

# Army Guide monthly



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## Training And Simulators

### Swiss Army Takes Delivery of New Gunnery, Combat and Tactical Simulators



Rheinmetall Defence's Simulation and Training division has just supplied the Swiss Army with several state-of-the-art gunnery, combat and tactical simulators.

The Swiss Army's Mechanized Training Centre in Thun now features a number of extremely advanced training systems in one of the world's largest simulation facilities. These include the ELSA Spz2000, an electronic gunnery training system for Switzerland's Schutzenpanzer 2000 IFV; a "Schliesskommandant" (SKdt) gunnery commander system; and an ELSA Leo II WE electronic gunnery training system for the Swiss Army's Panzer 87 Leopard WE. Likewise on behalf of Switzerland's Armasuisse procurement agency, Rheinmetall Defence simultaneously transferred the enhanced, regenerated ELTAM electronic tactical simulator for mechanized formations in development stages E1-E4 to the Swiss Army, right on schedule.

The Swiss Army is now able to employ these virtual reality systems for training operations ranging from individual tank gunnery to full-scale tactical exercises at battalion staff level.

The principal challenge in implementing this project was the complexity of the simulator network. Controlling a network consisting of over 900 computers with a simulation-specific software volume of some 17 million programming lines, 348 projectors and 616 visualization system channels constitutes a tremendous technological and logistical feat. As a result, Thun now plays host to the largest simulator network ever created by Rheinmetall Defence.

Training takes place in 35 highly realistic replica vehicles, each equipped with a 360° external view projection. Combat operations are conducted on a virtual battlefield measuring 1,666 km<sup>2</sup> and featuring 460 built-up areas, some 9,000 kilometres of road as well as fields, forests and rivers. Models of all standard military aircraft and ground vehicles enable trainers to generate a multitude of tactical scenarios, while a variety of optical and acoustic effects add authenticity to the training experience in every situation.

With ELTAM the focus is on tactical training for leaders in battalion-level formations. Besides mechanized infantry, armour and artillery, scenarios can include logistical elements and medical support. This

way, training takes account of the delaying influence of logistical processes.

Using replica radios, voice radio networks in the communication systems are configured to match specific combat scenarios. Furthermore, the simulator can be linked with the actual INTAFF artillery command and control system.

The successful integration of these highly sophisticated gunnery, combat and tactical simulators into the Mechanized Training Centre in Thun underscores once again the globally leading position held by Rheinmetall Defence's Simulation and Training division. With a wide array of applications for ground, air and naval forces, Rheinmetall solutions enable in-depth, realistic training, making the company a reliable and trusted partner of the armed forces of nations around the world.



## Contracts

### General Dynamics Awarded \$25 Million by U.S. Army to Produce MK47 Weapon Systems



CHARLOTTE, N.C. -- General Dynamics Armament and Technical Products has been awarded a \$24.9 million contract by the U.S. Army to produce MK47 advanced lightweight grenade launcher (ALGL) systems.

The contract supports a foreign military sale and is a firm fixed price award for 130 MK47 systems that each include the lightweight video sight systems, spare parts and technical support. Deliveries are scheduled to begin in January 2012 and be completed by August 2012. General Dynamics Armament and Technical Products is a business unit of General Dynamics.

The TACOM Contracting Center (TCC) in Rock Island, Ill., awarded the contract in July. Program management will be conducted in Burlington, Vt., with production occurring at General Dynamics' Saco, Maine, facility. Work will be completed by the company's existing workforce.

"The MK47 is a reliable, portable 40mm grenade weapon system suited for mobile, tactical combat infantry units, particularly against soft and lightly-armored targets," said Mike O'Brien, vice president and general manager of gun systems for General Dynamics Armament and Technical Products.

"The MK47 has been demonstrated in combat to be a one-shot, one-kill weapon system."

The MK47, also known as the STRIKER(40), is an ALGL capable of firing air bursting munitions. General Dynamics is partnered with Raytheon to build the lightweight video system fire control, which assists in the detection, recognition and first-round engagement of target threats.



### Contracts

#### ITT awarded JTRS software support contract

FORT WAYNE, Ind. -- ITT Corporation announced today that it has been awarded a contract by the Joint Program Executive Office for the Joint Tactical Radio System (JPEO JTRS) valued at up to \$49.5 million.

The indefinite delivery, indefinite quantity contract provides Software In-Service Support (SWISS), which includes technical support, enhancements, maintenance and upgrades, for the JTRS Bowman Waveform (JBW).

The JBW provides U.S. JTRS software-defined radios with a waveform that is interoperable with the United Kingdom's Bowman Waveform, supporting secure, networked voice and data for combined operations on the battlefield.

"ITT has been an industry leader in working with the JPEO JTRS International Program to create communications interoperability between the United States and its allies to support mission success and safety," said Chris Bernhardt, president of ITT's electronic systems business.

The contract covers a five-year period with work being completed by ITT's electronic systems business in both Fort Wayne, Ind., and Clifton, N.J. The first task order to be awarded from this contract will provide for the delivery of JBW software that meets the JTRS Information Security Criteria.

"As a world leader in the development of tactical networked waveforms, ITT is a natural fit to be the provider of support for the JBW SWISS program during this time of transition to much more capable waveforms for our forces," said Ken Peterman, president of ITT's communications systems business.

ITT Electronic Systems is a leading supplier of information and electronic warfare (EW) technologies, systems and services that enable mission success and survivability. Key technologies include integrated EW systems for a variety of aircraft, reconnaissance and surveillance systems for air- and sea-based applications, force protection and counter-IED systems, precision landing and air traffic systems for military applications, and under sea systems encompassing mine defense, naval command and sonar systems, and acoustic sensors. In addition, ITT Electronic Systems produces aircraft armament suspension and release equipment, electronic weapons interface systems, and advanced composite structures and subsystems.



### Contracts

#### Elbit Systems Awarded Asian Tank Upgrade Contract Valued at Approximately \$56 Million

Haifa, Israel -- Elbit Systems Ltd. announced today that it was awarded an approximately \$56 million tank upgrade contract from a customer in Asia.

Under the contract, the tank upgrade project will include the installation of advanced battle management systems, as well as cutting edge observation and surveillance systems. The project will be completed within two years.

Joseph Ackerman, Elbit Systems' President and CEO, noted: "Our selection for this upgrade project, following previous projects we have carried out for this customer, attests to the high level of satisfaction with our systems and performance." Ackerman added that both Elbit Systems subsidiaries Elbit Systems Land & C4I – Tadiran and Elbit Systems Electro-optics – Elop will take part in the project, and the successful synergy among Elbit Systems' different units enables the Company to offer its customers cutting edge, end-to-end solutions.



### Contracts

#### AFRL Awards \$13M Software Security Contract to GrammaTech

ITHACA, NY -- GrammaTech, Inc., a leading manufacturer of software-analysis tools, today announced it has been awarded a multi-year, \$12.9M contract focused on improving software security.

GrammaTech will lead the development and demonstration effort, working with subcontractors Raytheon Company, the University of Virginia School of Engineering and Applied Science, and the Georgia Institute of Technology; this team brings together world-class expertise in software analysis, security, and development. The effort is part of the Securely Taking On New Executable Software of Uncertain Provenance (STONESOUP) program, an initiative of the Intelligence Advanced Research Projects Activity (IARPA) Office of Safe and Secure Operations and administered by the Air Force Research Lab (AFRL).

STONESOUP seeks to address a key problem in today's world: How can we use software securely if we do not know how or by whom the software was created, or where its component parts originated? Software is produced around the world; component parts come from many different places and are integrated into larger systems. The production of software increasingly involves contract software engineers and off-shore suppliers because it is often prohibitively expensive to generate a major system completely in-house. Accordingly, security-conscious users require ways to assure that the software they utilize performs no malicious actions. GrammaTech, Raytheon, the University of Virginia, and the Georgia Institute of

Technology will combine state-of-the-art technologies that together will make a significant contribution to solving this problem.

According to Tim Teitelbaum, GrammaTech's co-founder and CEO, "Application software is rarely subject to rigorous analysis; this lack of quality control is complicated by the fact that software producers can issue updates and fixes at a rate faster than present processes can evaluate their effects. In concert with our partners, we intend to advance automated techniques for software analysis, to combine them with methods for confining software execution so that known weaknesses cannot be exploited, to diversify software components so that residual vulnerabilities will be more difficult for attackers to discover or exploit, and to remediate software components with automatically-generated and evaluated software patches."

#### **Development and Demonstration Efforts**

GrammaTech will apply its deep expertise in source and machine code analysis to discover and remediate software problems through static analysis and automated, high-coverage testing. GrammaTech will provide both program-analysis technology and research expertise. GrammaTech's Dr. David Melski, an expert in static and run-time analysis, will be the principal investigator for this effort.

Researchers at the University of Virginia School of Engineering and Applied Science (led by Professors Jack Davidson and John Knight) will contribute expertise in translation of running software and runtime detection of memory errors, as evident in their Strata and MEDS tools; these technologies monitor running programs. Researchers at the Georgia Institute of Technology (led by Professor Wenke Lee) will build on their Secure In-VM Monitoring technology, which both reduces a program's vulnerability to attack and confines the effects of software exploits. A group at Raytheon Company (led by Tom Bracewell) will provide large-scale integration capability and apply the integrated system to real-world applications.

The IARPA-sponsored project is an example of GrammaTech's growing success in applying its core technologies in program analysis of both source and machine code to improve safety, security, and robustness of desktop and embedded software.

#### **About GrammaTech**

GrammaTech's static-analysis tools are used worldwide by startups, Fortune 500 companies, educational institutions, and government agencies. The staff includes twelve PhDs working on automated program analysis.



the field by Christmas.



The Army's Program Executive Office Soldier recently awarded Remington Arms Company a contract for the M24 Reconfigured Sniper Weapon System.

The award will result in the near-term fielding of 250 XM2010 weapon systems, which will be chambered for .300 Winchester Magnum cartridges. The new chambering significantly extends the weapon's maximum effective range. It's expected the Army will field the upgraded weapons to deployed Army snipers by the end of December.

"Within the space of a year, we were able to partner with industry to deliver a new capability for our snipers in combat," said Lt. Col. Chris Lehner, the product manager for individual weapons, part of PEO Soldier. "The upgraded weapon system provides extended range for our snipers and incorporates the latest in weapons technology."

The upgraded weapon features a five-round box magazine to make the system easier to load and reload, with the additional option to change out ammunition quickly. The system is also equipped with a rail-endowed chassis and free floating barrel that allows for easier mounting of weapon accessories and greater accuracy.

Locked on to that new rail, the XM2010 sports a Leupold Mark 4 6.5-20x50mm extended range/tactical riflescope with advanced scalable ranging and targeting reticle. The system is also fielded with the AN/PVS-29 clip-on sniper night sight. And the system's included quick-attach suppressor reduces audible and visible signature with an available thermal sleeve that reduces the mirage effect on heated suppressors.

After a full and open competition, the Army awarded the firm fixed-price, indefinite-delivery/indefinite-quantity contract for the upgrade of up to 3,600 M24 systems.

"The XM2010 had pinpoint precision," said Sgt. 1st Class Robert Roof, the chief instructor at the United States Army Sniper School. "We were able to achieve shots well within the weapon's capabilities both during limited visibility and during the day. The optics were clear and easy to use and the ergonomics of the weapon made it very comfortable to shoot."

The M24 upgrade initiative is the result of an Army-directed requirement to provide snipers operating in Afghanistan with a greater capability to engage the enemy. It is expected that the XM2010s will provide at least 10 years of service, officials said, adding it should serve as a precursor to future sniper systems.



### **Contracts**

## **US Army Awards Contract for Upgraded Sniper Weapon System**

Picatinny Arsenal, N.J. - A recently awarded weapons contract means Army snipers can expect to see an improved rifle, with an extended range, in

**Contracts**

**ManTech to Operate Advanced ISR, Battle Command and Force Protection Systems in Iraq**

Fairfax, Va. -- ManTech International Corporation, a leading provider of innovative technologies and solutions for mission-critical national security programs, announced today that it has received a task order under its Strategic Services Sourcing (S3) prime contract to provide Base Expeditionary Target Surveillance Systems-Combined (BETSS-C) operators in Iraq.

The multiple-award task order, in support of the U.S. Army's Project Manager Night Vision/Reconnaissance, Surveillance and Target Acquisition (PM NV/RSTA), has an initial period of performance of 12 months and two optional six-month extensions. The expected value to ManTech is \$70 million if all contract options are exercised.

Under the contract, ManTech will provide BETSS-C operators and related administrative, managerial, logistics and business services necessary to support their deployment to Iraq.

BETSS-C enhances perimeter surveillance, battle command and force protection at joint security stations, forward-operating bases and combat outposts throughout Iraq. The system provides commanders with a digital map display of video, images and other information from ground sensors, pan-tilt-zoom cameras, mid- and long-range electro-optical/infrared sensors and radar mounted on towers, aerostats and other unmanned airborne vehicles.

"ManTech's superior communications and electronics expertise, coupled with our extensive in-theater operations support experience will be a valuable asset to the BETSS-C program," said Louis M. Addeo, president and chief operating officer of ManTech's Technical Services Group. "We are proud to continue our support of the U.S. and coalition mission in Iraq."



**GCV Must Be Safe, Affordable, Full-Spectrum Capable**



Washington -- The Army's next combat vehicle must perform through the full spectrum of Army operations, be designed to protect itself and the Soldier, and be built with a budget in mind.

Nearly 300 attendees gathered at an industry day Oct.

1 in Detroit to discuss the acquisition strategy for the Army's Ground Combat Vehicle. During that time, Army officials explained their vision of the GCV program and gave industry insight into what they can expect with the release of the request for proposal that will kick off the development of the new vehicle.

After the Manned Ground Vehicle component was cut from the Army's Future Combat Systems program in June 2009, the Army moved quickly to develop a new vehicle -- the Ground Combat Vehicle. The program released an RFP -- an invitation to industry to come forward with offers to develop the vehicle -- in February 2010. But that RFP was ultimately cancelled in August.

Army officials said they expected a new RFP would be released within 60 days of the August cancellation -- that places the release of the new RFP in November. Program managers say they expect that release date is still doable.

"We're still aiming for that," said Col. Andrew DiMarco, project manager for the GCV, during a telephone conference with media following the industry day. "But the caveat for that is -- what I don't want to do is to put something out on the street that isn't quite right."

While the GCV program is expected to eventually produce multiple vehicles with varying capabilities, the focus for the first block of GCV development is an infantry combat vehicle, said DiMarco.

"With the incremental approach to GCV capability, our increment or block, if you will, is focused on the infantry fighting vehicle," he said. "There may be other variants that are identified from a requirements perspective, and there may be other capabilities that emerge over time... our focus right now is on one GCV, and that is the infantry fighting vehicle."

Michael N. Smith, director of the Army Maneuver Center of Excellence, said the Army emphasized the importance of the infantry fighting vehicle to potential GCV contractors during the industry day.

"The requirement is that we need an infantry fighting vehicle that can deliver a squad to the battlefield, in an improvised-explosive-device environment -- realistically in an environment of anywhere along the continuum of operations under Army," Smith said.

Smith also said the Army already has "solutions" that can operate in an IED environment, but that those cannot operate across the full spectrum of operations the Army may be called on to operate in.

"So GCV ... as a platform, is designed to allow us to address ... that spectrum of operations, spectrum of conflict, while moving that squad to where it needs to be," Smith said.

He went on to say that Army leadership developed four imperatives for the GCV, and emphasized those to industry representatives. Those include capacity, force protection, full-spectrum operations and timing. Four imperatives, he said, which are "non-negotiables" with regard to GCV development.

Capacity, he said, means "a requirement to deliver the entire infantry squad on a single platform." The force-protection requirement is separate from vehicle

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survivability, he said, but rather is about ensuring safety for Soldiers.

"It's a force-protection requirement that links to ensuring that the infantry squad is in fact delivered and is not taken out because the vehicle does not have the requisite protection to ensure the squad members and the crew of the vehicle are able to accomplish their mission," Smith said.

"Full-spectrum operations" means the vehicle must be able to perform missions that include both offensive and defensive operations, as well as stability operations.

"From an operational perspective, (that) means I have to have modular and scalable capabilities," he said. Smith added that the vehicle must include "a whole suite of things to allow me to adapt the platform to accomplish the mission in a wide variety of environments and terrain sets."

Timing, Smith said, means ensuring the vehicle is developed in time to ensure the end product is still valid for the mission.

"If we take too long to develop something, then by the time we have the optimized solution, the environment has changed so significantly that that solution is no longer useful," he said.

Cost is another significant element in GCV development and will play a key role in the RFP when it is released.

"Our intent for this RFP is to give them a target range and to use that as part of assessing their proposals and making a determination -- among other factors, certainly -- who ultimately will be selected," DiMarco said.

The colonel said a specific price range for manufacture would be specified in the RFP, though he was unable to say what that range would be.

DiMarco also said the RFP would focus more on vehicle performance, rather than technology, allowing industry more flexibility to develop their own solutions for meeting the Army's needs. But to help with that, he said, the Army will again make available to industry research that was done in development of the MGCV, formally part of FCS.

"We provided industry with access to I think what we called the 'MGV body of knowledge,'" he said. "That was a compilation of information about things that we did under the FCS MGCV program. I believe it's still our intent to provide that body of knowledge to industry again."

## Defence Industry

### U.S. Army Orders Next-Generation Heavy Hauler from Oshkosh Defense

OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, has been awarded its first production order for the newest configuration of the Heavy Equipment Transporter (HET) from the U.S. Army. The Oshkosh® HET A1 features design improvements to provide a more powerful vehicle fleet.

It is a part of the Army's Family of Heavy Tactical

Vehicles (FHTV), produced by Oshkosh Defense, which also includes the Heavy Expanded Mobility Tactical Truck (HEMTT) A4 and the Palletized Load System (PLS) A1.



"The production of the HET A1 marks the completion of a series of enhancements made to the Army's heavy fleet," said Mike Ivy, vice president and general manager of Army Programs for Oshkosh Defense. "By listening to our customer's needs, Oshkosh engineers integrated new technologies in the upgraded HEMTT A4, PLS A1 and now the HET A1 that improve their operational capabilities and survivability."

The Oshkosh HET, often paired with the M1000 heavy-duty trailer, 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, electrical upgrades, improved diagnostics and air conditioning standard.

This delivery order is for more than 1,000 vehicles and is valued at nearly \$440 million. Production will take place in Oshkosh, and is scheduled for completion in June 2012.

## Contracts

### BAE Systems Receives \$7 Million Order to Armor Military Trucks

CINCINNATI, Ohio -- BAE Systems announced today that it has received a \$7 million order from Daimler Trucks North America (DTNA) to produce armor kits for M915A5 military line haul tractors.

U.S. Army and reserve units often use M915 series line haul tractors to transport needed troop supplies from ocean ports to division support areas within a theatre of operation. Working with DTNA, BAE Systems developed an armor package for the M915A5 model, consisting of both an A-kit and B-kit.

This order is for 380 A-kits, which includes a reinforced armored cab and chassis engineered to provide additional protection to soldiers inside the vehicle, as well as support the added weight of supplemental armor panels.

"This work shows how BAE Systems, as a leading

designer, developer and producer of survivability systems, is able to leverage its expertise and work with original equipment manufacturers such as Daimler Trucks North America to produce armored vehicles that are protecting U.S. troops serving in Afghanistan and Iraq," said Don Dutton, Vice President of BAE Systems' Platform Survivability business.

BAE Systems received an initial \$32 million contract for M915A5 A-kits from DTNA in September 2009.

The company also produces B-kits for M915A5 trucks as determined and requested by the U.S. Army. The B-kit consists of field installed, customizable and removable armor panels which interface with the A-kit to provide maximum protection to the crew.

BAE Systems' Cincinnati-based Platform Survivability business is a leading provider of protection, security and survivability systems. It is a technology leader in lightweight materials, including composites, ceramic and transparent armor technologies, integrated vehicle armor systems, vehicle and aircraft survivability components and accessories. With the company's focus on the men and women who serve in the armed forces, it prioritizes the design, development and production of leading edge survivability products, through the integration of advanced materials into manufacturing, rigorous product testing, and field trials.

wide variety of interchangeable payloads that enable a wide variety of missions. 510 PackBot can be reconfigured quickly, based on the needs of the mission and the operator's preferences. iRobot Aware(R) 2 software also allows for the implementation of assistive autonomous operations, reducing operator workload and providing increased situational awareness.

"We are pleased to be providing these important software upgrades and spares to the Army," said Robert Moses, president of iRobot's Government and Industrial Robots division. "This will allow a more standardized fleet of robots that can accept additional upgrades in the future as new payloads are developed and autonomous capabilities increase. The order also ensures that these robots are properly maintained and ready to be deployed on the battlefield where they are saving lives every day."



## Defence Industry

### Paramount unveils Mbombe IED-protected armoured vehicle



The Paramount Group has unveiled what it says is one of the world's best IED-protected armoured vehicles (MPVs) at Africa Aerospace & Defence (AAD) in Cape Town.

Group executive chairman Ivor Ichikowitz dropped the drapes on Mbombe, a 6x6 infantry combat vehicle yesterday.

Ichikowitz says Mbombe is "a brand new armoured vehicle of innovative design offering better protection against IEDs (improvised explosive devices) than many vehicles currently used by NATO forces in Afghanistan. Mbombe is the first clean-sheet design for protection against both IEDs and mines (it defeats 50kg of TNT at five meters) and is destined to become a world-leader in its class."

The Mbombe "is a high mobility six-wheeled infantry fighting vehicle (IFV) with a mine-resistant honeycomb flat hull (rather than the traditional v-shape). This gives it a lower profile than typical MRAP vehicles, a solution which has been sought for many years," a Paramount news release adds. Easily adapted to a wide variety of operational roles, Mbombe offers STANAG Level 4 ballistic, mine and artillery protection as standard – "the first vehicle of its type to achieve this – with a design that has harnessed smart technology to reduce height", the statement further avers.

Ichikowitz continues that "(n)amed after a famed

## Contracts

### iRobot Announces \$14 M Order from US Army



Bedford, Mass. -- iRobot Corp., a leader in delivering robotic technology-based solutions, today announced that it has received a \$14 million order from the U.S. Army TACOM Contracting Center in Warren, Mich.

The order calls for the delivery of iRobot Aware(R) 2 robot intelligence software and spare parts for iRobot PackBot tactical mobile robots. This order will allow the Army to upgrade its existing iRobot 510 FasTac fleet to the iRobot 510 PackBot multi-mission robot.

This is the 20th order under the \$286 million Indefinite Delivery/Indefinite Quantity (IDIQ) xBot contract. The current total contract value now stands at approximately \$143 million.

The iRobot 510 PackBot multi-mission robot performs bomb disposal and other dangerous missions for warfighters and is being used in Iraq and Afghanistan. Powered by iRobot Aware(R) 2 robot intelligence software, 510 PackBot is a highly adaptable robot. The robot's modular digital architecture accommodates a

African warrior, we believe that with Mbombe Paramount Group has developed a groundbreaking new vehicle that will take the international market by storm. Mbombe can carry considerable loads without loss of mobility. The three axles give it outstanding cross-country performance and make it an excellent platform for military operations over all types of terrain anywhere in the world.

“Variants include Armoured Personnel Carrier, Armoured Combat Vehicle mounting a heavy machine gun or autocannon, Command Vehicle, Ambulance as well as a number of other options.

Ivor Ichikowitz further adds that “Mbombé is well suited for use in both conventional and non-conventional war, peacekeeping and counter-insurgency operations. Our configuration and variant options have been developed to provide maximum commonality, which means reduced overall cost of buying, owning and using Mbombe.

“As experience in Afghanistan, Iraq and elsewhere has shown, too many modern vehicles suffer from reduced survivability when their mobility is compromised by the addition of extra armour or heavy weapons. Mbombe has sufficient power in hand to retain its outstanding mobility - even when combat laden and configured as an AFV carrying a modern automatic cannon.”

“The vehicle provides ample space for a gunner and 8 fully equipped infantrymen and even at its most basic level it provides outstanding blast protection coupled with excellent levels of defence against kinetic attack. The low silhouette offers a reduced target profile with the armoured hull giving stopping power against ballistic attack up to STANAG 4569 Level IV.

“Mbombé will withstand the explosion of 10kg of TNT anywhere under its hull or under any wheel station without rupture. Anti-blast seats prevent injury to the crew from the extreme acceleration following an explosion beside or under the vehicle. Modular protection can also be added if necessary to give additional defence against specific threats in any particular area of operations.

“The world has finally discovered that Africa has some of the best technologies at affordable prices. We have an amazing skills base, we are home to some of the best engineers in the world and they have developed technologies which are used globally and save lives every day,” Ichikowitz said at the launch event a day before the main AAD show opens.

In a media release in which the company calls itself the largest independent defence and aerospace contractor in Africa, Ichikowitz added: “With African defence spending up nearly a third since the end of the Cold War, Africa is purchasing more defence and security systems. This has stimulated manufacturers, engineers and scientists to produce world-class products.”

The statement adds the Paramount Group “is at the forefront of this growth and has seen its sales increase by 20% year-on-year during the last five years. Over the past 12 months the company's workforce has more than doubled to meet the demand for its range of MPVs that

provide some of the best levels of protection for soldiers in conventional conflict and in counter insurgency operations.

“Combined with greater political stability and economic growth this has enabled companies such as Paramount Group to establish themselves as world class suppliers of military vehicles. Ultimately, this means Africa can now compete with the major Western suppliers and export abroad. The defence and aerospace industry is an asset of the African continent and our vision has always been to use it as a driver for growth and development as Africa moves into a new era of optimism and opportunity.”

Mbombé joins an armoured vehicle stable that includes the Matador and Marauder MPV and Maverick internal security vehicle. Twenty-five Marauders and the same number of Matadors are currently under construction in Baku for the Ministry of Defence Industry in Azerbaijan.

Paramount has previously said it finalised an agreement with Azerbaijan's Ministry of Defence in late 2009 to manufacture the vehicles there. “Industrial co-operation remains an important strategic element of Paramount's work in the country, with Paramount Group's production partnership with Azerbaijan key to the company's expansion in the region,” a media statement at the time explained.

Ichikowitz continued that “Paramount's ethos is to play an important role in technology transfer, creating local jobs and developing advanced skills. The development of the defence and aerospace industry is an essential part of the growth and diversification of Azerbaijan's industrial economy.”

Earlier this year Paramount signed a strategic agreement with Ashok Leyland in India to manufacture MPVs there as well.

Speaking at AAD, Ichikowitz averred that “African companies such as the Paramount Group are not only competing on an international level, with interest from governments in Africa, the Middle East and Asia, but also offering better in-country benefits for purchasers. Whereas the Western majors manufacture their equipment far from the destination market, Paramount Group takes an 'in-country' approach, where it establishes production facilities in regional markets. This ensures that the economic and development benefits associated with production, training and marketing help the local population, not just the shareholders in New York or London.

“With Africa now home to some of the world's best protected vehicles, these are exciting times. Africa is establishing for itself a lead role in innovation, security and as a major contributor to global peacekeeping,” the flamboyant entrepreneur added.

In addition to its MPV business, Paramount in association with aviation business Aerosud have also upgraded the Gabon Air Force, providing it new facilities, support infrastructure as well as six refurbished ex-South African Air Force Mirage F1AZ fighter aircraft that took part in the nation's 50th independence day



celebrations in July. Further export orders are anticipated.



## Defence Industry

### Rheinmetall at AAD - Leopard 2 steals the show in South Africa



Marking the African debut of the Leopard 2A4, Rheinmetall Defence of Germany took advantage of Africa Aerospace & Defence 2010 (AAD) in Cape Town to put the world's finest main battle tank through its paces.

Daily live presentations on a special test track proved to be a major draw, with the Leopard 2A4's excellent mobility in rough terrain clearly impressing the crowd.

Rheinmetall has been developing and producing armoured vehicles for over forty years. The Leopard 2 continues to set the global standard for modern main battle tanks, with more than 3,600 in existence, now in service with 16 nations. Although Rheinmetall is not the main contractor for the Leopard 2 MBT, the company has nevertheless played an integral role in its development and production. Moreover, out of a total 2,125 Leopard 2A4 tanks produced, 977 were manufactured entirely by Rheinmetall in Kiel for the German and Dutch armed forces.

By supplying critical subsystems, Rheinmetall contributes decisively to the Leopard's overall performance. For example, Rheinmetall is responsible for its 120 mm smoothbore main armament, still the world's finest tank gun. This cutting edge weapon is produced under licence in the United States for the M1 Abrams, and is also found in other MBTs.

The Leopard likewise benefits from Rheinmetall's globally leading ammunition technology. Developing perfectly harmonized combinations of weapons and associated ammunition families is a longstanding core competence of the Rheinmetall Group, blending system integration expertise with unrivalled kinetics know-how.

Developed and manufactured by Rheinmetall and based on the Leopard, the B1ffel/ Buffalo 3 armoured recovery vehicle forms an integral part of the Leopard 2 family of land systems. Likewise based on the Leopard 2 chassis, Rheinmetall's highly versatile Kodiak armoured engineer vehicle underscores the Group's competence and capabilities as a system builder.

In the field of C4I and fire control technology,

Rheinmetall possesses a unique selling point. Adapted to the individual requirements of the user, it supplies customized solutions that can be integrated into existing higher-echelon command and control systems.

Furthermore, user nations benefit from Rheinmetall's longstanding experience in maintenance and system support – even during deployed operations. Made-to-measure logistical concepts guarantee high levels of readiness and reliability for systems in service worldwide. Moreover, the recent integration of MAN's military truck division means that Rheinmetall now has a tightly woven, comprehensive global service network. Rheinmetall's logistical philosophy also embraces the use of existing military resources as well as local contractors, thus providing users with maximum strategic independence.

Rheinmetall Denel Munition of South Africa forms an integral part of the Rheinmetall Defence Group. In particular, the integration of the 155 mm L52 main armament from the company's PzH 2000 self-propelled howitzer into Denel Land Systems' outstanding G6 artillery system – earmarked for third-party customers – shows the Rheinmetall is willing and able cooperate successfully with the South African defence industry.

With a view to future combat scenarios, Rheinmetall's MBT Revolution modular upgrade programme is a coherent concept for adapting the Leopard 2 and other tanks for new missions. In particular, the concept includes a fully digitized turret as well as a 360° protection package capable of withstanding the full array of asymmetric threats. 3rd generation optical sight and reconnaissance technology rounds this compelling performance upgrade suite. Finally, at its UnterlbfA competence centre, Rheinmetall boasts the largest proving ground and firing range in Europe. Located near the German Army Armour School in Munster, this sprawling facility gives the company a huge advantage in developing new defence technology solutions – independently and economically.

During the current Afghanistan mission, the Leopard 2 has performed impressively in the face of asymmetric threats such as landmines and IEDs, saving crewmembers' lives. Today, there is no denying that main battle tanks will continue to play a decisive role in assuring the combat effectiveness and survivability of friendly forces on future battlefields. For the South African National Defence Forces – currently reviewing possible replacements for the aging Olifant tank – this is likely to be a key consideration.



## Defence Industry

### KMW delivers 20 upgraded LEOPARD 2 main battle tanks to Canada

Munich/Bergen -- Krauss-Maffei Wegmann (KMW) has handed over the first of 20 LEOPARD 2 A4M CAN modernised battle tanks to the Canadian armed forces yesterday, October 7th 2010.

The roll-out took place in the presence of the Canadian

military representative, Vice Admiral Denis Rouleau, and the General der Panzertruppen, Brigadier General Klaus Feldmann, and numerous other representatives of the Canadian and German army on training area at Bergen near Hannover (Germany). The next deployment location for the Canadian LEOPARDS will be Afghanistan.



On the occasion of the roll-out, Brigadier-General Steve Bowes, Commander of the Canadian Land Force Atlantic Area said: "The complexity of the contemporary operational environment has done nothing to diminish the importance of armour supporting the combined arms team. Canadians are proud to serve our nation and support our allies abroad with the best main battle tank Leopard 2 for today's complex operational environment."

#### Protecting lives "Made in Germany"

Canada commissioned KMW to upgrade 20 LEOPARD main battle tanks in July 2009 for deployment in Hindu Kush. The new version, the LEOPARD A4M CAN, is specially designed for operations in Afghanistan. Both knowledge from the previously used LEOPARD 2A6M and state-of-the-art technology that was recently qualified by KMW in collaboration with the German army and the Federal Office of Defence Technology and Procurement (BWB) flowed into the development.

The development, conversion and overhaul of the first vehicles were successfully carried out in less than one year, converting them into modern operational units.

Daniel Hebert, Project Manager Tank Replacement Project, said: "The flexibility, professionalism and teamwork exhibited by KMW over the past three years to support Canada's Leopard 2 A6M in Afghanistan was exceptional. Now, with the Leopard 2 A4M, KMW continues to be instrumental in providing Canada with superior firepower, mobility and the protection required to save lives."

The main focus of the new design was consistent protection of the crews, who are subjected to enemy attacks with powerful anti-tank projectiles and are in constant danger from mines and IED's (Improvised Explosive Devices). The starting point for the protection concept is outstanding protection from mines and good all-round protection.

Furthermore, the capabilities of the new battle tank have been significantly extended by integrating a pioneer equipment interface. Mine rollers, mine ploughs and dozer blades allow the Canadian armed forces to carry out a wide range of dangerous tasks in spite of the small number of heavy vehicles. Provisions have also been made for deployment in the extreme heat of southern Afghanistan.

With this order, KMW has again provided proof of its system capability in battle tank construction, which is globally unique. The armed forces of 16 countries now rely on the LEOPARD 2.

#### Optimum mobility with a major effect

On the battlefield, the LEOPARD is the most powerful response to enemies who are armed with weapons of war and provides maximum protection and unrestricted mobility for your own crew. Unlike many other systems, the tank can also operate and demonstrate its strengths in extremely dangerous environments and can also do this over long periods of time if necessary. NATO partners Canada and Denmark have therefore been deploying the LEOPARD 2 for years in ISAF operations in Afghanistan.

With its armour, which goes far beyond that of any other battle vehicle, its speed, its agility and its precise and extremely effective weaponry, it has a tremendous amount of deterrent potential as far as the enemy is concerned and is an essential system for Canadian soldiers during operations that they cannot imagine doing without. It has saved the lives of Canadian soldiers on many occasions. This protection also has a positive effect on the morale of the troops, who now rely on their Leos during operations.



### Defence Industry

#### Helyx wins UK MoD contract to define Future Deployable Geospatial Intelligence

The UK's leading expert advisor in Geospatial Information Exploitation strategies for the defence and security sectors, Helyx SIS Ltd, has been selected by the UK Ministry of Defence to help define requirements for, and support delivery of, the Future Deployable Geospatial Intelligence (FDG) capability.

As a result of the success achieved through application of currently deployed geospatial capabilities and of recent and rapid technical advancements in the application of GEOINT, both of which have increased its operational significance, many of the existing hardware and software components are reaching the end of their service life. The Ministry of Defence Capability staffs have therefore determined that now is an optimal time to review, refresh and enhance the GEOINT capability. The Future Deployable Geospatial Intelligence Capability will provide an underpinning component of Network Enabled Capacity, supporting shared situational awareness and the decision support process.

Helyx will support the Imagery and Geospatial Systems (IMaGE) Delivery Team as an integral part of the Project Team for the duration of the Project Assessment Phase. The aim of the Project is to rationalise and upgrade the current GEOINT capability to meet the projected range of military activities and intelligence requirements, including its closer integration into the wider defence ISTAR infrastructure. The Project will provide enhanced GEOINT capability to

support operations in the land, air and maritime domains. The initial work, supported by Helyx, is focussed on supporting the submission of a Main Gate Business Case in early 2011.

Under the initial six month project, Helyx will deliver the Project Roadmap and Requirements, assess new and available technologies, undertake MoD Architecture Framework Modelling, and support tender preparation. Helyx will be supported by a number of specialist advisors; Hereford Infosec, providing specialist Security and Information Assurance advice, Atkins Ltd, in the fields of and on risk management, safety and Integrated Logistic Support (ILS) and J2CO Consulting who will support requirements and strategy derivation.

“This is an important contract for Helyx and confirms the company’s position as the UK’s leading independent adviser on the exploitation of geospatial intelligence and particularly on its application for use in all theatres of operation”, said Howard Wilding, Managing Director, Helyx. “It coincides with an exciting period of growth for the company, which has recently re-located to larger new premises near Tewkesbury, Gloucester”.

Helyx has extensive knowledge of the operational application of GEOINT combined with an understanding of UK MoD procurement processes and a proven track record in supporting the Joint Aeronautical Geospatial Organisation (JAGO), the MoD’s principal provider of GEOINT on operations. Helyx is also one of the specialist consultancy advisers in Team SPARTA which is undertaking the UK MOD’s Common Geospatial Tool Set (CGTS) project. In addition, on the international stage, Helyx has recently delivered a geospatial vision and strategy to underpin the future delivery of Network Enabled Capability in Malaysia.

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### Contracts

#### Oshkosh Defense Equips U.S. Army Vehicle for Autonomous Logistics Missions

OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, will showcase a U.S. Army vehicle equipped with Oshkosh TerraMax™ unmanned ground vehicle (UGV) technology at the Association of the United States Army (AUSA) Annual Meeting and Exposition at the Washington Convention Center October 25 – 27.

The TerraMax technology delivers improved troop protection by reducing human exposure to battlefield threats, such as improvised explosive devices (IED), and increasing situational awareness while the vehicle is on the move.

“Oshkosh is committed to bringing this life-saving technology to the field,” said Gary Schmiedel, Oshkosh Corporation senior vice president of Defense Engineering and Technology. “Our TerraMax technology is designed as a kit that can be integrated in new vehicles as they are produced or retrofitted into the government’s existing vehicle fleets.”

The Oshkosh Family of Medium Tactical Vehicles

(FMTV) Load Handling System (LHS) variant is equipped with the company’s unmanned technology for autonomous logistics missions. The TerraMax fully-autonomous navigation kit has been demonstrated on the Marine Corps’ Medium Tactical Vehicle Replacement (MTVR) 4x4 and 6x6 vehicles, as well as the Army’s Palletized Load System (PLS) vehicle.

“The TerraMax fully autonomous system provides flexibility to the Warfighter,” added Schmiedel. “It is integrated so each vehicle can still be manually driven with the press of a button. The technology is capable of fully autonomous missions supervised from an escort vehicle at a safe standoff, or operation in leader-follower mode, depending on the mission and situation.”

Oshkosh Defense has been awarded a five-year FMTV contract for the production of an estimated 23,000 trucks and trailers, as well as support services and training through fiscal 2014. The FMTV is a series of 17 models with payload capacities ranging from 2.5-tons to 10-tons.

The Oshkosh FMTV LHS with TerraMax UGV kit will be on display Oct. 25-27, 2010, in booth 2639 at the Washington Convention Center at the AUSA Annual Meeting and Exposition.

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### Defence Industry

#### Elbit Systems of America Awarded Follow-On Orders for Rugged Personal Digital Assistant Computer and Ruggedized Handheld Computer for U.S. Army



McLEAN, VA -- Elbit Systems of America, LLC, a wholly-owned subsidiary of Elbit Systems Ltd. announced it was awarded follow-on orders from the United States Army PM Battle Command and PM Mortars for Rugged Personal Digital Assistant Computers (RPDA) and Ruggedized Handheld Computers (Tacter®).

Elbit Systems of America, C4I Solutions will provide various quantities of accessories and spares for field warranty for both systems and production is expected to begin immediately.

Elbit Systems of America, C4I Solutions’ RPDA and Tacter® handheld computers are durable and field-proven solutions that empower warfighters to communicate and respond to situations in the toughest environments. Elbit Systems’ handheld computers

incorporate a modular design that lowers the total lifecycle cost for their military customers by offering an upgrade path to protect against obsolescence. To date, Elbit Systems of America has supplied the Army with over 20,000 RPDA units and continues to make updates to accommodate the next generation soldier. The Tacter® is a multi-purpose rugged mobile computer designed to serve all combat soldiers. On the modern battlefield, the Tacter®'s embedded communications utilize today's protocols, making the terminal critical for any C4I system.

ESA C4I Solutions' RPDA product line has been providing computer and communications systems focused on military applications for nearly a decade. C4I Solutions is a leading supplier of tactical handheld computers to the U.S. Military, including both the RPDA and the Tacter®-31 multi-function computers.

Elbit Systems of America's President and CEO, Raanan Horowitz, stated, "This follow-on award is testament to the quality and capabilities of our computer products. At Elbit Systems of America we are proud to continue outfitting the warfighter with innovative systems and solutions."

effort to increase mission success and keep warfighters safe."

### Training And Simulators

## VirTra Systems Continues to Supply the Global Law Enforcement Community with the World's Finest Firearm Simulators

TEMPE, Ariz. -- Don Andrus, VirTra Systems' President and COO, today announced multiple firearm simulator sales made to Agora Telecom, VirTra's South American distributor.

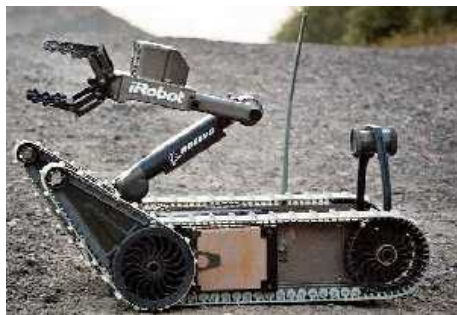
Entering their third year as one of VirTra's most prolific international distributors, Agora Telecom purchased a VirTra 300 LE and a VirTra 100 LE, further strengthening its position in this critical marketplace. Each simulator includes VirTra's state of the art technology plus recoil kits and Threat-Fire™ II return fire stimulators. This recent order is in addition to the two VirTra 300 LE simulators soon to be installed in Rio de Janeiro. VirTra's world-class use-of-force simulators are already utilized in Manaus and Porto Vieho.

Agora Telecom and VirTra continue to be a dominant team in the South American use-of-force firearms training simulator marketplace. As this relationship enters its third successful year, VirTra consistently outperforms all competitors in the South American market and delivers the highest standard in firearms training simulators time and again.

"As we strengthen our presence in the international marketplace, it will become evident to law enforcement agencies around the world that if they are looking for the ultimate in firearm simulation, then they must possess VirTra products. Our mission is to help save lives and Agora Telecom is an exceptional partner," said Don Andrus, President and COO of VirTra Systems.

### Robots

## Boeing and iRobot Team Receives SUGV Contract from USAF



Huntsville, Ala. -- The Boeing Company and partner iRobot Corp. today announced that they have received an initial contract with the U.S. Air Force to provide Small Unmanned Ground Vehicles (SUGV) to its Explosive Ordnance Disposal (EOD) team. The contract calls for up to 70 model 310 SUGV robots, with an initial value of \$3.84 million.

The Indefinite Delivery, Indefinite Quantity contract will run through September 2012.

"Boeing and iRobot are pleased to expand our customer base to the U.S. Air Force, placing this key technology into the hands of airmen around the world," said Bob DaLee, Robotics program manager, Boeing Network & Tactical Systems. "The 310 SUGV system will provide the Air Force with the capability that our current customers have come to rely on in dealing with dangerous situations in war zones."

"Robots like the 310 SUGV have already proven their worth on today's battlefield," said Robert Moses, president of iRobot's Government and Industrial division. "Every day, the military is finding new ways to implement this game-changing technology, all in an

### Training And Simulators

## Boeing Team Demonstrates Fully Immersive Training Environment for US Army Ground Forces



FORT LEONARD WOOD -- The Boeing Company was part of a team that demonstrated a fully immersive and integrated environment for ground forces training Sept. 29-30 at Fort Leonard Wood.

The environment replicated an urban setting in

Afghanistan, including costumed actors fluent in the local languages, realistic audio effects and typical architecture.

"Our customers want to provide their soldiers and Marines with a training environment as comprehensive as aircrews receive in aircraft simulators," said Mark McGraw, Boeing vice president for Training Systems & Services. "If we can train them in immersive and stressful environments before they deploy, we can help them make better decisions to accomplish their missions and return home safely."

Boeing has identified and created innovative training tools that can be seamlessly integrated into existing facilities at other military installations. These include the Virtual Mission Board -- a table with a built-in touch screen for tracking participants, controlling the exercise and recording data for the after-action review.

Boeing's industry partners for the event included Advantage Mold Inc., Creative Technologies Inc., the Leonard Wood Institute, Iowa State University, Laser Shot Inc., MiLanguages, Military Wraps, Ubisense and Zebra Imaging.



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### Contracts

#### General Dynamics to Upgrade USMC LAVs with Improved Fuel Tanks

STERLING HEIGHTS, Mich. -- The U.S. Army TACOM Life Cycle Command recently awarded General Dynamics Land Systems, a subsidiary of General Dynamics, a \$8 million contract to provide U.S. Marine Corps Light Armored Vehicles (LAV) with new fuel tanks to enhance Marine safety and survivability.

The contract calls for General Dynamics to outfit 403 Light Armored Vehicles with self-sealing fuel tanks. These tanks are designed to protect crew members and the vehicle from ballistic and shrapnel effects. The tanks will bolster the ability to complete assigned missions and return Marines to base safely.

Work will be performed in Michigan, New York, and London, Ontario, Canada. Kits will be delivered to Marine Corps depots for integration through January 2012.



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### Defence Industry

#### Advanced Chassis Technology for New All-terrain Vehicles from RMMC



Rheinmetall MAN Military Vehicles GmbH (RMMV) of Munich has entered a far-reaching agreement with Timoney Technology Ltd. of Gibbstown, Ireland, to cooperate in the military logistic and tactical vehicle sector.

Under a license agreement, Timoney Technology will develop and produce independent suspension systems and power trains for all new RMMV vehicles equipped with all-wheel drive and independent suspension, including systems with two, three or four axles. Based on the Timoney power train technology in Rheinmetall's Wisent armoured transport vehicle, the result will be a new, high-mobility family of vehicles systematically designed to meet the needs of the military.

"This agreement represents a significant step in strategically positioning RMMV as a leading supplier of military wheeled vehicles", declares Dr. Gerhard Skoff, a member of RMMV top management. "By partnering with Timoney Technology, we're able to draw on their superior know-how in the field of advanced chassis technology, which bolsters our bid to occupy a leading position in the global all-terrain military wheeled vehicle market", adds Dr. Skoff.

Shane O'Neill, the Chief Executive Officer of TTL said "TTL are enormously excited to be closely involved with RMMV and proud that through TTL Ireland can offer such fundamental automotive engineering to RMMV and Germany, the country which invented the motor car and leads the world in this technology since 1885. TTL, by paying close attention to vehicle mission requirements, have produced the right product in the configuration needed by RMMV."

The new Wisent, an 8x8 all-wheel drive armoured vehicle, is a first example of fruitful cooperation between the two companies. During intensive qualification trials conducted under the Bundeswehr's GFF 4 procurement programme, the vehicle handled superbly and, thanks to its high-performance chassis, had no problem coping with even the most challenging off-road conditions.



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### Defence Industry

#### M Cubed Technologies Wins Contract to Develop Armor for U.S. Marine Corps Fighting Vehicles



TRUMBULL, Conn. -- The United States Navy has awarded M Cubed Technologies, Inc. a contract to develop advanced, high-performance, lightweight armor for the Marine Corps' Expeditionary Fighting Vehicle (EFV), the company announced today.

The contract was part of the U.S. Navy's Small

Business Innovation Research (SBIR) program.

"We are honored the U.S. Navy has chosen us for this important project," said Randall D. Price, Sr., CEO and President of M Cubed. "New and ever-changing threats require constant innovation and improvement in body and vehicle armor. The mission of our defense business is to utilize M Cubed's breakthrough ceramic technology to equip U.S. military personnel with state-of-the-art armor that provides maximum protection for our troops."

The Marine Corps EFV is a 78,000+ pound armored vehicle designed to carry U.S. combat forces over harsh terrain, both off-road and amphibiously. The contract provides the initial funding for the development of new, ceramic-based armor that will offer the U.S. Marines and their EFVs better protection against enemy ballistics, enhanced survivability in combat areas and reduced weight for greater maneuverability.

M Cubed's unique technology allows the company to design and manufacture armor-grade ceramics in very complex shapes to suit a wide variety of military applications, including body armor, helmet appliques and armor for aircraft and vehicles. The company has a long history as a trusted supplier to the U.S. military.

(3.2 percent); and Livermore, Calif. (0.3 percent). The work is expected to be completed by Sept. 24, 2012. The Defense Advanced Research Projects Agency is the contracting activity.

## Defence Industry

### Oshkosh Defense Expands U.S. Army Heavy Fleet With Additional Vehicle Orders



OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, is increasing the U.S. Army's Family of Heavy Tactical Vehicle (FHTV) fleet with the addition of 1,200 trucks following orders from the U.S. Army TACOM Life Cycle Management Command (LCMC).

The bulk of the orders are for the Oshkosh Palletized Load System (PLS) A1, a next-generation truck that gives soldiers improved mobility and protection capabilities.

"The heavy tactical trucks that we supply to the U.S. Army have evolved with technological advancements over the years to meet the changing threats and demands of the modern battlefield," said Mike Ivy, vice president and general manager of Army Programs for Oshkosh Defense. "Whether Iraq, Afghanistan or any other location in the world, the Army can count on Oshkosh for on-time delivery of quality products backed by best-in-class sustainment services. We're proud to serve the men and women who serve our nation."

The PLS is the backbone of the Army's distribution and resupply system. Built to transport ammunition and other critical supplies needed in battle, the PLS has proven its ability in front-line resupply missions in Bosnia, Kosovo, Iraq and Afghanistan. Together, the PLS truck and trailer form a complete system that reduces the need for forklifts or other material-handling equipment. The Long-Term Armor Strategy (LTAS)-compliant PLS A1 can accept add-on armor and uses an Oshkosh TAK-4® independent front suspension for improved off-road mobility.

Oshkosh will deliver more than 1,050 PLS A1 trucks under the orders, as well as nearly 150 Heavy Expanded Mobility Tactical Truck (HEMTT) A4s. Deliveries are scheduled to be completed by August 2012. The combined orders are valued at more than \$459 million.

## Contracts

### Teledyne Awarded \$25 Million to Lead in the Development of the Extreme Accuracy Tasked Ordnance (EXACTO) System



Teledyne Scientific & Imaging, LLC, is being awarded a \$25,446,843 cost-plus-fixed-fee contract (HR0011-09-C-0016).

The goal of the Extreme Accuracy Tasked Ordnance (EXACTO) system is to produce a guided, actively controlled 50-caliber sniper rifle system with significantly improved range and accuracy over the current systems. This modification awards Phase II of the effort, in which Teledyne will continue execution of the technology development assessment plan, and conduct detailed design, fabrication, and live fire test of the EXACTO prototype system. Work will be performed in Thousand Oaks, Calif. (25.2 percent); Plymouth, Minn. (23.8 percent); Merrimack, N.H. (15.7 percent); Cambridge, Mass. (13.6 percent); San Diego, Calif. (10.3 percent); Phoenix, Ariz. (7.9 percent); Huntsville, Ala.

## Defence Industry

### KONGSBERG and Rheinmetall sign framework agreement for Weapon Station co-operation



The scope of this agreement is to provide a framework for the co-operation between the companies for the Remote Weapon Station (RWS) product area.

Through this agreement the companies intend to not only maintain, but also to expand the co-operation as well as establish joint sales efforts in some international markets.

Kongsberg and Rheinmetall have entered into this co-operation agreement to promote the KONGSBERG PROTECTOR family of RWS' and also increase the level of integration between the two companies' product lines. The overall objective of bringing the two high technology companies together is to offer leading-edge solutions and to raise the value for our international customers.



## Defence Industry

### ATK Provides Service in Support of Allied Security Forces

MINNEAPOLIS -- ATK has received additional orders worth \$10 million for non-standard ammunition (NSA) in support of its current NSA multi-year contract with the U.S. Army Contracting Command in Rock Island, Ill.

The three-year contract calls for ATK to acquire and deliver a broad range of NSA, or non-NATO ammunition, to Kabul, Afghanistan, to train and sustain allied security forces.

Since December 2008, ATK has successfully delivered more than 220 million non-standard material items to Afghanistan including, but not limited to, small, medium and large-caliber ammunition, mortars, RPG munitions, aviation rockets, and non-standard weapons. ATK deliveries for these products on average have been more than one month ahead of schedule.



## Contracts

### BAE Systems Improving Soldier Protection Through U.S. Army Vehicle Armor Contract

AUSTIN, Texas -- BAE Systems has received an \$11 million U.S. Army contract to produce bar armor kits that protect soldiers in ground vehicles from rocket-propelled grenade attacks.



The company will continue to produce L-ROD® bar armor kits for the U.S. Army TACOM Life Cycle Management Command's RG-31 Mine-Resistant Ambush-Protected vehicles.

Last November, BAE Systems received a \$42 million contract for the bar armor kits. This latest award is for 390 kits and field service support outside the U.S.

Developed to provide RPG protection for Hummers and MRAP mine-resistant vehicles, L-ROD bar armor is a lightweight, modular bar-armor system made of an aluminium alloy. L-ROD provides protection against rocket-propelled grenades, or RPGs, with minimum impact to operational capabilities.

L-ROD has become standard equipment on the Army's MRAP Class III Buffalo explosive ordnance disposal vehicles.

"We've delivered more than 2,500 total kits to date, and now, more are on the way," said Neil Piscitelli, L-ROD director for BAE Systems in Austin, Texas. "The L-Rod kits have demonstrated value by helping to protect troops on the battlefield and save lives."

Weighing less than half of comparable steel designs, the low-cost L-ROD system bolts onto the vehicle without welding or cutting and can be repaired easily in the field due to its modular design. BAE Systems manufactures the L-ROD bar armor kits on an automated production line in Austin that opened last year.

L-ROD can also be found on Marine Corps Buffalo vehicles, MRAP Category I and II Cougar MRAPs, as well as the MRAP Category I RG-31. BAE Systems is also working on L-ROD variants for other MRAP-type vehicles as requested, and has provided the kits to NATO allies for use on their vehicles in theater.



## Defence Industry

### Force Protection Selects Manufacturing Base for Ocelot in Australia



Ladson -- Force Protection Australasia, a Force

Protection, Inc. group company, today announced it had reached agreement with the South Australian Government to manufacture and support its Ocelot vehicle in Adelaide, if it is successful in securing the contract to manufacture up to 1,300 next-generation protected mobility vehicles under the 'Land 121 Phase 4' program.

Chief Executive Officer, Michael Moody, said that following discussions with the State Government and potential suppliers, South Australia offered the most suitable manufacturing base for the Ocelot.

“Since we first met with the Government and potential suppliers in 2009, it has become clear that South Australia can provide the essential ingredients we need to successfully manufacture and support the Ocelot,” Mr Moody said. “This view was confirmed during my recent discussions with Premier Mike Rann.

“The South Australian Government has been very supportive and highly professional in its discussions with us. South Australia’s reputation as Australia’s ‘Defence State’ is well-founded. I certainly believe that with our Ocelot, the strength and capability of Force Protection and our collaboration with South Australia, we will have a compelling offering for the Commonwealth of Australia.”

Force Protection has identified a site within the Edinburgh Parks precinct, in Adelaide’s northern suburbs, as a suitable location for its proposed vehicle manufacturing base.

He said today’s announcement strengthened Force Protection’s commitment to operating in Australia, and looked forward to making further announcements about the company’s plans.

This is a significant step forward in the potential development of the Ocelot in Australia.

It also follows an announcement last month that the UK’s Ministry of Defence (MoD) had selected Force Protection Europe as preferred bidder to supply its Ocelot for the MoD’s urgent operational requirement for the Light Protected Patrol Vehicle program (LPPV).

Mr. Moody concluded, “The Ocelot now has a first class endorsement from the United Kingdom and is ideally suited to the Australian requirement.”

### Defence Industry

## Oshkosh Defense Displays New Tactical Wheeled Vehicles and Technologies at U.S. Army Annual Meeting

OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, will showcase new technologies and vehicles at the AUSA Annual Meeting and Exposition at the Washington Convention Center October 25 – 27 in booth 2639.

The displays illustrate Oshkosh’s commitment to innovation and providing the U.S. Army with leaner, more mobile and modern fleets. “As the sole manufacturer of the both the Army’s medium and heavy tactical truck fleets, we listen to our customers to better

understand their needs,” said Mike Ivy, Oshkosh Defense vice president and general manager, Army Programs. “At AUSA, we have the opportunity to expand that dialog and display next-generation technologies designed with their input. Our ProPulse® drive technology, for example, addresses concerns about fleet fuel consumption and exportable power, and aims to expand functionality in theater.”

The Oshkosh® TAK-4® independent suspension system integration on a High Mobility Multipurpose Wheeled Vehicle (HMMWV) is displayed in response to the Army’s request to industry for solutions to recapitalize its fleet. Oshkosh has been helping militaries recapitalize and retrofit vehicles for more than 50 years. In addition to its advanced suspension, Oshkosh incorporates a V-shaped hull and engine and powertrain upgrades to improve soldier survivability as well as off-road mobility and payload capacity.

A Reconnaissance vehicle – the latest variant in the Oshkosh M-ATV family of vehicles – offers its crew of six plus a gunner battle-proven MRAP-level protection with unmatched mobility, and applies patented technologies to help forces perform route, zone and area reconnaissance. The M-ATV family of vehicles also includes SOCOM, Utility and Ambulance variants.

The Oshkosh TerraMax™ unmanned ground vehicle (UGV) technology is another solution for increasing soldier safety by reducing exposure to battlefield threats, such as improvised explosive devices (IED), and increasing situational awareness while on the move. The technology will be featured on a Load Handling System (LHS) variant of the U.S. Army’s Family of Medium Tactical Vehicles (FMTV).

Additional technologies, such as Command Zone™ integrated diagnostics system – a computer-controlled, multiplexed electronics system – will be on display using an interactive touch table. A light combat tactical vehicle will serve as a technology demonstrator for the ProPulse diesel-electric platform, advanced capsule design and the next-generation TAK-4 independent suspension system.

### Defence Industry

## BAE Systems Introduces Caiman MTV Ambulance



WASHINGTON, D.C. -- Demonstrating its commitment to mission success and safety for warfighters, BAE Systems announced an ambulance configuration of the recently introduced Caiman Multi-Terrain Vehicle (MTV) at the Association of the U.S. Army’s (AUSA) 2010 Annual Meeting.

The Caiman MTV ambulance provides an effective



combination of interior capacity, tactical mobility, operator comfort and survivability by utilizing its large interior volume to accommodate up to four litters, or six patients upright.

"In today's conflicts, Army medical personnel face the same types of unconventional warfare threats as their patients," said Chris Chambers, line lead for BAE Systems. "The Caiman MTV is truly patient-centric in that it allows medical professionals to focus on treating patients while keeping them protected from surrounding threats."

Other features include a sophisticated HVAC system regulates the interior to protect patients and medical technicians from temperature extremes. In addition, the four litter configuration maximizes interior space and the rapid deployable ingress and egress ramp enables ease of patient loading and unloading. Other features include mobility upgrades that allow for greater wheel control and weight transition from axle-to-wheel to navigate over ice, sand and other rough topography, allowing medical personnel to reach patients in a variety of environments.

Earlier this month, the U.S. Mine Resistant Ambush Protected (MRAP) Joint Program Office (JPO) purchased a proof concept ambulance vehicle. The sale of the vehicle coincided with the completion of user juries by Army personnel. In anticipation of production, the assessments from the user juries will be used to improve the vehicle's design.

The Caiman MTV ambulance is one variant in the Caiman MTV family. The Caiman MTV is an upgraded vehicle based on the combat-proven Caiman MRAP. In addition to ambulatory missions, it provides payload capacity for other specialized vehicle needs including troop transport and command and control on the move. In all three configurations, the vehicle integrates a refurbished and improved armored capsule from an existing Caiman MRAP with a new high-power automotive power train, chassis and independent suspension. The adaptable armor system is designed to address operational threats, but can be removed to allow for weight reduction, or to incorporate improved materials.

lives of 552 Bradley Fighting Vehicles by replacing old and damaged components under a \$91 million contract modification from the U.S. Army TACOM Life Cycle Management Command.

"Bradley Combat Systems continues to serve at the forefront of U.S. Army operations around the world," said Joe McCarthy, vice president of the Heavy Brigade Combat Team at BAE Systems. "The Readiness and Sustainment support we provide to and for our customers through the vehicle reset process keeps this highly survivable combat system in the field helping soldiers successfully complete their missions."

The reset process includes replacing obsolete equipment with updated components, restoring the vehicle to pre-combat condition. In addition, the reset of the Bradley vehicles will incorporate a variety of survivability enhancements.

BAE Systems has refurbished more than 3,390 vehicles since 2007 through robust readiness and sustainment activities. The contract modification is in addition to another contract the company received in March 2010 for \$145 million, along with earlier funding of \$242.5 million. Work will be performed by the company's existing workforce at its facilities in Fayette and York, Pennsylvania, as well as the Red River Army Depot in Texarkana, Texas. Vehicle deliveries began in August 2010 and are anticipated to end in October 2011.

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

BAE Systems designs, manufactures and supports Bradley Combat Systems through its U.S. Combat Systems business. U.S. Combat Systems is a modern, efficient, full-spectrum developer, integrator and supplier of survivable, lethal ground and naval combat platforms. U.S. Combat Systems is also a main supplier to the U.S. Army's Heavy Brigade Combat Teams, an integral developer of mine protected and future combat vehicles and a top producer of naval guns and missile launchers.

## Defence Industry

### BAE Systems to Extend Use of 552 U.S. Army Bradley Vehicles Through \$91 Million Program



YORK, Pennsylvania -- BAE Systems will extend the

## Exhibitions

### BAE Systems Launches Integrated Smart V Solution for HMMWV



WASHINGTON, D.C. -- BAE Systems introduced a lightweight monocoque V-hull HMMWV recap

solution called the Integrated Smart V™ (ISV™), at the Association of the U.S. Army's (AUSA) 2010 Annual Meeting.

The innovative solution leverages the company's legacy of mine protection and survivability experience to offer a highly survivable, high-mobility multipurpose vehicle at a low-cost for the U.S. Army.

The central component of the ISV solution is a layered monocoque hull with a V-shaped underbody that totally encapsulates the crew, providing protection from all sides through an integrated hull that significantly boosts underbody blast protection. The design is based on fielded, battle proven solutions from BAE Systems' mine-resistant vehicles used around the world.

"The ISV is cleverly designed to respond intuitively to side and underbody mine blast impacts," said Chris Chambers, line lead for BAE Systems. "By using clips attached to the monocoque V-hull, the ISV provides a rigid, uncompromising protection solution at an affordable price," Chambers added.

ISV reuses a large percentage of existing HMMWV components, including the power train and wheel assemblies, thereby saving on production and training costs. Sustainment savings come through ISV modularity, allowing battle damaged vehicles to be repaired in the field and enabling future upgrades.

BAE Systems' ISV solution is built on mature V-hull technology that is currently in production on light tactical vehicles. The ISV allows the U.S. Armed Forces to quickly realize significant improvements in HMMWV survivability for current and future operations.

### Defence Industry

## Navistar Defense Grows MaxxPro Family of Vehicles with Tractor Variant and Ambulance Kit Flexible Platform is Designed to Support Multiple Mission Needs

WASHINGTON, D.C., -- Navistar Defense, LLC today launched both the International® MaxxPro® ambulance kit and the MaxxPro Tractor variant at the Association of the United States Army (AUSA) Annual Meeting and Exposition.

Since 2007, the company's family of MaxxPro Mine Resistant Ambush Protected (MRAP) vehicles has grown to include 11 different vehicle variants. The first six of these variants were developed in only 18 months.

"Our ambulance kit, which has received positive reviews from the U.S. Army Medical Department, can quickly turn any MaxxPro vehicle into a fully functioning ambulance and aid station - with full protection for both medics and patients," said Archie Massicotte, president, Navistar Defense. "The kit does not require new vehicles. Thanks to the flexibility of our proven truck platforms, we are able to quickly develop new vehicle solutions as well as vehicle variants like the MaxxPro Tractor."

Ambulance kits include an easy-to-use litter assist

system as well as a protected work space benefitting medics and patients. This solution paired with the company's DXM™ independent suspension helps medical aid navigate rough terrain to get where it is needed. While the kit is displayed this week on a MaxxPro Dash unit, the solution is available for other variants such as the MaxxPro Base and Plus.

Combining a proven truck platform with proven survivability solutions, Navistar today also introduced the MaxxPro Tractor into its MRAP family. This vehicle uses an A kit / B kit armor solution with MRAP-level protection available, to allow two- to three-man crews to carry out support missions. The vehicle is powered by a MaxxForce® D 13L engine.

In addition to the MaxxPro Tractor, Navistar also offers two other MRAP utility variants, the MaxxPro Cargo and the MaxxPro Recovery Vehicle. All three utility vehicles utilize MaxxForce® D engines and heavy duty chassis.

To date, Navistar has been contracted to produce more than 7,500 MaxxPro units as well as retrofit 1,222 units in theater with its DXM™ independent suspension solution. MaxxPro vehicles are currently in operation with U.S. forces as well as with six coalition forces.

### Exhibitions

## Oshkosh Defense Showcases Light Military Vehicle Technologies to Address the Evolution of the Modern Battlefield



OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, today unveiled a vehicle to demonstrate the future of light tactical wheeled vehicles at the AUSA 2010 Annual Meeting & Exposition.

This vehicle, called the Light Combat Tactical Vehicle (LCTV), features the company's latest advancements in off-road mobility, performance and protection for the U.S. military – including the next-generation of TAK-4® independent suspension systems. The new system provides increased off-road mobility, improved vehicle maneuverability and smoother ride quality.

"The LCTV technologies represent a forward-thinking, customer-guided approach to research and development, and more than 80 years of experience selling vehicles to the military," said Ken Juergens, Oshkosh Defense vice president and general manager, Joint Programs. "Our new TAK-4 system will further expand the vehicles' off-road capabilities to make military routes less predictable and Warfighters less susceptible to roadside attacks. Combined with our ProPulse diesel-electric powertrain and modular capsule

design, the LCTV provides a glimpse into the survivability and mobility potential of the U.S. military's light vehicle fleets."

The ProPulse® technology delivers up to 20 percent improved fuel economy and has 70 kW of available military-grade power. The bolt-together capsule design – proven on the Oshkosh MRAP All-Terrain Vehicle (M-ATV) and legacy MRAPs – allows for vehicle upgrades and continuous enhancements to the capsule without having to weld or conduct major fabrication.

The next-generation TAK-4 suspension system delivers 20 inches of independent wheel travel. It also uses a larger shock absorber to deliver an even smoother ride quality at increased speeds and is adjustable to reduce vehicle height for better transportability. Like the demonstration vehicle's other technologies, it is scalable for use on light, medium and heavy fleets. Oshkosh's current TAK-4 independent suspension system has been proven in combat operations in Iraq and Afghanistan, where it has been successfully integrated on multiple vehicle platforms to include the M-ATV, Medium Tactical Vehicle Replacement (MTVR), and other legacy MRAP vehicles.

Oshkosh's ProPulse technology has been demonstrated on the Oshkosh Heavy Expanded Mobility Tactical Truck (HEMTT) A3 and the Oshkosh MTVR, which are undergoing testing with the Army and Marine Corps respectively. "The modular nature of the Oshkosh ProPulse system allows for easy integration and flexibility for the future, such as the inclusion of fuel cells for power generation," Juergens added.

The demonstration vehicle's capsule is optimized for weight and survivability, utilizing the latest and most proven technologies and techniques available to the Warfighter. Oshkosh has a history of delivering advanced survivability solutions. Its HEMTT A4 was the first vehicle delivered to the U.S. military with an integrated A-kit/B-kit armor configuration.



## Defence Industry

### U.S. Army Uses Alcoa Defense to Develop Prototype for Lighter, More Fuel Efficient Military Vehicles

WASHINGTON -- Alcoa Defense has applied innovative technology it developed for high-performance cars and the aerospace market in a project for the U.S. Army showcasing the ability of aluminum to make the next generation of military vehicle lighter, faster, stronger – and more fuel efficient.

Alcoa has created an aluminum structure for the Army's Fuel-Efficient Ground Vehicle Demonstrator (FED) that will make the vehicle up to 10 percent lighter than a comparably sized steel vehicle and reduce fuel consumption by 6-7 percent because the lighter vehicle frame enables a lighter engine, driveline and chassis. Alcoa supplied the FED's aluminum chassis and cab structure with integral underbody armor protection to Ricardo Inc., the project's lead engineering contractor.

During the initial stages of design, Alcoa collaborated with Ricardo to determine which Alcoa solutions could best help achieve FED's goals.

The FED project was launched by the U.S. Army Tank Automotive Research, Development and Engineering Center (TARDEC) in 2008 to develop a prototype vehicle that would showcase fuel efficient technologies, while maintaining the vehicle's performance, payload capacity and protection of soldiers. If the Army, which operates the world's largest fleet of ground vehicles, can improve fuel efficiency by just one percent, it will result in 6,000 fewer soldiers being put at risk by driving highly targeted fuel convoys in combat locations.

Lightweighting military vehicles via aluminum structures also enhances performance, which is why platforms that traditionally require maximum speed and agility, such as airplanes and sports cars, incorporate many aluminum technologies that originated with Alcoa. For instance, lighter aluminum vehicles can accelerate and brake faster than their heavier, steel-intensive counterparts. Additionally, aluminum is up to 50 percent lighter, yet provides more structural stiffness than steel.

"FED represents the first time we have been able to integrate a comprehensive suite of Alcoa's lightweighting technologies into one vehicle," said Alcoa Defense President Dave Dobson. "We are excited to have the opportunity to showcase all of our technologies for making vehicles lighter, faster and stronger in one groundbreaking platform."

In addition to a welded aluminum spaceframe, other Alcoa innovations on the FED vehicle include:

- An interchangeable aluminum blast and brush shield reduces curb weight. The strong aluminum blast shield that protects the underside of the vehicle can be switched to a thinner brush shield for use in non-combat environments to save on fuel. The blast shield was designed with Alcoa's 2040 aluminum armor, a high-strength alloy that doesn't fracture and resists blasts without failure or cracking. This is the first time that alloy 2040 has ever been used on a vehicle. Additionally, the blast shield is connected directly to the FED's rocker panels beneath the doors and wheel wells. The rocker panels are load bearing, so integrating the blast shield directly into the vehicle structure gives it additional strength, which better protects the soldiers in the cab.
- Instead of a conventional chassis design with frame rails on each side of the vehicle the FED cab is integrated directly into the front and rear chassis modules without frame rails. By eliminating the redundant frame rail components that typically connect the cab with the front and rear chassis modules, the weight of the vehicle is reduced while still maintaining its strength.
- To increase survivability in combat environments, the FED vehicle features Alcoa's CR56 aluminum alloy armor in both integral and appliqué® (add-on) armor applications, providing excellent ballistic and blast performance protection.
- To reduce weight and increase payload, new forged aluminum wheels were added to the FED vehicle. The wheels perform reliably in harsh conditions

and provide substantial weight savings compared to conventional steel wheels. Aluminum wheels reduce tire rolling resistance by up to three percent compared to a comparably sized steel wheel, which results in one percent fuel savings, quicker acceleration and improved braking performance. Additionally, a lighter wheel assembly helps compensate for the weight of armor added to vehicles that were originally manufactured without armor. Finally, the lighter the suspension and wheels, the better the grip when tracking over rough terrain, which improves handling during hard acceleration or braking.

- Pioneered by Alcoa on the Mine-Resistant Ambush-Protected All-Terrain Vehicle by Oshkosh, the FED will feature aluminum suspension components and mounting structure that can withstand harsh environments and difficult terrain. Forged aluminum suspension components deliver strength equivalent to steel at dramatically lower weight. One-piece aluminum forgings also eliminate welding, require minimal machining, easily bolt into place and reduce parts count significantly, which improves quality and streamlines the OEM manufacturing and supply chain process.
- Many structural components of the FED vehicle are joined with Alcoa's Bobtail™ fasteners, which deliver strong joints without compromising the integrity of the materials, which can occur with conventional welding techniques. In addition, they enhance long-term vehicle durability by maintaining joint strength when absorbing sudden impacts.
- Alcoa also used friction stir welding, a specialized welding technique which improves quality by reducing weld-induced distortion, to join several aluminum alloys. Friction stir welding also allowed Alcoa to weld the thick aluminum plates that were integral to the vehicle's blast shield. Alcoa has the expertise to help defense and commercial OEMs integrate aluminum components with high-quality friction-stir welds in their platforms.

With Alcoa's all-aluminum cab and chassis structure serving as the vehicle's foundation, Ricardo Inc. will integrate all other technologies and components into the vehicle, which is scheduled to debut at the Association of the United States Army (AUSA) Winter Symposium and Exposition in Ft. Lauderdale, Fla.

TARDEC embarked on the FED project to help achieve the Army's long-term goal of reducing fuel consumption on the battlefield and its dependence on oil. The innovative solutions featured in the FED vehicle may become widely adopted by other military branches to enhance fuel efficiency in the next generation of tactical wheeled vehicles.

To demonstrate that FED's aluminum technologies can be cost-effectively incorporated into future vehicle fleets, Alcoa built the prototype structure with the same cost-reduction considerations it applies to all OEM platforms. For instance, whenever possible, Alcoa uses aluminum product forms, such as forgings, extrusions and castings, that streamline production and decrease machining costs because their shapes very closely match

the structures final form. To further reduce costs and streamline manufacturing for OEMs that typically specialize in steel structures, Alcoa also constructs aluminum subassemblies or full structures that OEMs can integrate into their vehicles. This support capability makes it much easier for OEMs to use the technologies featured in FED in production vehicles.

## Contracts

### Lockheed Martin Receives Awards for 200 Additional Vehicle-Mounted Sensor Systems



ORLANDO, FL -- Lockheed Martin has received delivery orders totaling \$138 million from the U.S. Army Communications-Electronics Command Acquisition Center for 200 new systems, support services and equipment associated with the Vehicle Optics Sensor Systems (VOSS).

The Gyrocam VOSS, a vehicle-mounted sensor system, can be mast-mounted on virtually any land vehicle or expeditionary system for remote surveillance needs, and it provides high-resolution color, night vision and thermal sensors in a 15-inch class gyro-stabilized gimbal.

"The Lockheed Martin Gyrocam VOSS is a field-proven solution that provides the Warfighter with capabilities to identify and engage in the fight against threats and insurgents," said Jay Pitman, general manager of Lockheed Martin Gyrocam Systems, LLC. "With the rugged design of the Gyrocam VOSS and our strong in-theater support team, we have sustained a 99 percent operational readiness rate that supports the U.S. Army in its Warfighting mission."

These delivery orders are new releases against a multi-year Indefinite Delivery-Indefinite Quantity contract awarded in 2008. Under these latest awards, Lockheed Martin will provide 200 new Gyrocam VOSS, plus additional support services and equipment in support of these systems. The equipment will be produced at the Lockheed Martin Gyrocam Systems facility in Sarasota, FL, and the period of performance will continue through the first half of 2011.

Lockheed Martin Gyrocam Systems has installed more than 800 Gyrocam camera systems on Mine Resistant Ambush Protected vehicles throughout Afghanistan and Iraq. These systems provide Warfighters with crucial

capabilities to conduct threat surveillance missions in the harshest environments.

Gyrocam Systems was recognized during the "Army Top 10 Greatest Inventions of 2007" program as part of the Reconnaissance Vehicle System and was also nominated by Defense Update Magazine as a "Most Innovative Defense Technology of 2008."

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 133,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation's 2009 sales from continuing operations were \$44.0 billion.



### Defence Industry

#### BAE Systems-Northrop Grumman Add iRobot to Ground Combat Vehicle Team

ARLINGTON, Virginia -- BAE Systems and Northrop Grumman today announced they have added iRobot Corp. to their Ground Combat Vehicle (GCV) team in their bid for the U.S. Army's GCV competition.

"The addition of iRobot to our team strengthens and promotes the unmanned components of the GCV program," said Mark Signorelli, BAE Systems vice president and general manager of Ground Combat Vehicle. "Collectively we bring the proven experience, the latest technology and cultures of innovation and service to the Army's GCV program."

iRobot Corporation will serve as the unmanned ground vehicle (UGV) integrator and enhance the capability to detect pedestrians and obstacles of interest with growth towards an autonomous driving capability for the GCV. iRobot will also be responsible for integration of the U.S. Army's Brigade Combat Team modernization program Small Unmanned Ground Vehicle (SUGV) robotic platform so that it can be operated from inside the GCV.

"We are very pleased to be a member of the BAE Systems-Northrop Grumman GCV team," said Robert Moses, president of iRobot's Government and Industrial Robots division. "Together we offer extensive experience in combat platform production and robotics integration capabilities to the GCV program. The GCV is an extremely important program for the Army and today's soldier. We are proud to be part of a team that looks to develop the U.S. Army's next generation combat vehicle."

BAE Systems is the prime contractor for the team. It is the world's largest producer of combat vehicles, having fielded more than any other company in the world. The company is the top supplier to the U.S. Army's Heavy Brigades, one of the largest suppliers to the U.S. Department of Defense and the second largest defense company in the world.

The GCV program is a development effort headed by the U.S. Army and is designed to develop the next generation Infantry Fighting Vehicle.



### Contracts

#### Lockheed Martin Develops Vehicle-Mounted Tablet for Tactical Situational Awareness

ORLANDO, FL -- Lockheed Martin has developed a ruggedized tablet computer for use in tactical vehicles. The TacFleet 8 allows real-world tactical situational awareness exchanges for brigade-and-below forces on the move.

"The TacFleet 8 design incorporates innovative technologies to meet the challenge of asymmetric warfare," said Rich Russell, director of Sensors, Data Links and Advanced Programs at Lockheed Martin Missiles and Fire Control. "Easy access to battlefield intelligence ensures our Warfighters maintain the tactical advantage."

Lockheed Martin's TacFleet 8 provides superior tactical communications capabilities while meeting ultra-ruggedized military standards for harsh environments in combat and civil operations. The tablet will be mounted into a lightweight and compact dock, and is compatible with current U.S. Army Force XXI Battle Command Brigade-and-Below (FBCB2) systems. It allows users to exchange messages with other terrestrial and airborne units, as well as utilize sophisticated mapping tools. The TacFleet 8 meets all Joint Battle Command-Platform and FBCB2 requirements.

TacFleet 8 users can also wirelessly control and stream imagery from ground vehicles and fixed- and rotary-wing aircraft sensors. Lockheed Martin has demonstrated this capability in the company's Tactical Situational Awareness Demonstration Center using the Gyrocam 15 TS sensor system, which is currently fielded on more than 700 MRAP vehicles. The TacFleet 8 interfaces seamlessly with both 9-inch class and 15-inch class Gyrocam systems, and can be readily adapted to operate other sensor systems.

The TacFleet 8 builds on Lockheed Martin's experience with Ground Soldier technologies, including the Common Controller Device and TacScape, and industry-leading, combat-proven production programs like the Apache Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensor system. The technology also leverages decades of expertise in sensor hardware and software integration.

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### Defence Industry

#### BAE Systems Delivers 10,000th Thermal Imager for U.S. Army Weapon Stations

WASHINGTON, DC -- BAE Systems announced at the Association of the United States Army (AUSA) Annual Meeting & Symposium that it has delivered its 10,000th thermal imager for U.S. Army remote weapon stations, an achievement made possible by a fivefold increase in production capacity for the devices, which are used extensively in current U.S. and NATO operations.



Used on remote weapon stations they allow soldiers to detect and identify enemy targets while remaining inside their vehicles through remotely controlled, vehicle mounted platforms.

The TIM1500™ imagers are used on remote weapon stations and allow soldiers to detect and identify enemy targets while remaining protected inside their vehicles through remotely controlled, vehicle-mounted platforms for light- and medium-caliber weapons. Uncooled thermal sensors are smaller, lighter, use less power, and have lower life-cycle cost than sensors that must be cryogenically cooled to attain the necessary thermal sensitivity.

"BAE Systems' commitment to 'putting more eyes on the battlefield™' to support our soldiers is reflected with our shipping 10,000 imagers," said Michael Mawn, TIM1500 product line manager in Lexington, Massachusetts, where the product is produced. "Demonstrating how BAE Systems is rapidly delivering cost-effective capability to soldiers, our production rate was 20 units a week, which we've increased to more than 100 units a week."

The company increased its production rate in anticipation of growing Army requirements that included deployment of the units on MRAP combat vehicles.

## Lockheed Martin Conducts Validation Testing On the Advanced Ruggedized HULC™ Robotic Exoskeleton



ORLANDO, FL -- Lockheed Martin recently began laboratory testing of an improved next-generation design of its HULC™ advanced robotic exoskeleton. The testing brings HULC a step closer to readiness to support troops on the ground and others who

must carry heavy loads.

HULC is an untethered, battery powered, hydraulic-actuated anthropomorphic exoskeleton capable of performing deep squats, crawls and upper-body lifting with minimal human exertion. It is designed to transfer the weight from heavy loads to the ground through the robotic legs of the lower-body exoskeleton, taking the weight off of the operator. An advanced onboard micro-computer ensures the exoskeleton moves in concert with the operator.

The ruggedized HULC system incorporates multiple design changes to increase reliability and performance in operational environments. New environmental sealing and packaging give the system's electronics increased protection from natural elements and battlefield hazards. Lockheed Martin also leveraged commonly-used, military-standard rechargeable batteries to increase operational run time.

The testing now under way will validate the ruggedized system's capabilities and reliability in a variety of simulated battlefield conditions. "Each of Lockheed Martin's enhancements to the ruggedized HULC design was carefully planned to maintain peak system performance and alleviate physical burdens that can hinder the user's mission success," said Rich Russell, director of Sensors, Data Links and Advanced Programs at Lockheed Martin Missiles and Fire Control. "The design improvements we implemented on the ruggedized exoskeleton prove our commitment to providing the Warfighter with an innovative solution that improves endurance and reduces the risk of injury."

Lockheed Martin further refined the HULC's form and fit, allowing the operator to adapt to the exoskeleton in less time. The ruggedized structure allows for rapid, repeatable adjustments to the torso and thigh length, without special tools, to better suit a wider variety of users. It also conforms to the body and incorporates lumbar padding for comfort and support. Additionally, the upgraded HULC features improved control software to better track the user's movements.

Biomechanical, dynamic load and environmental verification evaluations of the ruggedized HULC are under way. Treadmill testing will measure anticipated decreases in metabolic cost as the HULC assists the user with heavy loads. Sand, wind, rain, temperature and humidity testing will replicate harsh environments and verify combat durability.

HULC is one of several technologies that Lockheed Martin is developing to support ground Soldiers. Lockheed Martin is a total systems solution provider to the military, including wearable situational awareness, a broad range of mobility assistance systems and power management systems. Lockheed Martin is also exploring exoskeleton designs to support industrial and medical applications.

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 133,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration

and sustainment of advanced technology systems, products and services. The Corporation's 2009 sales from continuing operations were \$44.0 billion.

vehicles, exponentially increasing the mission effectiveness of ground forces in theatre.

### Defence Industry

#### BAE Systems Reaches Milestone with Modernized Howitzer Vehicles



YORK, Pennsylvania -- BAE Systems has delivered seven Paladin Integrated Management (PIM) prototype vehicles to the U.S. Army on schedule. PIM is the latest howitzer in the M109 Paladin family of vehicles.

BAE Systems was awarded a \$63.9 million research and development contract in August 2009 to produce five Self Propelled Howitzers and two Carrier, Ammunition, Tracked vehicles. The first prototype vehicle was unveiled earlier this year in January.

"This landmark is really a testament of the great team we have assembled to work on this combat proven system," said Joe McCarthy, vice president and general manager of the Heavy Brigade Combat Team (HBCT) systems for BAE Systems. "With every job we strive to meet and exceed our customers' requirements and expectations and thanks to the hard work and commitment of our employees we were able to meet that goal and even exceed it by producing some of the vehicles ahead of schedule."

The initial PIM vehicles are conducting contractor testing in Yuma, Arizona and Aberdeen, Maryland before they are delivered to the customer beginning in January 2011.

The PIM uses the existing main armament and cab structure of a Paladin M109A6 and replaces the out-of-date chassis components with up-to-date components from Bradley Combat Systems. PIM incorporates a state-of-the-art "digital backbone" and power generation capability and integrates electric elevation and traverse drives, electric rammer and digital fire control system. The upgrade of the PIM ensures commonality with existing systems in the Heavy Brigade Combat Team (HBCT), and reduces its logistical footprint and operational sustainability costs by replacing obsolete components within the mobility chassis.

The Paladin Integrated Management vehicle is the first production vehicle equipped with the company's enhanced on-board power management capability, representing the first implementation of the U.S. Army's On Board Power Management requirement. BAE Systems' enhanced on-board power management solution will double the electrical power of most military

### Defence Industry

#### General Dynamics Selected for Merkava Armored Personnel Carriers for Israel



STERLING HEIGHTS, Mich. -- General Dynamics Land Systems, a business unit of General Dynamics, has been selected to negotiate a contract with the Israeli Ministry of Defense for Merkava Armored Personnel Carriers (APC).

The competitive procurement process was for the production of Merkava APC hulls, material kit sets and integration of the kits to the vehicle chassis. General Dynamics expects to complete contract negotiations by the end of this year.

Production will be performed at the Joint Systems Manufacturing Center in Lima, Ohio. The base contract will be completed by March 2015 or extend to November 2019 if all options are exercised.