Raytheon and Nimr Automotive, part of the Emirates Defence Industries Company (EDIC), have joined forces to equip Nimr armoured vehicles with the Talon laser-guided rocket (LGR) system.

Developed by Raytheon, the Talon LGR is a low-cost, digital semi-active laser guidance and control kit co-developed with the United Arab Emirates. The Talon guidance section fits directly to the front of the legacy 2.75in Hydra-70 unguided rocket. According to Raytheon, Talon’s architecture and ease of employment “make it a low-cost, highly precise weapon for missions in urban environments, as well as counter-insurgency and swarming boat defence missions”.

The Nimr 6x6 tactical platform provides modular system integration to support a full range of missions, including armed reconnaissance, infrastructure defence, defensive fire suppression and border security.

Each Nimr vehicle will carry 16 Talon LGRs using a Raytheon remote weapons station (RWS). The RWS enables Talon to be fired from both stationary and moving vehicles, while an elevated sensor/designator enables the Talon and anti-tank missiles to be fired from concealed positions, ensuring lethality and survivability for the ground vehicle.

“In partnership with EDIC, we are providing an affordable, near-term and reliable solution,” said Michelle Lohmeier, Raytheon vice president of Land Warfare Systems. “Integration onto the Nimr vehicle further demonstrates the versatility of Talon.”
TOGETHER WE PREPARE, FOR A SAFER TOMORROW

ENGAGE WITH US AT STAND 05-A10 IN HALL 5
Yesterday at IDEX, the UAE General Headquarters announced nine further orders from domestic and international suppliers.

In value, Tawazun Dynamics was the recipient of the largest of the second-day orders, an AED1.53 billion contract for precision-guided weapons. Emirates Advanced Research and Technology Holding received an AED864 million contract for development and support associated with the Oshkosh M-ATV vehicle. AgustaWestland received an order covering nine AW139 helicopters. The purchase is to be split between six aircraft to provide search and rescue capability, and three for VIP transportation. The UAE is also buying an air surveillance radar from Raytheon.

Shown below are the combined orders announced at the first two days of the IDEX exhibition.

## ORDERS ANNOUNCED AT ID EX

<table>
<thead>
<tr>
<th>COMPANY/COUNTRY</th>
<th>CONTRACT</th>
<th>TOTAL AED13.462 billion</th>
</tr>
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<tbody>
<tr>
<td>Airbus Defence/Thales Alenia, Europe</td>
<td>Satellites and ground control stations</td>
<td>3.745 billion</td>
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<td>Al Taif Technical Services, UAE</td>
<td>Maintenance services for equipment and vehicles</td>
<td>2.4 billion</td>
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<tr>
<td>Tawazun Dynamics, UAE</td>
<td>Precision-guided ammunition</td>
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<tr>
<td>Nimr Automotive, UAE</td>
<td>500 vehicles and development of further 500</td>
<td>1.2 billion</td>
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<td>Abu Dhabi Ship Building, UAE</td>
<td>Vessels (2)</td>
<td>870 million</td>
</tr>
<tr>
<td>EARTH, UAE</td>
<td>Development, technical support and maintenance</td>
<td>864 million</td>
</tr>
<tr>
<td>Caracal International, UAE</td>
<td>CAR816 rifles (80,000)</td>
<td>763 million</td>
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<tr>
<td>AgustaWestland, UK/Italy</td>
<td>AW139 helicopters (6 for SAR, 3 for VIP transport)</td>
<td>732 million</td>
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<td>ADASI, UAE</td>
<td>Unmanned aircraft system</td>
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<td>AMMROC, UAE</td>
<td>Aircraft spare parts, maintenance and repair services</td>
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<td>Elettronica, Italy</td>
<td>Technical support, maintenance and development of electronic defence equipment</td>
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<td>Al Jaber Land Systems, UAE</td>
<td>Spare parts, maintenance and repair of field trailers</td>
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<td>Abu Dhabi Airport Company, UAE</td>
<td>Technical support for aircraft</td>
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<td>Milipol International, UAE</td>
<td>Ammunition</td>
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<td>International Golden Group, UAE</td>
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<td>Naval Advanced Solutions, UAE</td>
<td>Science Center of Meteorology and Oceanology</td>
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<td>Al Masood, UAE</td>
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<td>Rosenbauer International, Austria</td>
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<td>KBP Instrument Design Bureau, Russia</td>
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<td>Cubic Simulation Systems, USA</td>
<td>Training simulators</td>
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<td>Thales Communications &amp; Security, France</td>
<td>Technical maintenance, repair and support</td>
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<td>Al Fattan Ship Industry, UAE</td>
<td>Boats (8)</td>
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<tr>
<td>Raytheon Systems, UK</td>
<td>Radar</td>
<td>11 million</td>
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The UAE is buying 80,000 Caracal CAR816 rifles for the Armed Forces.
EYES ON TARGET
Longer Range, Greater Flexibility

FLIR’s HISS-XLR and Recon V extend your operational capability on the battlefield by combining longer-range imaging with enhanced features like a Digital Magnetic Compass and hot-swap batteries.

HISS-XLR
Extended range thermal weapon sight with integrated DMC and target acquisition out to 2,000m.

Recon V
Powerful, lightweight thermal binocular with 10x optical zoom, integrated DMC, and LRF for target identification at greater standoff range.
Nimr Automotive of the United Arab Emirates (Stand 05-A10) is now in full-scale production of its expanding family of light armoured vehicles (LAVs), now referred to as the Ajban class. Well in excess of 1,000 vehicles have rolled off the production line, in 4x4 and 6x6 configurations, since low-rate production started two years ago.

At IDEX 2015, it was announced that the UAE Armed Forces had placed a contract with Nimr Automotive for a further 500 vehicles, plus the upgrading of 500 earlier vehicles.

Export sales have been made to a number of countries, including Bahrain, Egypt and Libya, and a joint venture programme is underway in Algeria for local production of the vehicle using kits that have been produced in the UAE.

Ajban is described by the company as a family of modular LAVs that are available in various two- and four-person cab versions with a load area to the rear. All share the same powerpack and driveline to reduce through-life cycle costs.

Ajban’s powerpack consists of a Cummins six-cylinder diesel developing 300hp, coupled to an Allison 3000SP fully automatic transmission and a two-speed drop box. This gives a road speed of up to 110km/h. There is also an option for the installation of a 350hp diesel engine. The vehicle has double-wishbone independent suspension all round, with a central tyre-inflation system fitted as standard – considered essential for desert operations. The wheels have run-flat inserts and a power management system is fitted, as is a front-mounted winch.

A specialised internal security vehicle model has been developed that features a hardened 10-man cabin, which is also equipped with gun ports and roof hatches. It also has an integrated camera-based situational awareness system.

A good example of the more specialised roles for the 6x6 is that of air defence, for which the vehicle can be armed with a remote-control turret loaded with MBDA Mistral surface-to-air missiles. A gun-ship version is armed with a remote control turret mounting a 30mm cannon. In the flatbed role, the 6x6 version can carry various containers for more specialised battlefield missions.

Being shown for the first time here at IDEX is a Special Forces (SF) version of the Ajban, with an open top for enhanced situational awareness. This can be fitted with various ring- and pintle-mounted weapons, such as machine guns and cannon.

This variant has a gross vehicle weight of 7,500kg, of which 2,500kg is for onboard equipment, including crew, weapons and equipment. While the basic SF Ajban is not armoured, it can be fitted with ballistic and blast protection if required.
Mobile mortars continue

CHRISTOPHER F FOSS

Having been awarded a contract worth AED786 million for 72 production systems, the International Golden Group (IGG) of Abu Dhabi has now integrated the last batch of Agrab Mk 2 120mm Mobile Mortar Systems (MMS) for the UAE Armed Forces. The first batch of 10 was integrated in South Africa, with the remaining 62 being produced at the facilities of IGG (Stands 04-C20, UM-48) in the UAE.

Agrab Mk 2 comprises a BAE Systems Land Systems South Africa RG31 Mk 6E mine-protected vehicle with a Singapore Technologies Kinetics 120mm Super Rapid Advanced Mortar System (SRAMS) integrated into the rear, controlled by a Thales South Africa Systems integrated fire control system. The vehicle is powered by a Cummins turbocharged diesel developing 360hp at 2,600rpm, coupled to an Allison six-speed automatic transmission, to give a maximum road speed of 90km/h.

The vehicle has a Platt Protected Weapon Station armed with a .50 M2 HB machine gun, plus banks of electrically operated grenade launchers. The 120mm SRAMS fires over the rear arc with elevation limits from +45° to +80°, and a traverse of 40° left and right. The 120mm ammunition is supplied by Rheinmetall Denel RUAG Defence of Switzerland (Stand 08-A15) has unveiled its new-generation 120mm Cobra mortar system at IDEX 2015. This has been under development using company funding since 2012. With that process complete, production can commence when orders are placed.

Cobra is a turntable-mounted 120mm smooth-bore mortar system fitted with an all-electric elevation and traverse system, with manual back-up controls. For faster response times, it is fitted with a computerised fire control system coupled to an inertial navigation system that provides an automatic laying capability.

Multiple round simultaneous impact missions can be carried out, with all rounds impacting the target area at the same time for maximum impact. RUAG Defence of Switzerland (Stand 08-A15) has unveiled its new-generation 120mm Cobra mortar system at IDEX 2015. This has been under development using company funding since 2012. With that process complete, production can commence when orders are placed.

The RUAG Cobra 120mm mortar system features an onboard fire control system for faster and more accurate targeting.

Virtual training tool

DAVID DONALD

EDIC company Al Taif Technical Services, a leading maintenance, repair and overhaul (MRO) services provider for defence-related systems, is showing off a range of virtual reality systems that it is employing to train technicians at the Al Taif Technical Affairs School.

Using state-of-the-art training aids, such as high-definition 3D virtual reality headsets, Oculus and Kinect for Windows, the school uses the system to provide training for technicians who will work on the G6 artillery system.

The tool allows technicians to virtually zoom, drag and rotate components, in turn training them in assembly and disassembly of weapons. This saves time in training by allowing multiple students to undergo instruction at the same time, while reducing the requirement for actual weapon systems.

“The Al Taif Technical Affairs School is demonstrating its commitment to innovative training approaches through the use of virtual training,” said CEO Ahmad Bin Adi. “In addition to being cost-effective, virtual training is a very impactful learning tool that results in high retention rates.”

NightOwl on watch

Airbus Defence and Space (Stand 08-805, German Pavilion) has received a contract valued at “tens of millions of euros” from an undisclosed Middle East customer to provide a large number of Z:NightOwl M imaging systems produced by the company’s Optronics division. The customer will use the system to protect its land borders and coastline.

Z:NightOwl M combines electro-optical and imaging infrared systems into a single system, using the third-generation Attica M-ER sensor. It also has an eye-safe laser rangefinder, while near- and short-wave infrared sensors can also be integrated.

The system has been specifically designed for long-range surveillance, combining a large field of view for wide-area observation and detection, and a narrow field of view for identification. With warmer climates in mind, Z:NightOwl M has been optimised for good performance in conditions of heat-haze.

Weapon Station armed with a .50 M2 HB machine gun, plus banks of electrically operated grenade launchers. The 120mm SRAMS fires over the rear arc with elevation limits from +45° to +80°, and a traverse of 40° left and right. The 120mm ammunition is supplied by Rheinmetall Denel RUAG Defence of Switzerland (Stand 08-A15) has unveiled its new-generation 120mm Cobra mortar system at IDEX 2015. This has been under development using company funding since 2012. With that process complete, production can commence when orders are placed.

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The RUAG Cobra 120mm mortar system features an onboard fire control system for faster and more accurate targeting.
Launcher team aims to boost surface firepower

Munitions; currently available are high-explosive (HE), bi-spectral smoke and illuminating rounds, all of which are not armed until 40m from the barrel. Maximum range is typically 8.1km for an HE mortar bomb.

ST Kinetics’ smooth-bore 120mm mortar system is currently being qualified to fire a rocket-assisted projectile out to a maximum range of 13km, as well as a laser-guided mortar bomb for the precise engagement of targets designated by a forward observer or unmanned aerial vehicle. The fire control system incorporates an automatic laying capability, ballistic computation that includes a feed from the onboard meteorological sensor, and overall weapon management. The Selex FIN3110 ring laser gyro inertial navigation system is integrated under the 120mm SRAMS.

As well as being used in autonomous mode, one Agrab Mk 2 120mm MMS can control the fire mission for up to 12 other platforms for maximum target effect.

RICHARD SCOTT

Turkish systems house Aselsan and Thales UK have signed an agreement to jointly develop and co-market shipborne launcher systems for Thales’s Lightweight Multirole Missile (LMM) low-collateral precision weapon. The two companies cemented their relationship in a signing ceremony at IDEX on 22 February. The agreement covers a lightweight four-round LMM Missile Launching System and a larger eight-cell variant.

Building on the pedigree of the existing Starburst and Starstreak surface-to-air missiles, LMM has been designed by Thales as a low-cost, laser-guided missile able to engage a wide range of air, land and sea targets out to ranges of about 8km. The initial variant uses laser beam-riding guidance.

In the maritime role, Thales (Stand 08-A08) believes that LMM is well matched to counter small fast inshore attack craft (FIAC) threats. The missile’s laser proximity fuze, using low-cost gate technology set at the point of launch, is designed to ensure that the missile can successfully engage very-low metal, semi-solid targets, such as rigid inflatables, which many rockets pass through before detonating, while the 3kg blast fragmentation/shaped charge warhead has been designed to combine localised effect with good penetration.

LMM development testing has already demonstrated the accuracy of laser beam-riding guidance against FIAC-type targets at ranges out to 4km and in conditions up to Sea State 6. Warhead arena trials have demonstrated a 5m radius kill zone. A successful static warhead trial has also been completed against a representative FIAC deckhouse structure.

LMM is now in qualification and entering production to meet the UK’s Future Anti-Surface Guided Weapon (Light) requirement. In this application, the missile will be air-launched from the Royal Navy’s new AgustaWestland Wildcat HMA.2 helicopter.

To address surface-to-surface applications for LMM in the maritime market, Aselsan and Thales have been working on the joint development of two LMM Missile Launching System variants. The smaller four-round system, designed to give fast interceptor craft increased punch, combines a two-axis gyro-stabilised turret accommodating four ready-to-launch LMM missiles, an off-mount stabilised electro-optical director (incorporating a laser transmitter unit to support LMM laser beam-riding guidance) and a bridge-mounted control and display unit. This configuration has been engineered to have minimum impact on speed and manoeuvrability of the host platform.

Aselsan (Stand 10-D05) has also developed a larger eight-round launching system that incorporates two four-cell LMM panniers and an on-mount electro-optical package. This is intended for larger craft where space and weight constraints are less onerous.

The company has completed engineering development models of both launcher variants, with a first-stage LMM launch proving trial performed during 2014. In addition, Aselsan and Thales last year performed tracking trials in the Istanbul area to prove the stabilisation and tracking performance of the electro-optical sensor suite.
JON LAKE

Eurofighter CEO Alberto Gutierrez told the IDEX Show Daily that he wanted IDEX visitors to take away two key messages about the Eurofighter Typhoon. The first is that Eurofighter is completely committed to delivering the capabilities defined in the aircraft’s future capability roadmap; the second is that the aircraft’s life-cycle cost advantages have been demonstrated and proved, and that further savings in life-cycle costs will be delivered.

Gutierrez pointed out that Eurofighter is delivering on the ‘paradigm shift’ in capability that was announced at Farnborough in July 2014, with integration of the Storm Shadow long-range cruise missile and now Brimstone both on contract. These weapons promise to deliver a real boost in Typhoon’s advanced air-to-ground capabilities in the near term. The aircraft’s air-to-air capabilities are also being enhanced, with integration of the Meteor beyond visual range air-to-air missile proceeding apace, and with a €1 billion contract for the full integration of the Captor E-Scan radar having been placed in November 2014.

The main focus of the €200 million Phase 3 Capability Enhancement contract that was signed at IDEX is the integration of the Brimstone 2 missile (initially for the UK RAF). This will give the aircraft the ability to employ multiple precision-guided air-to-surface weapons at fast-moving targets with low collateral damage. Typhoon will carry two launchers under the outboard pylons, each carrying three Brimstone 2 missiles.

P3E also enhances the capabilities of the Paveway IV dual-mode laser/GPS guided bomb, Storm Shadow cruise missile, and the ASRAAM and Meteor air-to-air missiles, enhancing the lethality and engagement envelopes of these weapons.

Wing Commander Anthony ‘Foxy’ Gregory, head of UK Typhoon Future Capability with BAE Systems, explained that these enhancements are being achieved by using a generic algorithm to tinker with Launch Acceptable Region (LAR) and Launch Success Zones (LSZ) via mission data loads.

Mission data is of crucial importance in Typhoon, making a massive difference to the performance of the DASS, radar and other systems. The UK RAF has made major efforts to ensure that its mission data is updated and improved frequently and, as a consequence, many rate the combat effectiveness of RAF Typhoons as being higher than those of some other nations. Mission data is an extremely sensitive national asset, however, and cannot be exported. It has been reported that, to compensate for this, BAE Systems is setting up an Electronic Warfare Operational Support (EWOS) facility to help the Royal Saudi Air Force build its own mission data. In the interim, BAE is supplying company-compiled mission data, and it is believed that this has been used by the RSAF during recent operational missions against Daesh targets in Syria, during which Saudi Typhoons have dropped live Paveway II and Paveway IV bombs.
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Hall-10 / Stand: B-05
Piaggio Aero has announced that its P.1HH HammerHead UAV, based on the Avanti business aircraft, made its first flight on 22 December. Known as Prototype 001, the first aircraft flew from the Trapani-Birgi military base in Sicily, performing a shakedown flight over the Mediterranean Sea at varying speeds and altitudes that also checked out basic functions of the ground segment.

Project pilot Sergio Paloni, who led the flight test team, remarked: “We are very pleased with the result of the maiden flight. The aerial vehicle was seamlessly operated remotely, with no flaws experienced.”

For Piaggio Aero (Stands 05-A10, UM-21), the successful first flight was a major milestone to be passed. “You can run more risk with a manned flight – there is a pilot to take control if things go wrong,” remarked CEO Carlo Logli. “With unmanned, you need a greater level of maturity.”

To provide that maturity, Piaggio Aero undertook trials with the manned HammerHead Demo aircraft, which tested the air vehicle’s systems in an Avanti converted to act as a testbed, allowing the systems to be trialled but with the reassurance of having a safety pilot aboard. The HammerHead Demo undertook between 40 and 50 flights in preparation for Prototype 001’s maiden flight.

The first flight marks the start of an initial trials phase for the P.1HH, which is expected to total about 150 flight hours and is due to be completed in the summer. While the first flight was conducted under manual control via the P.1HH’s datalink, the test team aims to begin automatic take-off and landing operations, as well as introduce an interim sensor capability in this first phase.

A second P.1HH prototype is due to join the test fleet later this year, and this will be used primarily to expand the capability into full autonomy and to test the mission systems.

Majority-owned by Mubadala, Piaggio Aero is showing a full-scale mock-up of the P.1HH in the UMEX exhibition. The company is working closely with Selex ES to develop the P.1HH, the Finmeccanica company supplying the vehicle management and control system, datalink and ground control station.

Piaggio Aero is also working with ADASI on a manned maritime patrol aircraft (MPA) based on the Avanti. The MPA features extended-span wings, foreplanes and tails, among other modifications. The first prototype of this variant is scheduled to fly in the third quarter of this year, and may be ready in time to appear at the Dubai Air Show in November.
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More firepower for Boxer

CHRISTOPHER F FOSS

Currently deployed by Germany and the Netherlands, the ARTEC Boxer is normally used as an armoured personnel carrier (APC), as well as for more specialised roles such as ambulance and command post. To meet potential export requirements for an infantry fighting vehicle (IFV), Boxer is being shown for the first time in the Middle East in the IFV configuration.

Displayed on the Krauss-Maffei Wegmann stand (08-C2), the Boxer is fitted with the complete remote-controlled turret of the tracked Puma Armoured Infantry Fighting Vehicle (AIFV) now in production for the German Army.

This advanced turret is armed with a Mauser 30mm MK 30-2 dual-feed cannon that can fire a wide range of ammunition types, including a recently developed air-bursting munition (ABM). Empty 30mm cartridge cases are ejected outside of the turret. Mounted coaxially with the 30mm cannon is a 5.56mm machine gun and there are also banks of 76mm grenade launchers.

The Boxer IFV has a crew of three, consisting of commander, gunner and driver, plus seven dismounts who are all provided with blast-attenuating seats. With a welded steel hull and mission module fitted with appliqué armour for a higher level of protection, the IFV variant has a combat weight of about 36 tonnes.

In addition to the Boxer IFV, Krauss-Maffei Wegmann is further expanding the capability of the Boxer by the removal of the rear mission module and installation of a 155mm/52 calibre Artillery Gun Module (AGM). This has already undergone extensive firing trials installed on two tracked chassis, and uses the same 155mm/52 calibre ordnance as fitted to the much heavier PzH 2000. The AGM is aimed and fired by remote control and carries 30 rounds of ammunition (155mm projectiles and associated modular charges).
Given the very serious danger posed by a chemical, biological, radiological and nuclear (CBRN) attack to civilian populations and the military alike, it is imperative to have early warning in an effort to contain or limit the threat. Sweden-based Saab (Stand 01-A17) offers an innovative range of integrated CBRN solutions. With extensive experience and by developing new ideas to meet customer needs, Saab can supply the tools to detect, identify and dispose of threats, train and provide the necessary support. According to Nils-Erik Lindblom, director of marketing and sales, Saab’s CBRN automatic warning and reporting (AWR) system provides a consolidated threat picture. “Being able to detect, identify, monitor, warn and report, the AWR limits the need for specialist CBRN personnel to be deployed on a large scale throughout the operational forces. It therefore reduces training and management costs,” he stated.

Based on an open architecture, the AWR allows users to include sensors from other manufacturers and to change sensor configuration as the threat scenario develops over time. Its competitive advantage lies in the fact that it can be installed in headquarters, vehicles and even handheld computers.

“How it works, is that a network of sensors, mounted on vehicles or vessels and at stationary locations, links up to the CBRN headquarters management system,” Lindblom explained. “In addition, we can deploy a reconnaissance vehicle carrying CBRN specialists and completely fitted with advanced detection, identification and sampling equipment. Using secure data transmission and mission control software, early warnings can be issued to allow appropriate reactive measures to be taken.”

Saab has invested significantly in developing a full range of solutions. Its CBRN reconnaissance vehicle is a complete first-responder unit, capable of performing point or stand-off detection, forensic sampling, identification and safe transportation of the suspect substances and agents. Besides carrying protective clothing and masks, it is internally over-pressured with CBRN filter and decontamination equipment.

Thanks to Saab’s intensive research jointly with the Swedish Defence Research Agency, the company also offers a realistic simulation package for training. The simulations show CBRN dispersions, including spill locations, dispersion strengths, weather conditions such as wind or rain, and the positions of sensors, vehicles and personnel. This simulation training not only reduces cost, but is also scalable to match client needs.

“Saab’s commitment goes further, and includes decontamination solutions, individual and collective protection solutions and importantly, aircrew protection,” Lindblom concluded.
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Carrying water

Combat forces need lots of water and fuel, often stretching logistic capabilities to breaking point. German firm WEW (Stand 09-A02) knows how to deal with this problem, as is shown in its spectrum of handling solutions for liquids.

One estimate put the fuel requirement at 77 per cent of the total logistic load during peak times of the Afghanistan campaign – some 2,000 trucks a day.

“This is a large number of journeys where lives were put at considerable risk in a war zone,” said Dr Ulrich Bernhardt, WEW’s chief executive.

WEW uses purpose-designed modules to handle water, fuel, lubricants and other liquids safely on a variety of vehicles, from small MRAPs to high-mobility 8x8 vehicles. Its turnkey approach includes the use of advanced telematics to ensure that fuel, water or waste modules are loaded, unloaded or handled only when necessary. All of WEW’s systems are easily transportable through any civilian or military logistics chain and many are air-portable.

“Defence forces are recognising that by adopting a modular approach to refuelling, utilising intelligent systems and replenishing only when and where it is really necessary, substantially reduces their logistic burden,” said Bernhardt.

Sea Venom/ANL missile seeker moves forward

Selex ES (a Finmeccanica company, Stands 06-A03, B-005) has signed a contract with MBDA France and Sagem for the development and production of the new imaging infrared (IIR) seeker equipping the next-generation Sea Venom/ Anti-Navire Léger (ANL) helicopter-launched anti-ship missile.

MBDA was awarded a contract in March 2014 valued at more than £500 million to advance the Sea Venom/ANL programme into its demonstration and manufacture phase to meet the needs of the UK Royal Navy (RN) and the French Navy under the respective Future Anti-Surface Guided Weapon (Heavy) and ANL programmes.

Designed to equip the RN’s new Wildcat HMA.2 helicopter and the French Navy’s NH90 Caiman maritime helicopter, Sea Venom/ANL is a 100kg-class anti-ship guided weapon intended to address targets from fast attack craft up to corvette size. Flying at high subsonic speed, it will use an IIR seeker to ensure a high level of precision in cluttered littoral environments.

A two-way datalink will allow for operator-in-the-loop control, enabling capabilities such as in-flight re-targeting and safe-abort.

Development began in late 2013 under pre-contract funding from MBDA, with Selex ES having now delivered first electronic hardware and a preliminary mathematical model to Sagem. The development phase will be followed by a multi-year manufacturing programme. ■

KMW Dingo fitted with a WEW liquid transportation system

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A subsidiary of Tawazun Holding, Abu Dhabi Autonomous Systems Investments (ADASI, Stand 05-A10) provides a one-stop solution, delivering a comprehensive range of services, including consultation, procurement, development, test, operation, logistical support, training and full service support for autonomous systems for air, land and sea use.

ADASI also manages the Al Sabr programme, initiated in 2003 to meet a UAE Armed Forces requirement for an autonomous air vehicle for use in the surveillance and reconnaissance, radio and data relay, border security, critical infrastructure monitoring and artillery support roles.

The Al Sabr system is based on a UAV platform with two support vehicles (a ground control station and a transport vehicle), but is offered with a range of different deployment options to improve the system’s off-road deployability. The air vehicle can also be adapted to operate from fixed operations centres or for operation from a ship.

The Al Sabr air platform was developed under a joint programme between the UAE Government and Austria. Some of the major components are manufactured in the UAE, which also hosted final assembly and testing of the UAE Armed Forces aircraft.

Al Sabr’s air vehicle is based on the Schiebel Camcopter S-100, a fully autonomous rotary-wing UAV of conventional helicopter configuration, with a two-bladed main rotor and an anti-torque tail rotor. Because it has a full vertical take-off and landing capability, the aircraft does not rely on runways or dedicated launch and recovery systems.

The airframe is of advanced composite construction, with some titanium and aluminium components. This ensures robustness and structural strength at relatively low weight, providing excellent performance. The airframe also has good environmental resistance – particularly in maritime environments.

Carrying an advanced EO/IR payload, the Al Sabr air vehicle has a fully redundant flight control system. It can remain airborne for up to 10 hours and can provide a live video feed to the ground station within a radius of 180km.

The aircraft has been certified by the Austrian AustroControl GmbH (ACG) and the European Aviation Safety Agency (EASA). The UAE Armed Forces was the launch customer for the Camcopter, which was subsequently sold to China, Egypt, Germany, Italy, Jordan, Libya, Russia and the USA.

Al Sabr keeps watch

JON LAKE

Al Sabr uses the Camcopter S-100 vehicle as a platform

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With several critical in-flight guided tests concluded in recent weeks, the A-Darter air-to-air missile jointly developed by Denel Dynamics (South African Pavilion, Stand 12-C21) and the Brazilian Air Force is poised for production this year.

According to Denise Wilson, deputy chief executive at Denel Dynamics, integration on the South African Air Force Gripen is complete and in progress on the Hawk LIFT (lead-in fighter trainer). A-Darter will likely also be integrated on the Gripen NG selected by the Brazilian Air Force.

The latest series of in-flight trials at the Denel Overberg Test Range two weeks ago involved high-g and lock-on-after-launch tests, in which the missile reportedly exceeded expectations and design parameters. Wilson explained that A-Darter was relying on advanced digital processing and its memory tracking capabilities to reacquire the target towards the rear of the aircraft, confirming its ‘over-the-shoulder’ firing capability.

Brazilian sources claimed that A-Darter was 10 times more manoeuvrable than a fighter jet, able to perform manoeuvres up to 100g. The 90kg missile makes use of thrust-vectoring, rather than relying on small forward wings for control. Brazilian sources also noted that the 100km beyond-visual-range weapon, part of a project designated Marlin that involves a radar-guided anti-air weapon.

Aiming for the top spot

SAM J BASCH

she said, “Local production (in South Africa) is likely to start soon.”

Riaz Saloojee, Denel group chief executive, expects A-Darter to become a global leader when it enters service in the next 18 months. Following on from the success of the A-Darter project, Brazil and South Africa plan to co-operate on other missile developments that will likely include a 100km beyond-visual-range weapon, part of a project designated Marlin that involves a radar-guided anti-air weapon.

The IDEX Show Daily earlier reported that Marlin is meant to satisfy land, sea and air applications, with its design crafted for surface and air launch. A degree of modularity exists, allowing incorporation of elements of the A-Darter and Umkhonto programme, the latter recently shown with an extended-range capability.

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Italian fast-boat specialist FB Design (Stand C-006) is showcasing its latest models at NAVDEX, including the newly launched FB 32’ SF (pictured). Described as “revolutionary” by the company, the FB 32’ SF boat has been purpose-designed for clandestine special forces-type missions.

Key features include shock-absorbing seats for two crew plus an embarked force of 10, a forward ramp for a Quad, space for an inflatable boat on a large rear deck, and provision for a remote control weapon station forward.

Inboard and outboard engine options are available, as are open or closed deck layouts. To meet requirements for covert transportation, the FB 32’ SF craft is sized to fit inside an ISO 40 container.

First showing for SF boat

Available for viewing on the NAVDEX waterfront, the Cyclone class coastal patrol boat USS Monsoon is equipped with the latest addition to the US Navy’s anti-surface warfare armoury in the shape of the Mk 60 Patrol Coastal Griffin Missile System.

Developed by Raytheon Missile Systems (Stand 03-B07), Griffin is a small, precision-guided missile using a combination of GPS-aided inertial guidance and a semi-active laser seeker for pinpoint accuracy at ranges out to more than 5km. The retrofit to the Cyclone class craft is intended to provide the vessels with an enhanced capability against swarming surface threats.

The Mk 60 Patrol Coastal Griffin Missile System integrates the BGM-176B Griffin B missile variant, a First showing for SF boat

RICHARD SCOTT

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Griffin missiles are housed and fired from the Mk 208 launcher module.

Griffin blows up a storm on Monsoon

Based in Abu Dhabi’s Al Sadr Port area, Al Fattan Ship Industry (Stand B-038) has in recent years emerged as a key supplier of patrol craft to the UAE Coast Guard, including an AED18.5 million contract for eight vessels announced at IDEX on Monday. Examples of the company’s products include the 15m fast patrol boat, used by the coast guard for interdiction operations, and the 34m patrol boat employed in support of homeland security and search and rescue. Al Fattan Ship Industry has also developed, as a private venture, a 16m catamaran torpedo boat.

Al Fattan’s facility occupies an area of more than 300,000m², with multiple berths. The company intends to develop a capability to handle ships of up to 100m size.

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More roles for Survivor R

CHRISTOPHER F FOSS

Being shown for the first time at IDEX 2015 is the Survivor R configured in the four-person command post role. The vehicles is a joint development between Rheinmetall MAN Military Vehicles (Stand 09-A10) of Germany and Austria’s Achleitner.

Survivor R consists of a slightly modified Rheinmetall MAN Military Vehicles TGM 18 350 (4x4) cross-country chassis, with Achleitner providing the protection package. The front-mounted engine compartment is protected to STANAG 4569 Level 1, with the monocoque crew compartment to a higher level, conforming to STANAG 4569 level 3 with mine protection to level 4a.

Maximum gross vehicle weight is quoted as 15 tonnes, of which 4.1 tonnes can be payload. The latter includes the crew, fuel and mission equipment.

The vehicle on display at IDEX is fitted with a battle management system, roof-mounted Kongsberg Nordic remote weapon station armed with a .50 machine gun, and banks of Rheinmetall ROSY grenade launchers.

It addition to the two doors on either side, the latest version of the Survivor R features twin doors at the rear, which allows it to be used for other roles, such as specialised ambulance, for which the vehicle could be fitted with equipment to assist in rapidly loading stretcher patients into the vehicle.

Survivor R is powered by a MAN six-cylinder diesel developing 330hp, coupled to a TipMatic transmission and two-speed transfer case.

Standard equipment includes air-conditioning, NBC and a central tyre-inflation system.

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Unmanned array

JON LAKE

China’s CATIC is marketing an astonishing array of unmanned aerial vehicle designs, but is displaying just a few of these on its stand (11-A24). These represent a selection of developed and mature designs capable of fulfilling real operational roles, and which CATIC believe might meet the requirements of regional air forces.

Four of the company’s unmanned aerial systems are being shown at IDEX in model form, including the Shanghai UVS Intelligence System Company’s innovative UVS-S100 amphibious UAS, which made its maiden flight last year, and which has a configuration reminiscent of the Lake Buccaneer, with a pusher engine driving a three-bladed propeller. The aircraft has a range of 200km, an endurance of eight hours and carries a payload of 240kg. The model is shown with electro-optic/infrared sensor turrets below both wings.

Also displayed is a model of the Aisheng ASN-209H, the latest variant in Aisheng’s family of tactical UAVs, which can be configured for ground-moving target indication, electronic intelligence, electronic warfare, ground target designation and communications relay missions. The model has a fixed tricycle landing gear with spatted mainwheels, where earlier variants used simple skids. The aircraft is of twin-boom configuration, with the booms linked by a single-piece tailplane.

Another tactical UAS on display is the Nimble Loong, which has not previously been seen and is believed to be a product of the Chengdu Aircraft Industry Group. Catapult-launched, the 30kg Nimble Loong has an endurance of three to four hours using gasoline, or six to eight hours using heavy fuel, and has a mission payload of 3kg. The aircraft has winglets and separate twin booms, swept tail surfaces and a slightly swept wing. The Nimble Loong is closely comparable to the Boeing Insitu RQ-21 Blackjack (formerly known as the Integrator).

The final model on display at IDEX is the Wing Loong-1 hunter-killer UAS, also known as the Pterodactyl I and another product of Chengdu Aircraft Industry Group. It is similar in appearance to the General Atomics Predator/Reaper, and can be fitted with various sensors, including an EO/IR turret and synthetic aperture radar. The aircraft can also carry a weapon load of 200kg.
Simulation and war-gaming are increasingly invaluable tools to armed forces that tend to operate increasingly complex systems, writes Sam J Basch. This is where UK-based NSC (Stand 05-D28) comes into its own, with cutting-edge simulation and analysis-driven training for military academies and establishments around the world.

Undertaken in conjunction with Serco, NSC has a three-year contract in support of the UK-Qatar defence co-operation agreement that provides for officer training at the Qatar Joaan Bin Jassim Joint Command and Staff College in Doha. Said NSC managing director Jeremy Spurr: “Partnering with Serco and Qatar armed forces’ directing staff, we are confident our expertise will reinforce the excellent teaching on offer and prepare those selected to attend the college for high-grade appointments in their ongoing careers.”

NSC specialist software is also helping to train Kuwait’s Ministry of Interior in the use of advanced defensive armament technology. NSC created a virtual environment in which crews of the Desert Chameleon armoured personnel carrier can become familiar with aspects of the vehicle’s remote multi-purpose turret system (RMTS).

According to NSC’s Chris Williams, the training solution should provide a high level of detail and fidelity. “The simulation has to look and feel like the real thing; factors such as the behaviour of ballistics and the slew of the turret have to be authentic to the platform on which it is modelled.”

NSC has a working relationship with the Gulf state dating back 18 years. Other partners include the Defence Academy of the UK and NATO.

Simulators

Gene Colabatistto, CAE’s group president of Defence and Security, believes that the Middle East will be a growth market for simulation and training systems. Already the number one supplier of flight simulators in the region to both civil and defence customers, he expects the company to build on its 33-year history in the region.

Colabatistto believes the trend towards greater use of synthetic training will only gather speed, and that, as air forces recapitalise and re-equip, they will increasingly move training from the aircraft itself to full mission simulators, full-motion simulators, flight training devices, part-task trainers, desktop devices and the classroom, with cost savings to be leveraged wherever training can be ‘downloaded’ to the next level ‘down’ the ladder of decreasing fidelity and sophistication.

Synthetics allow operators to make a more intelligent and cost-effective use of their aircraft assets, extending overall fleet life by flying fewer hours, or reducing fleet size (since fewer aircraft are required for training), or increasing operational output.

CAE (Canadian Pavilion, Stand 01-B60) delivered its first flight simulator to the region in 1982 to the Royal Saudi Air Force. Until 2002, CAE was primarily a supplier of flight simulators – with its customers consisting of OEMs (who might supply simulators, or training packages... RICHARD SCOTT

With many regional navies studying options to introduce or improve anti-submarine warfare (ASW) capabilities, Ultra Electronics (UK Pavilion, Stand 05-D20) is pressing the merits of its advanced sonobuoy and acoustic processing technology.

Sonobuoys are expendable air- or ship-launch devices that deploy to selectable sea depths. Acoustic or target data is then transmitted back to the platform for subsequent processing. Employment of the latest underwater and RF technology ensures a reliable stream of accurate acoustic and target data. This technology is carefully packaged so that sonobuoys are compact, robust and
A tiny trace gives it away

For the sake of passenger and cargo security, as well as protecting infrastructure and transport assets, improved screening for explosives and other dangerous substances is increasingly imperative. Germany-based Bruker Detection (Stand 06-A26) has just met stringent new aviation standards for its DE-tector system.

It is the first European-built explosives trace detection (ETD) instrument to pass the demanding European Civil Aviation Conference (ECAC) common evaluation process of security equipment (CEP) testing protocol. The latter was established to set standards for the performance of security equipment across all 44 member nations of ECAC.

Using the patented, non-radioactive HEPI source, the bench-top DE-tector has exceptional trace detection capabilities with a very low false alarm rate. It boasts minimal user interaction, thanks to an intuitive ‘traffic light’ user interface and automatic calibration.

RoadRunner is a high-performance handheld explosives and narcotics trace detector. With the same detection performance as Bruker’s bench-top ETD instruments, it weighs only 3.5kg and offers dual modes for ‘sniffing’ vapour samples directly and for thermal desorption of particles captured by swabs. Particularly useful in remote field locations, its non-radioactive photo-ionisation source simplifies maintainability, as there is no need to comply with regulations for radioactive source safety.

Bruker Detection has more than 30 years’ experience in user-friendly chemical, biological, radiological, nuclear and explosive (CBRNE) detection systems and solutions.

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Turrets for the UAE

On 20 February, just before IDEX began, L-3 Wescam announced that it had received an order for 28 MX-15D electro-optical/infrared imaging and target designator turrets from Iomax USA.

These will have high-definition EO and IR imaging sensors, a two-channel colour and low-light spotter, a laser illuminator, a dual-mode rangefinder/designator and a laser spot tracker. The system is to feature image-blending and Wescam's proprietary Kinetic moving target indication tool, which can detect multiple moving targets in an image stream. This capability significantly reduces operator burden, while improving surveillance efficiency.

L-3 Wescam (Stand 04-C20) announced that the turrets would be fitted to a fleet of Iomax Archangel turboprop aircraft to support close-air support and border patrol missions flown by what L-3 called “a customer within the United Arab Emirates”.

Deliveries will begin in May 2015 and are scheduled to continue until 2016. Support will be conducted in-country by an L-3 Wescam authorised service centre.

Mirach 40 target flies

RICHARD SCOTT

Finmeccanica’s Selex ES business has conducted the first flight tests of its new Mirach 40 aerial target vehicle, the company confirmed during IDEX 2015.

The latest in the line of Mirach air targets, the Mirach 40 is designed to provide realistic, high-fidelity threat simulation at a significantly lower through-life cost than previous systems. This has been achieved by modifying the vehicle for catapult launch, instead of using rocket-assisted take-off. To further save on costs, the Mirach 40 uses the same proven ground station as Mirach 100/5.

Initial flight testing of Mirach 40 has been performed by Selex ES (Stand 06-A03) at the Poligono Interforze Salto di Quirra range in Sardinia. Based on the success of these trials, the company is now launching Mirach 40 to the international market. The Mirach family of aerial targets has been evolved over the past 20 years, with systems sold worldwide. Selex ES has also provided managed target services to a number of customers.
The Cobham launcher carries three Dual-Mode Brimstone weapons on the Typhoon mock-up here at IDEX. 06-A23), writes Jon Lake. The carrier, known colloquially as the ‘Cobham launcher’, is being carried on the inboard underwing stations of the Eurofighter Typhoon Full Scale Replica in the outdoor exhibition area. It allows carriage of a pair of Paveway IV dual-mode laser/GPS-guided bombs, mounted side by side, or could optionally accommodate three rail-launched MBDA Brimstone missiles, or three of the new MBDA SPEAR 3 weapons.

SPEAR 3 is a winged, turbojet-engined precision-guided munition that is derived from the dual-mode Brimstone, and featuring autonomous fire-and-forget capabilities, or with a Fully Network Enabled mode for inflight retargeting. Unlike Brimstone, which is rail-launched, SPEAR 3 will simply drop off the pylon, rolling erect before lighting up the engine and deploying its wings.

BAE Systems is already looking at incorporating the Cobham launcher on the Typhoon, taking advantage of work on the initial Brimstone integration being carried out for the Phase 3 Enhancement that was announced and signed here at IDEX. Wing Commander Anthony ‘Foxy’ Gregory of BAE Systems explained to the IDEX Show Daily that the work on P3E necessitated ‘opening’ the flight control system software, which gave an excellent opportunity to work on the Cobham launcher at the same time.

However, the Cobham launcher is platform-agnostic, and offers a rapidly reconfigurable twin- or triple-carrier for a range of dropped and rail-launched weapons on a wide variety of aircraft types. This could include the BAE Hawk, which is being considered by the Indian Air Force to fulfil a light ground attack requirement. India is already a Hawk user, and recently used the opportunity presented by the acceptance of its 75th Hawk to announce its interest in acquiring 60 additional Hawks to augment front-line squadrons, probably equipping four new light ground attack squadrons that would operate alongside existing Jaguar and MIG-27 units.

FLIR Systems opens UAE office
FLIR Systems (Stand CP-331) has announced the opening of a new office and support facility in the New Ministries Complex in Al Muntazah, close to Khalifa Park in Abu Dhabi.

The facility has a fully equipped and dedicated operator training space, as well as areas for product service and maintenance. The company has maintained facilities in the Dubai Airport Free Zone Area (DAFZA) for more than 15 years, and realises that maintaining a strong local presence is essential to facilitate business in the region.

“We are recognising the importance of the UAE, which cannot be over-emphasised,” said Steve Williams, vice president for global sales for FLIR Systems surveillance division.

Nammo 12.7 x 99 mm (.50 cal) ammunition hits targets with very high accuracy and superior terminal effect. This means fewer rounds are required, and operations are more cost efficient. Carefully engineered to offer an unparalleled level of precision and reliability, Nammo 12.7 x 99 mm ammunition helps to resolve conflicts quickly and effectively.

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