

NATION SHIELD

**DUBAI AIRSHOW
FLIES HIGH AGAIN**

**HAWK SOARS
TO NEW SORTIE
MILESTONE**

**LM-100J:
'ONLY A
HERC CAN
REPLACE A
HERC'**



يوم الشهيد

COMMEMORATION DAY الولايات المتحدة العربية المتحدة
UNITED ARAB EMIRATES

Issue File

**THE UAE CONSOLIDATES ITS FEDERAL EXPERIENCE
AND STRENGTHENS ITS POSITION**



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The Martyr's Day

The Royal Decree issued by His Highness the President Sheikh Khalifa bin Zayed Al Nahyan, Supreme Commander of the UAE Armed Forces, may God protect him, to observe Martyrs' Day on November 7 - every year is intended to commemorate and pay tribute to the sacrifices of the nation's martyrs. They sacrificed their lives to keep the UAE flag soaring high. They performed their duties and tasks within and outside their country in civilian, military and humanitarian fields. Therefore, this day will be engraved in the memory of every Emirati who will remember the valiant martyrs of the Armed Forces and their sacrifices to keep the UAE flag flying high in the fields of truth, duty and honor.

In essence, the Martyrs' Day initiative embodies the pride in the nation's Armed Forces' brave martyrs. It shows the prudent Leadership of the nation and people's appreciation of their pioneering role in defending the people's gains and the UAE interests locally and internationally, as well as providing a suitable environment for the launch of the process of growth and development in all domains. The Armed Forces have proved to be a school of deep-rooted patriotism through the values of sacrifice, belonging and loyalty which they instill in the hearts and minds of the Emirati youth. They have demonstrated that they are the most important pillars of comprehensive power of the UAE, and also the shield that protects the nation's economic, political and social achievements.

The whole world has witnessed this selfless sacrifice of martyrdom, combined with the honor of military service in the blazing theaters of operation. The world has also seen how the wounded were keen to go back soon to the battlefield and the delight of martyrs' families in the honor acquired by their sons. They are certain that their sons had sacrificed their lives in order to uphold truth in this world and win God's pleasure in the Hereafter, and also to provide security for the UAE people.

The UAE citizens, in all emirates of the country, have made the supreme sacrifice, revealing a deep national belonging and absolute allegiance to the prudent leadership, for the sake of their nation. They amazed the whole world with their readiness to provide more sacrifices in defense of their homeland and give complete support to the mission of our force in Yemen. The people of UAE in return overwhelmed the martyrs' families with love, care and respect, as if all the UAE people are the families of martyrs.

We promise our prudent leadership to make the spirit of martyrdom to guide our progress and advancement, and to perform our tasks and duties with this new spirit which provided us with inspiration.

May God give mercy to our martyrs and protect the UAE, its people and land from evil.

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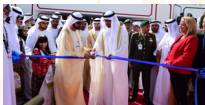
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DUBAI AIRSHOW FLIES HIGH AGAIN



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In accordance with the directives of President His Highness Sheikh Khalifa bin Zayed Al Nahyan, November 30 of each year has been declared as Martyrs' Day to salute the martyrdom of Emirati heroes who lost their lives defending the sovereignty of the nation and express solidarity with their families

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Remembering Emirati Martyrs

Martyrs Day is held in the honor of citizens who lost their lives for the country

In accordance with the directives of President His Highness Sheikh Khalifa bin Zayed Al Nahyan, November 30 of each year has been declared as Martyrs' Day.

The Ministry of Presidential Affairs has decided that the UAE flag will be flown at half-mast in all government departments and institutions across the country on the day from 8am to 11.30am, to salute the martyrdom of Emirati he-

roes who lost their lives defending the sovereignty of the nation and express solidarity with their families. A moment of silent prayer is also held on the day. Participation in the activity is open to all people anywhere, including fed-

eral and local government institutions, businesses, houses and shopping malls.

As per Sheikh Khalifa's directives, Martyrs Day is a national occasion and an official holiday across the UAE, during which a number of commemorative



“The ultimate sacrifice is that of a mother offering her precious son for the sake of the country”

events are held with the participation of government institutions. Emiratis and residents are called upon to mark and proudly recall the values of dedication, diligence and loyalty shown by Emirati heroes who put their lives on the line in the field of battle and where their services are needed.

Top officials have paid tribute to the martyrs, calling them role models, who sacrificed themselves and led the way for other Emirati youth to follow their legacy to defend sovereignty and independence and protect national and cultural gains of the homeland as well as the principles of justice and peace.

His Highness Sheikh Mohammad bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, has repeatedly paid tribute to the Emirati martyrs and their families. He said that the ultimate sacrifice was that of a mother offering her precious son for the sake of the country.

His Highness Sheikh Mohammad bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, has echoed the same sentiments and emphasized that the people of UAE will always remember its exemplary men,

the martyrs in particular.

Sheikh Mohammad bin Zayed said that the martyrs of the UAE are still alive among us and in our hearts as their memory is immortalized in our minds by their sacrifices, honor and good behavior inspiring generations, illuminating the way for them, giving them determination and strong will as well as the values of loyalty and patriotism without which there is no dignity for nations.

The day is meant to pay respect to brave soldiers to ensure that they and their families know that the country has not forgotten them and will remain forever indebted to them for their valor and ultimate sacrifice. Nearly 70 Emirati heroes have been martyred this year while performing their national duty as part of Operation Restoring Hope of the Saudi-led Arab alliance aimed at supporting the people of Yemen and the legitimate government there.

It is a time that will remind the families of those who have been martyred that the UAE has not forgotten them or their sacrifice. Residents and citizens in the UAE are reminded to be respectful on this day.

Martyr's Day events are observed in a way that match the importance of the national occasion, which celebrates the lives of Emirati sons who had made the supreme sacrifice to ensure the security, stability and safety of the UAE. This year, the main activities were launched under the hashtag, “We will never forget their sacrifices.” The activities boost societal participation and enable all categories of the society to express their pride about the sacrifices of the Emirati heroes and allowed the community to share images, messages and video clips, in which they could express their appreciation for the sacrifices made by the Emirati martyrs.

UAE Sends Second Batch Of

Second batch of UAE Troops have been sent to participate



A second batch of UAE soldiers was recently designated to Yemen to join the Arab coalition forces led by Saudi Arabia. The General Command of the UAE's Armed Forces has said that the first batch of soldiers returned to the UAE after being replaced with the second force, which will carry out its duties in Yemen.

The replacement of the first batch comes after it achieved several victories such as their participation in Operations Decisive Storm and Restoring Hope, including the liberation of Marib and Marib Dam, which was rebuilt by the late Sheikh Zayed bin Sultan Al Nahyan and inaugurated in 1986. Nearly 70 Emirati soldiers have been martyred in the war, which is understood to be entering its final phase.

As part of the operation, UAE armored vehicles have also been sent to the front line of the battle for the city of Ta'ez, which has been under attack from Houthi forces in recent months.

The UAE is one of a number of countries battling Houthi rebels in Yemen in a bid to restore the legitimate government. Saudi Arabia is leading the coalition, which also includes Qatar and Bahrain.

The second batches of Armed Forces' soldiers have assumed their duties in Yemen within the Arab coalition forces led by Saudi Arabia. The General Command of the UAE's Armed Forces has said that the process of replacing the forces has successfully been accomplished.

The rebels are using heavy artillery and tanks on homes in densely popu-

Troops to Yemen

in the Yemen war



lated residential areas of the city, the internationally recognized government of President Abdrabu Mansur Hadi said in a letter to UN secretary general Ban Ki-moon. The government said it was confident that the UN would take a stand against Houthi breaches of human rights law. Control of the city is divided between pro-government and rebel forces and months of fighting have taken a heavy toll of civilians. The resistance is fighting the rebels and allied renegade units of the Yemeni military on several fronts in the Ta'ez province but the fiercest clashes have been in the provincial capital. It is receiving support

from the Saudi-led regional coalition, including air cover, weapons and armored military vehicles from the UAE.

Meanwhile President Hadi has issued instructions declaring as null and void all measures and resolutions authored by the rebels at all state civilian and military institutions, regarding civil service and including employment, retirement and appointments.

Honoring Heroes

The first batch of the troops came back to the UAE in line with a troop rotation policy, which saw the second batch of the UAE Armed Forces sol-

diers assume their duties in Yemen on November 2.

The troops headed for Sweihan, where an armed forces parade was held in their honor, with military performances by UAE army personnel. In attendance were UAE leaders, VIPs, officials and media. All television and radio channels also covered the arrival in a unified broadcast that included a ceremonial reception to welcome back the brave soldiers.

The objective of the Arab coalition's operations in Yemen is to end the rebellion and restore stability to the country. Operation Restoring Hope was launched following Operation Decisive Storm in order to complete the liberation of Yemen and reconstruct it following the destruction perpetrated by the Al Houthis and Salehs.

His Highness Sheikh Mohammad bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, has said that the UAE is a nation of peace which never hesitates to establish and promote the causes of peace, and consolidate the foundations for preserving and perpetuating it.

In a statement entitled "The Emirates of Peace", which was released recently as a tribute to the UAE Armed Forces, who returned home after fulfilling their national duty, Sheikh Mohammad said, "The honorable performance of our Armed Forces in the battlefield and their effective contribution towards the victories of the Arab Coalition in Yemen are the best proof that our soldiers maintain high defense and combat readiness, which ensures that our country possesses a shield that protects its soil and a sword that guarantees its security and the safety of it people".



DUBAI AIRSHOW FLIES HIGH

Huge support, stunning aerial displays, billion-dollar

Dubai Airshow has become one of the "must-see, must-attend" aviation showcases in the world. This year's event proved no exception, static displays packed as were aerial displays. More than 1103 exhibitors and 66,000 visitors thronged DWC, Dubai Airshow site. Sixty one countries were represented and there were 150 different aircraft at the show.

Vice President and Prime Minister and Ruler of Dubai, His Highness Sheikh Mohammed bin Rashid Al Maktoum and His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, opened the 14th edition of the Dubai Airshow 2015.

H.H. Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai, and H.H. Sheikh Maktoum bin Mohammed bin Rashid Al Maktoum, Deputy Ruler of Dubai, attended the event, along with senior military and security leaders, and dignitaries in

the state. Military delegations representing more than 120 friendly countries took part with participation of more than 1000 local, regional and international companies specialising in civil aviation and military aviation.

Mohammed Al Bowardi, Under-Secretary of the Ministry of Defence, and Lt. General Hamad Mohammed Thani Al Rumaithi, Chief of Staff of the Armed Forces were also present.

Following the official ribbon cutting ceremony, Sheikh Mohammed bin Rashid Al Maktoum and Sheikh Mohamed bin Zayed Al Nahyan toured the exhibition and



AGAIN deals galore

inspected a number of civil and military aircraft and some special equipment fittings and electronic systems.

Sheikh Mohammed bin Rashid welcomed "Al Fursan" (The Knights), the United Arab Emirates Air Force's aerobatic display team and watched their exciting displays.

He also inspected the Airbus A350 civilian aircraft, displayed for the first time in Dubai. Only six aircraft of this new generation of Airbus have been manufactured. The aircraft carries 325 passengers.

Emirates A380 was in the static display area. Over 18,000 people visited the new two-class Emirates A380 at the



Dubai Airshow. That is the equivalent of filling up 30 full flights on the two-class A380.

The aircraft on display was Emirates' 68th A380 and was ferried from Hamburg to the show site, allowing show visitors a first glimpse on-board the brand new double-decker.

HIGHLIGHTS

Vice-President and Prime Minister and Ruler of Dubai His Highness Sheikh Mohammed bin Rashid Al Maktoum, launched the National Search and Rescue Centre (NSRC), at the Airshow. The new body will report to the Supreme National Security Council. To be based in Abu Dhabi, the NSRC, is the first of



Aerobatic Displays

its kind in the UAE.

The UAE Space Agency attended the Dubai Airshow for the first time since its establishment in 2014. It showcased an interactive stand in the exhibition, which shed light on its international presence as the body responsible for regulating and developing the space sector in the UAE. It highlighted the Agency's programs, current initiatives, and future plans.

The role of foreign investment and industrial co-operation in creating knowledge-based offsetting agreements aimed at the UAE's emerging space program was the focus at the 2015 Technology Co-operation & Investment Conference, which took place on day two of the Airshow. The country's ongoing commitment to developing local talent and Emiratisation goals is already impacting the space race with the UAE Space Agency home to some of the nation's sharpest minds.

Two milestone events of 1971 the successful flight of Apollo 14 in February, and the establishment of the United Arab Emirates in December of that year connected for the first time at the biennial Dubai Airshow 2015.

Led by Kallman Worldwide, organ-

izer of the show's U.S. International Pavilion, a contingent of American aerospace companies gathered in the pavilion meeting point executive lounge to present an American flag flown on that lunar mission as a gift to the new UAE Space Agency. The agency was launched in 2014 with plans for a future mission to Mars, and last month became the first Arab nation to join the International Space Exploration Coordination Group.

The Emirates Defence Industries Company, EDIC, returned to the national exhibition scene to showcase its air platform businesses at the 2015 Dubai Airshow, following its national debut at the International Defence Exhibition and Conference, IDDEX, in February this year.

EDIC is an integrated defence manufacturing and services platform employing 10,000 people in the air, land and sea platforms. Eight of EDIC's companies exhibited at the show, including AM-MROC and GAL, premiere providers of maintenance, repair and overhaul, MRO services for fixed and rotary wing aircraft to the UAE Armed Forces; ADASI, which offers a comprehensive range of services for all types of autonomous systems, and Tawazun Precision Industries,

a world-class manufacturing facility in Abu Dhabi operating in the defence, aerospace and oil and gas business.

Nation Shield participation at Dubai Airshow a huge success

The Nation Shield's pavilion at the just concluded Dubai Airshow attracted a large number of visitors and the journal won praise from many aerospace and defense companies for the excellent coverage it provided to various products and services.

A number of dignitaries and top defense officials visited the Nation Shields pavilion and the journal generated substantive interest from all the visitors. Among the notable visitors were the families of martyrs from UAE. The journal brought out special Show Daily on all the five days highlighting the special features at various pavilions and also carrying interviews of defense experts and top executives from security companies from all over the world.

The Nation Shield, established in 1971 is the mouthpiece of the UAE Armed Forces and has been doing a stellar job in creating awareness about security issues in the country and also functioning as a communication link between the



"Al Fursan" (The Knights)



armed forces and the common people. It has been attending not only Dubai Airshow and IDEX, Abu Dhabi but participating in other key defense expos in the region as well as internationally.

Major French presence

GIFAS, the French Aerospace Industry Association, accompanied around 30 French companies that were showcasing their products and technologies. This number comprises not only of large integrators, but also equipment manu-

facturers, SMEs and companies involved in MRO. Plus, there were more French companies that were taking part at the Airshow and had their own stand.

The French industry has been a long-standing partner of the UAE Air Force, providing strategic and reliable equipment. French companies were therefore keen to show that they are willing to continue accompanying the Emirati authorities in their new economic and scientific endeavors. French companies federated by GIFAS included Air Cost

Control, BeAM, Composite Industrie, Daher, Dassault Systèmes, DCI, Dedienne Aerospace, Erte Bowen, Euprep Industries, Factem, Finaero, GMI Aero, Lacroix, Latecoere, Nycor, Price Induction, Revima Group, Sabena Technics, SDV, Thales et Tubescia Comabi. Further, Airbus Group has its own pavilion and companies such as Air France Industries KLM Engineering & Maintenance, ATR, Dassault Aviation, MBDA and Safran are present as well.

Strong UK delegation

The UK reflected its continuing commitment to its relationship with the UAE with a strong delegation at the Dubai Airshow. The UK Government delegation was led by Philip Dunne, Minister for Defense Procurement. He was accompanied by Lieutenant General Tom Beckett, the UK's Defense Senior Adviser Middle East, and a number of other high profile officials. The Royal Air Force provided a Typhoon aircraft for the display program and a Hawk T2 aircraft on the static line.

Dunne said: "The UK and UAE continue to enjoy a close relationship as strategic partners, and more widely, the UK remains committed to promoting security and stability in the Gulf region. What happens here not only has a direct impact on the national security of the Gulf states and their citizens, but also the United Kingdom and the safety of our peo-



Nation Shield at Dubai Airshow

ple, which is why it is vital that we work with close allies like the UAE to tackle regional threats such as Daesh."

Mubadala supports Abu Dhabi vision

Mubadala had a significant presence at its fifth consecutive Dubai Airshow. The Abu Dhabi-based investment and development company, showcased assets from its aerospace and engineering services portfolio, including Al Yah Satellite Communications Company, Piaggio Aerospace, Nibras Al Ain Aerospace Park, Sanad, SR Technics, Strata Manufacturing and Turbine Services and Solutions Aerospace.

Homaid Al Shemmari, CEO of Aerospace and Engineering Services at Mubadala, said: "The Dubai Airshow has become one of the world's premier events for the aviation industry, and Mubadala, along with its partners, plays a key role in showcasing the potential of this industry to the region and the world. The Airshow is an opportunity to display the innovation and growth of the UAE's aerospace sector, including our capabilities, product offerings and services to a global audience as we continually work towards supporting Abu Dhabi's Economic Vision 2030 in developing

a global aerospace hub in Abu Dhabi".

Boeing

Dubai-based Flydubai marked its fourth participation in the Dubai Airshow by showcasing its 50th aircraft, the newest and last aircraft to be delivered from the carrier's historic order placed at the Farnborough International Airshow in 2008. Flydubai then placed an order for 50 Next-Generation Boeing 737-800 aircraft.

Lockheed Martin

Lockheed Martin has become the first global security and aerospace company to open a permanent new chalet facility at Dubai World Central, a move which underpins the strength and depth of the company's partnership with the UAE and the wider Gulf region.

Lockheed Martin presented the C-130J Super Hercules, the world's most advanced tactical airlifter. Designed and developed with mission flexibility in mind and with capabilities suited to every theater of operations, the C-130J is suited to multiple roles such as combat delivery, civil air freight, air-to-air refueling, special operations, disaster relief and humanitarian missions.

DynCorp International

DI has been a trusted partner in the UAE for more than 20 years, bringing the full range of the company's diverse capabilities and decades of experience to international customers.

In the Emirates, DI currently provides qualified staffing for Apache AH-64 helicopter technical support services that include aircraft, vehicle and equipment maintenance, life support, supply, and flight and maintenance training.

Sukhoi Superjet

Russia's Sukhoi Civil Aircraft Company (SCAS) showcased its Sukhoi Superjet 100 (SSJ100), an advanced and cost-effective commercial aircraft.

The SSJ 100 is built with state of the art technologies in aerodynamics, engine and aircraft systems. The high standard of comfort is the distinctive feature for this aircraft. The SSJ100 cabin is designed by the well-known Italian design and engineering firm Pininfarina, boasts an optimal combination of commercial efficiency with maximal comfort level.

Global Aerospace Logistics

Global Aerospace Logistics (GAL) recently announced the creation of a new



Flydubai placed an order for 50 Next-Generation Boeing 737-800 aircraft



3D-printed drone

training program in collaboration with Spartan College of Aeronautics and Technology located in Tulsa, Oklahoma, USA. The training program is designed to offer UAE citizens - whether prospective GAT employees or UAE Armed Forces personnel - the opportunity to receive GAT sponsored training at the world's leading aviation maintenance training institution. The arrangement is based on a unique set of principles that combine high quality education with customized features.

AgustaWestland

Fimmeccanica-AgustaWestland exhibited the latest additions to its product portfolio, including the all new AW189 super-medium twin helicopter and the new generation AW169 light-intermediate twin.

AW189 customers in the Middle East include Gulf Helicopters from Qatar as well as operators from the UAE, including Falcon Aviation Services from Abu Dhabi and Dubai Air Wing, carrying out offshore or passenger transport missions.

AAR

AAR highlighted its expanded global presence in the Middle East, Europe and

Africa, and its broad portfolio of aviation services at the Dubai Air Show. Its offering included commercial aircraft MRO; supply chain; inventory management and component repair for commercial and government customers; and fixed- and rotor-wing Airlift support for government and defense customers.

Electronica

Electronica displayed a range of mock-ups at the Airshow that showcase the advanced technologies being developed by the company. An example is the ELT/568 Padded solution. It is designed to provide an effective defensive and attack capability for the latest generation of fighter aircraft and helicopters.

Based on advanced system architecture and incorporating proprietary components, the ELT/568 represents the company's most advanced and threat-responsive solution to the modern and challenging customer requirements.

Bell Helicopter

Bell Helicopter, a Textron Inc. company, signed a Letter of Intent with Horizon International Flight Academy to become the first Bell Helicopter authorized training center in the Middle East. Based at Al Ain International Airport

and purpose-built for flight training, Horizon International Flight Academy sets the benchmark for pilot training in the Middle East, delivering unequalled flight training.

ADASI

The Aerostat on display has been designed and developed by ADASI's Emirati engineers to meet the requirements of the UAE Armed Forces. The Aerostat has the ability to integrate up to four payloads.

Rockwell Collins

Royal Jordanian Airlines will use Rockwell Collins' ARINC GLOBALink to provide primary communications for its aircraft. The airline, based in Amman, provides service to Europe, Asia, Africa, North America and the Middle East.

"We fly extensively across desert and oceanic routes, so we needed a communications network with global coverage," said Royal Jordanian's President/CEO Captain Suleiman Obheidat.

Textron Systems

Textron Systems smart weapons were one of the star attractions at the Airshow. Textron showcased next-generation PGM, Fury and G-CLAW Weapon.



The French industry has been a longstanding partner of the UAE



US Companies showcased their products and technologies

on & Sensor Systems. In addition, the ground sensor capabilities of MicroObserver and Spider were also displayed. Textron Systems' Sensor Fuzed Weapon (SFW) is a highly effective air-delivered area weapon. The SFW is a smart air-to-ground area weapon designed to defeat multiple moving and fixed vehicular targets on land and at sea.

Raytheon

Once again, Raytheon had a large presence. The threat environment is continually changing, and customers in the region are constantly evaluating how best to counter a variety of new threats. Raytheon's broad portfolio of products and capabilities, global training solutions, cybersecurity, integrated air and missile defense solutions and precision effects uniquely positions it to provide the UAE, Middle East and North African region with a wide range of proven defense technologies and solutions.

Bombardier

His Highness Sheikh Mohammed bin Rashid Al Maktoum, visited the Bombardier CSeries aircraft at the show. Bombardier Commercial Aircraft announced that the CS100 aircraft flight test program is close to 100 per cent complete. Only a few tests remain to be completed and Bombardier is on track to have the aircraft certified this year with Transport Canada.

DC Aviation Al-Futtaim

DC Aviation Al-Futtaim (DCAF), a joint venture between Dubai-based Al-Futtaim group and Germany's DC Aviation, participated for the second consecutive time at the Dubai Airshow in a big way. DCAF's core areas of business include: aircraft management, maintenance, FBO and ground handling and business jet charter.

Located in a prime position just off the



Sixty one countries were represented and there were 150 different aircraft at the show

airport's runway, the DCAF hanger and 7,700 sq.m dedicated ramp parking enables 24-7 support, maintenance services and operation of private and businesses jets of all sizes.

Alenia Aermacchi

Alenia Aermacchi displayed the latest version of the MC-27 multi-mission airlifter and gunship, equipped with advanced electro-optic sensors and Orbital-ATK mission system and 30mm cannon. The aircraft was being displayed for the first time at an airshow in its latest version.

Futures Day

Over 3,000 students converged on the final day of the Dubai Airshow for a glimpse of the exciting world – and career opportunities – offered by the global aerospace industry.

"Futures Day is an integral part of the Dubai Airshow calendar as the industry grows exponentially across every sector of the profession. This is a fantastic opportunity for companies to meet with the pilots, engineers, ground operators, ATC controllers and even astronauts of the future, and presents a one-of-a-kind forum for discussion around education, recruitment and training," said Michele van Akeijlen, Managing Director of

show organisers F&E Aerospace. It was jointly sponsored by Airbus and Boeing.

Fastest 3D-printed UAV

The world's fastest, largest and most complex 3D-printed drone was unveiled, forming the centrepiece of the region's debut 3D printshow.

The jet-engine powered UAV was demonstrated by show sponsor Stratasys. The lightweight aircraft, which took just two months to create and can break speeds of 200 miles per hour, is being used to highlight the flexibility of the technology to aircraft and technology manufacturers.

AVIC

The aviation corporation of China has attended the Dubai Airshow for the last three editions and was present this year with a range of exhibits that demonstrated the overall improvement of the China Aviation industry in technology and innovation.

Themed "Development in International Aviation Product Market with Full Effort", AVIC has shown its military and civil wares. Visitors were able to familiarize themselves with the FC-1 and FC-31 fighters and Z-19E and Z-9WE armed helicopters as well as a range of training models UAV and other aircraft.



This was first time the FC-31 and Z-19E had been displayed on foreign soil.

Deals...Deals...Deals

- Emirates announced the signing of a \$16 billion OnPointSM solution agreement with GE Aviation for the maintenance, repair and overhaul (MRO) of the GE9X engines that will power the airline's fleet of 150 Boeing 777X aircraft over a period of 12 years. This is Emirates' largest single engine MRO contract to date.

- Jet Airways placed an order for 75 Boeing 737 Max, valued at \$8b. It will start delivery from 2018.

- Vietnamese carrier Vietjet has placed a firm order with Airbus for the purchase of 30 more A321s (9 A321neo and 21 A321neo). The order has a catalogue value of \$3.6 billion.

- UAE Air Force unveiled a deal with Swedish aerospace firm Saab worth \$1.27 billion. It will see the UAE purchase two Global 6000 long-range surveillance aircraft, while a further two Saab 340 jets already in UAE ownership will undergo systems upgrades.

- Adnoc Distribution, announced that the company plans to pump Dh1.5 billion in investments in 2016.

- UAE national carrier Etihad signed a MOU with Abu Dhabi investment and

development firm Mubadala worth a potential \$1billion.

- Canada's Bombardier confirmed Air-Baltic will be the launch customer of the CS300 with delivery of the first aircraft to start in the second half of 2016.

- Abu Dhabi Autonomous Systems Investments Company signed an agreement with L-3 WESCAM to open an L-3 WESCAM Authorized Service Centre (WASC) in Abu Dhabi. The new service centre will offer maintenance and repair solutions to regional customers who operate L-3 MX-10 or MX-15 electro-optical and infrared (EO/IR) imaging and targeting systems.

- Tawazun Precision Industries (TPI), a UAE-based subsidiary of the Emirates Defense Industries Company (EDIC) signed a significant contract with the Boeing, to manufacture complex metallic machined parts for tactical aircraft at TPI's new treatment facility, currently under construction in Abu Dhabi.

- Rockwell Collins has been selected by Turkish Airlines to provide its EP-8100 visual system for the airline's Boeing Next Generation 737, Airbus A320 and Airbus A330 full flight simulators.

- Rockwell Collins announced that Flydubai has selected a suite of Rockwell Collins avionics, including the Head-up Guidance System (HGS), MultiScan

ThreatTrack weather radar and datalink communications system for 11 Next-Generation Boeing 737 aircraft. Deliveries will take place during 2016 and 2017.

- Thales recently announced the selection by Etihad of its dual configuration Head Up Displays for the first 12 aircraft of its new Airbus A350XWB fleet scheduled to be delivered from December 2017 by Airbus. A total of 62 A350XWBs have been ordered by Etihad and the first 12 aircraft will be delivered by December 2017.

- US aerospace group Boeing and India's Tata Advanced Systems announced a deal to make airframe parts for AH-64 Apache attack helicopter, recently ordered by India, and collaborate on integrated systems development opportunities in India.

- Oman Air has signed an agreement with Airbus to upgrade the cabins of its A330s. This interior modernization will harmonize the airline's business class cabins across its long-range fleet and ensure the latest standards in its A330s.

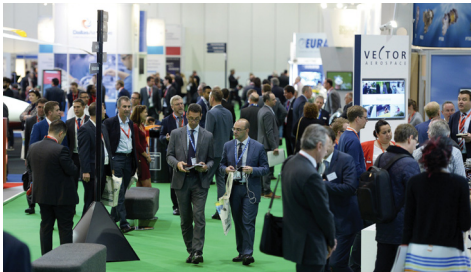
- The Joint Aviation Command of the UAE announced it has selected the AW609 TiltRotor for search and rescue missions. Delivery of the first three AW609 TiltRotors to the JAC, with three additional options, is expected to start in 2019.

- Global Vectra Helicorp has signed a PBH contract for its H130 light helicopter, benefiting from Airbus Helicopters' redefined customer service offer called HCare introduced early this year.

- L-3 WESCAM has signed an agreement with Abu Dhabi Autonomous systems Investments Company (ADASI), a subsidiary of Emirates Defence Industries Company, to open an L-3 WESCAM Authorized Service Center in Abu Dhabi.

HELITECH INTERNATIONAL FLIES TO

'Ideal show' for helicopters with 215 exhibitors



Helitech International returned to London this year and took place on October 6-8 at ExCeL London. The exhibition proved to be a huge success with 215 exhibitors and more than 4000 people attending, representing 65 countries. This highlighted the growing international appeal of the event.

Exhibitors used the show to make important announcements and unveil or showcase new technologies to visitors and media. As Mohamed Al Mohanadi, the CEO of Gulf Helicopters, said: "Helitech International is the ideal show specifically for helicopters where you meet quality people, not just window shoppers. All the people who talked to us are exactly the people we want to speak to – suppliers etc. The show is key for our business at this moment. That is

why we made the strategic decision to exhibit".

EXCITING TECHNOLOGY

New technology in the rotorcraft industry was a key feature of this year's Helitech International, with many exhibitors displaying innovative and exciting products. Several US businesses provided varied systems and products, such as Blue Sky Network which unveiled its new satellite tracking system, the Hawk-

eye 7200A. The Hawkeye 7200A is one of the most modern tracking systems, weighing just 450g and exceeding all performance criteria required of it. It uses the most advanced technology available, including a high grade GNSS receiver which incorporates GPS and GLONASS for double-level tracking, increasing accuracy.

Rockwell Collins brought along its latest Pro Line Fusion Flight Deck, which has been designed to suit commercial

NEW HEIGHTS

helicopter flights. The new flight deck helps pilots manage, monitor and master flight automation and has an intuitive touch screen capability.

LAW ENFORCEMENT

Churchill Navigation showcased its up-graded Augmented Reality System, primarily for law enforcement helicopters which is built to work with gyro-stabilised cameras to provide pilots with a full picture of aerial imagery. Pilots can use overlays or search tools to see details such as house numbers and street names which could help when tracking people down.

BLR Aerospace was displaying its FastFin System, which modifies the helicopter tailboom to improve airflow to make tail rotor management easier, safer, more efficient and more productive. The FastFin is already employed on Bell 412 helicopters. Also exhibiting at Helitech International, ITT Endline displayed its energy absorption and vibration isolation rotorcraft solutions. Of particular relevance was its pylon isolation system, reducing noise and vibration, which not only allows for a more comfortable passenger ride but also extends the life of other components.

Meanwhile, UK-based TracWare officially launched its AeroTrac Platinum v2.50 process control software, improving functionality for the user and ensuring compatibility with the latest Microsoft technologies.

Another UK company, Enterprise Control Systems (ECS), displayed its anti-Unmanned Aerial Device (UAV) defence system (AUDS) at Helitech International for the first time. ECS has teamed up with Blügher Surveillance Systems and Chess Dynamics Ltd (two other UK companies) to address the in-



creasing issues around the malicious use of UAVs. The combined effort has led to the creation of a smart sensor and effector package that detects, tracks and disrupts potentially malicious UAVs with a measured response.

The German company Reiser Simulation and Training was presenting its full range of simulation tools, as well as announcing that it is developing a full flight system simulator for the H145 helicopter. Reiser has worked with the German civil air rescue service ADAC to produce the most reliable simulator at the lowest operational cost. Reiser

was also at the show to talk about its maintenance training helicopter. Reiser is one of the first companies to produce a maintenance training helicopter by fully replicating military helicopters, at about 20 per cent of the cost of a real helicopter, lowering the cost of staff training and making it more accessible.

BIGGEST ANNOUNCEMENT

By far the biggest announcement during the show was from Irish firm Waypoint Leasing which announced its order for 20 Airbus H135 helicopters, along with 18 Agusta Westland helicopters, in-



cluding a mix of AW139, AW169 and AW189 helicopters. The company has recently opened an office in London to aid in its efforts to expand its business globally and these recent acquisitions will further its expansion efforts.

Bell Helicopter announced its expansion plans as well, extending its European footprint by adding a service and support centre in Germany. Equally US-based Aviation Specialties Unlimited publicised its growth news, with its selection of Specialist Aviation Services as its dealer and service centre for the UK and Ireland.

UK aviation leasing company Lease Corporation International (LCI) has reached out to Australia, finalising two long-term debt facilities to support more than US\$200 million of incremental rotary-wing fleet growth in the country; the company has announced at Helitech International. LCI will be leasing four new AgustaWestland AW139s to Australia's Westpac Rescue Helicopter Service.

In the UK Helicopter Emergency Medical Services (HEMS), Lincolnshire and Nottinghamshire Air Ambulance announced that a new AW169 would

Helitech International 2016 will be held at Amsterdam from October 11-13, 2016

replace their current MD902 Explorer, which Specialist Aviation Services operates on its behalf, while Yorkshire Air Ambulance signed for an Airbus H145 helicopter at the show.

Norsk Luftambulans will be the first operator of an improved H135 helicopter, announcing an order for three units during Helitech International and the UK National Police Air Service (NPAS) formally accepted delivery of its first up-graded EC135 T2+ helicopter.

COEXISTING WITH UAVs

A major part of Helitech International is its Education Programme. This year the informative Business and Strategy

Conference was expanded to include two extra sessions on some of the hot-test topics of the moment. These Focus On sessions talked about UAVs and offshore wind farms. The question around whether UAVs and helicopters can co-exist was raised in the session, as the number of commercially available UAVs is rising quickly.

The session highlighted how many companies are using UAVs for activities such as surveillance or monitoring, where they wouldn't have been able to afford a helicopter, which is part of the potential risk to helicopters. However, there are many tasks which helicopters still perform better, primarily where passengers are concerned, so while UAVs are doing some tasks, there are possibilities to embrace these changes and allow the two vehicles to co-exist without fear, at least for now.

The Business Leaders Forum has become a key component of the Education Programme, and this year's session, chaired by Aotife O'Sullivan, Head of Aircraft Finance at Kennedys Law LLP, included some very pertinent discussions around the consequences to the rotorcraft industry of the global drop in

oil prices.

Mike Platt, CEO of LCI recognised that there are many growth opportunities in the HEMS and Search and Rescue (SAR) markets which have helped to maintain a level of health in the rotorcraft industry. In particular, as oil and gas move increasingly offshore, opportunities in SAR operations are growing. Equally, Jim Payton, VP Customer Business, Civil Helicopters and Light Turboprops at Rolls-Royce Corporation stressed how while this may be the case, the industry is also looking at alternative ways of powering flight, including the possibility for hybrid or electric engines and alternative fuels. The session left the audience with a strong sense of future opportunities and challenges for the rotorcraft industry.

The second day of the Education Programme was dedicated to the European Helicopter Association Rotorcraft Seminars, which covered legislation changes in rotorcraft in an informative and interesting way. The keynote address was given by John Franklin, Head of Safety Analysis and Research of the European Aviation Safety Agency (EASA).

DISPLAYS

In terms of displays, Helitec International had a significant static display, with several helicopters both inside and outside the exhibition, including the Guimbal Cabri G2 from Helicentre, a Robinson 44 Raven II from A2B Aero, an AS350 from AS Aerospace, an Airbus H135 a Sikorsky S-76 from Air Harrods and a Bell 429, which also took visitors up on flights during the show.

Exhibitor stands were also very impressive, with full-size mock-ups of helicopters on some, and striking displays on others, demonstrating the importance exhibitors place on the show. The strong attendance at Helitec International 2015 will be followed by Helitec



Helitec International had a significant static display, with several helicopters both inside and outside the exhibition

International's return to Amsterdam on October 11-13 2016, where over half of the stand space has already been allocated. John Hyde, the Exhibition Director at Reed Expo, said: "Helitec International has gone from strength to strength. Exhibitors know when they come to this exhibition that they will be able to engage with the correct people in the correct markets. The Education Programme is an integral platform for thought leadership, innovation and debate in the industry, also drawing an important crowd".



Bell Signs LOI With Horizon International Flight Academy

Bell Helicopter, a Textron Inc. company, recently signed a Letter of Intent (LOI) with Horizon International Flight Academy to become the first Bell Helicopter authorized training center in the Middle East.

Based at Al Ain International Airport and purpose-built for flight training, Horizon International Flight Academy will set the benchmark for pilot training in the Middle East, delivering unequalled flight training.

"We are looking forward to becoming a member of the Bell Helicopter authorized training network," said Hareb Thani Al Dhaheri, CEO, Horizon International Flight Academy. "Since our inception in 2003, our goal has been to provide training solutions that meet international standards in a safe and secure environment. With the increasing demand in the region for pilots, we are at the forefront of meeting this requirement for



both the Military and Civil sectors."

Ray Lamas, General Manager, Global Customer Training, Bell Helicopter said, "We are thrilled that Horizon International Flight Academy has expressed interest in becoming a Bell Approved Authorized Training Center for both single and twin engine Bell Helicopters. We have been planning to expand our training footprint in the region to cater to the growing presence of Bell Helicopter and to better serve our customers, and Horizon's reputation for their training capa-

bilities is second to none."

Bell Helicopter provides customers with local support in every corner of the world and has one of the largest support networks in the industry with over 100 authorized customer service facilities in 34 countries. The company offers quick delivery of service and support, and gives customers access to service professionals who are easy to reach, know the operating environment and understand their needs.

Saudi Arabia Requests Approval to Procure Major Defence Equipment

The US State Department has made a determination approving a possible Foreign Military Sale to the Government of Saudi Arabia for air-to-ground munitions and associated equipment, parts and logistical support for an estimated cost of US\$1.29 billion. The Defense Security Cooperation Agency delivered the required certification notifying Congress of this possible sale on November 13, 2015.

The Government of Saudi Arabia requested approval to procure a number of Major Defence Equipment (MDE) such as 1,000 GBU-10 Paveway II Laser Guided Bombs (LGBs), 2,300 BLU-117/MK-84 2000lb General Purpose (GP) Bombs, 1,500 BLU-109 2000lb Penetrator Warheads, among others.

This request also includes the following non-MDE items and services: pro-

curement of bomb equipment components such as adaptors, nose plugs, fusing mechanisms, swivels, support links and connections, among others. The total estimated MDE value is US\$1.10 billion, and the estimated total overall value is US\$1.29 billion.

The purchase replenishes the Royal Saudi Air Force's (RSAF) current weapon supplies, which are becoming depleted due to the high operational tempo in multiple counter-terrorism operations. The proposed sale augments Saudi Arabia's capability to meet current and future threats from potential adversaries during combat operations.

This acquisition will help sustain strong military-to-military relations between the United States and Saudi Arabia, improve operational interoperability

with the United States, and enable Saudi Arabia to meet regional threats and safeguard the world's largest oil reserves.

This acquisition contributes to the foreign policy and national security of the US by increasing the security of an important partner that continues to be a significant force for political stability and economic progress in the Middle East. Sustaining Saudi military capabilities deters hostile actors, increases US-Saudi military interoperability, and has a positive impact on the stability of the global economy.

The prime contractor will be determined by competition. There are no known offset agreements proposed in connection with this potential sale.

P&WC Launches PT6A-140A Turboprop

Pratt & Whitney Canada (P&WC) recently announced the launch of the new PT6A-140A turboprop engine and the PT6A-140AG variant - bringing the world's most popular turboprop family to more than 70 engine models strong. The new engines set the benchmark for performance and fuel efficiency delivering 15 per cent more power and five per cent better specific fuel consumption (SFC).

"The announcement demonstrates our ability to continuously innovate and raise the bar with the PT6A family to make the world's best engines even better," said Denis Parisien, Vice President, General Aviation, P&WC. "There are more than 70 PT6A engine models used for over 125 different aircraft applications around the globe - a testament to the PT6A's unmatched versatility, performance and reliability."

Every aspect of the PT6A-140A is designed with the needs of the operator. With no mandatory time requirements for warm-up or cool-down, the engine enables operators to maximize their productivity and efficiency. Ease of maintenance and flexibility for high-cycle operations are inherent to the engine and offer one of the longest time-between-overhaul (TBO) intervals available. The TBO can also be extended up to 8,000 hours or 12 years depending on the operation and it is not tied to engine cycles. Designed and built to outlast others in the same class, the PT6A-140A has a minimum component life limit which is 50 per cent higher than competing engines.

Optimized for the "hot and high" environments, both PT6A-140A and -140AG engines have 867 mechanical shaft horsepower (SHP) and 1,075



thermal SHP, and offer full-load take off at maximum power available at 1110°F (440°C).

Nexter Displays the Various Capabilities of TITUS®

For the first time since its creation in 2006, the Nexter Group was present at the 19th Internal State Security exhibition held recently at the Paris-Nord Villepinte Exhibition Centre.

TITUS, Nexter's versatile 6x6 vehicle, was displayed at the Group's stand fitted out with its "Internal Security" operations kit. A true modular platform, the TITUS is suitable for a broad spectrum of missions, from troop transport operations to support in combat and logistical support missions, through security missions, peacekeeping or counter-insurgency. Protected against ballistic and IED attacks, and also against CBRN threats (Chemical, Biological, Radiological and Nuclear), while offering exceptional mobility, TITUS is an undeniable asset for security forces worldwide.

The equipment subsidiaries of Nexter Group were also represented at the exhibition such as Nexter Robotics presented its range of mini-robots; NBC-Sys highlighted its expertise in terms of CBRN

protection; Nexter Electronics presented its solutions for electronic systems in harsh environments and Optsys demonstrated the effectiveness of its protected vision systems.





Boeing, Ryanair Celebrate 375th Next-Generation 737-800 Delivery

Boeing and Ryanair celebrated the Irish low-cost carrier's 375th direct delivery of a Next-Generation 737-800 recently. Ryanair is the largest Next Generation 737-800 customer in the world having ordered more than 530 of the airplane type.

"As Europe's largest airline, the reliability and customer appeal of the Boeing 737-800 aircraft has been the cornerstone of our growth over the last 16 years and we are proud to take delivery of our 375th Boeing 737-800 aircraft," said Mick Hickey, Ryanair's Chief Operations Officer. "Our current and future Boeing orders will allow us to grow our fleet to over 540 all-Boeing aircraft, which will see our traffic double from 91 million annual customers last year to 180 million per annum by 2024."

"A key component of Ryanair's success has been the safe, reliable and economic performance of the Next-Generation 737-800," said Todd Nelp, Vice President of European Sales, Boeing Commercial Airplanes. "We are honored by Ryanair's continued confidence in our products as we celebrate this significant milestone in our shared history."

Ryanair is also the launch customer of the 737 MAX 200, the newest member of the 737 MAX family, ordering 100 airplanes in 2014. A variant based on the successful 737 MAX 8, the 737 MAX 200 can accommodate up to 200 seats, increasing revenue potential and providing customers up to 20 per cent better fuel efficiency per seat than today's most efficient single-aisle airplanes.



Ryanair operates more than 1,600 flights per day and is projected to carry more than 105 million passengers this year. As well as 100 737 MAX 200s, the carrier also has more than 150 unfilled orders for 737-800s. The Dublin based airline is this year celebrating its 30th anniversary of operations since its first flight in 1985.

Bombardier Welcomes 5 New Latin American Airlines to its Family



Bombardier Commercial Aircraft recently welcomed five Latin American airlines to its family of operators, and congratulated another that has extended its service offerings in the region with Bombardier-manufactured commercial aircraft.

Among the airlines that have joined Bombardier's growing family of CRJ Series aircraft operators is Rosario, Argentina-based Sol Líneas Aéreas, which started service with a CRJ200 regional jet in October 2015. Bom-

bardier is also welcoming Star Perú of Lima, Peru; Boliviana de Aviación, Bolivia's flag carrier; Amazonas Paraguay, of Asunción, Paraguay; and BQB Líneas Aéreas of Montevideo, Uruguay, as it works closely with the airlines to support the launch of their respective operations with CRJ200 aircraft.

"Latin America continues to be a region of tremendous opportunity and growth for Bombardier and its customers – recognizing our respective commercial aircraft presence

in the market is key to our mutual expansion strategy," said Alex Glock, Vice President, Sales, Latin America and the Caribbean, Bombardier Commercial Aircraft. "The CRJ Series regional jets, Q400 turboprops and all-new C Series aircraft are great choices for new and established operators that are seeking flexibility, reliability and cost savings as they look to change domestic transportation in the region over the course of the next couple of decades."

Raytheon's Next Generation Jammer Completes PDR Milestone

Raytheon in partnership with the US Navy has completed the Preliminary Design Review (PDR) for the Next Generation Jammer (NGJ) program, a key milestone in the acquisition process.

"Raytheon and the Navy have made system engineering process discipline a top priority from the outset of the NGJ program," said Travis Slocumb, Vice President of Electronic Warfare Systems at

Raytheon's Space and Airborne Systems. "The successful completion of PDR is indicative of the strength of our partnership, and we will apply that same focus as we move into the follow-on phases of the program."

The NGJ is scheduled to replace legacy ALQ-99 jamming pods, delivering new capabilities for the Navy's EA-18G Growler. The Navy plans to declare Initial Oper-

ating Capability for the Jammer in 2021.

"The jammer's open architecture design, coupled with high-powered, solid state electronics and agile jamming techniques, will enable us to meet US Navy electronic warfare mission requirements while ensuring the affordability of future upgrades," said Daniel Theisen, Director of Airborne Electronic Attack programs for Raytheon Space and Airborne Systems.

Northrop Grumman, US Army Achieve Milestone for IAMD



The US Army and Northrop Grumman Corporation achieved a major milestone for integrated air and missile defense (IAMD) when the IAMD Battle Command System (IBCS), using tracking data from Sentinel and Patriot radars, provided the command-and-control (C2) for a Patriot Advanced Capability Three (PAC-3) interceptor to destroy a cruise missile target.

"The flight test validated the ability to identify, track, engage and defeat targets using sensors and an interceptor from different air defence systems operating on the integrated fire control network and under the control of the IBCS.

"The technical challenge of integrat-

ing sensors and shooters that were never designed to work together – breaking them from existing systems into components for networking – is tremendous," said Dan Verwiel, Vice President and General Manager, Integrated Air and Missile Defense Division, Northrop Grumman Information Systems. "With the successful intercept, the Army and Northrop Grumman team continues to show how IBCS is a paradigm-shifting system of systems for air and missile defence."

The flight test began when an MQM-107 drone target, serving as a cruise missile surrogate, flew a low altitude trajectory against an asset defended by an Army IAMD task force. The

defence consisted of battery and battalion IBCS engagement operations centres, a Patriot radar and two Sentinel radars, and two PAC-3 launchers connected at the component level to the IBCS integrated fire control network. Because the low altitude trajectory of the target obscured it from the Patriot radar's field of view, the IBCS correctly used the Sentinel composite tracking data to calculate and present the necessary engagement solution. The engagement operations centre operator then commanded, via the IBCS mission control software, the launch of a single PAC-3 interceptor missile to destroy the target.

ORBITAL ATK SEEKS M.E. PARTNERS

Armament firm open to transfer of technology and joint production

By Sakha Pramod

The UAE and Middle East generally constitute an important potential customer for the company Orbital ATK Armament Systems Division, hence it is keen to investigate the prospect of cooperative development and production in the region. On the sidelines of DSEI in London DANIEL OLSON, Vice President and General Manager of the division outlined to NATION SHIELD about how keen Orbital ATK is to enter into a joint venture in the UAE to have a more permanent presence there. This will maintain continuity, build credibility and ensure Orbital ATK is always in touch with the customers. Olson also spoke about some of the state-of-the-art products Orbital ATK offers. Excerpts:

Orbital ATK's Armament Systems is participating in DSEI. What are the highlights?

I think there are several. We have a portfolio of products that is right now very relevant for what is happening in the region. The escalation of conflicts is feeding interest in our portfolio. So our cannons business in particular is very popular. We are the largest producer of medium caliber chain cannons in the world. We have about 15000 of those installed around the world.

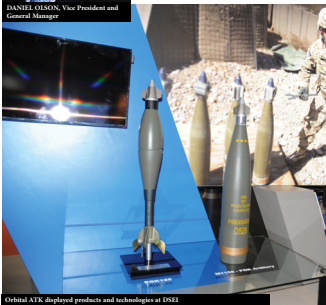
And there are a lot of new vehicle platform competitions currently under way



DANIEL OLSON, Vice President and General Manager

that we're participating with system integrators and so our expectation is that we are going to see a lot more worldwide sales of our cannons; in particular, our Mark 44 which is a 30 mm that is convertible to 40 mm with airbursting capability. Our full suite of ammunition remains an area of interest for coproduction as countries seek their own indigenous capability for producing, not being dependent on a different sovereign source for their ammunition.

And we are really focusing on trying to introduce our precision capabilities to the



world. As an example our precision guidance kit is the only US qualified precision guidance kit for artillery right now can convert legacy inventories of conventional 155mm artillery projectile to precision weapons.

Can you elaborate on the coproduction aspect?

For instance, if a country had a greater need for more ammunition or maybe they wanted to add a different capability, coproduction is a very quick way for them to expand their sovereign capabilities. We would come in and help with our expertise and help them produce either a different type of ammunition or maybe help increase their expertise and efficiencies so that larger quantities can be produced more efficiently and reliably. One



Hatchet Shadow Launch



We have several potential customers for both land and sea based platforms where our Middle Eastern allies are upgrading their defense capabilities

of our methods to providing coproduction capabilities is where we would provide certain parts of that so that it would be simply a matter of them putting together a line where they would be able to assemble the ammunition without having to start from the beginning.

Do you have any potential customers in the Middle East for your Bushmaster?

Yes. We have several potential customers for both land and sea based platforms where our Middle Eastern allies are upgrading their defense capabilities. While I can't talk about these in detail, our customers are interested in working with us because of our cannon's long history of reliability and effectiveness – and the fact that we stand behind our cannon's through aftermarket services where we would provide maintenance and training as well as spares and upgrades as necessary.

You have reported progress on the XM25 25mm Airbursting Weapon System, nicknamed "The Punisher" – can you give us some more details?

We talked about that a couple of years ago, didn't we? The simple answer to that is we had shown it at IDEX a couple of editions ago. For the most part it is finishing development for fielding in the US. And then we do not have any specifics on

what foreign sales might be at this time. Right now it is only for the US. That does not mean later down the road we may not offer different versions. Maybe there is a possibility. Right now we do not have any customer outside the United States.

The M230 cannon arms the Apache helicopter and the Middle East is a major market for Apache. What are the main features of the M230?

Yes, we are actively marketing that. Not only current customers but we have prospective customers and the UAE is one. There are two versions of that cannon. One is the one that is on the Apache then there is the link-fed version which can be applied together a ground combat vehicle or for naval weapons applications. This variant uses the same ammunition as Apache and provides the same capabilities in terms of accuracy, reliability and effectiveness.

You have started production of Next Generation 120mm Tank Ammunition. Who are the end users and do they include some countries in the Middle East?

There are a couple of developments in 120 mm ammunition, particularly a new exportable kinetic energy round which we call the KET. So this ammunition provides the next generation of armor defeat. We have completed the development of KET and also have the approvals to export it. So we are marketing that now in the Middle East. You can see it here on display. But it is an improvement over what is currently available on the export market in terms of its target defeat capabilities and we demonstrated that capability in recent tests. So if you are familiar with penetrating rounds for 120 mm, in the United States we use it with depleted uranium penetrating rod which is specified by the army. We realize that many countries are not interested in us-



XM25 used in Afghanistan

“We are introducing precision to more weapons and getting those qualified and available to our partners in the Middle East. That is our focus”

ing depleted uranium but tungsten is an alternative. So we have been able to use our expertise and move into that type of tungsten-based penetrator.

Do you have technology for scalable warheads that can reduce collateral damage?

It is really difficult to do that in high rate production. We take a different approach. We focus on precision and so you make the warhead appropriate for the target that you are after then you put it right where you want whether that be



DANIEL OLSON (R) speaks to Nation's Shield

through a more accurate projectile or a guided projectile. And so we are really focused on precision being able to guide it once it is fired and that is what our PGK does and we are looking at other applications to take that technology and apply it to medium, large caliber and so on. Not so much changing the effect of the warhead but it is more about guiding the warhead to where it should go. We also have a lethality enhanced warhead. We can make the war head smaller and still get the same impact as a larger warhead. That is our normal approach to creating new technology and capability. So, it's not so much changing ammunition or the warhead, its more about putting it where you want it to go and scaling the warhead appropriately for mass production. That is what we do.

Anything else that you want to highlight?

Our strategy in the Middle East is not just increasing the sales and penetration of our current weapon systems. What we are doing is introducing precision to more weapons and getting those qualified and available to our partners in the Middle East. That is our focus now. So whether it be a small guided bomb, we call Hatcher, a six pound guided weapon systems or guiding a large cal 120 mm tank round or a medium caliber round which we currently sell in the Middle East. That is what we are after because we have those platforms in place and we want to make those platforms more lethal and more affordable. And along with that to transfer some of those technologies so that they can be produce by our allies for their defense.

Does the UAE participate in coproduction and co-development or own these advanced weapons?

UAE does not own those yet. But we are talking to different agencies. We are



Soldier in Army Combat Uniform Firing XM25

pursuing a lot of different things in the Middle East primarily to introduce our technology in the area. And increasing the interest in what we do and increasing the capability that you have to manufacture in those countries.

Name a few of your products that you target to market in the UAE?

The M230 LF which is a link-fed Apache gun, and the lightweight 30 ammunition for that cannon. We are pursuing a program in UAE for small caliber ammunition coproduction, small

caliber ammunition sale, co-development of precision type weapons.

UAE is a good market for you. What about Saudi Arabia and other countries in the Middle East?

Saudi Arabia is a good market too. We are active in Qatar. We have some activity in Jordan with our special mission aircraft and specialized gunships as well. We have historically had a number of programs and today, are currently active in a number of smaller pursuits around the region.

SOUTH AMERICA'S FIDAE GOES FROM

FIDAE was born in 1980 as an air show for the commemoration of the 50th anniversary of the Chilean Air Force. Through the years, it has grown and expanded its defense field that has led to a larger presence in the quantity of exhibitors and numbers. In its more than 35 years of existence, FIDAE has become the leading and the most complete aerospace, defense and security exhibition for the American continent. In an exclusive interview, on the sidelines of the Dubai Airshow, FIDAE CEO Colonel Fernando Silva shares with the Nation Shield details of the next International Air & Space Fair, FIDAE 2016.



FIDAE CEO Colonel Fernando Silva

How will the 19th edition of FIDAE differ from previous editions?

FIDAE 2016 will continue with what it has been known in its more than 35 years of existence, and with a position as the foremost aerospace, defence and security exhibition of the American continent. In its capacity as an effective business platform, it attracts the major manufacturers with representatives comprising decision-makers and military authorities. In these sense, we are recognized by providing a customized customer service, answering fully to their commercial needs. The 19th edition of FIDAE will keep this quality, by boosting the innovation areas like the "Theme Pavilions", the latest trends in civil-commercial aviation, RPA/UAV, among other attractions, complemented by an air show specially organized for the weekend.

What was the trade/sales turnover generated at the last edition? And what was the visitor turnout?

At the past edition, FIDAE had 604 exhibiting companies from 43 countries who displayed the latest advances in their products and services. To this end, the attendance of 268 authorities, 263 trade guests, 172 high-level executives, 391 delegations, 45,000 trade visitors and 105,000 members of the general public, achieved generating businesses around US\$2,100million resulting in the consolidation of FIDAE as a business platform.

The first edition of FIDAE was held in 1980. What have been the major milestones so far?

FIDAE has had a set of milestones that allowed the expansion of its fields, by providing to the attendees a full overview of the aerospace, defence and secu-

riety sector. Among them, we can mention the incorporation of the space field on 1990, changing its name from FIDA into FIDAE (according to its name in Spanish language). In 2006, its facilities moved from Los Cerrillos Air Base to the north side of the Arturo Merino Benítez Airport, due sustained growth. In these three decades, the main defence aircraft have been displayed, along with the state-of-the-art civil aircraft, which undoubtedly positions FIDAE on the world circuit.

You are the premier air show in South America. How big has been the participation from Europe and Asia, despite the distance factor?

Undoubtedly the distance is major player at the time of making a decision of participating for the companies from Europe and Asia. Despite that, we have a good number of companies interested

STRENGTH TO STRENGTH



38% of FIDAE 2014 exhibitors were from Latin America, and the balance 62% from the other parts of the world

in being part of FIDAE, as they see in us a real showcase to display their products in their regions. FIDAE 2014 was an example of that where from the 604 exhibiting companies, 38% were from Latin America, and the balance 62% from the other parts of the world. In fact, making the same analysis, 17% of the companies were Chilean and the remaining 83% were from abroad. Now, for FIDAE 2016 we have had a good feedback from the companies, which results in having almost 100% of the chalets rented a few months from the opening day, we have confirmed companies from Italy, Russia, Germany, Sweden, Greece, Denmark, USA, Canada, China and Singapore, among others. These results are a very positive element. We are confident about the fair's development which will be noticed due to the quantity of participating companies, and the attendance to FIDAE of professionals and businessmen from the whole world.

Which countries and companies are the big players in aviation and aerospace sector from South America?

The market in both areas of this region is noted for a clear preponderance of Brazil, which can be witnessed at FIDAE where more than 60 companies from the six fields of the fair are gathered in an exclusive pavilion. Some of the main representatives are: ABIMDE Associação Brasileira das Indústrias de Materiais Defesa e Segurança, Avibras Indústria Aeroespacial S.A., Embraer S.A., Turbomeca do Brasil Ind. e Comércio Ltda., Agência de Promoções de Exportação Do Brasil APEX.

You have the homeland security segment? Has it been added recently and how is it relevant to the air show?

One of the main differences of FIDAE is its all-embracing nature due to the diversity on offer by being a dynamic event that has been adapted according

to the innovations of the different markets, thus providing a fair that meets the commercial needs of its exhibitors, visitors and delegations. In this sense, with the incorporation of the homeland security field, the fair covers all sectors, allowing a diversified offering and being an effective business platform where the customers may find efficient solutions in the different industrial sectors.

Do you maintain a balance between civilian and military sector in terms of participation?

In the last edition, 59% of the exhibitors belong to the different fields of the fair and only the 41% to the defence sector, which demonstrates its all-embracing character recognized by our exhibitors, who early in advance block their fair spaces, as has happened for FIDAE 2016. That foresees a 19th edition that will be one more time the foremost business platform of the American continent.

RBS 70 NG Successfully Integrated And Tested By Czech Army Saab has integrated the system into an existing air defense system

Saab has participated in a live-fire exercise held near Český Krumlov, in the Czech Republic. For the first time Saab has fully integrated the RBS 70 NG missile system into a customer's existing air defense system.

On 26 October 2015 the Army of the Czech Republic's 252nd Air Defense Missile Battalion conducted a live-firing with Saab's latest generation of the RBS 70 missile system, the RBS 70 NG. The exercise, held at the Boletice Military Training Area in the Český Krumlov



Görgen Johansson

region, included several missile firings that successfully hit their airborne targets.

Along with an assessment of tactical and technical requirements, verification was made of the system's ability to be fully integrated with the Czech air defense network. Saab has worked closely with local industry and technology company Retia in this process. Retia is the original equipment manufacturer of the Czech Army's fire command and control system, the combat command post and the new 'Revisor' short range radar sensor.

Lieutenant Colonel Jan Suchý, 252nd Air Defence Missile Battalion commander said, "Alongside the light weight and integrated night sight, one of the major advantages with the new RBS 70 NG is the automatic tracker, which allows the operator to 'lock on' to the target automatically. The missile fine aiming is performed automatically by the system, making the engagement very easy for the operator. It is like 'fire-and-forget' but proven to be unjammable. Even when the operator is under heavy pressure, it is basically impossible to

miss. All our operators were able to successfully hit the flying targets with only a few hours of training."

The firing showed that the RBS 70 NG can be successfully integrated with the Czech air defense system. This is the first time that Saab has fully integrated the RBS 70 NG with a customer's existing air defense platform. A breakthrough in terms of technology and co-operation, the RBS 70 NG is now a 'plug-and-play' solution for any customer.

"This is a very satisfying result for the customer, Saab, Retia and the system itself. This successful firing demonstrates the RBS 70 NG is a modern and highly flexible ground-based air defense system with world-leading capabilities. It is developed for any combat situation and it is without doubt a battlefield game changer that will provide a critical edge across the spectrum of ground-based air defense," said Görgen Johansson, Head of Saab business area Dynamics.

Saab's RBS 70 NG VSHORAD system, with its fully integrated 24/7 all-target capability, has been developed for the most demanding air defense combat situations. Its integrated sighting solution, enhanced missile operator aids, unbeatable range and unjammable laser guidance combine to produce a system with world-leading capabilities.

The RBS 70 NG sight can be applied in a multitude of system configurations ranging from MANPADS (man-portable air defense system) to manned or even remotely controlled vehicle integrated air defense systems. The sighting system has been designed in a way that it can be used with all existing and future generations of the RBS 70 missile family.



Royal Danish Navy Orders Rheinmetall's Millennium Gun

A multipurpose weapon system, it gives close-range self-defense

The Danish procurement authorities have contracted with the Düsseldorf-based Rheinmetall Group to supply additional 35mm Oerlikon Millennium guns for ships of the Royal Danish Navy. The order, which also includes spare parts and technical services, is worth around €20 million. The guns will be shipped in 2016.

The Rheinmetall Group won an initial order from Denmark for the Oerlikon Millennium gun back in 2005. Now official, this follow up order is of great importance with regard to international sales, reflecting strong customer satis-

faction with existing systems and their performance over the past decade.

Two types of Danish ships will soon be equipped with the Millennium gun, one of the most effective and versatile naval weapon systems.

Thanks to the flexible ISO Mount installation concept, the guns can be installed on any of the Absalon class or the new Iver Huitfeldt-class frigate. The guns will be managed by SaabTech CEROS fire control systems and Terma command and control technology.

Teamed with Rheinmetall's high-performance 35mm Ahead airburst ammunition, the Millennium gun gives the Danish Navy a close-range self-defense capability for protecting high-value assets that is second to none. A multipurpose weapon system, it is also capable of neutralizing asymmetric and symmetric threats alike, whether on the surface or in the air.

Besides Denmark, five other NATO nations use Rheinmetall's programmable 35mm Ahead airburst ammunition which, when combined with the Millennium Revolver Gun 35/1000, results in massive yet flexible firepower that can be scaled to match a wide variety of operational scenarios.

The Oerlikon Millennium Gun enables commanders to counter different threats with one product. It is an outstanding weapon for use against all types of incoming surface threats, while simultaneously offering unsurpassed performance against aerial targets.

It can be connected with advanced sensors of all types or integrated into a command and control system, further enhancing the effectiveness of this cutting edge weapon system; or it can be used with additional radar and optronic sensors.



Oerlikon Millennium Gun is an outstanding weapon for use against all types of incoming surface threats

Cubic Demonstrates Live Flight of Encrypted P5 CTS

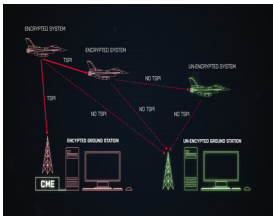
The company continues to evolve air combat training systems

Cubic Global Defense (CGD), a business unit of Cubic Corporation, recently announced the completion of its first live flight demonstration of the Cubic Miniature Encryptor (CME) in Lakeland, Florida with partner Draken International, operator of the largest privately-owned fleet of ex-military aircraft.

During the flight demonstration, Cubic successfully showcased airborne encryption of the P5 Combat Training System (P5CTS) on tactical fighter aircraft, matching the environment of an air combat training mission.

The CME is a mature encryption solution readily available to the P5CTS which will accomplish increased security for advanced air combat training as well as P5CTS pod and ground station encryption compatibility with the Joint Strike Fighter (JSF)'s P5 Internal Sub-system.

The P5CTS is designed to provide real-time and post-mission training for air-to-air, air-to-ground and surface-to-air combat missions by displaying the live-air picture, recording mission data, and relaying Time, Space and Positioning Information (TSPI) between participating aircraft during training sorties. Key components of the system include GPS-enabled, aircraft-mounted airborne instrumentation "pods" plus ground stations, which help aircrew conduct, monitor and control air combat training and post-flight debriefing.



During the demonstration, two Draken fighter aircraft carried the encrypted P5 pods. A P5CTS Live Monitor ground station was also upgraded with CME, allowing the engineers to track the aircraft for the full duration of the flight, including taxi, take-off and landing. The TSPI data and up-linked manual kill notification were successfully passed across the P5CTS encrypted data link. In addition, Cubic was able to verify backwards interoperability of the CME through an unmodified P5CTS Live Monitor ground station and an unencrypted pod on a third aircraft. This allowed the encrypted system to 'see' and relay the unencrypted data from the P5 pod, while the unencrypted system could relay, but not 'see' the encrypted P5 pods.

"As I go around the world and visit

many of our international P5 customers, they make it clear that the demand for encryption is immediate. In response to this urgent need, Cubic invested in the development of the CME in order to fulfil that demand," said Bill Tott, President, Cubic Global Defense. "The CME will help maximize investments made by the Department of Defense and our allied nations for P5CTS products and infrastructure, while minimizing disruptions to training worldwide."

Michael Knowles, Vice President and Deputy General Manager, Air Ranges, Cubic Global Defense said, "The CME is a migration path for upgrades to air combat training system ranges, and encryption is one of the incremental upgrades needed to develop a true live, virtual and constructive (LVC) training capability."

M-ATV Best Suited to Address Complex Defense Postures



Regional militaries have long sustained a defense posture, doctrine, and strategy that focus on protecting borders, successful counter terrorism efforts, and regional expeditionary missions. A multitude of missions and roles are required of Armed Forces, including rapid reaction to conventional and asymmetric threats, and the ability to respond to regional crises. Forces also must be able to contain unrest, deter and defeat traditional and irregular threat forces, and project broad regional influence.

The sheer size of the areas requiring defense and security put militaries in a position where interoperability is critical to achieving battlefield dominance. Joint exercises, air-land training, improvements in "net ready" and interoperable communications systems between branches, and intelligence sharing are just some of the most prominent examples of doctrine enabling effective theater operations.

Throughout the region, forces are forward-deploying near threatened borders, which provide ground forces a tactical advantage in terms of reconnaissance, intelligence gathering, and speed of response.

While no single platform can address in entirety the needs for network capability, joint agency interoperability, and responsiveness, the Oshkosh Defense MRAP All-Terrain Vehicle (M-ATV) Family of Vehicles offers design flexibility to meet a full range of mission requirements, protection levels, and capabilities for integrating a wide variety of weapon systems. The M-ATV is capable of perform-

ing the most challenging operations with its exceptional speed, mobility, and integrated protection. Every variant in the Oshkosh M-ATV family of vehicles has been designed, built and proven to support troops anywhere the mission requires. Variants include:

M-ATV Standard Wheel Base

- Upgrade (SXU)
- Special Forces (SXF)
- M-ATV Extended Wheel Base
- Intervention (EXI)
- Engineer (EXE)
- Command (EXC)
- M-ATV Medical (EXM)

The Oshkosh M-ATV is the tactical vehicle that delivers unprecedented levels of protection without compromising performance or off-road mobility. This is where the innovative Oshkosh TAK-4® independent suspension system shines. It redefines mobility as well as exceptional ride quality and maneuverability.

With TAK-4®, vehicles can travel at high

speeds off-road while maintaining industry-leading ride quality. Specifically, this suspension system delivers 16 inches (41 cm) of independent wheel travel. This delivers exceptional mobility in places where off-road terrain and unpaved roads dominate the landscape. The TAK-4® system has been used on more than 20,000 military-class vehicles. On the M-ATV, its performance has proven it can handle even the most challenging terrain while reducing operator and crew member fatigue.

Oshkosh is a global leader in designing tactical wheeled vehicles that are bringing the network to the mission. This includes C4ISR integration, weapons systems, IED defeat, navigation, situational awareness, and exportable power. More than just a series of components and sub-systems, Oshkosh works with customers individually to match their precise requirements to optimize the space claims, power needs, and operator demands. When matching these high levels of system performance with the broad mission requirements, it only makes sense to rely on Oshkosh Defense to ensure optimal levels of efficiency and capabilities. The Oshkosh M-ATV has the reliability, responsiveness, and protection that the Armed Forces need to complete their missions.

IAG Launches New Manufacturing Facility in Ras Al Khaimah The new facility will produce up to 150 armored vehicles per month

In a strategic move to expand in the Middle East region and cater to the increasing market demands, International Armored Group (IAG), an internationally recognized manufacturer of customized and premium armored vehicles, armored components and ballistic glass, recently launched its new manufacturing facility in Ras Al Khaimah.

H.H. Sheikh Saud bin Saqr Al Qasbi Supreme Council Member and Ruler of Ras Al Khaimah inaugurated the new IAG production facility located in the RAK Free Trade Zone. The event was attended by high profile CEOs of private entities, ambassadors, military personnel, official government bodies and other high-ranking officials.

IAG's new state-of-the-art facility consists of a production area covering 35,000sq. meters including ballistic glass and laser CNC cutting factories. The facility will also be producing an impressive 150 vehicles per month thus increasing the current production volume by 40 per cent. It also consists of a fully sheltered stock area that can store up to 600 armored vehicles. The facility will be carrying out the following operations - OEM chassis disassembling, ballistic steel fabrication, painting, upholstery, suspension and other systems upgrading, ambulance conversions, tactical armored vehicles engineering and production, testing and training.

"It is a great honour to witness the inauguration of IAG's new production facility. This is an important milestone not only for IAG but also for RAK FTZ as it characterises the company's



H.H. Sheikh Saud bin Saqr Al Qasbi, Supreme Council Member and Ruler of Ras Al Khaimah inaugurated the new IAG production facility



incredible journey in the free zone's business-friendly environment," said Rami Jallad, Acting CEO, RAK FTZ. "Our clients' success is also our success, so we dedicate most of our time in sustaining the growth of our over 8,000 companies through developing premier business solutions and services. We are very proud to be a part of IAG's achievements over the years."

Dr. Anton Stefov, President and CEO, IAG said, "According to recent reports from the defense and military industry, top-line defense spending in the Middle East and North Africa, led by Saudi Arabia and the Emirates, will top US\$120 billion per year by 2016. We see great potential in the region and globally, especially since there is a great demand for

superior quality and high performance armored vehicles. In order to meet these increasing demands, we decided to strategically shift into a bigger and more efficient manufacturing facility."

At the opening, IAG also showcased new products such as the Guardian Extreme, a customizable 12 military personnel carrier with B7 ballistic and blast resistance, and utilizing IAG's latest patented technologies and newly engineered suspension system, offering extreme off-road capability, survivability and commercial compatibility; and a new custom engineered Armored Water Cannon vehicle providing great solutions for firefighting and riot control •

PATRIA AMV, NEMO – AT THE HEART OF MODERN DEFENCE

Patria AMV and Nemo mortar system selected by UAE

Patria is a trusted provider of defence, security and aviation life-cycle support services and technology solutions. It is an internationally operating defence, security, and aviation group providing customers with competitive solutions based on strong expertise and collaboration with trusted partners. Patria's strength is based on its excellent products complying with NATO standards.

Patria's most significant export products include the armoured modular vehicle, Patria AMV and Patria Nemo mortar system which have both been selected by international customers, including the UAE Armed Forces.

Patria AMV, the market leader among 8x8 armoured wheeled vehicles, is Patria's key export product. Patria AMV is currently contracted by seven customer countries including by Finnish, Polish and Swedish Defence Forces, and it has been fielded in ISAF operations since 2007. AMV products are under continuous development and are fitted with the latest technology. Patria AMV's structural solutions enable high payload capacity, high level of protection and integration of heavy weapon systems.

Patria also produces advanced mortar systems. The newest mortar system is Patria



The Patria Nemo, 120 mm mortar on a Ghantha mortar boat

Nemo, a 120 mm remote controlled mortar turret, providing indirect and direct fire as well as MRSI (Multiple Rounds Simultaneous Impact) and direct lay capabilities.

VIRTUAL TRAINING

As a modern and compact system, Patria Nemo can easily be mounted onto various armoured vehicles, both wheeled (6x6, 8x8) as well as tracked ones. Due to its low weight, Patria Nemo is also adaptable to lightweight, high-speed vessels and can be effectively used for harbour patrolling and protection, coastal guarding and infantry landing operations.

Patria Nemo can also be equipped with the Fire Control System - Command Post (FCS-CP) solution, which is designed to support and coordinate indirect fire for one or several Patria Nemo Mortar Units enabling the units to be operated as a group.

Patria Nemo gunner-commander training simulator provides a realistic, virtual training environment for all kinds of fire missions that

can be performed with Patria Nemo mortar system.

Patria AMV and Nemo mortar system, have both been selected by the UAE Armed Forces. For Patria, the Arabian Peninsula is an important focus area in the future.

INTELLIGENCE SURVEILLANCE

With a firm footing in aviation, Patria is one of the leading European providers of aviation life-cycle support services. Current operations focus on the life-cycle support of F-18 Hornet jet fighters, Hawk training jets, and NH90 transport helicopters.

In military pilot training, Patria has reached excellent results in the elementary pilot training under contract for the Finnish Air Force (phase I - II training for conscripts, cadets and flight instructors). Patria also operates in the civilian sector specializing in professional pilot training. Patria Pilot Training is a leading Flight Training Organisation (FTO) in Northern Europe.

Today's defence systems are large entities that are comprised of several subsystems. Patria's solid system integration know-how ensures that the entire system functions faultlessly. Patria specialises in intelligence, surveillance, and command and control systems, as well as their integration and life-cycle support. Patria's system integration know-how has been developed for decades to meet the needs of the increasingly complex systems used by customers.



The Armoured Modular Vehicle, Patria AMV

Meeting UAE's C4ISR needs

The state-of-the-art TPS-703 radar is designed to counter sea clutter

TPS-703's stacked beam architecture provides full-time, full-volume coverage of all targets and its ability to detect missiles and aircraft while monitoring multiple vessels on busy Gulf waters is critical to the security of the UAE.

Maintaining security in a complex environment like that of the United Arab Emirates requires accurate, reliable C4ISR. The S-band TPS-703 is the latest generation of state-of-the-art radars made possible by advances in high power transistor design and capable of both air and sea surveillance. Fielded and operationally proven by the United States Air Force and customers worldwide, Northrop Grumman ground radar systems are in 24-hour-a-day operation around the world.

Gulf nations like the UAE face special environmental challenges due to

a phenomenon known as Anomalous Propagation (AP). In AP, a temperature inversion bends the radar beam toward the ground, creating an area of moving clutter. This sea clutter can overwhelm typical Doppler radar systems, but the TPS-703 is designed to work in high-AP environments. With its sophisticated filters installed to counter sea clutter, Northrop Grumman's TPS-703 radar is ideally suited to the unique environment of the UAE. The high temperatures of the Gulf region are also no problem for the TPS-703, as its silicon germanium transistor technology is designed for



The S-band TPS-703 is the latest generation of state-of-the-art radars

operation in temperatures as high as 55 degrees Celsius without the need for liquid cooling systems.

Unlike many typical Doppler radar systems, the TPS-703 can perform both air and maritime detection missions simultaneously. Its stacked beam architecture provides full-time, full-volume coverage of all targets, an advantage over simpler pencil beam systems. This ability to detect missiles and aircraft while monitoring multiple vessels on busy Gulf waters is critical to the security of the UAE.

Sharing data between locations to form a complete air and surface picture of the Emirates is equally important. The TPS-703 is built for networked operations, so radars can be operated remotely and data can be combined at an air and naval operations center. Enabled by GPS time synchronization, TPS-703 allows for more sophisticated target tracking capability among collaborating radar systems.

Maintenance costs, system availability and the logistics chain are issues of concern for all radar operators. The TPS-703 provides greater reliability and lower logistics costs than legacy radars due to its modular design, silicon germanium transistor modules and commonality with the AN/TPS-78 radar. The result is that the TPS-703 offers a mean time between critical failure rate (MTBCF) of more than 3,000 hours, greatly increasing the time between required maintenance actions.

The modularity of the TPS-703 system reduces the number of transmitter Line Replaceable Unit (LRU) types by 80 percent from previous radar designs. The entire transmitter requires only nine different LRU types, including fully interchangeable pre-amps, power panels, and radio frequency



Northrop Grumman ground radar systems are in 24-hour-a-day operation around the world

panel power amplifier modules. The programmable processing architecture of the TPS-703 reduces the number of processor LRU types by 90 percent, with only two basic circuit card styles needed for the signal and data processor suite.

Commonality with the AN/TPS-78 radar system also contributes to lower life cycle costs. There is greater

than 90 percent commonality of major subsystems and LRUs between the AN/TPS-78 and TPS-703. The two radars also offer a high degree of software commonality, so that software maintenance, modification and documentation costs are significantly below those of competing systems. The software is hosted on open-architecture signal and data processors, enabling cost-effective upgrades.

Optimized for both air and sea surveillance, Northrop Grumman's network-centric TPS-703 offers proven, reliable performance and cost-effective upgrades. The TPS-703 is suited to helping the UAE maintain its security in the challenging Gulf environment. ■

Romania to Host Production of New Airbus H215 Helicopter

The helicopter combines competitiveness and performance

Airbus Helicopters recently set down the foundation stone of its new Romanian factory, established to assemble the latest helicopter to join the H Family of aircraft – the H215. Guillaume Faury, CEO of Airbus Helicopters, and Alexandru Nastase, Secretary of State, Romania, attended the ceremony.

The H215 is an evolution of the former AS332 C1e/L1e, offering a new business and industrial concept for this ready, proven and affordable helicopter, proudly built in Romania. Under the control of Airbus Helicopters Industries, the 10,000m² factory based in Brasov will house H215 production from procurement to after-sales, including design office activities, and will provide jobs to more than 300 employees in the long term. The modern assembly line will be capable of producing up to 15 aircraft per year. The first H215 to roll out of the assembly line is planned for 2017.

"The H215 is of strategic importance to Airbus Helicopters and will allow us to offer customers the best helicopter for the job, all with extremely competitive direct operating and maintenance costs," Guillaume Faury said. "This expanded partnership with Romania, an important EU and NATO member, will ensure that our legacy twin-engine heavy helicopters are more economical than ever on current and emerging markets."

All H215 helicopters will come off



H215 is a twin-engine, versatile, economic and robust helicopter

the final assembly line in a highly capable standard configuration, able to support an extensive list of options ("shopping list") ready to be selected. This new concept will allow the aircraft to best meet customers' expectations and serve a wide range of missions, providing a modern and cost-effective solution for markets such as utility, United Nations peacekeeping operations and logistic support missions.

"This new 100 per cent Airbus Helicopters industrial center is capitalizing on a successful history of aircraft heavy maintenance and complex upgrade programs in Romania and cooperation in the country that goes back more than 40 years," said Serge Durand, Managing Director of Airbus Helicopters Industries. "The aim is to offer our customers a completely new and modern business concept by

proposing a standardized equipment definition for rapid production times and cost-effective acquisition prices."

The H215 is a twin-engine, versatile, economic and robust helicopter that combines advanced avionics and a reliable platform for rugged multi-mission capabilities. It offers long-range capabilities, power, speed, a large useful payload and very good lifting performance in hot and high environments. Both EASA and FAA certified, the aircraft is equipped with the latest, most modern technologies meeting the latest safety requirements of the market. This includes a glass cockpit and the 4-axis autopilot used on the H225, which provides flight envelope protection, precision, and stability in harsh operating conditions.

National Power and Culture"

Many strategic analysts talk about the complex geopolitics of our century but most ignore one lesser-understood but much more important aspect of state power: national culture. Effective security in our globalized age comes from many sources, but a great strength of the UAE is its unique national culture. Happily, in this month of national remembrance, cultural activities take a well deserved, prominent place in the UAE.

National culture is the way of life, especially the customs and beliefs, of a particular group of people at a particular time. The modern English term comes from the Roman orator Cicero, who wrote of cultivating the soul; culture meant "place tilled" going back to the Latin *colere*, "to care for or till" and *cultus*, "cult or religion," so authentic culture requires nurturing. The German philosopher Johann Herder argued that a collective form of identity and sense of common destiny was unique to a people with a common culture. The UAE has certainly built and cultivated a unique national identity, an element of culture that gives strength to what the nation does and means.

National culture is demonstrated in many ways. UAE Flag Day recently remembered the efforts of the nation's founders through our national symbol. HH Sheikh Mohammed bin Rashid said of Flag Day, "On this occasion, we renew our commitment to the people of the UAE that we will do our utmost to serve our nation so that our flag will fly high in every field." He described the flag as "a symbol of the country's unity and greatness that represents our aspirations for a better future for the people of the UAE." This year's celebrations also honor the members of the Armed Forces who sacrificed their lives for the country. The color red in the national flag symbolizes the sacrifices of the nation's martyrs, which strengthens the national will. Green symbolizes growth and prosperity; while the white displays the nation's charitable contributions and support for peace. Black reflects strength and the rejection of injustice and extremism. Along with the flag, the National Anthem is another vehicle of national culture that unifies the nation. Sheikh Mohammed has called upon us to ensure that the values celebrated in the National Anthem are always cultivated.

These are only two elements of national culture. Geert Hofstede has developed a theory to understand the relationship between culture and the values of people using factor analysis. He identifies individualist societies and collectivist societies, distinguished by whether people define themselves by the terms "I" or "We." Members of individualist societies look after themselves and their families only whereas in collectivist societies people live through loyalty-groups. The UAE is clearly a collectivist society where close, long-term commitment to the group is strong; such powerful cultural habits strengthen the bond of the nation as well. The UAE is also a country where people affirm the effective structure in its society. Here, hierarchy in organizations reflects accepted norms, centralization works, and leaders value regular consultation; these practices also increase unity and build national spirit.

National psychological power is a closely related concept; it holds that the better the alignment between the views of the government and the views of the people in any state, the stronger the state, reinforcing the important link in Clausewitz' Trinity between the government and the people. And, in this month of national pride, the recent experiences of the UAE in Yemen clearly illustrate both the passionate dedication of the nation's leaders and the high degree of conviction among all nationals for the effort there, demonstrating real psychological power within the UAE.

National Day celebrations, the flag and the anthem all combined with immense pride in the nation's accomplishments and remembrance of the valiant service provided by Emiratis in Yemen will strengthen the hearts of generations and reinforce national influence in the future. There can be no doubt that challenges will continue to test the UAE, but these simple yet powerful cultural elements will consistently build greater unity, patriotic spirit and psychological power within the UAE. Valuing memories, sharing a common language and faith, and living confidently in a well tailored legal and political environment - strong Emirati culture - assures the beating heart of the nation and will enable the UAE to prosper despite all challenges.

Strategic Perspectives



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Advanced Integrated Security Solutions at Intersec 2016

The event is all set to feature more than 400 CCTV-related exhibitors

The integration of new technologies in video surveillance, such as cloud-based storage solutions and video analytics, will be under the spotlight when the 18th edition of Intersec opens from 17-19 January 2016 at the Dubai International Convention and Exhibition Centre.

Intersec is one of the world's leading trade fair for security, safety, and fire protection, focusing on the six core sections of Commercial Security; Information Security; Fire & Rescue; Safety & Health; Homeland Security & Policing; and for the first time in 2016, Smart Home and Building Automation.

More than 400 of the 1,300 exhibitors at the three-day event specialise in CCTV-related products, including Swedish-based giant Axis Communications, and Hikvision, the world's largest supplier of video surveillance products and solutions.

Marwan Khoury, Marketing Manager at Axis Communications, highlighted that the Middle East and Africa's total network video surveillance market was worth about US\$420 million in 2014, with the convergence from analogue to digital or IP video in the region a major growth factor.

"The convergence rates from analogue to digital is quite staggering in this region," said Khoury. "In 2014, it was about 70 per cent network versus 30 per cent analogue. By 2019, the en-



tire region will be 94 per cent network video surveillance, with countries like the UAE at nearly 100 per cent."

On the other hand, Hikvision is debuting a range of CCTV cameras, access control systems and alarms at Intersec 2016. Binson Xu, General Manager of Hikvision Middle East and North Africa, said his company is targeting the Small and Medium Business (SMB) security distribution market, as well as enterprise level projects in industries such as retail and oil & gas.

"Our CCTV volume business is based on the distribution market, which takes around 70 per cent of our revenue, while the enterprise level project market is where we see the most growth," said Xu.

The on-going shift in demand from

analogue to Internet protocol (IP) cameras in the Middle East is fuelling the region's fast-growing physical security market, as global manufacturers prepare to launch their latest integrated security technologies at the event.

Growing at double the global rate, the Middle East's physical security market – which was valued at US\$3 billion in 2014 – is estimated to grow 25 per cent annually over the next six years to reach US\$11 billion in 2020, according to analysts Frost & Sullivan.

DCNS commences sea trials for the FREMM Languedoc

FREMM frigates have lethal weapon systems and equipment

The French Navy's third FREMM multi-mission frigate, the Languedoc, has been floated out from DCNS' Lorient shipyard to undergo sea trials off the coast of Brittany. The Languedoc is the third FREMM ordered by OCCAR (Organization for Joint Armament Cooperation) on behalf of the DGA (French Defense Procurement Agency) and the French Navy.

OCCAR is an international organization whose core-business is the through-life management of cooperative defense equipment programs entrusted to it by the Member States. Amongst other things, OCCAR ensures the contracting of FREMM multi-mission frigates for France and Italy.

The main objective of the sea trials was to test the performance of the vessels' propulsion and navigation system.

The FREMM Languedoc will benefit from a significant reduction in the duration of its sea trials compared to the previous FREMMs: six weeks instead of the previous eight.

DCNS has already delivered two FREMM Multi-Mission Frigates on schedule to the French Navy. By mid-2019, DCNS will have delivered six FREMMs to the French Navy, in accordance with the Military Programming Law 2015-2019, as well as two FREMMs for the export market (The Royal Moroccan Navy and the Egyptian Navy).

The experience and lessons learned from the FREMMs already delivered enabled DCNS and its partners to proceed with the integration of the combat system's sensors and weapons prior to the FREMM Languedoc's first sea outing. This led to a reduction in the total time required for vessel trials – from six weeks to the previous eight. This optimized trial duration illustrates the transition to "series mode" or multi-mission frigates.

"The acceleration of the trial scheduling for the FREMM Languedoc is a demonstration of DCNS capacity to ensure efficient serial production", explains Anne Bianchi, Director of the FREMM Program at DCNS.

The FREMM program will see DCNS build ten frigates, eight of them for the French Navy. Six of these will be deliv-

ered by 2019 and two frigates equipped with strengthened anti-aircraft capacities will be delivered before 2022. Two further units have been sold and delivered to Morocco and Egypt.

Under the project management of DCNS, the heavily-armed FREMM frigates are equipped with the most effective weapon systems and equipment, such as the Heraldes multifunctional radar, the Naval Cruise Missile, the Aster and Exocet MM 40 missiles and the MU 90 torpedoes.

DCNS is a world leader in naval defense and an energy innovator. As an international high-tech company, DCNS uses its extraordinary know-how, unique industrial resources and capacity to arrange innovative strategic partnerships to meet its clients' requirements. The Group designs, builds and maintains submarines and surface vessels. The Group also proposes services for naval shipyards and bases. In addition, the Group offers a wide range of marine renewable energy solutions. DCNS is sensitive to the challenges of corporate social responsibility and has signed the United Nations Global Compact. Last year, the Group reported revenues of €3.1 billion and had a workforce of 13,130 employees.



FREMM Languedoc

Thales Launches Spy'Ranger

The UAS will offer capable image intelligence system for frontline forces

Spy'Ranger is a latest-generation mini-UAS with EO/IR imaging system capable of transmitting high-definition electro-optical and infrared imagery in real time.

The system draws on a decade of experience of micro- and mini-UAV systems with the French armed forces and offers particularly high levels of endurance. It is deployed with the Spy'C automatic command-and-control software already adopted by the French land forces.

Designed to operate in extreme, non-permissive environments, this new-generation system gathers and transmits accurate, operational beyond-line-of-sight image intelligence for joint battlegroup and brigade-level units. It is interoperable with France's multi-sensor image interpretation and dissemination system (MINDS/SAIM) to generate imagery that can be used directly in operational C4I systems for frontline mission planning and multi-sensor maneuvers by forward units.

The range and endurance of the Spy'Ranger system, combined with the efficiency of its EO/IR sensor, advanced processing capabilities and a tactical datalink developed specifically for the French forces, make the system suitable for any type of point or wide-area surveillance during the day or at night.

Spy'Ranger gathers key intelligence data on movements of potential threats, non-combatants and friendly forces to help ensure mission success during joint maneuvers at brigade level. The system tracks battlegroup movements on offensive reconnaissance or survey missions, determining threat locations and pro-



viding detailed topographic information in real time.

On frontline intelligence missions, Spy'Ranger gathers and transmits images in real time, either for immediate interpretation to meet the needs of an ongoing operation, or for further exploitation to support joint mission planning or battle damage assessment.

Spy'Ranger identifies and geolocates targets in real time to provide direct support to maneuvers by engaged forces. Its high-definition imaging system and laser pointer indicate the exact location of a target. Geographic data is automatically added so that the intelligence can be used immediately by fire control systems (artillery, mortars, aircraft, etc.) to help protect the forces in the field and gain a tactical advantage.

The Spy'Ranger system is transportable in a tactical backpack and offers a range of different deployment options. The air vehicle was purpose-designed

with a specialized French firm to withstand the wide range of climatic conditions encountered in different theatres of operations and to provide outstanding performance in the critical takeoff and landing phases.

The airframe is made of a special, patented composite material for robustness. The design was fully proven through an iterative process of in-flight testing.

Thales is one of Europe's leading industry players in tactical UAV systems and offers a complete range of unmanned systems from micro-UAS to tactical UAVs. The company further provides instruction and training programs using a combination of simulators and actual flights to meet all operational requirements. All training courses are familiar with operational deployment procedures, and the training programs make extensive use of the Spy'C simulation model.

ETIHAD: Flying High

The national airline of the UAE wins four coveted Abu Dhabi Excellence Awards



Etihad Airways, the national airline of the United Arab Emirates, has won four coveted accolades at the fourth edition of the Abu Dhabi Award for Excellence in Government Performance (ADAEP) 2015.

Under the patronage of His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces and Chairman of the Executive Council of Abu Dhabi, the awards were presented at a glittering ceremony held last night at the Abu Dhabi National Exhibition Centre. The awards, presented by His Highness Sheikh Hazza bin Zayed Al Nahyan, National Security Advisor and Vice Chairman of the Abu Dhabi Executive Council, were attended by top government officials, His Excellency Hamad Al Shamsi, Vice Chairman of Etihad Airways Board, and members of Etihad Airways senior management.

More than 50 Abu Dhabi government-owned entities competed for the awards,

organized by the Office of the Abu Dhabi Excellence Program, part of the General Secretariat of the Executive Council of the Emirate of Abu Dhabi. The awards were divided into three categories – entities, projects/teams and individuals.

Etihad Airways won an award in each of the three categories. In the first category, the airline received the awards of Excellent Entity in Human Resources Development and Excellent Entity in Risk Management and Sustainable Business. In the second category, the airline received the ADAEP Project/Team award for Outstanding Internal Improvement for its Performance Management and Winning Behaviours project. The awards were accepted by HE Hamad Al Shamsi.

In addition, Etihad Airways' Head of Aircrafts Warranty and Guarantee, Mohamed Abdulla Al Katheeri, was honored with the Chairman of the Executive Council Medal for Best Employee in Technical Field.

Etihad Airways was also nominated in three further award categories including the Project/Team Award for Technical Excellence, and Best Executive Director and Best



James Hogan, Etihad Airways' President and Chief Executive Officer

Employee in Customer Service Field (Supervisory) in the individuals award category, for which Dr Nadia Bastaki, Etihad Airways' Vice President Medical Services, and Fatima Al Kharousi, the airline's first Emirati female airport manager in Japan, were shortlisted respectively.

James Hogan, Etihad Airways' President and Chief Executive Officer, said: "These awards are testament to our culture of performance and the spirit of innovation that is embedded in the DNA of Etihad Airways. This recognition will help us sustain our position as one of the foremost brands in the UAE."

The awards acknowledge exceptional government employees, departments and initiatives, and recognize their role in encouraging a culture of excellence, quality and transparency within their organizations.

An independent panel of ADAEP assessors evaluated Etihad Airways' submissions, in addition to conducting site visits and meeting the airline's teams and individuals at its Head Office and the Etihad Airways Centre in Abu Dhabi for more detailed assessments.

Camcopter S-100's New Engine Meets Naval Applications

The new engine greatly reduces costs and overall logistics burden



The CAMCOPTER S-100 Unmanned Air System is a proven capability for military and civilian applications

Schiebel recently completed testing a new heavy fuel engine for the CAMCOPTER S-100 UAS (Unmanned Air System). This engine builds upon the extensive experience gained by Schiebel with rotary engine design and development and meets a growing demand for heavy fuel use across both military and civil maritime domains.

Following on from the first Heavy Fuel Engine (HFE) designed and released in March

2012, the Schiebel engineering team has been undertaking extensive testing, redesign and development of a new HFE, adapted from a commercially available rotary engine core to power the CAMCOPTER S-100.

Schiebel's head of capability, Chris Day said, "The CAMCOPTER S-100

customers demand an HFE able to operate across all climatic environments, from the coldest Arctic areas to the hottest deserts. There are many variables associated with the reliable use of heavy fuel that make these conditions especially challenging; such as variation in fuel quality. Demand for an HFE remains strongest with our Naval customers and so we have spent considerable time developing this new engine to meet the operational requirements and reducing the cost of maintenance."

The engineering team at Schiebel has designed the aircraft installation to retain backwards compatibility with the existing gasoline engine. This allows customers maximum flexibility with fuel choice and the broadest operational capability within a multi-fuel environment. The new heavy fuel engine can accommodate JP-5 (F-44), Jet A-1 (F-35) and JP-8 (F-34) and

will be ready for delivery to customers by early 2016.

As part of the redesign, weight savings have also been identified with new batteries, an upgraded exhaust system and a completely new engine control unit to manage the fuel flow and engine power output. The operational performance of the CAMCOPTER S-100 is unaffected by the new engine retaining the standard six hour endurance with full operational payload and an optional 10 hour endurance with an auxiliary fuel tank.

The company expects that with the on-going development this endurance could be extended further. Hans Georg Schiebel, Owner and Chairman said, "One of the primary aims of the HFE development program has been to help our customers by improving the engine MTBO (Mean Time Between Overhauls), greatly reducing costs and the overall logistics burden when deployed on extended maritime missions or operations in remote areas."

Hundreds of operational testing hours have already been completed, and the latest engine and refinements continue to push the engine to new performance boundaries.

The CAMCOPTER S-100 Unmanned Air System is a proven capability for military and civilian applications. The Vertical Takeoff and Landing (VTOL) UAS needs no prepared area or supporting launch or recovery equipment. It operates in day and night, under adverse weather conditions, with a beyond line-of-sight capability out to 200 km, both on land and at sea.



Simulator



BagBot

DigiRobotics display multiple solutions at Dubai Airshow

The company supports the region's digital transformation

DigiRobotics, which has traditionally enjoyed a strong market presence in the MENA region, made a very successful debut at the just concluded Dubai Airshow 2015. The company presented the most unique solutions for airports such as automated baggage handling system (The BagBot), most advanced Simulator for the pilots and crew and unmanned vehicles for transportation and logistics (The CarBots).

The highlight was that DigiRobotics displayed multiple solutions which were launched globally for the first time. The "Logibot" is the First Unmanned Vehicle for logistic operations in the UAE which have been manufactured, assembled, programmed and tested to be qualified to be used by the visitors at malls, airports, universities, exhibitions or any public areas. LogiBot has the most brilliant GPS tracking System to recognize all the

indoor and outdoor areas, by using either the Global Positioning System to determine and track its precise location or the local positioning system which would be pre-programmed to recognize the vehicle location and so on. Other solutions which are currently under development such as the "TrashBot" which is the Ultimate Robotic Garbage & Trash Collecting System to Empty Trash Bins public facilities on regular basis without much manpower or delay, "FloorBot" has been designed to dry and damp mops all hard-surface floors, keeping dirt and dust under control automatically, "FireBot" The first Robotic Fire Fighting System in the world.

DigiRobotics debut at Dubai Air show was also well noticed for smart technologies such as automated baggage handling system. The BagBot is fully integrated automated high-speed airport baggage handling robot for small, medium, and large airports worldwide. The BagBot are tailor-made according to the specifications of the client.

You can experience a real flight on

our Digi-Motion Simulator, which offers hybrid interaction with human operation. The motion simulators can be used in a versatile manner, and different types of movement (e.g., flight and ground-based travel) can be carried out with a single system. Thus DigiMotion Simulators, with their flexible options for use, meet the rapidly increasing requirements of airplane and helicopter crews, and they make it possible to carry out simulations under conditions that closely approximate reality.

DigiRobotics is committed to support the region's digital transformation through advanced robotics, and saw strong demand from a wide sector. In particular, representatives from various governments showed keen interest in how robotics can be used in the aviation industry.



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Finmeccanica – Selex ES Launches New Air Traffic Control System

It offers enhanced performance as well as lower maintenance costs

As traffic control becomes more complex, the requirement from air traffic providers to be equipped with the safest, most efficient and environmentally sound technology has increased. LeadInSky is Selex ES's latest generation ATC system, meeting the demands of the air traffic management sector while responding to the requirements of the SESAR program and its development, thanks to its modularity.

LeadInSky is equipped with multi-level fall back and disaster recovery solutions, to guarantee high availability of data processing and consistency through different levels of redundancy. This enhanced system is designed to fully comply with a seamless control capability, based on the integration of heterogeneous data from different sources, giving it the ability to create a complete traffic picture, from the airport gates to en route airways. The same seamless approach enables the control tower, the remote TMA to be interconnected with the air control centre as an integral of the system, operating with the same modalities as in any controlled sector within the ACC itself. This allows radar and flight data exchange between control towers and remote TMA and the ACC system so that any operation by a controller in any centre updates the status of the other interconnected centers.

Selex ES is investing in new technologies and has created two new

developments within the ATC radar systems domain: the first is relevant to the ATCR – 33 S New Generation and is a development of the primary ATC-33S radar system, the second is related to the secondary SIR-S/I radar and is an upgrade of the secondary SIR-S integrated with an ADS-B station. Both new systems build on the company's deep experience of its robust legacy systems and inherit their long sales track record. This technological evolution guarantees higher performance, improved functionalities and lower maintenance costs.

Selex ES' Baggage Handling Systems are based on the cross belt and tilt tray technology as well as airport ground communications which guarantee resilient solutions such as TETRA or DMR fully integrated with next generation communication technologies.

Thanks to the company's experience in the security domain, it is also promoting its command and control management airport security platform for preventing and managing security and safety threats by boosting situational awareness analysis and coordination capabilities.

The company has also launched its new cyber security system tailored for ATM infrastructure and airport environment which can provide ANSP and airport stakeholders with an assured security strategy, from risk analysis to safety evaluations, from impact analysis and robust solutions to secure platforms and CNS networks, from identity and authorization management to open source intelligence.



HAWK SOARS TO NEW SORTIE MILESTONE

Weapon system also helping battle against ISIS



As the morning sun beat down on its nearly 131-foot wingspan, the EQ-4 Global Hawk unmanned aircraft descended from its 60,000-foot perch for the 500th time, coming to rest at an undisclosed location in Southwest Asia.

The Veterans Day landing in November was a historic one for the Global Hawk. It was the first time that a single weapon system reached the 500-sortie milestone, and with nearly 13,000 flight hours logged, this weapon system is living up to the nickname "workhorse."

"We call this one the workhorse be-

cause it's putting in all the hours," said Staff Sgt. Bradley, a 380th Expeditionary Aircraft Maintenance Squadron tactical aircraft maintainer craftsman.

"Reaching 500 flights is a pretty big accomplishment, especially for how new the fleet is."

Battlefield commanders rely upon several different configurations of the Global Hawk to provide the intelligence, surveillance and reconnaissance capabilities they require.

"These platforms are on both ends of the kill table, from developing targets to enabling strikes through communications they provide," said Col. John, the 380th Expeditionary Operations Group commander.

Three RQ-4 Global Hawks were converted to an EQ-4 relay configuration carrying the Battlefield Airborne Communication Node (BACN) in 2009 to enhance communications between the operators on the ground and air.

"The EQ-4's Global Hawk's primary mission is BACN, which is essentially a cell phone tower in the sky," said Master Sgt. Matthew, the 380th EAMXS lead production superintendent.

"There are three EQ-4s in the world, and they are all located here in support of Operation Inherent Resolve."

The Global Hawk helps fight the war against Islamic State of Iraq and



Once the Global Hawk's mission is complete it returns home where maintainers are able to complete ground maintenance within five hours

Global Hawk enables U.S. forces on the ground to radio in an airstrike to friendly aircraft by bridging the communication gap from the ground to elevations as high as 60,000 feet

the Levant by enabling U.S. forces on the ground to radio in an airstrike to friendly aircraft by bridging the communication gap from the ground to elevations as high as 60,000 feet.

"When you have guys on the ground fighting the war and you have the Global Hawk in the air acting as a satellite, it ensures the guys on the ground can talk to the guys in the air," said Senior Airmen Michael, a 380th EAMXS tactical aircraft maintainer journeyman. "Flying at altitudes of 60,000 feet gives the Global Hawk UAV an added level of security."

The EQ-4 also provides connectivity between coalition partners, which is vital when attempting to deconflict airspace and prioritize targets on the ground.

"If an (allied F-15 Fighting Falcon) aircraft needed to talk to one of our

F-15s, this Global Hawk enables them to do that," Bradley said. "It will also allow allied troops on the ground to get in touch with our jets."

The Global Hawk Multi-INT is important for situation awareness and intelligence across huge areas of land and carries the sensor systems EISS (Enhanced Integrated Sensor Suite) and ASIP (Airborne Signals Intelligence Payload).

The MP-RTIP radar uses active electronically scanned array (AESA) technology and commercial off-the-shelf hardware to deliver long range, very high-resolution synthetic aperture radar (SAR), ground moving target indicator (GMTI) capabilities and air target tracking. Fundamental to the radar is its modular scalable design, which allows it to be applied to multiple airborne platforms.

MP-RTIP will provide war fighters improved combat identification, target tracking and time critical targeting, while adding an impressive new air-to-air capability to support cruise missile defense. This powerful combination can aid commanders in developing predictive battlespace awareness and targeting solutions.

Once the Global Hawk's mission is complete it returns home where maintainers are able to complete ground maintenance within five hours to return the aircraft to mission ready. However, these aircraft are usually able to have a day off in between their 30-plus hour missions.

THE SECOND PC-24 PROTOTYPE IS AIRBORNE!

Can operate from short, paved and unpaved surfaces

The second PC-24 prototype (P02) has successfully completed its maiden flight. The "Super Versatile Jet" with call sign HB-VXB flew across Central Switzerland for a total of 82 minutes. Following on from the maiden flight of the first PC-24 prototype (P01) in May this year, this first flight by P02 marks another major step forward in the Pilatus PC-24 development program.

P02 is the second PC-24 to join the test flight program comprising a total of around 2,300 hours in the air. After completing initial test flights in Switzerland, P02 will be deployed mainly in the USA and in Canada, where it will undergo various systems tests and certification flights in partnership with the systems suppliers. Special scrutiny will be accorded to the avionics systems and

the autopilot, but the program will also include cold weather trials and icing tests.

Flights with the first prototype, the P01, have gone as planned thus far. The aircraft has completed a total of 143 hours in 87 flights since May. Numerous aerodynamic tests have been carried out in the air, including tests to determine slow-flight handling, center of gravity and flutter testing, as well as high-altitude flights. An average of 15 points was tested during each flight. This comprehensive program of airborne tests was supplemented by exhaustive ground testing.

"The PC-24 test flight program is well underway and we are pleased with initial results. The PC-24 flies entirely as expected and we are confident of our ability to achieve, or even exceed, the guaranteed performance. We have identified some teething problems, of course, and that is entirely normal: the

purpose of a prototype is to pinpoint areas requiring early attention in order to remedy them as soon as possible. And we take pride in testing to the limit so that we can deliver a Pilatus aircraft of uncompromising quality to our customers", Chairman of the Board of Directors Oscar J. Schwenk said.

Capable of flying in and out of very short runways and unmade strips, the PC-24 is the world's first ever business jet to come equipped with a cargo door as standard. The jet also features an extremely spacious cabin whose interior can be tailored to the customer's personal requirements. All that makes it a "Super Versatile Jet", an aircraft that is designed for a wide variety of missions in line with individual needs. Certification and delivery of the first series production aircraft to customers is planned from the third quarter of 2017.

The Pilatus PC-24 is the world's first and only Super Versatile Jet. It combines



PC-24 is a Super Versatile Jet: more runways, more space, more possibilities

the practicality of a Turboprop with the cabin size of a Medium Light Jet and the performance of a Light Jet. Its flexible interior and generous cargo door make loading fast and easy. The PC-24 is designed to operate from short, paved and even unpaved surfaces, giving pilots access to more than 21,000 airports worldwide. That's why the PC-24 is a Super Versatile Jet: more runways, more space, more possibilities.

That means you can fly closer to your final destination than with any other business jet. You'll be able to use smaller airports and avoid massive administrative procedures, and reduce ground transfer time to an absolute minimum.

Thirteen extra large cabin windows flood the interior of the PC-24 with bright, natural light. The generously sized cabin, with its continuous flat floor, allows for an exceptional amount of headroom for both passengers and crew.

The interior of the PC-24 has been designed from the outset for quick and easy reconfiguration. Each passenger seat features quick-change capability enabling its addition or removal in



All Pilatus aircraft are certified for single-pilot operation

just a few minutes. The aft partition is movable so you can easily enlarge the passenger cabin or increase the baggage compartment volume for each and every flight.

The PC-24 features also a fully enclosed, externally serviceable private lavatory. Being an SVJ, the PC-24 will find popularity in a number of other roles – like cargo, medevac, commuter, or governmental special-mission applications, just to name a few.

All Pilatus aircraft are certified for single-pilot operation. And the PC-24 is no exception to this rule. The cockpit layout is efficient and intuitive. From the comfort of his seat, the pilot finds an environment that has been designed specifically to reduce workload and improve safety while providing full situational awareness under all circumstances. Simply put, the PC-24 is the perfect combination of single-pilot operational know-how, and state-of-the-art avionics technology.

The PC-24's Advanced Cockpit Environment (ACE™) sets the standard for high-tech simplicity. Pilatus ACE™ is so capable and offers such a wealth of functionality that in its most basic configuration it boasts the most intuitive and user-friendly cockpit concepts ever seen in business aviation. Four 12-inch screens

ensure that all relevant information is displayed in the right place and with no delay. The Inertial Reference System (IRS) guarantees excellent reliability and accuracy of altitude and navigation data. As standard equipment, the Pilatus ACE™ also includes a Synthetic Vision System, Autothrottle, Graphical Flight Planning, Traffic Collision Avoidance System (TCAS II), and Localizer Performance with Vertical (LPV) guidance capability. We developed Pilatus ACE™ in partnership with Honeywell, whose products have a proven track record in much larger aircraft.

At Pilatus, the legacy of innovative and efficient technology is driven by the world around. To power the PC-24, Pilatus chose the Williams International FJ44-4A, a world-renowned power unit. It delivers ample power to support the PC-24's excellent field performance and enables a direct climb to the PC-24's operational ceiling.

Here's another world premiere: the PC-24's unique Quiet Power Mode™ provides quiet, economical energy to power electrical systems – including heating and air-conditioning – independent of any source of ground power. These innovations offer more operational flexibility and higher fuel efficiency. Or to put it simply: maximum versatility.



On the 44th National Day: The UAE and strengthens its position among

The celebration of forty-four years since the foundation of the United Arab Emirates (UAE) is in essence a celebration of an ambitious and epic Emirati national struggle that began on the second of December, 1971. During this period, the UAE was able to build a strong nation economically and politically. In this month's issue, Nation Shield addresses the developmental achievements of the UAE during 2015 at all levels.



consolidates its federal experience developed economies



The UAE celebrates its 44th National Day on December 2, 2015. During these years, its federal structure has been appreciated as one of the most successful federal models in the region and the world. It has been able to face various challenges and to move forward with confidence and stability in the process of growth and development, which is confirmed by the high-rankings in various international reports. During 2015, federal achievements have been made at various levels and in different areas, most notably at the human resources level, where the Emirati citizen receives the utmost attention of the prudent leadership, led by President His Highness Sheikh Khalifa bin Zayed Al Nahyan, Supreme Commander of the Armed Forces, may God protect him.

The Wise Leadership and the Building of Human Capital

Since the launch of the Empowerment Program by President His Highness Sheikh Khalifa bin Zayed Al Nahyan, may God protect him, in his speech on the occasion of the 34th National Day, the UAE has been moving forward in building human resources and adopting policies and plans that provide various aspects of care for citizens. The basic principle of governance and development in the UAE is constructive interaction on the part of the prudent leadership with the people, and providing prosperity, happiness and decent life for them in all fields.

The federal budget of the UAE for the fiscal year 2016 has reflected the deep attention to building the Emirati human capital which is critical to development and progress in all fields. In October 2015, the Cabinet approved a balanced federal draft



budget of Dh 48.5 billion for the ministries and independent federal authorities for the financial year 2016.

His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, said that 49 per cent of the budget had been allocated for social development projects and other benefits for UAE citizens. Dh20 billion was allocated for government affairs and upgraded services. Sheikh Mohammed also said that the directives of the President, His Highness Sheikh Khalifa bin Zayed Al Nahyan, to provide prosperity, security and a decent life for citizens at all levels remain a clear priority.

National Security and Defense

The UAE Armed Forces continued its noble national role, as it participated in 2015 in the Operation Decisive (Al Hazem) Storm, then the Operation Restoring Hope, as part of the Arab Alliance to achieve legitimacy and eradicate sectarian problems threatening the security and stability of Yemen which was critical to

Our Armed Forces have recorded the noblest acts of valor and made costly sacrifices in defense of the oppressed

the security of GCC States and the Arab Region. Our Armed Forces have recorded the noblest acts of valor and made costly sacrifices in defense of the oppressed and those who need help, regardless of color, race or ethnicity.

Promotion of Political Empowerment

The recent Federal National Council (FNC) elections was an important step toward strengthening the parliamentary experience and political empowerment

of the people of UAE. These elections differ from the previous ones, in view of the procedures and facilities aimed at the promotion of public participation and the evolution of the parliamentary experience, keeping pace with the development process in the UAE at all levels. This was highlighted by His Highness Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the Armed Forces during a meeting in October 2015, when he said that "the leadership of the UAE, under the President His Highness Sheikh Khalifa bin Zayed Al Nahyan, may God protect him, is keen to provide all that would deepen popular participation, and grant the FNC a growing and effective role to achieve what we aspire to through the Empowerment Program and to realize the national interests."

Active UAE Diplomacy

The UAE diplomacy succeeded in 2015 to entrench itself and strengthen its presence, not only at the level of the region and the Arab world, but also in the whole world.

Observers have noted that the UAE diplomacy in 2015 was able to achieve the goals of the state abroad, and ensured an influential presence by participating in major international summits and meetings during this year. This diplomatic performance has been reflected in many positive results, most notably:

- The UAE's win of a second three-year term membership of the United Nations Human Rights Council (UNHRC), starting from the beginning of 2016, which reflected the international community's confidence in the active role the UAE plays in humanitarian works and in the UAE's respect for human rights.

- Winning regional and international support for the issue of the three UAE islands (Abu Musa, the Greater Tunb, the Lesser Tunb), occupied by Iran. This was clear in the GCC and Arab official statements that confirmed the sovereign right of the UAE over its three islands, the regional waters, airspace, continental shelf and exclusive economic zone of the islands.

- The UAE's diplomatic performance during the United Nations General Assembly meetings in September 2015, was effective and vital, both in the intensive meetings held by His Highness Sheikh Abdullah bin Zayed Al Nahyan, Minister of Foreign Affairs and the diplomatic delegation accompanying him, and in his address to the General Assembly of the United Nations, which stated clearly the fundamentals and positions of the UAE regarding the developments in the region and the world.

- The European Union's decision to forfeit the visa "Schengen" for the citizens of the United Arab Emirates, which reflects the status and appreciation of the UAE by the European community in particular and the international community in general.

Empowerment of Women and Enhancement of their Role

The success of the UAE in women's empowerment is a model for many countries.

Women in the UAE have been encouraged and empowered since the foundation of the state. This policy is spearheaded by the country's leadership and backed by the UAE constitution, which guarantees equal rights for men and women. As a result, the role of women in society has evolved considerably over the years. Today, the economic and social benefits of diversity are

universally recognized and embraced and women are viewed as partners in achieving sustainable development. Emirati women are well represented in all echelons of society, including the political arena, diplomatic corps, judiciary and the commercial sector. Four women hold ministerial positions in the Cabinet, including the position of Secretary General of the Cabi-



اجتماع الخامس للجنة الاقتصادية المشتركة بين دولة الإمارات العربية المتحدة Meeting of the Joint Economic Commission between United Arab Emirates and New Zealand





net, and women constitute 17.5 per cent of the UAE's partially elected representative body, the Federal National Council. Under the leadership of Sheikha Fatima bint Mubarak, the General Women's Union (GWU) has been tirelessly pursuing the empowerment of women since its formation in 1975. She launched the National Strategy for Women Empowerment in the UAE 2015-2031, which aimed to keep the sustainability of the UAE women's achievements, and provide a noble life for women and enhance the Emirati women's status in regional and international forums.

A Strong Economy in the Face of Crises

Despite the fall in the oil price crisis, the UAE economy was able during 2015 to maintain its cohesion, performance and growth. This was confirmed by the "International Monetary Fund" in a report issued in October 2015, which pointed out that the UAE's economy is growing at a pace twice that of the euro-zone economies. At a time when the world is experiencing chronic financial and monetary instability, the UAE is steadily moving on the path of growth and prosperity, which gives it a unique status in the region and

Sheikha Fatima bint Mubarak, the General Women's Union (GWU) has been tirelessly pursuing the empowerment of women since its formation in 1975

the world. The UAE continues to invest in major projects indicating the strength and stability of its economy.

Leadership in Humanitarian and Development Work

During 2015, the UAE proved its leadership in humanitarian and development work at the global level, as it ranked first globally for the second year running as the

biggest donor of official development aid compared to the gross national income, according to data released by OECD Commission of Humanitarian Aid. His Highness Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President and Prime Minister and Ruler of Dubai, inaugurated, in October 2015, the largest humanitarian community development organization in the region, under the name "Mohammed bin Rashid Al Maktoum Global Initiatives", which aims to fight poverty and disease, disseminate knowledge and empower the community.

Big Strides in Space Program

In 2015, the UAE has taken important steps to implement its ambitious space project, in accordance with federal law on the establishment of the UAE Space Agency. In July 2014, the UAE joined the global quest to explore outer space when President H.H. Sheikh Khalifa bin Zayed Al Nahyan announced the UAE Space Agency's establishment and plans to launch a voyage of discovery to Mars by 2021. The announcements marked a turning point in the country's bid to establish space technology as a new driver for diversified economic growth. The Mars mission

will enrich Emirati capabilities as well as increase our knowledge about exploration of space and distant planets.

Progress Indicators in International Reports

The UAE has been cited in international reports which measure aspects of growth and development in all fields. To list a few: The UAE ranked first among the Arab and Gulf countries in the international report on happiness index for 2015.

The UAE topped the list of Arab countries in the "global prosperity scale" for 2015, issued by the British "Legatum Institute," for the eighth consecutive year.

For the fourth year in a row, the UAE ranked first on the list of preferred countries for Arab youth in terms of life and residence.

In a report released in April 2015, Forbes Journal described the UAE as an oasis of security, stability and modernity and tolerance. The journal confirmed that the UAE will be among the best countries in the world by 2021.

The UAE ranked seventh globally in the "retail trade growth index for 2015", issued by AT Kearney, the consulting global company, which indicates the vital role of



the UAE in world trade, taking advantage of its strategic location, as a link between the different continents.

For the third year running, the UAE ranked first regionally in Global Competitiveness according to a report in the annual World Competitiveness yearbook for 2015.

The UAE won first place globally in the field of road quality, according to the Global Competitiveness Report issued by the World Economic Forum – Davos 2015 – 2016.

Conclusion

An analysis of the aforesaid facts and indicators suggests that the Federal experience

of the UAE is going in the right direction towards the attainment of its goals and objectives in comprehensive and sustainable development, as well as the achievement of the highest global levels of social well-being for citizens. These indicators confirm that the sound and consistent pace on the road to development is characterized by balance, inclusiveness and sustainability. This makes the UAE one of the best developmental models internationally. UAE's achievements in 2015 have been crowned with the emergence of national spirit and the unprecedented rally of people around their prudent leadership.



KC-390 'MOST ADVANCED AIRCRAFT IN ITS CATEGORY'

Designed for search and rescue missions in most demanding conditions

Embraer KC-390 is a tactical transport aircraft designed to set new standards in its category while presenting the lowest life-cycle cost of the market. It can perform a variety of missions such as cargo and troop transport, troop and cargo air delivery, aerial refueling, search and rescue and forest fire fighting.

Embraer strongly believe the KC-390 can very much satisfy the needs and requirements of Middle Eastern countries. Its state-of-the-art development criteria makes this product a unique and most advanced aircraft in its category setting a new standard in the medium airlift global market.

It is a project of the Brazilian Air Force (FAB) that, in 2009, hired Embraer to perform the aircraft development. Under this program, industrial partner-

ships were also established with Argentina, Portugal and Czech Republic.

Advanced Campaign

The KC-390's first prototype performed its first flight in February 2015 and the aircraft is now in the flight test campaign. On its maiden flight, the KC-390 crew performed maneuvers to evaluate its flight characteristics and conducted a variety of systems tests, having benefited from an advanced campaign of simulations and extensive ground tests.

The flight test campaign is expected to last approximately 18-24 months. Certification of the KC-390 is scheduled for the second half of 2017, with first deliveries in the first half of 2018. A second prototype will soon come online to join the flight test campaign. The program continues to move forward as planned

and the KC-390 has drawn interest from several countries around the world.

In May 2014, Embraer opened the hangar where the final assembly of the KC-390 military transport jet was installed, in Gavião Peixoto, Brazil. On the occasion, Embraer and the Brazilian Air Force signed the contract for serial production of the KC-390, which provides for the acquisition of 28 aircraft, marking the beginning of a new phase of the project. Besides the order by the Brazilian Air Force, there are currently intentions to purchase 32 aircraft by five other nations.



Fly-by-Wire

Equipped with International Aero Engines V2500 turbofan engines, the latest avionics, a rear ramp, and an advanced cargo handling system, the KC-390 will provide excellent operational productivity and will be capable of transporting a payload of up to 26 tons, including pallets, helicopters, armored wheeled vehicles, and troops.

The performance of the KC-390 is benefited by a modern fly-by-wire control system with integrated technology that lowers the workload of the crew and increases the safety of its operation. The KC-390 can also perform aerial refueling operations with great flexibility, being capable of refueling from helicopters to high-performance fighter aircraft.

The KC-390 can refuel other airplanes in flight, with the installation of two removable internal fuel tanks. The in-flight refueling capability provides greater flexibility for longer missions. An advanced self-defense system and ballistic protection in critical areas, increases the aircraft survival capability in

hostile environments.

Austere Environments

The KC-390 is capable of carrying up to 26 metric tons of cargo at a maximum speed of 470 knots (870 km/h), with ability to operate in austere environments, including unpaved or damaged runways. The fuselage can accommodate large loads, with access through a rear ramp.

The modern cargo handling system allows to quickly reconfigure the aircraft using retractable rollers for moving cargo on pallets or flat floor for transporting troops or vehicles. Different types of loads can be transported, such as pallets, vehicles, helicopters, troops (up to 80 equipped troops), paratroops (up to 64 equipped paratroops, which can jump using the lateral doors or the rear ramp), stretchers for medical evacuation (up to 74 standard NATO stretchers) or mixed

configurations.

The aircraft can further be used as a tanker using two removable inner tanks, and has great flexibility to refuel both helicopters at low altitudes and speeds as high performance fighter aircraft at high altitudes and speeds.

Search and Rescue

Some of its features make the KC-390 the ideal aircraft for the scenario of search and rescue, operations are:

- High speed cruise, low speed flying capability;
- Long range and flying endurance;
- SAR ready from initial concept;
- High availability and low life-cycle cost.

"The KC-390 was designed to perform search and rescue missions in the most demanding environments since its



conceptual stage. Therefore we are confident that this aircraft fully meets the operational requirements of SAR operations," said Jackson Schneider, President and CEO of Embraer Defense and Security.

For this type of mission, the sooner you get to the search area, higher are the chances of success and the KC-390 is a turboprop aircraft what makes it the fastest fixed wing SAR aircraft in this category. Having been developed to air-drop troops and cargo, and also to refuel helicopters, the KC-390 wing design is very well suited to long endurance and low speed SAR missions.

Latest generation avionics, electro-optic/infrared and radar sensors, full compatibility with night vision goggles add to the aircraft's capability to perform SAR over land or sea. State of the art full fly-by-wire technology makes the aircraft easy to fly allowing the crew to focus on the mission. Internal cabin space can fit all gear required for search mission and fast reconfiguration allows the plane to act as a fast transport for injured victims, with litters and life support equipment.

True Evolution

Embraer market analysis shows that the addressable market for this category is more than 700 aircraft in more than 70 countries. A large number of previous generation medium airlift aircraft are getting close to the end of their service life and the current operators will certainly look for solutions developed that offer a true evolution of their inventory. Based on the differentiated capability, new embedded technology and the positive market reception Embraer expect the KC-390 to take the majority of the confirmed opportunities.

Embraer maintains an open dialogue with some European countries, including Sweden, in order to raise the inter-



est on the KC-390. Embraer is confident that a positive outcome may be achieved and, if so, Sweden and other European nations will join the Czech Republic and Portugal as future KC-390 operators. Early in the project, these two countries decided to partner with Embraer in the development and production of the KC-390. Aside from that both countries have signed Letters of Intent to purchase the KC-390. So did Argentina, Chile and Colombia.

Regarding Canada, Embraer strongly believes that the KC-390 is the most ca-

pable solution to whichever customer looking for the most technologically and versatile aircraft. Regarding the FWSAR, or fixed wing search and rescue program we believe the KC-390 is the right and most affordable solution due to the aircraft's design characteristics, speed and low life-cycle costs. The KC-390 has been developed from the scratch to perform search and rescue missions.

Boeing is the lead for KC-390 sales, sustainability and training opportunities in select markets. The KC-390



KC-390 wing design is very well suited to long endurance and low speed SAR missions

marketing and sales campaign has already been initiated and based on the very positive market reaction. Embraer expects to have operators from the Middle East region among the first customers of this new Embraer aircraft. In the design of the KC-390 special consideration was given to operations in harsh environments, including very hot weather, by use of the latest technology available.

The interest shown is now confirming that the solutions chosen are meeting the expectations of the operators in the region. Unlike what we have seen in Embraer aircraft in the past, in which the approach was to have several versions of a basic platform to accomplish different missions, the multi-mission design of the KC-390 is based on a single platform capable to perform a wide range of missions. This path chosen by Embraer brings significant benefits in terms of direct operating costs, life-cycle costs, crew training as well as configuration management and maintenance that certainly will not go unnoticed by the US Armed Forces.

KC-390 is a new generation military airlift aircraft, developed to establish new standards in efficiency in medium lift

Direct Challenger to C-130J Super Hercules

KC-390 is a cheaper, more efficient challenger to Lockheed Martin's C-130J Super Hercules. The Embraer KC-390 is a new generation military airlift aircraft, developed to establish new standards in efficiency in medium lift, presenting at the same time the smallest life-cycle cost in its category. KC-

390's improved efficiency compared to its competitors is the result of an unmatched mobility - delivering more cargo, much faster - combined with a DNA that brings embedded flexibility to perform a wide variety of missions using the same aircraft.

It is a 21st century aircraft program development which is using the most advanced engineering tools, process, materials and over 40 years of Embraer expertise to reach superior fleet reliability and availability rates with longer inspection intervals and reduced maintenance downtimes.

Embraer has an ever growing presence in the military sector with a very positive outcome for the marketing of Embraer products. This is also true for the KC-390 that has received a strong interest among several Air Forces at these venues. The air forces today are looking for disruptive solutions able to provide an edge on their operation capability with new design and technology. This is what the KC-390 will bring to their inventory.



LM-100J: READY TO DELIVER WHATEVER THE FUTURE DEMANDS

‘Only a Herc can replace a Herc’

Lockheed Martin's LM-100J is a commercial derivative of the C-130J-30 Super Hercules, currently the airlifter of choice for 16 nations. Through select design changes, the LM-100J performs as a civil multi-purpose air freighter capable of rapid and efficient transport of a variety of payloads. The LM-100J is an efficient and ideal airlift solution when delivering bulk and oversize cargo, particularly to austere locations worldwide.

The LM-100J incorporates technological developments and improvements over existing L-100 aircrafts at a competitive price that results from years of C-130J operational experience, including more than 1.3 million fleetwide flight hours. The result of this experience and advancement translates to an aircraft that delivers reliable service in a versatile air-

frame for decades to come.

A HERCULEAN NEED

More than 110 L-100s (the commercial variant of the C-130 Hercules airlifter) were produced from 1964 through 1992 at the then Lockheed-Georgia Company facility in Marietta, Georgia. More than half of those airlifters are still in service

worldwide used for civil airlift missions in places where jet aircraft operations are impractical.

From delivering food during the Biafran relief operation in Africa, to spraying dispersant on the waters of Prince William Sound in Alaska after the Exxon Valdez oil tanker disaster, to transporting rare black rhinos and massive killer



whales, crews flying the L-100 transport have done many hard jobs in the hardest of places.

As these fleets age, operators have said they want all of the capabilities of an L-100 along with the enhancements found only with a C-130J Super Hercules. "Only a Herc can replace a Herc," is what they have said. The result? The LM-100J.

Analysts predict that Latin America, Africa, and Middle East countries will see double digit growth in air freight business over the next decade. Overall, the world's air cargo trade is expected

to grow by four percent annually for at least the next several years. Even higher growth rates are predicted for niche operators.

The LM-100J stands ready to support this growth — with legacy L-100 operators and new Hercules customers alike.

A BRAND NEW HERC

As it is based on the proven C-130J Super Hercules, the LM-100J provides operators with a greatly enhanced aircraft compared to legacy L-100s. However, while the new LM-100J offers more power and capability, the same unmatched rugged and versatile attributes inherent in the legacy C-130s and L-100s remain.

The LM-100J incorporates state-of-the-art technology that reduces manpower requirements, lower operating and support costs, and provides life-cycle cost savings over L-100 models. Compared to legacy L-100s, the LM-100J model climbs faster and higher, flies farther at a higher cruise speed, and takes off and lands in a shorter distance.

Major system improvements include: advanced two-pilot flight station with fully integrated digital avionics; color multifunctional liquid crystal displays and head-up displays; state-of-the-art navigation systems with dual inertial navigation system and global positioning system; fully integrated defensive systems; low-power color radar; digital moving map display; digital auto pilot; improved fuel, environmental and ice-protection systems; an Enhanced Service Life (ESL) center wing box; and numerous reliability and maintainability improvements that are part of the basic LM-100J design.

The Hercules is known for and by its four-engine turboprop propulsion system. To this day, the propulsion system is the heart and soul of the C-130J and the LM-100J. An updated propulsion

FACTS

Modern Two-Pilot

Cockpit

- *CNS/ATM compliant integrated digital avionics*

- *Integrated Head-Up Display*

New Engines and Propellers

- *More power in high field elevations/hot temperatures*

- *Increased block speed*

- *Reduced fuel consumption*

- *Increased gross weight/payload*

Automated Maintenance and Fault Reporting

- *Reduced maintenance per flight hour*

- *Superior dispatch reliability*

system (Rolls Royce AE2100D3 engines and six-bladed composite GE-Dowdy R391 propellers) powers the C-130J, providing the aircraft with the ability to perform in a variety of locations (from jungles to mountains to arctic regions to deserts) in a number of natural conditions (hot, cold, high, low, humid, dry, dusty) with unmatched efficiency and range. This durable propulsion system also allows for the LM-100J to land seamlessly on unprepared, dirt or gravel



The durable propulsion system also allows for the LM-100 to land seamlessly on unprepared, dirt or gravel runways



L-100 transport have done many hard jobs in the hardest of places

runways — areas where many of tactical airlift missions take place. Its turboprops allow the LM-100 to not be impeded by landscape or damaging debris. The result of all of these improvements is an exceptionally efficient airplane, yielding more than 30 percent lower operating costs per flying hour as compared to legacy LM-100J.

The LM-100J is the same size as a C-130J-30, which is commonly referred as a "stretch" Super Herc. This airframe can accommodate up to eight standard 88-inch by 108-inch 463L pallets. In military operations, the stretch version is used primarily for cargo delivery, airdrop, personnel transport, and para-troop missions. Historically, the L-100

was also a "stretch" version. It is 15 foot longer compared to the shorter C-130 configuration, providing vital space that can truly expand the aircraft's capabilities.

ONE AIRCRAFT, MANY CAPABILITIES

One prominent characteristic of any Hercules — commercial or military variant — is the aircraft's unmatched versatility.

From the beginning, C-130s and L-100s have featured a large, unobstructed, fully-pressurized cargo hold that can rapidly be reconfigured for upwards of 100 military and civilian capabilities. The LM-100J features this same versatile cargo hold. The LM-100J's combination of a cargo floor at truck bed height and rear loading ramp provides ease of loading and unloading with true roll-on/roll-off (or RORO) capability truly makes it unmatched in its capabilities as compared to other freighters.

Seen mainly in ships, the RORO vehicles/vessels have built-in ramps that al-



The LM-100J is built to operate as a global workhorse

low the cargo to be efficiently rolled-on and off the vessel when in port. In the LM-100J, the RORO capability is found with the optional Enhanced Cargo Handling System (ECHS), which is an option that has been included in a majority of all C-130Js delivered to date. RORO features allows for a LM-100J's cargo area to be reconfigured anywhere in a matter of hours without major design modifications necessary.

Multiple roll-on/roll-off configurations are available to expand the LM-100J's capabilities.

Typical roles include:

- Oversized cargo transport
- Oil dispersion/aerial spray
- Oil and gas exploration
- Mining logistics operations
- Aerial fire fighting
- Aerial delivery
- Medevac/air ambulance
- Humanitarian relief operations
- VIP and personnel transport
- Austere field operations
- Search and rescue missions

A GLOBAL ASSET

Like its military counterparts, the LM-100J is built to operate as a global workhorse. Current L-100 operators span the world, with a heavy concentration of activity in the SAMENA region.

With C-130 and L-100s operated out of 68 nations, there is a need for around-the-clock, real-time worldwide fleet support options. Lockheed Martin provides such resources to the global community of Hercules operators, which will support LM-100J fleets.

Operators would have access to a worldwide network of Hercules Service Centers, Heavy Maintenance Centers and Quick Engine Change (QEC) Centers that are located on six continents. In addition, Lockheed Martin provides support through its Enterprise Operations Center and its Technical Support Information team.

In addition, LM-100J operators have access to an impressive global logistics network and insights from known operational and support costs gained through the existing C-130J fleet, which

currently includes upwards of almost 350 operational aircraft.

NEXT STEPS

Lockheed Martin introduced the LM-100J in January 2014. In July of that year at Farnborough Air Show, ASL Aviation (parent company of SAFAIR, which currently operates one of the world's largest L-100 fleets) signed a letter of intent with Lockheed Martin to obtain up to 10 LM-100Js. Lockheed Martin officials continue to be in discussions with interested operators around the world who are looking to add the LM-100J and its unique capabilities to their fleets.

Lockheed Martin team members are currently working with the FAA on a type certificate update for the LM-100J. The first LM-100J currently is under production on Lockheed Martin's Hercules production line in Marietta, Georgia, USA, and is expected to make its first flight in 2017, with delivery in 2018.

Ref: www.lockheedmartin.com/lm100j



505 JET RANGER X ADDS TO BELL

Proven systems plus latest advancements in rotorcraft

The Bell 505 is designed to be the safest and easiest to fly aircraft in the SLS category, incorporating the latest in integrated glass cockpit technology. For nearly 50 years, Bell Helicopter's legendary Jet Ranger has been one of the most iconic commercial helicopters on the market.

Thousands of pilots have flown and trained on this legendary machine and many are still in use today. But in conversations with Bell Helicopter customers and operators, there was a growing need to develop a new, modern aircraft that combines different features and capabilities in order to support what customers have come to expect from Bell Helicopter.

Since announcing a new short light single aircraft at the Paris Air Show last summer, customers have wanted to learn the name of Bell's next generation aircraft. The name and three new

mockups of the aircraft were officially unveiled at the Heli-Expo 2014 in a dramatic reveal ceremony.

Bell Helicopter CEO John Garrison highlighted Bell's many firsts, including the first commercially certified helicopter (the Bell 47), the first US Army helicopter (the H-13B Sioux), the first tiltrotor (now in its third generation with the Bell V-280 Valor) and reminded the crowd the first pilots to fly around the world did so in a JetRanger.

"It's an exciting time to be at Bell Helicopter, working side-by-side with our customers to create the next gen-



The Bell 505 is the first helicopter in its class to feature a fully integrated glass flight deck through the use of the Garmin G1000H flight deck

today's market. It can support a wide variety of operations categories, including the utility segment, corporate and private owners, and training schools.

The aircraft is designed to meet customer specifications, combining proven systems with the latest advancements in rotorcraft technology. However, one of the most important factors for their customers is the way the company supports their helicopter and keeps it flying after the initial sale. To make sure the Jet Ranger X lives up to the high standards of award-winning service and support, Bell Helicopters gave its customers a large voice in designing a maintenance program that would best meet their needs.

Throughout the design process the company gathered customer input from operators, Maintenance Steering Group and Bell Customer Service Engineers, who have supported the Bell 206 fleet for many years. Their goal was to reduce maintenance time and offer a high performance, high value product.

The use of proven components, such as the drive system of the Bell 206L4, will allow the Bell 505 Jet Ranger X to

be maintained with equipment and tools that most operators already have available. Additionally, many Bell 206L4 rotor and drive system spare parts can be used on the Bell 505.

The Bell 505 Jet Ranger X combines proven technology with the latest advancements, including a dual channel engine FADEC and the Garmin G1000H™ fully integrated glass cockpit, to enhance safety, efficiency and reliability in both performance and maintenance. Bell Helicopter has also utilized lessons learned from previous versions of other components to improve the maintenance process.

Bell Helicopter is an industry leader in the Maintenance Steering Group (MSG-3) program, a process resulting in reduced maintenance cost for operators throughout the life of an aircraft. The goal of MSG-3 is to maintain the inherent safety and reliability levels of the aircraft.

MSG-3 was first used in the Bell 429 and the Bell 505 team has now started to implement its own MSG-3 streamlined process, taking lessons learned from the Bell 429 and Bell 525 Relentless maintenance teams. All three programs constantly share information and ideas to ensure that they are moving in a unified direction.

By putting a strong focus on the MSG-3 working group, the company is confident that the Bell 505 Jet Ranger X will not only provide the best value in the short light single market, but also provide superior performance and reliability for operators.

The Bell 505 is the first helicopter in its class to feature a fully integrated glass flight deck through the use of the Garmin G1000H flight deck. This system provides unparalleled crew situational awareness and reduces pilot workload, resulting in enhanced safety levels and mission capabilities.

The Bell 505 cabin is designed for flex-

eration of vertical lift," Garrison said. "Throughout our entire planning and development process, we are engaging our customers. They are providing us with actionable insights about how we can improve our products and what they will need for their missions in the coming years. This input has been invaluable in ensuring we deliver the products our customers need to be successful."

The Bell 505 is designed to meet a wide variety of missions with its fully flat floor, increased cabin volume and clam shell doors that will provide customers the configuration flexibility needed in



ibility, meeting the needs of utility, private, corporate, newsgathering, tourism, cargo and many other users. With five forward facing seats, excellent exterior visibility, and a fully flat floor, the Bell 505 is a true multi-mission aircraft.

The modern and aerodynamic lines of the Bell 505 deliver speed, performance, range and superb aesthetics. Interior and exterior finishing options allow you to make your aircraft unique.

In November 2014, Bell Helicopter announced the successful first flight of the Bell 505 Jet Ranger X helicopter. The maiden flight took place at the Mirabel, Québec, manufacturing facility.

The Bell 505 flight test program continues to progress with an overall total of more than 450 flight test hours and additional tests completed. Below are updates for each flight test vehicle (FTV)

The modern and aerodynamic lines of the Bell 505 deliver speed, performance, range and superb aesthetics

as of October, 2015.

- FTV1 has conducted more than 300 flight test hours. It is finishing up its certification testing this fall with a 100-hour endurance ground run to fully validate the drive train power ratings.

SPEEDS

Max Cruise: 232+ km/h
 Max Range: 667+ km
 Useful Load: 680+ kg
 Max Endurance: 3.5+ hrs
 Max GW, ISA, std fuel,
 no reserve at sea level

- FTV2 has completed approximately 120 flight test hours and has completed the load level survey that defines the loads that will be applied to the fatigue test articles and associated analysis. It will complete its flight-testing obligations by the end of the year when it completes final validation of the cold weather performance of the aircraft.
- FTV3 has achieved approximately 50



CAPACITIES

Cabin Floor Area: 2.0 m²
 Baggage Compartment Volume: 0.5 m³

Includes Copilot area of 0.9 m²

POWERPLANT SPECIFICATIONS

Turbomeca Arrius 2R (uninstalled thermodynamic rating)

Takeoff: 376 kW

Max Continuous: 341 kW

flight test hours and completed noise certification and handling qualities testing. It is also scheduled to complete its testing obligations near the end of the year with certification kit testing as well as function and reliability testing required for entry into service.

• What if you could customize your next commercial helicopter from the comfort of your couch? The aircraft allows you to do exactly that, thanks to the configuration and ordering tools. On its website you can select the "Build Yours" function on the top right of their homepage (www.bell505.com) and you'll be able to build your own dream aircraft and be put directly in touch with a sales representative to complete the process.

• Customers will be able to select options such as paint color and trim options, fabric or leather seats, and other basic details. There will also be a variety of kit options available pre and post certification. After selecting your design, a Bell Helicopter sales representative will

work with you the rest of the way to make sure you get the exact Jet Ranger X that meets mission needs.

• In addition to the customizations available through the online ordering process, all Bell 505 Jet Ranger X blend proven systems with advanced technology and a sleek, modern design. The Garmin G1000H Integrated Avionics Suite provides pilots critical flight information at a glance to maximize situational awareness. The Turbomeca Arrius 2R engine with dual channel Full Authority Digital Engine Control (FADEC) further reduces pilot workload. The Bell 505 features a high inertia rotor system delivering superior auto rotation capabilities. With the ideal combination of speed, range and useful load, the Jet Ranger X is designed to deliver best-in-class performance.