over \$25 million, with some 33 CTD projects in progress.”



### Exhibitions

## Boeing, L-3 and other Top U.S. Defense Companies Join an Industry Delegation to Iraq

Washington --Ten leading US defense companies including Boeing and L-3 have joined the US Defense Industry Delegation to Iraq July 25-31.

New Fields Officials announced today.

"The ten companies participating in this delegation represent the cutting edge of US aviation security, sea, land and air defense products and technologies, which

can Strengthen Iraq's Sovereignty & Security" said Maher Giundi, Government Programs Director of New Fields.

"The participating delegates will be meeting senior Iraqi Military Commanders and defense Specialists" Giundi added.

Since a major focus of delegation will be a series of one-on-one meetings between leading US defense executives and their Iraqi counterparts, New-Fields knowledgeable staff will be on the ground matching participating US companies with potential buyers including meetings with government officials and Military Commanders.

The delegation has the full support of the Iraqi Ministry of Defense and Iraqi Military Commanders who are looking for products and technologies that will strengthen Iraq's sovereignty and security.

### About US Defense Industry Delegation to Iraq

The USDID/Iraq delegation's goal is to provide market entry or increased sales in Iraq for US Security, Sea, Land and Air Defense products and technologies. In addition, first hand market information and access to potential business partners. Delegates will be holding a series of meetings with defense and security agencies, officials, and procurements specialists.

### About Pre-scheduled one-on-one meetings

Prescheduled one-on-one meetings with Iraqi officials, military commanders (Air Force, Army, Intelligence, internal security and special forces. As well as follow-up meeting with Iraqis whom shown interest or requested additional information. New Fields knowledgeable staff will be available on site to assist as needed.

### About New-Fields Exhibitions, Inc.

New Fields, the organizer of the delegation was founded in 1994;

New-Fields today is a leading information provider and conference and trade delegations on defense and homeland security to governments, industries and academia around the world.



### Contracts

## Defense Agency Awards Raytheon Up to \$155 Million Contract to Develop an Interoperable Network Gateway

MARLBOROUGH, Mass. -- Raytheon Company has been awarded a contract by the Defense Advanced Research Projects Agency to provide a cost-effective, highly capable military wireless network interoperable gateway.

The contract provides Raytheon \$24.4 million for one year. Options would extend the contract to 2012 and bring the potential value to \$155 million.

The Mobile Ad-Hoc Interoperability GATEway, or MAINGATE, will integrate any combination of heterogeneous military, civil or coalition radios into a single network to facilitate communication among disparate systems.

## Oshkosh Defense Brings Proven Production, Engineering Capabilities to FMTV Competitive Rebuy Bid

OSHKOSH, Wis. -- As a leading designer and manufacturer of tactical military vehicles, Oshkosh Defense, a division of Oshkosh Corporation, brings a history of proven production and engineering capabilities to its bid for the U.S. Army's Family of Medium Tactical Vehicles (FMTV) competitive rebuy – a five-year, multibillion dollar contract award for the production of an estimated 23,000 vehicles and trailers.

Having provided military vehicles since 1942 and performed continuous production of military vehicles since 1970, Oshkosh Defense's robust manufacturing capabilities and production capacity will allow the company to meet or exceed the FMTV schedule requirements. Manufacturing operations have been coordinated to accommodate production of the recently awarded MRAP All Terrain Vehicle (M-ATV) contract as well as the FMTV, and the increase of resources due to the M-ATV contract will directly benefit the FMTV rebuy. Oshkosh Defense will be able to meet the needs of these and all other programs, in addition to any production surges that may be required.

"Decades of producing high-performance military vehicles for the U.S. Armed Forces have proven our ability to consistently deliver vehicles on time, in the quantities needed and at a competitive price," said Andy Hove, Oshkosh Corporation executive vice president and president, Defense. "Existing supplier commonality and our experience in producing vehicles similar to every variant involved in the FMTV rebuy would allow us to seamlessly incorporate this program into our production lines, ensuring the transition would be low risk."

A highly skilled in-house engineering team coupled with an experienced production workforce help Oshkosh continually improve vehicle quality levels through design innovations, assembly process improvements and lean manufacturing. Because of Oshkosh's engineering prowess and tactical wheeled vehicle experience, it has had 14 different vehicle types tested and approved by the government.

The company was the first and only truck manufacturer to win the Department of Defense's David Packard Acquisition Excellence Award for its work with the U.S. military on the Medium Tactical Vehicle Replacement (MTRV). Among other things, the military recognized Oshkosh for reducing vehicle life cycle costs, being efficient and responsive in the acquisition process, and integrating commercial technology into the MTRV.

Oshkosh Defense is the only current manufacturer of medium and heavy tactical wheeled vehicles in the U.S. defense industry, having produced more than 67,000 new vehicles in its manufacturing facilities. The company's use of an advanced integrated assembly line has allowed for the simultaneous production of as many as 10 vehicle models with 29 variations.

### About Oshkosh Defense

"Our MAINGATE solution enables legacy analog and digital communication systems to be networked. It includes an affordable, two-channel, high data rate, next-generation network-centric radio system," said Jerry Powlen, vice president, Network Centric Systems Integrated Communications Systems. "We continue to build on our Internet Protocol-based networking experience to deliver the most advanced systems to our troops at a much lower cost than other systems in development today."

The unique architecture of the MAINGATE system overcomes the limits of most networking systems in use today. It allows for many more users to join the network at the same time and enables more than 30 different military and civil radios to communicate with one another while concurrently providing a high-capacity, mobile network.

One of the key technologies used in the system's development is Raytheon's Mobile Ad-Hoc Networking protocols. These MANET protocols enable the MAINGATE system to be mobile, allow nodes to join or leave the network and scale to a very large numbers of systems.

Other technologies incorporated into the MAINGATE system include disruption-tolerant networking, which is designed to overcome disruptions inherent in wireless, line-of-sight communications systems; dynamic spectrum access to establish and maintain communication in congested radio frequency or noisy environments; and multi-input, multi-output technology to improve performance in urban environments.

Raytheon Company, with 2008 sales of \$23.2 billion, is a technology and innovation leader specializing in defense, homeland security and other government markets throughout the world. With a history of innovation spanning 87 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 73,000 people worldwide.

#### Note:

Internet Protocol is the standard method by which data is sent from one endpoint to another using the Internet.

Mobile ad-hoc networking protocols are software-defined algorithms used to route data in a highly mobile, wireless communication network without a fixed infrastructure. Work is underway to incorporate the Defense Advanced Research Projects Agency's dynamic spectrum access techniques for additional flexibility and capability.

Dynamic spectrum access is a technique that monitors, adapts and uses frequency resources depending on current usage, closely following rules and guidelines established for sharing resources.



Oshkosh Defense, a division of Oshkosh Corporation, is an industry-leading global designer and manufacturer of tactical military trucks and armored wheeled vehicles, delivering a full product line of conventional and hybrid vehicles, advanced armor options, proprietary suspensions and vehicles with payloads that can exceed 70 tons. Oshkosh Defense provides a global service and supply network including full life-cycle support and remanufacturing, and its vehicles are recognized the world over for superior performance, reliability and protection. For more information, visit [www.oshkoshdefense.com](http://www.oshkoshdefense.com).

### About Oshkosh Corporation

Oshkosh Corporation is a leading designer, manufacturer and marketer of a broad range of specialty access equipment, commercial, fire & emergency and military vehicles and vehicle bodies. Oshkosh Corporation manufactures, distributes and services products under the brands of Oshkosh®, JLG®, Pierce®, McNeilus®, Medtec®, Jerr-Dan®, BAI™, Oshkosh Specialty Vehicles, Frontline™, SMIT™, CON-E-CO®, London® and IMT®. The Oshkosh brands are valued worldwide in businesses where high quality, superior performance, rugged reliability and long-term value are paramount. For more information, log on to [www.oshkoshcorporation.com](http://www.oshkoshcorporation.com).



## Defence Industry

### Canadian Army to upgrade combat vehicle fleets



Oromocto, New Brunswick -- The Army will improve or replace its fleets of combat vehicles, providing soldiers with greater protection, mobility and lethality on the battlefield.

Calling it “a great day for the Army,” Lieutenant-General Andrew Leslie announced the \$5.2 billion vehicle upgrade and acquisition projects together with federal cabinet ministers July 8 at CFB Gagetown.

The renewal of the fleets will make the Army’s combat vehicles “bigger, harder, faster and better-armed,” the Chief of the Land Staff told about 300 soldiers assembled to hear the announcement.

#### Troops deserve most effective equipment

Noting that every day Canadian troops “risk everything to ensure the security of their fellow Canadians and those they are sent to help,” LGen Leslie said they deserve nothing less than the best level of protection and the most effective equipment the CF can provide.

#### The combat fleet renewal encompasses four

#### projects:

- The light armoured vehicle (LAV) III Upgrade (LAVUP) project will upgrade 550 vehicles with an option for another 80. The weapons system will be upgraded, additional armour will be installed and the mobility systems such as the power train, suspension, running gear and brakes will be replaced. The upgrade will extend the LAV III life span to 2035.
- The Army will acquire 108 close combat vehicles (CCV) with an option for up to 30 more. The CCV will fill the long-standing gap between the LAV III and the Leopard 2, enabling the infantry to act in close support to the tanks with a well-protected and mobile vehicle that will possess at least the LAV III level of firepower.
- The Army will also acquire a tactical armoured patrol vehicle (TAPV) to replace the Coyote and the RG-31 and provide light infantry battalions with armoured utility vehicles. Two hundred recce vehicles will have a crew of four and either a one-man turret or a remote weapons station (RWS). Three hundred infantry vehicles will serve for command and control and as an armoured personnel carrier (APC), and will have a crew of three, carry four additional soldiers and will be fitted with a RWS. The Army will acquire 500 TAPVs with an option for an additional 100.
- As part of the Force Mobility Enhancement (FME) Project, the Army will buy 13 armoured engineer vehicles (AEV) and two armoured recovery vehicles (ARV), with options for additional vehicles in both cases. These replacements for the Badger will be built on the Leopard 2 chassis and their armour will allow them to operate under heavy fire to clear mines and other obstacles for troops or, in the case of the ARV, to recover tanks and other vehicles.

#### Army has been forced to run its combat vehicles very hard

During the mission in Afghanistan, the Army has been forced to run its combat vehicles very hard on rugged terrain. Taliban insurgents have developed more powerful weapons, especially IEDs, and all NATO armies are seeking ways to upgrade protection for their troops. Defence contractors are focusing heavily on ways to improve the protection of combat vehicles.

The Coyote has served the Army well but more protection is required and the surveillance suites need upgrading to today’s technology. The Army also hopes to improve the interior ergonomics in the TAPV – space is very cramped in the Coyote, especially when soldiers are required to wear all of their kit including ballistic shields. The TAPV will also fill a long-standing requirement for an agile, well-protected vehicle to move light infantry and materiel.

#### Projects have been approved

While the projects have been approved, final decisions will not be reached on all specifications for the new vehicles until discussions are completed with potential manufacturers. The Project Director for the CCV, Major Robert Bouchard, said the vehicle will have a high level of off-road mobility and “at least the firepower of a LAV

III.” There will be an infantry vehicle and another to serve in a forward observation role. The CCV will have state-of-the-art digital communications suites and other electronics. Weighing in at between 30 and 45 tonnes, it will be deployed to theatre by ship or C-17.

Major Richard Toppa, Project Director for the AEVs and the ARVs, said they represent a “quantum leap forward” in crew protection over the Badger. They will have an increased power pack, improved hydraulics and 2010 or 2011 technology, compared with 1983-84 technology in the Badger. The Army will also acquire dozer blades, mine ploughs and mine rollers.

Initial operational capability for the AEVs and ARVs is scheduled for 2011; for the upgraded LAV IIIs and the CCV 2012; and for the TAPV in 2013.

Number of vehicles:

- LAV III: 550+
- TAPV: 500+
- CCV: 108+
- AEV/ARV: 15+

Total cost: \$5.2 billion

network capability, improved situational awareness and a remote indirect fire capability.

## Defence Industry

### Dynamit Nobel Defence presents new solutions and concepts at press day



At a time when soldiers in Iraq and Afghanistan face an increasing peril at the hands of an enemy which fights by means of ambushes and – what has become a fashionable expression – asymmetric measures, the offspring of a German company with a long tradition, Dynamit Nobel Defence (DND), recently invited members of the press to present its solutions for vehicle protection as well as enhanced defence and breaching capabilities.

## Future Technologies

### US Army Partially Terminates Future Combat Systems Manned Ground Vehicle

The Department of the Army announced today that it will partially terminate the Manned Ground Vehicle (MGV) development effort under the Future Combat Systems (FCS) Brigade Combat Team (BCT) System Development and Demonstration (SDD) contract with the Boeing Company. The partial termination is for the convenience of the government.

The Army is taking this action to comply with both the Secretary of Defense’s recommendation to cancel the FCS BCT program as well as the June 23 FCS BCT acquisition decision memorandum. The Army issued a stop work order for MGV and Non-Line of Sight Cannon (NLOS-C) efforts on June 24, in preparation for the partial termination.

The termination of the MGV effort will also negatively impact the development of the NLOS-C, which remains under a stop work directive. The Army, in conjunction with the Department of Defense (DoD), is working with the Congress to determine a viable path forward for the NLOS-C related efforts.

In coordination with the DoD, the Army is conducting a 120-day requirements analysis for a new ground combat vehicle (GCV) program. Incorporating lessons learned and threats encountered from the wars in Iraq and Afghanistan, the Army will continue to leverage the work accomplished during the FCS MGV development efforts into the new GCV.

As the Army transitions to a holistic BCT modernization plan, the Boeing Company will continue to perform as a prime contractor on the Early-Infantry BCT (E-IBCT) spin out effort. The first increment of this plan (insertion of FCS technology to the E-IBCTs) will provide the Infantry Brigade Combat Teams an enhanced

The threat scenario which modern troops encounter today, whether in remote areas of the rough Afghan theatre, in urban skirmishes in Iraq, or by roadside bombs and ambushes, is very much different from more traditional military scenarios. However, today’s scenarios not only require adjusted defensive measures. Also offensive options have to be employed differently or configured in new ways.

Dynamit Nobel Defence, a subsidiary of Israel’s RAFAEL since 2004, is well-positioned to meet the troop’s requirements with both defensive, as well as offensive solutions. However, the press briefing first addressed the company’s reactive armour solution, called CLARA (Composite Lightweight Adaptable Reactive Armour). Further products that have been displayed include the famous family of “Panzerfaust” shoulder-launched anti-tank weapons as well as new developments in the range of recoilless grenade weapons (RGW) and remote controlled weapon stations (RCWS).

During the past year, Dynamit Nobel Defence has generated a turnover of approximately €50 million (US\$70.51 million) with overall orders valued at over €200 million. According to Dr. Wolfgang Bittger, CEO of Dynamit Nobel Defence, the company seeks to double the company’s turnover by entering new markets and expanding sales in Germany. So far, only 12 % of the turnover comes from orders in the domestic market, outlining DND’s strong export position.

#### CLARA low fragment reactive armour

Passive armour has reached its physical limits due to weight and the continuously advancing armour-piercing weapon technology (RPG-7 can penetrate steel plates thicker than 40 cm, which would be far too heavy for any vehicle type). Active armour can also counter only a limited range of threats, leaving a gap that has been closed by reactive armour. DND has joined the ranks of reactive armour producing companies with a special



solution called CLARA, which has now received a less inspired designation by German authorities, which by denomination limits its capabilities to counter hollow explosive charges. However, the company emphasises that the light and insensitive appliqué<sup>®</sup> armour protects armoured vehicles and its crews from various shaped charges and projectile forming explosive devices. According to company officials, it may also be further developed to use sensor technology in order to expand the range of threats it can counter, including tandem warheads. It also integrates a certain level of passive protection and can counter blast and EFP-type IEDs and ammunition up to a 12.7 calibre which hits the vehicle where the reactive armour has been applied.

One of the adverse effects of any active or reactive armour is fragmentation when the explosive device is countered. Over many years, DND has been developing a low fragment counter measure which is primarily based on the use of composite material (boxes and screws) as well as on a special insensitive low burning rate (LBR6) explosive agent (1.5D certified). The armour segments which protect the side and front of an armoured vehicle increase the vehicles width by some 35 cm on each side. The segments consist of two boxes placed on top of each other. The lower and heavier box (F1 element) weighs some 40 kg while the smaller box on top (F2 element) weighs approximately 20 kg. The average added weight of the system is 260 kg per square metre. The parts of the vehicle which cannot be equipped with CLARA may be protected by slat armour. The CLARA armour can be mounted by a single person. Yet, a team of persons can up-armour a vehicle within only 15 minutes.

Company officials say there is no alternative to reactive armour when it comes to shaped charges. Also, CLARA provides the advantage of low fragmentation. In Germany, among the countries to first seriously develop reactive armour solutions, the problem of fragmentation almost lead to a stalemate in development activities. As Dr. Wolfgang Bittger states, CLARA takes into account this particular “primal fear of the Bundeswehr” and has proven in various tests to provide a dramatic reduction of fragmentation.

#### **Certified for FENNEK, fit for other vehicles**

In cooperation with the German system provider of armoured wheeled and tracked vehicles, Krauss-Maffei Wegmann (KMW), DND has demonstrated the system's efficiency on the FENNEK light-armoured reconnaissance vehicle. Each side of the FENNEK has been equipped with some 720 kg of reactive armour plus an additional slat armour protection and the vehicle's own passive armour.

Tests showed that not only the fragmentation could be reduced, but also the protection of the vehicle crew had been substantially increased. Reportedly, the blast effect during the counter measure produces a slight shock, not more than a vehicle hitting a pothole. Even though the respective reactive armour box will be entirely destroyed when triggered, the adjacent segments will not be affected. If attacked by a common RPG-7 shaped charge, the reactive armour disintegrates the penetrating charge,

which subsequently leaves only slight dents on the vehicle's passive armour.

CLARA has already been officially certified for use on the FENNEK. The company now hopes to be awarded contracts for the equipment of future German Armed Forces' vehicles such as the PUMA infantry fighting vehicle (IFV) as well as for up-armouring vehicles of the existing Bundeswehr fleet as, for instance, DINGO, BOXER, FOX or LEOPARD II. According to Dr. Bittger, the greatest advantage of the system is that it is already available and certified. The PUMA IFV, which is scheduled to enter service in 2010, will quickly require an adequate protection which other German companies can reportedly not provide within this short time frame. Alternatively, the Bundeswehr would either have to purchase reactive armour abroad or wait (IBD Deisenroth is expected to complete a reactive armour solution around 2012/13). Furthermore, according to company officials, Singapore appears to be as keen as the German Armed Forces to be provided with a low fragment armour solution, which would allow a further push in DND's already strong export position.

#### **A new concept of recoilless grenade weapons**

Dynamit Novel Defence also presented a new development in recoilless grenade weapons (RGW), called “Wirkmittel 90”, which further increases the company's spectrum of shoulder-fired weapons. The system is based on the RGW 90 family, however, introduces an entirely new concept. The Wirkmittel 90 solution, which currently is being researched in cooperation with the Bundeswehr, will surpass the usually effective range of unguided shoulder-fired weapons of some 500 to 600 metres, by using the DND Dynarange firing mechanism to precisely target, for instance, light armoured vehicles, dismounted enemy soldiers or light structures at ranges up to 1,000 metres. The system is scheduled to be operational by 2014.

The grenade integrates a new programmable fuse that can be set to different modes, depending on the target. Hence, the warhead may detonate either straight on the target, above the target in mid-air or delayed for wall-breaching use. This has been accomplished by integrating a new weapons sight and a new fire-control computer in the reusable firing device. The barrel will be exchanged after the grenade has been launched. The already fielded RGW 90 has already proven its value in various tests due to its dual-mode warhead, providing a High Explosive Anti Tank (HEAT) round against armoured vehicles or a High Explosive Squash Head (HESH) round to penetrate walls, bunkers or other fortified emplacements.

Why not use guided anti-tank weapons for such high ranges? Even though it enters the spectrum of this technologically higher weapon class, the Wirkmittel 90 is lighter (at 10 kg it can be carried by one person, including a paratrooper), is less expensive (why use a costly guided missile on an un-armoured Jeep?), and offers various modes of application.

Thomas Meuter, Head of Public Relations, stresses

that the company's approach with the RGW-family and the Wirkmittel 90 is to provide different capabilities in one weapon. The company wants to increase the soldiers' capabilities beyond the traditional anti-tank mode of application. DND's shoulder-fired weapons family allows attacking lightly protected targets (e.g. enemy emplacements, light-armoured vehicles), armoured vehicles and bunkers. Its wall-breaching capability perfectly meets troop requirements in military operations in urban territory (MOU), especially because RGW's may be fired from within a rather small room as the blast to the rear is widely deflected to the sides. This allows soldiers to observe a target from a well-sheltered emplacement and quickly aim and fire without leaving cover for an extended time.

As Meuter explains, Dynamit Nobel Defence has identified a trend in the military which requires a precision strike capability with a light and flexible weapon against a variety of targets – lightly or heavily armoured – at distances exceeding 500 metres. The existing weapons of the RGW 90 family have already proven to be in demand: DND has sold the system to the Slovenian and the Singapore Armed Forces. Furthermore, the United Kingdom will soon be provided with the RGW 90 after an important tender was won, with the assistance of the Israeli parent company.

“With the help of an interface, it is technologically possible to adapt both, the Panzerfaust as well as the RGW 90, to any weapon station currently available in Germany. It may be added as a single-shot solution or as a multi-grenade launcher, for instance, with four or six integrated barrels. This provides the weapons station with an additional valuable capability,” stated Meuter. As the system can still be used in a dismounted shoulder-launched mode, it furthermore saves transport capacity within the vehicle.

It remains to be seen if the military will identify the same requirement for a weapon which closes the gap between light weapons and 20 mm calibre munitions and will, to a certain extent, be a worthwhile alternative to guided anti-tank weapons. In a next step, according to company officials, it may be worth considering an air-to-ground configuration carried by unmanned aerial systems.

2012.”



The order, signed on July 16, follows one placed by the DoD in May for 63 guns and a related small support contract for Hattiesburg.

BAE Systems' facility in Hattiesburg is responsible for final integration and test of the weapon system. The prime contract management of the M777 programme and manufacture and assembly of the complex titanium structures and associated recoil components are undertaken at Barrow-in-Furness in the United Kingdom.

Weighing in at less than 10,000 lbs. (4200kg), the revolutionary M777 is the world's first artillery weapon to make widespread use of titanium and aluminum alloys, resulting in a howitzer which is half the weight of conventional 155mm systems.

Both the U.S. and Canada operate M777s in Afghanistan, providing fire support to coalition forces. Its ability to be airlifted to remote positions by helicopter gives the system enormous operational flexibility and makes it ideal for a challenging environment like Afghanistan.

The M777 can fire the “smart” Excalibur round, co-developed by BAE Systems accurately enough to target individual rooms within a building, reducing the chance of innocent casualties and allowing supporting fire to be brought down much closer to friendly troops.

The M777 effort is managed by the Light Weight 155mm Joint Program Management Office at Picatinny Arsenal, New Jersey.

#### About BAE Systems:

BAE Systems is the premier global defence, security and aerospace company delivering a full range of products and services for air, land and naval forces, as well as advanced electronics, security, information technology solutions and customer support services. With approximately 105,000 employees worldwide, BAE Systems' sales exceeded BJ18.5 billion (US \$34.4 billion) in 2008.

### Contracts

#### U.S. Buys 62 More BAE Systems M777 Guns

BARROW, UK – The U.S. Department of Defense has ordered 62 more M777 howitzers from BAE Systems in a deal worth \$117 million (BJ71m).

Mike Smith, managing director at the company's Global Combat Systems business, comments: “The purchase of additional howitzers is further endorsement of the M777 and its performance in support of current coalition operations. It means another six month's work for our production facilities in Barrow and Hattiesburg, Mississippi taking manufacture on current sales well into

### Contracts

#### General Dynamics Awarded \$45 Million for Egyptian Abrams Tank-Related Work

STERLING HEIGHTS, Mich. -- The U.S. TACOM Lifecycle Management Command has awarded

General Dynamics Land Systems, a business unit of General Dynamics, a \$45 million contract for the Egyptian tank co-production program.



Work to be performed under the contract includes manufacturing technical assistance on M1A1 Abrams tanks at the Egyptian tank plant and supplying component equipment such as tools, gauges, fixtures and machines. This award is in support of the tenth increment of the Egyptian co-production program.

Since 1992, General Dynamics has provided components for kits used in the co-production program. The parts are shipped to a production facility near Cairo, Egypt, where the tanks are manufactured for the Egyptian Land Forces.

Work on the components will be performed in Sterling Heights, Mich., with completion estimated for December 2012.



### Defence Industry

## General Dynamics Awarded \$55 Million to Reset Stryker Vehicles

STERLING HEIGHTS, Mich. -- General Dynamics Land Systems, a business unit of General Dynamics, has been awarded a contract by the U.S. Army Tank Automotive Command (TACOM) to reset 330 Stryker infantry combat vehicles. The contract has a maximum potential value of \$55.2 million.

Through this contract, General Dynamics will service, repair and modify Stryker vehicles that are returning from Operation Iraqi Freedom, restoring them to a pre-combat, like-new condition in advance of reissuing the vehicles prior to their next deployment.

To date, General Dynamics has delivered 2,852 new vehicles for seven separate Stryker brigades to the Army. With more than six million miles accumulated through two completed Operation Iraqi Freedom rotations since October 2003, the Stryker vehicle has demonstrated a combined fleet operational-readiness rate of 96 percent.

The Stryker is an eight-wheeled vehicle, which is lighter, smaller and more readily deployable than other Army combat vehicles and can travel at speeds up to 62 mph on roads with a range of 312 miles. There are 10 configurations of the Stryker: Infantry Carrier Vehicle; Anti-tank Guided Missile; Mobile Gun System; Mortar Carrier; Command Vehicle; Reconnaissance Vehicle; Engineer Squad Vehicle; Medical Evacuation Vehicle; Fire Support Vehicle; and Nuclear, Biological, Chemical and Reconnaissance. The variants have 85 percent parts commonality, which simplifies logistics. Strykers operate

with the latest electronic equipment and an integrated armor package to protect soldiers against improvised explosive devices, rocket propelled grenades and a variety of infantry weapons.



### Defence Industry

## Textron Marine & Land Systems Awarded New ASV Contract from U.S. Army



NEW ORLEANS -- Textron Marine & Land Systems, an operating unit of Textron Systems, a Textron Inc. company, today announced the signing of a new letter contract for the Armored Security Vehicle (ASV) with the U.S. Army Tank-automotive and Armaments Command (TACOM).

The contract includes a base order of an additional 191 M1117 ASVs and 38 M1200 Armored Knight vehicles, as well as field support and special sustainment tools. Delivery is expected to commence February 2010 and, should all options of the contract be exercised, could continue into 2013.

The contract totals approximately \$200 million, of which \$99 million is currently funded. Textron Marine & Land Systems has delivered a total of 2,153 ASVs to the U.S. Army to-date.

“This new contract is a continuing testament to the capability of the ASV and the people here at Textron Marine & Land Systems that dedicate themselves to building this highly mobile and survivable vehicle,” said Textron Marine & Land Systems General Manager Tom Walmsley. “The ASV has been outstanding in protecting our troops in military operations around the world, has demonstrated an excellent readiness rate, and has a proven maintenance record in some of the most difficult combat situations in the world. We’re proud of the mission success of the ASV, but what is most important is returning our soldiers homes safely when their combat service is complete.”

The ASV is a 4X4 wheeled armored vehicle that offers significant crew protection through the employment of multiple layers of armor, defending against small arms fire, artillery projectile fragments, Improvised Explosive Devices (IEDs) and land mines. The ASV possesses superior mobility, agility, handling and ride quality through the utilization of a four-wheel independent suspension system.

The ASV has maintained exceptional operational readiness and combat availability rates over the life of the U.S. Army program as vehicles log more than 30,000 miles per year in combat operations. Textron Marine &

Land Systems has achieved more than 46 consecutive months of on-time delivery to the U.S. Army on the ASV program.

The ASV family of vehicles performs a wide variety of missions including scout, infantry personnel carrier, reconnaissance, command and control and recovery. U.S. Army ASV missions include operations with the Military Police, convoy protection, perimeter security, as well as Field Artillery Combat Observation and Lasing Teams (COLT) with the M1200 ASV configuration.

Textron Systems Corporation has been providing innovative solutions to the defense, homeland security and aerospace communities for more than 50 years. Textron Systems Corporation is an indirect wholly owned subsidiary of Textron Inc.



### Exhibitions

#### International Armoured Vehicles' first speakers announced...

LONDON, UK -- International Armoured Vehicles, Defence IQ's flagship event for the armoured vehicle community, will take place on the 1st to the 5th February, at the ExCel Centre, London.

A central date in the defence calendar, it attracts international military and industry decision makers – the 2009 event earlier this year saw attendance from over 530 delegates from 41 different nations.

Speakers confirmed to speak in February 2010 include:

- General Peter Chiarelli, Vice Chief of Staff, United States Army
- Lieutenant General Andrew Leslie, Chief of Land Staff, Canadian DND
- Lieutenant General Antonio Gucciardino, General Manager of the Procurement Agency for Land Systems, Italian Army
- Mr. John B. Johns, Assistant Deputy Under Secretary of Defence for Maintenance, US Department of Defense
- Major General Chris Deverell MBE, Director General Logistics Support and Equipment, HQ Land Forces, British Army
- Major General Chris Wilson CBE, Director (Battlespace Manoeuvre), UK MoD
- Right Honourable James Arbuthnot, Chairman of the Defence Select Committee, House of Commons, UK Parliament
- Right Honourable Gerald Howarth, Shadow Defence Minister, UK Parliament

The 2010 armoured vehicle symposium is expanding with a larger exhibition area, so that visitors can touch, feel and experience first hand the products and displays from exhibitors such as Hutchinson, Du Pont, Iveco, Kongsberg, IBD Deisenroth Engineering, Plasan and Saab. Fabrice Parodi, Sales Manager, 01db Metravib commented that “this is a very good opportunity for us to make a lot of contacts with the end users who express their requirements with possible partners in the industry”.

The event provides an opportunity for key stakeholders to meet each other, as well as discuss and

attend sessions that examine the latest technologies, future capability requirements, international programme developments, the rapid acquisition, delivery and support of armoured vehicles and international upgrade and life extension programmes. Lieutenant Colonel Greg Burton, Canadian DND commented that “the conference is a good opportunity to share procurement experience, to confirm requirements with allies and industry, and a good opportunity to network and get to know the professionals in the field”.

Participating organisations at International Armoured Vehicles also utilise the opportunity of direct communication with the global armoured vehicle community, in order to gain feedback and insights to further product development.

Visit for further details about the conference.

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#### About Defence IQ:

Since 2001 Defence IQ has been helping deliver critical information to senior decision makers in the defence, aerospace and technology sectors, tackling issues relating to the latest defence plans, requirements, programmes and technologies and how they affect you. Defence IQ provides senior military, government and industry representatives with informative conferences in an informal environment, discussing the very latest plans, requirements, programmes and technologies.



### Defence Industry

#### Force Protection Awarded Order from U.S. Army for 48 Additional Buffalo Route Clearance Vehicles



LADSON, S.C. -- Force Protection, Inc., a leading designer, developer and manufacturer of survivability solutions and provider of total life cycle support for those products, today announced that it has received a modification to contract W56HZV-08-C-0028 from the United States Army Tank- automotive and Armaments Command (TACOM) for approximately \$52.8 million for 48 Buffalo Mine Protected Clearance Vehicles (MPCV).

This contract modification is subject to definitization.

The work will be performed in Ladson, SC and is expected to be completed prior to January 31, 2010. As a result of this award and a continued commitment to the Buffalo program, Force Protection on July 27th, 2009 amended and extended its lease for building 3 at its Ladson, SC facility until June 30, 2014.

Michael Moody, Chief Executive Officer of Force Protection, commented, "This order from TACOM is representative of the ongoing demand and requirements for the Buffalo as an integral component of the United States Army's route clearance companies for the long term. The extension of our lease for the Buffalo manufacturing facility is an indication of our commitment to meeting the current and future requirements for Buffalo and its vital mission."

## Robots

### QinetiQ robots deal should help cut transport delays



Following a successful series of trials, QinetiQ is now working alongside key government partners to deliver a robot based service that is being used to help fight fires and support other major incidents – particularly if acetylene gas cylinders are involved which can become highly unstable – thereby protecting fire fighters plus helping minimise disruption to travellers by reducing resulting delays on major transport systems in and around London.

This initiative is funded jointly by Network Rail, the Highways Agency and Transport for London, in collaboration with the London Fire Brigade. The two year contract currently covers incidents within Greater London and surrounding counties but national coverage is possible with additional funding and extended call out times.

If acetylene gas cylinders are thought to be involved in a fire, the London Fire Brigade and others can request QinetiQ attend and deploy a range of remotely operated vehicles (ROVs) with all-terrain capabilities. These can then enter environments that could be potentially unsafe for fire fighters. Their cameras can identify whether any acetylene cylinders are present and, using thermal imaging, can gauge whether the cylinders are sufficiently cool for the Brigade to safely approach and remove them. The ROVs can also be used to gain access to premises and vehicles, target cooling onto cylinders, move debris and other items, or assess other potential risks.

Standard Fire & Rescue Service procedure is to

impose an initial hazard zone of 200m for up to 24 hours if acetylene gas cylinders are present and have been involved in fire – which causes enormous disruption to transportation routes and local communities who have to be evacuated. This is because the risk of explosion following heating can remain long after the fire is extinguished and even after extensive cooling has been applied. Recent experience during the operational trials have shown that when QinetiQ's robots are used at incidents, hazard zone restrictions can, on some occasions be reduced in as little as two hours from the time that they are in attendance.

"When fires break out near the railway they are often in circumstances where there is a suspicion that acetylene gas cylinders may be involved," explained Simon Christoforato, QinetiQ's business group manager for robotic systems. "In recent years there have been an increasing number of rail line-side fires and acetylene incidents across London, each causing massive disruption to passengers. During the 2008 trials QinetiQ responded to a total of 17 incidents and helped reduce the average period for the hazard zone to be in place from over 19 hours to less than three and has so far responded to more than 10 incidents under this contract in 2009."

Assistant Commissioner for Operational Policy at London Fire Brigade, Jon Webb says the QinetiQ trial had played a key role in the Brigade's successful efforts to reduce the impact of acetylene cylinder fires in the capital. "The successful trial of the ROVs, the improved provision of technical advice on the incident ground, together with a process of raising awareness and reinforcing understanding of the operational procedures to be applied at cylinder incidents have all been integral to the overall reduction in the average time that hazard zones are in place. In London we have also seen a reduction in the number of acetylene cylinder incidents overall thanks to our on-going campaign with local authorities to ensure the safe use, signage and storage of acetylene cylinders and to create a greater awareness of the dangers they bring when they are involved in a fire."

Robin Gisby, Network Rail's Director of Operations and Customer Service added the use of ROVs was good news for train users: "Anything we can do to reduce travel delays for passengers is high on our list of priorities but so is overall safety. The deployment of the ROVs will give us more options for faster resolution of incidents and hopefully lead to less disruption to train services."

The Highways Agency is also carrying out a study that could see QinetiQ's remotely operated vehicles modified for easier vehicle entry and potential use at a number of roadside incidents.

"All our efforts are designed to ensure that travellers are informed and can reliably make journeys on safe roads," stated Mark Clark, responsible for Incident Management at The Highways Agency. "Roads are regularly affected by major incidents so anything we can do to deal with the problems and reduce delays for commuters is a good thing. We are working with QinetiQ to develop the robotic solution to meet our national needs

going forward.”

"Hazard zones are necessary to deal with fires and other major incidents and can have a major knock-on effect on the road, bus and tube network causing disruption for motorists and our passengers," concluded Richard Stephenson, Transport for London Director of Group Health, Safety and Environment. "Trials suggest this new equipment could have a real impact on cutting the length of time hazard zones are in place, while maintaining the safety of the emergency services and the travelling public."

QinetiQ's remotely operated vehicles are extensively used in Iraq and Afghanistan to combat improvised explosive devices and deal with roadside bombs but they are also ideal for a range of other dirty and dangerous tasks including dealing with hazardous materials and Chemical, Biological, Radiological and Nuclear (CRBN) incidents.

### **Background:**

QinetiQ's response team can be called upon 24/7 and its special response vehicle, containing the three different ROVs with operators, will be dispatched. On arriving at the incident they immediately come under the command of the senior fire officer present who determines how and when they are deployed.

The three specialised vehicle types comprise: Talon, a small, highly manoeuvrable tracked vehicle, extensively used in Iraq for bomb disposal, that's equipped with a video and thermal image cameras; Black Max which is similar in size and appearance to a quad bike which again has a video camera but also provides a remote high pressure hose and water delivery capability; and the Brokk 90, a heavier duty mini-digger based vehicle designed to remove debris and gain access to vehicles or structures and therefore any cylinders.

In addition to this programme London Fire Brigade is calling for improved control over the safe use, signage and storage of acetylene gas cylinders; and a greater awareness of the dangers when the cylinders are involved in fires and other incidents.

Typically the closure of a rail line can cost the network operator tens of thousands of pounds each hour the service is not operating in lost revenue and fines. The closure of other key transport routes or commercial facilities can equally mean significant losses in income and provision of services for the companies involved.

production is to be completed by April 2010.

The order includes the remanufacturing of almost 50 M1070 Heavy Equipment Transporters (HET), 50 Palletized Load Systems (PLS) and more than 20 PLS Trailers (PLST). The PLS configurations produced under the delivery order include the M1074 and M1075.

Through Oshkosh's remanufacturing and recapitalization services, heavily used vehicles are returned to Oshkosh, stripped to their frame rails and completely rebuilt to like-new condition. Vehicles are considered to have zero miles and zero hours, at no more than 75 percent the cost of a new vehicle. Vehicles are put through the same road tests, performance tests and inspection procedures as new vehicles before being delivered with a standard bumper-to-bumper warranty.

The Oshkosh HET is designed to rapidly transport battle tanks, fighting and recovery vehicles, armored vehicles and construction equipment, as well as a six-person crew, so the vehicles and soldiers arrive in mission-ready condition.

Built to load and unload a variety of cargo, the PLS is designed to meet the U.S. Army's distribution and resupply needs in even the most challenging military missions. The PLS truck and trailer form a self-contained system that reduces the need for forklifts or other material-handling equipment, and they both carry a demountable cargo bed, also known as a flatrack, that features a 16.5-ton payload capacity.

Both vehicles are a part of the Family of Heavy Tactical Vehicles (FHTV), which also includes the Heavy Expanded Mobility Tactical Truck (HEMTT). Oshkosh Defense has produced and delivered more than 30,000 HET, PLS and HEMTT vehicles under the FHTV contracts, and it was the first manufacturer to supply the Army with Long Term Armor Strategy (LTAS)-compliant cabs.

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## **Contracts**

### **Oshkosh Defense Awarded \$21 Million Delivery Order to Rebuild U.S. Army Family of Heavy Tactical Vehicles**

OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, has received a delivery order from the U.S. Army Tank-automotive and Armaments Command Life Cycle Management Command (TACOM LCMC) to supply more than 100 remanufactured vehicles and trailers.

The delivery order is valued at \$21 million and