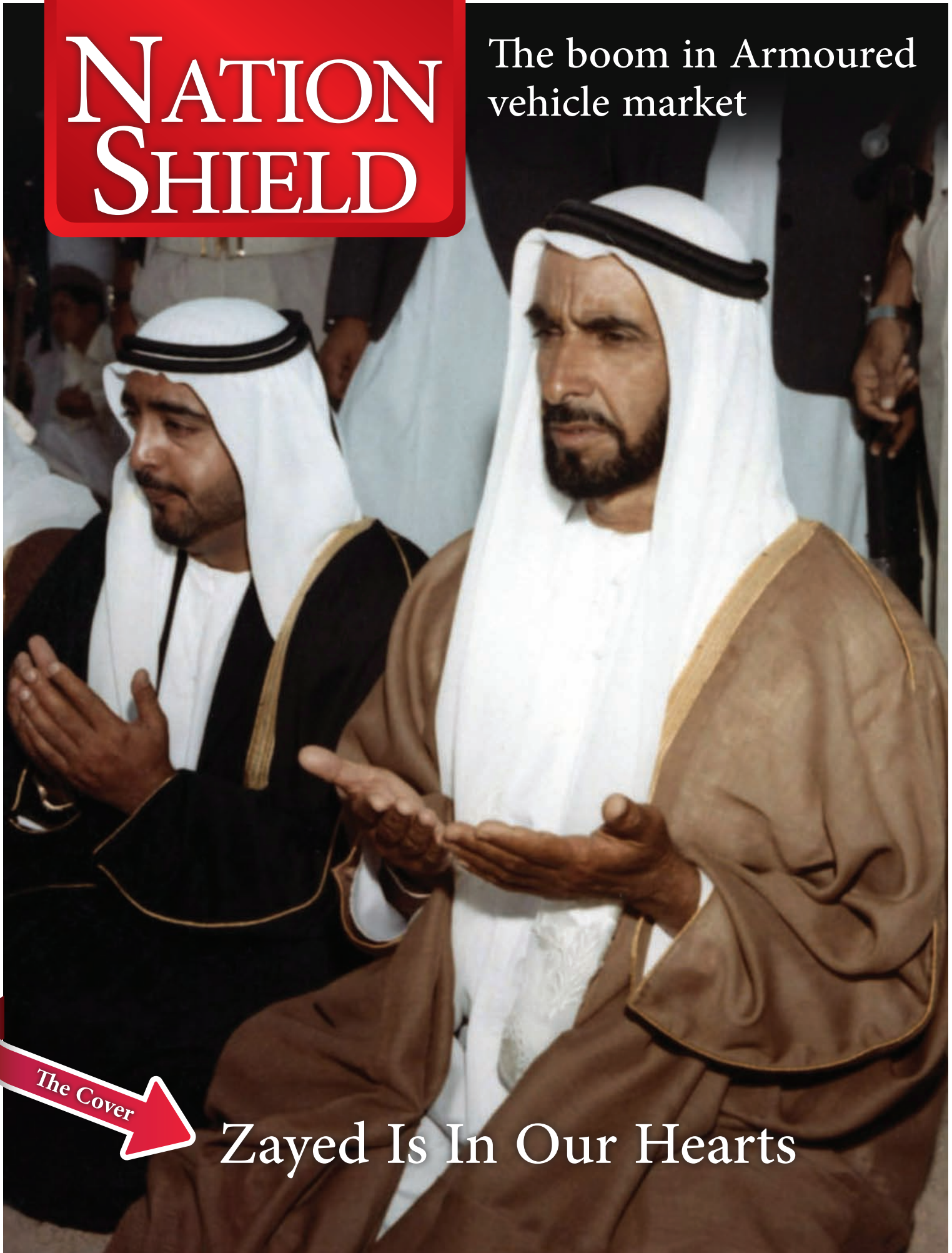


NATION SHIELD

The boom in Armoured vehicle market



The Cover

Zayed Is In Our Hearts

Under the patronage of His Highness Sheikh Khalifa Bin Zayed Al Nahyan,
President of the UAE & Supreme Commander of the UAE Armed Forces

17-21 February 2013
ADNEC, Abu Dhabi, United Arab Emirates



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Undivided Loyalty

Since its inception in 1971, the UAE has been an oasis for peace, security and solidarity with a strong bond between the leadership and the people. No wonder, it has become in record time, one of the top progressive and prosperous nations. We have a prosperous life that is denied to many others mainly because we have stood unitedly to support our wise leadership that spares no pains to provide a decent life to all citizens. Citizenship is all about duty and spontaneous generosity. Everyone is striving to render our nation prosperous and strong.

A few misguided, ungrateful elements have recently tried to mess with the destiny of the UAE by deviating from time-honored tenets with the intent of playing havoc with our nation by spreading malicious rumors, undermining security and stability and fomenting sedition, using “reform” as an excuse. They are anything but reformers. Corrupt and driven by a foreign agenda, this clique uses a cover that has to be blown in order to reveal how insincere their love is for the UAE and its President His Highness Sheikh Khalifa bin Zayed Al Nahyan, Supreme Commander of the Armed Forces (May God save him). The Almighty God says in the Holy Koran: When it is said to them: “Make not mischief on the earth” They say: Why, we only want to make peace!” of a surety, they are the ones who make mischief, But they realize (it) not.

It is not surprising for the UAE people to stand for and support, their leadership with one single target in mind: defend our nation. This spontaneously reflected national support for our leaders in the face of malicious, grudge-filled conspiracy-mongers who sold their souls to foreign agenda by trying to tarnish the impeccable reputation of the UAE, its symbols and leaders. They tried in vain to break national ranks and foment sedition.

The UAE security is everybody’s –nationals and expatriates alike- responsibility. Everyone should stand up to this corrupt clique whenever the peace and security of this land is undermined in any way. Citizens have always been with their nation and leaders in their heart and mind – an attitude naturally driven by “one family spirit” whereby defending our homeland, its wealth and destiny is a prime concern.

The measures taken, or will be taken, against this grudge-filled clique trying in vain to undermine national security and stability, have earned popular and official support. We are all for whatever measures to be taken by government agencies, either by offering piece of advice or by punitive acts.

Accordingly, abusers to this beloved land should offer a well-deserved apology to the UAE, leaders and honest citizens, and ask for forgiveness to restore self respect first and respect of the others subsequently. We, the citizens and expatriates, are all required to close ranks and stand by our wise leaders to fight corrupters. Deviants who did their best to insult this beloved land should know that the UAE has become a minaret for forgiveness and tolerance and a beacon for civilization under the wise leadership of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE and Supreme Commander of the Armed Forces (May God save him) who spared no pains to realize the great achievements now enjoyed by citizens and expatriates alike.

Finally, we express our undivided support for our nation and for our leader His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE and Supreme Commander of the Armed Forces (May God save him) •

By:
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Editor in Chief

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Iraqi Joint Forces Chief of Staff: UAE hosted us during our liberation



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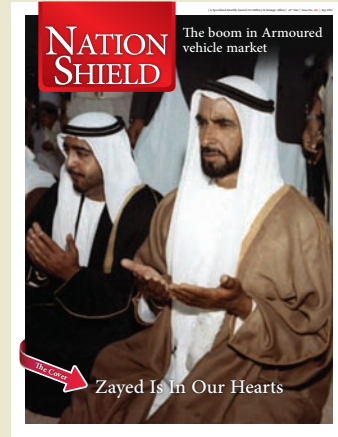
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COVER

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Zayed...a soul still living in the memories of the nation and human-conscience, with his name engraved in all corners of the country. UAE citizens remains loyal to him, always inspired by his wisdom.

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National Center for Documentation & Research

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ILA 2012 all set for success

Mirroring aviation developments for more than 100 years



The stage is set for the first International Aviation Exhibition (German: Internationale Luftfahrt-Ausstellung (ILA)) to be held at the new venue at Berlin Expo-Center Airport, adjacent to BER (Berlin Brandenburg International), the capital's future airport from 11 to 16 September. More than 1,100 exhibitors from around 40 countries are expected to participate in the expo.

For the first time, exhibitors representing Estonia, Greece, Ireland and Serbia will attend ILA. Current booking levels indicate a significant increase in participation by exhibitors from India and Japan as well as from neighboring European countries. Poland, this year's partner country, will host its largest display to date at the ILA and will be represented by all of its major aerospace companies.

Leading international exhibitors will include Airbus, Antonov, Arianespace, Astrium, Beriev, Boeing, CADES, CAE, CASSIDIAN, Diamond, Diehl, EADS, Eurocopter, ESA, the Fraunhofer Institute, Irkut Corporation, Ivchenko, Liebherr Aerospace, Lufthansa Technik, MiG Russian Aircraft Corporation, MD Helicopters, MT-Aerospace, MTU, Northrop Grumman, OHB, Oboronprom (Russian Helicopters, United Engine Corporation), IABG, Pratt & Whitney, Premium Aerotec, Raytheon, Rheinmetall, RECARO, Rockwell Collins, Rolls-Royce, ROSKOSMOS, Sukhoi, RUAG, Sikorsky, SKF, TATA and Thales.

Aircraft from all eras

Aircraft of all sizes, in all categories and from all eras will be on display the Ber-

lin Air Show. Aerial displays of the A-400M Military Airbus, the A-380 Airbus (the world's largest airliner) and Eurocopter's X-3 hybrid demonstrator will be major highlights at the show. Over a three-day period, as part of its aerial displays, this year's partner country Poland will demonstrate a Polish Air Force MIG-29, its own aerobatics display team, Biało-Czerwone ISKRY (White and Red Sparks), and give an aerial display of the Polish version of the Black Hawk helicopter. Other static displays will feature an MP-02 Czajka, EM-11 Orka, AT-3, PZL M 28 and C 295 Casa.

Two teams from Italy, the Pioneer Team with four Pioneer 300 jets as well as the We-Fly Team with three FlySynthesis Texans, will also be giving aerial demonstrations of their skills. PC Aero's

More than 1,100 exhibitors from 40 countries likely to attend

Electra One Solar will be on display for the first time, showing that progress is being made towards achieving solar flight. Electrically powered and with wings featuring solar panels, it is almost completely noiseless in flight.

Early cargo planes on display will include a DC-3 and DC-6 from Red Bull, a Lisunov Li-2 and, a special highlight, a Lockheed L-1049 Super Constellation from Breitling (one of currently only two airworthy planes in the world). Military flying displays will include historical aircraft, ranging from a Messerschmitt Me-108, Me-109 and Me-262 to a Lockheed P-38 Mustang and Hawker Sea Fury, as well as modern fighters, among

them a Eurofighter, McDonnell Douglas F-18 (from Finland) and a MiG-29 from this year's partner country Poland.

The sections Commercial Air Transport, ILA HeliCenter, Aerospace, Military Aviation, the International Suppliers Center ISC (11 - 13 Sept.) and the ILA CareerCenter (14 -15 Sept.), will demonstrate the cutting edge of technology of the present day and the future. The UAS Plaza with its display of unmanned aircraft systems, Alternative Aviation Fuels and roger Airfield, with its new format for General Aviation, are all new sections at the show.

Debut at the ILA HeliCenter

The ILA HeliCenter is firmly established as a European trade show and marketplace covering all aspects of procurement, operation, training, financing and mission adaptation for the latest helicopters. This is reflected by the scope of the display and the many helicopters and related products making their debut at ILA 2012. Interest this year will be concentrated on three new helicopters: the EC145-T2, UH-72 Lakota and Eurocopter's X-3 hybrid demonstrator, which

will all be debuting at the ILA. The spectacular X-3 in particular will fascinate the experts with a flying display.

The more than 20 helicopters on show represent the latest technological advances for a wide range of applications such as search & rescue and EMS as well as for the police and the military. Exhibits will include an EMS version of the EC135 from Poland, a CH53, a Tiger, a Bundeswehr NH90 and a Polish version of the Sikorsky Black Hawk. The themes of the HeliCenter display section in Hall 3 and on the adjacent outdoor site feature not only the many civilian and administrative aspects of "Air Rescue", "Aviation Work", "Border Protection and Police Missions" but also aspects of military deployment such as "Combat Search and Rescue (CSAR)" and "Marine Helicopters". Among the other main topics are "Air Safety", "Training and Simulation" and "Environmental Compatibility and Emission Reduction". With over 30 exhibiting firms, the ILA HeliCenter offers potential customers an ideal opportunity to learn all about the latest products, as well as about training, services and many other aspects.



Historic Aircraft- Dassault MD 311 Amicale des Aviona Anciens d'Alber



ILA Heliport

Electra One Solar

At ILA 2012 roger Airfield is to be the new home of General Aviation. There is keen interest in electrically propelled, and if possible solar powered aircraft. PC Aero's Electra One Solar, on display at roger Airfield for the first time, shows that good progress is being made. This is an electrically propelled aircraft, with integrated solar panels on its wings and independent batteries for storing solar power. Practically noiseless in the air,

Electra One Solar makes 100 per cent solar powered flight possible for the first time. Thus the ILA is the first trade fair worldwide to present all stages of solar-powered air travel, including charging and flight.

Besides the Electra One Solar the latest models representing general aviation as well as rare historical aircraft will be on show. One of the special highlights will be a Bücker Bestmann from the 1940s which has been restored to its



Dassault Mirage 2000N French Air Force

Historical background information on the ILA

Ever since it first took place in 1909 the ILA has been recognized as the world's oldest air show. It is co-organised by the German Aerospace Industries Association (BDI) and Messe Berlin. The first ILA in 1909 at Frankfurt/Main lasted 100 days. Following its debut in 1909 in Frankfurt/Main, from 1912 until the Second World War the ILA took place in Berlin. In the mid-fifties the ILA experienced a renaissance and for 30 years it was held at Langenhagen Airport near Hannover. Since 1992 the ILA has been held bi-annually at Schönefeld Airport in Berlin/Brandenburg and reflects the entire aerospace industry at an international trade fair and conference event that caters for the public as well. This year the Berlin Air Show will take place at Berlin ExpoCenter Airport, on the new exhibition grounds directly adjacent to BER, the capital's new airport. As many as 1,153 companies from 47 countries took part in ILA2010, exhibiting around 300 aircraft on the ground and in the air to around 235,000 trade visitors and members of the general public.

original specifications. More than any other name, Bücker is synonymous with developments in general aviation in the Berlin/Brandenburg region. The newly founded German Aviators' Club will also be at roger Airfield and is represented for the first time.

Space meets Earth

With the Space Pavilion, Space Conferences/Events and Aeronautic & Space World as its three main concepts, this year the Aerospace section will again feature a high-level meeting of experts and a unique discovery world for the public, thereby underlining the ILA's international standing as the leading trade fair for the aerospace community. The focus is on the Space Pavilion organized by the Federal Ministry of Economics



A380 Airbus

and Technology (BMW), the European Space Agency (ESA), the German Aerospace Center (DLR) and the German Aerospace Industries Association e. V. (BDLI). Unmatched anywhere in Europe, the pavilion has already received numerous international awards. Under the heading of “Space for Earth” and in space-like surroundings, the partners involved will present all of Germany and Europe’s leading space projects and programs on a display area covering 1,500 square meters.

Exclusive marketplace

Exhibitors at the International Suppliers Center ISC in Hall 6 will benefit from the leading international companies taking part in the ILA and from the presence of more than 120,000 trade visitors. Over 250 exhibitors from more than 20 countries are expected to be at the ISC alone, including for the first time companies from Austria, China, Estonia, Greece and Malaysia. This year the ISC will host two International Buyers’ Days on 12 and 13 September. This platform for information and establishing contacts is an exclusive event which brings together exhibitors at the ISC and buyers from large companies.

Military aviation, security and defense

As the largest exhibitor at ILA 2012 the Bundeswehr will put on an impressive display of its capabilities, of combined weapons systems. Inside the pavilion in Hall 3, on an area covering more than 1,000 square metres, the Luftwaffe and military aviation industry will demonstrate its successful cooperation with customers and contractors to ensure the operational capability of all the Bundeswehr’s aircraft. The exhibits will include six fighters, four fixed-wing aircraft, ten helicopters and four unmanned aircraft systems. In a joint demonstration of their capabilities six Tornado jets, a Eurofighter, two F-4 Phantoms, a CH-53, a C-160 Transall and an Airbus A310 MRTT tanker aircraft will take to the skies together.

A Eurofighter as well as NH90 and CH-53 military helicopters will be among those taking part in individual displays. A UH Tiger will also be at the ILA. One of the major highlights will be the new A400M Airbus military transport plane, which will be part of the impressive program of flying displays and can also be seen on the ground. Companies representing the USA, France, the UK, Italy and NATO are also taking part. Among their exhibits will be a UH-72 Lakota, F-16 Fighting Falcon, Mirage 2000 and E3A AWACS. Finland will be

represented and will give an aerial display of the F-18 Hornet.

UAS Plaza debut

Exhibitors at the new UAS Plaza will display a wide range of unmanned aircraft systems for the first time. Well known UAS manufacturers such as Cassidian, General Atomics and Northrop Grumman will display their products at the UAS Plaza or on their company stands. Their exhibits will include the Predator, EuroHawk and Barracuda. The Bundeswehr will show the ALADIN, KZO and LUNA unmanned aircraft systems on its display area.

Alternative aviation fuels

Alternative fuels currently represent the most dynamic development in aviation. At ILA 2012 AIREG, the Aviation Initiative for Renewable Energy in Germany, and CAAFI, the US/German Commercial Aviation Alternative Fuels Initiative, will host their own display section on this topic for the first time. On 12 September a parallel conference on “the future of alternative aviation fuels”, one of the outstanding events of the ILA program, will also be taking place.

ILA 2012

Military aviation is an essential part of the international aerospace industry, not merely from the point of view of technology and the industry. The wide range of products and services it offers ensures that armed forces remain operational and are able to fulfil their mission worldwide. The ILA is unique among European aerospace exhibitions in gathering the representatives of companies and the military together as partners at a single event and provides the ideal platform for an international dialogue between politics, industry and the military. ILA 2012 is on course to surpass the records set at 2010.

Eurocopter delivers two NH90s to France



The French DGA armament procurement agency has taken delivery of its second NH90 Tactical Transport Helicopter (TTH) and seventh NH90 NATO Frigate Helicopter (NFH), marking an important step forward in the largest European helicopter program launched to date.

The ceremony celebrating this dual delivery was held at the Marignane, France headquarters of Eurocopter, and was attended by members of the DGA; Dominique Maudet, the Eurocopter Group's Executive Officer for France, and Vice President of Global Business and Services; along with a number of representatives from the French armed forces.

The French Navy NH90 NFH helicopters – designated the Caïman – represent an important element in the combat system for the service's anti-aircraft defense frigates and multi-mission frigates. This seventh-delivered NH90 NFH will become part of the initial ship-based group based on the Aquitaine multi-mission frigate by 2013.

"This delivery of two versions of the NH90 on the same day is a major step in the historical relationship between Eurocopter and our customer, the French state," said Maudet. "We are especially proud to play a part in the important missions that the French armed forces will

carry out in the interest of the French nation with these technologically-advanced aircraft."

The NH90 TTH helicopters will progressively replace the Pumas in service with the French Army Air Corps. In its final operational configuration, the NH90 is equipped with field-tested avionics that enable the helicopter to carry out missions both day and night regardless of the weather conditions. It also has high-performance self-protection equipment, a military communication system that is interoperable for international operations, and equipment for ship-based deployment.

The NH90 NFH helicopters are ship-based combat rotorcraft, and will be assigned anti-ship and anti-submarine missions in their operation from French Navy frigates, as well as search & rescue and anti-terrorism duties at sea.

The aircraft boast a state-of-the-art weapons system that combines, as part of a high-performance platform, a package of ultra-modern electronic, acoustic and optronic sensors as well as weapons loads adapted to anti-ship and anti-submarine missions. The NH90 NFH also performs amphibious, maritime surveillance and anti-piracy missions.

Raytheon awarded USD 925M for advanced Standard Missile-3

The Missile Defense Agency awarded Raytheon Company a \$925 million contract for development of the Standard Missile-3 Block IIA missile, which is a co-development effort between the U.S. and Japan.

"As the threat continues to evolve, so does our ability to counter that threat," said Dr. Taylor W. Lawrence, president of Raytheon Missile Systems. "We're honored to work with our Japanese allies to bring this next-generation defensive capability to the world."

Used by the U.S. and Japanese navies to destroy short- to intermediate-range ballistic missiles, the SM-3 is the only defensive weapon of its kind. The SM-3 Block IIA will have a 21-inch 2nd and 3rd stage rocket motor and a larger, more capable kinetic warhead.

On track for a 2018 deployment date, the missile is the third evolution of the SM-3 family of missiles and builds on the successful legacy of the first two variants: SM-3 Block IA and SM-3 Block IB. The SM-3 program has achieved 21 successful intercepts.

"The SM-3 IIA's larger rocket motors will allow for a greater defended area, which is an important factor when it comes to protecting both the U.S. and our NATO allies," said Wes Kremer, vice president of the Air and Missile Defense Systems product line for Raytheon Missile Systems.

SM-3 Block IA missiles are currently employed on Japan's Kongo-class ships. Raytheon has delivered more than 130 SM-3 variants to the U.S. and Japanese navies on time and on budget.

VX-1 Flies P-8 Poseidon during RIMPAC 2012

The P-8A Poseidon jet, made its Rim of the Pacific (RIMPAC) exercise debut this year, flown by two air crews from Air Test and Evaluation Squadron (VX) 1 at Marine Corps Base Hawaii in Kaneohe Bay, during the 23rd edition of the biennial exercise.

“The P-8A Poseidon is easier to fly, trims well, and handles flawlessly [at low altitude],” said Lt. Cmdr. Chris Artis, VX-1 maintenance officer and integrated training team pilot. “It’s easy to maneuver, and the situational awareness in the cockpit is unlike anything I’ve ever seen before. Getting used to the technology and the different displays can be a challenge, but overall it’s fun to fly.”

The VX-1 crews flew two P-8As during 24 exercise events ranging from routine test flights to simulated anti-



P-8A Poseidon

submarine warfare. VX-1 officials said training requirements are extensive in the P-8A because of the complexity and the speed of the aircraft, and that RIMPAC provided extensive, open airspace and a robust exercise schedule where the squadron could demonstrate the capability of the new aircraft.

The P-8A is based on the Boeing 737-

800ERX airliner, but incorporates a host of modifications. P-8As feature Raytheon multi-mission surface search radars, and incorporate a short bomb bay aft of the wings for torpedoes, sonobuoys (small expendable sonar capsules that are dropped or ejected from the aircraft for anti-submarine warfare or underwater acoustic research), and cargo.

Anglo-French Unmanned Air Systems Programme Contract Awarded

The FCAS DPPP contract will propose a joint plan to mature and demonstrate critical technology and operational aspects of a future combat air system. It is expected that this will lead to a joint Unmanned Combat Air System demonstration and operational evaluation programme in the future.

The two companies fully support their governments in their stated desire for closer bi-lateral defence relationships. Since 2010, they have started and continue to work closely together to mature and develop further their common understanding of technology, capability and business opportunities in the Unmanned Air System (UAS) arena. They support the two governments’ stated intention

to investigate the potential for common UAS development programmes in the future.

Chris Boardman, Managing Director, Military Air & Information, BAE Systems said: “BAE Systems and Dassault Aviation have been working together closely to ensure we maintain our status as leading providers of aerospace capability. The signing of this contract will ensure that both countries get the best return on their investment and positions the two companies well to meet any future Anglo-French requirements.”

This contract is the first UAS contract to come out of the Defence Accord signed at the Anglo-French Summit in November 2010.

Saab Receives Order for Fire Control and Radar Systems

Defence and security company Saab has received an order for naval fire control and radar systems. The order amounts to SEK 450 million and involves business areas Security and Defence Solutions and Electronic Defence Systems.

The fire control system and radar systems will be integrated with a third party combat management system. Development and deliveries will take place 2012-2017.

The defence and security industry’s nature is such that information regarding customers and products sometimes is subject to confidentiality agreements between Saab and its customers. For this reason Saab stated that further information about this order will not be announced.

CASSIDIAN opens new opportunities in airborne ground surveillance

Cassidian, the defence and security division of EADS, has developed an airborne ground surveillance radar that, through use of the newest ultra-high-resolution radar technology, can monitor wide areas with stationary targets while at the same time detecting and tracking moving targets at great distances. The utilisation of a special modular architecture permits scalability of bandwidth, frequency band and processing performance. Rapid adaptation to new operational requirements through simple, configurable firmware and software together with a variable cooling design make “SmartRadar” (Smart = Scalable Modular Aerospace Radar Technology) suited to a wide range of manned and unmanned platforms.

The novel technological design in

conjunction with the innovative and extremely powerful real-time modes has already undergone various successful tests on behalf of the German Federal Office of Defense Technology and Procurement (BWB). “Our SmartRadar offers higher reconnaissance performance in less time than other airborne surveillance radars currently available and can be rapidly adapted to various customer requirements and platforms,” says Elmar Compans, Head of the Sensors & Electronic Warfare unit at Cassidian. “The sensor’s real-time information needed today for protecting our troops and combating possible threats is unsurpassed in its quality and low latency.”

One version of Cassidian’s SmartRadar is integrated into a pod equipped

with an autonomous cooling system, making possible immediate adaptation to various mission aircraft.

The high performance of the radar is largely due to state-of-the-art AESA technology (AESA = Active Electronically Scanned Array) which uses a large number of transmitter and receiver (T/R) modules in the antenna. These modules, which are made from special HF-capable materials, are developed and manufactured by Cassidian in its own facility, known as the “Microwave Factory”. Cassidian is the pioneer of this technology in Europe and delivers similar T/R modules for the TerraSAR earth observation satellite, the radars of the German Navy’s new F125-class frigates and the SPEXER 2000 border surveillance radar, among others.

UK MoD takes delivery of latest Argon CBRN training simulation systems

The Defence Chemical, Biological, Radiological and Nuclear Centre (DCBRNC) at Winterbourne Gunner has taken delivery of the latest CBRN training simulation systems. Supplied by UK manufacturer Argon Electronics, the new systems include both instrumentation and simulation software.

CBRN Programme Team Leader, Phil Strudley, says, “The acquisition of this latest equipment is an important step for the CBRN training centre, providing our trainers with a range of sophisticated tools that allow us to simulate a wide range of threat scenarios”.

The CBRN team worked closely with Argon to ensure that the contract was fulfilled on time and within budget. The Argon equipment includes the company’s latest CAMSIM and LCAD hand held instruments, the MCAD simulator and the advanced PlumeSIM wide area CBRN field exercise and desktop train-

ing system. This enables instructors to manage multiple remote simulator instruments under a fully configurable virtual plume, in real time, over user selected mapping.



Training Simulation System

Phil Strudley concludes, “Tools such as PlumeSIM will allow us to train personnel faster and more efficiently, giving them the knowledge and experience that will help them perform an even better job once they return to operational duties. These advanced simulators will also help reduce the Integrated Logistics Support costs associated with our detectors”.

Steven Pike, Managing Director of Argon Electronics, says, “The need for effective training and simulation is becoming increasingly important. As a result, the DCBRNC is playing a vital role in providing world class support to the UK’s armed forces, helping to protect both military and civilian personnel. We’re delighted that the Centre chose to specify Argon simulation instrumentation and software for this essential function, and have worked closely with the DE&S team at Abbey Wood to ensure that our equipment was delivered to a tight time-scale.”

Next-Gen Joint Helmet Mounted Cueing System on Silent Eagle



Silent Eagle Helmet

Boeing recently validated the integration of the next-generation Joint Helmet Mounted Cueing System II/h (JHMCS II/h) on the company's F-15 Silent Eagle demonstrator aircraft, continuing the on-schedule development of this advanced multi-role jet fighter.

The JHMCS II/h allows a pilot to aim sensors and weapons wherever he or she is looking, through the use of new head-tracking technology and a display projected onto the helmet's visor. Produced

by Vision Systems International (VSI), this system provides significantly improved ergonomics and reliability, at lower cost, than VSI's prior JHMCS system.

A recent flight in St. Louis demonstrated the system's enhancements and collected baseline data for the head-tracking technology.

"Both pilots who flew with the JHMCS II/h system immediately noticed that the helmet was more balanced and the smaller, lighter interface cable was

less restrictive," said Greg Hardy, Boeing JHMCS program manager.

The new head-tracking technology is significantly easier to maintain while requiring less support equipment than previous trackers. Electronics enhancements enable all processing to be done within the helmet, eliminating most aircraft-mounted equipment, which also contributes to the system's overall cost savings.

The system provides an easy transition in flight between day and night modes, greatly increasing mission flexibility. VSI also used maturing display and tracking technologies to reduce the complexity of integrating the JHMCS II/h system on an aircraft, an approach that was validated during the demonstration.

"Integrating this enhanced system onto the Silent Eagle took less than three months between 'go-ahead' and first flight," said Hardy. "This timeline was achievable because of the dedication of the industry team, the simplicity of the physical and logical integration, and the long history Boeing and VSI share on the JHMCS program."

Navy conducts Pax River's first flight of X-47B unmanned aircraft

The Navy made Pax River history after it conducted the naval air station's historic first flight of the X-47B Unmanned Combat Air System (UCAS) demonstrator.

The tailless, unmanned aircraft launched from Pax River and flew for a planned 35 minutes. The aircraft reached an altitude of 7,500 feet and an air speed of 180 knots during its flight.

"This milestone event is the first of many flights at Pax River to demonstrate X-47B's compatibility with aircraft carrier flight procedures and launch/recovery equipment," said Matt Funk, UCAS lead test engineer. "The unique airspace and

ship equipment at Pax River allow us to conduct the testing here before we land aboard the aircraft carrier next year."

One of the testing facilities at Pax River is a simulated aircraft carrier environment, which will allow team members to ensure the aircraft is ready to operate in testing at sea. Land-based testing will establish X-47B has the ability to conduct precision approaches and to perform arrested landings and catapult launches prior to actual aircraft carrier operations.

"The X-47B's flight today is another important step closer to the Navy's vision of operating tailless, autonomous, un-



X-47B unmanned aircraft

manned systems from aircraft carriers," said Capt. Jaime Engdahl, Navy UCAS program manager.



Airborne Early Warning and Control Conference

Debating the Operational Considerations when Employing AEW&C Assets

Following a highly successful and well received launch event in Malaysia last November, and a recent AEW&C event focussing on India's requirements, Tangent Link is bringing its third event in this series to the UAE. Tangent Link's Middle Eastern Airborne Early Warning & Control Conference and Exhibition will take place on 12th-13th November 2012 at the Armed Offices Club, Abu Dhabi, UAE.

The UAE Air Force is currently undergoing an ambitious modernisation with the goal of attaining a level of capability matching the highest NATO standards. Procurement of AEW&C aircraft in the region has produced an interim AEW&C solution. Further acquisition is expected, and marks a renewed effort to produce an increasingly effective and integrated command-and-control infrastructure with airborne platforms and long-range ground-based radars. Options are now being considered for a long-term UAE Airborne Early Warning solution, and a range of AEW&C aircraft and technologies of differing types is being assessed for future procurement.

Since the early 1960's AEW&C aircraft have been used for both defensive and offensive air operations, they are a highly mobile and a powerful radar platform. The aircraft are used to direct

fighters to their target locations, and also to identify and respond to counter attacks by enemy forces.

This two-day conference programme will focus and debate the operational considerations when employing this vital asset. It will also look at the expanding roles of these aircraft including counter drug and piracy operations.

Maj. Gen. Stephen D. Schmidt, Commander-NATO AEW Force Command (SHAPE), Belgium has accepted our invitation to speak at this conference. Other invited speakers include the UAE Air Force, UAE, Swedish Air Force, Royal Malaysian Air Force, Royal Air Force, UK and the Pakistan Air Force.

This highly targeted event will provide an excellent networking platform for international and local companies to showcase their capabilities to an audience of Senior Emirati Military Officers involved in the specification and

procurement of AEW&C platforms and technologies.

Companies involved in the following areas are recommended to participate:

Manufacturers of AEW fixed or rotary wing aircraft platforms, test sets and stimulators, data loggers and recorders, data links, radars, communications systems, IFF systems, avionics navigation systems, electronic countermeasures, flight management systems for AEW aircraft will all have equipment of interest to the key Emirati stakeholders.

To sponsor, exhibit, or attend as a delegate for this event please contact: Alison Knapp; Head of Business Development, Email: aknapp@tangentlink.com or Rebecca Covey Business Development Manager, Email: rcovey@tangentlink.com

Or Tel: +44 (0)1628 660400 or visit: www.tangentlink.com





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12th-13th November 2012

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Merkel introduces innovative features for Helix rifle for the first time ever in the UAE

MERKEL

Merkel, the Germany-based Tawazun Holding subsidiary, is introducing new features for its flagship hunting rifle, the RX Helix, in the UAE for the first time ever this month. Merkel will be exhibiting at the Abu Dhabi International Hunting & Equestrian Exhibition (ADIHEX 2012), which is being held in Abu Dhabi from September 5th - 8th, as part of the Tawazun stand.

The RX Helix was first launched in the UAE by His Highness Sheikh Hamed bin Zayed Al Nahyan, Chairman of Abu Dhabi Crown Prince's Court, in September 2011. For Tawazun, the success of developing the RX Helix is mainly attributed to the insight and support provided by HH Sheikh Hamed who provided input on the rifle's design from the very beginning. The result? Merkel produced a rifle with a straight-pull bolt action, together with a removable magazine to allow for more rapid fire, along with a choice of barrels that could be changed quickly and smoothly. Today, the Helix is known for fast drive hunting due to the semi weight barrels which facilitate freehand shooting at great distances and swinging through the moving target.



The new features Merkel is introducing cover different versions of RX Helix and are aimed at further enhancing the rifle's beautiful designs, hand-made engravings, technical mastery, simple and easy dismantling and reassembly mechanism and the extremely important safety aspects.

The most notable improvement is the new semi weight interchangeable barrels in three different lengths. It is now possible to tailor the rifle to the personal demands of the shooter to allow for even more precision. The barrels, with their increased diameter of 19 mm (compared to the standard 17 mm diameter) weigh anywhere between 170 to 320 grams more than a standard barrel, depending on the barrel length. The results are: more optimized weight distribution; greater stability while shooting and ultimately; higher shooting

accuracy and performance results.

For its different sized barrels, the RX Helix only requires a single fore-end. When travelling with an interchangeable barrel, you can save yourself carrying another fore-end. The semi weight barrels are cold forged in lengths of 510 mm and 560 mm for all standard calibers and 610 mm for magnum calibers. The barrel length 510 has a drive hunting sight, the 560 mm and 610 mm barrel lengths both make do without iron sights. With these barrels made in Suhl, the total weight of the bolt action rifle is 3.25 kg, 3.3 kg and 3.4 kg respectively.

The Helix will now offer a synthetic stock combination for front and rear stock for everyday hunting purposes and which is suitable for all temperatures. The novel dark anthracite stock material consists of a glass fiber-reinforced composite material with a soft-grip surface. The soft and noiseless material can be easily gripped in extreme cold and is - thanks to a homogeneous surface - dirt-resistant. In tests, the shaft proved to be significantly more break-resistant than wood and it particularly compensates recoil. Its surface has a matte finish and is scratch resistant.

The rifle is great for right and left-handed shooters alike thanks to the Explorer synthetic stock which has a symmetric pistol grip and lacks a cheek piece. During the development of this stock, Merkel paid attention to system compatibility: wooden and synthetic stocks can be interchanged and the semi weight barrels of the Helix can be used with the Explorer fore-end without requiring an additional fore-end. The standard take-down feature - fast tool-less disassembly - will still remain available with the synthetic stock.

The Helix was once only available as a right-handed system - for left-handed shooters, but Merkel now offers a new left-handed stock that allows for precise shooting. The left-handed stock is made of Turkish walnut available in all wood classes and features a cheek piece. Even the palm swell of the pistol grip has been reworked to be left-handed.

The RX Helix is available in a standard black configuration as well as four levels of design: Arabesque, Wild Boar, Spirit and Deluxe. The Helix is available in a wide range of popular calibers from .222 Rem. through .300 Win. Mag. Barrel lengths vary according to caliber; additional barrels, bolts and magazines are available for caliber changes.

The RX Helix will be on display at the Tawazun stand during ADIHEX this month.

توازون
TAWAZUN

Under the Patronage of

His Royal Highness Lieutenant General Sheikh Saif Bin Zayed Al Nahyan,
UAE Minister of Interior and Deputy Prime Minister and hosted by the
General Directorate of Residency and Foreigners Affairs – Dubai



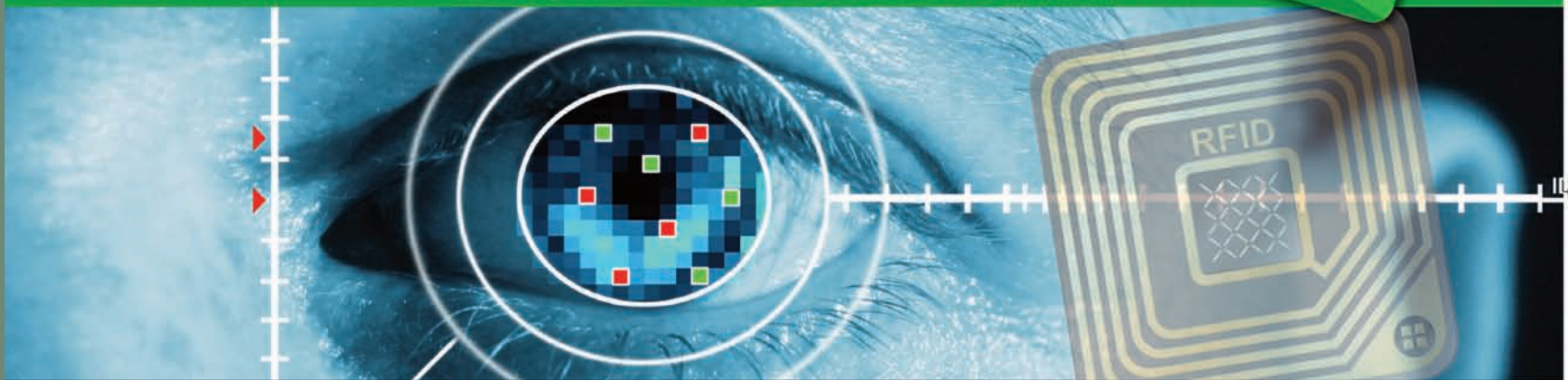
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Iraqi Joint Forces Chief of Staff: UAE Hosted

Iraq is capable of rebuilding itself by the efforts of its own nationals

In a comprehensive interview with the 'Nation Shield' journal, H.E. the Iraqi Joint Forces Chief of Staff Gen. Babakir Baderkhan Al Zibari, spoke extensively about military cooperation between Iraq and the United Arab Emirates (UAE) and the challenges facing Iraq after the withdrawal of the American troops. General Al Zibari commended the UAE's support and unlimited aid to Iraq.

By: Jassim Shaheen

Ibrahim

Photo: Abdul Rahman bin
Abbad



To what extent can military cooperation between Iraq and the GCC States contribute to the restabilization of Iraq?

Iraq's resumption of normal relations with the Arabian Gulf states will be a very important facilitator of the process of the restabilization of Iraq. We are also a Gulf country so comprehensive and integrated cooperation will benefit both sides. Unfortunately, there are certain quarters trying to thwart cooperative efforts.

Once you said that the Iraqi Army would not be ready to maintain security before 2012. Can you elaborate on this?

We have a long term plan to rein-

force the capabilities of the Iraqi Army. Some people believe that after the withdrawal of the American forces, Al Qaeda will return. However, the Iraqi Army is well prepared to face any exigencies. Our security is strong but certainly, there are attacks on soft, easy targets against civilians and innocent people.

Your Excellency, you have called for strong relations with Iran. What did you imply?

We are a democratic state. We do not interfere in the internal affairs of other states and we do not want others to meddle in ours. Cooperation breeds stability and prosperity, which are in the interests of all parties.

1 Us During Our Liberation

Can the GCC states, and the UAE in particular, increase military cooperation with Iraq?

Our cooperation with the UAE began from early 2004. The UAE hosted us during the liberation of Iraq. Cooperation between the two countries took the form of exchanging expertise. Delegations from land, air and naval corps exchanged visits. The UAE has trained different units of the Iraqi Army. This was in addition to our cooperation with Qatar and the Hashemite Kingdom of Jordan.

Iraq still faces a number of issues in the domain of internal security. Can the Arabian Gulf countries help in this regard?

We are facing the issue of terrorism, which is a global issue. We must cooperate to fight terrorism. Certainly, this is not an easy task and requires cooperation with sisterly Gulf states.

In Iraq, we have an on-going process of national reconciliation and general amnesty. Many people who had emigrated have now returned. Our doors are still open to every Iraqi who had left the country.

What are the basic threats facing Iraq internally and externally now? How is Iraq going to tackle this?

The most serious threat facing us now is the border question with neighboring countries, especially Syria. We are Syria's neighbor and so the instability in Syria undoubtedly affects Iraq. Terrorism is a risk that spares no one. We

must establish a partnership and cooperate to overcome terrorism.

In which regions have you been able to control security problems after the exit of US troops?

We are in control of all of Iraq and the roads connecting Iraqi provinces except where some clandestine cells are trying to strike at soft targets. The Iraqi youth, however, have been able to contain terrorism.

Iraq has lost a large number of scientists and other educated people. How are you going to compensate this?

This is a grave loss. Terrorists targeted scientists, doctor and engineers who died as martyrs. However, Iraq has a large group of intellectuals in all fields of specialization. With the scientists now in Iraq and those who are going to return from abroad, we can compensate this loss.

Do you think that Information Warfare represents an additional challenge to the Iraqi Armed Forces?

Information Warfare is a two-edged weapon, depending on how you employ it. Today, Information Warfare represents a vivid, tangible reality. The way information is gathered, assessed, analyzed, and used, achieves its objective.

How do you view the progress in military cooperation between the UAE and Iraq in the recent years?

I can say that Iraq's Arab relations began with the UAE. The UAE, after the fall

of Saddam Hussein's regime, was one of the first countries to cooperate with us. The UAE gave us unqualified support. It provided us with patrol boats and organized training for our officers and soldiers in the most advanced military institutes and colleges in the UAE. It extended a helping hand to us in the fields of operability, maintenance and equipment management. We look forward to developing this.

How can Iraq play a role in defusing the tension between Iran and the Gulf States?

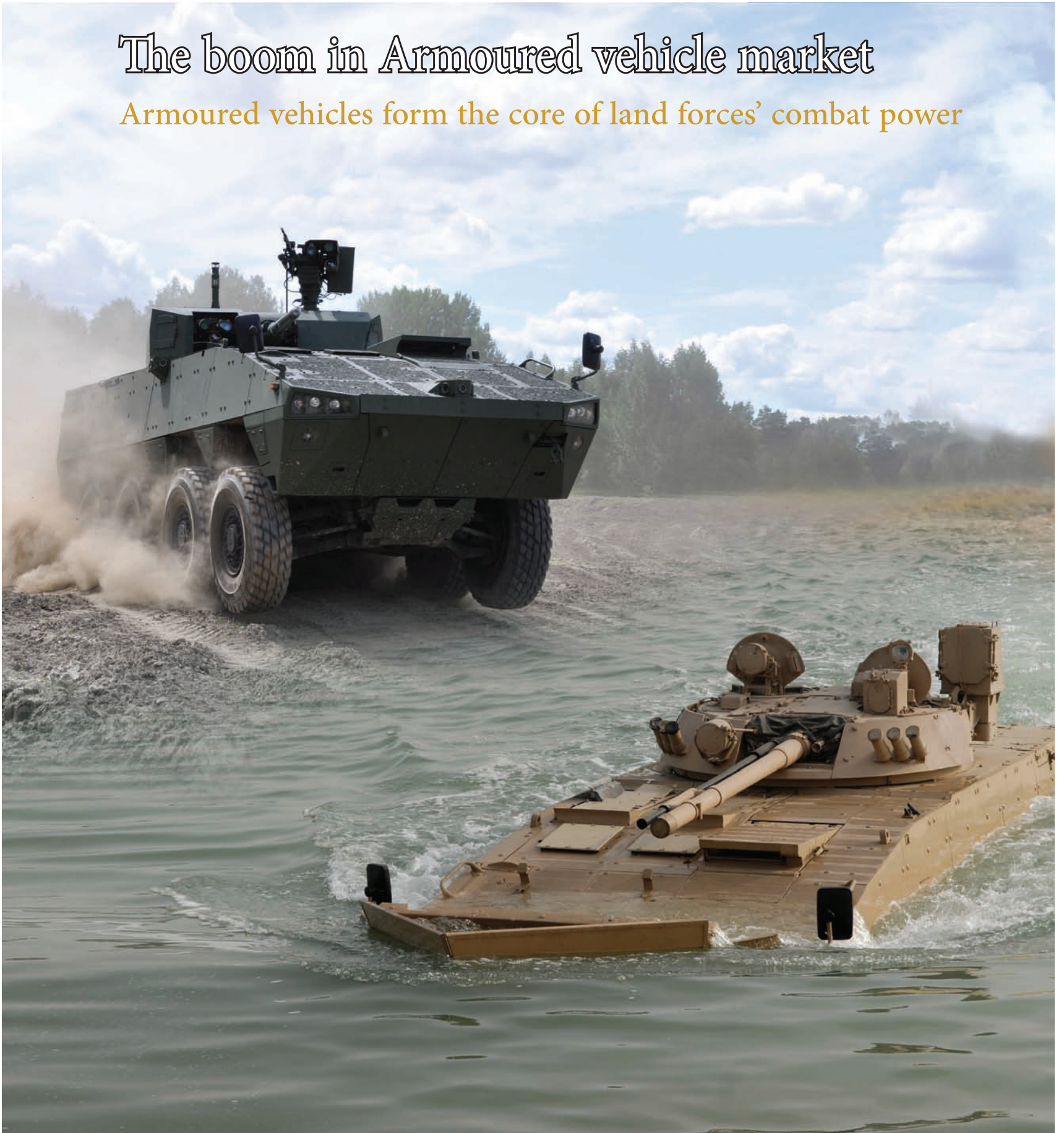
We do not want tension between Iran and the Arabian Gulf countries. The Iraqi Government is persistently trying to ease the situation; tension is not in the interest of either Iran or the Arabian Gulf countries. Any tension or conflict will affect the whole region economically and politically. The world depends on this region. All must work on easing the situation. If something clouds the relation between brothers and friends, it must be tackled via brotherly and constructive dialogue. We must not give others the chance to exploit the situation. Here the media can play an important role.

Do you like to make any final comments?

We want all the brotherly and friendly countries of Iraq to work hand in hand to eradicate terrorist cells from the whole world. We want them to cooperate with each other so that peace can prevail.

The boom in Armoured vehicle market

Armoured vehicles form the core of land forces' combat power



Everyday troops on the front lines are put in danger unnecessarily because they do not have the protective equipment they need. The latest American deaths in Iraq underscore the importance of “armored” vehicles to provide greater protection for troops. The Norwegian government is planning to invest more than \$1 billion to procure new armored vehicles and upgrade its current fleet. Middle East countries are also increasing their budget for armored vehicles and their upgrade and retrofit with UAE leading the way.



PIRANHA

Wheeled armored combat vehicles now form the core of deployable land forces combat power and for this reason they need to be effective across the complete spectrum of conflict including peace keeping, counter insurgency and ultimately general war. Earlier this year a prominent Middle East country had issued an international request for proposal (RfP) for the new fleet, with an order that could total as much as \$2 billion. The order will be for a new generation of armored vehicles with a contract for 600 8x8 wheeled combat vehicles in the pipeline.

Here's a look at some of the vehicles in contention.

General Dynamics European Land Systems DESERT PIRANHA 5

-DESERT PIRANHA 5 has been designed from the outset with adaptability, flexibility and growth capacity as the corner stones of the design. It provides the highest levels of survivability against conventional and asymmetric threats while having the capacity to fill all battlefield roles such as APC, Electronic Warfare, Ambulance, Reconnaissance, Command, Mortar and even Direct Fire with turrets up to 120 mm calibre. The DESERT PIRANHA 5 as an Infantry Fighting Vehicle (IFV) delivers the troop and internal capacity of an APC,

with seating for eleven, while a 30mm remote turret enables small team, combined arms operations through its comprehensive range of weapon and sensor systems allowing the detection and engagement of a wide range of battlefield threats. The DESERT PIRANHA 5 can be delivered in either high or low roof configurations with open architectures, over 15 tons payload and 120 kW electrical power. This provides growth potential to secure a long service life for the vehicle as new technologies emerge and need to be integrated into the vehicle. DESERT PIRANHA 5 which is a highly protected 8x8 vehicle available provides the highest levels of mine, improvised explosive device (IED) and ballistic protection. It has a next generation, full coverage, modular survivability system that has been integrated in the vehicle design from the concept stage. This system provides unparalleled all round protection, particularly in the wheel well area that has traditionally been vulnerable to IEDs on wheeled armoured combat vehicles. The entire survivability system has been designed to be replaced or upgraded through life to take advantage of new survivability technologies as they mature or to counter emergent threats. DESERT PIRANHA 5 also features a

range of tailorable survivability kits that allow the tactical commander to adapt the vehicle in theatre. This ensures the vehicles suitability for operation in complex terrain against aggressive threats such as IED EFPs, or through rapid re-configuration, allows to undertake roles requiring the highest levels of mobility and agility such as formation reconnaissance.

Patria AMV -One of Patria's most essential export products is the Armoured Modular Vehicle, Patria AMV. Today the number of globally contracted Patria AMV 8x8 exceeds 1,400 vehicles. Patria AMV is contracted among others by the Finnish, Polish and Swedish Defence Forces, and it has been fielded in ISAF operations since the year 2007. Patria also produces advanced mortar systems. The newest product of Patria's mortar systems is Patria Nemo, which is a 120 mm remote controlled mortar turret, providing both direct and indirect fire support. As a modern and compact system, Patria Nemo can easily be mounted onto various tracked and wheeled chassis. Due to its low weight of only 1500 kg, Patria Nemo is now also adaptable to lightweight, high-speed vessels and can be effectively used for harbour patrolling and protection, coastal guarding and infantry landing operations.

NEXTER VBCI - One of the VBCI's major advantages is its protection, an essential requirement for the armed forces, and highlighted by the experience acquired in Iraq and in Afghanistan. The VBCI's level of protection outclasses that of all existing 8x8 vehicles, with its high strength alloy hull and its add-on metal armour. Structurally, the VBCI provides a very high level of protection against conventional munitions (medium calibre fire, shell shrapnel). It is also designed to resist improvised explosive devices (IED) and very powerful mines, and also has an infra-red decoy system.



VBCI



ARMA 8x8

Finally, its significant additional weight margin means that the VBCI protection remains upgradeable, and will soon be reinforced by active protection against rockets (type RPG), shells and anti-tank missiles. The VBCI is air-transportable by A400M. Concerning operational mobility, the 8x8 configuration breaks with the tradition of track-laying Infantry Combat Vehicles, to combine maximum ballistic and anti-mine protection with very high mobility. The VBCI offers a range of 470 miles and a maximum road speed of 60 mph.

Otokar ARMA 8x8 - Providing high protection against explosives and mines together with its superior mobility,

ARMA 8x8 armored combat vehicle is the newest product of Otokar specially designed according to the current and future threats using the newest technology. Armoured combat vehicle ARMA 8x8 can transport ten dismounts, the driver and the commander and a maximum load weight of 24 tons. The compact engine positioned at the front right of the vehicle provides large interior volume and ergonomic internal operating environment for the armoured vehicle. With a superior mobility ready to give service in all kinds of terrains, ARMA 8x8 is also featured with amphibious kit. ARMA 8x8 draws attention among its kind throughout the world with its



Boxer Armoured Personnel Carrier

superior mobility, high protection and unique survivability. Its basic monocoque type body structure and safe seats provide efficient protection to the crew against ballistic and mine threats. ARMA 8x8 provides an ideal armoured combat vehicle for remote controlled turret systems with its modular structure suitable for various missions and its independent hydro-pneumatic suspension minimizing the vibration inside the vehicle.

BAE Systems RG41 - The RG41 is an 8x8 wheeled armoured combat vehicle developed by BAE Systems South Africa. It is a new-generation combat vehicle, which integrates high mobility, protection and fire power in an advanced combat vehicle platform. The vehicle is suitable for multiple theatres.

The RG41 development project began in 2008 and the first RG41 vehicle was showcased at the Eurosatory defence exhibition in Paris in June 2010. The RG41 has a high payload capacity, a class-leading turning circle, good power-to-weight ratio and a unique hull design. RG41 is designed as an affordable and highly mobile, wheeled combat vehicle, suitable for modern warfare. Key features include; a modular, field-repairable mine protected design, high

mobility with good ride comfort, ITAR free design comprising mainly of COTS components, High payload capacity (11 tonnes), high mobility is achieved through the inclusion of a specifically adapted hydro-pneumatic suspension. The lower hull of the vehicle comprises five modular units joined together and bolted under the top structure. The vehicle is based on the 8x8 wheeled chassis.

Artec - Boxer - Having joined forces to form the Artec consortium, Rheinmetall MAN Military Vehicles manufactures the Boxer in cooperation with Krauss-Maffei Wegmann under a binational programme.

The Boxer is one of the most advanced combat vehicles in the European military inventory. Since July 2011 the German ISAF contingent has deployed two different versions of this highly mobile, superbly protected system in Afghanistan: a troop carrier capable of transporting a fully equipped infantry section, and a command vehicle. Designed for maximum mobility, this wheeled armoured vehicle's build-on modules lend themselves to a wide variety of mission-specific variants. The vehicle family consists of a uniform chassis and interchangeable, user-specific mission modules. Among the variants developed

thus far are a section transporter, a field ambulance, a combat engineer section vehicle, a command vehicle (on display in the Rheinmetall pavilion at Eurosatory 2012), a driving school version, a logistics vehicle and a battle damage repair vehicle.

Prioritizing armored vehicle

Combatant commanders and joint war fighters have an operational requirement for highly deployable, tactically mobile, sustainable ground forces with significant firepower and intelligence-gathering capability. Every army needs to ensure that the military is agile, flexible, and ready for the full range of contingencies.

The challenge with prioritizing armoured vehicles capabilities really relies in how a country or organisation employs those vehicles. We traditionally think of tactical mobility on the battlefield; actually maneuvering towards the objective or screening through an area. But the Marine Corps has to look at both tactical mobility and operational as well as strategic mobility. So the military forces really have to balance mobility, not just at the tactical level but at the strategic level as well as the operational level. Therefore it is crucial to continue to invest in capabilities critical to future success, including intelligence, surveillance and reconnaissance.

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Unmanned Ground Robots

Multifunctional Platforms for Tactical Applications



A variety of robotics platforms are used in a number of industries for different purposes. Most of the robots that are in current production fulfill one basic function for the user: they go places that humans cannot or will not go, and do tasks that humans cannot or will not complete.



TALON



Ripsaw

Militaries worldwide have started to construct and deploy robotic weapons systems. Although human controllers may still be monitoring the functioning of the technology, the next logical step is to transfer incrementally more of the decision-making power to the robots themselves.

There are a vast amount of unmanned ground robots in production today. Some are designed to be adept at transporting items and have robust towing capabilities; others are specifically designed to work well in confined environments. Some platforms specialize in scouting and surveillance activities, while others offer the ability to traverse arduous terrain in a variety of environmental circumstances. The ability of a specific platform to be man portable is also a major distinction between different robot formats.

Some robots are equipped with substantial motors and use heavy steel frames that enable them to carry payloads in excess of 1000 lbs. These robots are often described as material handling robots and possess the capability to move very large items that humans alone cannot move. Many of these units are often

equipped with heavy duty track and/or wheel systems that allow them the ability to traverse all types of terrain including mud, snow, and water. Often they are also outfitted with maneuverable arms. While rather fast and strong, most robots that fall in this category are not very agile and often require wide-open spaces to operate properly. These robots are also generally very heavy and require multiple individuals and large trucks in order to transport them.

There are a significant number of robots that are designed to work well in confined areas, such as pipes. These robots generally have a near zero turning radius and can fit through very small openings. However, their ability to work well in confined areas does come with its drawbacks. Many of the platforms designed to work well in confined areas, lack the ability to traverse interior stairwells with much proficiency. This trait can render a robot that specializes in confined pipes useless, due to the fact that many urban robot situations occur where the goal of a particular mission requires that the robot move to and from different floors in a building.

Many robots possess the ability to act

as a scout and survey locations that may be unsafe for humans. Robots in this category are generally equipped with video cameras that link back to handheld display units. Some have audio communication capabilities as well.

A set of more focused non-combat market segments can be identified and critically examined for market attractiveness. These segments include: Nuclear waste disposal site inspection, Bridge inspection, Building Inspection, Victim Recovery, Pipe inspection, Duct cleaning, Hull inspection, Mine mapping, remote visual inspection etc.

ACER

The Armored Combat Engineer Robot (ACER) is a military robot created by Mesa Robotics. Roughly the size of a small bulldozer and weighing 2.25 tons, ACER is among the larger of the terrestrial military robots. Nonetheless, like many other military robots, it has a modular body, allowing for adjustments for its next mission. ACER is able to reach speeds of 6.3 mph, using treads for movement. Uses for this robot include clearing obstacles, removing explosives, hauling cargo and disabled vehicles, and



Squad Mission Support System (SMSS)

servicing as a platform for various other tasks, such as clearing buildings and disarming landmines

TALON®

Since its introduction more than a decade ago, TALON® family of robots has earned a reputation for durability, flexibility, modularity and performance in keeping personnel, assets and civilians out of harm's way. In military, law enforcement and first responder applications, these lightweight tracked vehicles are widely deployed for improvised explosive device (IED) and explosive ordnance disposal (EOD), reconnaissance, communications, CBRNE (Chemical, Biological, Radiological, Nuclear, Explosive)/hazmat, security, heavy lift, defense and rescue missions.

Initially deployed in 2000, the TALON robot system has grown to include many specialized models, modules, attachments, and applications, from route clearance missions to SWAT/MP unit support. Large enough to get the job done, yet small enough to be easily transported, the TALON is a remarkable achievement in robotic technology.

The TALON is fast and mobile, able to climb stairs, negotiate rock piles, overcome concertina wire and plow through snow. The robots have been used worldwide, from Ground Zero after the 2001 World Trade Center attack – where it withstood repeated decontamination – to Iraq. Rugged, easy to use, and – most importantly – protecting the lives of those who protect ours.

Daksh

Daksh is an electrically powered and remotely controlled robot used for locating, handling and destroying hazardous objects safely. It is a battery-operated robot on wheels and its primary role is to recover bombs. It locates bombs with an X-ray machine, picks them up with a gripper-arm and defuses them with a jet of water. It has a shotgun, which can break open locked doors, and it can scan cars for explosives. Daksh can also climb staircases, negotiate steep slopes, navigate narrow corridors and tow vehicles. With a master control station (MCS), it can be remotely controlled over a range of 500 m in line of sight or within buildings.

SMSS will decrease the amount of time needed to control robotic systems by providing vehicles that can navigate autonomously

510 PackBot

510 PackBot is a military robot by iRobot. More than 2000 are currently on station in Iraq and Afghanistan, with hundreds more on the way. PackBots were the first robots to enter the damaged Fukushima nuclear plant after the 2011 earthquake and tsunami. PackBot can assist in Explosive Ordnance Disposal, Explosives Detection, HazMat Detection, Surveillance / Reconnaissance, Checkpoint, Vehicle and Personnel Inspections, Building and Route Clearance, Emergency First Response etc.

More than 3,500 PackBot robots have been delivered to military and civil defense forces worldwide. 510 PackBot easily climbs stairs, rolls over rubble and navigates narrow passages with sure-footed efficiency, traveling at speeds of up to 5.8 miles per hour

Gladiator

The Gladiator is a tele-operated, semi-autonomous vehicle, designed to increase human survival by neutralizing threats and reducing risk to Marines on the ground. The UGV will be equipped with remote, unmanned scout, recon-

naissance, and surveillance capabilities.

When the Gladiator is out working in the field, a marine will be a safe distance away, controlling the UGV with a controller modelled from popular video game systems.

The UGCV's innovative, fully articulating 6x6 suspension with in-hub traction motors provides superior mobility, allowing it to surmount obstacles bigger than the diameter of its tires.

Ripsaw MS1

MS1 is a hardened high standard Ripsaw, designed specifically for US Army UGV Application. MS1 has weapons installed and the vehicle weighs approximately 9,000 lbs with a height of 70 in and payload capacity of 2,000lbs over 60mph. It has a revolutionary mechanical clutching system which allows for the control of a hydro-static transmission with the power speed and simplicity of a mechanical drive system. It has a mobile range of 30in above ground. Ripsaw is highly adaptive for multiple weapons and missions. The current missions are IED counter measures and detection and defeat of unmanned assault vehicles with weapons and Javelin anti-tank missiles.

Squad Mission Support System

Lockheed Martin Squad Mission Support System leverages robotic technologies for unmanned transport and logistical support for light, early entry and special operations forces. It solves capability gaps by lightening the Soldier's load and serving as a power management resource.

The SMSS will decrease the amount of time a Warfighter has to spend in controlling robotic systems by providing vehicles that can navigate autonomously. The SMSS' supervised autonomy will provide the Warfighter with a reliable squad-size vehicle, which will improve



Daksh

combat readiness, while assuring re-supply channels and casualty evacuations.

Combining perception with extraordinary mobility allows vehicles to follow the Warfighter across most terrain, guaranteeing the payload the robotic system is carrying will be available whenever and wherever the Warfighter needs it. Few other robotic systems allow for autonomy dependable enough for a vehicle to follow someone without the use of location-disclosing beacons. The vehicle can also operate by remote control, teleoperation or by manual control.

SMSS received a U.S. Army contract in 2011 to deploy vehicles to Afghanistan, to see how autonomous robots can benefit the Warfighter. It previously served in Army experiments as a self-sustaining, portable power solution, including soldier battery recharge and logistics support for infantry. A squad-size manned or unmanned support vehicle is critical to today's asymmetrical and urban battlefields.

Effects and Impact

Advantages - Some of the advantages of robotic technology in warfare are that machines do not get tired or close their eyes. A human's attention to detail on

Daksh locates bombs with an X-ray machine, picks them up with a gripper-arm and defuses them with a jet of water

guard duty drops dramatically after the first 30 minutes which can turn very deadly. Increasing attention is also paid to how to make the robots more autonomous, with a view of eventually allowing them to operate on their own for extended periods of time, possibly behind enemy lines. For such functions, systems like the Energetically Autonomous Tactical Robot are being tried, which is intended to gain its own energy by foraging for plant matter.

Potential risks - In 2011, academics and technical experts attended a conference to discuss the impact of the hypothetical possibility that robots and computers could become self-sufficient and able to make their own decisions. Some experts and academics have questioned the use of robots for military combat, especially when such robots are given some degree of autonomous functions •

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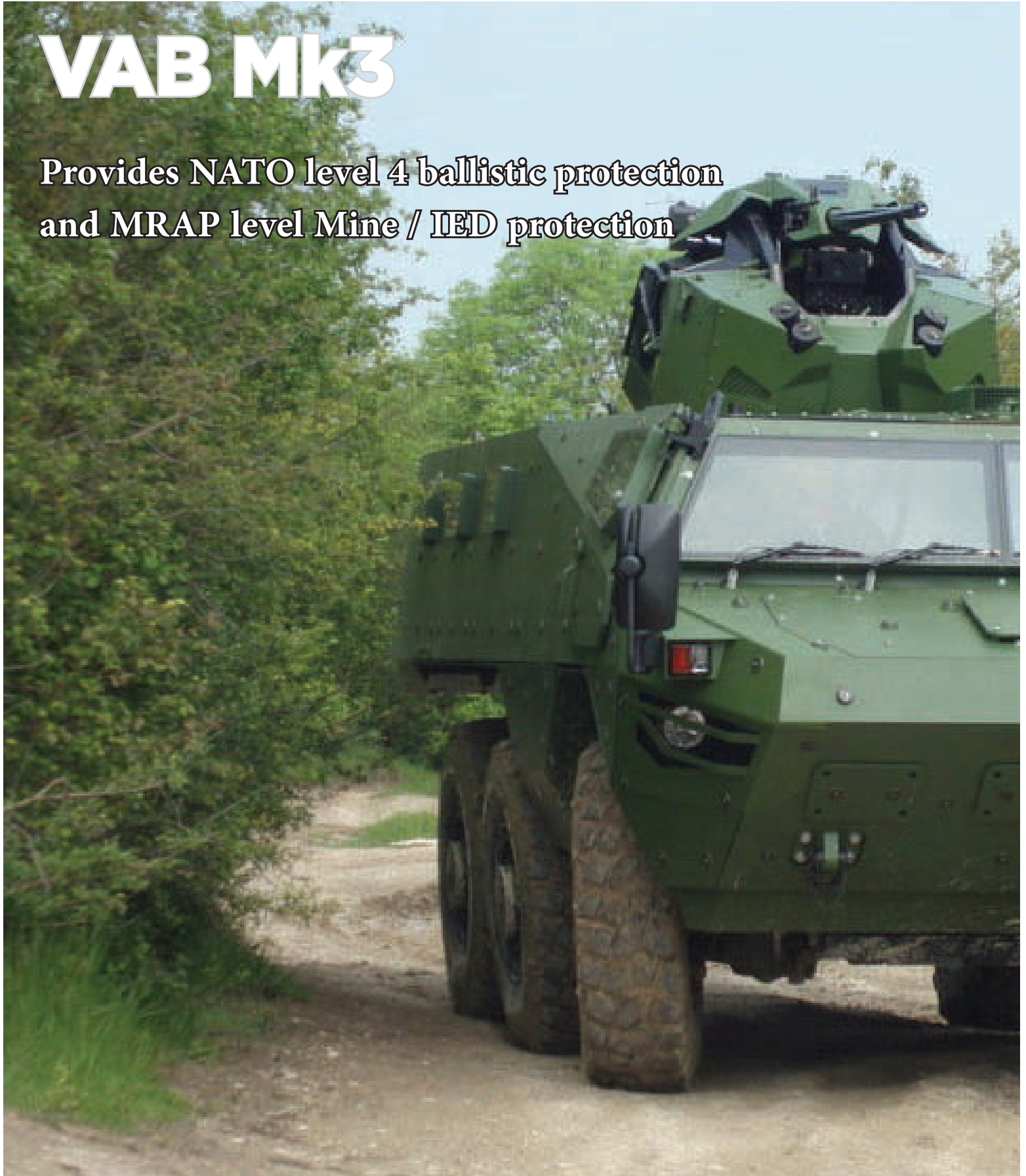
www.lmco.com

www.dtic.mil

www.howeandhowetechnologies.com

VAB Mk3

Provides NATO level 4 ballistic protection
and MRAP level Mine / IED protection





The VAB Mk3 was designed with 30 years of experience with the famous VAB family but is a brand new vehicle. It retains the proven generic architecture of the VAB while being a bit longer and higher to augment the internal volume for the crew. It also retains the 2.55 meters width of the VAB for excellent urban and strategic mobility.

At 20 tonnes of GVW, the VAB Mk3 offers sufficient payload to accommodate various mission and weapon systems. It is also designed with a high level of survivability for the crew: ballistic protection up to NATO level 4 (Stanag 4569) and mine / IED protection up to a MRAP level.

Renault Trucks Defense has envisioned several variants thanks to the modular VAB Mk3 platform: armored personnel carrier, infantry combat vehicle, ambulance, ISTAR (intelligence, surveillance and targeting), 120 mm mortar carrier and command post. An open and progressive electronic architecture developed by Renault Trucks



Technical Specifications

Engine
Speed: 105 km/h
Output Power: 320 / 340 hp
Transmission: Automatic (6 forward gears and 1 reverse)

Defense is also fitted to reinforce the modularity and scalability of the vehicle while enhancing combat efficiency of the complete system.

Engine

The VAB Mk3 is powered by a 320 or 340 hp Renault engine with a 400 hp engine as a later option. It is fitted with independent suspensions, all-wheel drive (6x6), an automatic gearbox and a central tire inflation system (CTIS) for all-terrain mobility.

The vehicle can cross a 0.5 meters vertical obstacle or a 0.9 m trench. It has a max speed of 105 km/h. The VAB Mk3 is also fully amphibious and air transportable by C-130 in some configurations.

The VAB Mk3 vehicle is promoted as an ideal candidate to replace previous generation multirole vehicles like the French VAB, the American M113 or the Russian BTR. It offers a very high level of protection - up to MRAP levels - but with a far better off-road mobility and a complete multirole capability.

The VAB Mk3 is moreover much more affordable than current 8x8 armored vehicles while offering up to 80% of their capabilities.

The VAB Mk3 prototype shown at Eurosatory is equipped with a BAE Systems TRT-25 remotely operated turret. With the TRT-25 or other medium caliber turrets (one man or remotely operated), the VAB Mk3 is able to carry 3 crew members plus 7 infantrymen and

Technical Specifications

Protection

Ballistic protection according STANAG Mines (Stanag level 3A and 2B), IED, passive and active protection

Armour

TRT-25 or other medium calibre turrets
 Interference system (Arinc)
 Turret-mounted camera, night vision, laser and radar warning, countermeasures (ProOptica)

Crew

3 crew members + 7 infantrymen

Gross Weight

20 tonnes

becomes a real light infantry combat vehicle.

Thales and Renault Trucks Defense

At Eurosatory 2012, Thales and Renault Trucks Defense (RTD) have joined forces to extend the capabilities of the VAB Mk3. Under this partnership, the VAB Mk3 new-generation armoured personnel carrier benefits from new capabilities.

Each crew station, fully configurable to the type of mission, displays the real-time image from a turret-mounted camera, providing the three main operators (infantry squad leader, gunner and driver) with a shared picture of the tactical environment. The turret is also slaved to a hostile fire detection system, enabling the crew to respond more quickly and more efficiently to threats.

The vehicle's internal and external communications capabilities are a particular area of focus. The radio system, coupled with the vehicle's core electronics, ensures voice and data links with the rest of the digitised battlespace, particularly other armoured vehicles.

In addition, the VAB Mk3's internal communication network offers extended range for dismounted operations, enabling infantry to stay in radio contact at distances up to 1,000 metres from the vehicle, depending on which options customers choose.

Lastly, an exclusive navigation aid incorporating route profiles and terrain information, coupled with a hybrid GPS / inertial navigation system, ensures a high level of geopositioning accuracy and can also be connected to a target designation system. For the pilot, further capabilities include a driving aid with day and night video feeds. Vehicle logistics data such as fuel, munitions, etc. can also be relayed to higher levels of command, allowing the crew to autonomously manage its energy use to

maximise the VAB Mk3's endurance for very long missions.

Enabling collaborative combat

All these services are integrated within the complementary open architectures developed by Renault Trucks Defense and Thales.

The "Battlenet Inside" system used by Renault Trucks Defense and based on the electronic architectures developed by Volvo interconnects all the vehicle systems and allows them to operate collaboratively. Based on electronic architectures developed for commercial markets, "Battlenet Inside" brings the benefits of COTS solutions to the battlespace after extensive testing on large fleets of commercial vehicles.

Thales's "V Sys-net" solution inserts the VAB Mk3 into a broader digitised sphere of engagement. As a result, the crew are able to work collaboratively both within the vehicle and with other platforms (armoured vehicles, UAVs, artillery, etc.). The "V Sys-net" solution draws on Thales's extensive experience in artillery coordination, reconnaissance vehicle and combat vehicle digitisation programmes in France and around the world.

Through this partnership, Renault Trucks Defense and Thales are able to offer the very best and most cost-effective technical solutions for future programmes and ensure continuing development and support as new requirements emerge •

VAB Mk3 is fitted with independent suspensions, all-wheel drive (6x6), an automatic gearbox and a central tire inflation system (CTIS)

The VAB Mk3's internal communication network enables infantry to stay in radio contact at distances up to 1,000 metres from the vehicle