

# Army Guide monthly



## # 11 (50) November 2008

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## Contracts

### Oshkosh Defense Awarded \$1.2 Billion Contract to Provide Next-Generation Family of Heavy Tactical Vehicles

OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation (NYSE:OSK), will add more than 6,000 upgraded vehicles to the U.S. Army's Family of Heavy Tactical Vehicle (FHTV) fleet under a new three-year contract from the U.S. Army Tank-automotive and Armaments Command (TACOM).

The vehicles include increased horsepower and performance features due to power-train and suspension upgrades. The first order is valued at \$1.2 billion and delivery will start in November.

The FHTV III program will be awarded in increments and calls for Oshkosh to manufacture and deliver more than 6,000 of the upgraded and more-powerful variants of heavy tactical vehicles and accompanying trailers. This includes the Oshkosh(R) Heavy Expanded Mobility Tactical Trucks (HEMTT), Palletized Load Systems (PLS) and PLS trailers (PLST), and Heavy Equipment Transporters (HET).

As part of the contract, Oshkosh Defense will supply the U.S. Army with the next-generation HEMTT, the HEMTT A4, and will soon introduce the A1 models of the PLS and HET. Available to Army forces worldwide, these new next-generation vehicles will feature increased horsepower and performance features due to power-train and suspension upgrades. In addition, all three vehicle families will be Long Term Armor Strategy (LTAS) compliant and come off the assembly line fitted with upgraded suspensions and integral composite ("A" kit) armor. They also will be ready to receive an add-on ("B" kit) armor applique.

"No other manufacturer makes heavy tactical vehicles like Oshkosh. And today's announcement confirms the strong confidence the U.S. Army has in our Oshkosh Defense battle-tested and mission-ready fleet of vehicles and their capabilities to meet the in-field demands of tomorrow," said Robert G. Bohn, Oshkosh Corporation chairman and chief executive officer. "The vehicle enhancements are designed to improve troop safety for our brave men and women serving in the military, and boost vehicle performance on the battlefield."

The Oshkosh HEMTT 13-ton payload and off-road capabilities make it the backbone for the U.S. Army's logistics fleet. Since its introduction in 1985, the HEMTT has helped keep the Army on the move during major conflicts such as Operations Desert Storm and Iraqi Freedom.

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

The HET transports payloads up to 70 tons and is

designed to rapidly transport battle tanks, fighting and recovery vehicles, armored vehicles, and construction equipment, as well as their crews, to arrive in mission-ready condition.

## Defence Industry

### Australia will participate in JLTV

The Australian Defence Minister announced that the country would participate in the development phase of the JLTV.

As we posted yesterday three development contracts are due to be announced soon by the US Army. JLTV will be used to replace Land Rover vehicles in the Australian inventory. The benefit to them of course is that there 4200 unit buy will be a drop in the bucket compared to the thousands the US military will purchase guaranteeing them a good price. Mr. Fitzgibbon also announced upgrades to a variety of current vehicles and the purchase of more Bushmaster armored vehicles.

## Contracts

### Ceradyne, Inc. Receives \$73 Million XSAPI Body Armor Order

COSTA MESA, Calif. -- Ceradyne, Inc. announced that it has received a delivery order for \$73 million for XSAPI body armor plates.

This order is the first production delivery order against the \$2.37 billion ID/IQ (Indefinite Delivery/Indefinite Quantity) contract announced on October 6, 2008. This production order is scheduled to be completed within the next twelve months. Delivery commencement is subject to approval of the First Article Testing (FAT) order which was placed simultaneously with the large ID/IQ contract.

David P. Reed, Ceradyne President North American Operations, commented: "We are pleased to have received this initial volume production delivery order against the large five year procurement ID/IQ contract announced earlier this week. We believe that this will be the first of a series of volume production delivery orders to be issued against the ID/IQ five-year contract." Ceradyne develops, manufactures and markets advanced technical ceramic products and components for defense, industrial, automotive/diesel and commercial applications. Additional information about the Company can be found at [www.ceradyne.com](http://www.ceradyne.com).

Except for the historical information contained herein, this press release contains forward-looking statements regarding future events and the future performance of Ceradyne that involve risks and uncertainties that could cause actual results to differ materially from those projected. Words such as "anticipates," "believes," "plans," "expects," "intends," "future," and similar expressions are intended to identify forward-looking statements. These risks and uncertainties are described in

the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2007, and its Quarterly Reports on Form 10-Q, as filed with the U.S. Securities and Exchange Commission.



### Contracts

## BAE Systems Secures Contract Worth \$20 Million From U.S. Army For Paladin Digital Fire Control Support Hardware



YORK, Pennsylvania -- BAE Systems, under a \$20 million contract, will purchase and deliver Paladin Digital Fire Control Systems (PDFCS) kits and spare components for M109A6 Paladin vehicles to the U.S. Army.

“The Paladin Digital Fire Control system supports all communications and computer processing,” said Andy Hove, vice president of Combat Systems programs for BAE Systems. “Some of the kits under this contract will be installed on vehicles at fielding sites across the U.S. and the world, while others will be shipped to an Army Depot where they will be used on the Paladin reset line.”

Under this phase of the contract BAE Systems will purchase and ship 140 PDFCS kits and more than 60 spare components to support the system. To date, approximately 450 kits have been procured under this contract.

Work will be performed by the existing workforce at BAE Systems facilities in York, Pennsylvania; Sterling Heights, Michigan; and Anniston, Alabama beginning in September 2009. Deliveries are scheduled to be completed by January 2010.

The contract is managed by the Army’s TACOM Life Cycle Management Command.

The combat-proven M109A6 Paladin self-propelled howitzer provides increased performance, responsiveness and lethality. Its shoot and scoot capability protects the crew from counter battery fire. From the move it can receive a fire mission, compute firing data, select and take up firing positions, automatically unlock and point its cannon, fire and move quickly, day or night. Paladin’s range offers increased lethality and survivability, because the crew remains inside the vehicle throughout the mission.



### Defence Industry

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“No other manufacturer makes heavy tactical vehicles like Oshkosh. And today’s announcement confirms the strong confidence the U.S. Army has in our Oshkosh Defense battle-tested and mission-ready fleet of vehicles and their capabilities to meet the in-field demands of tomorrow,” said Robert G. Bohn, Oshkosh Corporation chairman and chief executive officer. “The vehicle enhancements are designed to improve troop safety for our brave men and women serving in the military, and boost vehicle performance on the battlefield.”

The Oshkosh HEMTT 13-ton payload and off-road capabilities make it the backbone for the U.S. Army’s logistics fleet. Since its introduction in 1985, the HEMTT has helped keep the Army on the move during major conflicts such as Operations Desert Storm and Iraqi Freedom.

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system that reduces the need for forklifts or other material-handling equipment, and they both carry a demountable cargo bed, also known as a flatrack, that features a 16.5-ton payload capacity.

The HET transports payloads up to 70 tons and is designed to rapidly transport battle tanks, fighting and recovery vehicles, armored vehicles, and construction equipment, as well as their crews, to arrive in mission-ready condition.

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



### Contracts

#### Lockheed Martin Receives \$147 Million Contract for Sniper Advanced Targeting Pods

ORLANDO, Fla. -- Lockheed Martin has received a \$147 million contract from the U.S. Air Force for additional Sniper Advanced Targeting Pods (ATPs). The Sniper ATP provides critical long-range, positive identification of targets and coordinates self-generated video down-link (VDL) to remotely-operated, video enhancement receiver ground terminals.

Sniper ATP's advanced target identification capabilities enhance the Warfighter's ability to detect and analyze ground targets while dramatically decreasing the risks posed by enemy air defenses.

"The Sniper pod serves a vital role in the Air Force's ongoing fighter and bomber operations in theater," said Ken Fuhr, director of Fixed-wing Targeting Programs at Lockheed Martin Missiles and Fire Control. "We are continuously driving new features and capabilities into the system to keep Sniper ATP the most advanced targeting pod in the world."

A new feature in development is a missionized two-way data link system. Lockheed Martin has a Cooperative Research and Development Agreement with the Air Force Research Lab to integrate Quint Networking Technology into the Sniper pod. This will enable a two-way data link between other Sniper ATP-equipped aircraft and ground parties, dramatically shortening targeting, close air support and damage assessment timelines.

For joint force coordination, Sniper ATP has successfully demonstrated real-time, streaming video via its VDL to the Army Apache helicopter using the Video for Unmanned Aerial Systems Interoperability Teaming-2, or VUIT-2 system.

Other planned improvements include a low-light-level,

high-definition TV, enhanced forward-looking infrared and algorithm upgrades. Each system advancement is supplied in a single line replaceable unit design for flexible flightline upgrade capability.

Designed, developed and manufactured by Lockheed Martin, the Sniper ATP also provides essential non-traditional intelligence, surveillance and reconnaissance using high-resolution, mid-wave FLIR and TV sensors, which operate in conjunction with a dual-mode laser, permitting eye-safe operation and precise geo-location in urban environments.

For target coordination, the Sniper pod possesses a laser spot tracker to see other laser spots from air and ground assets, an infrared marker visible to night vision goggles and a VDL to ground forces. Sniper ATP provides real-time targeting for JDAM, small diameter bomb and precision-guided weaponry, as well as employment of laser-guided weapons (Laser JDAM and Laser Maverick) against moving targets. The Sniper ATP is the only targeting pod fielded that incorporates meta-data in every frame of video. The date/time stamp and coordinate information further ensures accuracy throughout intelligence and command and control functions.

Deployed in theater since January 2005, Sniper ATP also has been selected by nine international air forces and coalition partners.

Sniper ATP is currently flying on the U.S. Air Force and multinational F-16, F-15, B-1, F-18, Harrier, A-10, B-52 and Tornado aircraft. Its common software and hardware interface design enables users to "plug and play" across services and multiple platforms, providing a common software and hardware configuration across aircraft fleets.

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



### Contracts

#### AM General Wins \$100M for Humvee Production

AM General LLC, South Bend, Ind., was awarded on Oct. 31, 2008, a \$100,447,177 firm/fixed/price contract for added 853 EA High Mobility Multi-Purpose Wheeled Vehicles to contract.

Work will be performed in Mishawaka, Ind., with an estimated completion date of Dec. 31, 2009. One bid was solicited and one bid was received.

TACOM, Warren, Mich., is the contracting activity (DAAE07-01-C-S001).



**Contracts**

**GD Wins \$58M to Upgrade Saudi M-1 Tanks**



General Dynamics Land Systems, Sterling Heights, Mich., was awarded on Oct. 31, 2008, a \$58,340,939 cost/plus/fixed/price contract for engineering service for Saudi Arabian government update to convert the M1A2 Abrams tank into Saudi, M1A2S configuration.

Work will be performed in Sterling Heights, Mich., with an estimated completion date of Dec. 31, 2010. One bid was solicited and one bid was received.

TACOM, Warren, Mich., is the contracting activity (W56HZV-09-C-0095).

**Robots**

**iRobot Receives Additional \$3.5 Million Order From U.S. Army**

Bedford, Mass. -- iRobot Corp. today announced it has received an order totaling \$3.5 million under a contract with the U.S. Army Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI).

This is the seventh order under the \$286 million Indefinite Delivery/Indefinite Quantity (IDIQ) xBot contract. Under its terms, iRobot will deliver up to 26 of its PackBot 510 with FasTac Kit robots and spare parts to the Army. Total orders under this contract have now reached approximately \$67 million.

“With this most recent order, the Army is making it clear that it intends to build upon its use of unmanned systems,” said Joe Dyer, president of iRobot Government and Industrial Robots. “Over the years, we have seen the life saving benefits of the iRobot PackBot. We are honored to continue providing these valuable tools to our troops to increase mission effectiveness and keep them safer on the battlefield.”

The PackBot 510 with FasTac Kit is used by infantry in combat operations to perform reconnaissance, investigate suspicious objects, identify roadside bombs and other improvised explosive devices (IEDs), and to uncover unexploded ordnance while keeping soldiers in theater at safe distances. iRobot will deliver spare parts to the Army by January 29, 2009 and all 26 PackBot with FasTac Kit robots by April 30, 2009.

iRobot has delivered more than 2,000 PackBot robots that make a difference everyday by conducting dangerous missions that keep warfighters out of harm's

way.

**Defence Industry**

**Navistar Defense to Deliver 822 Lighter MRAP Vehicles One Month Ahead of Schedule**

WARRENVILLE, Ill. -- Navistar Defense, LLC will deliver on its contract for 822 International® MaxxPro™ Dash Mine Resistant Ambush Protected (MRAP) vehicles one month ahead of schedule to aid urgent needs in Afghanistan. Originally scheduled to be completed by the end of February 2009, the company has leveraged its extensive relationships with its supply base to provide the government with an even more aggressive delivery schedule.

The company is now committed to delivering all units by the end of January.

Navistar has worked around the clock since receipt of this award and on Tuesday delivered 70 units – two weeks in advance of its already aggressive delivery schedule.

“Navistar is prepared to rapidly provide the U.S. and its allies with MRAP vehicles at a time when hostilities call for more troops in Afghanistan,” said Archie Massicotte, president, Navistar Defense. “The Navistar team is going after an aggressive delivery commitment and we will be successful due to our partnering with the supply base. We are driven to provide our fighting men and women with the equipment they need as soon as possible.”

The MaxxPro Dash, a lighter, more mobile Mine Resistant Ambush Protected (MRAP) variant was designed especially for the rugged terrain in Afghanistan. The Dash maintains the survivability system used on all MaxxPro MRAP variants while also allowing for greater mobility. A smaller turning radius and higher torque-to-weight ratio are among the improvements to its mobility. MaxxPro Dash is also capable of accommodating additional up-armoring. Supportability and maintainability are maximized with a high-degree of commonality of parts among all MaxxPro variants.

The MaxxPro Dash is the sixth variant in 18 months from Navistar’s MaxxPro MRAP vehicle platform. Since the initial contract in May 2007, Navistar has won more than \$3 billion in contracts to produce a total of 6,044 MaxxPro vehicles.

**Defence Industry**

**Saab was selected as supplier of the NLAW for the British army**

The first official next generation anti-tank weapon (NLAW) demonstration for potential customers took place recently.

The demonstration took place on a cold and damp Wednesday deep in the forests of Sweden. About fifty

guests from thirteen different countries were present. Shooters from the existing customer countries, Sweden, United Kingdom and Finland, fired three missiles; two at moving targets and one at a concealed Main Battle Tank from confined space. All shots resulted in direct hits and demonstrated the system's unique hit probability. With these three missiles, a total of 62 live firings have been made, of which 61 have been successful.



### Without competition

NLAW is a unique project in many ways. The deal with the United Kingdom was won in the face of extremely tough competition at the highest level. A condition of winning the contract was that British industry would be involved in the production to the greatest possible degree. Today, the project has approximately 20 sub-contractors spread across the whole United Kingdom. Final assembly takes place at Thales in Northern Ireland, while all development work takes place at Saab.

At the end of 2005, Sweden also ordered the NLAW system.

"NLAW is a unique weapons system that does not have any direct competitors. This is shown by the fact that Finland came on board as a customer in 2007, before the system was fully developed," says Michael Ekenstedt, who is programme manager for NLAW.

### According to plan

It has been a difficult, and not uncomplicated, journey to bring the NLAW project safely into harbour. The date of introduction into service in the United Kingdom has had to be rescheduled a number of times but now production is under way, according to plan.

"The design phase is complete and we are meeting all the contracted milestones. The British army will get their first delivery at the beginning of November and Sweden and Finland have already had small quantities delivered for evaluation and training purposes. Deliveries for operational use to Sweden and Finland will start during 2009," says Christer Axelsson, assistant programme manager for NLAW.

### Bright future

The demonstration in Karlskoga was the start of more intensive marketing for NLAW. A lot of countries have already shown considerable interest and there is a definite need for NLAW's capability. Anders Haster was responsible for the implementation of the demonstration and was very pleased with the result:

"It feels great to have really shown that we have a product that lives up to what we have been telling people for several years. We are now looking forward to starting a number of sales campaigns at the end of the year and during next year. Hopefully, several of these will also generate contracts."

## Defence Industry

### General Dynamics Awarded \$58 Million for Engineering Work on Saudi Tank

STERLING HEIGHTS, Mich. -- General Dynamics Land Systems has been awarded \$58.3 million to design the new Saudi M1A2 (M1A2S) Abrams tank for the Kingdom of Saudi Arabia.

The Foreign Military Sales (FMS) contract was awarded by the U.S. Army TACOM Lifecycle Management Command for the Royal Saudi Land Forces. General Dynamics Land Systems is a business unit of General Dynamics.

Under this engineering contract, General Dynamics will design, develop, convert, implement and test a hybrid configuration of the M1A1, M1A2 and M1A2 System Enhancement Package (SEP) tank variants for the Kingdom of Saudi Arabia. The M1A1S vehicles will possess defined capabilities that increase lethality while limiting obsolescence. The engineering work will be performed in Sterling Heights.

Related contracts are expected to be awarded through FMS under the multiphase Royal Saudi Land Forces M1A2S program that will fund additional engineering work, production and modification to vehicles, and plant retooling.

General Dynamics, headquartered in Falls Church, Va., employs approximately 91,200 people worldwide. The company is a market leader in business aviation; land and expeditionary combat systems, armaments and munitions; shipbuilding and marine systems; and information systems and technologies.

## Contracts

### General Dynamics European Land Systems Awarded Contract for 198 EAGLE IV 4x4 Vehicles for Germany



VIENNA, Austria -- General Dynamics European Land Systems has entered a contract with the German Bundesamt für Wehrtechnik und Beschaffung (BWB) for the delivery of 198 EAGLE IV protected Command and Function Vehicles, including 25 vehicles that were delivered earlier under an agreement reached in July.

The contract has a total value of 106 million Euros (approx. \$141 million), including provision for development of a logistics and service-support

organization.

This contract is the largest order ever awarded for the new EAGLE IV vehicle. The 198 vehicles now under contract will be manufactured in Kreuzlingen, Switzerland, and Kaiserslautern, Germany. Deliveries will commence in 2008 and will extend to 2010.

Within the framework of the "GFF Klasse 2" program - protected Command and Function vehicles - unprotected carrier vehicles of the Bundeswehr will be replaced by the EAGLE IV to enhance the safety of German soldiers wherever they may serve. Due to its high deployability, agility and tactical mobility, the EAGLE IV is suitable for the entire mission spectrum for this class of vehicles.

The EAGLE IV can be used for various missions by applying modular add-on kits. Furthermore, the substantial payload capability - which is significant, despite the high level of crew protection - supports the growth potential required to fulfill future requirements. For self-protection, all vehicles will be equipped with a remotely controlled weapon station of the KMW FLW 100/200 type.

In addition to its crew-protection and mobility advantages, the EAGLE IV also enjoys low operation and training costs. Lifecycle costs of the vehicle fleet will be further minimized by the high degree of logistic commonality among the EAGLE IV and the DURO IIP tactical truck, which has already been successfully introduced in the German Bundeswehr as the RLS "YAK." The vehicles share many essential components, such as the engine, transmission, axles, wheel drives, differentials and brakes, helping reduce costs. The German Bundeswehr will share the cost advantage of a common EAGLE IV and DURO IIP fleet previously enjoyed only by Denmark.

In announcing the order, Lutz Kampmann, vice president of Wheeled Vehicles for General Dynamics European Land Systems, said, "This order is an important milestone for the international success of our EAGLE IV as well as for the continuous development of our relationship with Germany as a key customer. The contract demonstrates the German Bundeswehr's confidence in our products, particularly in the DURO IIP vehicles which since 2003 have proven themselves in peace missions in Afghanistan and other places."

"This order also will help open doors to new customers for the EAGLE IV," Kampmann said, "since the multi-purpose designs enables the vehicle to fulfill the rising need for highly protected transport capacity for the international peace missions of many countries."

The baseline development of the EAGLE IV was completed with the roll-out of the first prototype at the end of 2003. Just two years later, the Danish Army ordered 90 vehicles. At the beginning of 2006, the German BWB purchased two EAGLE IV demonstrator vehicles for intensive comparative tests. In these demanding tests, the EAGLE IV proved its superior mobility, a high level of protection for the crew, a large usable volume, and a high payload.

#### Facts about the EAGLE IV 4x4

The EAGLE IV sets the standard for protected wheeled vehicles in the weight class of up to 9 t. The EAGLE IV has a length of 5.40 m, a height of 2.4 m, a width of 2.16 m, and it accommodates up to 5 persons. It reaches a top speed of 110 km/h on the road and manages gradients of up to 60%. The 245 hp Cummins turbocharged diesel engine, in connection with an Allison 5-speed automatic transmission, the unique DeDion axle system with the patented roll stabilizer, the tire pressure control system and the permanent all-wheel drive give the EAGLE IV superior on-road and off-road mobility.

Thanks to the modular protection system, the EAGLE IV offers a very high level of protection against ballistic threats, mines, and IEDs. Furthermore, the vehicle is equipped with an NBC overpressure system.

General Dynamics European Land Systems, headquartered in Vienna, Austria, is a business unit of General Dynamics Corporation, and conducts its business through four European operating sites located in Spain, Germany, Austria and Switzerland. With more than 3,250 highly skilled technical employees, General Dynamics European Land Systems' companies design, manufacture and deliver land combat systems, including wheeled, tracked, and amphibious vehicles, armaments and munitions, to global customers.

#### Contracts

### BAE Systems Awarded New \$1.6 Billion U.S. Army Contract for 10,000 Additional Family of Medium Tactical Vehicles



SEALY, Texas -- BAE Systems has been awarded a \$1.6 billion contract from the U.S. Army to build another 10,000 Family of Medium Tactical Vehicles (FMTV) and trailers for delivery during 2009 and 2010. Earlier this year, BAE Systems received two contracts totaling nearly \$2.1 billion for 10,000 vehicles, and to provide program support, engineering, integrated logistics support, configuration management and field service support.

This latest contract brings the total award value for FMTVs in 2008 to \$3.7 billion.

BAE Systems will manufacture the FMTVs in the Long Term Armor Strategy (LTAS) configuration, which is designed to accept an adaptable armor system allowing protection to be increased or decreased based on the threat. Vehicle variants to be built will include cargo trucks, wreckers, expansible vans, shop vans, tractors,

load handling systems, High Mobility Artillery Rocket System support vehicles and Low Velocity Air Drop configured trucks.

"This award will boost FMTV production to record rates," said Chris Chambers, vice president of Medium/Heavy Vehicles for BAE Systems in Sealy, Texas. "It introduces the advanced LTAS FMTV configuration at high numbers, rapidly equipping the U.S. Army with the very latest adaptive, protection technology."

More than 48,000 FMTV trucks and trailers are in service with the U.S. Army. The commonality of parts among FMTVs includes shared engines, transmissions, power trains, tires and cabs. This commonality significantly reduces the logistics burden, and operating and support costs for the U.S. Army. FMTVs have set new tactical vehicle standards for capability, reliability, mobility, protection and transportability.

Production of the LTAS cargo vehicles will be performed at BAE Systems' facilities in Sealy, Texas, and Cincinnati, Ohio. Deliveries of the base contract are expected to be complete by February 2010, and deliveries of the option would be complete by November 2010.

"The announcement that BAE Systems' Sealy Tactical Vehicle division has landed a new contract to produce over 18,000 FMTV trucks is welcome news for Sealy, the State of Texas, and the fine soldiers of the U.S. Army. It is another testament to the important role Sealy and BAE Systems play in the production of critical military equipment for our troops. The work under this new contract, to build over \$2.2 billion worth of new Army trucks, will directly support the war on terror by providing equipment that our soldiers need to take the fight to the enemies of freedom and succeed. At the same time, it will sustain jobs for residents in the Sealy area and continue to grow the Texas economy," said U.S. Senator John Cornyn (R-Texas), Ranking Member of the Senate Armed Services Air Land Subcommittee.

BAE Systems employs more than 2,500 people in Sealy, Texas and has nearly 900,000 square feet of manufacturing and office space on approximately 200 acres. The location has a long history with wheeled vehicle products. It has established itself as a world-class designer, volume manufacturer and through-life supporter of high-quality, best value, military tactical trucks and wheeled vehicle systems with payload capacities from 2.5 to 18 tons. Today, BAE Systems is the exclusive manufacturer of FMTVs and the producer of three Mine Resistant Ambush Protected (MRAP) variants, the Caiman, the RG33 and the RG31. The Caiman is manufactured in Sealy.

In Cincinnati, Ohio, BAE Systems employs more than 2,000 people and has about 900,000 square feet of manufacturing and office space. The Cincinnati operations has played a vital role in both the Caiman and RG33 MRAP programs by providing armor systems for both vehicles, as well as the FMTV. Other products include up-armored vehicles, commercial armored vehicles, integrated armor kits and accessories for a full

range of tactical wheeled vehicles, combat vehicles and construction equipment. The Cincinnati operations also include a state-of-the-art ballistic glass plant.

BAE Systems is the premier global defense and aerospace company delivering a full range of products and services for air, land and naval forces, as well as advanced electronics, information technology solutions and customer support services. With approximately 100,000 employees worldwide, BAE Systems' sales exceeded \$15.7 billion (US \$31.4 billion) in 2007.

## Defence Industry

### Metal Storm Completes US Marine Contract

ARLINGTON, VA -- Defence technology specialist Metal Storm Limited has announced that Metal Storm Incorporated (MSI) has completed a key contract for the United States Marine Corps.

After a full and open acquisition process, MSI was one of two companies selected to participate in a Market Research Demonstration (MRD) for the US Marine Corps System Command's Mission Payload Module - Non Lethal Weapon System program.

The purpose of the MRD was to determine the maturity level of technology in the marketplace. Following the MRD, the U.S. Government plans to solicit proposals for the System Development and Demonstration Phase. Following this phase, the Government anticipates requesting proposals for production contracts.

The demonstration, using Metal Storm's FireStorm lightweight multi-barrel 40mm electronic weapon, was conducted at the Naval Surface Warfare Center in Dahlgren, Virginia. To facilitate the assessment of the weapon, MSI was required to deliver the weapon system and ammunition to the US Navy in advance of the testing. MSI trained US Navy personnel to operate the FireStorm system, and the US Navy personnel carried out the demonstration firing.

During the MRD, the US Government collected performance data on the system accuracy and coverage area at ranges of 30 and 150 meters for two non-lethal munitions that were launched from Metal Storm's FireStorm weapons platform.

MSI General Manager, Peter D. Faulkner, said: "We are proud to have been selected to participate in the MRD and are looking forward to our continued involvement in the Mission Payload Module program as the Marine Corps acquisition process evolves. We believe our weapons platform will offer significant advantages in range, area coverage, precision, and scalability over current non-lethal weapon systems."

"The Mission Payload Module - Non-Lethal Weapons System will provide a non-lethal counter-personnel capability to support missions requiring crowd control and will deny, defend and control area access while allowing the user to engage threats at standoff ranges and protect non-combatants," Mr Faulkner said.



Follow-on increments will ultimately be integrated on other tactical vehicle platforms, unmanned ground vehicles, and Navy surface water vessels.

## Defence Industry

### Remote-controlled weapon stations delivered to the Bundeswehr on time



Kassel -- Krauss-Maffei Wegmann (KMW) has carried out the first partial delivery of seven light FLW 100 weapon stations to the Federal Office for Defence Technology and Procurement (BWB). The contract signed in July of this year allows for the production and delivery of 230 light (FLW 100) and 190 heavy weapon stations (FLW 200) in all.

Only four months after signature of the contract, the first weapon stations, which can be mounted any type of vehicle, have now been handed over to the Bundeswehr.

This was only possible because all participating firms, under the leadership of KMW, began advance production immediately after the selection decision at the end of 2007, at their own financial risk, in order to meet the planned delivery deadlines. With the prompt delivery of the first seven weapon stations, KMW has been able to make a valuable contribution to the security of Bundeswehr soldiers in their missions abroad.

In order to respond to the resulting increased need for protection, the Bundeswehr decided to equip its vehicles with light and heavy weapon stations of the types FLW 100 and 200 in the framework of its 'GFF' ("protected command and role-specific vehicle") procurement programme. KMW was thus able to convince the Bundeswehr as to both modular weapon stations in a comparative test, and prevailed against competing international products.

#### Remote-controlled weapon stations

Both the FLW 100 and the FLW 200 can be operated by remote control by the vehicle crew from within the armoured interior, using a monitor with integrated day- and night-vision devices. A further technical feature of the system is the so-called gyroscopic stabilisation, which enables an extremely precise and controlled deployment of the weapons even during high-speed movement through rugged terrain. In addition, the stations permit a rapid change in armament. The respective equipment range – from machine guns up to automatic grenade launchers – is automatically recognized, and the station adapts its ballistics accordingly.

A further advantage is that the system can be mounted

on the vehicle without making roof openings, due to its modular design. This means that no moving parts are located in the interior of the vehicle and the level of protection of the vehicles is not reduced by the integration. The integrated security system of the weapon stations also takes the vehicle silhouette, the vehicle-specific arrangement of hatches, doors and body areas, into account. The weapon station will thus not fire on the vehicle itself by mistake.

## Robots

### Congress Allocates \$2 Million for iRobot to Develop its Next - Generation Robotic Platform Warrior 700



iRobot Corp. announced that Congress appropriated \$2 million to further develop the company's Warrior 700, a powerful and rugged robot for use in danger zones and inaccessible areas.

"This funding will allow iRobot to expand its product line, which continues to evolve as the need for unmanned ground vehicles grows worldwide," said Joe Dyer, president of iRobot Government and Industrial Robots.

Melissa Wagoner, a spokeswoman for Senator Ted Kennedy (D-Mass.), said that projects such as iRobot's "will enhance Massachusetts' role as a leader in the defense industry," and added: "Our courageous men and women serving overseas deserve the very best protection our nation can provide." Sen. Kennedy, Massachusetts' Sen. John Kerry and Congressman John Tierney championed the appropriations.

Recognizing the importance of unmanned systems in the reduction of soldier casualties, Congress increased funding to speed the development of unmanned aerial vehicles and unmanned ground vehicles as part of the Consolidated Security, Disaster Assistance, and Continuing Appropriations Act, 2009.

The iRobot Warrior will perform a variety of critical missions, including providing real-time video, audio and sensor readings to combat troops and local law-enforcement SWAT teams. The robot will feature an advanced digital architecture and a multi-mission chassis that supports up to 150-pound (68 kg) payloads.

iRobot Warrior's unique payload-positioning system allows radical changes in the robot's center of gravity for unprecedented mobility in rough terrain, while still suitable for use in an urban environment. The first production units of iRobot Warrior will be available for purchase in the third quarter of 2009.

iRobot has delivered more than 2,000 PackBot robots that make a difference everyday by conducting

dangerous missions that keep warfighters out of harm's way.



**Defence Industry**

**Otokar Received \$43,2 M Contract For Cobra**



Turkey -- Otokar, celebrating its 45th anniversary, has been awarded a \$43,2 million contract to deliver the COBRA armored wheeled tactical vehicle. Delivery is scheduled to be in 2009.

The leading designer and exporter of military vehicles in Turkey, Otokar continues to grow in defense industry with local and international orders. Representing the Turkish defense industry in world arena with its well-known armored vehicle COBRA, Otokar continues to execute contracts abroad.

Stating that the user expectations are met with the most suitable solutions through research and development, General Manager of Otokar, Serdar GURGÜZ evaluated the contract: "The COBRA armored vehicle has become a product widely preferred in various territories by various users. Performance of the vehicle impresses its users. Therefore, countries that are already using this vehicle prefer the COBRA again on their new requirements. This situation makes us proud, and shows that we are in the right direction as well. With its capabilities and its characteristic of providing different solutions in one platform, The COBRA proves itself standing out amongst its competitors. The COBRA is now widely being used in many countries, and positive experiences and opinions about it from these countries cause the vehicle to be accepted by the other countries."

**About COBRA Project**

Throughout the COBRA project that was started by Otokar in 1997, significant technological, engineering and marketing investments were made. Having been tested for durability in many locations in and out of Turkey and in many climatic and geographic conditions in design phase, the COBRA has proven itself taking into consideration the knowledge and experience of Otokar in the field of military and armored vehicles.

An armored tactical wheeled vehicle, the COBRA draws attention with its superior terrain performance and superior survivability. Coming into prominence among its competitors against explosives and mines with its armored monocoque hull structure, the COBRA has the feature of being a unique armored wheeled tactical vehicle with many specifications like run-flat tires,

permanent four wheel drive, independent suspension. It allows full control to the personnel with its wide angle of visibility while it can serve in narrow and local areas with its compact and low silhouette. With its features of high maneuverability, superior engine performance, doors that allow fast and easy access, both day and night mobility, and with convenience for air transport, the COBRA has the features that can meet the needs and tasks of armies of many countries.



**Contracts**

**General Dynamics Awarded \$64 Million for Tank Upgrades**



STERLING HEIGHTS, Mich. – The U.S. Army TACOM Lifecycle Management Command has awarded \$63.7 million to General Dynamics Land Systems, a business unit of General Dynamics, to upgrade 180 tanks under the Abrams Improved Systems Enhancement Package (SEP) Reset (ISR) program.

As part of the reset program, M1A2 SEP Version One tanks are upgraded to the SEP Version Two configuration, which includes improved displays, sights, power, and a tank-infantry phone.

The M1A2 SEP Version Two is the most technologically advanced Abrams tank and can accommodate future technology improvements to ensure compatibility with the Army's Future Combat Systems. Work will be performed in Anniston, Ala.; Tallahassee, Fla.; Sterling Heights, Mich.; and Scranton, Pa. Work is expected to be completed by September 2010.



**Defence Industry**

**BAE Systems Completes Production Of Mine Resistant Ambush Protected Vehicles**



ARLINGTON, Virginia -- BAE Systems has completed production of more than 5,000 Mine Resistant Ambush Protected (MRAP) vehicles under existing contracts with the U.S. Army and U.S.

Marine Corps. Ceremonies to commemorate this milestone were held this week at BAE Systems MRAP-related sites in Charlotte, Michigan and Sealy, Texas.

The events celebrate the completion of a 22-month production run for two BAE Systems variants of the MRAP – the Caiman and the RG33; the U.S. Government has purchased 2,868, and 2,182 of those vehicles, respectively. The final Caiman rolled off the assembly line this week, and the RG33L was delivered to the government on Wednesday. Additional RG33 and Caiman variants will be delivered to the government in coming months.

"The BAE Systems' Team has excelled in its support of our Armed Services in its time of urgent need. Caiman has been On Time-On Target." said Chris Chambers, Vice President, Medium/Heavy Vehicles at BAE Systems. "By any measure Caiman is a success: contract award to production deliveries in 43 days; an unmatched, exemplary delivery to contract and a vehicle protection and reliability record that has enabled our troops to complete their vital mission."

"The RG33 represents an unprecedented story of success that reflects industries unsurpassed rapid response to the Department of Defense's immediate requirement to defeat an ever evolving threat," said Matt Riddle, Vice President, Wheeled Combat Vehicles at BAE Systems. "From design to fielding in less than six months, the RG33 has proven itself worthy in combat and has well earned the respect and accolades of its U.S. military crewmen."

The Caiman and RG33 were developed in 2006 to provide U.S. warfighters in Iraq a vehicle that would protect them against rocket-propelled grenades, roadside bombs and explosively formed projectiles. Prototypes of both vehicles were delivered in January 2007; the first production contracts were awarded to the RG33 in February 2007 and to the Caiman in July 2007.

The Caiman, RG33 and other MRAP models have since replaced many of the unarmored or lightly armored vehicles used for combat-related missions in Iraq.

### The Caiman



As a member of the Family of Medium Tactical Vehicles (FMTV), the Caiman shares many features and components, vastly reducing current and future logistic and training loads and allowing sharing of technology advancements such as stability control, on/off-board power or diagnostic/prognostic systems. Additionally, it offers an adaptable, applique-based protective system allowing rapid future transformation to match changing threats or removal to vastly reduce the vehicle weight

and a high volume under armor with leading payload capacity. The Caiman continues to achieve a sustained operational readiness rate average of 95 percent and has been utilized throughout the spectrum of operations. Manufacturing of the Caiman is coordinated between six of BAE Systems' facilities in Cincinnati, Ohio; Louisville, Kentucky; Phoenix, Arizona; Monroe, North Carolina; Sealy, Texas; and Orangeburg, South Carolina.

### RG33



The RG33 sets the standard for mine-protected vehicles in the 20 to 40-ton weight class, providing superior performance through enhanced survivability, advanced mobility, mission flexibility, rapid availability and vehicle commonality. It features a state-of-the-art v-shaped hull that provides superior blast protection against symmetrical, asymmetrical and unconventional explosive hazards. With its large modular interior, high-mobility chassis and extensive equipment options, the RG33 is an integrated, proven, survivable, blast-protected vehicle. The versatility of the RG33 is represented in the many variants of the vehicle – 4x4 and 6x6 configurations, an armed utility variant, a variant designed for Special Operations Command, an ambulatory variant and a command and control variant.

## Defence Industry

### U.K. MoD Selects Navistar for Mission Specific Tactical Support Vehicle



WARRENVILLE, ILL. -- Navistar Defense, LLC today expanded its worldwide customer list to include the United Kingdom through the Ministry of Defence's Tactical Support Vehicle (TSV) program.

The United Kingdom announced in late October that it had earmarked J350 million (~US\$525 million) for 400 TSV units. Navistar has formally entered into contract negotiations to provide 260 TSV Husky units based off

its International® MXT™ platform to meet an urgent need. The company anticipates that the contract will be ratified in early 2009.

The Husky, which is the medium TSV variant, will be procured for specific missions in three vehicle types: utility, ambulance and command vehicle. Currently, delivery of the vehicles is scheduled to begin in the first half of the 2009 calendar year.

“Navistar is proud to participate in the TSV program and offer the U.K. a flexible MXT platform that can be rapidly modified to meet urgent requirements,” said Robert Puhlovich, sales director, Navistar Defense. “We will continue to deliver on our commitment to provide a comprehensive value solution that includes military vehicles, and worldwide parts and field service support.”

The MXT is designed to fill a gap that exists between the smaller traditional armored 4x4’s that may be payload challenged, and the larger class of Mine Resistant Ambush Protected (MRAP) vehicles that may be mobility restrained for certain mission requirements.

"Leveraging our current commercial capabilities and assets allows Navistar Defense to rapidly respond," said Archie Massicotte, president, Navistar Defense. "Providing the International MXT for the TSV program is another example of how Navistar Defense is not only supporting the U.S. military, but NATO allies."

Final assembly of the MXT TSV units will occur at the company’s West Point, Miss., assembly plant, which has produced more than 5,300 International® MaxxPro™ MRAP vehicles. MXT Husky units will be powered by MaxxForce D 6.0 L V8 engines.

The TSV contract award follows Navistar’s selection in October as one of nine finalists to compete to replace the U.K.’s light tactical wheeled vehicle fleet in the highly-competitive Operational Utility Vehicle Systems (OUVS) program. Navistar will provide vehicles for testing and trials in 2009 to replace a portion of the army’s fleet, which includes Land Rover, Wolf, Reynolds Boughton RB-44 and Pinzgauer vehicles. Current estimates place the opportunity at greater than 4,000 units. Vehicles submitted for the OUVS program will also be based on the MXT platform.



Chairman and Chief Executive Officer Michael Moody, pointed to Force Protection’s selection by the United Kingdom Ministry of Defence as the preferred bidder for the Wolfhound Tactical Support Vehicle (Heavy) program as an example of the way his company is strengthening its capability to respond to urgent operational requirements, “We completed design work and built two prototypes for Wolfhound, which is based on our highly successful Cougar vehicle, in just 90 days. During this time we also carried out blast tests and mobility trials.”

Executive Vice President for Customer Operations Damon Walsh stated, “The selection of Force Protection to produce the Wolfhound confirms our responsiveness to customer needs. We offer our customers, including the United Kingdom Ministry of Defence, the flexibility to set aggressive production schedules to meet their unique requirements. In addition, our vehicles, once delivered, continue to demonstrate an operational readiness rate exceeding 90 percent. Many truck manufacturers worldwide offer the capability to deliver large quantities; what sets Force Protection apart is having both delivery performance capability and the most survivable, sustainable vehicles in the field.”

Force Protection proposes to deliver these vehicles in conjunction with their UK integration partner, NP Aerospace.

Two customised Cougar variants are already featured in major United Kingdom Ministry of Defence programs. The Mastiff 6x6 is in service with British forces in Afghanistan and Iraq. Deliveries of the Ridgback 4x4 began in August of this year. The United Kingdom Ministry of Defence has also recently ordered 24 more Mastiffs together with 14 Force Protection Buffalo route clearance vehicles.

Michael Moody said that the increasing adoption of Force Protection vehicles by the UK, the United States, Italy, France, Canada and Iraq was evidence that the company had, “The right technology at the right time. Cougar and Buffalo continue to prove their worth as the most survivable, sustainable vehicles on the battlefield.”



**Defence Industry**

**Force Protection Selected for United Kingdom Wolfhound Tactical Support Vehicle**



Ladson, SC -- Force Protection Inc.’s speed of response and ability to perform to customer requirements is playing a key role in winning new orders for its range of survivability solutions.

**Robots**

**QinetiQ North America rolls out a robotic first: the field-transformable Dragon Runner robot**



QinetiQ North America’s Technology Solutions Group has launched its new Dragon Runner Small Unmanned Ground Vehicle (SUGV). Dragon Runner SUGV is the first fully modular ground robot system

capable of both quick reconnaissance and improvised explosive device (IED) disarmament in urban, mountainous or rural environments.

Based on a robot originally designed for the US Marine Corps, the modular base unit Dragon Runner weighs less than 20 pounds and can be carried by one person in a standard-issue pack. With field-transformable features that quickly snap or bolt into place – no special tools required – Dragon Runner SUGV can morph to fit virtually any mission.

Dragon Runner SUGV can adapt quickly to fit a variety of critical mission scenarios. These include: reconnaissance inside buildings, sewers, drainpipes, caves and courtyards; perimeter security using on-board motion and sound detectors; checkpoint security; in-vehicle and under-vehicle inspections; and hostage barricade reconnaissance and negotiation.

Operators of Dragon Runner SUGV have the ability to add tracks for maximum mobility and a manipulator arm with rotating shoulder, wrist and grippers for dexterity. In addition, day and night pan/tilt/zoom cameras, motion detectors and a listening capability allow Dragon Runner SUGV to further extend the combat team's situational awareness.

Additionally, Dragon Runner SUGV, gives operators field-changeable frequency capabilities, using analogue or digital radio options, to improve flexibility and range. Standard vehicle and operator control unit batteries mean that troops can use available government inventory for reduced cost and improved sustainability, making Dragon Runner SUGV even easier to integrate into current missions.

"We listened closely to our military customers' needs, and Dragon Runner SUGV is the result," said Dr. William Ribich, President of the Technology Solutions Group, QinetiQ North America. "We've created a lightweight, modular robot that can climb stairs, open doors, provide critical reconnaissance information and disarm IEDs – all while protecting our troops, who control the robot from a safe distance."

QinetiQ North America also provides a worldwide maintenance and support plan to return battle-damaged Dragon Runner SUGVs to active duty as quickly as possible.

"When Dragon Runner SUGV takes a hit, that means at least one soldier or marine was kept from harm," Ribich concluded.



## Future Technologies

### Proton Energy Systems secures \$1.8m military hydrogen refuelling contract

Wallingford, CT – (November 17, 2008) – The U.S. Army's Tank-Automotive Research, Development and Engineering Center (TARDEC) announced today it has awarded a \$1.8 million contract to Proton Energy Systems to develop an advanced hydrogen fueling system capable of sustaining a military fleet of hydrogen-powered vehicles.

"Proton Energy Systems is proud to partner with

TARDEC to develop and implement this progressive hydrogen fueling technology," said Rob Friedland, President and Chief Executive Officer of Proton Energy Systems. "Our mission is to apply hydrogen technology in creative and practical ways, and we are honored to work with TARDEC to develop fueling infrastructure that directly supports DOD's goals for clean vehicle technologies."



Proton Energy specializes in Proton Exchange Membrane (PEM) electrolyzers, a key component of the FuelGen® hydrogen generators, which are designed for commercial as well as military base fleet fueling. Employing hydrogen generators to replace traditional fueling systems will result in several key advantages, including the ability to fuel specialty military vehicles with reduced consumption of fossil fuels and increased efficiency and productivity. In addition, the hydrogen generators are compatible with the power characteristics of international grid systems, and can integrate with renewable electricity sources or hybrid power sources.

"The United States military is dedicated to developing the latest technology that will ultimately enable the realization of a state-of-the art hydrogen powered installation vehicle fleet which supports our petroleum reduction goals," said Paul Skalny, Director of the National Automotive Center, US Army TARDEC "Proton Energy Systems is a leader in hydrogen PEM technology. Our partnership with Proton is another critical step forward in the development of sustainable fueling, an initiative with vast military and civilian potential."

TARDEC's mission is to improve current military force effectiveness and to develop technology to ensure superior capability in the future. With this latest contract, Proton Energy Systems continues its partnership with the U.S. military. Last month, the U.S. Army's Engineer Research and Development Center (ERDC) awarded a \$2.62 contract to Proton Energy to develop a Regenerative Fuel Cell System for "Silent Camp™" Operation. This fuel efficient, hybrid power system is designed to provide the military with critical tactical and fuel efficiency benefits.

### About Proton Energy Systems

Proton Energy Systems designs and manufactures proton exchange membrane (PEM) electrochemical systems to make hydrogen from water in a zero pollution process producing safe, pure, reliable onsite hydrogen to meet today's global hydrogen requirements. Proton Energy Systems has been developing and manufacturing world-class electrolysis systems since 1996, with more

than 1200 units deployed world-wide, on every continent. With a reputation for building robust, reliable, and safe systems, federal, state, and commercial partners repeatedly seek the creative solutions that Proton Energy Systems has proven it is capable of delivering.

