

# Army Guide monthly



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## Defence Industry

### U.S. Army Awards Additional M-ATV Reset Contract to Oshkosh Defense



OSHKOSH, Wis. -- The U.S. Army has awarded a contract to Oshkosh Defense, LLC, an Oshkosh Corporation company, to reset 360 additional Oshkosh-produced Mine Resistant Ambush Protected (MRAP) All-Terrain Vehicles (M-ATVs). As the original equipment manufacturer (OEM), Oshkosh is best suited to standardize the M-ATV fleet configuration to achieve mission readiness. The M-ATV Reset program will allow the U.S. Army to extend the life of its vehicles and upgrade them with the latest protective technologies.

The U.S. Army awarded Oshkosh an M-ATV Reset base contract for 500 vehicles on Aug. 6, 2014, and options for 300 additional vehicles on Dec. 12, 2014. The contract modification announced on May 28 includes the reset of another 360 M-ATVs with options to reset up to 1,440 more. The delivery start date for this latest modification is October 2015. In total, Oshkosh is on contract to reset 1,160 M-ATVs for a combined value of more than \$115 million. Oshkosh was awarded the original M-ATV production contract in June 2009 and remains on contract to provide life cycle service and support through July 2018.

“Oshkosh’s operational capability and expertise ensures that soldiers operating in M-ATVs have mission-ready vehicles equipped with the latest protection and technologies for a full range of missions,” said John Bryant, senior vice president of defense programs at Oshkosh Defense. “As the OEM, Oshkosh can provide the best quality and speed for the vehicle reset – and ultimately get the vehicles back into the field where they are needed.”

The M-ATV Reset process performed at Oshkosh involves a comprehensive inspection of a vehicle’s condition and configuration. Following that evaluation, Oshkosh systematically completes repairs or replaces missing parts and installs a spectrum of upgrade kits to bring the vehicle to the current configuration for each of the M-ATV variants in the enduring fleet. These upgrade kits include the underbody improvement kit (UIK), upgraded automatic fire extinguishing systems (AFES), and several safety-related improvements, among others.

Oshkosh has extensive experience providing life cycle support for its U.S. Army, Marine Corps and National Guard fleets of heavy and medium tactical wheeled vehicles. Its vehicle modernization programs include field maintenance and contractor logistics support to technology upgrades and full recapitalization programs. As the OEM, Oshkosh delivers an integrated product

support that maximizes the capability, reliability and readiness of the U.S. Armed Forces tactical wheeled vehicle fleets.

## Contracts

### GD Awarded \$28 M for Future Fighting Vehicle Design Concepts

The U.S. Army TACOM Lifecycle Management Command awarded General Dynamics Land Systems a \$28.2 million contract to develop several design concepts for the Future Fighting Vehicle (FFV) Phase 1 effort. General Dynamics Land Systems is a business unit of General Dynamics.

As part of the FFV Phase 1 effort, General Dynamics will develop design concepts for the next generation Infantry Fighting Vehicle (IFV). The company will conduct trade studies, requirements analysis, modeling and simulation (M&S) and assess technology capability and maturity to support each of the three design concepts.

Work will be performed by existing employees in Sterling Heights, Michigan, with an estimated completion date of November 2016.

## Robots

### Robots from South Korea, U.S. Win DARPA Finals



POMONA, USA -- A robot from South Korea took first prize and two American robots took second and third prizes here yesterday in the two-day robotic challenge finals held by the Defense Advanced Research Projects Agency.

Twenty-three human-robot teams participating in the DARPA Robotics Challenge, or DRC, finals competed for \$3.5 million in prizes, working to get through eight tasks in an hour, under their own onboard power and with severely degraded communications between robot and operator.

A dozen U.S. teams and 11 from Japan, Germany, Italy, South Korea and Hong Kong competed in the outdoor competition.

DARPA launched the DRC in response to the nuclear

disaster at Fukushima, Japan, in 2011 and the need for help to save lives in the toxic environment there.

### Progress in Robotics

The DRC's goal was to accelerate progress in robotics so robots more quickly can gain the dexterity and robustness they need to enter areas too dangerous for people and mitigate disaster impacts.

Robot tasks were relevant to disaster response -- driving alone, walking through rubble, tripping circuit breakers, using a tool to cut a hole in a wall, turning valves and climbing stairs.

Each team had two tries at the course with the best performance and times used as official scores. All three winners each had final scores of eight points, so they were arrayed from first to third place according to least time on the course.

DARPA program manager and DRC organizer Gill Pratt congratulated the 23 participating teams and thanked them for helping open a new era of human-robot partnerships.

### Loving Robots

The DRC was open to the public, and more than 10,000 people over two days watched from the Fairplex grandstand as each robot ran its course. The venue was formerly known as the Los Angeles County Fairgrounds.

"These robots are big and made of lots of metal, and you might assume people seeing them would be filled with fear and anxiety," Pratt said during a press briefing at the end of day 2.

"But we heard groans of sympathy when those robots fell, and what did people do every time a robot scored a point? They cheered!" he added.

Pratt said this could be one of the biggest lessons from DRC -- "the potential for robots not only to perform technical tasks for us but to help connect people to one another."

### South Korean Winning Team

Team Kaist from Daejeon, South Korea, and its robot DRC-Hubo took first place and the \$2 million prize. Hubo comes from the words 'humanoid robot.'

Team Kaist is from the Korea Advanced Institute of Science and Technology, which professor JunHo Oh of the Mechanical Engineering Department called "the MIT of Korea," and he led Team Kaist to victory here.

In his remarks at the DARPA press conference, Oh noted that researchers from a university commercial spinoff called Rainbow Co., built the Hubo robot hardware.

The professor said his team's first-place prize doesn't make DRC-Hubo the best robot in the world, but he's happy with the prize, which he said helps demonstrate Korea's technological capabilities.

### Team IHMC Robotics

Coming in second with a \$1 million prize is Team IHMC Robotics of Pensacola, Florida -- the Institute of Human and Machine Cognition -- and its robot Running Man.

Jerry Pratt leads a research group at IHMC that works to understand and model human gait and its applications in robotics, human assistive devices and man-machine

interfaces.

"Robots are really coming a long way," Pratt said.

"Are you going to see a lot more of them? It's hard to say when you'll really see humanoid robots in the world," he added. "But I think this is the century of the humanoid robot. The real question is what decade? And the DRC will make that decade come maybe one decade sooner."

### Team Tartan Rescue

In third place is Team Tartan Rescue of Pittsburgh, winning \$500,000. The robot is CHIMP, which stands for CMU highly intelligent mobile platform. Team members are from Carnegie Mellon University and the National Robotics Engineering Center.

Tony Stentz, NREC director, led Team Tartan Rescue, and during the press conference called the challenge "quite an experience."

That experience was best captured, he said, "with our run yesterday when we had trouble all through the course, all kinds of problems, things we never saw before."

While that was happening, Stentz said, the team operating the robot from another location kept their cool.

### Promise for the Technology

"They figured out what was wrong, they tapped their deep experience in practicing with the machine, they tapped the tools available at their fingertips, and they managed to get CHIMP through the entire course, doing all of the tasks in less than an hour," he added.

"That says a lot about the technology and it says a lot about the people," Stentz said, "and I think it means that there's great promise for this technology."

All the winners said they would put most of the prize money into robotics research and share a portion with their team members.

After the day 2 competition, Arati Prabhakar, DARPA director, said this is the end of the 3-year-long DARPA Robotics Challenge but "the beginning of a future in which robots can work alongside people to reduce the toll of disasters."



## Army

### US Army Gives Green Light to GD for WIN-T Increment 2 FRP



The U.S. Army received approval to move forward with full rate production of the Warfighter Information Network - Tactical (WIN-T) Increment 2 system. Designed and built by General Dynamics, WIN-T Increment 2 provides commanders and

soldiers with an unprecedented ability to communicate, share information and intelligence while on patrol, with connectivity rivaling that found in a stationary command post.

The action follows an Acquisition Decision Memorandum (ADM) issued by the office of the U.S. Undersecretary of Defense for Acquisition, Technology and Logistics. The ADM authorizes the Army to proceed to full rate production and fielding of its mobile tactical communications backbone network to all remaining Army units projected to receive the WIN-T Increment 2 system through 2028.

“This is an important milestone and we’ll continue to support the Army as it fields this vital mission command and communications system throughout its global force,” said Chris Marzilli, president of General Dynamics Mission Systems.

WIN-T Increment 2 is integrated into Mine Resistant Ambush Protected (MRAP), High Mobility Multi-purpose Wheeled Vehicles (HMMWV) and Stryker vehicles. To date, four division headquarters and 12 brigade combat teams have WIN-T Increment 2. The system successfully served Army units supporting the Security Force Assistance Brigades in Afghanistan by replacing the fixed communications infrastructure dismantled when the U.S. military closed its operating bases. Last summer, WIN-T provided the ‘communications grid’ for humanitarian operations responding to the Ebola epidemic in West Africa.



the required levels of operational readiness,” said John Bryant, senior vice president of defense programs at Oshkosh Defense. “Because the heavy fleet is the logistics backbone for a spectrum of operations, Oshkosh has worked with the Army to restore more than 12,000 heavy vehicles since 1995 – providing soldiers with the latest safety features and improved reliability for in-theater operations.”

Through recapitalization, heavily used vehicles are returned to Oshkosh, stripped to the frame rails and completely rebuilt to like-new condition. Recapitalized vehicles are assembled on the same production line as new vehicles, and put through the same extensive performance tests and inspection procedures as new vehicles. The vehicles also receive the latest technology and safety upgrades and are delivered with a new bumper-to-bumper warranty.

With a 13-ton payload and multiple variants for a wide range of operations, the HEMTT is the backbone of the Army’s logistics fleet. Oshkosh’s latest configuration, the HEMTT A4, brings significant improvements in power, maintenance and safety to the battlefield, traversing even the most challenging environments easier and more efficiently. The Oshkosh PLS supports the Army’s distribution and resupply system by providing unparalleled performance for loading, unloading and delivering ammunition and other critical supplies needed in battle. The PLS carries a wide range of cargo, and is specially designed to load and unload a variety of flatrack or ISO compatible containers on its own. The latest configurations of FHTV trucks also include air-conditioned and armor-ready cabs, electrical upgrades, and anti-lock braking to keep soldiers safe.



**Army**

**Oshkosh Awarded Contract to Recapitalize US Army's Heavy Tactical Vehicles**



The U.S. Army has awarded Oshkosh Defense, LLC, an Oshkosh Corporation (NYSE: OSK) company, a five year requirements contract to recapitalize its Family of Heavy Tactical Vehicles (FHTV). Oshkosh will bring the Army’s fleet of Heavy Expanded Mobility Tactical Trucks (HEMTT) and Palletized Load Systems (PLS) to the latest model configuration and the same zero-mile, zero-hour condition as new production vehicles.

Overall, the contract’s potential value is \$780 million for the recapitalization of an estimated 1,800 FHTVs, in addition to the production of approximately 1,000 trailers. All work performed under the contract will be completed in Oshkosh, Wisconsin, with deliveries occurring from 2015 to 2019.

“As the OEM, we will recapitalize the U.S. Army’s heavy vehicles to like-new condition in order to achieve

**Defence Industry**

**Force protection and firepower: the future arrives with formal transfer of Puma infantry fighting vehicle to the Bundeswehr**



Rheinmetall and Krauss-Maffei Wegmann (KMW) formally handed over the Puma infantry fighting vehicle to the German Bundeswehr today, the most advanced system of its kind anywhere. One of the world’s most ambitious projects in the field of army technology thus enters the utilization phase.

The Bundeswehr’s fielding of the Puma IFV gives its mechanized infantry a new main weapons system that will gradually supersede the Marder, first introduced over forty years ago.

Delivery of all 350 infantry fighting vehicles will take place by 2020. Awarded to PSM GmbH in 2004, the contract today is worth around €4.3 billion, including separately ordered additional equipment. PSM is a joint venture of Rheinmetall and KMW, each of which holds a 50% stake in the company.

In joining forces to create the Puma, German defence giants KMW and Rheinmetall have produced a weapons system that represents an entirely new dimension in armoured vehicle design. The Puma is the perfect solution for operational scenarios of every kind in every climate zone, and sets new standards in all relevant capability categories.

But it is not just technology that makes the Puma so impressive. Far more, this highly successful project is the outcome of intense cooperation between the armed forces, the procurement authorities and the defence industry. It enabled the participating parties to bring this extremely complex – not least because of changing specifications in response to knowledge gained during the development phase – project to the point where it was ready for full-scale production. Moreover, despite many countervailing factors, it proved possible to stay within the original budget parameters set out in the contract.

#### **Performance characteristics of the Puma**

- **Lethality.** Thanks to its newly developed MK30-2/ABM 30mm automatic cannon and programmable ammunition, it can effectively engage a wide spectrum of targets, even behind cover.
- **Mobility.** The vehicle's hydro-pneumatic chassis and powerful engine make the Puma highly manoeuvrable even in the toughest terrain as well as enabling a top speed of 70 km/h. This means it can operate on the battlefield in tandem with the Leopard 2 tank.
- **Survivability.** A modular protection system consisting of active and passive components protects the crew from mines, improvised explosive devices, bomblets, shrapnel and ballistic threats such as shaped charges and kinetic energy rounds.
- **C4I.** Digitized command and control technology make it easier for the crew to operate the vehicle and its subsystems, simplifying command procedures and bringing the Puma directly into the networked operations loop.
- **Reconnaissance.** Advanced optics, optronics and sensors give the crew maximum situational awareness around the clock, enabling early detection and high-precision engagement of emerging threats.

#### **Puma joins the Bundeswehr**

Now that the Puma has entered active service with the German military, the first step is to train the trainers, just as planned. This process is already underway at a German Army training centre in Munster, and runs to the end of this year. A special organization has been set up in Munster for the Puma, which provides mechanized infantry companies with three months of initial training in the new vehicle. The organization takes delivery of the vehicles from the manufacturer, outfits them with Bundeswehr-specific equipment and transfers them to the

troops undergoing training there. Once they have completed the three-month course, the units return to their home base with their newly issued Pumas.

In the meantime, the Bundeswehr and PSM GmbH have concluded the necessary contracts for maintenance and technical/logistical support. Long-term support for the new infantry fighting vehicle from relevant German defence contractors is thus assured.

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### **Defence Industry**

#### **GD Receives \$219 M for US Army's WIN-T Increment 2 Systems**



General Dynamics received the first full rate production order from the U.S. Army to build additional Warfighter Information Network – Tactical (WIN-T) Increment 2 systems.

The \$219 million order includes the production of more than 300 vehicle-based network communication nodes along with related equipment and materials. WIN-T Increment 2 is the Army's communications backbone providing secure, on-the-move communications, mission command and situational awareness for commanders and their soldiers. The order allows the Army to continue fielding WIN-T Increment 2 to Army units currently scheduled to receive the system.

"WIN-T Increment 2 puts the power of the Soldier's Network into soldiers hands down to the company level, which is vitally important as the Army evolves into a more expeditionary force," said Chris Marzilli, president of General Dynamics Mission Systems. "As full-rate production begins, our engineering teams will continue working closely with the Army to upgrade technology and human-factors design, giving soldiers a decisive information advantage wherever they are called to serve."

WIN-T Increment 2 is integrated into Mine-resistant Ambush Protected (MRAP), High Mobility Multipurpose Wheeled Vehicles (HMMWV) and Stryker vehicles. To date, four division headquarters and 12 brigade combat teams have WIN-T Increment 2. The system successfully served Army units supporting the Security Force Assistance Brigades in Afghanistan by replacing the fixed communications infrastructure that was dismantled when the U.S. military closed its operating bases. Last summer, WIN-T provided the 'communications grid' for humanitarian operations responding to the Ebola epidemic in West Africa.