

# Army Guide monthly



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## Defence Industry

## U.S. Marine Corps Orders MTVRs from Oshkosh Defense



OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, will deliver more than 260 Medium Tactical Vehicle Replacements (MTVR) to the U.S. Marine Corps following a delivery order from the Marine Corps Systems Command (MARCORSYSCOM).

The Oshkosh MTVR is the medium-payload workhorse vehicle for the Marines and Navy Seabees, and has been used extensively in Iraq and Afghanistan in a range of challenging conditions.

“The MTVR was designed to give Marines improved off-road mobility, and since being fielded, it has set the standard for all-terrain vehicle performance,” said John Bryant, vice president and general manager of Joint and Marine Corps Programs for Oshkosh Defense. “The MTVRs delivered under this order will support Marines and Seabees with a wide array of tactical missions and on the most challenging terrain.”

The MTVR is available in several variants for the transportation of troops, materials and equipment. The vehicle uses the Oshkosh-patented TAK-4® independent suspension system to achieve a 70 percent off-road profile capability and 16 inches of independent wheel travel for extensive cross-country operations. Oshkosh has delivered more than 11,000 MTVRs to the Marines and Seabees to date.

Working with the Marine Corps Warfighting Lab (MCWL) and the National Robotics Engineering Center of Carnegie Mellon University, Oshkosh has also taken the MTVR’s potential further with its TerraMax™ unmanned ground vehicle (UGV) technology kit. TerraMax-equipped MTVRs used in the MCWL Cargo UGV initiative have been evaluated in various mission scenarios and on a diverse range of terrain. The TerraMax UGV technology has the potential to reduce Marines’ exposure to lethal attacks and free up Marines from logistics missions to support other operations.

MTVR variants being produced under this order include the MK25 Cargo, and MK27 and MK28 Extended Cargo trucks. Production will begin in April 2013 and be completed in September 2014. The order is valued at more than \$67 million.



## Exhibitions

## Oshkosh Defense Showcases National Guard Support at 134th NGAUS Conference &amp; Exhibition



OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, will feature advanced military-class vehicles and the latest Integrated Product Support technologies in support of the U.S. National Guard at the 134th NGAUS Conference & Exhibition, Sept. 9-12 at the Reno Convention Center in Reno, Nev.

## Oshkosh Defense Showcases National Guard Support at 134th NGAUS Conference &amp; Exhibition

Oshkosh presents light vehicle solutions to support the National Guard

The vehicles and technologies showcased represent Oshkosh’s wide breadth of vehicle expertise and ongoing commitment to full life-cycle support.

Oshkosh provides the medium- and heavy-payload tactical wheeled vehicle platforms to the National Guard in 50 states and four U.S. territories.

“Oshkosh Defense is committed to ensuring the National Guard’s fleets support its unique dual-role functions for the long run,” said Mike Ivy, vice president and general manager of Army Programs for Oshkosh Defense. “This commitment includes improving the National Guard’s HMMWV fleet to deliver better performance and mobility for future missions, whether homeland security, training or deployments. With our technical expertise and kitting experience, Oshkosh Defense can deliver best-value upgrades that will keep the National Guard’s HMMWV fleet sustainable and relevant for the many years of service ahead.”

In addition to the vehicles on display, Oshkosh will feature its virtual training module for the Heavy Expanded Mobility Tactical Truck (HEMTT) M978 Tanker at the show. Incorporated into training courses earlier this year, the Oshkosh Virtual Trainer makes the overall vehicle training program safer and more cost-effective, providing life-like training in a safe, virtual environment. Oshkosh also provides hands-on, classroom and simulation training for operators and mechanics as part of its Integrated Product Support services for all Oshkosh tactical wheeled vehicles.

NGAUS conference attendees can also do their part to support Warfighters by signing the Signature Wall at the Oshkosh booth. For each signature, Oshkosh will donate \$2 to the Tragedy Assistance Program for Survivors (TAPS), a national organization that provides compassionate, free-of-charge care for families of fallen

military members, by signing a wall at Oshkosh's booth. Continuing an effort that began at AUSA 2011, Oshkosh is collecting signatures until it reaches its goal of \$100,000. Oshkosh has a long-standing history of supporting military members and families, both in the field and back home, through charitable giving and program support.

Oshkosh representatives will be on hand to discuss the vehicles and technologies at booth #1103.

## Robots

### DARPA's Cheetah Robot Bolts Past the Competition



DARPA's Cheetah robot—already the fastest legged robot in history—just broke its own land speed record of 18 miles per hour (mph). In the process, Cheetah also surpassed another very fast mover: Usain Bolt.

According to the International Association of Athletics Federations, Bolt set the world speed record for a human in 2009 when he reached a peak speed of 27.78 mph for a 20-meter split during the 100-meter sprint. Cheetah was recently clocked at 28.3 mph for a 20-meter split. The Cheetah had a slight advantage over Bolt as it ran on a treadmill, the equivalent of a 28.3 mph tail wind, but most of the power Cheetah used was to swing and lift its legs fast enough, not to propel itself forward.

To contribute to emergency response, humanitarian assistance and other defense missions, a robot needs to negotiate difficult terrain. Most rough-terrain robots use wheels or tracks to ride over bumps; however, the most difficult terrain demands the use of legs, as legs can step over both high obstacles and deep ditches. But coordinating the swing and lift of mechanical legs is more difficult than making wheels turn or tracks roll, and previous legged robots have been slow compared to wheeled or tracked ones. DARPA is working to create legged robots that don't sacrifice speed for mobility on rough terrain.

Cheetah is being developed and tested under DARPA's Maximum Mobility and Manipulation (M3) program by Boston Dynamics. One of the program's main goals is to enhance robot movement and capabilities in natural and degraded manmade environments where defense personnel often operate. DARPA intends to test a prototype on natural terrain next year, but for now Cheetah runs on a treadmill in a lab to allow researchers to monitor its progress, refine

algorithms and maintain its moving parts. The current version of the Cheetah robot is powered by an off-board hydraulic pump and uses a boom-like device to keep it running in the center of the treadmill. The increase in speed since results were last reported in March 2012 is due to improved control algorithms and a more powerful pump. The robot has a ways to go before it can come close to matching the speeds of its living and breathing cheetah kin (the Cincinnati Zoo's cheetah, Sarah, was recently clocked at 61 mph), but that really isn't the point.

"Modeling the robot after a cheetah is evocative and inspiring, but our goal is not to copy nature. What DARPA is doing with its robotics programs is attempting to understand and engineer into robots certain core capabilities that living organisms have refined over millennia of evolution: efficient locomotion, manipulation of objects and adaptability to environments," said Gill Pratt, DARPA program manager. "Cheetahs happen to be beautiful examples of how natural engineering has created speed and agility across rough terrain. Our Cheetah bot borrows ideas from nature's design to inform stride patterns, flexing and unflexing of parts like the back, placement of limbs and stability. What we gain through Cheetah and related research efforts are technological building blocks that create possibilities for a whole range of robots suited to future Department of Defense missions."

## Defence Industry

### The Ministry of Defense of Slovenia, Rotis Plus and Patria sign a Settlement Agreement



The Ministry of Defense of the Republic of Slovenia (MoD), Rotis Plus d.o.o. and Patria have signed a Settlement Agreement governing the AMV vehicle supply contract and the related offset agreement signed in 2006.

The settlement includes a change of the fleet size to consist of 30 Svarun vehicles that have already been delivered and closing down the rest of the project and thus the supply contract. With this settlement the original offset agreement is deemed fulfilled. Patria will take over the life cycle support for the delivered vehicles from Rotis Plus.

"Defense industry needs to adapt to changes in the existing and new possible customers' demands and



possibilities. The economic situations will change and so do the technologies used. Consequently, our policy is to look for reasonable solutions in different situations whenever possible. This settlement will make it possible for all the parties to focus on their future”, says Seppo Seppälä, President, Patria Land Services.

“We are proud to have the Slovenian government as one of the satisfied users of Patria AMV vehicles and will continue to provide life cycle support for them”, continues Seppo Seppälä.

## Robots

### DARPA's Four-Legged Robots Walk Out for Capabilities Demonstration



Two completed prototype robotic “pack mules” exhibit reduced noise, new gaits, and improved perception

DARPA's Legged Squad Support System (LS3) program demonstrated two robotic “pack mule” prototypes for the Commandant of the Marine Corps, Gen. James F. Amos, and DARPA Director, Arati Prabhakar. The first platform underwent its initial outdoor test earlier this year and has matured through continual testing and improvements to the point that two functioning platforms have started to run through the paces similar to what they could one day experience carrying gear for a squad of Marines or Soldiers. The goal of the LS3 program is to demonstrate that a legged robot can unburden dismounted squad members by carrying their gear, autonomously following them through rugged terrain, and interpreting verbal and visual commands.

“We've refined the LS3 platform and have begun field testing against requirements of the Marine Corps,” said Army Lt. Col. Joe Hitt, DARPA program manager. “The vision for LS3 is to combine the capabilities of a pack mule with the intelligence of a trained animal.”

During yesterday's event, the LS3 prototype completed trotting and jogging mobility runs, perception visualization demonstration and a soldier-bounded autonomy demonstration.

Monday's demo also exhibited reduced noise levels for the robots. “LS3 is now roughly 10 times quieter than when the platform first came online, so squad members can carry on a conversation right next to it, which was difficult before,” Hitt said.

“Other improvements include the ability to go from a 1- to 3-mph walk and trot over rough, rocky terrain,

easily transition to a 5-mph jog and, eventually, a 7-mph run over flat surfaces, showing the versatility needed to accompany dismounted units in various terrains,” Hitt said. “The LS3 has demonstrated it is very stable on its legs, but if it should tip over for some reason, it can automatically right itself, stand up and carry on. LS3 also has the ability to follow a human leader and track members of a squad in forested terrain and high brush.”

In July, DARPA and the Marine Corps Warfighting Laboratory (MCWL) began a 2-year platform-refinement test cycle with the first DARPA/MCWL-hosted test planned for December 2012 on a military base. Testing will continue approximately every quarter at military bases across the country, culminating in a Marine Corps Advanced Warfighting Experiment wherein the LS3 will be embedded with a squad for an operational exercise.

“Augmenting small dismounted units with autonomous capabilities can be a potent force multiplier,” said Brig. Gen. Mark R. Wise, commanding general, MCWL. “The concerted efforts being made to better define autonomous robotic capabilities that help (lighten the load) provide greater mobility and agility to dismounted Marine and U.S. Army forces across the battle space, further demonstrate what can be achieved through partnering with DARPA and other DoD entities in support of the Warfighter.”

## Defence Industry

### The Second Batch of BTR-4 Armoured Personnel Carriers Shipped to Iraq from Odessa Seaport



On 12 September a batch of 62 BTR-4 armoured personnel carriers (APC) started to be loaded on a ship at the Odessa Seaport in order to be transported by sea to Iraq.

On 13 September the loading is to be completed, and the vessel will go to the country of destination. The vessel is to arrive at the Iraqi port Um Qasr early in October 2012. The loading procedure was supervised by the Ambassador of Iraq in Ukraine Shorsh Khalid Sayed.

“We are very glad to accept the second batch of Ukrainian BTR-4s. This is a modern powerful vehicle, and the Iraqi experts are satisfied with its capabilities”, the ambassador said to Ukrainian journalists. “The situation in the Middle East is difficult, and Iraq does need these APCs. We have been fighting against terrorism, in particular, against Al Qaeda for seven years

already, and these 62 vehicles will help us increase the level of security. Our relations with Ukraine are successfully developing. By receiving the second batch of the BTRE-4s we have reached a new stage of cooperation. We hope that by the end of this year we will receive the third batch of BTR-4s, because the contract is successfully fulfilled due to efforts of both sides”, said also Shorsh Khalid Sayed.

He emphasized the fact that the current Minister of Defence of Ukraine Dmitry Solomatin was doing his best to make this contract successful starting from the first day of his work at the State Enterprise “Ukrspesexport” and then, at the State Enterprise “Ukroboronprom”.

“It is also necessary to thank the top manager of State Enterprise “Ukrspesexport” Dmitry Peregudov. It would be difficult to fulfil this contract without his efforts. I know that there was a lot of doubts in the Ukrainian mass media about the fulfilment of this contract, but it is being fulfilled successfully, and after today’s shipment of the batch the journalists can get confident”, said the Iraqi ambassador.

Replying to a journalist’s question about the continuation of cooperation, the acting deputy director of State Enterprise “Ukrspesexport” Vadim Kozhevnikov said that this contract between Ukraine and Iraq is a very big one and therefore it can lead to conclusion of new agreements.

In Mr. Kozhevnikov’s opinion, the new contracts that may be concluded in the future include contracts for supply of spare parts and technical support, which will provide the defence production facilities of Ukraine with orders for 10 to 20 years, because now Iraq is creating its armoured corps by using armoured vehicles of Ukrainian origin.

Mr. Kozhevnikov emphasized the fact that there were no breaks in fulfilment of the contract between Ukraine and Iraq. “The dialogue of the parties never stopped a minute. The plants involved in the fulfilment of the contract never stopped their production”.

Replying to the question about the dates of acceptance of the third batch of the BTR-4s, Vadim Kozhevnikov said that the shipment of 94 vehicles is planned to be carried out late in 2012.



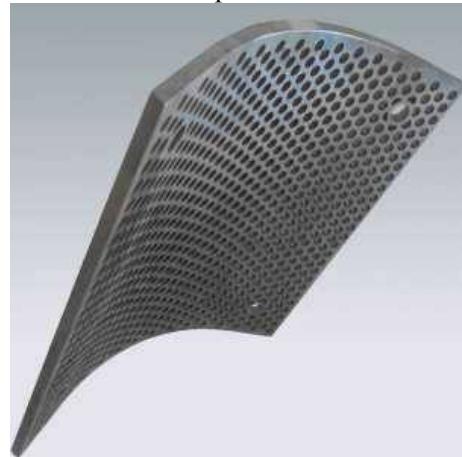
### Future Technologies

#### MTL Group secures further orders for its IMPAS add on armour system

Following a successful exhibition at Eurosatory, Armour plate processing specialist MTL Group has been awarded significant orders for its IMPAS add on armour system. The order for IMPAS will be supplied in kit form for the customer to fit directly onto its vehicle.

IMPAS is a perforated Armour system produced in various formats that gives excellent value for money compared to ceramics and composites, the system boasts an unrivalled multi hit capability and the latest developments allows for the ultra-high hard IMPAS to be

formed at various angles to further advance its protection and reduce ballistic weak spots.



Simon Hurst Sales Manager for Defence at MTL Group said:

“Our customer gave us the challenge to design and produce the kits in a very short period of time to a tight weight and cost budget to satisfy an urgent requirement, due to our large scale production facility and flexible work force we was able to assist the customer and completed the project in time.”

MTL Group is also experiencing great success with its DFM (Design For Manufacture), many of the key OEMs from around the globe are now consulting MTL Group for assistance at the design stage to help them with design efficiencies and enabling them to produce lighter, stronger and better protected structures. All this is possible due to MTL Groups unique large format processing equipment coupled with its unrivalled experience and understanding of Armoured materials.

One recent project saw an armoured vehicle manufacturer’s 8x8 vehicle floor completely redesigned from an original 11 piece fabrication to a 1 piece pressed component. Developments have also been made on forming thick armoured grade aluminium into "V" shaped sections for blast protection applications.



### Defence Industry

#### Paramount Group launches Marauder Patrol, a highly protected utility vehicle



Paramount Group, Africa’s largest privately held defence and aerospace company, has launched its latest trend-setting product the Marauder Patrol at Africa’s leading defence exhibition.

The Marauder Patrol builds on the proven success of

the Marauder to set a new standard in protected utility vehicles, combining mobility and high levels of protection into a versatile platform.

The ballistically protected Marauder Patrol is aimed at military, police and special forces that require an agile and quick response vehicle for use in tough environments.

The Marauder Patrol vehicle is based on COTS (commercial off the shelf) driveline components. Maintenance and support are available through commercial dealer networks.

It has a deliberately non-aggressive appearance – making it perfect for police, peacekeepers or special forces operating in sensitive environments.

The Marauder Patrol is protected to STANAG Level 1 ballistic protection, meaning it can stop shell fragments as well as 7.62mm and 5.56mm bullets. For those customers wanting extra protection, there is the choice to increase ballistic to STANAG Level 2, without impacting the performance of the vehicle.

The vehicle comes in either a five-door ‘SUV’ version which can carry nine people or a four-door ‘double cab pick-up’ model which can carry a maximum of five people.

In both cases, the vehicle is available with optional extras of run-flat tyre inserts, communications systems, add-on armour, various weapons stations and automatic transmission.

Crew comfort and ergonomics were key design elements and the vehicle is fully air-conditioned with plenty of space for tools, medical supplies and communications equipment.

Miles Chambers, Business Development Director of Paramount Group, said:

“Marauder Patrol breaks new ground in the utility vehicle market because it offers high levels of protection combined with unprecedented mobility and supportability. This makes it ideal for police and special operations forces conducting patrol-type operations, on or off-road.

“As governments seek to cope with a range of new security challenges, it is vehicles such as this that give them the flexibility to respond to a variety of threats without having to rely on more expensive or aggressive looking large scale armoured vehicles.

“This vehicle proves that when it comes to armoured vehicles South Africa has the heritage and experience to make some of the most innovative solutions in the world.”

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### Defence Industry

#### BAE Debuts Latest RG35 Multi-Role Fighting Vehicle

BAE Systems today launched the latest 6x6 variant of the RG35 family of vehicles – the RG35 multi-purpose blast protected fighting vehicle – at the 2012 Africa Aerospace and Defence exhibition (AAD).

“The RG35 family of vehicles incorporates 30 years of experience in tactical mobility and protection,” said Johan Steyn, managing director, Land Systems South Africa.



The RG35 6x6 has an 8.5 ton payload, a 12 cubic meters volume under armor, can seat up to 14 crew members, and carry light and medium remote controlled weapon stations. Like the 4x4 variant, the latest 6x6 variant includes independent suspension and a side mounted powerpack that can be replaced in less than one hour.

The RG35 family of vehicles can be deployed in many different roles and offers a choice of variants and configurations while maintaining 80 percent vehicle commonality. RG35 combines the high levels of survivability of the RG31 Mine Protected Vehicle with the tactical capability of an infantry fighting vehicle.

Integrated onto the vehicle at AAD will be the TRT-B25 (Tactical Remote Turret) also from Land Systems South Africa.




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### Defence Industry

#### BAE Debuts Latest Tactical Remote Turret at AAD



BAE Systems is launching its newly designed tactical remote turret, the TRT-R30MK, at the 2012 Africa Aerospace and Defence exhibition from 19 – 21 September.

The turret will be displayed for the first time on the company’s RG41 vehicle outside hall 4.

“The TRT family of turrets provides soldiers with a spectrum of self-protection and ground fire support capability, combined with the safety of an armoured protected vehicle,” said Johan Steyn, managing director, Land Systems South Africa.

The TRT-R30MK is a remotely-operated weapon system that will enable vehicles to operate in multi-role deployments and in multiple theatres. The system draws on BAE Systems’ experience in previous remote turret technology development, such as the TRT-25. It is designed as an effective, high-performance threat



neutraliser, achieving a firing range of more than 2,500 meters with day and night fighting and observation capability. The turret's control station can be integrated anywhere in the vehicle allowing for increased internal space for crew or extra payload.

The TRT-R30MK turret can easily be adapted to carry other NATO standard 30mm cannons as well as smaller calibre weapons. The system is equipped with electro-mechanical drives and high performance sight equipment to allow for all round observation, fast reaction time and accurate firing on the move during day and night operation.



## Robots

### ARA Robots Up to the Challenge in US Army's 2012 Robot Rodeo



Two of ARA's unarmored ground vehicles, Robotic Ranger and Pointman, performed well in the 2012 Robotics Rodeo's Joint Improvised Explosive Device Defeat Organization (JIEDDO) Robot Endurance Challenge held at the Maneuver Battle Lab at Fort Benning, GA in June.

The Robotics Rodeo is an opportunity for scientists and engineers to demonstrate new and innovative unarmored ground systems to the US Army.

ARA's compact, portable Pointman LRV 2000 took first place in the Endurance Challenge and the Pointman LRV 1000 finished second in the Reconnaissance Challenge by finding hidden objects in a multi-story building. Pointman is a 20 lb. tactical robot used for reconnaissance with a unique feature — the Pointman is capable of climbing stairs. For UGVs stairs are often the most difficult obstacle inside buildings. Many other robots might be damaged if tumbled down steps, but Pointman is able to maneuver stairs with ease. ARA recently delivered eight Pointman robots to law enforcement SWAT teams throughout Pennsylvania due in large part to its extraordinarily easy operations, light-weight mobility, rugged reliability, and low cost.

ARA's Robotic Ranger placed second in the Large Robotic Vehicle Class completing the Endurance Challenge with a speed of 11.74 km/hr. The Robotic Ranger used its advanced photogrammetric software to detect changes on the outdoor course from one lap to the next while creating an accurate 3D model of the terrain that could be used for subsequent three-dimensional simulation and mission planning. This automatic change detection capability helps soldiers discover improvised explosive devices (IED) on frequently used travel routes.

ARA President and CEO Dr. Robert Sues put ARA's

participation in the competition into perspective. "The 2012 Robot Rodeo demonstrated that ARA's nearly twenty-year history making rugged unarmored equipment for the US military's humanitarian demining and unexploded ordnance range clearance operations can be leveraged for counter-IED operations that will help save lives. Nothing is more important."



## Contracts

### Navistar Defense to Upgrade 2,300 MRAPs to Defend Against Evolving Threats



LISLE, Ill. -- Navistar Defense, LLC received a delivery order today for up to \$282 million to provide more than 2,300 survivability upgrade retrofit kits for International® MaxxPro® Dash Mine Resistant Ambush Protected (MRAP) vehicles. The order from the U.S. Army TACOM Life Cycle Management Command will upgrade MaxxPro Dash vehicles in theater with additional protection in response to evolving threats in Afghanistan.

The order also includes parts and service.

"Anticipating the needs of our Armed Forces continues to be a top priority for Navistar and we are proud to offer the vehicle of choice to help them complete their missions safely," said Archie Massicotte, president, Navistar Defense. "Threats continue to change and it is our responsibility to stay out ahead of those threats with the best technology available."

The MaxxPro family of vehicles was originally designed to accommodate rapid vehicle enhancements as threats evolved in theater. Since 2007, the company has provided enhancements to both survivability and mobility through its work on its rolling chassis body swap, DXM™ independent suspension retrofit kits, armor kits and more.

"We also understand the balance of keeping our service men and women well equipped at a reasonable cost to taxpayers," said Massicotte. "We will keep offering integrated solutions as well as alternatives to buying new vehicles so that we can keep our Armed Forces modern and ready for future operations."

Navistar has delivered nearly 9,000 MaxxPro units in nine major variants to the United States and its allies. This order follows the company's MaxxPro rolling chassis body swap, which upgrades more than 2,700 MaxxPro vehicles with a DXM™ independent suspension, MaxxForce® 9.3 engine, 570 amp alternator and driveline.

Work for the survivability upgrade will be done in Afghanistan beginning in December 2012. The order is scheduled to be completed by July 2013.

Navistar International Corporation is a holding company whose subsidiaries and affiliates produce International® brand commercial and military trucks, MaxxForce® brand diesel engines, IC Bus™ brand school and commercial buses and Navistar RV brand of recreational vehicles. It also is a private-label designer and manufacturer of diesel engines for the pickup truck, van and SUV markets. The company also provides truck and diesel engine service parts. Another affiliate offers financing services.



## Exhibitions

### Oshkosh Defense Unveils New Light Vehicle for Unconventional, Recon Missions at Modern Day Marine 2012



OSHKOSH, Wis. -- Expanding its portfolio of light military vehicles, Oshkosh Defense, a division of Oshkosh Corporation, is unveiling its new Special Purpose All-Terrain Vehicle (S-ATV) designed for unconventional and reconnaissance missions at Modern Day Marine 2012, Sept. 25-27 in Quantico, Va. Oshkosh will also have its Light Combat Tactical All-Terrain Vehicle (L-ATV), which was selected for the Joint Light Tactical Vehicle (JLTV) Engineering, Manufacturing and Development (EMD) phase, at the show.

“We have developed a broad range of high-performance light vehicles to offer Warfighters next-generation capabilities for future battlefields,” said John Bryant, vice president and general manager of Joint and Marine Corps Programs for Oshkosh Defense. “Our L-ATV and S-ATV platforms, coupled with an array of Oshkosh-developed HMMWV upgrade solutions, demonstrate exciting innovations. The off-road mobility, crew protection and reliability that are hallmarks of our heavy, medium and MRAP platforms have been leveraged in different ways across these light vehicles to meet a range of operational needs.”

Oshkosh specifically designed the S-ATV based on emerging worldwide requirements for forces performing unconventional and reconnaissance missions. The S-ATV utilizes Oshkosh’s battle-proven off-road technologies and expertise to nimbly travel across rugged, remote and urban terrains at high speeds. The vehicle is available in multiple weight and protection configurations.

#### Delivering the Oshkosh JLTV Solution

Oshkosh received a contract in August to deliver 22 Light Combat Tactical All-Terrain Vehicle (L-ATV) prototypes for the JLTV EMD phase, as well as to support government testing and evaluation of the vehicles. The joint services are expected to replace tens of thousands of HMMWVs with the JLTV.

“The Oshkosh JLTV solution was designed with a purpose – to keep Warfighters safe on future battlefields with unpredictable terrain, tactics, and threats,” said John Bryant, vice president and general manager of Joint and Marine Corps Programs for Oshkosh Defense. “Oshkosh has a 90-year history of delivering high quality military vehicle programs on-time and on-budget, and our JLTV program is no exception. We understand how critical this light, protected, off-road vehicle will be to Warfighters.”

The Oshkosh L-ATV offers an advanced crew protection system that has been extensively tested and is proven to optimize crew survivability. The L-ATV can accept multiple armor configurations, which allows the vehicle to adapt easily to changing operational requirements. The L-ATV also applies the Oshkosh TAK-4i™ intelligent independent-suspension system to provide significantly faster speeds when operating off-road, which can be critical to troops’ safety.



## Contracts

### KONGSBERG Logs CROWS Order Valued at \$34 Million

KONGSBERG has received a purchase order to the CROWS II program valued NOK 195 million (\$ 34.16 million).

The CROWS II order with the US Army is for spare parts and is part of the increased CROWS II frame contract disclosed on 4 July 2012. The initial CROWS II framework agreement was disclosed on 22 August 2007.

CROWS is a joint acquisition program for weapon stations for the US Army’s vehicle programs. A common solution will result in substantial efficiency gains in respect of protection, training, support and further development.

The Protector Weapon Control System protects military troops by allowing the vehicle’s weapons to be operated from a protected position inside the vehicle.



## Exhibitions

### UVZ displaying fighting vehicles in RSA

Research and Production Corporation «URALVAGONZAVOD» for the first time has participated in the largest exhibition of air, sea and land capabilities on the African continent «Africa Aerospace & Defence 2012».

The exhibition opened in RSA on September 19. UVZ presents two full-sized armoured vehicles.

Experts expect it to become the major event of the exhibition. «Africa Aerospace & Defence 2012»



exhibition has seen over 100 different companies from world's leading countries such as Russia, Great Britain, France, Germany and USA participate. For the first time Russia will display several full-sized vehicles: Modernized T-72 Tank and Tank Support Fighting Vehicle. UVZ displays the armoured fighting vehicles at its open-air stand.



Guests and participants of the exhibition have given them high marks for the machines' unique features such as high performance, reasonable price and development potential. «Terminator» is a eye-catching vehicle that got its unofficial name for its gun power. It is a multipurpose tank and infantry fire support vehicle that can operate in any combat mode, complicated geographic area and light conditions.

Powerful multi-channel armament, targeting assets and all-round crew protection combined in one machine make it stand out compared to similar foreign vehicles.

### Defence Industry

#### US Army Awards GD \$395 M to Begin Engineering Development for Abrams Modernization



The U.S. Army TACOM Contracting Command has awarded General Dynamics Land Systems, a business unit of General Dynamics, an eight-year, \$395 million contract for research, development and testing in preparation for the Abrams main battle tank Engineering Change Proposal 1 (ECP1) production. The contract has an initial value of \$80 million over 12 months. There is no tank production work associated with this award.

The Abrams ECP1 program is an engineering-development effort focused on integrating a group of system improvements into a single upgrade program for the M1A2SEPv2 baseline tank. The objective of this research-and-development effort is to prepare the Abrams tank to accept additional Army-directed requirements in the future without impacting current vehicle performance. The Army plans to begin low rate initial production of tanks with ECP1 upgrades in 2017.

“This award shows the Army’s long-term commitment to improving the Abrams tank’s capabilities for the Warfighter, while ensuring that platforms are able to integrate planned and future upgrades,” said Donald Kotchman, vice president for Heavy Brigade Combat Teams at General Dynamics Land Systems. “This effort will maintain Abrams’ position as the leading main battle tank in the world.”

Since its initial fielding in 1980, enhancements to the Abrams main battle tank have consumed much of the available space, weight and power capacity on the vehicle. ECP1 will reengineer internal systems to reduce size, weight and power requirements, creating capacity for additional upgrades in the future. The effort will include miniaturization of electronics; evolving to a Line Replaceable Module (LRM)-based electronics architecture; and increasing electrical capacity through improved power generation, distribution and management.

In addition, when implemented, ECP1 upgrades will improve Abrams’ survivability by enhancing armor and adding the capability to employ current and advanced counter-IED equipment.

Work will be performed by existing employees in Sterling Heights, Mich. The contract will be completed by 2020. The Abrams main battle tank is planned to be an active component of the Army’s fleet through 2050.

### Defence Industry

#### KONGSBERG to outsource production work to Kitron



KONGSBERG will be outsourcing a large production order to Kitron ASA in Arendal for the fabrication of the BET (operator terminal). BET is a Mid-Life Upgrade of the existing MRR (Multi Role Radio) system. It will add functionality and extend the life of the system into the 2020s.

KONGSBERG has supplied a large number of VHF radios in recent years, including the LFR (Light Field Radio), as well as the MRR. The Norwegian Armed Forces' tactical communications and network equipment programme is one of the largest radio development projects in Norwegian history. The MRR (portable and vehicle-mounted) and the LFR (carried by a soldier) are used by several thousand soldiers and are mounted on numerous vehicles.

KONGSBERG is a leading Norwegian industrial player that sets high standards for its suppliers. With emphasis on alignment with our values, suppliers must demonstrate determination, innovation, credibility and

the ability to cooperate continuously and to develop in terms of both quality and skills. Close cooperation is required in order to develop demanding technological solutions in collaboration with Armed Forces users.

KITRON is a key supplier for several of KONGSBERG's advanced military products, e.g. the Remote Weapon Station, missile electronics (NSM and JSM) and tactical military communications equipment.



## Defence Industry

### Sagem unveils Sigma 30-700, latest version of the Sigma 30 artillery navigation and pointing system



Sagem (Safran group) has introduced the latest version of the well-known Sigma 30 family of artillery navigation and pointing systems, the Sigma 30-700, to meet the evolving needs of manufacturers of long-range 52 caliber and long range artillery systems.

Offering fully autonomous operation on the artillery piece, Sagem's new Sigma 30-700 is purpose-designed for the high-precision firing of long-range artillery. Like the rest of the Sigma 30 family, it guarantees the same degree of precision without GPS, or with signal jamming or decoys. Based on its performance characteristics, the Sigma 30-700 can also be used in counter-battery or air defense long-range radars.

The Sigma 30, in connection with the ballistic computer, gives artillery pieces a significant operational advantage by supporting fast deployments and a wide range of scenarios in both symmetrical and asymmetrical engagements.

Sigma 30 systems are based on digital ring laser gyro technology with a long optical path (32 cm), and call on Sagem's proven industrial and technological expertise in navigation systems.

Systems in the Sigma 30 family have already been selected by more than 40 artillery programs worldwide. Coupled to the Caesar guns deployed by the French army, they have demonstrated their capabilities in different theaters of operation.

