

# Army Guide monthly



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## Defence Industry

### General Dynamics Canada and Envitia Renew Partnership for Advanced Digital Management and Mapping Solutions

Ottawa, ON - General Dynamics Canada and Envitia have renewed their longstanding partnership to perform ongoing research and development in next-generation tactical surveillance solutions for defence and aerospace applications.

Building on the success of a 10-year partnership, the two companies will continue working together to deliver integrated tactical data management and digital mapping solutions to defence and aerospace customers worldwide. Among the products of this partnership is General Dynamics Canada's Tactical Integrated Sensor Information System (TISIS) which uses Envitia's MapLink Pro to create a powerful surveillance solution for military aircraft. TISIS is currently integrated into helicopters that are part of the Canadian Maritime Helicopter Program, along with other airborne global surveillance platforms worldwide.

Engineered by General Dynamics Canada, TISIS provides robust capability and flexibility to collect and present a wide range of situational awareness data gathered by the aircraft's sensor systems. Information from radar, electro-optics, electronic support measures, acoustics and magnetic anomaly detector subsystems and other sensors is displayed on a digital map, which can be easily configured to meet the needs of mission personnel in-flight.

The capabilities of TISIS are the direct result of ongoing research, development and innovation by General Dynamics Canada. Based on commercial off-the-Shelf (COTS) components, the system collects and combines powerful information along with data management tools in a cost-effective system that is easily adapted for use on fixed and rotary wing aircraft.

Envitia's MapLink Pro is a component-based software development kit for the management and display of geospatial and live track data. It was specifically designed for application developers across the defence and security industry. MapLink Pro enables developers to quickly build high-performance mapping systems for a variety of field applications, including command control, intelligence, surveillance and reconnaissance, mission planning, simulation and training.

General Dynamics Canada, a premier provider of defence electronic systems and a leading systems integrator of complete Command, Control, Communication, Computing, Intelligence, Surveillance and Reconnaissance (C4ISR) solutions, is a part of General Dynamics C4 Systems, a business unit of General Dynamics (NYSE: GD).

## Contracts

### Force Protection Receives \$185.9 Million Award for 167 Buffalo Vehicles and 102 Bar Armor Kits

Force Protection Industries, Inc., a FORCE PROTECTION, INC. group company, today announced it has received a firm fixed price modification to existing contract W56HZV-08-C-0028 from U.S. Army Contracting Command in Warren, Michigan, with an approximate value of \$185.9 million for the purchase of an additional 167 Buffalo A2 Mine Protected Clearance Vehicles and 102 Buffalo A2 Bar Armor Kits.



Work is to be performed in Ladson, South Carolina, with deliveries extending to April 2014.

Michael Moody, Chairman and Chief Executive Officer for Force Protection said, "Today's announced modification provides Force Protection important revenue visibility into 2014. In addition, by securing Full Material Release and authorization to proceed to Full Rate Production, the Buffalo has achieved additional significant milestones on the path to achieving formal Program of Record status within the U.S. Army's installed fleet of vehicles."

Mr. Moody concluded, "We remain extremely proud of the service record of the Buffalo and the countless Soldiers' lives saved performing critical route clearance missions. We will continue to work closely with the U.S. Army and other domestic services, as well as militaries worldwide, to ensure troops have the necessary resources to promote their success on the battlefield."

## Defence Industry

### BAE Systems Will Support Warrior Upgrade

TELFORD, United Kingdom -- BAE Systems will provide two vital inputs for the Warrior Capability Sustainment Programme:

- Its Anglo-French joint venture with Nexter Systems, CTA International, has designed a revolutionary new 40mm cannon and ammunition for this and the FRES Scout programmes. The UK Ministry of Defence mandated this weapon system for both programmes in March 2008.
- BAE Systems' Munitions business will produce the ammunition for the CT40 cannon under licence.

In addition BAE Systems will continue to provide support to Warrior in the form of maintenance, repair, upgrade and integration work. A major BJ30m armour and mobility upgrade it delivered earlier this year for Afghan service follows many earlier upgrades.

Charlie Blakemore, managing director of BAE Systems Global Combat Systems said:

"We are committed to supporting CTA International in designing the cannon and ammunition to provide unmatched lethality on this class of vehicle, and enable

the Warrior to continue serving in its vital role well into the future. In addition we offer our thirty years of experience in the design, development, support and upgrade of Warrior to help ensure a smooth integration of new systems onto the vehicle and give our troops the kit they need.”



### Defence Industry

#### Nexter Systems - Renault Trucks Defense cooperation for the VBMR programme



Versailles-Satory, France -- Nexter Systems and Renault Trucks Defense have signed a cooperation agreement to offer a unique solution to fulfil the request for proposal for the VBMR programme.

The VBMR programme is intended to provide the French Army with a modernised capability in the multirole/medium range wheeled armoured vehicle segment (20 ton class, 6x6 design suitable for mission variants).

The organisational scheme agreed upon by Nexter Systems and Renault Trucks Defense sets up a responsive industrial prime contractorship, focussed on delivering an integrated, cost-effective, adaptable and dependable solution, whilst leveraging on the fields of excellence of both groups.

With the aim of expanding commercial opportunities for VBMR vehicles beyond the French national acquisition programme, the cooperation agreement also includes organisational provisions regarding export markets.



### Contracts

#### Contract for weapon control systems valued at a total of MNOK 145



KONGSBERG has received an order from General Dynamics Land Systems valued at MNOK 145 for the delivery of Protector weapon control systems for armored personnel carriers, Stryker, to the US Army.

The Protector weapon control system protects military troops by allowing the vehicle's weapons to be operated

from a protected position inside the vehicle.

KONGSBERG is an international, knowledge-based group that supplies high-technology systems and solutions to customers engaged in the oil and gas industry, the merchant marine industry, and the defence and aerospace industries. In 2010, KONGSBERG had a turnover of NOK 15.5 billion, and the Group had 5 681 employees in more than 25 countries. This information is subject to disclosure requirements pursuant to §5-12 of the Norwegian Securities Trading Act.



### Contracts

#### General Dynamics Awarded \$7 Million Order by U.S. Army for Additional M2 Crew-Served Machine Guns

CHARLOTTE, N.C. -- General Dynamics Armament and Technical Products, a business unit of General Dynamics, was awarded a \$6.9 million contract by the U.S. Army TACOM Life Cycle Management Command to produce approximately 600 M2 heavy barrel (M2HB) machine guns.

This is the seventh delivery order awarded to General Dynamics since the company received an indefinite delivery, indefinite quantity contract from the Army in 2009. "Fielded with military forces worldwide, the M2 machine gun has a well-deserved reputation as a highly accurate, effective weapon," said Steve Elgin, vice president and general manager of armament systems for General Dynamics Armament and Technical Products. "These new M2s will continue to serve U.S. warfighters well into the future." Production work will be completed at the General Dynamics facility in Saco, Maine, which employs over 400 people and has manufactured M2 machine guns since 1979. The production work for the new delivery order will be completed in the spring of 2012. Program management will be performed at General Dynamics' Williston Technology Center in Williston, Vt.



### Training And Simulators

#### Meggitt Secures GBP13 M UK MoD Small Arms Simulator Upgrade

Meggitt, a leading international company specialising in high performance components and sub-systems for aerospace, defence and energy, is pleased to announce that its contract with the Ministry of Defence for the supply of its Dismounted Close Combat Trainer (DCCT) to the British Army has been amended.

This involves a GBP13 million modification and upgrade to the DCCT in which devices needed to support Future Integrated Soldier Technology (FIST) enhancements will be added.

FIST enhancements to 59 of the MoD's 154 DCCTs include three simulators: an underslung grenade launcher sight, a thermal sight and a commander's target locator, for which Meggitt will provide associated ballistics and

round effects for SA80/UGL rifle simulators, modifying them to accommodate new thermal sights.

As allowed for under the original contract, the work will enhance the DCCT's capability in line with FIST requirements and complement associated live-fire training.

FIST integration will be supported by Meggitt's new FATS(r) M100 system architecture which is compatible with the wide range of devices and software packages needed to build on the DCCT's inherent capability.

Meggitt Defence Systems, Ashford, will co-ordinate equipment integration support logistics, using simulator components and new software designed and produced by its sub-contractor Meggitt Training Systems in Suwanee, Georgia, USA.

Ronald Vadas, President of Meggitt Training Systems commented: "The UK MoD is one of our most important customers for virtual and live fire training systems. It is a testament to the confidence our products and systems engender that we are able to continue to work with the UK MoD to meet their requirements."

### Contracts

#### French Army Renews Truck Support Contract with Renault Trucks Defense



In late October 2011, the SIMMT (Structure Integree du Maintien en condition operationnelle des Matierels Terrestres - Integrated Through-Life Support Structure for Terrestrial Equipment) awarded Renault Trucks Defense the fourth batch of the heavy vehicle through-life support (MCO) contract worth 25 million euros.

This budget provides for the support of a fleet of 8,000 trucks (including 4,000 GBCs, 2,000 TRM2000s, and the majority of the fleet of logistic transport vehicles (VTL)). The MCO contract enables the French Army to substantially reduce its stocks of spare parts outside theatres of operations, as the contract holder is committed to delivering spare parts in less than five days.

This contract will also call upon the Renault Trucks network to perform on-demand routine servicing operations for the vehicle fleet in question. These operations – classified as NTI (technical intervention level) 1 and 2 – are carried out in the civil dealerships and branches of Renault Trucks. The manufacturer will in fact provide the entire support services for some of the vehicles, especially the specialized micro-fleets. The Renault Trucks network, which has 320 customer service points in France, is going to increase its teams for the

ramp-up of this operation.

This contract is implemented by the SIMMT and the manufacturer with a view to maintaining costs within the assigned budget.

To achieve this, all the trucks in the fleet are tracked by their registration number. Given the success of the first annuities of this contract, the system is going to be extended to the DOM-COM (French overseas departments and communities) and countries in which France has prepositioned troops, as well as to the other armed forces and services supported by the SIMMT.

This arrangement will increase the operational availability of the fleet, enabling the armed forces to focus on their core activity (i.e. operations) by reinforcing the SIMMT's role as through-life support contract coordinator.

### Contracts

#### General Dynamics Awarded \$395 Million for Egyptian Abrams Tank-Related Work

STERLING HEIGHTS, Mich. -- The U.S. TACOM Lifecycle Management Command has awarded General Dynamics Land Systems, a business unit of General Dynamics, a \$395 million contract for work under the Egyptian tank co-production program.

The contract funds the production of 125 M1A1 Abrams tank kits for the eleventh increment of the Egyptian co-production program.

Since 1992, General Dynamics has provided components for kits used in the co-production program. The parts are shipped to a production facility near Cairo, Egypt, where the tanks are manufactured for the Egyptian Land Forces. This latest increment will increase the number of Egyptian co-production-built tanks to 1,130.

Work on the components will be performed in Anniston, Ala.; Tallahassee, Fla.; Sterling Heights, Mich.; Lima, Ohio; and Scranton, Penn., by existing General Dynamics employees. Deliveries will begin in July 2013 and continue to January 2016.

### Training And Simulators

#### Elbit Systems Awarded an Order by the Israeli Ministry of Defense (IMOD) for Driving Trainers for Armored Personnel Carriers and Trainers for Forward Observers

Haifa, Israel -- Elbit Systems Ltd. was awarded an order by the Israeli Ministry of Defense (IMOD) for the supply of Armored Driving Trainers (ADTs) for several Israel Defense Forces combat vehicle types as well as for a Forward Observer Trainer (FOT) for surveillance and observation of Israel's borders.

The order is in an amount which is not material to Elbit Systems.

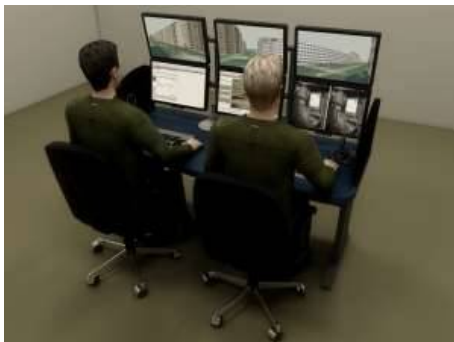
Mounted on top a motion platform, Elbit Systems'



Armored Driving Trainer (ADT) enables 6 degrees freedom of movement, specifically designed to provide trainees with a highly realistic driving experience. The system supports driver training in a wide range of combat and non-combat scenarios. The wide variety of scenarios it offers enables driver training in diverse weather and harsh field conditions, thus creating practice situations (such as driving under enemy fire or on dangerous slopes) that are not feasible to perform in the actual battlefield – even during field exercises. The advanced trainer is cost effective, saving time and expense while providing mobile, scalable and modular deployment, multi-platform type support, and a network-based and user friendly interface.



Elbit Systems' Forward Observer Trainer (FOT) was developed especially to suit the unique needs of border protection scenarios and is already in use, training new forward observers ("FOs"), while maintaining the operational readiness of those already in service. The FOT is a combat support and field intelligence trainer, designed to enable full simulation of real-life battlefield situations for FOs posted along all types of terrain, performing border control and protection. The scenarios offered by the FOT are actual real-life scenarios depicting the real borders to be observed in each of the FO's service. Interoperable with C4I and communication systems, the scenarios incorporated include fire planning, ranging and field operation as well as target detection, recognition, identification, acquisition and engagement in diverse environmental conditions, while using a wide variety of day and night sensors.



## Future Technologies

### Rheinmetall: successful target engagement with high-energy laser weapons



Dusseldorf -- Having recently used a high-energy laser weapon to down an unmanned aircraft at a proving ground in Switzerland, Rheinmetall has demonstrated the operational potential of combining a powerful laser weapon with an advanced air defence system.

This event provides compelling proof of the Group's 360o competence in relevant technologies ranging from military lasers and target recognition and identification to target tracking and fire control units - and its unrivalled ability to weld them into a single, forward-looking, fully functional full scale demonstrator.

At a live fire laser demo at the Group's Ochsenboden proving ground, international guests were able to view two laser weapon demonstrators in action, each featuring different performance parameters.

For example, a 10-kW laser was integrated into an air defence system consisting of an Oerlikon Skyguard 3 fire control unit and a Skyshield gun turret. Modular and scalable, the laser weapon itself consisted of two 5-kW laser weapon modules.

In addition, a 1-kW laser weapon module was displayed, specially mounted on a TM 170-type vehicle for the purpose.

Both laser weapon demonstrators were deployed in different scenarios: as a means of providing protection from asymmetric, terrorist-type threats; in a C-RAM context to counter the threat from incoming rockets, artillery and mortar rounds; and in an air defence scenario with an unmanned air vehicle serving as the target.

Among other things, the 1-kW laser weapon demonstrator successfully sank a moving rubber raft (a substitute for an enemy speedboat), and also proved highly effective in destroying IEDs as well as neutralizing unexploded ordnance from a safe distance.

In the C-RAM scenario, the 10-kW laser weapon demonstrator revealed that doubling the laser output from 5 kW (the design status in 2010) to 10 kW results in substantially improved performance against mortar rounds, with the required engagement time reduced by approximately 50%.

A technological highlight in the air defence scenario was the engagement of a Tier 1-class unmanned air vehicle (UAV). The air defence system, equipped with a

10-kW laser weapon demonstrator, was able to detect, track and engage the target (the so-called "kill chain"), successfully destroying the UAV in flight.

The Oerlikon Skyguard system detected the incoming threat, initiated the electronic target tracking process, slewed the Skyshield turret in the direction of the UAV and transmitted the target data to the laser weapon demonstrator. Independently taking up the target tracking process, this effector switched to fine-tracking mode before aiming the laser beam at the drone and destroying it in a matter of seconds.

Rheinmetall also occupies a leading position in another area of laser R&D: in cooperation with its cooperation partner, the Fraunhofer Institute for Applied Optics and Precision Engineering (IOF) in Jena, Rheinmetall holds the public world record for spectral coupling of laser pulses with an 8-kW laser output and excellent beam quality.

The latest live fire demonstration at the Ochsenboden proving ground, a joint effort by Rheinmetall's Weapon and Munitions and Air Defence divisions, clearly shows that the Group already possesses all the skills necessary to develop complex laser weapon systems. Through its work on behalf of the German government and well-targeted application of its own resources, Rheinmetall has acquired tremendous expertise in this field in recent years.

Rheinmetall expects a high-energy laser weapon system with an output of 100 kW

to be available within the next three to five years. Even today, the modular, scalable design is able to meet a vast variety of requirements.

Along with precision, ease of integration into various platforms and scalable escalation, laser weapons in future will offer the principal advantage of reduced cost, since material consumption and wear and tear with laser effectors is naturally low.

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## Training And Simulators

### New Oshkosh Defense Virtual Trainer Improves Safety, Reduces Military Vehicle Training Costs

OSHKOSH, Wis. -- Oshkosh Defense, a division of Oshkosh Corporation, has expanded its military training capabilities with the new Oshkosh Virtual Trainer.

This virtual training element makes the overall vehicle training program safer and more cost-effective. Oshkosh will unveil its first virtual training module for the Heavy Expanded Mobility Tactical Truck (HEMTT) M978 Tanker at the annual Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) Nov. 28–Dec. 1 in Orlando, Fla.

“In today’s traditional HEMTT Tanker training curriculum, soldiers receive a limited amount of hands-on experience for critical procedures such as fueling and refueling,” said Dan Albrecht, senior training manager for Oshkosh Defense. “The Oshkosh Virtual

Trainer provides life-like training in a safe, virtual environment, which provides soldiers with the skills they need to perform the actual tasks. In addition to enhancing soldiers’ training experience, we estimate that adding a virtual element to our comprehensive program will reduce training costs by 20 percent or more per participant.”

In a recent pilot of the inaugural Oshkosh Virtual Trainer, the HEMTT Tanker module was shown to reduce training time by two days compared to the traditional classroom approach – an efficiency that equates to a 20 percent or more cost savings per participant. During the training, 12 students were able to train simultaneously and demonstrate skill proficiency in the virtual environment before performing tasks on the actual vehicle. For example, students are able to practice fueling and refueling procedures, and recovering from a fuel spill in the virtual world, without being exposed to the real-life hazards. The interactive skill-building using virtual training is not achieved in the traditional training courses where students learn primarily from static course materials and instructor demonstrations.

In addition to reducing direct training expenses, the Oshkosh Virtual Trainer helps prevent wear and tear on the U.S. government’s demonstration vehicles and reduce costly damage to these vehicles.

The Oshkosh Virtual Trainer HEMTT Tanker module will be incorporated into training courses for U.S. Army personnel in May.

“We are excited to introduce our new virtual training capabilities to soldiers in May, and look forward to expanding the program to include more vehicle modules in the future,” Albrecht said.

In addition to its new virtual-training capability, Oshkosh Defense also provides hands-on, classroom and simulation training for operators and mechanics as part of its full life-cycle services and support on all Oshkosh Heavy and Medium Tactical Wheeled Vehicles. The company received a Best Programs (red) ribbon award from Military Training Technology for the 2011 Top Simulation and Training Companies competition.

The HEMTT Tanker Virtual Task Trainer will be on display and Oshkosh representatives will be available at I/ITSEC at DiSTI booth #2481.

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## Defence Industry

### General Dynamics Awarded 70 Additional DURO Armoured Personnel Carriers for the Swiss Army

VIENNA -- General Dynamics European Land Systems, a business unit of General Dynamics, was awarded a contract by the Swiss Army for delivery of 70 additional DURO Armoured Personnel Carriers for the Swiss Global Mobility Task Force (GMTF). The procurement of these vehicles was approved in the 2010 Swiss Armament Procurement Program. Deliveries will take place in the fall of 2013.

The vehicles will be manufactured at General Dynamics' facility in Kreuzlingen, Switzerland. The

DURO is a highly protected and mobile wheeled vehicle, capable of transporting up to 11 soldiers. It meets the Swiss Army's requirements for a vehicle that provides troop protection and mobility for military applications, as well as peacekeeping operations. General Dynamics has already delivered 220 DURO GMTF vehicles to the Swiss Army, procured through the 2008 Swiss Armament Procurement Program. The Swiss Parliament approved the procurement of 70 additional vehicles to increase the DURO GMTF fleet availability for training and deployment. The GMTF Armoured Personnel Carrier is part of the DURO and EAGLE family of protected wheeled vehicles in the weight category of up to 14 tons. In the GMTF version, the DURO is 6.90 m long, 2.16 m wide and 2.67 m high. With its modular protection system, the vehicle offers very high ballistic, mine and IED protection. On the road, the GMTF reaches a top speed of 100 km/h and manages gradients of up to 60 percent and lateral inclines of up to 30 percent. The GMTF has high on-road and off-road mobility. It has a 245 hp Cummins turbocharged diesel engine, an Allison 5-speed automatic transmission, unique DeDion axle system with patented anti-roll bar, tire pressure control system and permanent all-wheel drive. All vehicles are equipped with an air-conditioning system and a NBC overpressure system for enhanced comfort and protection. General Dynamics European Land Systems, headquartered in Vienna, conducts its business through four European operating sites located in Austria, Germany, Spain and Switzerland. With more than 3,000 highly skilled technical employees, General Dynamics European Land Systems companies design, manufacture and deliver to global customers land systems, including wheeled (PIRANHA, PANDUR, DURO, EAGLE), tracked (ASCOD), and amphibious vehicles and bridging systems (M3, IRB, MTB, REBS), and other military goods.=

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