

# Army Guide monthly



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## Army

## Testing the latest armoured vehicles for Afghanistan



The latest armoured vehicles being sent to do battle with the Taliban are tested to the limit by a specialist unit at Bovington in Dorset.

Bovington Camp, established in 1916, is the home of the Royal Armoured Corps and an ideal location to trial and test the latest armoured equipment in use on operations worldwide.

Surrounded by 10,000 acres of undulating Dorset countryside, it is here that the Army's Armoured Trials and Development Unit (ATDU) gets its hands on the latest vehicles for the armoured soldier, and some of the specialist vehicles like Panther.

Following a series of trials Panther is being delivered to the front line for use in the force protection role by the Royal Engineers, Royal Logistic Corps and RAF Regiment. Changes to bring it up to 'theatre entry standard' include adding a rear view camera for improved situational awareness, and protection for the engine compartment.

The ATDU's Commanding Officer, Lieutenant Colonel Chris Borneman, said:

"Our number one priority is support to current operations. The unit is very much part of a wider team involving DE&S [Defence Equipment & Support], industry and the Army, and is aiming to produce the best for soldiers on the front line.

Lance Corporal Charlie Manchester of the ATDU added:



"At the end of the day it's me and my friends that use the kit, so we need to make sure it's the best it can be."

Lance Corporal of Horse Martin Privett, also now working at the ATDU, has recently returned from Afghanistan. He said:

"When I was there we were stopping twice a day to clear out the engine air filters on our Scimitar reconnaissance vehicles. A new system was developed here and that changed it to once a week. Now we've developed a new filter system, and they've done between eight and ten thousand miles without needing to change the filter once."

Trials are not just done on vehicles though, they can include the clothing, food and fuel used by the crews:

"What is right for the infantry is not necessarily right for armoured troops," said Lieutenant Colonel Borneman.

"For example, the new infantry helmet is great, but not suitable for wearing in a Scimitar because it won't fit easily with the sighting systems in the turret. We work closely with DE&S project teams to get the kit right for operations."

"We look at the armoured soldier as a system," said Major Ian Simpson.



"Everything to do with the soldier is dealt with here; clothing, eye-wear, helmets, boots. Boots for example can be great out in the field, but are they suitable for wearing inside a tank with its cramped working environment? Are they going to be comfortable when you're sitting down for a long time? Will they slip on the pedals? These are all areas that must be looked at.

"We've done a lot of development work on body armour, integrating it with particular platforms. It may do an excellent job, but can you get in and out of the turret while wearing it? Can we reduce the bulk without degrading the protection?

"We've also trialled a body armour system that can be integrated with the cooling system in the vehicle."

Trial lengths vary depending on what is being trialled, but they can range from five days to six months depending on the question being asked. Often trials replicate what the vehicle actually does on operations; if a Panther is driven on patrol for 14-hours-a-day, seven-days-a-week, then ATDU do so too.

Although ATDU can replicate a lot of what is being done on operations, when performing driving trials they can't replicate the heat:

"We can send a vehicle away for 'cooking' in a specialist unit, but that can only be for static trials," said Lieutenant Colonel Borneman. "So we can replicate the increased engine workload caused by the heat by adding

weight to the vehicles."

A major part of the work at ATDU involves Urgent Operational Requirements (UORs):

"UORs are a very exciting part of our work," said Lieutenant Colonel Borneman, "because they are the 'here and now'. Both military and civilian staff love it because they can see the results and benefits of their hard work."

Military equipment has evolved over time:

"Twenty years ago we didn't know we'd be in Afghanistan, and much of our equipment was designed for a European battlefield," said Lieutenant Colonel Borneman.

"Requirements will change, and along with DE&S, industry and feedback from the front line, we will strive to improve what we have in service to deal with those changes."

### Armoured Trials and Development Unit

- ATDU, in its present form, dates back to the mid-1950s, but can trace its lineage to the Great War.
- There are seven trials and development units within the Army. ATDU is one of the largest and staffed by a mixture of around 60 soldiers and civilians. Soldiers come to the unit for between two and three years, and must have had recent front line experience, bringing all the latest tactical awareness and experience.
- Commanding Officer Lieutenant Colonel Chris Borneman goes to Afghanistan every six months to see for himself how equipment is currently being used on operations.
- Coming into service soon is the Warthog, which will be undergoing trials with the ATDU.
- The team is also looking ahead to the Future Rapid Effects System (FRES). When it is introduced it will also undergo trials at Bovington.

gains in respect of protection, training, support and further development.

## Defence Industry

### World leaders Thales and Plasan partner for next generation vehicles bid



Israeli company Plasan Sasa - the world leader in armour and survivability systems for military vehicles - is partnering with Thales - a global technology leader for the defence market - to develop a new Light Protected Vehicle for the Australian Army and the international market.

Under Defence project Land 121 Phase 4, the Australian Department of Defence will procure 1,300 PMV-L vehicles and trailers to replace Army's existing fleet of Landrovers. This program will procure four Protected Mobility Vehicles - Light (PMV-L) variants - Command, Liaison, Reconnaissance and Utility - all offering very high levels of protection from small arms fire, mines and Improvised Explosive Devices (IEDs). Deliveries are expected to begin in 2013.

Thales's Land & Joint Systems Division has significant expertise in military and specialist vehicles including combat proven wheeled armoured vehicles, land mine protection technology, high mobility engineering vehicles and all terrain fire fighting vehicles.

Plasan specialises in the development and manufacture of armour systems for the military and commercial market using composite material technologies. The company provides a vast range of systems for military armour and commercial clients worldwide.

"The new partnership between Thales and Plasan leverages world's best practice to provide real Australian capability on the global stage, and creates a team well-equipped to take on local and international challengers," said Ian Irving, Thales Australia's Land & Joint Systems Division Vice President.

"Thales and Plasan are bringing the very best design and armour technologies to the project. Plasan's strengths, combined with our many years of experience with the successful Bushmaster program here in Australia, offer the Defence Materiel Organisation and the Australian Defence Force a strong team with unrivalled expertise.

"Plasan is adding considerable capability to the Australian project team in protection system design, rapid prototyping, and testing and evaluation for our next generation vehicle development for Australia's Protected Mobility Vehicle - Light (PMV-L) requirement."

Plasan VP international sales and marketing Noam

## Contracts

### Kongsberg Receives U.S. Army Contract for CROWS Weapon Stations Worth NOK 1,1 billion



KONGSBERG has booked an order valued at NOK 1,1 billion (\$166 million, €116 million) from the US Army. The order is part of the NOK 8 billion Common Remotely Operated Weapon Stations (CROWS) framework agreement signed in August 2007.

CROWS is a joint acquisition programme for weapon stations for the US Army's vehicle programmes. A common solution will result in substantial efficiency

Hen said: "After extensive analysis of the market, we came to a very clear conclusion that Thales was the only company able to design and manufacture world class protected mobility vehicles in Australia."

"The success of the Bushmaster shows Thales can deliver effective solutions to the Australian Defence Force, and we are looking forward to incorporating our technologies and expertise into their next generation vehicle."

### About Plasan

Plasan provides customized survivability solutions for tactical wheeled vehicles, fixed and rotary wing aircraft, naval platforms, personal protection and civilian armour vehicles. A recognized global leader and industry veteran, Plasan's survivability solutions offer a unique optimization between protection, payload, and cost by combining in-house R&D, design, prototyping, and manufacturing capabilities.

Plasan has an impressive history of successful cooperation with local companies throughout the markets in which it is active and can play different roles in the manufacturing process. From "Build-to-Print" and "Add-on Armors" to a more comprehensive position in "Cab Replacement" and "Chassis-up" projects, up to a "Complete Hull Design". It is a preferred supplier to the Israel Defense Forces and an approved supplier to Ministries of Defence around the world, with production facilities in Israel, US and France.

### About Thales

Thales is a global technology leader for the Aerospace, Space, Defence, Security and Transportation markets. In 2008, the company generated revenues of 12.7 billion euros (equivalent of AUD22.1 billion) with 68,000 employees in 50 countries. With its 25,000 engineers and researchers, Thales has a unique capability to design, develop and deploy equipment, systems and services that meet the most complex security requirements. Thales has an exceptional international footprint, with operations around the world working with customers as local partners.

Thales Australia is a trusted partner of the Australian Defence Force and is also present in commercial sectors ranging from air traffic management to security systems and services. Employing around 3,500 people in over 35 sites across the country, Thales Australia recorded revenues of more than AUD1 billion in 2008.

## Robots

### Boeing to Demonstrate Ground Robotics Capabilities at US Army Rodeo

ST. LOUIS -- The Boeing Company will demonstrate its ground robotics capabilities at the U.S. Army's first Robotics Rodeo, to be held Sept. 1-3 at Fort Hood, Texas. The event is sponsored by the Army's Tank Automotive Research, Development and Engineering Center (TARDEC) and Fort Hood's III Corps.

The event is an opportunity for industry to

demonstrate to Army and government officials how the latest robotic technologies will support their operational needs by performing dangerous combat missions normally completed by soldiers.

Boeing Combat Systems is developing several robotic solutions designed to protect soldiers. One of them is the Small Unmanned Ground Vehicle (SUGV) 300 series of robots, designed in partnership with iRobot Corp.. These robots can be equipped with cameras, sensors, computers and sophisticated software to perform basic reconnaissance, dispose of explosives and complete other tasks that greatly reduce risks to soldiers in the field.

Boeing and subcontractor Autonomous Solutions Inc. will also demonstrate semiautonomous navigation capabilities by using surrogate vehicles to simulate military convoy and route-clearance vehicles in war zones.

"We are looking forward to showcasing some of Boeing's work in ground robotics at this event, especially since the environmental conditions will be similar to those of combat zones in Afghanistan and Iraq," said Valori Bring, director of Boeing's Global Forces and Robotics Systems business area. "We hope to receive real-time feedback from the soldiers - to learn from them - so we can make the improvements they need and help save lives."

Army officials are looking for robotic equipment that can maneuver through rough terrain under adverse environmental and lighting conditions, provide reconnaissance and surveillance, navigate in GPS-denied environments, project sensor information to remote work stations, and operate safely in limited-visibility environments.

A unit of The Boeing Company, Boeing Integrated Defense Systems is one of the world's largest space and defense businesses specializing in innovative and capabilities-driven customer solutions, and the world's largest and most versatile manufacturer of military aircraft. Headquartered in St. Louis, Boeing Integrated Defense Systems is a \$32 billion business with 70,000 employees worldwide.

## Defence Industry

### AT Communication Launches Intercom System

Specialist supplier of Tactical Communications Systems, AT Communication, has recently released the AT Intercom System. This new product range from AT combines sophisticated intercom modules in an integrated system for a range of wired and wireless intercom applications.

Examples of these applications include Military Vehicles, Emergency Services, Patrol Boats and Dismounted Squads. The AT Intercom system is highly configurable and customisable to suit a wide variety of applications.

### Vehicular Applications - ATVIS

The AT Vehicle Intercom System (ATVIS) is a

compact intercom/radio system designed for crew inter-communications and radio access (up to four) in military Command, Fighting and Support vehicles, tracked or wheeled, armoured or soft skinned.

Designed using modular architecture the system's flexibility allows compatibility across a wide variety of Military and Civilian platforms. For military applications the ATVIS is a ready replacement for aging wired audio only systems. It is scalable to meet varying demands and provides crisp, clear, full duplex audio amongst crew members. It has a range of radio interface options from basic PTT to full remote control of the radios.

For civilian and emergency service applications the system modules are compact, robust, easy to use and designed to be operated with minimal training.

Three main system types cover the range of intercom applications which can be augmented with specialist modules to add functionality. System A is for minimum crew and basic wired applications, System B is for multi-crew and combination of wired and wireless connections and System C is for full functionality wired/wireless applications with multiple crews.

All systems can be expanded and upgraded and System B and C have the option of data connectivity.

#### **Squad Applications - ATVIS**

The AT Squad Intercom System (ATVIS) is a portable and wireless only variant of the ATVIS and can be expanded to interconnect to vehicular systems for future expansion.

Squad members wear a wireless belt unit which interfaces with commonly available audio headsets to provide hands-free full duplex intercom operation or with remote PTT option depending on the application. A vibration mode can be enabled for covert operations to alert to incoming calls.

#### **AT Communication – Company Information**

AT Communication is specialist international supplier of products for military, paramilitary, security and communication applications. In operation for over 20 years with offices in Australia, North America, Africa and the CIS, AT Communication has extensive experience in international trade and customer service in sensitive products and markets.

AT Communication has been careful to partner with respected companies who are expert in their field and exhibit a commitment to consistent quality, innovation and cost effectiveness.

AT Communication has an extensive customer reference list which boasts the governments in most geographical markets. AT Communication customers benefit from partnering with a company that is experienced in ensuring the right product is delivered for the application. We work closely with our principals to provide solutions which are field tested and have a proven track record.



## **G-NIUS, the Elbit Systems and IAI JV, to Develop Next-Generation UGV - Nahshon - for the Israeli Defense Forces**



New unmanned ground vehicle (UGV) will offer improved operational flexibility and performance and will provide combat support.

G-NIUS Unmanned Ground Systems (UGS) Ltd., a joint venture of Elbit Systems and Israel Aerospace Industries (IAI), announced today that it was awarded a contract for the development of the next-generation UGV (unmanned ground vehicle) for the Israeli Defense Forces. The development phase, led by the Israeli Ministry of Defense's Administration for the Development of Weapons and the Technological Industry (MAFAT) and the Israeli Ground Forces, is to be completed by 2011.

The "Nahshon" UGV is based on the vast experience of the G-NIUS UGV Guardium™, operated by the IDF since 2008.

The next-generation UGV will offer improved autonomous movement and operational performance. Additionally, the vehicle's navigation capabilities will be intensified and will include various advanced control solutions.

The new UGV will allow increased payload weight, in order to offer better situational awareness, autonomy and independent decision making. The features of the new UGV will enable higher operational flexibility and allow activity in various combat scenarios. These advanced capabilities will also allow the vehicle to provide combat support, along with the Guardium™ which operates mainly in security missions.

G-NIUS CEO Erez Peled noted that the decision of the Israeli Defense Forces to develop a next-generation UGV reflects the necessity for such a system and its major contribution to security missions in the modern combat arena. Peled added that the Israeli Defense Forces is one of the most advanced armies worldwide in the unmanned systems field, and trusts that other armed forces around the world will follow the IDF in its selection of G-NIUS' unmanned systems.

#### **About G-NIUS Unmanned Ground Vehicles:**

G-NIUS Unmanned Ground Systems (UGS) Ltd., a leading Israeli unmanned ground systems company, is an equally shared joint venture of Israel Aerospace Industries Ltd. and Elbit Systems Ltd. G-NIUS develops and supplies a variety of autonomous unmanned ground system solutions, which are based on a common,

versatile and layered avionics suite and apply emerging technological breakthroughs in navigation, control theorem, artificial intelligence and 3D artificial imaging. G-NIUS' customer base includes military, homeland security and law enforcement organizations.

### Defence Industry

## A new name to note: Oerlikon Contraves Deutschland GmbH is now Rheinmetall Soldier Electronics



Trading under the new name Rheinmetall Soldier Electronics GmbH, the former Oerlikon Contraves Deutschland GmbH of Stockach, Germany, supports the world's armed forces with an extensive array of high-tech products and services.

The company, which has belonged to the Rheinmetall Group since 1999, develops and manufactures special components for infantry applications. The name change comes into effect on 1 September 2009.

"Thanks to our wide range of deployment-oriented soldier systems, our company is particularly well placed for future growth. The new name calls attention to our product portfolio, and sends a clear message to the market, which means we'll be able to do a better job of positioning ourselves. We're totally committed to supplying infantrymen with an optimum, mission-oriented suite of equipment," declares Wolfgang Kammerlander, managing director of Rheinmetall Soldier Electronics GmbH.

Products such as laser-based aiming systems (LLM: laser light modules), fire control units for dismounted soldiers and the DSID (dismounted soldier identification device) exemplify the company's commitment to improving the combat effectiveness, survivability and accuracy of fire of today's armed forces.

The name change also betokens the company's successful integration into the Rheinmetall Group's C4ISTAR division, significantly reinforcing one of the six product-oriented divisions that comprise Rheinmetall AG's defence technology arm.

With some 100 staff, Rheinmetall Soldier Electronics is an important employer in Stockach, located near Lake Constance in southwest Germany. Its customers include the armed forces of Germany, its allies and other like minded nations. The name Oerlikon Contraves Deutschland GmbH has been familiar to German procurement officials ever since the introduction of the Gepard self-propelled anti-aircraft system in the 1970s.

Strongly oriented to the needs of dismounted infantry, Rheinmetall Soldier Electronics GmbH's comprehensive product range embodies the strengths and traditions of

the former Oerlikon Contraves Deutschland GmbH.

Expanding beyond its previous role as a manufacturing plant, Rheinmetall's Stockach site has emerged as an important R&D centre for infantry system components, greatly benefiting from the synergies of the Group's C4ISTAR division, which in turn benefit the modern military and the soldier on the ground.

Long standing experience and a strong commitment to quality and dependability have earned the company the trust and respect of its customers and partners.

Newly renamed, Rheinmetall Soldier Electronics GmbH is poised to carry this tradition forward.

### Robots

## iRobot Receives Order from the U.S. Army for \$35.3 Million



BEDFORD, Mass. -- iRobot Corp. today announced that it received an order for \$35.3 million from the U.S. Army TACOM Contracting Center in Warren, Mich.

This order falls under the \$286 million Indefinite Delivery/Indefinite Quantity (IDIQ) xBot contract and calls for the delivery of 486 iRobot PackBot 510 with FasTac Kit robots prior to March 31, 2010. The total contract value to date under this IDIQ is approximately \$125 million.

"This order is truly a significant milestone for iRobot," said Joe Dyer, president of iRobot Government and Industrial Robots. "Not only is it the single largest order we have ever received from the military, but it also proves that there is strong and continuing support for our PackBot FasTac platform that was introduced just last year. One of the robot's strengths is its adaptability. It is well-suited for use by combat engineers, route clearance companies and infantry brigades. This is important as our troops continue to fight wars on multiple fronts, each possessing its own unique mission types and challenges."

The PackBot 510 with FasTac Kit provides warfighters with the ability to see and assess dangerous areas from safe standoff distances and to clear routes while on the move. The robot is controlled through a ruggedized laptop with game-style controller, operates at speeds of up to 5.8 miles per hour and provides up to four hours of mission run time. In addition, the PackBot 510 with FasTac Kit's compact arm and precise gripper allow warfighters to safely pick up and identify suspicious objects.

iRobot has delivered more than 2,500 PackBot robots that make a difference every day by conducting

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

iRobot designs and builds robots that make a difference. The company's home robots help people with smarter ways to clean, and its government and industrial robots protect those in harm's way. iRobot's consumer and military robots feature iRobot AWARE® robot intelligence systems, proprietary technology incorporating advanced concepts in navigation, mobility, manipulation and artificial intelligence.



### Exhibitions

## IAI to Introduce the JUMPER -- A New Autonomous Artillery for the Ground Forces



BEN GURION INTERNATIONAL AIRPORT, Israel -- Israel Aerospace Industries (IAI) is introducing the JUMPER system, a new autonomous artillery for the ground forces, at the 3rd Army & Defense Conference & Exhibition at Latrun, Israel.

The JUMPER is a missile that "jump" out of a vertical launch hive to precisely strike targets at ranges of up to 50 Km

The JUMPER system contains eight canistered missiles and one integrated command and control unit that are arranged in each JUMPER 3X3 hive. Overall dimensions are: 1.4X1.4X2m. The system requires no operating crew and no special launching platform. Pinpoint accuracy and short time of flight make the JUMPER a perfect solution for the autonomous fire support to the Ground Forces.

The missile is 1800 mm long, has a diameter of 150 mm, and weighs 63 kg. The missile is equipped with a GPS/INS and 4 steering fins at its tail. In addition, the missile can home to a laser designation. The JUMPER system provides the maneuvering force commander with autonomous, immediate, and precise fire – regardless of weather and visibility conditions.

Thus, a significant effect is achieved against a variety of target types, especially in urban operations where collateral damage is a major concern. The missile is armed with several possible warheads for fire missions that require prompt and accurate response.

Major General (Ret.) Eyal Ben-Reuven – Deputy,

Northern Command, during the 2nd Lebanon War, said: "The JUMPER's unique mode of operation is very relevant to the asymmetric warfare characteristics of the complex battlefield under which the IDF (Israeli Defense Force) and other modern armies have to operate. The system, using the autonomous vertical launch hive, enables investment of 90% of the budget in the effect rather than in platforms and personnel."

With the development of the JUMPER system, IAI leverages its capabilities in the areas of missiles and C4 systems integrated into unique, precise and operational effectiveness to best serve the ground forces.

Israel Aerospace Industries Ltd. (IAI) is the largest aerospace and defense industry in Israel. IAI is Israel's largest industrial exporter and a globally recognized leader in the defense and commercial markets. IAI provides unique system-of-systems solutions for a broad spectrum of needs in space, air, land, sea, and homeland defense, including: unmanned air vehicles (UAVs), radars, mission aircraft, AEW, EW, ELINT/ESM, SIGINT, and COMINT/COMJAM, aerial refueling, Anti-Tactical Ballistic Missiles (ATBM), missiles, smart weapons, satellites and launchers, navigation, upgrading of military aircraft and helicopters, maintenance and conversion of commercial aircraft, and many other core technologies, products, and services.



### Defence Industry

## Reprogramming the Slovenian vehicle deal

A reprogramming of the Slovenian 8x8 vehicle deal has been in media focus for quite some time. Informal discussions with the MoD have indicated that a substantially lower number of vehicles and an enhancement of armament would be the relevant issues.

13 vehicles have been delivered to MoD and paid to Patria so far and approximately the same number of vehicles is at this moment in various stages of completeness and some almost ready for delivery. It has been indicated to Patria that the MoD has presently no funding for these vehicles.

In order to control the capital employed in an increasing number of finished vehicles, temporary measures has been imposed on the production of additional vehicles. The production is not discontinued but will be concentrated on finalising those vehicles that might be delivered later this year and during next year.

Indop and Patria have established a long-lasting cooperation in production of vehicles.

Patria has expressed its willingness and has for quite some time waited to be formally invited to renegotiate the scope of the contract.



### Contracts

## ATK Receives \$10 Million Order for Enhanced Portable Inductive Artillery

## Fuze Setters (EPIAFS) After Passing First Article Acceptance Testing

MINNEAPOLIS -- Alliant Techsystems recently received a \$10 million order for Enhanced Portable Inductive Artillery Fuze Setters (EPIAFS), following successful completion of First Article Acceptance Testing (FAAT) with the U.S. Government.

The contract was awarded to ATK by the U.S. Army Program Manager - Combat Ammunition Systems located at Picatinny Arsenal, New Jersey.

The EPIAFS provides warfighters the capability to download automated fire control data to initialize the Global Positioning System (GPS) on 155mm projectiles such as XM982 Excalibur, and rounds equipped with ATK's Precision Guidance Kit (PGK). In addition, the EPIAFS is also capable of setting all NATO standard fuzes on projectiles fired from the M109A6 Paladin self-propelled howitzer, M777A2 lightweight towed howitzer and the future Non-Line-Of-Sight cannon.

The comprehensive FAAT requirements included more than 100 component level first article acceptance requirements. Since completing the FAAT, ATK expedited delivery of 420 systems to the U.S. Army and Marine Corps to meet urgent training and deployment requirements. "Our ability to expedite delivery of these units underscores our commitment to the warfighter to deliver affordable innovation," said Bart Olson, Vice President and General Manager, ATK Tactical Propulsion Systems.

"This innovative product provides our warfighters enhanced capability to set and fire 155mm conventional and precision-guided projectiles," said Olson. "ATK has more than 40 years experience in manufacturing electronic fuzes and subsystems. We are dedicated to providing quality products our customers can depend on."

ATK is a premier aerospace and defense company with more than 18,000 employees in 22 states, Puerto Rico and internationally, and revenues of approximately \$4.8 billion. News and information can be found on the Internet at [www.atk.com](http://www.atk.com).

Certain information discussed in this press release constitutes forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995. Although ATK believes that the expectations reflected in such forward-looking statements are based on reasonable assumptions, it can give no assurance that its expectations will be achieved. Forward-looking information is subject to certain risks, trends and uncertainties that could cause actual results to differ materially from those projected. Among those factors are: changes in governmental spending, budgetary policies and product sourcing strategies; the company's competitive environment; the terms and timing of awards and contracts; and economic conditions. ATK undertakes no obligation to update any forward-looking statements. For further information on factors that could impact ATK, and statements contained herein, please refer to ATK's most recent Annual Report on Form 10-K and any subsequent quarterly reports on Form 10-Q and current

reports on Form 8-K filed with the U.S. Securities and Exchange Commission.

## Defence Industry

### 10 years of RUAG - a technology group with a bright future

Berne -- The RUAG technology group will be celebrating its 10th anniversary on 3 September 2009 in Thun (Switzerland) together with guests from the worlds of politics, business and media.

CEO Dr Lukas Braunschweiler and his staff will be making the most of this opportunity to show how RUAG has successfully evolved from a state-owned defence company into an international technology group. An important point to underline is that RUAG is an attractive employer for both scientific and hands-on careers, with an around 50:50 ratio of civil and military business. This provides a good foundation for the company to further build on its international and industrial success.

Today, RUAG is a highly diverse international technology group. Its core businesses are Aerospace and Defence. The company has international networks and is right at the cutting edge of the latest key technologies. This benefits not only the Swiss Armed Forces but also other national and international customers. Alongside police forces and armed forces, these include the European Space Agency (ESA), Airbus, Ariespace, General Electric, Boeing, Bombardier, Northrop, Dassault, EADS and Saab.

#### RUAG-View, 2/2009

Born from the amalgamation of federal defence contractors producing exclusively for the military, since 1999 RUAG has undergone a step-by-step transformation into an internationally competitive technology group. The Swiss Department of Defence, Civil Protection and Sport (DDPS) remains RUAG's largest single customer, accounting for one third of sales. 90% of the company's main markets are currently in Switzerland and Europe. That said, RUAG is also steadily gaining ground in North America and in the rest of the world.

Targeted acquisitions in the space business, for instance Saab Space, Austrian Aerospace and Oerlikon Space, have enabled RUAG to expand its market position in core business areas. Today, RUAG is Europe's largest independent supplier to the space industry.

RUAG offers attractive jobs to around 7 000 staff in Switzerland, Germany, Sweden, Austria, Hungary and the US. The company also accords great importance to young talent.

"RUAG is an innovation-driven, international technology group with strong Swiss roots. We have enormous potential to achieve further sustainable, profitable growth. In future, we will tap innovative potential in our divisions even more intensively, while further strengthening our international focus," stated Dr



Lukas Braunschweiler, CEO of RUAG Holding AG.

## Contracts

### French DGA orders 332 VBCI armoured vehicles from Nexter/Renault Trucks Defense



The French Defence Procurement Agency (DGA) has notified the group of companies formed by Nexter Systems and Renault Trucks Defense of an order for 332 infantry armoured combat vehicles (VBCI).

The number of VBCIs ordered for the French Army totals 630 vehicles, in accordance with the guidelines of the French White Paper on Defence and National Security.

Initiated in 2000, the program is now in its maximum production phase. The first VBCI left the factory in 2008 and over 100 vehicles have already been delivered and the last will be delivered to the French Army in 2015. The first combat unit to be equipped with this new armoured vehicle, the 35th infantry regiment, used the VBCI in this year's 14th of July parade.

The Military programming law for 2009-2014 stresses the importance of updating combat equipment, especially land combat equipment. The VBCI is an accomplished system, which meets current operational needs in terms of protection and growth potential.

The 8 wheel-drive armoured vehicle, heir to the AMX 10P, is available in command post version (VPC) and infantry combat version (VCI). The VCI version, of which 520 have been ordered, is equipped with a 25 mm turret and provides transport for eleven troops. Weighing 30 tons at full load, the VBCI can reach a top speed of 100 km/h. It will be transportable by air in the soon to be produced A400M transport aircraft. True "life base" for the infantryman, the VBCI offers a high level of protection, including an NBC filtering system. It is equipped with armour resistant to medium-sized calibres, shell shrapnel and improvised explosive devices (IEDs). It also offers a high level of protection from mines and possesses infrared decoys.

## Training And Simulators

### SAIC to Demonstrate Next Generation Live Defence Training and Simulation Solutions at DSEI

Personal sidearms are a key component of

individual warfighters' equipment for today's close quarters combat and security operations. Effective use of these weapons by warfighters requires precision skills in target identification, rapid decision-making and engagement.

Science Applications International Corporation will feature specialized defense and security solutions for warfighters at DSEI 2009 Conference, 8-11 September at the ExCel London, United Kingdom. SAIC will demonstrate cutting-edge live training technologies featuring the Tactical Engagement Simulation (TES) Multiple Integrated Laser Engagement System (MILES) and the Mini MILES pistol simulators. SAIC is located at DSEI Stand 2332 at the ExCel London.

Visitors to the SAIC booth will be able to test fire the next generation of wireless, state-of-the-art MILES technology using the Mini MILES pistol simulator and M4 carbine training weapon.

Learn how these new TES MILES kits and products can expand live tactical training and security operations exercises with high-fidelity detection for real-time casualty and shot assessment.

"SAIC's products provide critical support for warfighters in nations across the globe with next generation live training solutions," said Beverly Seay, SAIC senior vice president and business unit general manager. "Our MILES kits expand force-on-force live training capability and high-fidelity detection in infantry- and armor-based exercises."

#### SAIC Mini MILES Pistol Simulators

The SAIC Mini MILES in-barrel conversion kit provides a MILES firing solution with minor weapon modification, which is replacement of the current barrel with a dedicated barrel for the Mini-MILES transmitter, and retains all of the normal soldier-to-weapon procedures, from target identification and engagement to ammunition reload.

#### The SAIC Mini MILES Features and Benefits

- Can be used dry fire, with a special blank round or with a gas blow-back training weapon adapted to provide the tactile and auditory cues of small arms engagements
- Fits into a barrel insert and is fully interoperable with legacy and existing MILES and weapons effect simulator systems
- Integrates seamlessly with existing training ranges or systems
- Provides maximum flexibility and adaptability with a design based on an advanced, modular, open architecture
- Enables precise targeting and engagement for warfighters
- Supports realistic field training exercises with wireless, state-of-the-art lightweight, low-power, laser components
- Through its common components, provides interoperability throughout SAIC's dismounted and mounted systems as well as other MCC97 compliant MILES systems so you can combine capabilities of different components to fit your unique training needs
- Helps to lower production costs and reduce lifecycle support expenses through interoperability,

and provides the opportunity to procure more systems to support your training objectives

**Robots**

**G-NIUS Unveils: Guardium™ LS, A Logistic Support Variant of the Guardium™ UGV Family**



Guardium™ LS incorporates lessons learned during operational deployment of the Guardium™ UGV by the Israeli Defense Forces.

G-NIUS, a joint venture of Elbit Systems and Israeli Aerospace Industries (IAI), expands its unmanned ground vehicle (UGV) line of products with the introduction of the Guardium™ LS, a versatile, multi-purpose unmanned ground vehicle UGV.

Relieving the extreme weight load on the dismounted soldier, the Guardium™ LS replenishes forward troops with up to 1.2 tons of ammunition and supplies without endangering manned vehicles over IEDs infested routes.

An offspring of the operational Guardium™ UGV, the Guardium™ LS equips the warfighter with a robust tool kit for a variety of operational scenarios, such as: route proving, base protection, ISR and logistic support.

Based on the mission's requirements, the Guardium™ LS can be commanded from either mobile or portable terminals or act in a mule mode, where it autonomously follows a squad unit.

Erez Peled, G-NIUS' CEO, noted that the Global War on Terror and its inherent asymmetries create strong international demand for "Lifesaving Systems" and that the Guardium™ UGV and its logistic support variant, effectively respond to this requirement. "The fact that our systems are operated by the Israeli Defense Forces is a major advantage, and I believe that additional customers will follow suit and select our unmanned ground vehicles," Peled added.

G-NIUS is delivering the semi-autonomous Guardium™ UGV to the IDF for deployment in various force protection and route proving missions. The Guardium™ LS incorporates lessons learned in the course of the Guardium™ UGV's operational deployment.

DSEi Exhibition, London -- Sagem (Safran group) has just completed two key phases in its soldier modernization programs in Great Britain and France, with a major contract announced today for FIST via its Swiss subsidiary Vectronix AG and the successful completion of technical/operational evaluations for the FELIN system.



FIST – Future Integrated Soldier Technology (United Kingdom). Vectronix AG has been selected by Thales UK to supply the UK's Ministry of Defense with 2 700 Moskito multifunction rangefinders and 2 300 Rapid Acquisition Aiming Modules (RAAMs) (1), plus related logistical support. The contracts combined total 60 million euros (2).

FELIN – Fantassin a Equipements et Liaisons Intégrées (Integrated Dismounted Soldier System) (France). The FELIN system successfully completed its technical/operational evaluation campaign in July. Three French army regiments tested it for six months in all types of combat and environments (urban and airborne combat, mountains, tropical forest and deserts). This success means equipment already ordered for six regiments (6 134 systems) can now be mass produced, with the goal of supplying France with the planned 22 588 systems by 2014.

In Switzerland, Sagem is in charge of all optronic equipment for IMESS (Integriertes Modulares Einsatzsystem Schweizer Soldat, or Integrated Modular Soldier System) awarded this year-end 2007 by armasuisse to EADS Defense & Security, with Sagem as the main partner.

- (1) RAAM jointly developed by Vectronix AG and Wilcox Industries Corp. (USA)
- (2) 92 million Swiss francs

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Sagem is a high-tech company in the Safran group. It is a world or European leader in solutions and services in optronics, avionics, electronics and critical software for the civilian and military markets. Sagem is the European No. 1 and worldwide No.3 in INSS for aeronautic, naval and land applications. It is also the worldwide No.1 in helicopter flight controls and the European No.1 in optronic and tactical UAV systems. Present across the globe via the Safran group's international network, Sagem and its subsidiaries employ 6000 people in Europe, South East Asia and North America. For more information: [www.sagem-ds.com](http://www.sagem-ds.com)

**Exhibitions**

**Soldier modernization programs: Sagem consolidates its European leadership**

**Robots**

**Robots Get Personal**



London , United Kingdom -- As soldiers take up secure positions behind a wall, they deploy a small reconnaissance team – a very small one. Some hopping, some flying, the stealthy autonomous reconnaissance squad vanishes into a suspicious building for several minutes, then relays the all-clear back to its relieved partners outside.

The chances of tiny intelligent mobile robots could someday assist U.S. armed forces and other personnel, such as search and rescue teams, are improving, thanks to a major research program led by BAE Systems. The team also includes scientists and engineers from the US Army Research Laboratory, industry partners, and several leading US research universities as well as international groups of researchers from the University of Sydney and the University of Milan.

Called the Micro Autonomous Systems and Technology (MAST) Collaborative Technology Alliance Program, the 10-year initiative is focused on creating the next generation of micro robotic systems. Discovering how nature can teach us how animals and insects sense their surroundings, manoeuvre around, over-and through obstacles and perform complex behaviours helps the team to understand how to convert these behaviours into digital inputs.

For example, how does a bee find its way back to the same flower and how does an animal like a gecko climb a vertical wall? How do ant colonies and packs of wolves work cooperatively to accomplish tasks that no one entity could accomplish alone and how do you design a robot with legs that can also function as antennas or whose body is also its power source?

“Our ultimate goal is to develop technologies that will give our soldiers another set of eyes and ears for use in urban environments and complex terrain, places where they cannot go or where it would be too dangerous,” explained Bill Devine, Advanced Concepts Manager with BAE Systems. “Our goal is also to develop technologies that will take maximum advantage of collaboration between multiple robots to accomplish missions that couldn’t be done by a single robot.”

The personal robots will be fully autonomous and equipped with a range of sensors, including visual, audio, thermal, magnetic and chemical, as well as location and orientation capability to improve situational awareness for frontline troops by sending back vital, lifesaving information.

Prototypes have already been created by the team,

including a fly-like robot that weighs less than an ounce and has a wing span of 1.18 inches – lightweight carbon joints allow the robot to mimic a real fly, with wings that beat 110 times a second.

**Defence Industry**

**BAE Systems Unveils Contender For British Army Recce Vehicle**

LONDON, United Kingdom -- BAE Systems has released the first images of its new demonstrator vehicle for the Scout variant of the multi-billion pound UK FRES SV (Future Rapid Effect System Specialist Vehicles) competition. The vehicle is based on a modified version of its highly-successful CV90 chassis with an all-new turret and cannon.

The UK-developed turret will allow accurate firing on the move, a first for a medium-calibre vehicle weapon system in British service, while the cannon features a revolutionary new 40mm “cased telescoped” design from the BAE Systems/Nexter joint venture CTAI. This will give much greater punch than existing medium-calibre designs against armour, buildings and dismounted troops.

BAE Systems has delivered more than 1000 CV90 vehicles to six nations, with more than hundred more on order. It is currently in service in Afghanistan with Swedish and Norwegian forces, while Denmark will deploy it there next year. Through these programmes, taxpayers have seen real value for money, new jobs have been created in the customer nations and technology has been transferred successfully in each case.

Commenting on the vehicle system design, BAE Systems FRES SV Campaign Director Arne Berglund said: “Each successive contract has resulted in further development and CV90 is a mature, fully-digitised, very mobile, reliable and well-protected vehicle. It is ideally suited for the range of variants required by the FRES SV programme.

“The demonstrator vehicle has allowed us to integrate complex systems and gives confidence that we can meet the demanding UK Ministry of Defence timescales for the high-priority FRES SV programme. It incorporates technology and learning from our very successful MTIP2 turret programme which integrated the CT40 gun and culminated in a successful live firing demonstration in January this year, from a moving Warrior vehicle against a moving target.”

FRES SV consists of three Blocks of Reconnaissance vehicles, plus Medium Armour and Manoeuvre Support. Up to 1300 could be required in total. Recce Block 1, which consists of Scout, Repair, Recovery and Protected Mobility variants, is the biggest and seen as the highest priority.

**Defence Industry**

**BAE Systems New Global Tactical Vehicle Makes Its Debut**

London, United Kingdom -- BAE Systems brings combat-proven operational pedigree and the latest environmental technology to the European market with the new Euro V compliant Global Tactical Vehicle (GTV).

The latest addition to the company's Family of Medium Tactical Vehicles (FMTV) is on display on the BAE Systems stand at the Defence Systems & Equipment International 2009 (DSEi) exhibition.

The tough Euro V emission control regulations on engine design call for lower levels of carbon particulates, nitrous oxides, carbon monoxide and unburnt hydrocarbons. "The GTV maximizes tactical mobility and operational capability while meeting stringent emission control regulations," said Dennis Morris, BAE Systems President, Global Tactical Systems. "This is a new generation of military vehicles."

With 45,000 vehicles produced by BAE Systems for the United States, worldwide parts, service and support are readily available.

The GTV also features the Long Term Armour Solution (LTAS). The key benefit of the LTAS solution is that it allows for rapid conversion from a performance truck to a highly protected tactical armoured vehicle without compromising load capability, mission certainty or weight-related safety.

The GTV also includes seats and seating restraints meeting current international safety legislation. The GTV features the Mine Blast Resistant Seat (MBRS) and 4-point restraint system, which is easily modified to accept a 5-point restraint and is produced by BAE Systems' Security & Survivability business. The MBRS is easily resettable and lightweight, and integrates the energy absorbing system into the seat itself. With more than \$7 Million in orders to date, the MBRS is designed to fit a wide variety of vehicles and is proving to be successful in the global defense market.

GTV is based on a fleet of combat-proven, armour-protected logistic tactical vehicles and is designed to incorporate modifications according to customer specifications.

### Defence Industry

## ATK Develops Enhanced 30/40mm Mk44 Bushmaster Cannon System

MINNEAPOLIS -- Alliant Techsystems, developer of the combat-proven 30/40mm Mk44 Bushmaster cannon system, has enhanced the system's effectiveness and performance to accommodate integration into various ground combat vehicles, including the United Kingdom's Warrior Infantry Fighting Vehicle.

The enhanced cannon offers various vehicle mount and feed configurations, with either the traditional bayonet mount with a single recoil damper and linked feeder, or with a bespoke integral mount with dual recoil dampers and linkless feeder. The linkless feed system is driven from the cannon's integral electric motor and feeder gearing, eliminating the need for a separate

magazine drive motor and associated burden on the vehicles' electrical system.

The enhanced cannon utilizes a modified 30mm Mk44 with additional recoil stroke capacity that reduces recoil loads associated with 40mm x 180mm ("Super 40") ammunition. The cannon can be easily upgraded to fire Super 40 ammunition with simple component changes by the end user.

Technical maturity of Super 40 ammunition was proven on the Mk44 during the U.S. Army's Advanced Light Armament for Combat Vehicles (ALACV) program, initiated to evaluate increased lethality in medium-caliber cannons. The ALACV program included live-fire tests of Target Practice-Tracer (TP-T), Programmable Airburst Munition (PABM), and Armor Piercing Fin Stabilized Discarding Sabot - Tracer (APFSDS-T) rounds and demonstrated a technology readiness level six (TRL-6) in 2003. Subsequent development of the "Super 40" system (cannon and ammunition) resulted in a common 180mm case design for both the full and sub-caliber rounds. The overall round design significantly improves system performance, accuracy, and reduced barrel wear.

As with previous Mk44 cannons, the enhanced cannon system is compatible with ATK's PABM, and offers the user increased tactical flexibility and greater lethality as compared to conventional high-explosive ammunition.

ATK has applied its integrated weapon systems capability to develop the most cost effective, compact and lightweight 40mm cannon system available today. A live fire demonstration of the Super 40 system is planned by December 2009.

ATK is a premier aerospace and defense company with more than 18,000 employees in 22 states, Puerto Rico and internationally, and revenues of approximately \$4.8 billion. News and information can be found on the Internet at [www.atk.com](http://www.atk.com).

### Exhibitions

## OTT M22TL 4X2 Armored Personnel Carrier on DSEI



OTT Technologies (Pty) Ltd trading as OTT Armoured Vehicles developed a cost effective 4x2 drive armoured personnel carrier (APC) to drive down the costs of homeland security operations without compromising quality and crew survivability.

The M22TL is based on a Hino Series 300 815 commercial truck chassis and can be repaired and serviced by any Hino dealer. This in itself drives the life

costs tremendously downwards. The M22 TL carries a total crew of 12 including driver and commander and has crew and engine ballistic protection of Level B6+ (7,62 x 51mm NATO Ball and 5,56 x 45mm NATO Ball. The floor is protected against hand grenades and handguns.

Due to its compact size and manoeuvrability he M22TL the M22TL is ideally suited for urban police and security operations. The M22TL is in production.



### Exhibitions

#### ST Kinetics Broncos And Total 40mm Solutions At DSEi 2009



London -- ST Kinetics is displaying the successful Bronco All Terrain Tracked Carrier (ATTC), on which the WARTHOG all terrain vehicle is based, at Defence Systems & Equipment International (DSEi) 2009, London, UK.

Two Bronco ATTCs - a troop carrier and a logistics version - will be on show at ST Kinetics' stand 1357. The troop carrier is fitted with the Platt Protected Weapons Station and bar armour. The logistics variant features a Demountable Rack Offload and Pickup System (DROPS) style off-loadable rack on the rear.

In December 2008, more than 100 Bronco vehicles, designated WARTHOG by the UK MOD, were bought from ST Kinetics in a deal worth over J150M. The first vehicle will be with the UK MOD from the end of 2009. Dubbed "The Beast", it will provide enhanced performance and protection for troops in Afghanistan.

#### ~TOTAL 40MM SOLUTIONS

Also showcased at DSEi is the ST Kinetics' TOTAL 40MM SOLUTIONS, comprising grenade launchers and a family of high and low velocity 40mm ammunition and payload systems. Such solutions range from 40mm High Explosive, Flash & Bang and training rounds as supplied to the UK MOD, to the Soldier Parachute Airborne Reconnaissance Camera System (SPARCS), air bursting, self-destruct, enhanced blast and insensitive munitions rounds.

SEW Chee Jhuen, President, ST Kinetics, said: "At DSEi 2009, ST Kinetics is particularly proud to showcase the Bronco, an all terrain vehicle whose WARTHOG variant will soon be fielded by the UK MOD for operations in Afghanistan. With class-leading payload, capacity and protection, the proven and cost effective platform will greatly enhance operational

effectiveness."

Notes:

1. WARTHOG - the WARTHOG is a variant of ST Kinetics' Bronco All Terrain Tracked Carrier, a robust and proven articulated platform with an unsurpassed payload of more than 5 tons. The platform's articulated design delivers exceptional mobility across a wide range of terrain and climate, and is extensively armoured and highly survivable.

2. Fielded in 2001, the Bronco ATTC has enhanced its users' effectiveness through better all-terrain mobility, higher protection, greater payload and increased efficiency while meeting the rigorous demands of modern warfare.

3. TOTAL 40MM SOLUTIONS - ST Kinetics' 40mm payload systems provide the soldier with an unrivalled range of terminal effects from a wide array of grenade launchers. ST Kinetics prides itself as one of the world's leading provider of 40mm solutions, offering various 40mm grenade launcher systems and an unparalleled range of 40mm ammunition. This includes high and low velocity, high explosive, enhanced blast, self-destruct, air bursting, surveillance, insensitive and less-than-lethal rounds.



### Exhibitions

#### Force Protection Europe Rolls Out Ocelot Vehicle at DSEI



Force Protection Europe, Limited – a wholly owned subsidiary of Force Protection Industries, Inc., today debuted a new class of light protected patrol vehicle, the Ocelot, at the Defense Systems and Equipment International (DSEI) exhibition in London. The Ocelot was designed specifically to meet the requirements for the UK's Light Protected Patrol Vehicle (LPPV) program.

Reliability, adaptability and protection levels similar to the renowned Force Protection Mastiff are all traits of the Ocelot, which has been designed by Force Protection Europe and Ricardo plc, a UK based automotive engineering company.

"By designing from a clean sheet we have adopted a novel design which is a complete departure from the standard practice of basing mine resistant vehicles on a standard chassis design," said David Hind, Managing Director of Force Protection Europe. "We are confident that the design of Ocelot means it not only meets today's blast resistance requirements but those expected in the

## AMPV: Rheinmetall and KMW point the way with a trendsetting joint development project



Rheinmetall Defence of Dusseldorf and Krauss-Maffei Wegmann of Munich have launched a joint programme to develop a highly protected new vehicle family in the 5- to 9-ton weight class.

future. Ocelot exceeds the required mine protection level set for the UK MoD Light Protected Patrol Vehicle, while still meeting the targets for mobility, payload, size and gross vehicle weight.”

David Hind said, “The expertise of Ricardo in designing and optimising vehicles and Force Protection’s expertise in survivability solutions has resulted in what we believe will be the premier mine resistant vehicle needed to protect troops in theatres such as Afghanistan. Ocelot’s independent suspension system offers excellent mobility over rough terrain.”

Based on a modular design with a core automotive armored spine or “skateboard” the vehicle has a composite special-to-role pod. These roles include patrol and fire support or protected logistics vehicle, while the pod can easily be changed in the field as the need requires.

The composite pod has been designed to be interchangeable. In the patrol vehicle there is seating for two crew and four dismounts. Access to the vehicle is through large rear doors, two top hatches or if required an oversize commander’s door. The V-shape design results in the running gear not intruding into the crew area making movement from front to back easy and also reducing the threat to the occupants in the event of an attack. Bulkheads between vehicle crew and dismounts and between them and the vehicle electronic equipment such as radios and electronic counter measures give added protection.

Ocelot is a 7½ ton vehicle which can be transported in a C-130 or under a Chinook. It has four wheel steering giving it a market leading turning circle of 39 feet and has a low center of gravity as all the heavy items are contained within the skateboard. It is 17 feet long, 8 feet high and 7 feet wide.

Michael Moody, Chief Executive Officer of Force Protection, commented, “Ocelot is an entirely new class of vehicle. Force Protection and Ricardo have worked together to design a vehicle built specifically in response to the requirements of the UK LPPV program. However, we believe that there are opportunities for lighter, highly mobile vehicles that provide MRAP levels of protection both in the United States military as well as internationally.”

### About Force Protection Europe Limited

Force Protection Europe is a wholly owned subsidiary of Force Protection Industries, Inc., a leading provider of survivability solutions. Force Protection’s Cougar MPRAP vehicles, in service with the British Army as Mastiff, Ridgback and Wolfhound, are acknowledged globally as providing the highest levels of blast protection. Force Protection Europe has been established to create a UK leader in the provision and sustainment of survivability solutions based on tactical wheeled vehicles, including the innovative new lightweight mine resistant vehicle, Ocelot.



The first prototype of the four-wheel drive Armoured Multipurpose Vehicle (AMPV) systems was presented to government and military officials in Berlin in June 2009.

A second prototype is set to be finished in October this year followed by in-house and army trials. The first version of the AMPV, a 9.3-ton patrol vehicle, will be ready for serial delivery by 2011.

Responding to the Bundeswehr’s current GFF (“protected command and role-specific vehicle”) procurement programme, Rheinmetall and Krauss-Maffei Wegmann have developed a family of GFF 1/2-class vehicles that fully complies with user requirements. The two defence contractors are financing the development project on their own.

The objective of the joint project is to supply the armed forces of Germany and other nations with a vehicle that sets an entirely new standard for mobility, modularity, payload and protection technology; and to safeguard and promote certain technologies vital to German national security.

### AMPV vehicle family

The vehicle family encompasses two type series. The agile AMPV 1 is the smaller of the two, and makes an ideal liaison vehicle. A higher level of protection and a heavier payload are the primary characteristics of the bigger AMPV 2. However, the entire vehicle family is based on standardized engineering principles and technologies.

Both type series feature a patrol vehicle with an unprotected floor in the rear section, and an equipment kit carrier with a safety cell extending all the way to the rear of the vehicle. Also planned is a special patrol version of the AMPV1 that can be airlifted in a CH53 transport helicopter.

### Protection and mobility are the driving forces behind the AMPV

Two of the world’s best-known suppliers of land systems, KMW and Rheinmetall both bring extensive experience from previous programmes to the AMPV development project.

The highly protected vehicle cell is an autonomous armoured steel structure with a spall liner, while the

reinforced undercarriage and reinforced cell structure offer optimum protection against landmines and IEDs. Moreover, add-on armour modules make sure that the various vehicle versions receive the required level of ballistic protection.

Drawing on past experience, the designers of the AMPV family have equipped the vehicles with a robust, high-performance running gear, independent wheel suspension, outstanding spring deflection and high ground clearance – all specifically designed with military requirements in mind. These engineering principles are borrowed from the Boxer programme. Special combat wheels with run-flat tyres assure continued mobility even in critical situations.

A powerful 3.2-litre diesel engine with an output of 200 kW guarantees excellent performance in all conditions. The vehicles all feature permanent four-wheel drive as well as automatic transmission and automatic differential lock management, relieving the strain on the driver.

The AMPV1 and AMPV2 are both extremely compact, and differ only slightly in height, length and wheelbase.

All vehicles in the AMPV family consist largely of identical components; the workstations in the fighting compartment are also identical, ensuring uniform operation. The advantages in terms of simplified logistics and training are readily evident.



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## Defence Industry

### Lockheed Martin Introduces Ruggedized Ground Sensor Mast For Enhanced Battlefield Surveillance

ORLANDO, FL -- Lockheed Martin introduced a new, state-of-the-art, robust Common Mast System to support ground vehicle sensors, providing Warfighters significantly enhanced situational awareness in all battlefield conditions.

The Lockheed Martin Common Mast System (CMS) is a highly-stable, elevated sensor platform for ground vehicles, providing unprecedented support for sensor operation in any elevated position while on-the-move or in defilade.

Developed entirely as a Lockheed Martin independent research and development program, the Common Mast System is a revolutionary design with significant improvements over current sensor mounts. While traditional platforms mount the sensor at the roofline, the Lockheed Martin CMS can elevate the sensor suite up to 5 meters above ground level. Once elevated, the CMS can remain extended at vehicle speeds up to 30 kilometers-per-hour for enhanced line-of-sight over rolling terrain, low buildings, heavy shrubbery, low tree lines and other obstructions.

“Long-range enhanced surveillance of the battlefield provides Warfighters with an added level of protection,” said Mike Taylor, director of Ground Sensor Systems at Lockheed Martin Missiles and Fire Control. “Lockheed

Martin’s new Common Mast System rapidly deploys for reconnaissance missions in adverse weather and varying terrains, allowing the Warfighter to see first, understand first, act first and finish decisively with minimal exposure.”

The innovative CMS design also isolates the sensor from vehicle vibration and allows the user to operate the sensor from inside the vehicle’s protective armor. Lockheed Martin’s design features internal cabling, rapid stowage and shielding for vital components against sand, dust, rain and extreme temperatures on the battlefield.

Vertical load testing has verified fully-extended CMS operation while supporting payloads up to 600 pounds. Lockheed Martin can integrate the ruggedized CMS with advanced sensor technology on current force vehicles, with the potential for use on future manned and unmanned combat vehicles.

Lockheed Martin will demonstrate CMS publicly for the first time at the 2009 Association of the United States Army (AUSA) Annual Meeting and Exposition, which runs October 5-7, at the Washington Convention Center.

Lockheed Martin is a leading provider of advanced technology solutions for the Warfighter including over a decade of expertise in engineering and producing ground sensor systems. Additional technological advancements in ground sensors will focus on enhancing current force vehicle capabilities as well as emerging ground combat vehicle improvements.

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 2008 sales of \$42.7 billion.



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## Defence Industry

### Navistar and Caterpillar Announce Global Truck Joint Venture

WARRENVILLE, ILL. -- Navistar International Corporation and Caterpillar Inc. closed a joint venture transaction resulting in a new company, NC2 Global LLC, to serve the global commercial truck market.

Navistar and Caterpillar first announced plans to form a joint venture in June 2008 and have identified the leadership team of the new entity that will establish its headquarters in the Chicago area.

“Together, Navistar and Caterpillar have moved this project from concept to reality in little more than one year,” says Al Saltiel, president of NC2. “We now have a dedicated and experienced leadership team that will hit the ground running.”

Saltiel brings a wide range of global distribution and marketing experience to NC2. As vice president of Marketing and head of Navistar’s marketing efforts since 2004, Saltiel was responsible for all brand, product and pricing strategy. Prior to joining Navistar, he held key

senior marketing positions at Sony Electronics, Jaguar, and Ford's Premier Automotive Group.

### Key Executive Team in Place

Bob Iacullo has been named chief financial officer for NC2. Formerly Business Resource Manager for Caterpillar's Infrastructure Product Development Division, Iacullo also held several executive positions in finance at Motorola.

Navistar and Caterpillar also have named key business unit directors for product development, sales and marketing, dealer operations, production, supply chain, and parts and service.

"NC2 will produce and market a full line of commercial on-highway trucks for markets outside of North America," says Saliel. "Customers will benefit from the unparalleled depth and scope of support provided by Navistar and Caterpillar's global dealers."

Navistar and Caterpillar each have named three people to NC2's board of directors. Caterpillar Group President Doug Oberhelman will serve as Chairman of the Board, and Navistar Truck Group President Dee Kapur has been named lead director from Navistar.

"The formation of this joint venture represents a long-term strategic decision," Oberhelman says. "Despite the current challenges facing the global economy, both Caterpillar and Navistar are dedicating the right people and investing significant resources to ensure NC2's long-term success in the global on-highway truck market."

### NC2 Global Manufacturing and Distribution Venture

As previously announced, the 50/50 joint venture will develop, manufacture, and distribute commercial trucks with an initial focus on markets including Australia, Brazil, China, Russia, South Africa, and Turkey. NC2's product line will feature both conventional and cab-over-truck designs and will be sold under both the CAT and International (Navistar) brands.

#### North American Venture

Separately, Navistar and Caterpillar continue to work on design and development of a new proprietary, purpose-built, heavy-duty CAT vocational truck for the North American market. The trucks, manufactured in Navistar's Garland, Texas facility, will be sold and serviced through the CAT North American Dealer network. Caterpillar vocational trucks are scheduled for full production in mid 2011.

#### About Navistar

Navistar International Corporation traces its roots to 1831 and the former McCormick and International Harvester companies. Today it is the largest North American producer of mid-range diesel engines and class 6-8 commercial trucks and buses. Navistar, through its Defense Systems Group, is the leading producer of Mine Resistant Ambush Protected (MRAP) vehicles for the Department of Defense, safeguarding the American war fighter. The company produces International® brand commercial trucks, MaxxFer brand diesel engines, IC brand school and commercial buses, and Workhorse brand chassis for motor homes and step vans, and is a

private label designer and manufacturer of diesel engines for the pickup truck, van and SUV markets. Navistar is also a provider of truck and diesel engine parts. A wholly owned subsidiary offers financing services. Additional information is available at: [www.navistar.com](http://www.navistar.com)

#### About Caterpillar

For more than 80 years, Caterpillar Inc. has been making progress possible and driving positive and sustainable change on every continent. With 2008 sales and revenues of \$51.324 billion, Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines and industrial gas turbines. The company also is a leading services provider through Caterpillar Financial Services, Caterpillar Remanufacturing Services, Caterpillar Logistics Services and Progress Rail Services. More information is available at <http://www.cat.com>.

### Contracts

#### Oshkosh Defense Awarded Additional 352 M-ATVs worth \$189 Million



OSHKOSH, Wis. — Oshkosh Corporation announced today it has received an additional \$189 million award from the U.S. Army Tank-automotive and Armaments Command Life Cycle Management Command (TACOM LCMC) to deliver an additional 352 MRAP All Terrain Vehicles (M-ATV) to the U.S. Armed Forces by March 2010. The award also includes aftermarket parts packages.

This is the third award under the delivery order first awarded in June 2009. To date, TACOM LCMC has ordered a total of 4,296 M-ATVs from Oshkosh. The aggregate amount of the three awards is valued at \$2.3 billion.

"Oshkosh is committed to meeting our customer's urgent need for this highly mobile vehicle and helping our Armed Forces serving in Afghanistan to better operate on the country's challenging terrain," said Robert G. Bohn, Oshkosh Corporation chairman and chief executive officer. "We have delivered more than 100 M-ATVs through August, meeting our planned delivery requirements, and we continue to increase vehicle output at our manufacturing facilities to remain on schedule and meet our customer's requirements."

Oshkosh expects to meet the government's accelerated delivery schedule without impacting other programs, with production ramping up to 1,000 vehicles a month in December, and continuing at that level through the end of March 2010. The company is leveraging its



pre-contract M-ATV production and engineering efforts, robust manufacturing capabilities, a highly skilled workforce, and decades of experience in producing more than 67,000 military-class vehicles.

The Oshkosh® M-ATV's superior mobility, which includes a 70 percent off-road profile capability, is achieved through the incorporation of the Oshkosh TAK-4® independent suspension system. The system is featured on more than 10,000 Medium Tactical Vehicle Replacements (MTVR) used by the U.S. Marine Corps and Navy Seabees, and is being retrofitted on more than 2,000 legacy MRAPs for improved mobility in Afghanistan. The TAK-4 system, which has undergone more than 400,000 miles of government testing, also is used on the Army's next-generation Palletized Load System (PLS) and the Marine Corps' Logistics Vehicle System Replacement (LVSR).

Oshkosh Defense teamed with Plasan North America to provide an advanced armor solution for the M-ATV. Plasan also developed the armor system used on more than 5,000 legacy MRAPs and thousands of Oshkosh Armored Cab MTVRs already in theater.

link between the initiator and the receiver on an IED and protect friendly personnel," said Jim Cuff, SAIC senior vice president and business unit general manager. "We look forward to leveraging our experience as joint logistics integrator on the Mine Resistant Ambush Protected (MRAP) program, to help the USMC fulfill this need and accomplish critical CREW program objectives."

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## Defence Industry

### BAE Systems-Thales Team Demonstrates New Combat ID System That Helps Reduce Friendly-Fire Incidents

ABERDEEN, Maryland -- BAE Systems and Thales recently demonstrated the newest version of their jointly developed combat identification system to U.S. Army officials at Aberdeen Proving Ground, Maryland, marking the first time the system was demonstrated with a large, crew-served weapon on a U.S. vehicle.

The new version of the combat identification, or CID, system prevents soldiers operating machine guns on armored High-Mobility Multipurpose Wheeled Vehicles from firing on friendly forces operating in other combat vehicles. During the demonstration, the CID system correctly identified moving and stationary friendly vehicles through smoke and fog and in tree lines.

"The general officers and civilian attendees who took the time to try the CID system all responded positively to its potential for preventing fratricide," said Sal Costa, head of identification solutions for BAE Systems. "They were uniformly impressed by its simplicity and effectiveness."

The demonstration tests consisted of a series of tactical vignettes developed to reflect potential real-life situations and how the CID system works with other technologies to reduce friendly-fire events among U.S. and coalition forces.

"Our team's innovative combat ID systems continue to show their potential to deliver a capability to the warfighter that improves combat effectiveness while minimizing the risk of friendly casualties," said Merry Michaux, director of Thales's Communications, Navigation, and Identification business.

The CID system consists of transponders that are mounted on vehicles and direct-fire weapon interrogators to help gunners determine if targets are friendly. The demonstration unit included a palm switch used to conduct the interrogation, a visual warning device mounted near the gun, and headphones for audible warnings that allow the gunner to see and hear the results without having to take his eyes off the target.

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## Defence Industry

### MILKOR (Pty) Ltd South Africa Announces it's new Lightweight Under Barrel Grenade Launcher

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## Contracts

### SAIC Awarded U.S. Marine Corps Contract, \$22 Million Delivery Order To Help Counter Improvised Explosive Devices

Company to Act as Product Support Integrator for Counter Radio Controlled Improvised Explosive Device Electronic Warfare Program.

Science Applications International Corporation (SAIC) today announced it has been awarded a contract and initial delivery order by the U.S. Marine Corps (USMC) to be the program support integrator for the Marine Corps Counter Radio Controlled Improvised Explosive Device Electronic Warfare (CREW) program. The single award, indefinite-delivery/indefinite-quantity contract has a five-year ordering period with a total ceiling value of more than \$120 million. The initial delivery order has a one year base period of performance and a total value of more than \$22 million. Work will be performed as required throughout the U.S., Kuwait, Iraq and Afghanistan.

CREW systems are vehicle-mounted, multiband radio frequency jammers designed to block enemy use of select radio frequencies and prevent the remote detonation of land mines. This capability is needed to protect maneuver elements and entry control points from radio controlled improvised explosive devices. These devices can be used to detonate IEDs, providing insurgents with a safe stand-off distance from the explosion and the ability to utilize cover and concealment in their attacks. As the program support integrator, SAIC will support CREW systems in areas including installation, logistics and maintenance.

"There is a pressing need for large numbers of mobile, high power, programmable jammers that will defeat the

Due to a worldwide growing demand for a simple, easy to operate, robust but light-weight single shot Under Barrel Grenade Launcher UBGL, MILKOR set about improving on their tried and tested US-Mk 4.



The original US-Mk 4 has a mass of 1,68 kg (empty) compared to that of the new US-Mk 4S which weighs 0.750kg with an Aluminium Barrel or around 1kg with a Steel barrel.

Unique features include a “Push Button” trigger mechanism as opposed to an actual Trigger. Users stated the need to differentiate between firing mechanisms of the rifle and the Under Barrel as the soldier invariably, under duress, tend to pull the incorrect trigger if presented with two triggers. Another feature is the “Swing-to-the-side” opening mechanism enabling the user to easily load all types of ammunition without having the rifle’s magazine interfering or the slide mechanism not opening sufficiently to load a longer round.



### Defence Industry

#### DefenCell LITE Revolutionises Personal Protection for the Infantryman

For generations soldiers have been ‘digging-in’ using entrenching tools, sandbags and any other available materials in an effort to provide themselves and their comrades with some form of personal protection on the battlefield.

Whether it was a shell-scrape to provide temporary protection overnight at the end of a long day’s march, simply to be filled in or abandoned in the morning, or building a defensive position that may have to last days or even weeks. It has long been the toil of the infantryman to make something out of nothing, armed with no more than their hands, a digging tool and maybe a sandbag or two!

The problem’s worse in dry, arid or mountainous areas such as Afghanistan and Iraq where the rocky and sandy terrain makes digging-in impossible leaving the infantry with no choice but to build above ground bunkers or ‘sangers’ from whatever materials are available.

DefenCell LITE is about to change all that! LITE (Lightweight Individual Tactical Emplacement) is the latest version of the Defencell Force Protection System. Lightweight and with a low pack volume (an unfilled unit fits in the same space as a full sandbag), it is easily stored and moved. When filled, that same unit makes a wall section 3.2 m long, 0.6 m high and 0.7 m wide, equivalent to about 90 sandbags.

The LITE can be filled with material ranging from

earth and sand through to rocks up to about 20 cm in diameter. This makes it particularly suitable for mountainous or dry arid areas. Independently tested, a single width will protect against small arms up to 0.5” and 14.5 mm in calibre, as well as a fragmenting weapons. Individual units can be stacked to make higher walls and placed alongside each other to provide greater protection levels.

It can be quickly filled by hand, with shovels or with any form of mechanical equipment.

Unlike sandbags, the LITE needs no tamping or specific building techniques: simply fill it and compact by treading. The all-textile construction means no secondary fragmentation from metal or plastic components and no RF interference. It can be dropped from height with no likelihood of damage making it ideal for remote locations.

#### System Characteristics

- Lightweight - 3.6 Kg
- Fast and easy to fill
- Fully tested
- Minimum 2-year field life
- Fill with sand, gravel and rocks
- Fill manually or mechanically
- Build walls, bunkers and fighting positions
- Stack 3-high
- Use as a road barrier
- Protect critical equipment
- All textile - no inherent secondary fragmentation
- Protect against small arms up to 14.5 mm and 0.5"
- Protect against fragmentation weapons
- In production - contact us for further information and orders



### Defence Industry

#### Universal Engineering Launches New Vehicle at DVD



A brand new, British designed and built armour protected patrol vehicle was launched at the Defence Vehicle Dynamics exhibition on 24th June. During this major event, RANGER was viewed at length by Quentin Davis, UK Minister for Defence, as well as contingents from other countries including the USA, Australia and Norway.

RANGER represents the next generation of mine resistant armour protected (MRAP) vehicles. However, unlike previous such equipments, RANGER achieves improved medium mobility, STANAG 4569 Level 4 protection as a minimum, has been designed from the crew outwards and offers a 6 tonne payload in the 6x6 and 8x8 variants.

Survivability focussed, RANGER is a private venture programme from Universal and has been designed and built in under a year using advanced computer design techniques. Offered as a family of vehicles, the new system creates a wide variety of mission and weapon functionalities. Its tuneable armour can be precisely matched to defeat the threat whilst its survivability capsule, energy absorbing suspended seats, boat shaped hull, armoured belly plates and floating floor offers the best possible protection against IED attack. Its weapon options include 30mm canon, remote weapons station, GPMG, AGL, HMG or ATGW.

Its modular design ensures rapid LRU reset, simple ILS and through life capability management. RANGER is now undergoing validation trials in Dorset and will attend DSEi in September.



## Defence Industry

### General Dynamics Demonstrates Roll-Controlled Guided Mortar for Potential U.S. Army Applications



ST. PETERSBURG, Fla. -- General Dynamics Ordnance and Tactical Systems announced today that it has successfully developed and tested a new approach for low-cost guided mortars called the 120mm Roll-Controlled Guided Mortar (RCGM). Under a cooperative research and development agreement with the U.S. Army TACOM-ARDEC, Picatinny Arsenal, N.J., General Dynamics successfully tube-launched and guided RCGM prototypes from a M120 120mm mortar weapon system at the U.S. Army Yuma Proving Grounds.

The Roll-Controlled Guided Mortar uses standard 120mm M934A1 mortar-round components, including the warhead and fuzing elements, to reduce costs and risks in response to an accelerated fielding timeline for this critical operational capability.

Several key enhancements are made to evolve the M934A1 into a precision mortar, while using existing warheads to maximize its lethality. For example, the standard fuze (M734A1) is adapted to include an integrated fuze-and-Global-Positioning-System (GPS) guidance, navigation and control (GNC) subassembly while maintaining the current fuze-setting method and function. The GNC subassembly incorporates a GPS receiver with a low-cost control system known as the Roll-Controlled Fixed Canard (RCFC) system, developed and patented by General Dynamics Ordnance and Tactical Systems, that allows the mortar to adjust its

flight to reach the intended target.

To further reduce costs and speed deployment, the RCGM cartridge maintains the “look and feel” of the existing M934A1 cartridge, so no major changes in operating procedures are necessary. The fuze, warhead and LAP production will occur on existing, operational lines.

General Dynamics has assembled a team to qualify and produce the RCGM to meet the Army’s immediate guided mortar requirements, with a vision to enhance its operational capability in the future. As the current integrator of the M934A1 120mm mortar cartridge and producer of all of the major components, General Dynamics’ team is in the unique position to leverage its production history to deliver the lowest-risk, lowest-cost, next-generation precision mortar cartridge to the U.S. Army.

General Dynamics Ordnance and Tactical Systems is committed to producing high-quality products and services through the use of Lean Six Sigma (LSS) principles in support of continuous improvement throughout its business and manufacturing processes. The company is a world leader in the manufacture of large-, medium- and small-caliber direct and indirect-fire munitions, shaped charge warheads and BALL POWDER® Propellant. It also manufactures precision metal components; and provides load, assemble and pack services for tactical missile and rocket programs. More information on General Dynamics Ordnance and Tactical is available online at [www.gd-ots.com](http://www.gd-ots.com).

General Dynamics (NYSE: GD), headquartered in Falls Church, Va., employs approximately 92,000 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. More information about the company is available online at [www.gd.com](http://www.gd.com).



## Exhibitions

### Team Z` s radical Zephyr SRV makes world market debut at DSEi



‘Team Z’, the collaborative alliance set up between leading military vehicle design and engineering house, Creation - and defence manufacturer and through-life support specialist, Babcock, is using DSEi at London’s ExCel for the world market debut of its radical new Zephyr armoured vehicle programme.

The new Zephyr SRV (Specific Requirements Vehicle) is an all-new protected vehicle platform based on modular principles to provide high survivability, multi-role operational flexibility - and optimum mechanical and logistics serviceability. A variant of the Zephyr SRV is being put forward as part of the Creation / Babcock 'Team Z' joint bid to win the imminent UK MoD UOR contract for the design and build of a new Light Protected Patrol Vehicle (LPPV), to replace the current in-service 'Snatch' Land Rover.

A Zephyr SRV package is also planned for submission for part of the Australian Land 121 'Overlander' programme and the Canadian Tactical Armoured Patrol Vehicle (TAPV) requirement. The companies have a further variant prepared for the now delayed OUVS (Small) competition, for which Babcock was down-selected last year.

A central feature of the Zephyr SRV design is the inclusion of a composite 'occupant survival cell'. Surrounding protection includes a V-form belly plate and an integral blast mitigation system. Protection is specified for minimum STANAG 4569 level 2 mine protection and level 2-3 KE protection. Fragment protection is taken to level 4. Zephyr SRV is also able to carry a range of roof-mounted options, including protected or remote weapons stations (RWS).

The vehicle has been designed to meet worldwide deployment criteria – A1-C1 operating – and A1-C2 for storage. The unit is also specified for climatic conditions A2-C1 (+56°C to -32°C) for storage – and down to C2 extreme at -56°C for operations. The Zephyr SRV is configured for air transportability within C130 and above – or underslung below CH47. Mobility is designed to meet and exceed IMMLC at a gross vehicle weight of 7500kg – with an effective payload capability of 2500kg, assuming standard designed protection levels.

The vehicle envelope is designed to accommodate a range of powertrain options, dependent on end user specification. The initial Zephyr SRV has been developed to incorporate a rapid access and removal 'cassette' mounting for the engine – to facilitate removal and replacement, automatic transmission and both centre and final drive locking differentials. Independent height adjustable suspension is included to adapt ground clearance, ride and handling to suit operating conditions.

Throughout the programme, Creation and Babcock have worked closely together to ensure that the design is fully productionised to meet high volume requirements. Initial build is planned for multiple units per week - with a fulfilment for 400 vehicles within twelve months. Further production engineering will accommodate overseas customer requirements for specified levels of local build and content. The package is designed also to be fully supportable in service – and in theatre if required.

The vehicle envelope can be configured for a wide range of operational roles, body types and specialist applications such as pick-up utility vehicle, troop carrier, command and control, Weapons Mounted Installation Kit (WMIK), reconnaissance and battlefield ambulance.

A 6x6 variant is also planned.

Crew and seating layouts can be varied from two to eight occupants, to suit operational requirements. Space is also allocated for weapons fit, communications suites, situational awareness (SA) systems and other electronic devices – inline with LPPV and other comparable requirements. Additional features include fully integrated Health and Usage Monitoring Systems (HUMS) and the capability to support exportable power requirements.

"The formation of 'Team Z' has brought together the combined strengths and capabilities of two companies with a unique and in-depth experience of the sector and its requirements. This will significantly add value both to the programme – but also ultimately, for the customer and end user. We are very pleased to be working with Babcock to compete for the UK MoD's LPPV requirement and other international programmes. The Zephyr SRV concept is designed to do exactly what it says – meet the specific requirements of the end user – and we see the future of the Zephyr programme potentially as a world market product", says Creation Managing Director, Bill Davis.

Babcock Equipment Solutions Managing Director, Roger Gillespie says, "We are delighted to be working with Creation on the new Zephyr SRV vehicle. This versatile design will provide the basis for both our joint LPPV bid, and also for our OUVS (Small) submission for which Babcock was short-listed last year. Close working and collaboration with industry partners and the MoD is key to delivering battle-winning vehicles to the front-line, on-time and cost-effectively."

The new Zephyr SRV vehicle is displayed by Creation within in the UK Pavilion at DSEi – on Stand 757. The Babcock display at DSEi is on Stand 177.

## Exhibitions

### BAE Systems Debuts New Generation Fighting Vehicle



London, United Kingdom -- BAE Systems launched the latest 6x6 addition to the battle-proven RG range at the Defence Systems & Equipment International (DSEi) exhibition today – the RG35 Mine Protected multi-purpose fighting vehicle.

RG35 combines the high levels of survivability of the RG31 Mine Protected Vehicle with much of the tactical capability of a modern combat vehicle.

RG35 incorporates the best of 30 years experience in mobility, protection and sustainability, while meeting

current challenges and threats. It meets modern warfare protection requirements, but also offers tactical on- and off-road mobility.

“RG35 offers unprecedented versatility and will be equally suitable in peace support and conventional operations,” said Johan Steyn, Managing Director, BAE Systems Land Systems South Africa. “We continuously develop and enhance our vehicles to support our customers’ operational needs.”

The versatile RG35 can carry light and medium turrets and direct and indirect-fire weapons. It can also be configured in all the variants of a fighting unit (ambulance, weapon carriers, command posts and others) and can be customized in various sizes such as the 4x4 and 6x6, for various missions to meet customer needs.

RG35 is a 6x6 mine protected multi-purpose fighting vehicle 7.4 meters in length, 2.5 meters in width and 2,7 meters in height with a ground clearance of 458 millimeters. The RG35 gross vehicle mass is 33,000kg with a payload of 14,870kg and 15sqm volume under armour. The RG35 has a turning circle of 15m and seats driver plus 15 crew members.

### About BAE Systems

BAE Systems is the premier global defence, security and aerospace company delivering a full range of products and services for air, land and naval forces, as well as advanced electronics, security, information technology solutions and customer support services. With approximately 105,000 employees worldwide, BAE Systems' sales exceeded J18.5 billion (US \$34.4 billion) in 2008.



### Defence Industry

#### Rheinmetall and Krauss-Maffei Wegmann hand over first serially produced Boxer vehicle



Official transfer of the first serially manufactured transport vehicle takes place in the presence of German and Dutch defence ministers.

The armed forces of Germany and the Netherlands take delivery today of an optimally protected, highly mobile transport vehicle with massive useful load carrying capacity.

At a ceremony in Munich, Rheinmetall Defence and Krauss-Maffei Wegmann (KMW) transferred the first serially produced Boxer to the Organisation Conjointe de Coopération en matière d'Armement (OCCAR), which is administering the Boxer project, and Germany's Federal Agency for Defence Technology and Procurement (BWB).

The transfer took place in the presence of German defence minister Dr. Franz-Josef Jung, and Dutch defence minister Eimert van Middelkoop. The series order for the Boxer includes a total of 272 vehicles for the German Bundeswehr and 200 for the Dutch armed forces. The Dutch Army will take delivery of the Boxer from 2011 through to the end of 2016.

"The Boxer project underscores the cutting edge position of the German defence industry, and not just in Europe", declares Klaus Eberhardt, Chairman of the Executive Board of Rheinmetall Defence, noting that "no other vehicle is so systematically oriented to the current and future needs of the armed forces. We thus see strong potential for additional international sales."



In the words of Frank Haun, Chief Executive Officer of KMW, "the Boxer is an impressive example of European defence cooperation. The German and Dutch armed forces are getting a highly protected, highly mobile transport vehicle that's specifically designed to meet the needs of the modern military. I'm especially pleased that the defence ministers of both Germany and the Netherlands are on hand for the official transfer, which indicates the importance which both countries attach to the Boxer project."

The Boxer armoured transport vehicle is a pioneering, highly mobile 8x8 wheeled vehicle. Thanks to its modular design, it can be quickly modified for a wide variety of missions, going from a medivac role, for instance, to a command and control configuration. To do this, all that is necessary is to exchange the mission modules on the vehicle chassis. When configured as a section (squad) transport vehicle, the Boxer can carry up to ten men, who benefit from excellent protection against landmines and ballistic threats: the fully armoured fighting compartment assures maximum crew survivability. Superb mobility, excellent self-defence weaponry and a heavy payload are further key features of this versatile, highly flexible transport vehicle.

Rheinmetall and KMW have joined forces with other national and international partners in the ARTEC consortium to make the Boxer a reality.



### Defence Industry

#### General Dynamics Awarded \$86 Million for Sustainment of U.S. Marine Corps' Mobile Combat Operations Centers

FAIRFAX, Va. -- General Dynamics Information Technology, a business unit of General Dynamics, has been awarded a five-year, \$86.2 million contract to provide field-level sustainment services

and technical support for equipment and networks for the U.S. Marine Corps' critical Combat Operations Center (COC) program. □

COCs, designed by General Dynamics C4 Systems, are the focal point of decision-making for Marine Corps commanders and their staffs. Each operations center comprises a network of workstations and servers supporting standard Tactical Data Systems and other mission-critical software. The systems consist of tents, trailers, radios, power and environmental generation, and visual displays integrated into a single command and control capability.

"General Dynamics is dedicated to providing the U.S. Marine Corps and other COC stakeholders with functional COCs for warfighting effectiveness and readiness whenever and wherever they fight," said Tom Kirchmaier, senior vice president of General Dynamics Information Technology's Intelligence Solutions Division. "We understand the importance of sustaining field communications and will work tirelessly with commanders and staff to support that mission."

Work will be performed in Camp Lejeune, N.C.; Camp Pendleton, Calif.; Kaneohe, Hawaii; Okinawa, Japan; and Southwest Asia.

## Defence Industry

### Oshkosh Defense Receives Orders from BAE Systems Valued at \$24 Million to Supply TAK-4 Independent Suspension for MRAPs

OSHKOSH, Wis. -- Oshkosh Corporation announced today that its Defense division has received orders valued at \$24 million to supply its TAK-4® independent suspension system for more than 300 BAE Systems USCS RG-33 Mine Resistant Ambush Protected (MRAP) vehicles. BAE issued the orders following the receipt of contracts awarded from the MRAP Joint Program Office.

These are the latest in multiple deliveries Oshkosh Defense has received for its advanced independent suspension system to be supplied for legacy MRAPs. The TAK-4 system provides improved mobility for the difficult on- and off-road terrain in Afghanistan.

"The Oshkosh TAK-4 independent suspension delivers increased cross-country performance for legacy MRAPs to successfully handle and negotiate the most challenging environments," said Robert G. Bohn, Oshkosh Corporation chairman and chief executive officer. "Our advanced suspension system is a more durable alternative than straight-axle suspensions, providing improved performance and greater crew comfort on rugged terrain."

In testing of a BAE Systems RG-33 MRAP upgraded with the Oshkosh TAK-4 system, the military determined the enhancement significantly improved the vehicle's mobility. Based on this successful testing, Oshkosh worked with BAE Systems to develop a suspension kit for the RG-33 USSOCOM variant.

The vehicles will be upgraded in theater, with work

expected to be completed by March 31, 2010. Oshkosh Defense is working with multiple manufacturers of legacy MRAPs and has now received orders for more than 2,300 TAK-4 systems for the vehicles.

The advanced suspension system, which has undergone more than 400,000 miles of government testing, also is featured on the MRAP-All Terrain Vehicle (M-ATV) and the U.S. Army's Palletized Load System (PLS A1), as well as the U.S. Marine Corps' Medium Tactical Vehicle Replacement (MTVR) and Logistics Vehicle System Replacement (LVSr).

Vehicles outfitted with Oshkosh's TAK-4 independent suspension system benefit from:

- Increased vehicle mobility – 16 inches of independent wheel travel provide advanced off-road capabilities in the most rugged terrain of Afghanistan
- Improved ride quality – shock and vibration are greatly reduced resulting in mission-ready soldiers and Marines and longer component life
- Greater off-road speeds – speed off-road is almost triple that of straight axle vehicles, improving mobility as well as survivability
- Lower life-cycle costs – more than 75 percent of the parts are common with the U.S. Marine Corps MTVR for improved reliability, as well as streamlined availability and training

Oshkosh Defense is a current manufacturer of both medium and heavy tactical wheeled vehicles for the U.S. Department of Defense, having produced more than 67,000 new vehicles in its manufacturing facilities. The company's use of an advanced integrated assembly line has allowed for the simultaneous production of as many as 10 vehicle models with 29 variations. A highly skilled in-house engineering team coupled with an experienced production workforce help Oshkosh continually improve vehicle quality levels through design innovations, assembly process improvements and lean manufacturing.

#### About Oshkosh Defense

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. For more information, visit [www.oshkoshdefense.com](http://www.oshkoshdefense.com).

## Defence Industry

### Hawkei - the Next-Generation Australian Light Protected Vehicle

The Thales Australia team has unveiled the design of its groundbreaking next generation Protected Mobility Vehicle for the Australian Army - the Hawkei.

Following the tradition of the Bushmaster, which is named after a deadly pit viper, the new addition is named after a stealthy species of Death Adder - *Acanthophis hawkei* - which is native to Australia. "Like its exceptionally venomous namesake, this vehicle packs a punch," said Chris Jenkins, Managing Director of Thales Australia.



"Mobile, versatile, and above all well protected, the Hawkei will provide unparalleled situational awareness, lethality and survivability for a vehicle its size. It incorporates high levels of blast and ballistic protection in a light, highly manoeuvrable and readily air transportable vehicle that has been engineered for peak performance. Hawkei ticks all the boxes for Defence's LAND 121 Phase 4 program to provide a light protected vehicle to replace the Army Land Rover fleet."

The Hawkei has been developed by Thales in Bendigo, Victoria - home of the Bushmaster. Drawing on both international and local expertise provided by Plasan, Boeing, PAC Group and numerous Australian Small and Medium-sized Enterprises (SMEs), the vehicle's design incorporates world-leading innovative technologies.

Mr Jenkins said the Hawkei launch represented an exciting chapter in Australia's local defence capability.

"The Hawkei offers the ADF an Australian solution specifically tailored to unique Australian needs, but one that also meets the operational priorities of other nations such as the United Kingdom LPPV program, the Netherlands vehicle replacement program, and also the requirements of the US Marines.

"Following our extensive work on the Bushmaster, our team in Bendigo, coupled with our local and international partners, has the experience, the skills and the in-depth knowledge to meet ADF requirements now and well into the future.

"Hawkei is a next generation solution underpinned by battle proven experience from Bushmaster. We are confident the Hawkei will establish the new benchmark in Light Protected Vehicles, rendering obsolete the technology used in the competing vehicles. Our team possesses a unique in-country capability, with the capacity to manufacture and deliver the vehicle to the customer's requirements."

Thales is a global technology leader for the Aerospace, Space, Defence, Security and Transportation markets. In 2008, the company generated revenues of 12.7 billion euros (equivalent of AUD22.1 billion) with 68,000 employees in 50 countries. With its 25,000 engineers and researchers, Thales has a unique capability to design, develop and deploy equipment, systems and services that

meet the most complex security requirements.

Employing around 3,500 people in over 35 sites across the country, Thales Australia recorded revenues of more than AUD1 billion in 2008.

#### **BACKGROUND NOTE:**

Thales's next generation Hawkei vehicle is specifically designed to meet the unique needs of the Australian Defence Force and key export customers.

This new lightweight Protected Mobility Vehicle achieves high levels of blast and ballistic protection at a mass that allows increased levels of tactical and operational mobility. "In developing the Hawkei, we have taken the lessons learned building the highly successful Bushmaster and, in combination with our partners, applied that thinking and experience to the new vehicle," said Ian Irving, Thales Australia's Land & Joint Systems Division Vice President.

"Hawkei is a new, next generation vehicle representing a genuine advance in design and innovation. All of the technology building blocks are battle proven and validated through operations, and have now been incorporated into a low risk design representing the next generation of vehicle system."

The new ground-breaking design meets the ADF's performance and capability requirements, including systems that allow the Hawkei to become a fully integrated node on the network centric battlefield. The Hawkei is designed to accommodate the future system demands of adaptive campaigning, with C4I (Command, Control, Communications, Computers and Intelligence) capabilities a fundamental part of its DNA.

A systems approach to vehicle protection includes high levels of mine blast protection integrated into the Hawkei's hull design, while its adaptable ballistic protection technology is designed to be easily removed for air transportation and then refitted by a two-person crew in less than 30 minutes without using specialised equipment. This innovative design allows the Hawkei to be operated in full protection configuration that can then be reconfigured and upgraded for specific mission threats.

The Hawkei also delivers significant manufacturing and through life support cost savings over current ADF platforms. Thales has worked closely with the PAC Group to design a flexible production capability, and with numerous SMEs to maximise value for money across the supply chain.

"Evidence from other Australian defence industry programs suggests that large vehicle fleets based on imported technologies have significantly raised through life support costs. This is not the case with the Hawkei, which efficiently uses existing through life support systems and performance-based contracting models," Mr Irving continued.

"The Hawkei program contributes to the retention of skilled competitive suppliers capable of supporting and repairing sophisticated equipment for the ADF. It also brings more Australian Small and Medium Enterprises (SMEs) into the support pipeline, generating an effective support system that an overseas-based solution simply

could not match."



## Contracts

### Force Protection Awarded Multi-Million U.S. Army TACOM Order for 48 Buffalo Vehicle



LADSON, S.C. -- Force Protection, Inc. (NASDAQ:FRPT), a leading designer, developer and manufacturer of survivability solutions and provider of total life cycle support for those products, today announced that it has received a modification to contract W56HZV-08-C-0028 from the United States Army Tank- Automotive and Armaments Command (TACOM) ordering 48 Buffalo Mine Protected Clearance Vehicles (MPCV), with a value of approximately \$52.8 million.

This contract modification is subject to definitization. Work will be performed in Ladson, SC and is expected to be completed prior to September 2010. The Company noted that it continues to expect additional orders under this program and to make total deliveries of over 100 Buffalos during fiscal 2010. The company is producing the vehicles under Low Rate Initial Production and moving toward a full material release.

Michael Moody, Chief Executive Officer of Force Protection, commented, "Buffalo continues to be one of the most sought after vehicles on the battlefield and is critically important to route clearance operations in Afghanistan. We are pleased to receive this new delivery order and anticipate continued demand and incremental orders. We are well positioned to serve the substantial and ongoing need for additional Buffalos for the United States Army and other customers."

