Army Guide monthly

9 (132) September 2015

- BAE Delivers 12 New CV90s to Norway on Schedule
- Rheinmetall Submits LAND 400 Bid Featuring the BOXER 8x8, Lance Turret and NGC C4ISR Architecture
- BAE Systems submits Land 400 Phase 2 bid
- AM General Statement on Pentagon JLTV Decision
- Esterline Awarded $21 M by GD UK for Displays and Video Processing Units on SCOUT Vehicle Program
- AM General Secures 6-Year, $428.3 M To Provide The Army With M997A3 HMMWV Configured Ambulances
- Rheinmetall AMPV on MSPO 2015
- iRobot Announces Defense & Security Orders Totaling $7.2 M
- QinetiQ wins DARPA electric hub-drive design and development contract
- DARPA Awards Raytheon BBN Technologies $12.2M to optimize information flow in military networks
- New BVS10 Beowulf All-Terrain Vehicle - Poetry in Motion
- BAE Systems showcases new mine clearing capability for Terrier® combat engineer vehicle
- Northrop Grumman Remotec Next-generation Andros FX Robot on Display at DSEI
- New telemax 4x4 Explosive Ordnance Robot Introduced At DSEI
- British Army Extends Virtual Trainer Contract with J11 Million for Additional Support
- Lockheed Martin Introduces New Amphibious Combat Vehicle (ACV) Candidate at Modern Day Marine Show
- BAE Delivers ARCHER Artillery System to Sweden
- MTL leads the way with cold formed Aluminium

www.army-guide.com

Defence Industry

BAE Delivers 12 New CV90s to Norway on Schedule

BAE Systems has delivered 12 new CV90 Infantry Fighting Vehicles (IFVs) to the Norwegian Army. They are the first production batch of a total of 144 new and upgraded CV90s planned for the nation's Army and represent the next generation of advanced combat vehicles.

The delivery of the CV90s occurred on schedule and took place during a ceremony at the Setermoen Military Camp in North-Norway. The event was attended by several BAE Systems representatives, including Erwin Bieber, president of the company's Platforms & Services sector, as well as Tommy Gustafsson-Rask, president of BAE Systems Hдgglunds AB.

"The delivery of these vehicles on schedule and within cost illustrates the highly collaborative, robust relationship between the Norwegian authorities, BAE Systems and its Norwegian industry partners," said Gustafsson-Rask. "We look forward to sustaining that relationship as we continue to carry out this contract over many years to come."

The Norwegian Defence Logistics Organisation and BAE Systems signed a contract in June 2012 for the production of the 41 new vehicles as well as upgrades to 103 of the Army's existing fleet of CV9030s. The upgrades include enhanced capabilities for protection, survivability, situational awareness, intelligence, and interoperability.

The IFV program is a key part of the Norwegian military's ongoing modernization. The CV90 is a next generation combat vehicle, one of the most advanced in the world, and is also a mature, proven, and cost-effective solution.

"We are very proud of giving our soldiers the best IFV in the world. It is thanks to a close and intensive cooperation with BAE Systems Hдgglunds and with Norwegian industry for several years that led to this delivery," said Colonel Ragnar Wennevik, the Norwegian Army's CV90 project leader. "We received the CV90s exactly on the date we wrote into the contract more than three years ago and that is something that we are very pleased with. BAE Systems Hдgglunds is a good partner and we hope we can continue to develop the relationship during the many years of use for the CV90 fleet."

The 144 vehicles are designed to operate in five configurations, 74 for infantry fighting, 21 for reconnaissance, 15 for command and control, 16 for engineering support, 16 in a multi-role configuration, and two for driver training.

BAE Systems Hдgglunds developed a comprehensive partnership with Norwegian industry to develop, produce, and deliver these vehicles. Kongsberg Defence & Aerospace, Nammo Raufoss AS, CHSnor AS, Moelv, and Ritek AS Levanger are among the companies playing a key role in delivering on the contract.

"Our industrial cooperation in Norway is extensive and critical, especially when collaboration across industry is a major factor for international success," said Gustafsson-Rask.

Defence Industry

Rheinmetall Submits LAND 400 Bid Featuring the BOXER 8x8, Lance Turret and NGC C4ISR Architecture

Rheinmetall has lodged a bid in response to the Commonwealth of Australia's LAND 400 Phase 2 - Mounted Combat Reconnaissance Capability request for tender. Under the tender, the Commonwealth is offered the latest version of the BOXER 8X8, the in-service LANCE turret and Northrop Grumman Corporation's (NYSE: NOC) command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) architecture.

The battle proven BOXER 8x8 – a joint development of Rheinmetall and KMW – provides a unique mix of mobility, capacity and survivability that allows the vehicle to operate effectively across the full spectrum of combat operations, while the vehicles inherent adaptability allows it to evolve as requirements and threats change. If selected for LAND 400 the BOXER Cavalry Reconnaissance Vehicle (CRV) will provide the Australian Army a combat proven, low risk capability that can be rapidly transitioned into service and easily supported through life.

The Rheinmetall LANCE turret is a mature system that is in-service with a NATO country. LANCE generates a range of scalable, precise, effects to effectively deal with threats on the current and future battlefield.

Rheinmetall is committed to the creation of an enduring Australian capability beyond the minimum LAND 400 Australian Industry Capability (AIC) requirements, and has successfully completed a comprehensive supplier engagement activity with more than three hundred Australian Companies. Through this process Rheinmetall has selected Supacat to be the first

Australian company to be part of the BOXER CRV team.

Supacat in Australia will draw on its experience in developing and certifying vehicles with the Australian Department of Defence to support the Rheinmetall LAND 400 team.

Andrew Fletcher, Managing Director of Rheinmetall Defence Australia, said "Delivering the best possible protection to Australian armed forces - in line with the demanding protection specifications - is a non-negotiable objective for our LAND 400 team."

"Rheinmetall's combat proven BOXER 8x8 CRV delivers the highest levels of protection required under LAND 400 and is a formidable MOTS platform when combined with the in-service LANCE Turret."

"Our LAND 400 industry engagement activities have been well received and our European executives have identified a number of Australian suppliers who we are currently in negotiations with to enter our global supply chain for LAND 400 and other international programs. We look forward to working with Australian industry to provide the best capability for the Australian Defence Force on the LAND 400 program."

Ian Irving, Chief Executive of Northrop Grumman Australia, welcomed the alliance with Rheinmetall.

"Northrop Grumman will leverage its extensive experience to offer a fifth-generation C4ISR solution that will significantly reduce crew workload, improve situational awareness and enable interoperability across the Australian Defence Force and with coalition forces. Our solution will provide an enduring platform ready for enhancements with future sensors and communications systems. Together, Northrop Grumman and Rheinmetall will also extend an impressive and lasting package of work for Australian industry," Mr Irving said.

Michael Halloran, Managing Director of Supacat in Australia said "We are delighted to be working with Rheinmetall Defence and offering a local perspective on testing, qualifying and modifying vehicles for the Australian users.

For our own products, we partner with a number of Australian SMEs who deliver outstanding capabilities in their own right and we look forward to bringing these capabilities into the LAND 400 program."

Defence Industry

BAE Systems submits Land 400 Phase 2 bid

BAE Systems has offered a highly protected armoured vehicle integrated with a combat proven turret as the solution that will best meet the Australian Army's mounted combat reconnaissance requirements.

As prime contractor, the Company has teamed with Patria to offer the AMV35 Combat Reconnaissance Vehicle (CRV) under Phase 2 of the Land 400 Program.

The solution combines Patria's Armoured Modular Vehicle (AMV) and BAE Systems Hдgglunds' E35 turret system. Both are qualified and in service with NATO nations.

The Patria AMV has been selected by seven nations with more than 1,400 contracted vehicles. The platform has attained a strong combat reputation, chiefly based on the strength of its operational performance with the Polish Army in Afghanistan.

The BAE Systems-Hдgglunds manned turret system is fitted to the successful CV90 family of infantry fighting vehicles operated by seven nations. It has been used on UN and NATO missions across the globe, including Afghanistan. The unique features of the E35 turret provide the AMV35 with real battlefield advantage for Australian soldiers through game-changing levels of accuracy and weight of fire.

BAE Systems Australia Chief Executive Glynn Phillips said: "The AMV35 is an outstanding combat reconnaissance platform that integrates BAE Systems-Hдgglunds' E35 turret onto a modern, agile, highly protected Patria Armoured Modular Vehicle (AMV), both of which have attained a fearsome reputation based on their operational performance in Afghanistan. It represents a low risk and affordable step change in protection, mobility and firepower for the Australian Army in any future operations.

"We look forward to being the given the chance to demonstrate the exceptional capabilities of this armoured vehicle system."

If selected, the BAE Systems/Patria team will manufacture and support the AMV35 in Australia, securing and retaining in-country capability, and contributing significantly to the Australian economy throughout the expected 30+ year life of the vehicles.

The BAE Systems-led team is committed to ensuring a high level of Australian content and industry capability development. The decision to manufacture the vehicle in Australia assures that there will be opportunities for involvement and content for Australian suppliers.

Defence Industry

AM General Statement on Pentagon JLTV Decision

SOUTH BEND, Ind. -- AM General LLC released the following statement on the Pentagon's recent Joint Light Tactical Vehicle decision attributed to a company spokesman:

For more than 50 years, AM General has been the world leader in Light Tactical Vehicle production for the

U.S. Military and forces around the world. We believe that our Blast Resistant Vehicle - Offroad (BRV-O) continues that tradition and represented the best value solution for the JLTV program providing unmatched capability, world-class survivability, and outstanding performance for the Army and Marine Corps.

AM General continues to believe that the BRV-O was the right choice for JLTV. However, we believe a protest would ultimately result in a distraction from our current growth business areas, including meeting the significant current and future needs of our customers in the United States and around the globe. Specifically, with approximately 230,000 HMMWVs currently serving as integral tactical vehicles of fleets around the world, AM General has a critical role in ensuring these vehicles remain mission ready and as capable as possible, to include the most innovative survivability and communications capability available only from AM General, now and into the future.

The JLTV does not and will not replace the HMMWV. With the JLTV still subject to additional testing and several years away from fielding, the Army and Marine Corps have repeatedly emphasized the need to modernize and maintain the more than 160,000 HMMWVs in their service and ensure the vehicle can meet the requirements of future missions through at least 2050.

AM General intends to aggressively develop and execute, in partnership with the Army and Marine Corps, a comprehensive HMMWV modernization and maintenance program to service current and future light tactical vehicle fleets in the United States and around the world. The need for this program is recognized and supported by a strong, bipartisan coalition in Congress who stand ready to work with the Army and Marine Corps to accelerate this critical modernization program in order to meet the operational needs of our military — and customers around the world — right now and for decades to come.

No one has more light tactical vehicle experience than AM General and we look forward to working with all stakeholders to leverage our five decades of expertise in the design, engineering, protection, and manufacturing of this iconic vehicle on behalf our Army, Marine Corps, and international customers.

Defence Industry

Esterline Awarded $21 M by GD UK for Displays and Video Processing Units on SCOUT Vehicle Program

Esterline Corporation, a leading specialty manufacturer serving global aerospace and defense markets, today announced that its Codis high-performance visualization products have been selected by General Dynamics UK for the armored SCOUT Specialist Vehicle (SV) program, for a total contract value of $21 million over seven years. Products being supplied include turret crew-station displays, triple-head driver's displays and specialized video-processing hardware.

"Esterline is proud to have been competitively selected by General Dynamics UK to provide our visualization products for the SCOUT SV," said Esterline President & CEO Curtis Reusser. "We are pleased to participate in this important program that will provide British troops with state-of-the-art protection and technology."
Specific Esterline hardware to be delivered includes:

- Codis TX-335S turret crew-station displays to present gunners and commanders with logistics, mission-system and gun-control information.
- Codis TX-321S triple-head driver's displays to render a near-seamless 120-degree image of the route with selectable front or rear view in day or night vision.
- Codis VPU-101 video-processing units to receive and interpret data from multiple vehicle-mounted sensors, then process, reformat and distribute it to displays.

Hardware deliveries will begin in 2016, continuing for seven years. Esterline will manufacture the Codis hardware in its Kortrijk, Belgium facility. The Codis brand was added to Esterline's product portfolio as part of the company's most recent acquisition in February 2015 of high-technology display products for aerospace and defense markets.

SCOUT SV will be a highly agile, tracked, medium-weight armored fighting vehicle. General Dynamics UK was competitively selected in 2010 for the design phase of the program and subsequently in September 2014 the option for the manufacturing phase to build the 589 SCOUT SV variants for the British Army was invoked.

Contracts

AM General Secures 6-Year, $428.3 M To Provide The Army With M997A3 HMMWV

Configured Ambulances

SOUTH BEND, Ind. -- AM General has been awarded a $428,295,155 firm-fixed-price, multi-year, indefinite-delivery/indefinite-quantity (IDIQ) contract for new M997A3 HMMWV Ambulance Chassis Vehicles for domestic disaster relief efforts by the Army, Army Reserve and Army National Guard.

Under the initial contract award of $89.5 million, AM General will provide the National Guard 654 M997A3 HMMWV Ambulance Chassis Vehicles.

"We are pleased to continue to support the active and future use of the more than 160,000 HMMWV's currently in service as part of U.S. Army, Marine Corps, Reserves and National Guard fleets," said Chris Vanslager, AM General Vice President, Programs and Business Development. "This contract is yet another example of the ongoing critical operational need for the HMMWV and how AM General remains the unmatched leader in modernizing and maintaining the HMMWV fleet in the United States and around the world. No company has more light tactical vehicle experience than AM General, and we look forward to working with our valued customers to leverage our five decades of expertise in the design, engineering and manufacturing of this iconic vehicle which will be in the service of U.S. military fleets through 2050."

Today's contract announcement follows several substantial Foreign Military orders the Company has received this year for thousands of HMMWVs that have added to its backlog, as it continues to successfully track new Light Tactical Vehicle business both domestically and internationally. Most recently, in July AM General was awarded a $373 million firm-fixed-price multi-year foreign military sales contract for sales in Afghanistan, Iraq, Kenya, Lebanon, Ukraine, Tunisia with options for nearly 2,100 HMMWVs and contractor unique spare parts.

Additionally, the Company continues to perform work under a Private Public Partnership with the National Guard and Red River Army Depot in the refurbishment and upgrade of older HMMWV models that will continue to be in the U.S. Military fleet for 20-plus years.

Exhibitions

Rheinmetall AMPV on MSPO 2015

Rheinmetall MAN Military Vehicles' versatile Armoured Multi Purpose Vehicle (AMPV) is a compact, high-mobility, extremely survivable tactical system designed for deployment worldwide. At this year's MSPO, RMMV presented for the first time a variant of the vehicle specially configured to meet the needs of the Polish military, with an eye to the particular requirements of the country's special operations forces, but also a wide variety of other units.

The AMPV is the outcome of a partnership with Krauss-Maffei Wegmann (KMW). Right from the outset, purely military requirements dictated the vehicle's design. In the process, the development team took systematic account of experience gained during the ISAF mission in Afghanistan and other operations worldwide. As a result, the AMPV is now the best-protected vehicle in its class anywhere. In the meantime, it has been thoroughly and successfully tested by a number of national procurement agencies, and is already in full-scale production.

Various weapon stations can be integrated into the AMPV. The spectrum ranges from manned ring-mount systems to highly advanced remote control weapon stations. Potential armament options include a 40mm automatic grenade launcher or a .50 cal. BMG. The special operations variant on show at MSPO features a remotely operated weapon station made by Polish defence contractor Tarnow, armed with a heavy machine gun.

Weighing in at 7.8 tonnes when empty, the AMPV can carry a payload of over two tonnes. In line with special operator requirements, the vehicle's storage capacity has been carefully optimized: there is plenty of space for extra equipment. Even so, it remains extremely compact, measuring just 5,660 mm in length, 2,300 mm in width, and 2,180 mm in height. This means that the AMPV can be airlifted in medium-sized transport aircraft like the C-160, C-130 or A400M. Moreover, heavy-duty transport helicopters such as the CH-47 and CH-53 can carry it as underslung cargo.

Thanks to its powerful 272 hp/200 kW diesel engine, the AMPV attains a maximum speed of 110 km/h. Automatic transmission, automatic differential lock management, a robust chassis with independent suspension and double wishbones together with a central tyre inflation system all contribute to the vehicle's excellent performance even in tough terrain.

On paved roads, it has an operating range of 700 km. The AMPV can handle inclines of 60% and transverse gradients of 40%. It features a maximum fording depth of 850 mm, and can cross trenches measuring 750 mm

across. The AMPV can tow a trailer weighing up to 3,500 kg. It is able to operate at temperatures ranging from -46°C to +55°C. Two 150-amp generators supply the vehicle with electricity.

The AMPV's superbly protected, self-contained armoured fighting compartment has enough space for five fully equipped soldiers. Moreover, the fighting compartment's protection level can be augmented with add-on armour modules, making it more than a match for heightened threat scenarios. Advanced bullet-resistant glass combines excellent visibility with maximum protection, while a high-performance heating and cooling system and NBC filtration assure a high level of battlefield sustainment. Special operations often call for offensive driving techniques, which is why the AMPV also features built-in impact protection.

If necessary, the protection level can be enhanced still further by integrating additional assemblies. These include Rheinmetall's Acoustic Sniper Localisation System (ASLS) and Situational Awareness System (SAS), assuring 360° monitoring of the vehicle's surroundings.

Unlike conventional smoke/obscurant systems, the Group's innovative Rapid Obscurant System "Rosy" creates an instantaneous, extensive, multispectral interruption of the line of sight, including a dynamic wall of smoke/obscurant that provides moving objects with sustained protection and concealment. The protection system's multi-mission capability assures a 360° defence against multiple aggressors, including swarming and wave attacks. Thanks to effective screening measures in the visual and infrared spectrums, including integrated IR jamming and decoying effects, the system reliably wards off all types of TV-, EO-, IR-, IIR, laser- and SACLOS-guided weapons.

An advanced battlefield management system networks all of these capabilities, assuring excellent command and control. Due to the open architecture of the vehicle's electrical and electronic systems, weapons and equipment kits can be easily integrated, while new devices can be connected in 'plug and play' mode.

The AMPV underscores once again Rheinmetall's commitment to excellence and status as a top supplier of systems and equipment for armed forces and security services around the world.

Robots

iRobot Announces Defense & Security Orders Totaling $7.2 M

iRobot Corp., a leader in delivering robotic technology-based solutions, today announced its Defense & Security business unit has received orders totaling $7.2 million from U.S. and international customers.

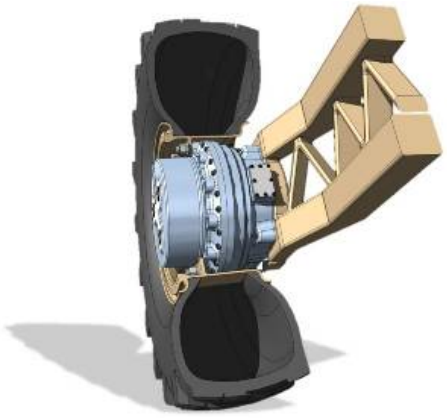
The orders include the delivery of spare parts and associated equipment, as well as the delivery of new robots ranging from the five-pound, compact and expandable 110 First Look®, the man-portable 310 SUGV, the multi-mission 510 PackBot® and the heavy duty 710 Kobra™.

"As threats persist globally, iRobot's roster of defense and security clients continues to expand at home and abroad," said Tom Frost, senior vice president and general manager of iRobot's Defense & Security business unit. "Our customers' missions are critical to making the world a safer place. We take pride in providing our customers with a whole family of robot solutions, from five-pound robots to 500-pound robots. Our systems are reliable, field-proven and get the job done."

iRobot has delivered more than 5,000 of its defense and security robots to military and civil defense forces worldwide.

Future Technologies

QinetiQ wins DARPA electric hub-drive design and development contract



QinetiQ is to develop an electric hub-drive to improve survivability and mobility of future military ground vehicles for the US Defense Advanced Research Projects Agency (DARPA).

The contract, worth $1.5m with an option for a further $2.7m, is part of DARPA's Ground X-Vehicle Technologies (GXV-T) programme. Under this programme, participants will investigate technologies that could help to significantly improve capability in the next generation of vehicles.

QinetiQ's hub-drive seeks to improve mobility through enhanced power, torque, integral braking and high efficiency, in a unit that can be contained within a 20" wheel rim. It aims to increase survivability by

removing drive shafts and gearboxes, which can become lethal to occupants in the event of an IED detonation beneath the vehicle. The absence of these components could also reduce weight and open up future design possibilities, such as fully independent suspension with significantly increased travel.

Dr David Moore, Director of Research Services at QinetiQ, said: “Like cavalry horses throughout history, vehicles risk becoming less mobile as they are loaded with more armour and weaponry to meet the evolving demands of warfare. Our hub-drive tackles that threat by combining optimum performance with a significant weight saving, which is critical for mobility. It also introduces a far greater degree of architectural flexibility, enabling vehicles to be configured in ways which offer greater protection to their occupants.

“For us, this contract offers an opportunity to show how our expertise, built through 17 years of developing electro-mechanical transmissions for tracked and wheeled vehicles, can help customers de-risk the future.”

Future Technologies

DARPA Awards Raytheon BBN Technologies $12.2M to optimize information flow in military networks

CAMBRIDGE, Mass. -- The Defense Advanced Research Projects Agency (DARPA) recently awarded Raytheon BBN Technologies $12.2 million under the Edge-Directed Cyber Technologies for Reliable Mission Communication (EdgeCT) program to research optimized information flow for military operations over wide area networks.

The goal of the EdgeCT program is to ensure mission-critical communications are less susceptible to potential network failures resulting from both cyber-attacks and common network errors. The EdgeCT program uses a new approach to achieve enhanced reliability by focusing on adding new capabilities to the communications devices at the edges of the network, rather than to the network itself.

"Recovering from network attacks or working around misconfigurations can disrupt traffic for hours," said Greg Lauer, EdgeCT principal investigator at Raytheon BBN. "Our aim on the EdgeCT program is to minimize that disruption to minutes or less. Our approach does not require control or direct observation of the wide area network and so it can be easily deployed in end user enclaves."

To accomplish this, the Raytheon BBN-led team seeks to develop an intrinsically robust overlay network, interconnecting users through secure connections. Through these connections, the software could continuously monitor events in the larger network and their effect on traffic flow. The overlay network may also exchange information between nodes in each user group about network conditions and then dynamically configure the way the network handles application traffic to maximize performance so that critical communications are transmitted as quickly as possible.

Exhibitions

New BVS10 Beowulf All-Terrain Vehicle - Poetry in Motion

A new BAE Systems all-terrain vehicle which can reach more places and carry more cargo than any other vehicle of its kind, is making its debut at DSEI in London this week.

The new vehicle, called “Beowulf,” is based on the Company’s revered Viking BvS10 fighting, troop-carrying and logistics vehicle that was initially designed in Sweden for the UK Royal Marines. Beowulf has a payload capacity of eight tonnes and built-in flexibility with special role cabins in the rear car to carry a combination of personnel and cargo. The vehicle can traverse through water, swamps, snow and soft sand; and climb 45-degree slopes. Beowulf features increased crew comfort and visibility, and is easy to maintain and support, resulting in reduced operational costs.

“We know from more than 40 years of all-terrain vehicle experience that there is a need for an unarmoured vehicle that can reach places other systems cannot, carry a high payload and do it around the clock regardless of weather conditions,” said Tore Akser, platform manager at BAE Systems Hдgglunds, a subsidiary of BAE Systems, Inc. in the United States.

BAE Systems sees Beowulf as a successor to its Bv206. More than 12,000 of the glass-fibre bodied vehicles were built and the majority are still in service with military and emergency services in more than 40 countries around the world. Beowulf is well placed to meet a recently declared requirement from the UK Royal Marines for approximately 230 vehicles, in a range of variants to replace the Marines’ 350 Bv206s.

Though aimed primarily at the military market, Beowulf is also expected to attract interest for carrying out civilian missions in areas difficult to access.

Exhibitions

BAE Systems showcases new mine clearing capability for Terrier® combat engineer vehicle

BAE Systems has further extended the multi-functional role of its combat engineer vehicle, Terrier®, with enhanced mine clearance capabilities.

Recently proved in field trials, the mine plough is designed to ensure a safe route for a convoy of vehicles, by clearing land mines and Improvised Explosive

Devices along a chosen path.

The vehicle has also been equipped with a long-reach rummage arm developed to probe and unearth suspect buried devices from a safe distance. On display at DSEI this week, these new developments are part of ongoing capability enhancements which further boost Terrier's ability to conduct route proving and clearance tasks.

Terrier can operate the track-width mine plough at a depth of 300mm when traveling at speeds of 15 kilometers per hour. Together with the long-reach rummage arm and an existing remote control function, Terrier limits the need to place any operators in direct danger during hazardous clearance operations.

Mike Reece, Business Development and Strategy Director at BAE Systems Combat Vehicles (UK), commented: "The new mine clearance capability of Terrier was developed following feedback from operations in Afghanistan. Working closely with Pearson Engineering, this enhancement will significantly reduce the British Army's resource burden with fewer vehicles and troops required to clear safe routes, whilst improving the safety of both military personnel and local residents."

The need to reduce the equipment and logistic footprint of armed forces has highlighted the increased role of platforms with multiple capabilities and functionality. Terrier is ideally suited to fulfill this remit thanks to its open and flexible architecture. Engineers at BAE Systems' UK sites in Newcastle and Telford continue to develop modular upgrades to Terrier allowing flexible and rapid reconfiguration in response to operational requirements to be integrated easily by users in the field.

Product Information

- Terrier is a compact, 32 tonne armoured platform with exceptional mobility. It provides speed of up to 70 km/h alongside outstanding off road performance, wading capability and air transportability in the A400M.
- Representing a step change in vehicle design, Terrier demonstrates a new generation of multifunctional combat engineer vehicles, delivering uncompromising performance from a medium weight chassis.
- Its capabilities range from providing mobility assistance for supported units to delivering counter-mobility, survivability and general engineering tasks.
- A drive-by-wire armoured fighting vehicle, its combination of functions meet the breadth of manoeuvre support activities required of a combat engineer.
- Currently in service with the British Army, the multifunctional capability and modular approach of Terrier makes upgrade and new capabilities easy to integrate.
- Track-width mine plough specification:
- Cleared lane width: 725mm at each plough section (2 x 725mm)
- Cleared lane uncleared width: 1000mm in centre
- Cleared lane depth: 175-300mm
- Plough speed: 1 – 15km/h

Robots

Northrop Grumman Remotec Next-generation Andros FX Robot on Display at DSEI

LONDON -- Northrop Grumman Corporation (NYSE:NOC) will feature its recently-launched Andros FX unmanned ground vehicle at the DSEI exhibition, taking place Sept. 15-18 at ExCel, London.

Northrop Grumman subsidiary Remotec Inc. designed Andros FX™ to defeat a wide range of threats including vehicle-borne improvised explosive devices. The more capable and dexterous robot will be available for viewing on the Northrop Grumman exhibit at stand S5-310. This is the first time Andros FX has been on display in the UK.

The most visible features of the Andros FX are the four track pods that replace the traditional Andros articulators and a new arm design with more lift capacity and greater dexterity by adding roll joints that provide nine degrees of freedom. It also features updated system electronics, mobility improvements for increased speed and maneuverability, and a new touchscreen operator control unit with 3-D system graphics, advanced manipulator controls and improved user interface.

"The feedback we have received from EOD teams has indicated what they need most are more capabilities to counter vehicle-borne IEDs," said Walt Werner, director, Northrop Grumman Remotec. "Andros FX has been designed from the ground up, to meet these requirements and provides the most advanced technology while at the same time making the system easier to use and maintain, and keeping danger at a distance."

The Andros FX builds on Remotec's F6 family and its 20-year record as a workhorse for first responders and the military. Like other robots in Remotec's Andros fleet, its operating system provides much greater information to the operator while easing user workload through more interactivity with intelligent payloads such as chemical and radiation sensors. Preset arm positions and the ability to "fly the gripper" make manipulation of objects much

easier, faster and more accurate.

Andros FX was designed using a proven concurrent engineering process to develop a superior product at an affordable price. Werner said increased cross-functional involvement early in the design phase results in a much lower lifecycle cost as well as a product that can be quickly adapted for a variety of missions, easily upgraded and expanded, and more efficiently maintained.

Northrop Grumman Remotec will make pricing available in December 2015 and begin taking orders for the Andros FX in April 2016.

Robots

New telemax 4x4 Explosive Ordnance Robot Introduced At DSEI

A team from Cobham has introduced a new telemax 4x4 remotely operated vehicle to the unmanned systems industry during the 2015 DSEi conference in London (Stand S6-150). The telemax 4x4, an optimised derivative of Cobham Unmanned Systems suite of telemax robots, offers a lighter, faster and more cost effective solution to the customer. The 4x4 design incorporates a new 4 wheel drive system (top speed of 11.5 Km/h) and WLAN-based data and video transmission technology to achieve improved effectiveness, connectivity and functionality.

Incorporating over 2 decades worth of Cobham Unmanned Systems experience in the development and production of explosive ordnance robots, the 4x4 offers the same diverse range of tools, accessories and sensor options as all members of the telemax family, including critical capabilities such as Tool Centre Point (TCP) control and automatic tool change. The utilisation of the mission proven manipulator arm and other telemax specifications allows for the option to upgrade the 4x4 to the telemax PRO or CBRN at a later date.

"Cobham's investment in the development of the telemax 4x4 highlights our commitment to improve our offering to the unmanned systems market through the diversification of our telemax family. The telemax 4x4 offers increased value to the customer, whilst still delivering the high performance and functionality expected of a telemax robot in critical missions", said Thomas Biehne, Director, Business Development and Sales.

Cobham Unmanned Systems is a leading provider of integrated homeland security solutions and unmanned platforms, utilising over 20 years of expertise in this highly specialised field. Whether the task at hand is disarming an Improvised Explosive Device (IED) with a remote controlled robot; investigating hazards with an unmanned sensor platform; or deploying mobile, fully networked measurement, monitoring and intervention systems to ensure the safety and security of critical infrastructure, Cobham's top priority is always the protection of people and their surroundings.

Training And Simulators

British Army Extends Virtual Trainer Contract with J11 Million for Additional Support

Warminster, Wiltshire -- The Ministry of Defence (MoD) is investing J11 million in additional support for the virtual training system used to prepare British soldiers for battle.

Lockheed Martin has been awarded a contract extension to continue its support for the Combined Arms Tactical Trainer (CATT), which is based at the Land Warfare Centre in Warminster. BAE Systems will also provide support services for the contract.

The CATT, which uses an immersive, computer generated environment to train up to 450 military personnel on a virtual battlefield, has been used by the Army since 2001. It was a key element of pre-deployment training for soldiers preparing to serve in Afghanistan. Lockheed Martin will provide new training scenarios and content for the CATT to help prepare Army personnel until 2018.

“Since the inception of the UK CATT program in 2001, we’ve helped the British army prepare more than 100,000 service members to accomplish their operations,” said Jim Weitzel, vice president of Training Solutions for Lockheed Martin. “Extending these capabilities into the CATT program will boost complexity and realism, making it the most demanding and intensive ground training system personnel can use to ensure they are mission-ready.”

The world’s largest virtual training system, CATT is run jointly by the Lockheed Martin team and the MoD. This contract extension sustains more than forty jobs in Warminster and Sennelager in Germany where staff are involved in operating and maintaining the training system.

Lockheed Martin’s technology is playing a key role in training military personnel across the Army, Royal Navy and Royal Air Force. Lockheed Martin is part of the joint venture Ascent that is providing the UK’s Military Flying Training System and recently won a contract to

provide synthetic training for Chinook Mk6 crews.

Defence Industry

Lockheed Martin Introduces New Amphibious Combat Vehicle (ACV) Candidate at Modern Day Marine Show

QUANTICO, Va. -- Lockheed Martin officially introduced its new Amphibious Combat Vehicle (ACV) 1.1 offering at the Modern Day Marine trade show in Quantico, Virginia, today. The armored, eight-wheel-drive vehicle is designed to transport up to 13 Marines, transition seamlessly between land and water, and provide high levels of blast protection.

The U.S. Marine Corps established the ACV program to replace its aging fleet of Amphibious Assault Vehicles, which have been in service since the 1970s.

The Lockheed Martin ACV candidate is a modular, easily upgradable 8x8 design that allows superior growth for a wide range of variants, weapons, sensors and communications options. Lockheed Martin is the original equipment manufacturer, systems integrator, and final-assembly, integration and test agent for its ACV. The company has selected an experienced team of suppliers for their specific capabilities to enable the production and delivery of a high-quality, affordable solution.

“We have been committed to the Marine Corps for more than eight years in the growth and evolution of the ACV and its predecessor programs,” said Scott Greene, vice president of Ground Vehicles for Lockheed Martin Missiles and Fire Control. “In concert with the Marine Corps’ desire for domestic production, Lockheed Martin has assembled a supplier team that will enable the manufacturing and delivery of a vehicle that meets or exceeds their requirements at the right price.”

The Lockheed Martin ACV candidate will meet or exceed the Marine Corps’ ACV requirements in four key areas: Water Operations; Land Operations; Payload Capacity and Protection. The team’s ACV offering is comprised primarily of off-the-shelf components and products currently in service on vehicles around the world. They have been brought together in the Lockheed Martin 8x8 to provide the Marine Corps a vehicle that meets their needs today and supports their missions far into the future.

Defence Industry

BAE Delivers ARCHER Artillery System to Sweden

BAE Systems today delivered the first production series ARCHER artillery system to the Swedish Defence Materiel Administration (FMV) during a ceremony at the company’s Karlskoga facility.

The ARCHER system is one of the world’s most advanced artillery systems with high mobility and precision. ARCHER provides fire support that is powerful and flexible, and features high levels of autonomous operation under protection. It is based on proven subsystems and has an extensive ammunition portfolio.

“BAE Systems Bofors and FMV have been working very closely to achieve our high-level requirements for the ARCHER program. This is an important milestone as we begin the delivery of all systems for our Swedish customer,” said Lena Gillstrцm, managing director for Weapon Systems, Sweden at BAE Systems, Inc. “ARCHER will provide the Swedish armed forces with an advanced artillery system that focuses on the safety of our soldiers.”

BAE Systems’ employees and representatives from FMV, the Swedish Armed Forces, and the Ministry of Defence were in attendance as Gillstrцm delivered the first system to Swedish Defence Minister Peter Hultqvst.

“ARCHER is an important part of strengthening the Swedish defense,” said Dan Ohlsson, Acting Director General for FMV.

BAE Systems delivered the pre-serial ARCHER systems to the Swedish government in 2013, which have been in use by the Swedish artillery regiment.

Defence Industry

MTL leads the way with cold formed Aluminium

Within the defence manufacturing industry we continually strive to push the limits of technology to redefine what is possible. We understand the need to support change with solid test data and proof of repeatability, and in absence of this, designers and engineers opt for traditional tried and tested methods for the application of materials when developing new platforms.

MTL likes to think a little differently. Building on our expertise in forming steel armour plate and working alongside a major aluminium armour plate producer, we have developed a reliable and repeatable cold forming process for aluminium armour plate, which can potentially change the design and manufacture of aluminium land system platforms in the future.

Aluminium armour materials were never developed with intent to be cold formed, and so intrinsically pose challenges to avoid common modes of failure such as cracking. We have created a reliable and repeatable cold forming process, backed by scientific and engineering validation. We have pushed our current forming technology to its limits, and the integrity of parts produced are validated using innovative and standardised methods of material testing to assure optimum material resilience.

Our overall aim is to enable designers to remove large sections of weld from the overall vehicle structure and reduce piece part count. By reducing the weld, the structure is stronger and more robust, better protecting vehicle occupants and reducing platform production costs.

We began with 5083-H131 armour – a commonly used and well established material for the construction of aluminium vehicle hulls. Process development and optimisation to cold form 90° bends with and across the grain allowed us to move forward with more difficult materials. Similar initial success followed with 7017, 7020 and 7085.

On completion of laboratory tests we expect to release our findings by the end of 2015. We are confident of repeating the success of our formed steel armour plate, for which MTL is well known, further changing the defence industry and the applications of armoured aluminium.