

SPECIAL OPERATIONS TECHNOLOGY MAGAZINE

SPECIAL SUPPLEMENT



SPECIAL OPERATIONS

Tactical VEHICLE

REVIEW 2009

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Fiscal year 2010 is already looking like it is going to be a significant year for tactical vehicles, with decisive changes in the works for some major programs.

The U.S. Army surprised most observers in July by awarding its contract for an all-terrain vehicle (ATV) variant of the mine resistant ambush protected (MRAP) vehicle to a single company—Oshkosh Corp. of Oshkosh, Wis.

The initial order of MRAP ATVs (M-ATVs) consists of 2,244 vehicles, Andy Hove, president of Oshkosh Defense, told *Special Operations Technology*. The Joint Requirements Oversight Council approved an order for a total of 5,244 M-ATVs, which means the Army could order 3,000 more at any time for use in Afghanistan.



Oshkosh M-ATV

“The Oshkosh M-ATV has MRAP-level protection while delivering the off-road mobility that is needed to negotiate the mountainous terrain and unimproved roads in Afghanistan,” Hove detailed. “Incorporation of the Oshkosh TAK-4 independent suspension system, which also is being retrofitted on more than 1,500 legacy MRAPs, gives the M-ATV its superior off-road mobility and provides a 70 percent off-road capability.”

Oshkosh ramped up production of the M-ATVs quickly to meet demand for them when the order arrived. Still, the company may hold discussions with its competitors on the possibility

of subcontracting production of the vehicles to them to assist with meeting demand. Oshkosh won the M-ATV contract in competition with BAE Systems, Navistar and Force Dynamics, any of which also could become a subcontractor to Oshkosh.

“Once these vehicles are fielded in Afghanistan, Oshkosh Defense will be ready with its aftermarket services to fully support the M-ATV, including replacement parts, repair or refurbishment services, and technical support,” Hove added. “We considered the urgent need for this vehicle during the design process and designed it to have parts and component commonalities with existing fleets. This will help expedite training, reduce maintenance and ease the M-ATV’s integration into the Afghanistan theater.”



RG-33L

Meanwhile, the MRAPs already deployed to Afghanistan and Iraq continue to serve the U.S. Army and U.S. Marine Corps well. BAE Systems is a top producer of 4x4 and 6x6 MRAP variants with its RG-33 series for the Army and Marines and also for U.S. Special Operations Command (SOCOM).

“Overall, BAE Systems is leading the MRAP upgrade efforts for a world-class fleet of combat-proven vehicles,” John Swift, director of MRAP vehicles for BAE Systems, told *SOTECH*. “We are making the best better.”

Recently, BAE Systems successfully integrated a remote weapon station onto an RG-33L at the Ground Vehicle Integration Center at the Tank Automotive Research Development and Engineering Center. That test resulted in plans to upgrade MRAP weaponry in the next reset of the vehicles, Swift noted.



BAE Systems also plans to integrate an improved independent suspension onto its fleet of vehicles in service with SOCOM to improve their durability, reliability and performance, Swift said.

Other suppliers of MRAP vehicles include Navistar International Corp., based in Warrenville, Ill., and Force Protection Inc. of Ladson, S.C. Navistar Defense is the largest single manufacturer of MRAP vehicles with its MaxxPro series of vehicles. Navistar delivered 6,444 of roughly 15,000 MRAP vehicles in use by the U.S. military before wrapping up production in May.

Force Protection has been modifying its popular MRAP offering, the Cougar, with TAK-4 suspension from Oshkosh, receiving orders from the Marine Corps to modify 1,317 Cougars in June and July contracts. Representatives from Force Protection and Oshkosh will work together to upgrade the Cougars by February 2010.

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

The Cougar also has been popular with foreign militaries—with the United Kingdom, Italy and Hungary all recently placing orders for the vehicles.

EVOLVING OPTIONS

The MRAP isn't the only new line of vehicles changing the way the U.S. military is doing business. The Army, Marine Corps and SOCOM have joined forces to develop the joint light tactical vehicle (JLTV), a program intended to replace the familiar high mobility multi-purpose wheeled vehicle (HMMWV) with a more versatile armored vehicle.

Initial contracts for JLTV technology demonstrations were awarded in October 2008 to General Tactical Vehicles, an alliance of General Dynamics and AM General; Lockheed Martin Corp.; and a team of BAE Systems and Navistar.

“We are working closely with General Dynamics Land Systems in the General Tactical Vehicles joint venture to apply our many decades of tactical and combat vehicle experience in the technology development phase of the joint light tactical vehicle for U.S. and allied military forces,” said Army General Paul Kern (Ret.), president of AM General.

But AM General, which manufactures the dependable HMMWV, has no plans to abandon that vehicle in the near future.

“AM General is driven by a commitment to give servicemem-

bers the high-performance, safe, versatile and reliable vehicles they need to accomplish their missions,” Kern commented. “To meet these needs, AM General has maximized its assembly plant's single-shift design capacity for production for more than two years, and this continues today. We are also working closely with U.S. military and international customers on reset and recap programs to extend the service life of existing HMMWVs. Consequently, these remarkably flexible vehicles will continue to serve in key roles worldwide for decades to come.”

Continuous improvements and modifications to HMMWVs to meet military demands have expanded its payload capacity up to 5,100 pounds and added additional armor to the vehicle. AM General has produced more than 240,000 HMMWVs to date, and they perform a vast array of missions from cargo and troop carriers to armament, missile launching, and special operations vehicles.

AM General continues to make a HMMWV variant known as the ground mobility vehicle for U.S. Special Forces as its M1165 model, complete with “A” and “B” kit armor for mine and ballistic protection. AM General also works with international customers for special operations variants.

Lockheed Martin, the largest contractor to the Department of Defense for the past decade, introduced a fourth JLTV prototype in February. This prototype was a second variant of its Infantry Carrier Category B. Three previous prototypes include the first Infantry Carrier JLTV Category B, designed for troop transportation; the Utility Vehicle Light Category C, designed to carry heavy cargo; and the General Purpose Mobility Category A, designed for logistical support.

“We have designed, developed and extensively tested mature JLTV vehicles,” said Lou DeSantis, vice president of JLTV Systems at Lockheed Martin. “We've received feedback from the customer and used it to improve our solution in areas such as ergonomics and survivability. Introducing the fourth operational prototype demonstrates our team's commitment to provide the warfighter with the lowest-risk, most technically innovative and affordable vehicle possible.”

The Army and Marine Corps have been testing all of the JLTV prototypes. Lockheed Martin's offerings have run more than 30,000 test miles—more than half of those as off-road miles to simulate conditions in the field.

Lockheed's JLTV contract team includes BAE Systems Mobility and Protection Systems, which produces advanced armor solutions and production facilities for high volume assembly; Alcoa Defense, which supplies materials experience, design services and aluminum components for structural strength at reduced weight; and JWF Defense Systems, which contributes precision machining and fabrication facilities.

The BAE Systems-Navistar team has offered the Valanx as its JLTV vehicle. Actually, the team plans to submit seven prototype vehicles and four trailers for testing by the Army under JLTV.

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The Valanx has a v-shaped hull and blast protection in variants designed to fulfill missions such as scouting, mobility, troop transport, ambulance services and others. BAE Systems and Navistar will design and build the variants in 2009 for testing in 2010. After testing in 2010, the Army and the Marine Corps will eliminate one of the three JLTV teams and award the other two contracts for system development and demonstration in 2011.

BAE Systems predicts the Valanx vehicles will outperform existing tactical systems as they supply more power than required by JLTV specifications and prove to be more versatile than MRAP vehicles. The team drew upon its experiences in the MRAP program to outfit Valanx vehicles with a high degree of crew protection. The modular design of the Valanx “maximizes commonality across JLTV variants and enables the seamless integration of future technologies,” according to BAE Systems.



Some established favorites also have undergone changes lately to make them faster and more powerful. ATV Corp. of Orange, Calif., upgraded the power plant on its Prowler ATV from a Yamaha single to a Kawasaki. “Nobody can touch it anymore,” ATV Corp. CEO Amos Deacon told *SOTECH*.

The increase in power (better than 30 percent) coupled with an even more stable platform configuration has resulted in a wider stance, longer wheel base and lower center of gravity, Deacon elaborated. This has all been accomplished while maintaining the signature Prowler high-ground clearance and CV-22 clear drive-in and -out overall dimensional envelope.

The Prowler now provides a more comfortable ride as well

with the introduction of the Skydex impact-absorbing Ischia bucket seat suspension systems and the incorporation of retractable medevac side litter mounts, he added.

ATV Corp. also recently produced a high-speed, long-range reconnaissance and patrol platform.

“We made a special single-seater that goes 75 miles per hour and has a 300-mile range. Our guys haven’t seen it yet; it’s for a customer we have in the Middle East,” Deacon revealed.

ALLIED OPTIONS

Many international military forces turn to companies familiar with their needs when ordering tactical vehicles. U.K.-based Jankel Armoring Ltd. has teamed up with King Abdullah Design and Development Bureau of Jordan to produce vehicles specially designed to meet the needs of desert environments.



“Our partners in Jordan secured an order for the MK II Al-Thalab from the Royal Armed Forces of Brunei for an undisclosed number of vehicles to a high level of specification,” said Lorne Stoddart, Jankel Armoring commercial manager.

In addition, Jankel has supplied vehicles to a NATO special forces unit for evaluation. The unit will complete its evaluation in September, Stoddart projected, which could result in an order of about 80 vehicles for various users. Another Gulf country, which could not be identified for security reasons, also has been running extensive trials and evaluations on the MK-II Thalab and may place orders for up to 40 units as of press time.

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“The design of the vehicle is constantly evolving in response to the evolving requirements of our customers, with increasing flexibility and modularity being built into the vehicle to enable users to prepare the vehicle for each mission,” Stoddart noted.



Pinzgauer Vector

Sadly, making room for new vehicles sometimes means the retirement of old standbys. The Pinzgauer, originally manufactured by Steyr-Daimler-Puch in Austria, was eventually purchased by BAE Land Systems, which sold the vehicles to the U.K. Ministry of Defence (MoD) and other militaries worldwide—expanding the Pinzgauer to 29 countries.

The Pinzgauer has demonstrated a great deal of capability due to its ability to carry payloads of up to 2.5 tons, high mobility and high performance. As such the vehicle has been able to fulfill a large number of specialized missions ranging from fire tender, troop carrier or heavy lifter.

The British Army began using an armored version of the Pinzgauer called the Vector in 2007 for patrols in Afghanistan. These 6x6 vector-protected patrol vehicles recently received upgrades to their front axles, said Mike Sweeney, external communications manager for Global Combat Systems at BAE Systems. In August, BAE Systems delivered the final orders for the vehicle under the U.K. MoD contract.

After that, production of all Pinzgauers will cease, and the proud line will be discontinued, Sweeney added. BAE Systems, of course, will continue to support existing vehicles in the field.

In France, Panhard teamed up with Daimler Chrysler to offer the French government the Petit Vehicule Protégé (PVP), an

armored 4x4 vehicle. The PVP can carry troops and cargo, protecting both with a steel hull and a floor protected against mines. Due to its speed, it also performs reconnaissance and scouting missions. Its modular design allows extra seats to be added for more troops.

The French Ministry of Defense first ordered the vehicles in 2004, commissioning them as the successor to the Peugeot P4 in 2007.

In June 2008, Panhard introduced the PVP Heavy Duty (HD) and the PVP XL to carry more cargo, said Charles Maisonneuve, Panhard's director of marketing and communications. The original PVP can carry smaller teams of three men while the PVP XL can carry a full infantry.

The interior volume of the original PVP is 4.5 meters cubed; the PVP HD, 6.4 meters cubed; and the PVP XL, 8 to 11 meters cubed, depending on its configuration. The PVP carries 800 kilograms; the PVP HD, 2 metric tons; and the PVP XL, 3 metric tons. The variants also offer increasing levels of armor protection, ranging from Level 2 (STANAG 4569) for the base PVP, Level 3 for the PVP HD, and up to Level 4 for the PVP XL.

The vehicles hold up very well to IED blasts, and their armor-plated floors keep the crewmembers inside safe from anti-personnel mines.



Panhard VPS

Panhard also continues to offer the Le Véhicule Patrouille SAS (VPS), a 4x4 based on a Mercedes G chassis for special forces. The French Defense Procurement Agency (DGA) originally procured them in 2005 for French special forces. The vehicle is



configured for rapid deployment and is designed to be highly survivable in tough conditions. It can carry cargo of 1,200 kilograms and a crew of four men, who are protected from mines by an armored floor.

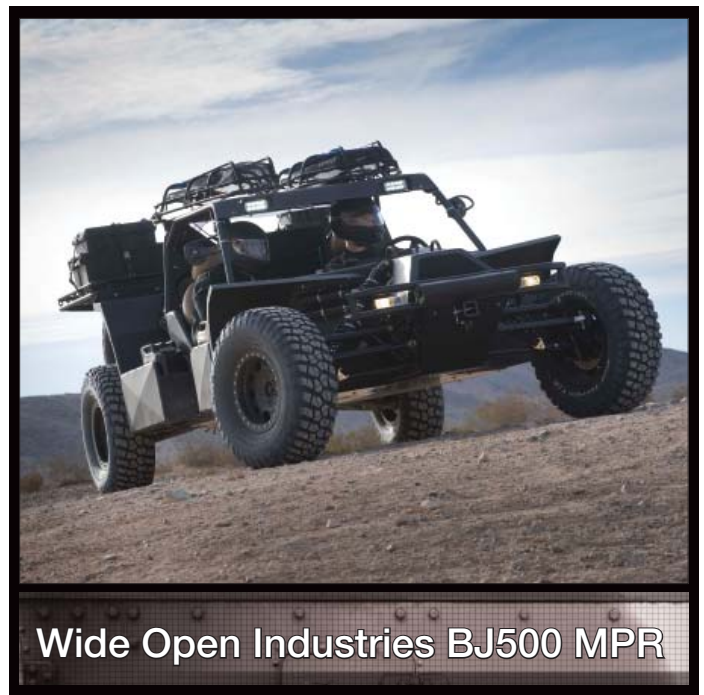
Panhard also produces its popular A3F general purpose vehicle, which fulfills a wide range of roles for military forces globally.

NEW VENTURES

Wide Open Industries (WOI), based in Tampa, Fla., introduced a light military vehicle (LMV) at the Special Forces Industry Conference in June 2009. WOI has designed the LMV to be highly maneuverable in rugged terrain, while keeping maintenance requirements minimal and simple. Warfighters can change out the vehicle's engine and transmission in less than one hour with basic tools. Its design incorporates many commercial off-the-shelf components to make repairs quick and easy.

The LMV can travel great distances over rough ground, at speeds of up to 90 mph, and continue to operate independently under duress due to the ease of maintenance. The LMV's turbo diesel fuel option permits it to withstand high altitudes for prolonged periods of time. That combination of characteristics makes it ideal for operations in Afghanistan, according to WOI.

"The new WOI vehicle is designed to give special forces a capability they presently need in independent operations and forward reconnaissance," WOI Managing Director Brent Fenimore



Wide Open Industries BJ500 MPR

said. "Not only is the vehicle designed to offer extreme reliability under harsh conditions, it is designed to ensure maximum protection for the occupants through its maneuverability and speed, and to ensure that crew fatigue is minimized through the design of the chassis, suspension and seating/restraint systems."

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On June 20, WOI entered its fast attack LMV in the 2009 TECATE Score Baja 500 off-road endurance race in Baja, Mexico, and it came in second place. The race demonstrated the great endurance of the vehicle, which handles travel over rugged terrain very well. WOI named its special ops vehicle variant Baja Challenge.

“We placed a great deal of stress not only on the survivability and extreme maneuverability of the vehicle in the worst possible terrain environments, such as Afghanistan, but on its ability to actually remove the stress of such taxing operations on the occupants,” Fenimore said. “We understand that the vehicle is there to enable a mission to be undertaken, and that the crew must be able to return to base in good shape. The Baja 500 race certainly demonstrated that we could do that, and do it at a modest budget with a vehicle of low signature.”

Gibbs Technologies of Auburn Hill, Mich., continues to work with Lockheed Martin on an amphibian craft for military purposes. The vehicle could measure up to 30 feet in length with the capability of traveling up to 40 mph on water and 80 mph on land.



Humdinga HSA

Gibbs Technologies has been building prototypes of its high speed amphibian (HSA) vehicles for commercial use at its headquarters, a suburb of Detroit and at a design center in Nuneaton in England. The original concepts for the amphibian vehicles include the buggy-like Qadski, the ATV Humdinga, and the coupe-like Aquada. The vehicles can drive on land and then convert for water travel upon entering a body of water.

The HSAs from Gibbs Technologies are able to transition from water to land and land to water in approximately five seconds and have sparked widespread military interest worldwide. Gibbs Chairman Neil Jenkins revealed the company is developing a special HSA for non-military, first-responder applications.

“Over the past year, we’ve identified a wide international market for vehicles of this size with amphibian capability among law enforcement and fire departments, civil defense units, rescue organizations, border patrol operations and NGO groups such as the International Red Cross,” said Jenkins.

The company hopes to have a prototype version of its “first responder” HSA available for customer evaluation and testing in 2010/11.

USADarcorp, based in Carson City, Nev., introduced its Vyper line of vehicles at June’s Special Operations Forces Industry Conference in Florida.

“We kept it rather quiet for three years while it was being developed. The V1 is a very lightweight, very fast vehicle. The V2 is a specialized fast attack vehicle that is lightweight and highly reliable but has modules built into it,” Nick Chapman, president of USADarcorp, told *SOTECH*.

The V1 and V2 both have a power plant consisting of a modified Viper V-10 (10-cylinder) engine highly modified by racing experts. The vehicles were designed with the input of various Navy SEALs and other special forces. It’s a lightweight, aggressive line of vehicles that can achieve top speeds of 150 mph.

In the future, automation will enable the vehicles to conduct operations without a human driver, Chapman added.

The V2 offers versatility with adaptable modules that warfighters can switch out for various tasks, he explained. Twenty-eight different modules offer equipment for military uses and civilian uses—including firefighting, riot control, border patrol and others.

“These modules can be developed into almost anything. You can put anything into that cube and seal it up,” Chapman remarked. “The flexibility with the module is that you can have knockouts so that it expands upwards or sideways to actually increase the size of the module by threefold. You could have living quarters in there if you needed to.”

“You can load a module and take the old one off and be running again. You can be an ambulance one time for medical or you can be carrying 700 gallons of diesel or gasoline or water. You could be carrying troops. The changeover takes less than 10 minutes. You don’t need a forklift to do it. It’s very simple,” he said. ★

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