Since the inaugural exhibition in 1993, IDEX has steadily grown in size and prestige. Exhibition space has been increased, the exhibition halls have grown, and conference facilities have been added. For the first IDEX, there were just 350 exhibitors from 24 nations, in an area of 12,000m². From the first exhibition, role demonstrations were an important element of IDEX – even including a live firepower demonstration.

In 2005, in response to the growing popularity of IDEX, development of today’s Abu Dhabi National Exhibition Centre (ADNEC) began. It was officially opened by His Highness Sheikh Khalifa bin Zayed Al Nahyan, and has hosted IDEX since 2007.

By the ninth show, in 2009, the number of exhibitors and guests at IDEX had doubled and the event space had reached more than 108,000m². The expansion included the Marina Quay area that allows naval vessels of various sizes to dock, and is connected to ADNEC via a pedestrian walkway. This replaced the use of the Zayed Port.

In 2009, IDEX began allocating dedicated display spaces for first-time exhibitors, helping smaller and newer companies to showcase their products and build partnerships.

NAVDEX (the region’s largest maritime defence exhibition) was inaugurated in 2011 at the 10th edition of IDEX. In 2013, exhibitor numbers exceeded 1,110, and visitor numbers reached 80,000, while deals worth AED14.1 billion were recorded.

For its 12th edition, IDEX 2015, ADNEC has provided more than 133,000m² of exhibition space for 1,200 exhibitors, and has launched the Unmanned Systems Exhibition (UMEX). Some 55 nations are represented, with six countries participating for the first time – Azerbaijan, Bosnia, Japan, Latvia, New Zealand and Slovenia.
Denel’s diverse range of defence and aerospace products provides you with comprehensive solutions for all your defence and security requirements, whether air, sea or landwards defence. As a strategic national asset, Denel has invested in growing and developing talent and expertise to keep the company at the forefront of the industry both locally and globally.
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**IN BRIEF**

**ADSB, Thales sign MoU for regional MRO**

Abu Dhabi Ship Building (ADSB) has signed a memorandum of understanding with Thales to provide integrated engineering support services for military vessels. Under the agreement, the two companies will develop, implement and deliver life-cycle management solutions for the UAE and other regional navies.

**Hanwha prime contractor for Chunmoo**

Prime contractor and system integrator for the Chunmoo 239mm (12-round) multiple rocket launcher system is Hanwha (Stand 12-B12), not Doosan DST as stated in issue 2 of the IDEX Show Daily. Hanwha has confirmed that the 239mm rocket has a high-explosive warhead fitted with a fuze that can be set for point detonation or impact.

**GD Canada, Bin Hilal, form JV**

General Dynamics Canada and UAE-based Bin Hilal Enterprises have formed a joint venture focused on building C4ISR capability and related technologies. The new company, General Dynamics Mission Systems International Middle East LLC, will leverage the capability of General Dynamics Canada and General Dynamics UK, and the local presence of Bin Hilal Enterprises, to support future opportunities in the region.

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<td>EARTH, UAE</td>
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<td>Caracal International, UAE</td>
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<td>AgustaWestland, UK/Italy</td>
<td>AW139 helicopters (6 for SAR, 3 for VIP transport)</td>
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<td>Rheinmetall Air Defence, Germany</td>
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<td>Thales Communications &amp; Security, France</td>
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<tr>
<td>Raytheon Systems, UK</td>
<td>Radar</td>
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**Day 3 – Wednesday, 25 February**

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<td>AMMROC, UAE</td>
<td>MRO services for Joint Aviation Command</td>
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<td>ATK, USA</td>
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<tr>
<td>Thales Advanced Solutions, UAE</td>
<td>Spare parts for signalling devices and maintenance</td>
<td>18 million</td>
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</table>
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SO SHOULD YOUR SATELLITE.

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WE'RE ENGINEERING A BETTER TOMORROW.

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Teaming up for Hitrole

RICHARD SCOTT

UAE company Siham Al Khaleej Technology (SAKT) and Finmecanica’s OTO Melara armaments business have joined forces to develop, market and manufacture a new 20mm Gatling variant of OTO Melara’s Hitrole stabilised remote weapon station. Known as Hitrole 20, the new system is being displayed by SAKT (Stand OA-007) at NAVDEX.

Hitrole 20 has been brought to market as a private venture to address requirements for a compact, lightweight, low-radar cross-section weapon station offering significantly increased range and lethality over the 12.7mm machine gun fitted to the current Hitrole N mounting. OTO Melara and SAKT see potential for Hitrole 20 in constabulary and force protection applications.

Featuring a General Dynamics M197 20mm three-barrelled Gatling gun, and 750 rounds of 20x102mm ammunition on-mount, the electrically operated Hitrole 20 is claimed to have an effective range of 2km. The fully stabilised, non-deck-penetrating mounting, weighing 600kg, also incorporates a ballistic computer and an electro-optical sensor suite comprising a daylight TV camera, a mid-waveband thermal imager and an eye-safe laser rangefinder.

Under the terms of a memorandum of understanding signed last year, OTO Melara and SAKT are sharing development and qualification of Hitrole 20; engineering design and development was started by OTO Melara in Italy, while qualification activities (on both land-based proving grounds and at sea) will be conducted in the UAE. It is planned that production lines will be established in Italy and the UAE, with sales pursuits divided under a market-sharing agreement.

The co-development of Hitrole 20 further cements the relationship between OTO Melara and SAKT. In February 2013, the two companies announced they had signed a co-operation agreement under which SAKT has established an engineering workshop at its Al Taweeleh facility to support OTO Melara gun systems in service with the UAE Navy, with the potential to service the needs of other Gulf states.

Ghannatha vessels delivered

Abu Dhabi Ship Building (ADSB) has announced the completion of the Ghannatha Phase II programme after delivery of all 24 vessels to the UAE Navy. Built to a design developed by partner Swede Ship Marine (Stand C-015), the Ghannatha-class boats are high-speed, aluminium-built multi-role combat vessels. Powered by two MTU diesels driving twin Rolls-Royce FF 600 waterjets, the design is capable of speeds up to 45kts.

ADSB (Stand B-022) won the Ghannatha Phase II contract, valued at nearly AED1 billion, in 2009. Under the deal, the company has delivered 12 new 27m Ghannatha boats to the UAE Navy, and retrofitted modifications to 12 existing 25m craft.

Six of the original vessels have been modified as mortar boats, as fast gun boats, equipped with a Rheinmetall MLG 27 27mm gun and a Hitrole-G 12.7mm mounting. They also retain the capability to embark up to 40 troops.

Swede Ship Marine, as ADSB’s principal sub-contractor, took responsibility for the design modification package for the 12 ‘stretched’ new-build vessels, and built the first three in Sweden.

The nine follow-on craft have been built by ADSB at its shipyard in Abu Dhabi’s Mussafah industrial area. As well as being 2m longer than the original 25m Ghannatha design, these later ships have also received more powerful MTU 12V 2000 M93 engines.

All 12 of the later ships are configured as missile boats, being equipped with four box launchers for MBDA Marte Mk 2/N surface-to-surface guided missiles. The Marte Mk 2/N missile is able to strike targets at ranges in excess of 30km, flying a fire-and-forget sea-skimming profile using mid-course inertial guidance and active radar homing. The vessels are also fitted with a mini-combat system supplied by Selex ES and a GEM radar for surveillance and target indication.

Abu Dhabi Systems Integration (ADSI) has taken responsibility for combat system engineering and integration activities for the Ghannatha Phase II programme. ADSI, a joint venture between ADSB and Selex ES, has overseen combat system definition and design, production, support to installation, setting-to-work, integration, commissioning and acceptance.
China reveals armed vehicle

Being shown for the first time outside China is the Poly Technologies 07PD (8x8) vehicle fitted with a turret armed for anti-tank guided weapons (ATGWs). Displayed in the ready-to-launch configuration, these missiles are laser-guided and are fitted with a tandem warhead to defeat targets fitted with explosive reactive armour. They have a maximum range of 10km and a circular error of probability of less than 1m. Mounted between the two pods of boxed ATGWs is the day/night sighting system.

The missile itself is designated the PA02-MA and, in addition to being launched from ground-based platforms, also has other launch applications. The 07PD (8x8) chassis is also being used for a number of other variants, including an armoured personnel carrier, 120mm mortar-carrier and one for the mobile gun system role. The latter is fitted with a three-person turret armed with a 105mm rifled gun and a 7.62mm coaxial machine gun.

Poly Technologies (Stand 10-E25) is also marketing the PA01 automatic high-manoeuvrability tactical missile system. Based on a 6x6 APC type platform, this is very similar to the widely deployed China North Industries Corporation WZM551/WZ551 vehicle.

Integrated onto the rear of the hull is a launcher cell for 12 missiles. When travelling, this retracts into the hull, but when required for action, it is elevated into the vertical position prior to missile launch. The missile is the Poly Technologies PA01-GA intelligent tactical precision strike missile, which has a launch weight of about 100kg and a maximum range of 40km.

The PA01-GA is claimed to be capable of attacking stationary and moving high-value land and sea targets, and is fitted with a high-explosive penetrating warhead. The missile is believed to use a mid-course guidance system that comprises an inertial navigation system and satellite link. For the terminal attack phase, the missile uses a nose-mounted electro-optical infrared seeker.

These two missile systems are being marketed individually or as part of a complete battlefield target acquisition and engagement capability from Poly Technologies. This could be tailored to meet the end-user’s specific operational requirements, and also includes unmanned aerial vehicles, battlefield surveillance radars, command and control elements, and 120mm mortars firing laser-guided projectiles out to a maximum range of 8km.

Brazil’s air defence systems, improving their capabilities against air-breathing atmospheric threats (aircraft, UAVs and cruise missiles) and against exo-atmospheric targets (ballistic missiles).

Getting Patriotic

In the face of a large and growing missile threat from across the Arabian Gulf, a number of GCC nations are building up their air defence systems.

JON LAKE

CHINESE TACTICAL MISSILES

CHRISTOPHER F FOSS

Being shown for the first time at IDEX is the Viatura Blindada Transporte de Pessoal (VBTP) 6x6 amphibious armoured personnel carrier (APC), now in production for the Brazilian Army under the name of ‘Guarani’.

The VBTP has been developed by Iveco Defence Vehicles (Stand 06-B07) in close collaboration with Iveco Brazil and the Brazilian Army as the replacement for the ENGESA EE-11 (6x6) APC developed many years ago. The Brazilian Army already signed a contract valued at €2 billion for 2,044 vehicles, and production is now ramping up, with about 70 vehicles delivered to date.

Late in 2014, Iveco Defence Vehicles signed a contract with the Lebanon for the supply of 80 military and police vehicles; this included a batch of 10 VBTP and 26 Light Multirole Vehicles (LMVs). The VBTPs will come from the Brazilian production line, while the LMVs are coming from the Italian Bolzano production line.

The VBTP has a hull of all-welded steel with appliqué armour for a higher level of protection, and is normally armed with a remote weapon system. Integrated onto the rear of the hull is a launcher cell for 12 missiles. When travelling, this retracts into the hull, but when required for action, it is elevated into the vertical position prior to missile launch. The missile is the Poly Technologies PA01-GA intelligent tactical precision strike missile, which has a launch weight of about 100kg and a maximum range of 40km.

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CHRISTOPHER F FOSS

Brazil’s amphibious armoured personnel carrier now in production for the Brazilian Army

VBTP (6x6) amphibious armoured personnel carrier now in production for the Brazilian Army

Getting Patriotic

JON LAKE

In the face of a large and growing missile threat from across the Arabian Gulf, a number of GCC nations are building up their air defence systems.
Developed as the US Army’s primary High to Medium Air Defense (HIMAD) system, the MIM-104 Patriot is a mobile long-range surface-to-air missile with an anti-ballistic missile capability, based around a Raytheon AN/MPQ-53 (known by the 'backronym' Phased Array Tracking Radar to Intercept On Target).

Patriot has been supplied to some 14 nations, including Egypt, Jordan, Kuwait, Saudi Arabia and the UAE. The system has been upgraded several times under successive Patriot Advanced Capability (PAC) modernisations. The PAC-2 GEM-T (guidance enhanced missile - TBM) missile used the basic PAC-2 airframe, but was modified to be more effective against low-altitude, low-RCS targets such as cruise missiles, with a new, faster-reacting proximity-fuzed warhead for increased effectiveness against ballistic missiles.

The PAC-3 is a significant upgrade to nearly every aspect of the Patriot system, but the most obvious change is the incorporation of a new missile, more manoeuvrable than previous variants and with a Ku-band active radar seeker for terminal homing. This is accurate enough to select, target and home in on the warhead portion of an inbound ballistic missile. Due to miniaturisation of the missiles, four of the new rounds can be loaded into a single canister (16 per launcher), whereas only one PAC-2 missile is carried per canister.

The UAE has already taken delivery of PAC-3 and, like Kuwait and Qatar, has requested a mix of GEM-T and PAC-3 missiles. The US State Department has cleared a potential sale of enhanced PAC-3 missiles to the Kingdom of Saudi Arabia to upgrade its existing Raytheon Patriot PAC-2 air-defence systems.

The PAC-3 MSE (Missile Segment Enhancement) programme incorporates a larger, more powerful motor, along with larger fins and other structural modifications that increase thrust, range and agility.

According to Michael Trotsky, vice president of air and missile defence systems at Lockheed Martin (Stands 01-C10, CP-3, CS-3), the first MSE sales are likely to be in the Middle East.

China North Industries Corporation (NORINCO, Stand 10-E05) is aiming to export its latest Sky Dragon 50 medium-range surface-to-air missile (SAM) system to countries in the region.

For rapid deployment, all elements of the Sky Dragon 50 are mounted on a cross-country truck chassis, and the system takes about 15 minutes to come into action.

The main elements are the fire-distributing vehicle, target designation radar fitted with 3D antenna, and the actual 6x6 launcher, which has four SAMs in the ready-to-launch configuration. These are elevated prior to launch.

NORINCO is quoting a maximum target engagement range of between 3km and 50km, and from 30m to 20km in altitude, with targets including aircraft, helicopters and unmanned aerial vehicles.

A battery would typically consist of six launching vehicles. The standard tactical formation is a battalion with three batteries.

amphibious APC
Jebut at IDEX

station mounting a 30mm cannon and 7.62mm coaxial machine gun. The version being shown at IDEX is in the unarmed APC configuration, with a crew of three and eight dismounts. The Brazilian Army will also deploy a number of more specialised versions of the VBTP, such as ambulance and command post.

To reduce life-cycle costs, the VBTP uses proven commercial off-the-shelf sub-systems, including an Iveco FPT 9-litre 338hp diesel engine coupled to an automatic transmission and transfer box. The VBTP is fully amphibious, being propelled in the water by two propellers mounted on either side at the rear.

The company is working on an 8x8 version with a 105mm gun as a replacement for the EE-9 Cascavel armoured cars used by the Brazilian Army.

Sky Dragon takes aim

Hyundai Rotem
K2 main battle tank

A member of the Hyundai Motor Group, the fifth-largest automobile company in the global market, Hyundai Rotem is promoting the K2 main battle tank in the Korean Pavilion (Stand 12-B09), as well as 6x6 and 8x8 wheeled armoured vehicles.

Through its work developing and manufacturing vehicles for the Republic of Korea Army, Hyundai Rotem is well placed to offer its range of advanced vehicles on the export market. The Middle East North Africa region is of particular interest, including the potential to establish industrial partnerships.

Korean armour

Sky Dragon 50 launcher with four missiles in the ready-to-launch position
CHRISTOPHER F FOSS

ACMAT, part of the expanded Renault Trucks Defense Group (Stand CP-300), has brought its latest Bastion PATSAS HM (4x4) special forces (SF) vehicle to IDEX 2015. The Bastion has already seen operational service with Chad.

Based on the proven ACMAT chassis, the Bastion PATSAS HM is fitted with an armoured body that provides protection from small arms fire, shell splinters and some types of mine and improvised explosive devices. Ballistic protection is to STANAG 4569 Level 3. The upper part of the vehicle is open to provide enhanced situational awareness for the crew and roll-over protection is standard.

As with any type of SF vehicle, the weapon fit depends on the end user’s specific requirements. The vehicle shown at IDEX is fitted with a ring-mounted .50 M2 HB machine gun that provides 360° coverage.

The driver and commander are seated to the immediate rear of the engine compartment and are provided with bullet/splinter-proof windows that can fold forward onto the bonnet when not required. The commander would normally operate a 7.62mm machine gun on a swivel mount, with two more mounted on each side at the rear.

Typical gross vehicle weight of the vehicle is about 13 tonnes. In addition to the crew of commander and driver, it would normally carry another three men to operate the weapons.

The ‘HM’ in the designation denotes high mobility, for which the Bastion PATSAS HM is fitted with independent suspension rather than conventional axles. It is normally powered by a 180hp or 215hp diesel, which can be coupled to a manual or an automatic transmission.

For use in long-range reconnaissance and penetration raids, large fuel tanks are fitted to give a range of up to 1,200km.

In addition to the SF vehicle, ACMAT has also sold significant quantities of the fully enclosed armoured personnel carrier version known as the Bastion HM. This has been sold to at least four countries in the region.

ACMAT Bastion PATSAS HM special forces vehicle has seen operational service with Chad

New run-flat tyre rolls into IDEX

Tyron Runflat (Stand 07-C20) has announced a new development for its well-established rubber, multi-piece run-flat inserts for wheeled armoured fighting vehicles. The Tyron military run-flat tyre is now available with Friction Shield.

At the heart of Friction Shield is a sealed lubrication system that bursts following deflation of the tyre. This provides the right amount of lubricant to ensure the tyre is not damaged further, by reducing the heat generated by friction between the insert and the inside of the tyre itself. This enables the vehicle to continue functioning over longer distances and at higher speeds.

The Tyron Friction Shield is claimed to be the world’s only run-flat with built-in lubrication

The lubrication system is sealed in sachets to prevent it from drying out or becoming contaminated. It is permanently attached to the run-flat itself, which makes it impossible to omit when changing tyres.

Tyron Runflat markets a complete range of wheels and run-flats that are used by the military, police and emergency services. The company’s All Terrain Rubber (ATR) run-flats are used by the military all over the world, including Bangladesh, Egypt, Kuwait, Malaysia and Oman, to name but a few.

IDEX Show Daily editorial

The IDEX Show Daily was produced by IHS Jane’s. The English Language version was prepared by the Show Daily Team. Publisher: Lynne Raishbrook; Operations Manager: Simon Kay; Editor: David Donald; Deputy Editor: Christopher F Foss; Production Editor: Lynn Wright; Deputy Production Editor: Nicola Keeler; Senior Reporters: Richard Scott, Sam Basch and Jon Lake; Photographer: Patrick Allen; Online Editor: James Macinnes. Printed by MM Print Services Ltd. Five editions of the Show Daily were written and produced on site.
Whatever the mission, wherever, whenever
Strike with accuracy

JON LAKE

Previously shown at the last Dubai Air Show, the Al Tariq precision-guided munition is being displayed here by Tawazun Dynamics. Jointly produced by Abu Dhabi-based Tawazun Holdings and South Africa’s Denel Dynamics, the Al Tariq is a modular IN/GPS-guided glide bomb kit, designed to fit Mk 80 family 500lb to 2,000lb bomb bodies, with pop-out wings and moving control surfaces.

The standard Al Tariq has a range of up to 40km (depending on release height), but the company offers bolt-on propulsion options that can boost its range to 200km. Increased accuracy is possible by the addition of semi-active laser or imaging infra-red seekers. This makes the weapon a direct competitor to Sagem’s AASM and Boeing’s JDAM-ER.

Al Tariq was displayed with a UAE AF&AD Mirage 2000-9 at the Dubai Air Show. The wings pop out on weapon release during recent trials, the Al Tariq demonstrated impressive accuracy, even in the most demanding scenarios, proving able to engage off-axis targets and then to attack them from a different direction during the terminal phase. This allows the pilot to select the best attack direction and impact angle, but requires the weapon to manoeuvre dynamically and perform dog-leg course adjustments. Extensive testing has demonstrated the weapon’s ability to dynamically determine its own flight path according to pre-programmed launch and terminal guidance conditions.

Al Tariq scored a number of direct hits, with miss distances of less than 50cm.

Al Tariq is the first product of the Tawazun Dynamics company, a joint venture between Tawazun Holding (51 per cent) and Denel (49 per cent), announced on 20 September 2012. Al Tariq is a derivative of the Denel Dynamics Umbani precision-guided bomb kit.

RICHARD SCOTT

Survitec Group (Stand 05-D22) has expanded its range of DSB-branded semi-rigid inflatable boats for high-speed interceptor and medical response applications. The versatile DSB 8.2R (pictured) features two 400hp engines capable of delivering a maximum speed in excess of 50kts, with an operating radius of approximately 300 nautical miles.

Based on a SOLAS construction principle, the design features a heavy-duty sea water-resistant aluminium sandwich hull, while the fender tube is constructed from UV-resistant Hypalon fabric, containing seven different air compartments.

At NAVDEX, the craft is being demonstrated equipped for medical emergency response. The integrated medevac equipment is said to allow extraction and full treatment on board similar to an emergency response vehicle on the road.

Conceived as an expanding emergency backpack, it contains specialist supplies for basic trauma equipment, diagnostics, oxygen and ventilation, defibrillation, chest compression, ECG or auscultation, and paediatric treatment including the immobilisation of suspected fractures. Also included are rescue action pumps, adjustable head immobilisers, and a spine board that is both rigid and lightweight.

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SAM J BASCH
Among the 30 or more companies exhibiting their unmanned aerial system (UAS) capabilities at IDEX 2015, Lockheed Martin (Stand UM-18) displays a remarkable breadth of applications.

“In the public mind, UAVs – or drones – are mostly associated with the military, but law enforcement and a range of civilian applications are equally important,” Jim Hedges, international business development director, MENA, explained. “Featuring a certain amount of overlap in their range of applications, our systems are used in border control, disaster relief, pipeline and power line security, besides the usual missions like reconnaissance, search and rescue, and combat operations.”

To illustrate the point, Lockheed Martin has on display a series of models, from the K-MAX unmanned cargo helicopter, with its ability to supply forward-operating bases, to the proven man-portable, hand-launched Desert Hawk III and highly versatile Indago VTOL quad-copter with perch-and-stare capability.

Other UAS innovations include the operationally proven Stalker with an unprecedented long endurance and low-light HD imaging capability, able to fit in a small vehicle, and the company’s range of aerostat systems. Designed for integration in C4I networks or as standalone sentries, aerostats can provide persistent wide-area surveillance and communications. Noteworthy is the fact that Lockheed Martin provided its first lighter-than-air-based persistent ISR systems to the US Navy more than 75 years ago.

“Our name and brand are key differentiators in the UAS market, which is growing by the day,” Hedges said. “None of us can be sure where we’ll be tomorrow in terms of technology, but Lockheed Martin’s UAS technologies draw on a spirit of invention and innovation, as shown by the Skunk Works logo on some of our displays. It shows we’ll continue to define the solutions of the future.”

JON LAKE
Drew Defence of Germany is exhibiting its ManPADS (man-portable air defence systems) simulator on its stand (08-33). Shoulder-launched surface-to-air missiles are a serious threat to low-flying aircraft and helicopters, but present a training challenge. Drew Defence’s system is a pyrotechnic simulator that is designed to augment laser- or radio frequency-based systems that provide a stimulus to detection systems on board a combat aircraft, which in turn warn the pilot and prompt them to carry out realistic escape manoeuvres and to trigger onboard decoys.

The use of pyrotechnics enhances the realism of the training scenario by simulating the visual effects of modern ManPADS.
ENAGE WITH US AT
STAND 05-A10 IN HALL 5
RICHARD SCOTT

Italian electronic warfare (EW) house Elettronica (Stand 06-B24) is looking to build on its long relationship with the UAE armed forces in the supply and support of EW systems across air, land and sea. The company’s most recent success in-country has been with the supply of the SEAL shipborne electronic support measures (ESM) system for a number of UAE Navy ship classes. Originally supplied by Elettronica for the six Baynunah corvettes, SEAL has subsequently been specified for the corvette Abu Dhabi and two Falaj 2 missile boats.

In addition, four more systems have been purchased for the modernisation of the UAE Navy’s two Mubarraz class missile craft patrol boats and two Murray Jip class missile corvettes. A further two systems have been supplied in shelter-based configuration for land applications or temporary ship-based installation.

The SEAL ESM incorporates both

A belt of security

In early 2001, the GCC established the first phase of a joint air defence command and control system. Hizam al Taawun (HAT, or the Belt of Co-operation) provides secure communications between the national air defence command and control centres of the GCC states, providing a degree of joint early warning capability, and enhancing co-operation.

Within the UAE, a sophisticated Emirati Command and Control System (ECCS) has been established, following the placing of a February 2011 contract with the Emiraje Systems LLC joint venture. This provides an over-arching strategic C4ISR IT framework that integrates, co-ordinates and federates existing systems, including the UAE’s air and space operations centre (AOC) and the Saab 340AEW Erieye (pictured).

The new Extended Air Defense Ground Environment-Transformation (EDGE-T) programme promises to provide a battle management system with a Link 16 backbone. This will integrate UAE and allied air defence systems (including SHORAD, as well as PAC-3 and THAAD).
Seahawk guns ranged on NAVDEX

UK-based MSI-Defence Systems (B-052) is displaying its latest Seahawk range of fully stabilised naval gun systems – now extended to include the new UltraLightweight 0.50 cal mounting – at NAVDEX.

The Seahawk family has been designed to provide ship self-defence against the asymmetric threat, such as fast inshore attack craft, as well as serving in a constabulary role for ships engaged in maritime security operations. All system variants are designed for remote operation, with the modular architecture allowing for a wide range of custom requirements to be met, while maintaining reduced training and through-life support costs.

From 0.50 cal through to 20mm and 30mm calibres, Seahawk systems are designed for ease of installation and lowers integration costs. According to the company, more than 260 Seahawk systems have been supplied to 17 navies worldwide, including the UK Royal Navy. There are currently more than 50 system variants in service in the MENA region, with users including the navies of Algeria, Iraq, Oman and Saudi Arabia.

Two 30mm variants of the Seahawk are available to view on the NAVDEX waterfront, these being fitted to the RN minehunter HMS Shoreham, and the Royal Saudi Naval Forces’ minehunter Al Jawf.

Seal Elint equipment is aboard the Baynunah corvettes

panoramic and superheterodyne receivers. The system is capable of performing radar threat alert, electronic surveillance and electronic intelligence (ELINT). For the UAE Air Force, Elettronica has played a key role in the modernisation and expansion of the Dassault Mirage 2000 fleet to Mirage 2000-9 standard. Commencing in 1999, this involved the almost total replacement of the legacy EW suite with a new Integrated Multimission Electronic Warfare System (IMEWS). Elettronica, as prime contractor for IMEWS, worked in close co-operation with Thales for the delivery of the programme. In total, 30 systems were supplied for the upgrade of existing Mirage 2000 aircraft, while a further 33 IMEWS suites were supplied to support the Mirage 2000-9 new-build programme.

Turning to land-based EW, Elettronica led – under the HODHOD programme – the modernisation of two shelter-based ELT/888 ELINT systems originally supplied to the UAE’s Directorate of Military Intelligence. It also supplied a further four systems to the same improved ELT/888(V)2 standard.
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SAM J BASCH

Looking like an oversized jetski, the X3 is a quick solution to crossing over from manned to unmanned boats, says local firm Al Marakeb (UM-40). With an unrefuelled surveillance range of 50 nautical miles, the cross-over X3 is ideal for coastal defence, maritime interdiction and even assisting air-to-surface attack aircraft. Besides performing coast-line surveillance, it can protect sea lanes and ports, and armed with precision weapons could deter threats to coastal assets.

According to Vadim Yurchuk, design and production officer at Al Marakeb, the X3 has an all-weather, day or night capability. “With auto-throttle and multi-waypoint modes, besides many others, we succeeded in limiting pilot workload,” he explained. “In addition, the X3 has an automatic return-to-home feature as a fail-safe option.”

An advanced ground station provides the primary interface with sensors and added integrated third-party hardware such as sonars and weapons.

The X3 is a jetski-sized USV for short-range patrol in all weathers – day or night

Imaging quality just gets better by the day. Canada-based Aeryon Labs (UM-10) has just revealed its Aeryon HDZoom30 capable of capturing very high-quality, clear images from long stand-off ranges.

Rating it as the “new standard for clarity and precision in unmanned aerial imagery”, Aeryon claims its HDZoom30 enables operators of its SkyRanger sUAS to capture high-quality video and stills at more than 300m from their target. From this distance, ground crews can recognise a face or read a licence plate with the new payload. It has up to 30x optical and 60x digitally enhanced zoom, with 1080p recorded video and 20MP still image resolution.

Commercial sUAS operators would typically use the HDZoom30 for close inspection tasks on critical infrastructure such as power lines, flare stacks and cellular towers. It would be possible to read a serial number on the structures from 30m range.

“The Aeryon HDZoom30 payload revolutionises aerial image capture,” affirmed Dave Kroetsch, Aeryon Labs president and chief executive. “It certainly raises the bar for the industry.”

THE X3 IS A JETSKI-SIZED USV FOR SHORT-RANGE PATROL IN ALL WEATHERS – DAY OR NIGHT

GIVING THE SKYRANGER A SHARP EYE

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FGA 14.5 chassis for special applications

Vehicles today require more electrical power to cope with the installation of an increasing amount of onboard equipment such as air-conditioning systems, battle management and communication systems and in some cases remote weapon stations. To cope with these increased power requirements, the FGA 14.5 chassis is fitted with an alternator with a capacity of 355A. The design of the FGA 14.5 chassis is such that it can take a body and its associated crew and subsystems with a maximum weight of 8.5 tonnes.

Mercedes-Benz Special Trucks has developed the FGA 14.5 (4x4) truck chassis for customers that require a high level of mobility and a payload of up to 8.5 tonnes.

User requirements for vehicles with more volume and payload have led Mercedes-Benz Special Trucks to develop and place in production the FGA 14.5 (4x4) chassis. According to the company, the FGA 14.5 is its first vehicle to be produced without conventional bulbs, and instead offers customers energy-saving light-emitting diode (LED) technology. The chassis is powered by a Mercedes-Benz OM 926 diesel engine developing 225kW that is coupled to a fully automatic transmission with two different reduction options: basic and off-road.

In addition to providing a wide range of military trucks, Daimler AG’s Mercedes-Benz Special Trucks (Stand 09-A21) is a supplier of complete running chassis to other contractors, who then apply their own bodies. The latter can be armoured or normal military cargo truck-type bodies to the rear of the engine compartment.

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CHRISTOPHER F FOSS

Saudi Arabia’s Military Industries Corporation is displaying a Luna X 2000 unmanned aerial vehicle at IDEX (Stand 12-D20). The EMT Penzberg Luna Tactical Unmanned Aircraft System (TUAS) has been combat-proven in the Balkans (since 2000) and in Afghanistan (since 2003) and is the Bundeswehr’s most-used UAS, having logged several thousand successful missions. The system has also been ordered by the Pakistan Navy.

The Luna is launched using a simple bungee catapult and then follows a pre-programmed course that can be altered in flight if necessary.

It is primarily intended for tactical reconnaissance over ranges of up to 65km, transmitting live video data (visual or infrared) or taking still images of higher resolution. It can carry other payloads for sampling, ECM and other missions. After its mission it lands automatically with the help of a parachute and impact dampers.

Saudi Arabia shows Luna

JON LAKE

The Luna X 2000 is made under licence in Saudi Arabia

CHRISTOPHER F FOSS

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Recon V
Powerful, lightweight thermal binocular with 10x optical zoom, integrated DMC, and LRF for target identification at greater standoff range.
Taurus for F-15

RICHARD SCOTT

Taurus Systems GmbH, a joint venture between MBDA Deutschland and Saab Dynamics, is eyeing potential regional opportunities for its Taurus KEPD 350 air-launched long-range precision-strike missile.

In service on German Air Force Tornado IDS aircraft and Spanish Air Force EF-18 Hornets, Taurus has also been ordered for the Republic of Korea Air Force, where it is being integrated into the F-15K. Integration on the Eurofighter Typhoon has started for the air forces of Germany and Spain.

Able to strike at targets at ranges beyond 500km, the turbofan-powered Taurus KEPD 350E is designed to penetrate air defences by using a very low-level terrain-following flight profile. Navigation is executed by means of a ‘tri-tech’ system that combines an inertial navigation system with an image base, terrain-reference and GPS. Another key discriminator for KEPD 350E is the lethal package. This combines a 480kg Mephisto penetrator warhead with a programmable void-counting fuze.

Having achieved a first export sale outside Europe, and with integration into the F-15K well advanced, Taurus Systems is looking at potential integrations for other F-15 and F-18 users as requirements emerge.

“We are very much platform-oriented here,” said Christoffer Drevstad, Taurus Systems’ vice-president for business development. “Having already integrated the weapon, we can offer a low-risk integration.”

In the Gulf region, Saudi Arabia (F-15) and Kuwait (F-18) fall into this category, while Qatar is viewed as a potential future purchaser for the F-15. However, Drevstad insisted that Taurus would not be offered for Tornado or Typhoon. “We would have to go up against Storm Shadow, which is another MBDA product,” he said. “We will not do that.”

Supporting the UAE and the GCC States

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Gulf nations build up air defence umbrellas

JON LAKE

Formerly known as the Theatre High-Altitude Area Defense system, the Terminal High-Altitude Area Defence system (THAAD) is an anti-ballistic missile system designed to shoot down short-, medium- and intermediate-range ballistic missiles in their terminal phase using a hit-to-kill approach.

The missile itself carries no warhead, relying instead on kinetic energy to destroy its target, making it a safer way of destroying weapons of mass destruction.

The United Arab Emirates was the first country to order and to deploy THAAD outside the USA, placing a US$1.13 billion order for 48 THAAD missiles, parts and logistical support in 2012.

The US Defense Security Cooperation Agency (DSCA) announced in November 2012 that Qatar had requested the sale of both PAC-3 and THAAD missiles, although a contract for THAAD has yet to emerge.

Michael Trotsky, vice president of air and missile defence systems at Lockheed Martin (Stands 01-C10, CP-3, CS-3), said Qatar was in the process of deciding and defining the design and architecture of its system – how many batteries would be required, where they would be situated, and in what configuration.

He said he expected a letter of acceptance within 12 to 18 months’ time. Trotsky also noted that Saudi Arabia was in a similar position to Qatar on THAAD, and that a Saudi decision could come in the next 12 to 24 months.
Eagles for the Kingdom

JON LAKE

Deliveries of the first Boeing F-15SA Eagles to the Royal Saudi Air Force are impending, the IDEX Show Daily has learned, following the solution of an unspecified problem with the aircraft’s all-new digital fly-by-wire (FBW) flight control system.

The first of three production F-15SAs being used as prototypes made its maiden flight at St Louis on 20 February 2013, beginning what was expected to be an 18-month flight test effort that was scheduled to end in the summer of 2014. Beyond brief announcements of the rollout and first flight, Boeing (Stand 02-A20) has always declined to make any comment on the F-15SA programme, but there have been reports of unspecified problems.

An 18-month flight test programme was an unusually lengthy effort for a variant of an existing aircraft type, though it was explained that this was necessary because the F-15SA’s FBW system had to be cleared and recertified across the entire F-15 flight envelope. After the first week of April, all flight testing was put on hold due to engineering issues with the digital FBW system. Testing resumed in October, prior to the planned transfer of flight test activities to the Palmdale/Edwards complex in California on 1 November 2013.

“The flight test programme is now proceeding at break-neck speed, and deliveries are awaiting the imminent conclusion of the flight test programme,” a Boeing spokesman told the Show Daily. ■

SAM J BASCH

Bringing land, sea or air vehicles under cover is what UK-based Rubb Building Systems (Stand 06-A38) does best. The company is highlighting a new UAV hangar from its proven range of military buildings, the seventh to be introduced to the EFASS (expeditionary forces aircraft shelter system) range.

“The new UAV POD meets the requirements we received as feedback from clients and end-users,” said managing director Ian Hindmoo. Its new UAV storage and maintenance facility has a lower internal volume, is easier and more cost-effective to power, and is designed to suit military loadings (up to 100kg/m² snow loading and 42m/s effective wind speed). It is fully relocatable and of light weight for air transportation.

Rubb recently supplied three steel and aluminium hybrid EFASS helicopter maintenance hangars for Horizon Flight Academy at Al Ain.
RUAG Ammotec (Stand 08-A15) has introduced a 9x19mm high-performance round at IDEX. Intended for use by military and law enforcement applications, the new Hexagon ammunition is claimed to be more accurate than 9mm rounds in current use.

Hexagon is a hollow-point round, but unlike standard hollow-point bullets that are designed for deformation and expansion, the Hexagon is set up only for optimal accuracy. According to the company, in recent tests the mean diameter of dispersion at a range of 25m was smaller than 25mm.

Each round has a small opening in the tip for a more aerodynamically favourable silhouette, resulting in a flatter trajectory with a reduced loss of velocity. The six stabilisation grooves on the nose of the bullet produce the so-called ‘golf ball’ effect. This means that the air turbulence that is caused by the bullet rotating along its long axis lends extra stability to the bullet’s flight. These changes also result in the bullet’s centre of gravity moving rearwards, leading to an improvement in accuracy. The long cylindrical shank leads to a better barrel fit, while the closed-base design eliminates lead emissions in the shooter’s environment.

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IN BRIEF

Foam protection
The IBS Ramfoam (Stand 12-E01) joint venture brought Ramfoam UK and Middle East-based IBS Flightcases together in a partnership that provides superior packaging solutions for the military and civilian sectors. With a 15,000ft² manufacturing and warehousing facility in Dubai, the company is a one-stop shop for bespoke products ranging from gun inserts, missile and ordnance protection cradles, and electronics device protection to body armour, helmet lining inserts and aircraft ejection seats. IBS Ramfoam’s products are lightweight and highly flame-retardant for use in construction of civil, business and military aircraft.

Mission-critical comms
For US-based Motorola Solutions (Stand 03-A10), IDEX presents the ideal platform to showcase its comprehensive range of two-way radio solutions, end-to-end communication security, voice and data communications and wireless broadband solutions with Public Safety 4G LTE for mission-critical customers. “Our focus on category-defining innovations gives us the opportunity to provide a more powerful level of information and connectivity for public safety professionals in the region,” said Paul Mueller, VP Middle East.

Smart alternators
With military vehicles carrying increasingly sophisticated command, control and communications equipment, Australian firm MilSpec Manufacturing (Stand 07-C01) devised brushless alternators to handle the demanding power requirements. Multiple alternators per vehicle offer significant benefits compared with in-line generator systems, notably also smaller size, more flexible space utilisation, lighter weight and reduced cost. The Thales Australia Bushmaster and Navistar Husky MXT already use the MilSpec product. The company also offers simple and low-cost vehicle upgrade packages.

Build a training house
Combat troops need to experience a realistic and challenging environment for close quarter battle (CQB) training, which is what UK-based PPS Partition Panel Systems can provide. PPS is part of the Emirates Defence Industries Company pavilion (Stand 05-A10).

Instead of fixed-wall or rail-mounted structures, PPS has developed reconfigurable panels on a retractable castor wheelbase with which simulated buildings can be assembled. The wall system can be configured in any number of layouts to replicate the operational environment. Said Gary Baker, sales director: “Our range of panel systems is designed to be transported in shipping containers, allowing the quick setting up of a training facility at overseas locations or forward bases.”

Three panel types are available: light, heavy duty and ballistic. The light version can be constructed quickly by one person and requires no lifting gear. For more intense CQB training, the heavy-duty system has sturdy ‘climb-through’ windows and door-entry panels for manual breaching (MOE) techniques.

According to Baker, the ballistic panels are designed for 360° live-firing scenario training with 9mm and 5.56mm ammunition. “The ballistic panels have an armoured steel core and bullet-trap system to prevent splash-back, and replaceable plywood or PVC outer facings,” he explained.

The company offers a PPS iPad app with pre-loaded scenario plans to create new layouts. The app can be customised to control CCTV, lighting and audio to enhance training realism.

Sam J Basch
Live firings of missiles, and especially advanced tactical ballistic missiles (ATBMs), generally require large sea-facing test areas with relatively clear airspace. The 50-year-old NATO Missile Firing Installation (NAMFI, Stand C3-004) in Crete offers just that.

In recent years, weapon systems such as Patriot, TOR-M1, Stinger, Mistral and numerous others have been tested there. Comprising a vast sea area 200x100km in extent and with almost unlimited airspace, NAMFI is ideal for the live testing of modern long-range air defence and ATBM weapon systems under realistic scenario conditions. Those scenarios include information/crisis handling, decision-making processes, site reconnaissance, deployment and live firing, as well as redeployment.

NAMFI is constantly evaluated and graded according to stringent NATO criteria by NAMFI’s Tactical Firing Evaluation (TFE) section. Besides the test firings of gun systems such as the Oto Melara 105mm and 76mm, Goalkeeper 20mm and Phalanx 20mm from warships, the range has also hosted air-to-air launches of the likes of Exocet, Sidewinder, Maverick, Hellfire, Magic 2 and Mica missiles.

It is the only firing range in Europe with the ability to host firings of anti-ATBM weapons. ATBM firings are usually conducted by the Patriot weapon system against a missile drone representing the ballistic target. The ballistic missile is launched from an islet located 157km away, with the target following a very high-altitude trajectory with high velocity and heading towards NAMFI. The unit being trained will detect, engage and destroy it in the shortest possible time.

A network of surveillance and tracking radars, together with extensive civil and military capabilities in integration and communications, ensure that all activities in NAMFI are performed according to the highest safety standards.

Testing times
A missile launch from NAMFI

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IN BRIEF

Foam protection
The IBS Ramfoam (Stand 12-E01) joint venture brought Ramfoam UK and Middle East-based IBS Flightcases together in a partnership that provides superior packaging solutions for the military and civilian sectors. With a 15,000 ft² manufacturing and warehousing facility in Dubai, the company is a one-stop shop for bespoke products ranging from gun inserts, missile and ordnance protection cradles, and electronics device protection to body armour, helmet lining inserts and aircraft ejection seats. IBS Ramfoam’s products are lightweight and highly flame-retardant for use in construction of civil, business and military aircraft.

Mission-critical comms
For US-based Motorola Solutions (Stand 03-A10), IDEX presents the ideal platform to showcase its comprehensive range of two-way radio solutions, end-to-end communication security, voice and data communications and wireless broadband solutions with Public Safety 4G LTE for mission-critical customers. “Our focus on category-defining innovations gives us the opportunity to provide a more powerful level of information and connectivity for public safety professionals in the region,” said Paul Mueller, VP Middle East.

Smart alternators
With military vehicles carrying increasingly sophisticated command, control and communications equipment, Australian firm MilSpec/Manufacturing (Stand 07-C01) devised brushless alternators to handle the demanding power requirements. Multiple alternators per vehicle offer significant benefits compared with in-line generator systems, notably also smaller size, more flexible space utilisation, lighter weight and reduced cost. The Thales Australia Bushmaster and Navistar Husky MXT already use the MilSpec product. The company also offers simple and low-cost vehicle upgrade packages.

Build a training house
Combat troops need to experience a realistic and challenging environment for close quarter battle (CQB) training, which is what UK-based PPS Partition Panel Systems can provide. PPS is part of the Emirates Defence Industries Company pavilion (Stand 05-A10).

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