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Robots

M-ELROB 2012: RUAG presents two unmanned vehicle projects

UGVs (unmanned ground vehicles) – also known as land robots – are used for protection or rescue duties in hazardous environments, or for the performance of frequently reoccurring, repetitive tasks.

The context can be military as well as a civilian. UGVs are typically deployed for reconnaissance work, monitoring buildings and infrastructures, border surveillance, search and rescue missions and goods transport, as well as explosive ordnance disposal and mine clearance. UGVs can be compared to unmanned airborne systems, except that ground deployment presents scientists and technicians with challenges that are several orders more complex and difficult.

RUAG Defence CEO Urs Breitmeier comments: "UGVs are a highly promising technology of the future, and one that RUAG is actively pursuing. RUAG is researching, developing and investing in this area with the aim of gradually becoming a UGV competence centre for the Swiss Army and other security forces."

RUAG is attending this year's M-ELROB, which is taking place in Switzerland for the first time, with two projects:

ARTOR (Autonomous Rough-Terrain Outdoor Robot) research project

ARTOR is a research project involving a group of specialists from the Federal Institute of Technology Zurich (ETHZ), from technical departments at armasuisse, and RUAG. The objective of this project is to improve the autonomy of a ground vehicle. The point of the UGV research programme as a whole is the setting up of a UGV competence centre in Switzerland. The programme is primarily driven by Switzerland's public safety and security requirements, not by the marketing possibilities presented by the technology.

ARTOR is already capable of navigating autonomously: rather than use GPS, it relies on data captured by sensors mounted on the vehicle. ARTOR is able to negotiate static and moving obstacles as its picks out the quickest way to its target via a number of via predetermined waypoints. It is also able to follow vehicles or people and can search for a route or area autonomously.

Two vehicular devices have been developed, both featuring electric propulsion: one is a wheeled vehicle approximately 100 cm long and 80 cm wide weighing 250 kg with a payload capability of 100 kg. The other is a tracked vehicle approximately 170 cm long and 80 cm wide weighing 425 kg with a payload capability of around 200 kg. Maximum speed for both exceeds 15 km/h. The average deployment time on a single battery charge is in the order of four hours. Depending on what is required of them, the vehicles can rapidly be equipped with a range of standard payloads.

Technology demonstrator based on an EAGLE 4x4 featuring the RUAG Vehicle Robotic Kit

This project is a joint venture involving RUAG and General Dynamics European Land Systems (GDELS), and is aimed at developing a UGV technology demonstrator based on a standard military vehicle that is otherwise normally manned. In the partnership, GDELS is delivering the Eagle 4x4 vehicle with an all-important vehicle assistance system, while RUAG is responsible for integrating the additional equipment required for UGV operation, such as sensors, control computers (hardware and software), actuators, the broadband radio system and the control and command equipment for the control console. The vehicle is currently teleoperated, i.e. operated under remote control, but its autonomy will improve as development work progresses.

RUAG is developing and delivering most of the UGV component groups in kit form. The kit is designed in such a way that it can be used with almost any vehicle. In addition, the control console can be installed in a container or another vehicle. The vehicle can be operated in a manned or manned mode. It measures 5.5 m in length, 2.3 m in width and 2.4 m in height. Its maximum weight is 10,000 kg and it can carry a payload of around 3000 kg.

Contracts

Raytheon awarded $349 million US Army contract for TOW missiles

TUCSON, Ariz. -- Raytheon Company received a $349 million five-year, multi-year contract to provide heavy anti-tank, wireless precision-assault missiles for the U.S. government. Raytheon received the award during its third quarter.

Under this contract, Raytheon will deliver 6,676 of the new wireless TOW (tube-launched, optically tracked, wireless-guided) missiles that receive commands from

the gunner through a wireless guidance link, eliminating the wire connection in early generations of the missile.

"TOW has been one of the most fired weapons in history, and the upgrade to wireless gives our warfighters an improved capability," said Michelle Lohmeier, vice president of Land Combat for Raytheon Missile Systems. "With this contract, we are partnering with the U.S. Army to ensure our warfighters continue to have this life-saving weapon for years to come."

With the wireless system built into the missile and the missile case, the next-generation TOW works with existing launch platforms, including the Improved Target Acquisition System, Improved Bradley Acquisition System, TOW2 Subsystem and M220 Ground TOW. The system performs exactly like the wire-guided version, enabling soldiers and Marines to continue using the proven weapon without changing tactics or incurring additional training.

"TOW remains the U.S. Army and Marine Corps' primary heavy anti-tank and precision-assault weapon," said Scott Speet, Raytheon Missile Systems' TOW program director. "It is currently deployed on more than 4,000 TOW launch platforms including the Army Stryker, Bradley Fighting Vehicle System and High Mobility Multipurpose Wheeled Vehicle."

About TOW

The tube-launched, optically-tracked, wireless-guided (TOW) weapon system, with the multimission TOW 2A, TOW 2B, TOW 2B Aero and TOW Bunker Buster missiles, is the premier long-range, precision anti-armor, anti-fortification and anti-amphibious landing weapon system used throughout the world today. TOW is in service in more than 40 international armed forces and integrated on more than 15,000 ground, vehicle and helicopter platforms worldwide. The TOW weapon system is expected to be in service with the U.S. military beyond 2025. December 2012 marks the 50th anniversary of the TOW Missile Program, with more than 650,000 missiles produced.

Contracts

BAE Systems Building Recovery Vehicles for Iraq

BAE Systems received a $31.8 million foreign military sale contract to produce eight M88A2 Heavy Equipment Recovery Combat Utility Lift Evacuation Systems (HERCULES) for the Iraqi Army.

HERCULES is the recovery system of choice for today's 70-ton combat vehicles, cutting in half the number of recovery vehicles and personnel required to perform recovery missions in support of modern tank forces.

"BAE Systems is answering the need for a cost-effective, self-supporting, heavy recovery performance vehicle," said Mark Signorelli, vice president and general manager of Vehicle Systems at BAE Systems. "HERCULES will provide the Iraqi military with a recovery vehicle that has been tested and proven to tow and hoist today's heaviest combat vehicles."

Key features of the M88A2 HERCULES include: improved power-assisted braking to enable the recovery vehicle to tow an M1A1 tank, increased horsepower, an improved electrical system, a modernized hydraulic system and a boom that enables the vehicle to lift an M1A1 turret. HERCULES has the lowest acquisition, operational and maintenance cost of any 70-ton capable recovery system. The M88A2 also provides unparalleled capability for recovering today's heavy combat vehicles including the M1A1, M1A2, Leopard MBT, bridging systems and other medium to heavy weight vehicles.

The upgrade work will be performed by the existing workforce at BAE Systems operations in York, Pennsylvania and Aiken, South Carolina. The York facility will fabricate the new hulls for the M88A2 configuration and the Aiken facility will manufacture some of the parts for vehicles. Work is expected to begin in late 2013 and is anticipated to be complete in mid-2014.

This award brings the total value of U.S. Government contracts that BAE Systems has received for the HERCULES program to $1.4 billion. To date, more than 500 HERCULES vehicles have been fielded against an overall U.S. Army requirement of 748 vehicles. A total of 75 vehicles have been fielded to the U.S. Marine Corps.

In 2010, BAE Systems produced and delivered eight M88A2s for the Iraqi Army, bringing the total number of M88A2s the company has provided for Iraq to 16. Earlier this year, BAE Systems overhauled and delivered 440 M113A2 personnel carriers to the Iraqi Army through a foreign military sale worth more than $31 million.

Defence Industry

Rheinmetall Picked to Take Part in America`s CROWS III Procurement Project

Rheinmetall has been selected to take part in a major US procurement project in the field of vehicle armament. Over the next five years Rheinmetall can expect to generate $US20 million in sales each year under the "Common Remotely Operated Weapon Station (CROWS) III" framework agreement, eventually totalling US$100 million.

The Common Remotely Operated Weapon Station is

one of the most important procurement projects of its kind anywhere. Under the CROWS III programme alone, the US armed forces plan to procure several thousand remote control weapon stations. The general contractor is the Kongsberg Group of Norway. As its strategic partner, Rheinmetall's Electro-Optics business unit will be supplying top-quality weapon station components, principally daylight optics and recoil absorbing elements for the gun mount. These are supplied by Rheinmetall subsidiary Vingtech, which the Group acquired in 2010.

ELECTRO-OPTICS BUSINESS UNIT

Created in 2011, the Electro-Optics business unit consists of all Rheinmetall units active in this field, now united in a single organisation.

An extensive range of advanced technologies gives Rheinmetall's Electro-Optics business unit a leading position in important product areas. Besides the world's armed forces and law enforcement agencies, the division's customers include major manufacturers of military systems and equipment.

Contracts

Reset of Up to 146 Bradley Fighting Vehicles Lands BAE $97 M

BAE Systems received a $97 million contract to reset up to 146 Bradley Fighting Vehicles – one of the most survivable and reliable combat systems in the U.S. Army inventory. Under the reset effort, Bradley vehicles will be partially torn down, rebuilt and tested to restore and extend the life of the vehicles.

"We are proud to ensure that our soldiers are receiving Bradleys that are restored to their full capability," said Mark Signorelli, vice president and general manager of Vehicle Systems at BAE Systems. "This important work reinforces the Bradley as a vital asset to the U.S. Army and helps maintain the skilled workforce imperative to the defense industrial base."

The contract was awarded by the U.S. Army TACOM Life Cycle Management Command and work is anticipated to begin in October 2012 with final delivery expected in July 2014. Initial teardown of vehicles will be performed at the Red River Army Depot. This is considered a level-II vehicle reset where key components are removed for reset, then returned to BAE Systems and the Red River Army Depot to be rebuilt and tested for performance.

This reset work will be carried out by the existing workforce at BAE Systems operations in York and Fayette, Pennsylvania; Santa Clara, California; and Aiken, South Carolina. Work will also take place at the Red River Army Depot. The contract contributes to maintaining an experienced and specialized workforce and the defense industrial base required to continue producing armored fighting vehicles for the United States Armed Forces.

Contracts

Elbit Systems to Supply a Far Eastern Country with Artillery and Radio Systems for Approximately $50 Million

Haifa, Israel -- Elbit Systems Ltd. announced today that it was awarded two contracts from a Far Eastern country to supply defense systems at a total value of approximately $50 million.

Under the first contract, Elbit Systems will supply the country's Artillery Corps the ATMOS autonomous artillery system, for approximately $30 million, to be supplied within three years. The system, mounted on various wheeled platforms, enhances mission flexibility, reaction speed and survivability of both the crew and the system.

Under the second contract Elbit Systems will supply the country's Armed Forces with personal radio systems, for approximately $20 million, which will be supplied within a year.

About Elbit Systems

Elbit Systems Ltd. is an international defense electronics company engaged in a wide range of programs throughout the world. The Company, which includes Elbit Systems and its subsidiaries, operates in the areas of aerospace, land and naval systems, command, control, communications, computers, intelligence surveillance and reconnaissance ("C4ISR"), unmanned aircraft systems ("UAS"), advanced electro-optics, electro-optic space systems, EW suites, airborne warning systems, ELINT systems, data links and military communications systems and radios. The Company also focuses on the upgrading of existing

military platforms, developing new technologies for defense, homeland security and commercial aviation applications and providing a range of support services.

Future Technologies

Spicer® Tire Management Once Again Selected for Battlefield

MAUMEE, Ohio -- Dana Holding Corporation announced today that the company's Spicer® Central Tire Inflation System (CTIS™) is specified on all three of the vehicles that were recently selected by the U.S. Department of Defense for the Army and Marine Corps Joint Light Vehicle Tactical Vehicle (JLTV) program.

The JLTV program entered into the Engineering and Manufacturing Development phase earlier this year when six vehicle manufacturers submitted bids for the three contracts. Roughly 22 prototypes will be built over the next 27 months with a full production contract expected to be awarded in 2015 or early 2016.

"In military applications our CTIS systems have proven to be highly effective in reliably and efficiently transporting service members in the most difficult of environments," said Pat D'Eramo, president of Dana Commercial Vehicle Driveline Technologies. "We are honored to once again be selected for this new program."

Spicer CTIS technology maximizes vehicle mobility by allowing operators, from inside the cab, to adjust tire pressure to the optimum footprint on any terrain. This innovative system also allows vehicles to effectively operate with extremely low tire pressures and makes it possible to free a stuck vehicle or take on grades and other extreme conditions, transporting soldiers to safety in the most strenuous environments.

The Dana Spicer CTIS system was included on all seven of the vehicles that were originally submitted for the contract. Lockheed Martin, Oshkosh, and AM General were the three manufacturers selected for the next phase JLTV program.

Dana's history of support for the U.S. military dates to World War I, when it helped develop the Liberty Truck and produced four-wheel-drive-truck axles, universal joints, and anti-aircraft shells. In World War II it earned the Army-Navy "E" Award for "high achievement in the production of war equipment," including the four-wheel-drive system for the Jeep – an advanced version of which it continues to produce more than seven decades later. It has also supplied products for the HMMWV since 1983.

Robots

Northrop Grumman Remotec to Begin Delivering Titus Robot in December

CLINTON, Tenn. -- Northrop Grumman Corporation's subsidiary Remotec Inc. will begin deliveries in December of Titus TM, the newest and smallest member of its Andros TM line of unmanned ground vehicles (UGVs).

Northrop Grumman Remotec designed the lighter, faster, stronger and more intelligent UGV for a variety of missions, bringing new capabilities to the small UGV market.

Titus weighs 135 pounds and measures 27 inches long, 16 inches wide and just 23 inches high. It retains the proven four-articulator design that has given Andros vehicles the best performance for more than 20 years. The system also features a unique operator control unit featuring a hybrid touch-screen and game system-style physical controls.

"Titus represents the next-generation Andros," said Mike Knopp, director, Northrop Grumman Remotec. "When we designed Titus, we challenged our engineers to not only retain certain capabilities but also to innovate and add capabilities – to really make the platform robust, highly functional and easy to use. They responded with a small UGV that was mechanically brilliant and reimagined the entire user experience."

Knopp said feedback the company has received from U.S. and international military and first responders who have seen the system has "overwhelmingly validated that we achieved our objectives."

The Andros operating system provides much greater information to the operator while easing user workload through more interactivity with intelligent payloads such as chemical, biological, radiological and nuclear sensors, along with preset arm positions and the ability to "fly the gripper," which makes manipulation of objects much easier.

Titus was designed using a modular approach, which

allows the robot to be quickly adapted for a variety of mission scenarios. Removable articulators, wheels and tracks provide users with the capability to navigate passageways that are only 16 inches wide or race down range to address a threat at a top speed of 7.5 mph. Industry standard interfaces such as USB and Ethernet make Titus easier to maintain and upgrade and to incorporate payloads and sensors.

"We paid a great deal of attention to reducing life cycle costs," Knopp said. "Advanced diagnostics for improved maintenance, easily upgradeable features and accessory integration provide great initial value and guarantee that Titus will be a valuable asset to any team well into the future.

"For more than 20 years, Northrop Grumman Remotec has delivered innovative, integrated solutions that reduce the dangers of dealing with some of the most serious threats facing first responders. With Titus, we're now offering our customers an additional class of unmanned ground vehicles that's smaller, stronger and smarter to meet a number of new and emerging threats."

Northrop Grumman Remotec, based in Clinton, Tenn., is the largest provider of robots to the first responder market.

Exhibitions

Navistar Defense Highlights Three Tactical Vehicles at AUSA Annual Meeting

WASHINGTON, D.C. -- Navistar Defense, LLC showcases three tactical vehicles this week at the Association of the United States Army (AUSA) Annual Meeting. The Special Operations Tactical Vehicle for the Ground Mobility Vehicle (GMV) 1.1 competition, the Indigen Armor Non-Standard Tactical Truck (NSTT) and the International® MaxxPro® Recovery Vehicle - Performance Kit (MRV-PK) demonstrate the latest in vehicle technology.

The Special Operations Tactical Vehicle and the NSTT are both designed to incorporate scalable armor packages to meet multiple threat levels encountered by special operators. The two vehicles share more than 60 percent vehicle commonality and are engineered to carry large payloads at off-road racing speeds in the roughest of mission terrain. Each vehicle can be integrated with a full government furnished Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) suite.

“The Special Operations Tactical Vehicle and the NSTT share similar vehicle capabilities to meet the rigors and unique requirements of special operators,” said Archie Massicotte, president, Navistar Defense. “We worked closely with Indigen Armor on the design of our Special Operations Tactical Vehicle and it is a solid vehicle entry for the Special Operations Command GMV 1.1 competition.”

The vehicle capabilities of the MRV-PK provide noticeably improved vehicle performance including an increase in horsepower and enhanced towing capability to support missions in Afghanistan. The kit can be retrofitted onto existing MaxxPro Recovery Vehicles and improves engine power by 20 percent to increase grade ability and acceleration. Mobility is improved through the addition of Navistar’s DXM™ front independent suspension along with an upgraded rear-wheel suspension. An auxiliary fuel tank increases range while a Central Tire Inflation System (CTIS) and six channel anti-lock braking system improves traction and performance in soft soil terrain.

“We saw a need in theater for additional capabilities and we have designed a retrofit solution ready today for our recovery vehicles currently in service,” said Massicotte “Our current MaxxPro vehicles have been tasked with recovery missions requiring unprecedented mobility and towing capabilities and our performance kit is a cost-conscious solution that anticipates future mission needs. This offering also comes on the heels of our recent MaxxPro survivability upgrade, which we can also make available for the MaxxPro Recovery Vehicle.”

Defence Industry

Oshkosh Receives EMD Contract to Develop JLTV - the Future of Light Tactical Vehicles

The U.S. Department of Defense has awarded Oshkosh Defense, a division of Oshkosh Corporation, a contract for the Joint Light Tactical Vehicle (JLTV) program’s Engineering, Manufacturing and Development (EMD) phase. The JLTV program aims to replace many of the U.S. military’s aged HMMWVs with a lightweight vehicle that offers greater protection, mobility and transportability.

“The JLTV program is critical to supporting our troops who stand in harm’s way and deserve the best equipment that industry can provide,” said John Urias, Oshkosh Corporation executive vice president and president, Oshkosh Defense. “The Oshkosh JLTV

solution will allow the Army and Marine Corps to provide unprecedented levels of protection and off-road mobility in a light vehicle – so that their troops can accomplish their missions and return home safely."

JLTV is managed by the Joint U.S. Army and U.S. Marine Corps program, under the leadership of the U.S. Army's Program Executive Office for Combat Support and Combat Service Support (PEO CS&CSS). Under the contract, Oshkosh will deliver 22 Oshkosh-designed and manufactured JLTV prototypes within 365 days of contract award, and support government testing and evaluation of the prototypes.

Since 2006, Oshkosh has invested significantly in independent R&D to develop its JLTV solution. Oshkosh employed a generational product development approach that aligned to rapidly evolving technical requirements. As a result, the Oshkosh JLTV delivers the latest automotive technologies, an advanced crew protection system, and a next generation TAK-4i™ independent suspension system to achieve JLTV performance at an affordable price. The Oshkosh JLTV is fully tested, ready for initial production, and meets or exceeds the requirements of the JLTV program.

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

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

Oshkosh Defense has an unwavering commitment to the men and women who serve our nation. Notably, Oshkosh was awarded the M-ATV contract in June 2009 on an urgent needs basis. Oshkosh ramped up production at a historical pace – delivering 1,000 vehicles per month within six months. Oshkosh delivered more than 8,700 M-ATVs, most of which were deployed in Afghanistan and are credited for saving thousands of troops' lives.

"Oshkosh's M-ATV is the only vehicle in the combat theater in Afghanistan performing the JLTV's mission profile," said Bryant. "We delivered more than 8,700 M-ATV's on-time and on-budget, and Oshkosh will bring the same level of commitment to the JLTV program."

Northrop Grumman Unveils MAV-L Ground Mobility Vehicle for U.S. Special Forces Competition

HERNDON, Va. -- Northrop Grumman Corporation unveiled its offering for the U.S. Special Forces Command Ground Mobility Vehicle 1.1 competition today at the Association of the United States Army conference in Washington, D.C. The Northrop Grumman vehicle is known as the Medium Assault Vehicle – Light (MAV-L).

Northrop Grumman teamed with BAE Systems and Pratt & Miller Engineering for the GMV 1.1 pursuit. The MAV-L is modular, transports up to seven operators, and is air transportable in a MH/CH-47 Chinook helicopter. The vehicle is built specifically for the special operations forces and is designed to function worldwide on any battlefield.

"Our clean-sheet approach and purpose-built solution applies innovation from across our industry team. We deliver an affordable solution that meets the warfighter's mission requirements and a great new capability," said Tom Vice, corporate vice president and president, Northrop Grumman Technical Services. "We're fully committed to providing the Special Operations Command with the most modular and agile vehicle capable of top performance in any operational environment."

BAE Systems is a leader in vehicle design, manufacturing and through-life support of military wheeled vehicles and their associated systems. The company's Sealy, Texas, facility has served as the manufacturing site for tens of thousands of tactical vehicle programs and many survivability and mobility upgrades to various tactical platforms.

Pratt & Miller Engineering is a respected industry leader in the defense, automotive, motorsports and powersports industries. Their work provides clients with innovative, high-performance engineering and manufacturing solutions.

"The capabilities of our partners combined with Northrop Grumman's decades of experience integrating C4ISR systems into land forces sustainment and military platforms, ensure that our customers receive a vehicle as capable and flexible as their mission requirements," said Frank Sturek, deputy director of land forces sustainment

and MAV-L program manager, Northrop Grumman.

Defence Industry

BRV-O JLTV, GMV 1.1 and Right-Hand Drive HMMWV Make AUSA Expo Debut

WASHINGTON -- America's most experienced designer and builder of light tactical military vehicles, AM General LLC, will showcase its innovation, global reach and diversification at the 2012 AUSA Annual Meeting & Exposition at the Walter E. Washington Convention Center, Washington, D.C., Oct. 22-24, Booth 7342.

Innovation will be represented in part by the Blast Resistant Vehicle - Off Road (BRV-O) Joint Light Tactical Vehicle (JLTV) that recently won a $64.5 million contract, one of three awarded by the U.S. Army for the Engineering, Manufacturing and Development phase of the JLTV program. Based on more than a decade of AM General investments in research, development and testing, BRV-O epitomizes the ideal balance of protection, performance and payload; off-road mobility; transportability; reliability; and affordability through mature systems.

For the first time, AM General also will exhibit its new Ground Mobility Vehicle (GMV) specifically designed for rapidly deployable forces. The GMV 1.1 leverages the company's many years of experience supplying and supporting the current HMMWV-based GMV for the U.S. Government. With extraordinary mobility, performance and transportability (including CH/MH-47 internally transportable), AM General's innovative GMV 1.1 goes faster and farther using less fuel - and navigates more difficult terrain - than any other vehicle of its size available today. At the same time, it is highly reliable and affordable through the use of proven technology, cost-effective manufacturing, and low life-cycle costs.

AM General's global reach, will be exemplified at the AUSA Expo by a new right-hand drive version of the HMMWV, re-engineered for the 70-plus countries where vehicles are driven on the left side of the road. This is one of three new internationally focused HMMWV models the company now is offering - aiming to expand beyond the 53 foreign countries already operating HMMWVs in their security forces. Further highlighting the company's worldwide footprint, AM General subject matter experts will be on hand to discuss ongoing global initiatives that range from providing genuine Original Equipment Manufacturer parts & components; to offering supply chain management, equipment and driver training, and field service support.

AM General's diversification into the commercial automotive sector will be highlighted at the Expo by the MV-1 wheelchair accessible mobility vehicle. Both gasoline and compressed natural gas versions of the MV-1 are being produced for the Vehicle Production Group using AM General's skilled workforce and a state-of-art commercial assembly plant in Indiana that previously assembled the HUMMER H2 for General Motors. The Americans with Disabilities Act compliant MV-1 is the first vehicle designed from the ground up based on inputs from wheelchair users.

Exhibitions

Textron Marine & Land Systems Showcases COMMANDO Family of Armored Vehicles at AUSA Annual 2012

WASHINGTON/AUSA Annual Meeting and Exposition -- Textron Marine & Land Systems, an operating unit of Textron Systems, a Textron Inc. company, is displaying its family of COMMANDO™ vehicles in booths 7628 and 7643 at this week's 2012 AUSA Meeting and Exposition. Textron Marine & Land Systems (TM&LS) has adopted the name COMMANDO for its armored vehicles.

Rigorously tested and proven in the toughest environments, the COMMANDO family of vehicles offers a range of protection up to and exceeding MRAP level, unmatched on-road/off-road mobility and ample firepower. TM&LS offers three lines of COMMANDO four-wheeled armored vehicles - COMMANDO Advanced, COMMANDO Select and COMMANDO Elite.

COMMANDO Advanced armored vehicles are combat proven over 10 years, and are derived from Armored Security Vehicles used by the U.S. Army and other militaries in locations including Afghanistan, Iraq and Colombia. All COMMANDO Advanced armored vehicle variants offer excellent on-road and off-road mobility enabling them to operate in urban, jungle, desert and mountainous terrain. Crew protection is reinforced with a V-shaped hull bottom and 360-degree protection from direct fire.

COMMANDO Select armored personnel carriers include variants that can carry up to 10 occupants, and offer an enhanced combination of lethality, survivability, mobility and sustainability. MRAP-level 1 crew protection is built into all COMMANDO Select vehicles. Greater survivability, however, doesn't come at the expense of mobility. These vehicles deliver greater mobility than other similar MRAP-type armored vehicles on the market. More than 440 COMMANDO Select vehicles are currently being built and fielded, under the name Mobile Strike Force Vehicles, for the Afghanistan National Army.

The COMMANDO Elite line features TM&LS' most

highly-protected and capable armored vehicles. These vehicles feature a digital backbone, provide MRAP-level 2 mine-blast protection, and deliver lethality through multiple sensors and weapons options. COMMANDO Elite vehicles come equipped with drive train enhancements that make them fast and highly maneuverable in a wide range of environments. The Canadian Forces earlier this year contracted for 500 of these vehicles for its Tactical Armored Patrol Vehicle program. The United Arab Emirates also is considering the COMMANDO Elite for use by its Presidential Guard.

"Our more than four-decade heritage of delivering trusted armored vehicles, going back to our days as Cadillac Gage, is the inspiration and foundation for these new generation COMMANDO vehicles," said Textron Marine & Land Systems Senior Vice President and General Manager Tom Walmsley. "Our versatile family of armored vehicles, proven in the toughest environments, give operators the ability to go almost anywhere and perform nearly any mission with confidence."

As an end-to-end armored vehicle provider, TM&LS also offers its customers COMMANDO fielding, training, maintenance and logistics support throughout each vehicle's life cycle.

Defence Industry

Elbit Systems Brazilian Subsidiary, Ares, Awarded Approximately $25 Million Contract to Supply 12.7/7.62mm Remote Controlled Weapon Stations

Haifa, Israel -- Elbit Systems Ltd. ("Elbit Systems") announced today that Ares Aeroespacial e Defesa S.A. ("Ares"), its Brazilian subsidiary, was awarded an initial production order valued at approximately $25 million to supply 12.7/7.62mm Remote Controlled Weapon Stations (RCWS) to the Brazilian Army. The RCWS, named REMAX, a unique development of Ares, will be supplied within two years.

Specifically designed to meet Brazilian Army requirements as part of the VBTP program, Ares' REMAX have already been successfully tested. REMAX, is a stabilized weapon station for 12.7/7.62mm machine guns and will be used in armored vehicles for troop transport and in armored platforms that include logistics vehicles utilized in combat, border patrol and peace keeping missions.

This award marks the second contract award in approximately a month of Elbit Systems in Brazil, following the September 13, 2012 Elbit Systems announcement regarding a $15 million initial production order awarded to AEL Sistemas S.A, another Elbit Systems subsidiary in Brazil, to supply Unmanned Turrets to the Brazilian Army.

Robots

Lockheed Martin Wins Contract to Increase Tactical Vehicle Safety with Autonomous Technology

Lockheed Martin received an $11 million contract for the development, integration and testing of the Autonomous Mobility Applique System (AMAS).

Work on the contract, which was awarded by the U.S. Department of Defense through its Other Transaction Agreement with the Robotics Technology Consortium, will be performed in Littleton, Colo., and Dallas through 2014.

The multiplatform kit integrates low-cost sensors and control systems onto U.S. Army and Marine Corps tactical vehicles to assist drivers or enable autonomous operation in convoys. AMAS does not interfere with drivers who choose to operate their vehicle manually. It adds a sensing and control function that alerts users so they can rapidly react to safety threats.

"Driving tactical vehicles in a combat zone can be dangerous, but AMAS will help by giving drivers an automated option to alert, stop and adjust, or take full control under user supervision," said Scott Greene, vice president of ground vehicles in Lockheed Martin's Missiles and Fire Control business. "We pioneered this technology and have logged more than 16,000 miles with it on several platforms. AMAS is a concrete step in using autonomous systems to let soldiers be soldiers instead of being drivers."

Lockheed Martin proved much of the AMAS technology as part of the award-winning Convoy Active Safety Technology (CAST) program, which applied advanced leader/follower autonomy to multiple tactical vehicle types that serve in convoys. From the beginning, the kit was designed to be low-cost and essentially platform independent. The system has a simple, single-button activation, and soldiers were using the system with as little as an hour's training.

The U.S. Army Tank-Automotive Research, Development and Engineering Center (TARDEC) tested the CAST vehicles under a variety of combat conditions and demonstrated that the system will save lives by improving both safety and security.

"This technology is extremely versatile, considering our robust perception and control algorithms and our low-cost sensor suite," said Greene. "We are confident we can spread its use across the eight vehicle types the program will use for demonstration. Many of the algorithms on AMAS also control Lockheed Martin's Squad Mission Support System unmanned ground vehicle, which was recently used by soldiers in

Afghanistan."

Future Technologies

Announcing New Licensing Agreement For Rotary Engine Technology

READING, PA -- Fidelity Technologies Corporation, a defense contractor headquartered in Reading, Pennsylvania, and British engine maker Cubewano LTD have agreed to an exclusive licensing agreement covering the North American defense market. Company officials announced the partnership which will further solidify Fidelity as a formidable manufacturer of defense product solutions.

The licensing agreement will enable Fidelity to utilize Cubewano LTD's proprietary rotary engine technology in the Department of Defense market for tactical power generation applications where high power density and multi-fuel capabilities are a priority to the warfighter. Cubewano's rotary engines are among the smallest, most powerful and reliable rotary engines available in the world.

According to David Gulati, Fidelity President, "Our alliance with Cubewano LTD is strategic and aligns perfectly with the mission of our Military and Aerospace Manufacturing Division to expand Fidelity's market share within the defense industry by providing unique capabilities to manufacture defense products with the smallest footprint available in today's market.

It further demonstrates Fidelity's commitment to the ever evolving requirements of the warfighter. As increased power demands continue to emerge in the battlefield from individual soldier power requirements to vehicle and unmanned applications, Fidelity will effectively lighten the load as a result of our collaboration with Cubewano."

Craig Fletcher, founder and CEO of Cubewano said, "Our engines were originally created and perfected for use in unmanned aerial vehicles (UAVs), which led us to win a contract to supply the US Army's Class 1 Increment 2 program. We realized that the core technology would suit lightweight power generation applications, especially in the defense sector.

"A platoon currently carries up to 11 battery types weighing up to 436lbs for a 72 hour mission, as current generators running on heavy fuel are too heavy for one person to carry. This partnership will allow Fidelity to bring a product to market which solves that problem, running on military-standard JP8 fuel. We expect demand to be significant, as this will be a unique proposition which no other manufacturer can offer."

The Fidelity and Cubewano cooperative efforts will debut at the Association of the United States Army (AUSA) Annual Meeting, October 22-24, 2012 in Washington, DC (Booth #4245). Fidelity will feature the 1kW Lightweight Man Portable Generator (LMPG) system integrated with the Cubewano LTD rotary engine. This system, only weighting 39lbs., is the first to enter the soldier power market as a true multi-fuel system built to withstand the rigors of military standards. Manufacturing of the 1kW LMPG will occur at Fidelity's Reading, Pennsylvania facilities.

About Fidelity Technologies Corporation

Founded in 1987 as a contract manufacturer for the U.S. Department of Defense, Fidelity Technologies Corporation, headquartered in Reading, Pennsylvania, is an independent, privately-owned defense contractor. By the early 1990's, Fidelity revolutionized its business by developing and adding core competencies that would pave the way for future growth. Since 2008, Fidelity has manufactured man-portable power related equipment for the US Army. In response to the ever changing requirements of the customer, Fidelity is constantly expanding its expertise and capabilities to provide innovative solutions that directly address the needs of the warfighter.

About Cubewano LTD

Cubewano, based near Birmingham in the United Kingdom, designs, develops, tests and manufactures small, high quality internal combustion engines. The range of rotary Wankel engines provide high power to weight ratio. All engines are designed to be light, quiet with very low vibration, running on multiple fuels including heavy fuel (JP8).

All Cubewano engines are fuel injected with electronic engine management to maximise power, fuel efficiency, reliability and emissions requirements. All engines are developed with field requirements in mind. Cubewano has developed, manufactured and tested engines with power ranging from 3hp to 16hp in both air and liquid cooled variants.

Exhibitions

PEROCC is unveiled at the 2012 Association of the United States Army (AUSA) Annual Meeting & Exposition

Pearson Engineering unveiled the Pearson

Engineering Route Opening and Clearing Capability (PEROCC) at the 2012 AUSA Annual Meeting & Exposition.

Managing Director John Crompton, said "Pearson Engineering has long espoused the concept of a single vehicle solution for tactical counter IED solutions. PEROCC is the result of this belief, providing a single platform solution to the requirements of counter IED activity through the application of a suite of tools to a chassis, with the capability to detect explosive threats and proof routes at tempo whilst maintaining a high level of self-protection."

Route proofing is provided by the full width, heavy effect, counter-mine and counter-IED rollers. Frangible joints allow the roller banks to readily detach from the chassis in the event of a blast.B Hydraulically operated pins allow the front and rear equipment to be jettisoned quickly in an emergency and enable rapid replacement. This feature also allows the ability to integrate existing or emerging electronic detection capabilities on the same platform as the full width roller.

A powerful articulated arm, based on a commercial system, provides interrogation and manipulation capabilities for the inspection of suspicious objects and areas. It reduces and potentially removes the need for soldiers to dismount to inspect suspect areas and enables faster, more effective and safer electronic detection. A variety of tools interchangeable from under armour are available including a ripper claw, bucket, grapple and ground penetrating radar array.

The 3 seat crew compartment for Driver, Gunner and Commander is protected from beneath by an armoured double V-shaped hull for blast deflection. The upper hull is protected by applique composite armour panels which provide blast and ballistic protection. Protection is to STANAG 3 level and above.

PEROCC includes Blast-Off Wheels. In the event of a blast under one of the vehicle wheels it will readily detach from the axle, thus reducing the transfer of blast energy into the vehicle, reducing harmful acceleration effects on the crew and enabling rapid replacement/repair.

Whilst on operations all systems- rollers, interrogation arm and weapon station- can be controlled from within the armoured crew compartment. Storage space on the vehicle can be configured to carry spare roller sets and blast-off wheels allowing for rapid repair/replacement in stride.

Training And Simulators

Lockheed Martin Wins $114 Million Contract to Enhance Combat Vehicle Training

U.S. Army competitively awarded Lockheed Martin a $114 million, five-year contract to upgrade combat vehicle simulators for soldier training and to expand the training capability for the Marine Corps.

Lockheed Martin will develop and install 13 upgrades for close combat tactical training systems at 19 Army installations. The new technologies will add integrated displays and replicate tactical vehicle capabilities identical to those now entering the field. The enhancements will be fielded starting in February 2013.

In addition to the upgrades for the Army, Lockheed Martin will deliver new training systems to the Marine Corps at Camp Lejeune, N.C., providing commonality across services.

"The training systems provide an immersive, safe environment to prepare our military's men and women for combat, and the upgrades extend capability and service life of the Army's original investment in the program," said Jim Weitzel, vice president of training solutions for Lockheed Martin's Global Training and Logistics business. "For the Marines, we're able to apply current system development and sustainment as they add this training capacity to maintain readiness in a changing battlespace."

Engineering work for the training systems will be performed in Orlando, Fla. Since 1992, Lockheed Martin has developed and delivered more than 400 systems to Army installations for realistic training on Abrams tanks and Bradley fighting vehicles.

Defence Industry

Textron and Rheinmetall Canada Announce $205 M Contract on Canadian Forces Tactical Armoured Vehicle Program

Textron Systems Canada Inc., a Textron Inc. company, and Rheinmetall Canada Inc., today announced a $205 million CAD contract for work to be performed by Rheinmetall Canada on the Canadian Forces Tactical Armoured Patrol Vehicle (TAPV) project.

Rheinmetall Canada will earn $152 million CAD during the TAPV program's production phase - performing critical engineering, and production work at its facility in Saint-Jean-sur-Richelieu, Quebec. The contract includes $53 million CAD Rheinmetall Canada will earn developing Integrated Logistics Support (ILS) products and as the primary in-service support hub for

the vehicle fleet during its service life. It also fulfills a portion of Textron's participation in Canada's Industrial and Regional Benefits (IRB) Policy arising from the government's purchase of 500 Textron TAPVs.

During the production phase of the TAPV fleet, Rheinmetall will perform the critical final assembly and test of the vehicles. Rheinmetall will also integrate essential sub-systems such as the Remotely Controlled Weapon Station, the Vehicle Navigation System and the Driver Vision Enhancement System. The production phase of the acquisition contract is expected to span from July 2014 to March 2016.

Once fielded, Rheinmetall will provide In-Service Support (ISS) for the entire TAPV fleet, also at its facility in Saint-Jean-sur-Richelieu, Quebec. ISS will start with Initial Operational Capability when the first 47 vehicles are delivered, planned for 2014, and is expected to end in 2021, five years after the last vehicle is delivered.

"This partnership with Textron Systems is of strategic importance to Rheinmetall Canada," said Rheinmetall Canada's President and CEO, Dr. Andreas Knackstedt. "We are extremely pleased to work with Textron Systems delivering state of the art equipment to the Army, and value for taxpayers' money, while creating highly skilled jobs in Canada."

In June 2012, the Textron TAPV Team, led by Textron Systems Canada, was selected to manufacture 500 Canadian Forces Tactical Armoured Patrol Vehicle (TAPV) with options for up to 100 more. The TAPV contract has a value of $603.4 million CAD, with an additional five-year in-service support contract of $105.4 million CAD.

Ottawa-based Textron Systems Canada, as prime contractor, will provide overall TAPV program and configuration management, act as design authority for change management, coordinate vehicle integration activities by Canadian subcontractors, and manage the In-Service Support contract. Textron Systems Canada will also be implementing a pan-Canadian Industrial and Regional Benefits program designed to bring new expertise and opportunities to Canadian companies.

"Rheinmetall Canada is a key TAPV teammate and will remain so as we deliver the TAPV and related economic benefits to Canada," said Neil Rutter, general manager of Textron Systems Canada. "In the coming months, we will be signing many more agreements with other best-in-class Canadian suppliers who will help us deliver a fleet of Textron TAPVs that will provide Canadian soldiers with unmatched performance and protection for decades."

The Canadian Textron TAPV team also includes Kongsberg Protech Systems Canada (London, ON) and EODC - Engineering Office Deisenroth Canada (Ottawa, ON). As the program is ramped up, many other Canadian companies are expected to figure prominently in the Textron TAPV supply chain.

The Textron TAPV is the most reliable and technologically advanced vehicle of its kind. It draws on the company's more than 45 years of experience in the design and production of armoured vehicles. The Textron TAPV will provide the Canadian Forces with the optimal balance of survivability, mobility and versatility, while delivering outstanding performance in the world's most challenging environments. Extensively tested to confirm ballistic, blast, mobility and reliability levels, the Textron TAPV has been engineered to meet and exceed Canada's requirements.