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Issue File

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"Sorry"... and its Sisters

By:
Staff Major\ Yousef Juma AL Hadad
Editor in Chief

The culture of apology is a practice that we need very much to be part of the structure of our social relations, so that we can practice this act in goodwill, without hesitation or feeling ashamed. It is one level of moral courage, and the behavior of the nobility. It gives you strong immunity against error and indifference to the feelings of others. During our daily life we commit a lot of wrong acts that can spoil our relationship with others but the word 'sorry' can save you from such a predicament. There is no harm if I apologize when I misbehave, for it does not degrade me.

Apology is a civilized and cultural feature that requires great confidence, moral courage, a positive outlook, and willingness to take responsibility. It helps to reopen the doors to communication, addresses the implications of error, helps to get rid of remorse, restores respect for those who suffered abuse and rids them of the feeling of anger. It corrects negative behavior and shows how brave an individual is in facing reality. However, most of us lack this culture, for a person who apologizes after a mistake might feel belittled, while, in fact, the opposite is true.

Some say that one of the reasons for the diffidence in rendering an apology is the differing perceptions: What some see as wrong is considered right by others, and what one party thinks is a flaw is deemed as a personal freedom by another. Therefore, do not demand apology from a person for something he or she does not believe in, but you had better leave them alone than ask them for an apology that is not listed on the agenda of their concerns.

We would say that only a highly confident, self-reconciled and highly principled person would apologize, and therefore anyone who lacks these principles and ideals, even if he feels in his heart the graveness of the error he committed, would resort to justify his act which reveals the weakness and fragility of his cultural and behavioral structure, and sometimes his education and upbringing.

Many psychologists believe that the purpose of apology is to correct the error and rehabilitate the abused person, but the person at fault hesitates or refrains from apologizing because he does not know the meaning and importance of an apology, and considers this as something that hurts his pride.

The word of apology has become a burden for many people, and the simplest examples are manifest in the daily disputes, where everyone insists on their attitudes even though they know they are at fault, while a simple word can settle the matter, and the natural thing expected from the person who committed the error is to retract their words and say "I'm sorry".

The absence of the culture of apology is natural because some people mistakenly believe that an apology affects dignity, and that the word of regret underestimates its utterer. Prophet Muhammad, peace be upon him, not only exposed his belly as an apology to a person he poked so that the latter could take revenge, but he also said: "O God! If I insulted a believer, give him purity and forgiveness." While on the pulpit addressing people, Omar ibn al-Khattab apologized for the dismissal of Khalid bin Waleed. Long before them, Joseph's brothers said, "O our Father! Ask for us forgiveness For our sins, for we were truly at fault" [Surat Yusuf: 97].

The word "sorry" and its sisters have great connotations, including the humility of the one who says it and his acknowledgement of being human, which implies imperfection and fallibility. "Every child of Adam, is erroneous, and the best of the erroneous are those who repent".

It is very important to be really honest in our apologies, and to apologize at an appropriate time and not too late. It should be planned and not left to chance because this would undermine the credibility of apology itself, as then only an apology will be meaningful and will also be a medal on the chest of the person who apologizes.

Finally, let us repeat what wise people said: if you do not have sufficient courage to apologize for the error, try hard not to create a situation needing an apology, and realize that if an apology is heavy on yourself, insult is also heavy on the hearts of others•

Editorial

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Mohammad bin Zayed meets Barack Obama during his visit to Washington, where they discussed the bilateral ties between the UAE and the United States and ways to enhance them to serve the mutual interest of the two friendly countries and peoples.

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Abu Dhabi Crown Prince meets Barack Obama

Mohammad Bin Zayed meets US President Barack Obama at the White House.

Washington: General Shaikh Mohammad Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, met US President Barack Obama at the White House at the beginning of a two-day visit to the United States during which he will meet with senior officials.

Shaikh Mohammad conveyed to President Obama condolences of President His Highness Shaikh Khalifa Bin Zayed Al Nahyan for the victims of Boston incidents and his wishes of speedy recovery to the injured.

"The UAE condemns this act of terror and stands by all countries of the world against all acts of terrorism, regardless of their sources or motives, Shaikh Mohammad said.

President Obama asked Shaikh Mohammad to pass on his greetings to Shaikh Khalifa and his thanks for the feelings of sympathy expressed by the UAE leadership for the victims and the injured in Boston incident.

Shaikh Mohammad conveyed to President Obama condolences of President His Highness Shaikh Khalifa Bin Zayed Al Nahyan for the victims of Boston incidents

The meeting, which was attended by the UAE Foreign Minister Shaikh Abdullah Bin Zayed Al Nahyan, touched on the bilateral ties between the UAE and the United States and ways to enhance them to serve the mutual interest of the two friendly countries and peoples.

The two sides discussed initiatives that will further enhance the bilateral trade relationship, and encourage economic growth and opportunity.

They underscored the importance of the close consultations, cooperation and coordination in all domains to further strengthen relations of cooperation and friendship between the UAE and the USA.

Shaikh Mohamed exchanged views with the US President on the latest regional and international development, as well as international initiatives and efforts to promote peace, stability and development in the Middle East.

During his visit, Shaikh Mohammad also met with the US Vice President Joseph Biden and discussed with him the strong ties and shared interests between the UAE and the USA.

According to recently released US government data, the UAE is ranked among the US' fastest growing trading partners. Total bilateral trade between the two countries grew from approximately $4.5 billion in 2002 to $24.8 billion in 2012.

While in Washington on his two-day visit, the Crown Prince will also meet with senior US government officials and members of the Congress.

The Crown Prince is being accompanied on his visit by Shaikh Abdullah and other senior officials•

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Armies Go Spending to Retain Land and Air Supremacy

LAAD participants showcase state-of-the-art technologies

The ninth Latin American International Defence and Security Exhibition opened in Rio de Janeiro in Brazil on 9 April 2013. Delegations from 65 countries, including defense ministers attended the opening. The fair was opened by the Brazilian Defence Minister Celso Amorim who also held meetings with his peers from Argentina, Ukraine, South Africa and Slovakia as well as the British Defense Minister Andrew Murrison and Spain's Secretary of State for Defense Pedro Argüelles.

Visitors

Almost 30,000 visitors attended the ninth edition of LAAD. The more than 300 official delegates who attended the show appreciated the latest products and systems at the stands representing 700 companies from 48 countries including such giants as Boeing, Saab, Northrop Grumman, General Dynamics, Lockheed Martin, Embraer, Rosoboronexport, according to the organizers.

The number of stands - 663 - in the four-day show was greater than in 2011 as countries such as Canada, Chile, UAE, Colombia, Slovakia and Norway put up their own pavilions with their home representatives.

LAAD 2013 which this year covered a show area of 60,000 sq m, brought together Brazilian and international companies specializing in supplying equipment, services and technology to the armed forces, police and special forces, security services, consultants and government agencies.

Highlights

LAAD participants showcased state-of-

Advanced Integrated Systems (UAE) exhibited high profile defense solutions

KC 390 AirDrop

the-art technologies for military, air and space, naval, communications and information and public security operations such as armored vehicles, drones, avionics and integrated command systems for the protection of aircraft.

United Arab Emirates

At the expo, for the first time, the UAE put up its own pavilion with national companies. Tawazun - the strategic investment firm focused on the long-term development of the UAE's industrial manufacturing with a specific focus on the defense sector - took part for the first time as part of the UAE pavilion which featured a number of UAE defense manufacturing and investment companies.

Saif Mohamed Al Hajeri, Chief Executive Officer of Tawazun who led the company's delegation to the exhibition, said the strong presence of Emirati companies in LAAD for the first time had sent a strong message demonstrating the UAE's commitment to further ties of economic and commercial cooperation with Brazil, one of the world's fastest growing economies.

"Brazil is a vital trade partner of the UAE and could potentially become one of the leading markets for UAE made products"

"We are pleased with the success of Tawazun and other UAE companies in their debut participation at LAAD. Brazil is a vital trade partner of the UAE and could potentially become one of the leading markets for UAE made products," said Al Hajeri.

Between 2010 and 2011, UAE's total exports to Brazil surged by 170.71 per cent to reach AED 1.7 billion. Electrical items, machinery parts, plastics and fertilizers form the major share of UAE's current exports to Brazil. The first five months of 2012 saw UAE import almost AED 3.7 billion worth of goods from Brazil, a rise of 47 per cent from the same period of previous year. The main imported products were sugar, meat and ore.

Other Emirati companies taking part within the UAE national pavilion were: Advanced Integrated Systems, Emirates Advanced Investments, Abu Dhabi National Exhibition Center and Sofia Trading.

Embraer

Brazil's Embraer, one of the companies with the greatest display at LAAD, presented blueprints for different versions

of the KC-390 heavy duty transport that can be transformed for fire fighting, air tanker and search and rescue missions.

The Brazilian Air Force FAB has awarded Embraer a $215 million contract to modernise its five E-99 AEW&C (EMB 145) aircraft. The contract provides for the updating of electronic warfare systems, C2 systems, electronic countermeasures, and air surveillance radar. Atech, a Embraer Defense and Security company, participates in the development of the C2 system. The contract also comprises six mission planning and analysis stations that will be employed in the training and improvement of crews. Built on the platform of the successful ERJ 145 regional jet, with more than 1,100 units delivered and 19 million flight hours, the E-99 operated by FAB is able to detect, track and identify targets in their patrol area and transmit this information to allied forces. The aircraft can perform airspace management, fighter positioning and interception control, signals intelligence and surveillance missions. It will also be used to provide security for major sporting events that will take place in Brazil in the coming years.

Boeing

An F/A-18E/F Super Hornet Block II simulator, cyber security demonstration, and unmanned airborne system models anchored Boeing's display.

The Super Hornet flight simulator was open to potential customers as well as members of the general public who liked to experience the strike fighter. The simulator includes a front and rear cockpit and demonstrates the capabilities of the single-seat E model and the two-seat F model. The Super Hornet is in service with the U.S. Navy and the Royal Australian Air Force and is currently one of the finalists in Brazil's F-X2 fighter competition.

Boeing revealed a new project to integrate a laser seeker in the GBU-39B small diameter bomb (SDB) for close air support applications. A scaled model of the 113kg weapon displayed showed a laser seeker in a low-speed nose cone. Boeing is adapting the SDB with a high-speed nose cone for close air support aircraft according to the project manager. Potential applications include the Embraer A-29/EMB-314 Super Tucano, a light attack aircraft selected by the US Air Force on behalf of the Afghan air force. Boeing was selected by Embraer to integrate precision-guided weapons on the Super Tucano for the Afghan fleet.

Northrop Grumman

Northrop Grumman Corporation displayed an array of global defense and security capabilities including marine navigation and unmanned ground systems. The exhibit included Northrop Grumman's most modern and capable F-16 mechanically scanned fire control radar, the APG-68(V)9, which implements high-resolution synthetic aperture radar and long-range air-to-air detection. Northrop Grumman has produced thousands of F-16 mechanically scanned fire control radars for the U.S. Air Force and numerous international customers over the past 35-years. To date, more than 700 APG-68(V)9 radars have been sold to 11 different nations.

Northrop Grumman's enhanced

To date, more than 700 APG-68(V)9 radars have been sold to 11 different nations

APG-68(V)9 implements high-resolution synthetic aperture radar and long-range air-to-air detection

C4ISR Operationally Responsive Enterprise (eCORE) was demonstrated. The eCORE integration platform uses open, nonproprietary commercial off-the-shelf enterprise architecture and provides data sharing at all levels of operations to enable rapid mission integration, deployment, support, training and maintenance.

The company's naval and maritime capabilities, well known through Sperry Marine's longstanding presence in Brazil, was also highlighted through a series of featured naval products such as the MK39 Mod 4 ring laser gyro inertial navigation system, the Navigation Data Distribution System, the MK-27F fiber optic gyrocompass, the Warship Electronic Chart Display and Information System and the tactical bridge.

The exhibit also featured Northrop Grumman's SoldierLink™ System, a mobile tactical cloud transport network connecting soldiers at squad and platoon levels to company-level information services and Titus™ - the company's newest, lightest, fastest, strongest and most intelligent member of the Andros™ family of unmanned ground vehicles.

Thales tactical SATCOM terminals provide on-demand secure communications

Thales

As a leading provider of cutting edge equipment and systems to customers worldwide, Thales showcased its air mission system capabilities, as well as its know-how in secure communications, secure identification and its training solutions for airborne platforms.

With its positioning in Advanced Air Defense, Thales is able to offer the entire integrated capability from air defense radars and C2 through to effectors and their respective fire control systems. ThalesRaytheonSystems (TRS), the joint-venture between Raytheon and Thales presented the Ground Master 400, air defense radar model. TRS is a world leader in tactical radars for the battlefield with more than 600 systems in service worldwide.

At LAAD, Thales exhibited its expertise in maritime solutions in both Above and Underwater warfare: from surveillance, identification, communications, command and combat systems to support for weapons systems, as well as acoustic systems for anti-submarine warfare and anti-mine warfare for all types of platforms.

Cassidian

Cassidian, the defence division of EADS, presented its high-class portfolio of defence and security products. EADS has succeeded in building strong and reliable relations with Brazil, where the Group has been present for 34 years.

SPEXERTM 2000 displayed is the worldwide first security radar using the newest radar technology of Active Electronically Scanning Array (AESA). By electronic guidance of the radar beam this technology enables the sensor to fulfil several tasks at the same time while increasing the detection capability substantially. Therefore, one SPEXERTM 2000 can replace two or more conventional radars. The unique detection performance is based upon a multitude of Transmit- and Receive Modules produced by Cassidian.

Another exhibit TANANTM 300 is a new-generation compact VTOL Tactical UAS (Vertical Take-Off and Landing Tactical Unmanned Aerial System) for maritime and land missions. Designed in close collaboration with potential customers in order to match their specific requirements, TANANTM 300 is a real "eye in the sky" thanks to a full HD imagery chain and to its main payload which allows an easy switch between EO/IR (Electro-Optical and Infra-Red) high-definition cameras.

Eurocopter

Exhibited at LAAD were a Brazilian Army AS350 Fennec, two EC725s from the Brazilian Air Force and Navy fleets, a modernized Panther K2 for the Brazilian Army, an EC145 operated by police in the state of Bahía, and the enhanced AS350 B3e. To date, 600-plus Eurocopter helicopters have been delivered to military and civil clients in Brazil, with the company holding a 50 percent share of the country's military and civil markets. The Helibras operation has expanded to

Cassidian, the defence division of EADS,presented its high-class portfolio of defence and security products

DIEHL Defence showcased an impressive range of products at LAAD

include more than 730 employees, and generated an annual turnover of more than 155 million euros.

Helibras' industrial site at Itajubá in the Brazilian state of Minas Gerais has become a world-class rotary-wing center of excellence for the production, assembly and maintenance of EC725 helicopters being acquired by Brazil's three armed forces. This site also creates the framework for potential future helicopter development in the country, along with the evolution of Brazil's aviation industry supply chain.

SAAB

Saab demonstrated its variety of key capabilities, systems and products of highest quality in the following domains. Fighter aircraft, integrated C2 and situational awareness, Air Traffic management, GBADS, signature management, security management, , AEW, platform and protection, GCT, and for the first time at LAAD ,Maritime Surveillance Aircraft and roatary wing UAV, Skeldar.

Saab has already developed solutions for the Brazilian Armed Forces in different areas such as radar systems, army weapons and training equipment for many years. Saab is also investing heavily in R&D work to be able to meet the future with suitable products and solutions and has opened an R&D centre in Sao Bernardo do Campo. In that centre Saab jointly between Brazilian and Swedish Industry, Users and Universities develop solutions that will fit perfectly in to the Brazilian future need.

Sagem

Optovac, the wholly-owned Brazilian subsidiary of Sagem (Safran), is starting operations in the Univap technology park in San José dos Campos. Optovac Mecânica e Optoeletrônica Ltda, acquired by Sagem in 2012, handles the marketing, production and support of Sagem's product range for its customers in Brazil. Optovac will also develop its own local solutions meeting the requirements of the Brazilian armed forces, and will encourage research initiatives with Brazilian universities.

Participating in the LAAD Defense and Security International Exhibition for the first time on the Safran stand, Optovac showcased its ability to meet the requirements of police and special forces, in the run-up to the two major international events scheduled for Brazil in the near future – the Summer Olympics and Football World Cup. The company also spotlighted Sagem's avionics expertise, particularly for autopilots and attitude and heading reference systems (AHRS).

Sagem already contributes to several programs in Brazil, including the flight controls and navigation systems for Eurocopter's Caracal helicopters, and optronic masts for the four Scorpène class submarines produced by DCNS. Sagem also makes the flight controls for all Eurocopter helicopters operating in Brazil, and was selected by Embraer to develop the horizontal trim compensator for the upcoming KC-390 military transport.

Alenia Aermacchi

Alenia Aermacchi – the Italy's largest aeronautics company displayed the models of MC-27J, ATR 42 MP, M-346 and Eurofighter Typhoon at LAAD.

The MC-27J is a new, multimission armed derivative of the combat proven Alenia Aermacchi C-27J Spartan battlefield airlifter,with capability added through a modular approach maximizing the use of mission kits/pallets (Roll-On/Roll-Off equipment. The ATR 42 MP is the maritime patrol variant of the ATR 42 turboprop aircraft and is capable of fulfilling, at lowest operational costs, maritime patrol roles such as sea surveillance; vessels search and identification; search and rescue; drug smuggling and piracy control; environmental control (pollution by oil and chemical substances); economic exclusive zone patrol (fishing, off-shore platforms).

Now Alenia Aermacchi, with its M-346 trainer, is in the position to propose a well suited aircraft for the replacement of the MB-326 trainer aircraft, which reached the end of its operational life at the end of 2010, in the Lead-In Fighter Trainer roles it was operated in Brazil.

Saab has already developed solutions for the Brazilian Armed Forces in different areas such as radar systems, army weapons and training equipment

Lockheed Martin presented HELLFIRE II missile—launched from Apache and Cobra attack helicopters,

Sikorsky

Sikorsky Aircraft Corp announced that it has signed a Letter of Interest with the Brazilian Instituto Tecnológico de Aeronáutica to establish a Rotorcraft Innovation Team. The collaboration will accelerate the development of rotorcraft technologists in Brazil, whose military already flies both BLACK HAWK and SEAHAWK® helicopters, and will increase student and faculty exposure to rotorcraft. Sikorsky will provide mentoring to assist with these classes at the graduate and undergraduate levels. It also will support the procurement of relevant hardware and software to enable rotorcraft research.

A highlight of the exhibition was S-70i Black Hawk Helicopter, which features a dual GPS/INS system, digital mapping for accurate navigation and enhanced situational awareness. Manufactured by Sikorsky Corp., the model is custom-equipped with a rescue hoist and an Integrated Vehicle Health Management System that can monitor the engines, transmission and rotors.

The Colombian Armed Forces were the first Latin American country to invest in the new model adding two new additions the country's Black Hawk fleet: the fourth largest in the world. It is expected the helicopters will be flown to the Colombian Army special operation aviation military base later in 2013.

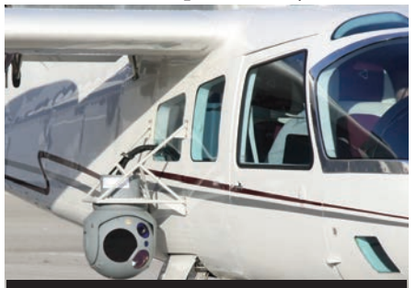
Krauss-Maffei Wegmann

The Brazilian Army announced on the second day of the event that it has acquired 36 GEPARD anti-aircraft armored vehicles designed by the German defense company Krauss-Maffei Wegmann (KMW). The vehicles are likely to be used when Brazil hosts the World Cup next year and the 2016 Olympic Games. A Brazilian Defense Ministry statement said the contract would be signed in the coming days with the total value still under negotiation.

The second hand German Gepard, which were upgraded in 2010 at A2 level

and fitted with new radar systems, will be able to operate until 2030 according to a high ranking officials. Eight of the armored vehicles are to be delivered before June 2013 and will be used during World Youth Day, the Catholic youth fest that Pope Francis plans to attend in Rio in July.

The Gepard anti-aircraft tank was delivered to the armed forces of Belgium, Germany and the Netherlands. The Gepard is an autonomous, all-weather-capable German self-propelled anti-aircraft gun (SPAAG). It was developed in the 1960s and fielded in the 1970s, and has been upgraded several times with the latest electronics. The Gepard is fitted with a two-man electric power operated turret armed with twin Oerlikon KDA 35mm guns. The guns have automatic belt feed. Barrel length is 90 calibers (3,150mm). The rate of fire provided by the two barrels is 1,100 rounds a minute. Each 35mm gun has 320 rounds of ready-to-fire, anti-air ammunition and 20 rounds of anti-ground target ammunition.



Light ISR system from Selex ES, a low-cost airborne surveillance solution

The latest version, Gepard A2 is fitted with a digital fire control computer. The Gepard is equipped with independent search and tracking radars, the search S-band radar installed at the front rear of the turret, and the tracking Ku-band radar on the rear front of the turret.

Nexter Systems

The French Defence Company Nexter Systems presented for the first time, the most modern 155mm self-propelled wheeled artillery system, the CAESAR. The CAESAR® system is now in service in three countries. It is used by the French army in Afghanistan to provide fire support, and it has demonstrated its operational capabilities and is now combat proven.

France has used it within the United Nations in Lebanon, and it is also in service in a Middle East country and forms part of the Royal Thai Army's artillery. The CAESAR® is currently used by the French Armed forces in Mali for the Operation Serval. The CAESAR is a pioneer in its category and is the result of Nexter innovation and know-how in Artillery. This system, consisting of a 155 mm / 52 calibre gun mounted onto 6x6 chassis, combines fire power and amazing mobility. In this respect and due to its extreme versatility, CAESAR® is an alternative to heavy versions such as heavy tracked or wheeled self-propelled artillery systems. Fitted with up-to-date equipment and functionalities, CAESAR® strikes accurately and effectively at long range.

Eurocopter EC145

Russian Helicopters

Russian Helicopters, a subsidiary of Oboronprom, part of State Corporation Rostec and a leading global designer and manufacturer of helicopters, brought a range of its latest models. Brazil is becoming a strategically important market for Russian Helicopters, primarily for civilian models for local helicopter operating companies. During Brazilian President Dilma Rousseff's visit to Russia in December 2012 the first export contract was signed outlining the main parameters for deliveries of Russian-built Ka-62 helicopters to Atlas Táxi Aéreo. In total the Brazilian company will receive seven to fourteen of the new medium multirole Ka-62, an advanced helicopter that combines high standards of safety with low environmental impact and excellent fuel economy.

Atlas Táxi Aéreo already has Russian-built Mi-171A1s in its fleet. These helicopters serve Brazil's burgeoning oil and gas sector: the Mi-171A1 won a tender held by national oil and gas giant Petrobras, and is used as a transport helicopter in hard-to-reach areas of the Amazon rainforest. The Mi-171A1 is a member of the Mi-8/17 series, which is the world's most popular helicopter with more than 12,000 produced. Mi-171A2 -The new model was on show at the company's stand. It is the most advanced helicopter in its renowned family, combining the latest helicopter-construction technologies with all of the improvements accu-

Brazilian Army M113 armored personnel carriers from BAE Systems

Lockheed Martin presented various missile and fire control solutions

mulated over years of flying successful Mi-8/17 operation around the world.

More...

The Belgian defense company CMI Defence presented its new 120/105mm Cockerill XC-8, a low-weight concept-turret which can be integrated on tracked or wheeled armoured vehicle as Guarani, the new armoured vehicle selected by the Brazilian army to replace the old Urutu armored vehicle used today by the Brazilian armed forces.

AgustaWestland exhibited a full range of helicopters for military and security units as the AW139 Offshore, AW109 LUH, and AW159. The AW139 Offshore is a new-generation medium twin-turbine helicopter, setting new standards against which all new medium twin are measured. It is capable of carrying up to 15 passengers in the most spacious cabin and with the best power reserve of its class. The AW159 is the new multi-role helicopter, designed to support all aspects of land, littoral and maritime missions, delivering increased performance and benefits from comprehensive state-of-the-art integrated avionics.

Streit Group, the world's largest privately-owned vehicle armouring company with over 100 models across a range of product categories – including luxury vehicles for VIP protection, cash in transit, security and commercial, and tactical military vehicles – presented the Spartan and Typhoon tactical military vehicles at LAAD. Typhoon is a Mine-Resistant Ambush Protected (MRAP) vehicle offering up to STANAG 3 level protection against both blast and ballistic attack.

Russia and Brazil will discuss the possibility of the joint development of an advanced surface-to-air missile system, Parana. Brazil is also showing keen interest in Russian-made missile defense systems, a Rosoboronexport spokesman said, adding that negotiations were also underway concerning licensed manufacturing and "the possible joint development and production of new missile defense systems, for example, the advanced Parana surface-to-air missile system." No details about the Parana have yet been disclosed.

As the ninth edition of LAAD concluded, it had been amply demonstrated that, LAAD was the leading exhibition in Latin America in terms of visitor turn out and interest shown by participating companies and governments.

2014

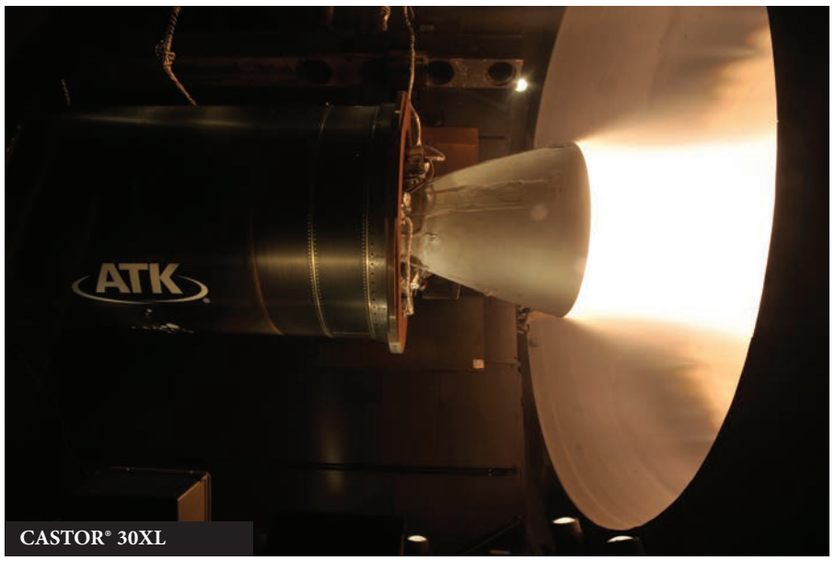
The next edition of prestigious LAAD exhibition will be in 2014.

Ref / Photo:
www.laadexpo.com

ATK Successfully Ground Tests New CASTOR 30XL Solid Rocket Motor

ATK successfully tested its newly developed CASTOR® 30XL upper stage solid rocket motor at the U.S. Air Force's Arnold Engineering Development Complex (AEDC) in Tennessee.

The test was the final qualification for the ATK commercial motor, which was jointly developed by ATK and Orbital Sciences Corporation in just 20 months from concept to completion. The CASTOR 30XL is designed to ignite at altitudes in excess of 100,000 feet. In order to accurately test the motor performance, the static fire was conducted at AEDC using a vacuum chamber specially designed to simulate upper atmospheric conditions. Initial data indicate the motor performed as designed, and ATK will now analyze the results against its performance models.



CASTOR® 30XL

"I am very pleased with our successful CASTOR 30XL test," said Scott Lehr, ATK vice president and general manager of Defense and Commercial Systems. "In less than two years, the ATK/Orbital team designed and built the motor that was fired today. We look forward to seeing this stage become part of the Antares launch vehicle, supporting ISS cargo resupply missions for NASA."

The motor is intended for use by Orbital as an enhanced second stage of the Antares™ launch vehicle. Antares is slated to perform commercial cargo re-supply missions to the International Space Station (ISS) for NASA, to be demonstrated under the Commercial Orbital Transportation Services program for later delivery missions to the ISS under the Commercial Resupply Services contract.

Sagem wins design study contract for inertial guidance systems

French defense procurement agency DGA has awarded Sagem (Safran) a design study contract concerning inertial navigation systems for new-generation tactical missiles.

According to the terms of this contract, Sagem is responsible for the design and construction of inertial reference units for these missiles.

Based on vibrating gyro technology, this work will eventually lead to the development and production of more cost-efficient inertial navigation systems for use on all types of missiles, including air-to-air, surface-to-air, antitank and antiship.

The contract also confirms the DGA's confidence in Sagem's ability to apply breakthrough technologies to navigation and stabilization systems. At the same time, Sagem will be able to expand its range of expertise concerning navigation systems on tactical missiles.

Sagem already develops and produces the Hammer AASM (Armement Air-Sol Modulaire) modular guided weapon for this market. Working with prime contractor MBDA, Sagem also makes the sights and seeker for the Mistral air defense missile, and the seeker for the infrared version of the Mica air-to-air/surface-to-air missile. In addition, Sagem was selected to develop and produce the infrared seeker for the MMP medium-range missile and MBDA's air-to-surface and light antiship missiles.

Sagem understands and applies all technologies needed for the development and production of inertial sensors for navigation and stabilization systems, including gyros (laser, fiber-optic and vibrating), accelerometers (pendulous and vibrating) and MEMS (Micro Electro Mechanical Systems).

ThalesRaytheonSystems equips Estonia with Ground Master radar

©Estonian Ministry of defence_ GM 400

An official ceremony was held on March 26 on Muhu island in Estonia to mark the entry into service of the first Ground Master 400 (GM 400) long-range air defense radar system supplied by ThalesRaytheonSystems to the Estonian armed forces. The ceremony was presided by Estonia's defense minister Urmas Reinsalu.

The system is the first of two radar systems ordered by the Estonian Air Force and is one of 14 radars of the same type ordered jointly by Finland and Estonia. The GM 400 is designed for both fixed site operation under a radome at the Muhu base and for rapid deployment in the field. In a tactical, truck mounted configuration with an independent power supply, it can be deployed in the field in less than two hours.

This GM 400 will be connected to the NATO network and can be interconnected with all the other air defense radars deployed across Europe. It will bring Estonia superior detection performance at low and high altitudes, higher availability and simplified maintenance.

"We are delighted that the GM400 radar is now supporting Estonia's important role in the NATO air defense infrastructure. The new radar system will bring the country an operational long-range air surveillance capability and improved detection performance against a broad array of modern threats," said Philippe Duhamel, CEO of ThalesRaytheonSystems SAS.

Saab signs support contract for airborne surveillance system

Defence and security company Saab has signed a support contract for airborne surveillance system. The contract amounts to MSEK1,100 over 2013-2017.

The contract concerns a comprehensive set of spares and support services for a previously delivered system, Saab 2000 AEW&C (Airborne Early Warning & Control). The Saab 2000 AEW&C comprises of Saab 2000 aircraft equipped with the advanced Erieye radar system and ground equipment.

The wide-area surveillance system in combination with ground equipment enables control over both land and sea, and can play an important role for border surveillance and rescue operations as well as in combating terrorism and organised crime.

"Our surveillance system provides the customer with improved solutions for defence and civil security. This contract is a result of our close cooperation with our customer and can be seen as a further confirmation of our strong capability to provide our customers with advanced service and support solutions", says Gunilla Fransson, Head of Saab's business area Security and Defence Solutions.

Saab offers airborne surveillance systems for a wide range of use. The systems can be based on different platforms and delivered as turnkey solutions including a comprehensive set of advanced support, spare part services and training. Saab's Erieye radar system has been provided on several platforms, for example Saab 2000, Saab 340 and Embraer 145, and sold to eight different customers around the world.

Eurofighter Equipped with the Latest Flight Test Facilities

Achieved important production milestone at Cassidian in Manching

IPA8 - Final Assembly Line Manching @Cassidian

The Eurofighter IPA 8 (Instrumented Production Aircraft 8) test aircraft has achieved an important production milestone at Cassidian in Manching: with the mounting of the right wing, the connection between the cockpit, vertical tail unit and wings with the fuselage has been completed. "IPA 8 is based on the latest Eurofighter Tranche 3 construction standard and is furthermore equipped with state-of-the-art flight test instrumentation. That makes the aircraft the most advanced Eurofighter in the world," said Berndt Wuensche, Eurofighter Programme Manager at Cassidian.

"IPA 8 can make essential contributions to further developing Eurofighter capabilities in the coming decades – for example, electronic beam scanning for radar, enhanced weapon integration and improvements to mission equipment," he continued.

After assembling the individual major structural components, the aircraft was transferred to the next production station on the final assembly line in Manching, where the test aircraft's hydraulic, defensive aids and electrical systems and its complex special cabling are being installed. The specialists at Cassidian have equipped the modern Eurofighter with more than 110 km of cable in the past few months and additionally installed pressure, flow and electrical data sensors and the test flight instrumentation and computer into the aircraft. Equipped in that way, all the relevant aircraft parameters can be communicated in real time from the air to the flight test engineers on the ground.

Cassidian is responsible primarily for the Eurofighter's flight control system, its flight behaviour, radar and fire control systems and infrared sensor

All four of the Eurofighter programme's partner nations have test aircraft available, which they are using to test new capabilities on the basis of their development focuses. Cassidian is responsible primarily for the Eurofighter's flight control system, its flight behaviour, radar and fire control systems and infrared sensor.

The Eurofighter Typhoon is the latest and most capable multi-role combat aircraft presently available on the global market. Currently, seven nations (Austria, Germany, Italy, Oman, Saudi Arabia, Spain and the UK) have procured the Eurofighter. To date, the Eurofighter fleet has completed more than 170,000 flight hours world-wide, thus making the aircraft the safest and one of the most reliable combat aircraft in operation. With 719 aircraft under contract, 571 orders and over 355 deliveries, the Eurofighter is currently the largest military procurement programme in Europe and, thanks to its advanced technology, strengthens the European aviation industry's position in international competition. The programme also safeguards more than 100,000 jobs at 400 companies and is managed by Eurofighter Jagdflugzeug GmbH on behalf of the Eurofighter partner companies Alenia Aermacchi/ Finmeccanica, BAE Systems and Cassidian in Germany and Spain•

A Ship for Every Mission

AVANTE family concept share many same features but are mission specific

Navantia has developed a new family of OPV's, the "AVANTE family", that includes a variety of options. It is a new concept of ships where they will share same hull lines, same compartment division, same arrangement of common spaces and maximum commonality of propulsion and auxiliary systems. What makes them different is the mission they will accomplish: combatant, patrol, support, research.

The combatant version has been designed for naval operations in crisis time (command, anti-air, anti-surface, electronic and mine warfare) for protection of the exclusive economic zone control.

The patrol version has been designed for protection and surveillance of national waters, allowing a fast intervention or escorting convoys and warships.

The support version has been designed for emergency situation assistance (fire, pollution, sanitary), divers support or transport of loads and personnel.

The research version has been designed for hydrographic and oceanographic survey and Remote Operated Vehicle (ROV) operations.

Furthermore, the mission combined with a determined size of the ship (specified in tones) provides a wider catalogue of products: Avante 300, Avante 700, Avante 1400, Avante 1800, Avante 2200 and Avante 3000.

The ship and systems of the AVANTE family are specially designed to operate in the environmental conditions of the Arabian Gulf, where air temperature reaches 50º C and the seawater temperature could reach 37ºC.

In this sense, the capacity of the HVAC system is designed to such environmental conditions. Furthermore, the hull materials, the building process and the ships' design itself are defined in such a way that the AVANTE family ships can operate under heavy dust/sand storms.

The pieces of equipment design and material are able operate under high humidity up to nearly 100% in conjunction to somewhat lower ambient temperatures than 50ºC.

The materials used and protection are defined considering that the ships will be able to operate in aggressive seawater with the presence of industrial pollutants and a higher than usual salt content.

Navantia has just commissioned three different types of OPV's.

AVANTE 3000 for the Spanish Navy

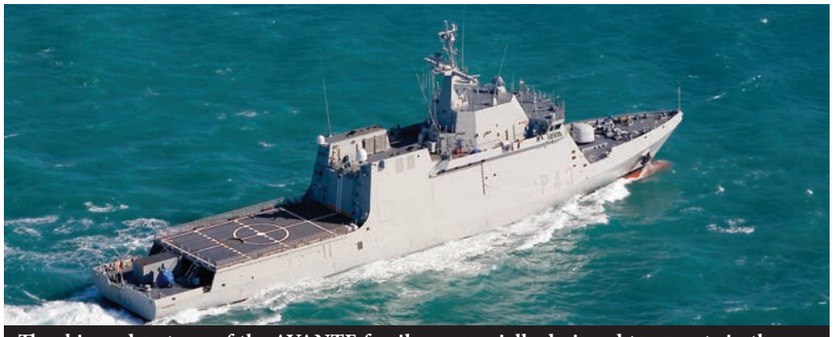
It is a moderately-sized, high performance ship with great versatility, a reduced crew with a high level of habitability, a high degree of communality with the Navy's other ships and a low acquisition and life-cycle cost.

It has a large capacity for remaining at sea, which enables the ship to carry out different missions such as naval presence, protection and escort of other ships, control of maritime traffic (dangerous merchandise and arms trafficking), control and neutralisation of terrorist activities and acts of piracy, operations against drug trafficking and the traffic of persons, humanitarian aid and disaster relief and surveillance and control of environmental and anti-pollution legislation.

The ship has a flight deck that is appropriate for operations with medium-sized helicopters and also has a fixed hangar, giving the ship a high degree of versatility in the different planned missions, There is also a hospital area that allows the provision of medical support for first aid and stabilisation as well as a telemedicine facility that aims to strengthen the possibilities of medical care.

AVANTE 2200 for The Venezuelan Navy

It has a length of 98.90 meters, a displacement of 2,200 tonnes and a maximum speed of 25 knots. It is able to perform a variety of missions such as surveillance and protection of the exclusive economic zone, protection of maritime traf fic, defence of strategic interests, search and rescue operations, support for other units and humanitarian actions, control of marine pollution, the fight against smuggling, drug trafficking and illegal immigratation, surveillance and gathering of operational and environmental intelligence, surface defence and passive electronic warfare•



The ship and systems of the AVANTE family are specially designed to operate in the environmental conditions of the Arabian Gulf

Boeing Phantom Phoenix Small Satellites Reduce Costs

Allows separation of payloads into multiple smaller spacecraft

PhantomPhoenix

Boeing is developing a family of small satellite prototypes, called Phantom Phoenix, that can quickly and affordably be manufactured and configured for specific missions.

Sharing a common architecture, flight software and simplified payload integration options, the satellites could perform missions ranging from intelligence, surveillance and reconnaissance to planetary science.

"Our customers need greater mission flexibility from smaller satellites that can be built more affordably, and delivered more quickly, without sacrificing quality," said Boeing Phantom Works President Darryl Davis. "Building upon the success Boeing has had with expanding our 702 satellite family, we've rapidly developed a line of satellites to address the market between large geosynchronous spacecraft and nanosatellites."

The Phantom Phoenix prototypes have three configurations:

- **Phantom Phoenix** -- 500 to 1,000 kg mid-class; designed for single and dual launch.
- **Phantom Phoenix ESPA** -- 180 kg ESPA-class; attaches to a common interstage adapter allowing for the launch of more than one satellite at a time. Up to six small satellites could be deployed during a single mission, reducing launch costs.
- **Phantom Phoenix Nano** -- 4 to 10 kg nanosatellite; offers affordable technology for science and weather missions.

Phantom Phoenix will be designed for all major launch vehicles.

"Boeing has been providing quality satellites to our global customers for over five decades," said Bruce Chesley, director of Advanced Space & Intelligence Systems. "The Phantom Phoenix prototypes are designed to give our commercial and government customers affordable, agile solutions to address the ever-evolving market and mission requirements."

Equipped with tailored avionics and selective redundancy options, the satellites meet mission requirements for reliability and service life at an affordable cost. The satellites also feature high autonomy, streamlined operations and low-risk integration. Boeing will conduct initial technology development in Huntington Beach, Calif.

Raytheon's Patriot Missiles Receive Service Life Extension

Extension allows customers to recertify and/or upgrade their inventory

Raytheon Company's Patriot missiles, critical components of the Patriot Air and Missile Defense System, have received U.S. Army approval for a second recertification, extending the operational life of the worldwide inventory of Patriot missiles from 30 to 45 years. This extension allows customers to recertify and/or upgrade their inventory of Raytheon's Patriot missiles at a fraction of the cost of replacing them with alternative interceptors.

"This is a testament to Patriot's capabilities and combat performance that continue to exceed all expectations, now and over its successful operational life," said Sanjay Kapoor, vice president of Integrated Air and Missile Defense at Raytheon's Integrated Defense Systems business. "This significant life extension decision by the Army comes on the heels of a recent $46.7 million U.S. Army contract awarded to Raytheon to recertify and upgrade Patriot missiles to the latest GEM-T configuration as part of the continuous Patriot modernization effort."

The underlying technology and operational capability of the missiles have been continually enhanced to counter high-speed tactical ballistic missiles and air breathing threats. Over the last 20 years, Raytheon's Patriot missiles have undergone more than 500 successful test firings. Raytheon's support structure includes a global base of more than 300 suppliers committed to mission performance and readiness of the Patriot missiles. Patriot is the world's most capable air and missile defense system, providing protection against a full range of advanced threats, including aircraft, tactical ballistic missiles, cruise missiles and unmanned aerial vehicles. It is the system of choice for 12 nations around the globe.

Raytheon is the prime contractor for both domestic and international Patriot Air and Missile Defense Systems and system integrator for Patriot Advanced Capability-3 missiles.

New production Patriot GEM-T missile test firing at McGregor Range

Dyncorp International

A trusted partner supporting peace and prosperity in the UAE

DI - A Global Provider of Integrated Support Solutions

As a global provider of integrated support solutions essential to defense, diplomacy and international development, DI is proud to be a trusted partner in supporting peace and prosperity in the UAE and throughout the GCC states.

Building on more than 60 years of success, we provide comprehensive logistics, platform support and contingency operations that help keep armed forces mission-ready. At the same time we provide extensive knowledge transfer and professional development training to support community stability in each country we serve.

With vast international experience, we provide a unique array of expertise across a broad range of specialties:

Aviation

The people of DI support critical military and commercial aviation needs globally with end-to-end professional services and technical support. From daily aircraft and ground support equipment maintenance, modification and overhaul, to comprehensive airfield and facilities operations, we provide the services that ensure safety, reliability and performance.

Contingency Operations

Every day across the globe we move, preposition, maintain and repair facilities, equipment and supplies, as well as provide complete personnel sustainment solutions for military deployments, humanitarian operations and disaster relief. From rapid-response field assignments to long-term engagements, we provide the world's most comprehensive array of integrated solutions to ensure our customers' success.

Global Logistics & Development Solutions

We provide worldwide expertise in all aspects of logistics, site operations, international development, vehicle maintenance, supply, transportation and ammunition management. Our experienced professionals combine extensive real-world experience with resourceful, innovative planning to create the right solutions for the most challenging needs supporting mobilization, operational readiness, sustainment and development worldwide.

Security Services

We deliver flexible and rapidly-deployable, integrated security solutions to suit any situation in any part of the world. We work closely with customers to assess risks and apply the right mix of professional services and advanced technologies. DI is the industry leader in providing experienced law enforcement and security professionals to missions around the world.

Training & Intelligence Solutions

We support global stability by providing training and support for government and law enforcement institutions in underdeveloped nations recovering from conflict or political instability. We also provide training and support for intelligence professionals and are the global intelligence mission-enabler of choice for the U.S. Government and its allies.

We Are Guided At All Times by Our Core Values

As a service company, our people are our greatest asset. We pride ourselves on the quality and commitment of our personnel, the agility and depth of our program management, and the standards of excellence and of professional and ethical conduct we uphold in all that we do.

We Serve – willingly in all locations and conditions.

We Care – for the safety, security, development, and well-being of our employees.

We Empower – our employees to succeed in a culture based on trust, respect, loyalty and commitment.

We Perform – with a relentless commitment to exceeding expectations.

We Do the Right Thing – always, for our customers, employees and those we serve•

For more information please visit www.dyn-intl.com.

Embraer Defense & Security Begins Campaign for KC-390

Highly flexible KC-390 will be capable of fulfilling military logistical missions

KC390 FlightDeck

Embraer Defense & Security announced, during a press conference at the LAAD Defence & Security trade fair, that it is beginning to promote and sell the KC-390 military transport jet on the market.

Embraer recently concluded the Critical Design Review (CDR) of the project with the Brazilian Air Force, showing the maturity of the product and setting the definitive configuration of the aircraft, which made it possible to begin releasing information for producing the prototypes. The finalization of this important phase of the program also permitted establishing the final technical specifications, and it set the price and the delivery conditions, which opens the way to begin the commercial campaign.

"The project has firmly and consistently moved forward and, now that we have concluded the CDR, we are ready to begin holding discussions with potential customers of the aircraft," said Luiz Carlos Aguiar, President and CEO of Embraer Defense & Security. "There is a heavy demand for replacing older aircraft in this segment of the international market."

"The KC-390 has exceeded our expectations and will bring significant operational gains to the FAB," said Lieutenant-Brigadier Juniti Saito, Commander of the Brazilian Air Force ."The excellent performance, flexibility, and optimal logistics of the aircraft will be decisive for increasing efficiency of our missions."

The KC-390 is the largest airplane ever built by the Brazilian aeronautics industry and will set a new standard for medium-sized military transport aircraft, in terms of performance and payload capacity, and it will have advanced mission and flight systems. With its 23-ton capacity and a maximum cruising speed of 465 knots (860 km/h), the KC-390 will provide significant mobility gains for its operators and will considerably reduce mission time.

The highly flexible KC-390 will be capable of fulfilling military logistical transport missions, dropping cargo and parachute troops, performing in-flight refueling of jets and helicopters, conducting search and rescue missions, and handling Medevac operations, as well as providing support for humanitarian missions. All of this comes in a single version. The KC-390 also provides the best the market has to offer for increasing the efficiency of its missions, such as the latest-generation integrated avionics, a fly-by-wire system that gets maximum performance from the aircraft, a cargo handling system that allows for a rapid reconfiguration for different types of missions, and precision for cargo drops, as well as a state-of-the-art self-protection system. Besides all of these capabilities, the KC-390 will be easy to keep up, with longer cycles between inspections and less maintenance down time, thus offering the lowest life-cycle cost in its category.

Oshkosh Defense Vehicle Modernization

Several of the company's fielded platforms can accept a wide range of upgrades

Military fleets are composed of some of the world's toughest trucks, built to withstand extensive use in rugged terrain and extreme temperatures. But like any vehicle, their useful service lives eventually come to an end.

Furthermore, many aging military vehicles used throughout the Middle East were built for operations in the 1980s and '90s,when mission requirements and threat levels were vastly different from those of today. Be it from extended use or obsolescence, olderfleets that lack the capabilities and readiness rates for today's missions will be difficult torely upon for tomorrow's missions.

The Oshkosh M-ATV supports the addition of armour upgrades such as Underbody Improvement Kits (UIK). The advanced M-ATV design uses Oshkosh's TAK-4 independent suspension system to accept UIKs and other upgrades without impacting payload or off-road mobility

Leverage your current investments

To extend the life of their fleets, international militaries are turning to engaged OEM vendors capable of offering complete lifecycle sustainment.

Oshkosh Defense has helped militaries maximize their investments for decades by providing extensive upgrades to older vehicles through recapitalization. This process allows militaries to extend vehicles' life spans at a fraction of the cost of procuring new vehicles.

Oshkosh Defense has been recapitalizing medium, heavy and commercial vehicles since the 1960s. Since 1995, Oshkosh Defense has restored more than 11,000 medium and heavy-payload military vehicles to zero-hours, zero-kilometres condition.

Upgrades can be carried out at the company's headquarters in the United States, with local industrial and military partners across the Middle East region, or even in theatre.

Select to evolve

When an entirely new platform is needed, militaries should take into account the benefits of a vehicle design that reduces the cost of fleet maintenance and upgrades, as requirements will evolve over the vehicles' life-cycle. Oshkosh Defense uses a modular approach to vehicle design, and several of the company's fielded platforms can accept a wide range of upgrades quickly and economically.

Today, Oshkosh is fielding light, medium and heavy vehicles that have been designed to accept bolt-on armour, making them adaptable to a spectrum of mission profiles. Additionally, the armour does not require any welding or major fabrication, so it can be applied rapidly, virtually anywhere.

Oshkosh's family TAK-4 independent suspension systems have increased the flexibility in vehicle design drastically.The advanced suspension systems support heavier armour and allow room for vehicle growth.Vehicles equipped with the TAK-4 system are meeting payload and off-road mobility requirements defined by the military customer even while taking on the added weight of the latest upgrades.

Oshkosh recently worked with the U.S. military to install Underbody Improvement Kits (UIK) on more than 5,000 Oshkosh MRAP All-Terrain Vehicles (M-ATV) to improve protection against new threats. The company has also successfully retrofitted its TAK-4 suspension system on more than 3,600 heavily armoured vehicles produced by other manufacturers to provide greater ground clearance, shorter braking distance, minimized vehicle wear and tear, and greater speeds.

Whether through vehicle remanufacturing services or upgrades, Oshkosh has teamed with customers around the world to extend the lives of their vehicles, meet modern-day requirements and ultimately get the most out of their equipment investments•

Global SATCOM Solutions

Secure communications, wherever, whenever


Talisman II


SATMOVE


Truck Stacom

Thales is a leading provider of end-to-end highly secure satcom solutions for air, land and naval forces, using both civil and military satellites.

Thales offers military and government satellite communication networks, enabling the various components of the armed forces (land, air and naval) to communicate securely regardless of situation or location.

The solutions presented below are equipped with the Thales System 21 which manages the transmissions in military environments with a large range of modems for air, land and sea applications. System 21 solves challenging situations in the field such as interference, jamming, disruption of transmission for On-The-Move applications. System 21 is able to provide communications in star or meshed topologies, and encrypt the transmitted information. This is an all-in-one solution for military satcom.

Land

Tactical satcom for soldiers

Thales tactical SATCOM terminals provide on-demand secure communications for highly tactical networks regardless of situation or location. In order to adapt to customer needs, Thales provides X, Ka and Ku-Band SATCOM terminals in manpack size. Talisman II is a lightweight highly ruggedized satcom manpack for dismounted soldiers.

On-The-Move satcom for vehicles

On-The-Move satcom products for vehicles - Satmove Xotm and OTM Ka - offer a medium throughput service for voice and data in hostile environments, an efficient OTM carrier for vehicle communication nodes able to connect to a remote backbone combat net radios (CNR) as well as IP based stream such as real time video.

Headquarter Land Satcom

Thales offers large military terminals or commercial based terminals, mounted on trailer or truck and erected on the ground for long term deployment.

Naval

Naval satcom for ships

Thales proposes a full answer to the different naval satcom needs with "Plug and Play" high-end solutions for small surface ships and optimised installation for large to medium ships. Products SURFSAT-L for medium and large vessels and SURFSAT-S for small surface ships, available as single and multiband solutions, come in several sizes and various operating frequency configurations. Today, more than 60 new-generation naval satcom terminals are already in operation.

Submarine Satcom

Based on more than 15 years of experience in the design, development and production of submarine based SATCOM, Thales DIVESAT is an X-Band terminal that has been developed to provide submarines with a high voice and data communication capability.

Air

Airborne Satcom for mission aircraft

Thales portfolio includes the ANTARES family of terminals (ANTARES-P, ANTARES-H and ANTARES-A) respectively for UAV, Compact Mission aircrafts or helicopters, and larger aircrafts such as transport, Tanker, etc. They are all fitted with stabilization technology delivering optimum operational capabilities in all theatres of operation. Furthermore ANTARES-A - features an active antenna technology for flatness and minimum drag•

Sikorsky Launches BLACK HAWK Training Center

Colombia Operates the world's fourth-largest BLACK HAWK fleet

S70i Ferry Fight

Sikorsky Aerospace Services announced the opening of a new UH-60 BLACK HAWK Helicopter Flight Simulator Training Center at the Colombian Air Force Base in Melgar. The first of its kind in South America, the center provides pilot and flight crew training for the Colombian Armed Services and Sikorsky military customers throughout the region. Sikorsky Aerospace Services, Sikorsky's aftermarket business, is overseeing training and support efforts in Colombia.

Sikorsky Aerospace Services made the announcement during the LAAD Defense and Security Exhibition in Rio de Janeiro.

"Operating the world's fourth-largest BLACK HAWK fleet, Colombia is a longtime strategic customer and valued partner," said David Adler, SAS President. "Based on their fleet requirements, SAS continues to expand in-country aftermarket services. In fact last year we doubled the maintenance support team and expanded depot capabilities for crash and battle damaged aircraft. The new training facility will further improve the operational readiness of the Colombian Armed Services. Additionally, it's a major milestone that exemplifies our overall commitment to Sikorsky customers in Latin America."

The new training center offers the region's only full motion, high fidelity, FAA Level D Equivalent BLACK HAWK simulator – the highest qualification currently available. Equipped with industry leading motion and control loading technology, it offers a highly detailed cockpit replication of all controls and aircraft systems including wide-field outside-world visual systems. All components are mounted on six degree-of-freedom motion platforms that respond to pilot control movements and external aerodynamic factors.

"Last November, Sikorsky Material Services, LLC opened a new office in Bogotá offering the Colombian Ministry of Defense a central, in-country point of contact for managing all aspects of business with Sikorsky," said Frank DiPasquale, SAS Vice President, Sales and Strategic Relationships. "We recognize the Colombian Armed Services' need to maintain their fleet at optimal mission readiness. Our goal is to provide the OEM support capabilities and expertise directly where our customers operate."

The BLACK HAWK simulator is housed in a special purpose facility. Overseeing the project is Corporación de la Industria Aeronáutica de Colombia (CIAC), an aerospace support provider for the Colombian Ministry of Defense. The training center is staffed with experienced BLACK HAWK pilots serving as simulator operators and maintenance personnel to keep the simulator in optimum operational state.

"The BLACK HAWK helicopter is an integral component for us to successfully defeat narco terrorism. Our ability to sustain in-country pilot training is paramount. As our relationship with Sikorsky continues to evolve, we are pleased to partner in this training effort," said Brigadier General del Aire Guillermo León León, General Manager, CIAC.

Sikorsky Aerospace Services, a Sikorsky company, provides comprehensive support to rotary and fixed wing operators around the world. It offers its military and commercial customers a full portfolio of support services, including material distribution, maintenance, overhaul & repair, aircraft modifications and life-cycle management. Sikorsky Aircraft Corp., based in Stratford, Conn., USA, is a world leader in helicopter design, manufacture and service. United Technologies Corp., based in Hartford, Conn., USA, provides a broad range of high technology products and support services to the aerospace and building systems industries worldwide•

20mm Remote Controlled Weapon Station

ARX ® 20 from Nexter Systems offers superior firepower in combat

Latest development for the integration of 20M693 (F2) and 20M621cannons, the ARX ® 20mm offers superior firepower in combat compared with 12.7mm and 14.5mm mounts and full protection of the crew. The ARX ® 20 is equipped with 20M621 20mm cannons (NATO standard ammunition 20x102, M50 or PGU) or 20M693 (20x139 ammunition) serving in the Army using the experience gained from the remote-operated weapons used in aeronautics (THL20 and THL30) and naval (NARWHAL ®). The ARX ® 20 offers a real alternative with respect to 12.7mm mounts and turrets armed with 25 or 30mm cannons due to its low weight and compactness. It can easily be integrated on all the different types of carriers, including light 4x4's. The firepower of the 20mm gun allows the treatment of asymmetric threats and neutralization of light armored vehicles with its instant stopping power. Gyro-stabilized, the turret allows firing on the move, and can engage targets at a distance of greater than 2000 meters. With all-weather observation, day and night at 360 °, this turret is also s uitable for security missions and urban warfare. The ARX20 was chosen by a Middle Eastern country.

Armament for Helicopters

The cannon is a complementary weapon of missiles and rockets for combat helicopters and remains irreplaceable for short and very short range. It is also the weapon of close combat and self defense for transport or observation helicopters. In order to best meet the needs of the military and enable them to fulfil their missions, Nexter offers cannon mounts and turrets for helicopters in service with many armed forces.

NC 621 Pod

The NC 621 pod is a lightweight standalone "plug and play" system, which fits easily on aircraft and light helicopters. The NC621 pod is ideal for air-to-air and air-ground close fire support, protective or self-defence. It remains the most powerful cannon system, integrated and enabled on a wide variety of helicopters and airplanes. It is an ideal equipment for light training aircraft.

The 20M621 cannon

The 20M621 cannon is precise and light-weight (under 50kg) weapon, and generates the same recoil forces as the machine gun of 12.7mm (250 Kn). Its rate of fire (750 rounds / min) and its ability to draw ammunition 20x102 NATO standard or M50 make it a versatile weapon capable of processing targets (personal or light armor) at distances of over 1500 m. Thanks to the explosive 20x102 shell (that does not exist in 12.7 or 14.5) a high explosive shell generates 5 times more fragments than 12.7 multipurpose shell. Moreover, the 20x102 shell will penetrate 22mm of armor at 1000m while the 12.7 shell will penetrate only 13mm at 1000m. The 20M621cannon provides for similar integration constraints as the 12.7 machine gun with effective range and terminal effect much greater than the latter.

ARX® 20 - Copyright Aspheri

Indonesia Approves Bell 429 Increased Gross Weight

The Bell 429 is one of the most advanced light twin helicopters developed

Bell 429

The powerful and reliable Bell 429 serves the full spectrum of segments including air medical, law enforcement, oil & gas, utility, and corporate

Bell Helicopter, a Textron Inc. company, announced that the Bell 429 has earned Indonesian Directorate General of Civil Aviation (DGCA) approval to fly at an increased maximum gross weight of 7,500 lbs. Indonesia marks the seventeenth country to approve the increased maximum gross weight. The DGCA's approval is based on Transport Canada's certification and allows the aircraft to carry an additional 500 lbs. of fuel and/or payload.

"We are thrilled with the DGCA's approval of the Bell 429 increased gross weight in Indonesia," said Danny Maldonado, Bell Helicopter's executive vice president of Commercial Sales and Marketing. "This approval enables our customers in Indonesia to benefit from 500 lbs. of more payload, giving them the option to carry more fuel for increased range or to carry additional passengers and equipment to meet their specific mission requirements."

Transport Canada approved operation of the Bell 429 at 7,500 lbs (3400 kg) in December 2011 after conducting an extensive technical evaluation. The increased gross weight of the Bell 429 will allow customers to take full advantage of the aircraft's capabilities, and operate longer and heavier missions. To date, the Bell 429 increased gross weight has been approved by Argentina, Australia, Brazil, Canada, Chile, China, Ecuador, India, Indonesia, Israel, Malaysia, Mexico, New Zealand, Nigeria, Thailand, Venezuela and Vietnam.

The Bell 429 is one of the most advanced light twin helicopters ever developed. It delivers exceptional speed, range and hover performance, and offers operators a state-of-the-art single pilot IFR helicopter with top user-rated in-service support. The powerful and reliable Bell 429 serves the full spectrum of segments including air medical, law enforcement, oil & gas, utility, and corporate.

The Bell 429 is certified for Single or Dual Pilot IFR, Cat. A / JAROPS Performance Class 1 at maximum gross weight; has a state of the art fully-integrated glass cockpit; an advanced drive system that delivers power and superb performance; best in class WAAS navigation & IFR capability; and is the first helicopter certified through the MSG-3 process resulting in reduced maintenance costs for operators. The increased gross weight configuration includes Helicopter Terrain Awareness Warning System (HTAWS), a radar altimeter, cockpit voice/flight data recorder and forward flashing lights•

Alenia Aermacchi Awarded 58 million Euro Logistics Contract

Agreement is part of program to guarantee full capability of the AMX fleet

Alenia Aermacchi has signed a three-year 58 million euro contract with the Brazilian Air Force (Força Aérea Brasileira) to provide logistics support services to the FAB's AMX fleet, named A-1 in Brazil.

The contract includes several elements: "on site" engineering support, (a permanent Alenia Aermacchi team will be based at Parque de Galeao in Rio de Janeiro) logistic support services; supply of components and spare parts and servicing and overhauling.

Alenia Aermacchi was selected by the FAB because of its previous logistic experience on the AMX program and because of its proven results in providing spare parts and maintaining a high efficiently level of the AMX fleet currently in service in Italy.

This agreement is part of a larger FAB program designed to guarantee full operational capability of the AMX fleet for the next 20 years. It is integrated into the AMX upgrade program, known as A-1M, which is led by to Embraer and directly supported by Alenia Aermacchi.

Related to the long-term support of the Brazilian AMX fleet, Alenia Aermacchi and Embraer recently signed a Memorandum of Understanding that establishes a joint venture between the two companies for the management of all logistic support activities related to AMX operations in Brazil throughout the lifecycle of the fleet.

Giuseppe Giordo, Alenia Aermacchi CEO, commented, "With this contract, Alenia Aermacchi and Embraer reaffirm their decades-long collaboration which, in the '70s, allowed for the development, the industrialization and the production in Brazil of the MB.326 jet trainer (named AT-26 Xavante by the FAB) and, afterwards, industrial collaboration resulting in the creation of the Italian-Brazilian AMX fighter bomber."

Single-engine light attack and reconnaissance aircraft, AMX is a tactical support aircraft that was developed in the 1980s by the then Aeritalia (46.5%), Aermacchi (23.8%) and Embraer (29.7%). The aircraft entered into service with the Italian and Brazilian Air Forces at the end of the 1980s.

AMX fleet is named A-1 in Brazil

Alenia Aermacchi was selected by the Brazilian Air Force because of its previous logistic experience on the AMX program

The Latest of Ecureuil Family to Enter the UK Market

The AS350B3e, is the latest addition to the UK's single engine helicopter fleet

AS350B3e is the latest version of AS350 single engine helicopter family

After its entry into service in September 2011, the AS350B3e, the latest version of the powerful 7 seat, 2,3 ton AS350 single engine helicopter family was delivered for the first time to a UK customer, which also marks a new dawn in the Private/Corporate market in the UK.

"We are very proud to add Loxwood Holdings and the new AS350Be to our Eurocopter family in the UK", says Markus Steinke, Managing Director of Eurocopter UK Limited." We are mindful that our customers have a wide choice of single helicopters these days, but we are also aware that besides the pure product, the scope, quality and proximity of through life support has become a more important issue, than in the past, for these customers – and with the capability of Britain's Civil Helicopter Hub here at Oxford we offer a comprehensive solution, unmatched by any other OEM."

The full range of support and service solutions is available at Eurocopter UK's facilities at Oxford, supplemented by a network of regional engineers and a fleet of 20 Eurocopter mobile units covering the country, allowing for highest reactivity and state of the art customer service.

"Having owned other new helicopters before, but never a Eurocopter product, I did a lot of personal research and benchmarking before contacting Eurocopter UK at Oxford. Since then I am delighted with the whole experience; the staff I have been involved with, the product, the passion from their people here and back in France, the full, locally available OEM support which is quite unique, compared to what I have been facing in the past says Mr. Holland of Loxwood Holdings.

The AS350 B3e is the latest member of the AS350 high-performance family, which outclasses all other single-engine helicopters for performance, versatility, safety and competitive acquisition and maintenance costs. It excels in hot conditions and very high altitudes, and broke records when a standard production aircraft landed on the top of Mount Everest in 2005.

Today, around 5,350 Ecureuils have been delivered in 130 countries to some 1,600 operators. These aircraft have accumulated close to 25 million flight hours.

Eurocopter UK Ltd, Britain's Civil Helicopter Hub, and its predecessors have been present and highly active in the United Kingdom for over 30 years, dominating the civil rotary wing(rw) sector. Its contribution to the aerospace sector of the national economy includes the development of police aviation leading to a 75% market share, air ambulances (70% share), and well over 50% of the offshore oil and gas market. Eurocopter UK Ltd is headquartered in Oxford, with additional bases in Dublin (Ireland), Belfast (Northern Ireland), Hawarden (Wales) and Aberdeen (Scotland) and provides the full range of products and services for the rw sector•

Rockwell Collins conducts CDR for CRIIS program

CDR serves to assess producibility and program risk areas

CRIIS Pod on L-29

Rockwell Collins has conducted a successful Critical Design Review (CDR) with the U.S. Air Force, and has been approved to begin the integration, test, and pre-production phase of the Common Range Integrated Instrumentation System (CRIIS) program. Rockwell Collins is the prime contractor and systems integrator for the next-generation military test range system that will replace the Advanced Range Data System currently in use at major U.S. military test ranges. CRIIS will support weapon system testing for a variety of platforms, including advanced aircraft, and could also support testing of ships, helicopters, unmanned aerial vehicles and ground vehicles.

The program fulfils critical Department of Defense requirements to provide Time, Space, Position Information (TSPI), additional platform test data, and employs a more robust, spectrally efficient data link capable of multiple levels of encryption.

"Our design provides significant improvement in position accuracy and data link throughput while adding system-level security," said Tommy Dodson, vice president and general manager of Surface Solutions for Rockwell Collins.

He added that the CRIIS program leverages the company's strength in GPS, high throughput data links, Multiple Independent Levels of Security (MILS) encryption and open systems architecture.

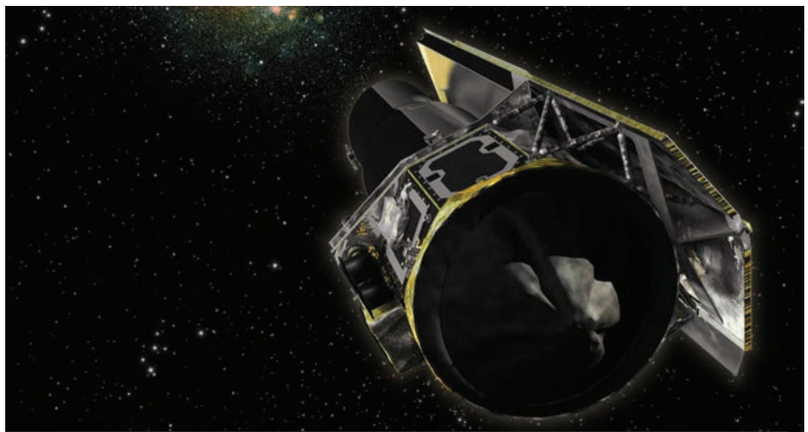
"One key to the successful CDR was early system integration and performance testing using prototype hardware, providing insight not usually gained until much later in a program," said Dodson. "This early system-level testing provided the customer with additional understanding of the maturity of the design."

Customers attending the CDR also participated in technical demonstrations that highlighted the team's progress on critical TSPI, data link, encryption, information assurance and system control functionality.

A CDR is conducted to determine that the detailed design satisfies the performance and engineering requirements of the development specification and to establish the detailed design compatibility between the item and other items of equipment, facilities, computer programs, and personnel. A CDR also serves to assess producibility and program risk areas and to review the preliminary product specifications.

Global Space and Satellite Forum & Milsatcom Middle East

Space And Satellite Experts Set Eyes on Abu Dhabi



The Global Space and Satellite Forum and Milsatcom Middle East will take place from 7-8 May 2013 at the Ritz Carlton Grand Canal in Abu Dhabi.

More than 400 experts will converge in Abu Dhabi to examine the latest space technology and emerging commercial and investment opportunities at a time when the UAE is moving ahead to lead the Middle East into space.

The Global Space & Satellite Forum, the region's premier space and satellite industry event, will provide a valuable opportunity for international space experts to network with regional leaders and share information about upcoming commercial space applications in earth observation, remote sensing, location based services, navigation and military satellite communications (milsatcom).

The Global Space and Satellite Forum and Milsatcom Middle East is supported by Space Reconnaissance, Emirates Institute for Advanced Science and Technology (EIAST), Telecommunication Regulatory Authority (TRA) and GVF and sponsored by Gold Sponsors Surrey Satellite Technology Ltd, Yahsat, Astrium, Thales and ThalesAlenia Space.

Thales Alenia Space offers complete space based solutions, covering telecommunication, Earth observation, exploration and navigation.

For telecommunication satellites, Thales Alenia Space present in Middle-East and Africa since 1981, is the leading satellite manufacturer for the region with 18 satellites and 5 payloads. In particular, the company is a major player for defense and dual use missions in Europe and for export market, as Yahsat system (2 satellites) fully deployed in 2012 over the UAE.

In observation domain, Thales Alenia Space is also the European leader for very high resolution optical and radar instruments.

Thales is also a leading provider of end-to-end highly secure SATCOM solutions for air, land and naval forces, using both civil and military satellites.

The Middle East is fast becoming a major aerospace hub boosted by investment in technology, expertise and facilities. At the focal point of the new push is the US$50 million DubaiSat-2 earth observation satellite by the Emirates Institute for Advanced Science and Technology (EIAST) slated for launch this year, providing ample evidence of the Emirates' thought leadership role in space technology research and creation of regional space programmes.

Taking place from 7-8 May 2013 at the Ritz Carlton Grand Canal, the fourth edition of the forum is co-located with the Milsatcom Middle East conference, featuring speakers from the UAE Armed Forces, and Ministry of Defence and Aviation Saudi Arabia. International speakers include those from the Ministry of Defence in the UK, US Department of State and Canadian Armed Forces.

The Global Space and Satellite Forum comprises a notable line-up of top ranking officials from more than 20 regional national space programmes and research centres who will deliver presentations about developments in earth observation, disaster management and geo-information services, space policy and the economics of commercial space business.

The Global Space and Satellite Forum will also host a top assembly of space experts, including Salem Humaid Al Marri, Assistant Director General for Scientific and Technical Affairs at EIAST, Frank Rose, Deputy Assistant Secretary, Space and Defence Affairs from the US Department of State, who will participate as a panellist in the opening session about technological developments and future prospects for the space sector.

Organised by Streamline Marketing Group, the conference and exhibition will present an opportunity for space experts and representatives from non-space industries to exchange information related to space technology, research and development and the commercial applications and investment opportunities that exist.

Further information is available at www.gssforum.com / www.milsatcom.me•

FNSS Savunma Sistemleri A.Ş. Amphibious Assault Bridge

Amphibious Assault Bridge (AAB) is a bridge and ferry system designed by FNSS for Armed Forces' fast and safe transport through the rivers in the battlefield.

With its powerful diesel engine, automatic transmission, active pneumatic suspension and hydraulic brake systems, the AAB system can climb up to 50% gradient and move on 30% side slope. It is designed as an 8x8 vehicle for roadway operation, with pontoons that extend outwards from the body for ferry and bridging operations. It has retractable axles and two water pump jets that provide the water operations and 360° movements in the water. The system can operate in water currents of approximately 2.5 m/s. Each AAB system carries 4 ea ramps to join vehicles for ferry operations or bridging operations.

As a ferry, one AAB system can transport MLC21 tracked vehicles. By deploying the ramps, which are carried by a hydraulic crane on the AAB system, and joining two systems, MLC70 tracked vehicles can be transported. By coupling three systems from ramp to ramp MLC100 wheeled vehicles can be transported through a river. As well as the role as a ferry, 12 AAB systems can be coupled and constructed as a 150 m long bridge for crossing of vehicles up to MLC100 wheeled vehicles. To use the time in the most efficient way in the battlefield, the AAB system is designed to construct two bay ferry in a minimum time.

For safety, AAB system has an automatic fire suppression system, a fixed fire extinguishing system, portable fire extinguishers, and positive pressure NBC system. Additionally, the system has a self recovery winch and an AAB system can recover another AAB system with the help of a tow-bar. It also has a standard anchoring system (both emergency and land anchoring systems), ballistic protection, and easy fault detection with CAN system.

The qualification process for AAB Systems has been successfully accomplished by conducting detailed sub-system, system and bridge configuration qualification tests. AAB System also completed durability test including 15,000 km land operation and 180 hours of water operation without any failures. AAB Systems are currently in use by Turkish Armed Forces and serial production is still ongoing.

AAB system is designed as an integral bridging system with its high mobility and amphibious characteristic. Without any need of support systems, AAB system is a self-sufficient bridging system for land and water operations.

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The RAFALE Omnirole fighter

Pushing forward on new air-to-air capabilities

The Rafale B301, successfully completed two successful tests of the BVRAAM Meteor

The RAFALE omnirole fighter has reached two major milestones recently: the first delivery of a production aircraft equipped with the first production RBE2 AESA radar, and the initial successful testing of the new-generation, very long-range, METEOR air-to-air missile.

Pushing forward on new air-to-air capabilities, the Rafale B301, operating from Cazaux DGA Flight Test Center in southwestern France, successfully completed, on October 4 then on October 10, two successful tests of the beyond visual-range air-to-air missile (BVRAAM) Meteor.

On December 22, 2010, the French defense procurement agency (DGA: Direction Générale de l'Armement) ordered 200 Meteor missiles. A week after, the contract for integration of the Meteor missile to the Rafale system was awarded to the industry.

This advanced, ramjet-powered, missile, made by MBDA, is intended for air defense missions. It will intercept targets at very long range, and it will be a perfect complement to the MICA missile, which is currently used at shorter ranges for air-to-air interception, dogfight and self-defense.

On October 2, 2012, the first production Rafale F3 (the single-seater C137), equipped with the first production Thales RBE2 Active Electronically-Scanned Array 1 (AESA 1) radar, was delivered to the French DGA, paving the way for the introduction into operational service of the first European combat aircraft fully exploiting the cutting edge AESA radar technology.

Extended range capabilities offered to the Rafale by the RBE2 AESA radar (among a number of other key operational benefits) allow the full use of the latest generation of long-range air-to-air missiles such as the Meteor.

The Rafale is already an extremely effective new-generation, combat proven (Afghanistan, Libya), omnirole tactical fighter, but development is continuing apace to exploit more and more of the aircraft's tremendous capabilities, and to seamlessly add new ones. As a result, the Rafale looks set to become even better in the near future.

Commitments and Capabilities

French operational requirements have been set at 286 Rafales. The Air Force will receive 228 aircraft (in two versions: the single-seater Rafale C and the two-seater Rafale B), while the Navy will operate 58 Rafales M (single-seater). To date, 180 production aircraft have been ordered for both services. Under current plans, production of the aircraft is to continue through 2025. By October 15, 2012, 111 production aircraft have been delivered to the warfighters (36 Rafales M for the French Navy; 37 Rafales C and 38 Rafales B for the French Air Force).

Some of the Mission capabilities of Rafale omnirole fighter are air defence and air superiority, close air support, engagement of surface targets (with laser-guided bombs, all-weather stand-off precision weapons, or cruise missiles), SEAD/DEAD capabilities, anti-ship attack, nuclear strike, real time tactical and strategic reconnaissance (ground and naval targets) and in-flight refuelling ("buddy-buddy" tanker capability for the French Navy Rafale M).

Meteor Missile

The Meteor missile is being developed by MBDA to meet the requirement of six European nations (France, Germany, Italy, Spain, Sweden and United Kingdom). Increasing proliferation of state-of-the-art air-to-air threats is a critical challenge for modern air forces, which is answered by Meteor. The advantages of BVRAAM Meteor are: Fast and highly manoeuvrable, beyond visual-range, air-to-air weapon, high kill probability to ensure air superiority and crew survivability, guidance provided by an active radar seeker benefiting from enhanced technologies drawn from MBDA ASTER and MICA missile programs, the capability of engaging air targets autonomously by day and night in all weather and in severe electronic warfare environments, equipped with both a proximity and impact fuse to ensure total target destruction in all circumstances•

Northrop Grumman offers SABR to U.S. Air Force

F-16 AESA Radar Upgrade Program on track

SABR F-16 AESA Radar

Joseph Ensor, vice president and general manager of Northrop Grumman Corporation's Intelligence, Surveillance, Reconnaissance and Targeting Systems Division, discussed technological advances and recent milestone achievements involving the Scalable Agile Beam Radar (SABR) being offered by the company for the U.S. Air Force's F-16 radar upgrade program.

Northrop Grumman's SABR is an affordable, scalable, multifunction active electronically scanned array (AESA) radar specifically designed for retrofit in current F-16s. SABR provides improved situational awareness, greater detection, high-resolution synthetic aperture radar maps, interleaved air-to-air and air-to-surface mode operations, and an all-environment precision strike capability.

To a pilot, a radar is only as useful as the information it provides, and Northrop Grumman's Big SAR (synthetic aperture radar) mapping for the Scalable Agile Beam Radar (SABR) delivers the largest, sharpest radar images ever available in an F-16.

SABR has successfully demonstrated several advanced radar capabilities for the F-16, including Big SAR maps with automatic target cueing. The SABR Big SAR offers an unprecedented level of situational awareness and target identification for F-16 pilots.

"SABR's Big SAR is high-definition radar imagery that covers a large area on the ground in a single image," said Joseph Ensor, vice president and general manager of Northrop Grumman's Intelligence, Surveillance, Reconnaissance and Targeting Systems Division. "This advance will give F-16 pilots the largest maps with the most detail that they have ever seen in the cockpit. Combined with SABR's automatic target cueing capability, the F-16 will have targeting capabilities unmatched by any other fourth-generation fighter."

Northrop Grumman has nearly four decades of F-16 radar development and integration experience, and has delivered more than 6,000 fire control radars to U.S. and international air forces. The company also supplies the AESA fire control radars for the F-16 Block 60, F-22 and F-35 aircraft.

Northrop Grumman is a leading global security company providing innovative systems, products and solutions in unmanned systems, cybersecurity, C4ISR, and logistics and modernization to government and commercial customers worldwide. Please visit www.northropgrumman.com for more information•

South Africa mulls joint venture with UAE

Chief of the South African National Defense Staff is all praise for

HE Gen. Solly Zacharia Shoke, Chief of Staff of the National Defense Force, South Africa, has lauded the strong and distinguished relationship between the United Arab Emirates and South Africa.

By: Major Yousef Juma Al Haddad
Photo by:Ali Al Junaibi Salem AL Amri

UAE for its humanitarian assistance

Distinguished relationship between UAE and South Africa

UAE Chief of Staff receiving solly Zacharia

Strong relations connect the UAE and South Africa, and there are always opportunities for joint ventures in defense in both countries

HE Gen. Solly Zacharia Shoke, Chief of Staff of the National Defense Force, South Africa, has lauded the strong and distinguished relationship between the United Arab Emirates and South Africa. In an exclusive interview to the "Nation Shield" journal, he stressed that the UAE enjoys appreciation and respect from countries all over the world for its outstanding humanitarian efforts. Praising the IDEX 2013 as an international event worthy of participation by everyone, he said it has helped to build a global reputation for the UAE as evidenced by the participation of a growing number of major international companies. He described the military media as a vital means of communication because it enabled militaries and nations to communicate effectively with the outside world. Excerpts from the interview:

What is the purpose of your recent visit to the United Arab Emirates?

The relations with the United Arab Emirates are of great importance to South Africa, since we have a lot of issues of common concern. Our recent visit to the UAE was at the invitation of His Excellency Lt. General Hamad Mohammed Thani Al Rumaithi, Chief of Staff of the UAE Armed Forces, to discuss and strengthen issues of common interest between our two countries, especially in the field of defense. We hope for more cooperation in various areas of common interest and we are keen to strengthen our bilateral relations.

The ties between the UAE and South Africa are a model for other countries. How can the military institutions in our two countries capitalize on these ties to contribute further to bilateral interests?

It is important to establish good relations with various Arab countries. We always focus on confidence-building which is an important element in the consolidation of relations with various countries. During my visit to the UAE, I had the chance to visit Tawazun, one of the larg-

Solly interviewed with Nation Shield Journal Editor-in Chief

The National Defense College is one of the most important academic military institutions in the UAE contributing to scientific military advancement

est industrial companies in the field of defense in the UAE. We are planning to establish a joint venture between the UAE and South Africa, which would be economically beneficial to both countries and facilitate exchange of expertise with the region.

How do you assess the cooperation between the UAE and the South African national companies in the defense segment?

Definitely there is a strong relationship between the UAE and South Africa, and there are permanent opportunities for the development of military industries in both countries. I can also confirm that more South African companies would be seeking to join hands with UAE national companies in this sector. South Africa, in return also welcomes investment by Emirati national companies.

Students from many countries currently attend courses in South Africa. How do they benefit from such courses which also provide interaction with students from other parts of the world?

Students in South Africa can benefit greatly from the scholarship program, wherein the exchange of cadets allows the exchange of expertise with various students. This program provides good opportunities for Arab students to get to know a different culture, but most importantly it leads to strengthening of cooperation with various countries of the world.

UAE plays a pivotal role in providing humanitarian assistance on the global level. What is your assessment of this role?

The UAE enjoys appreciation and respect from all over the world for its excellent humanitarian work. Other countries should follow the example of the UAE in this domain. It is through these humanitarian efforts that the UAE works for peace. It is also an expression of the love of the UAE for people all over the world belonging to different races and affiliations.

The UAE is a major player in the field of international defense exhibitions. Last February, the UAE organized IDEX 2013. How do you assess this exhibition, and what distinguishes it from other exhibitions? What is the scale of the South African defense sector's participation in the Dubai International Airshow 2013?

IDEX, by all standards, is a global event that is worthy of participation by all. It is the best proof of the success of the UAE in building a distinctive global reputation, as evidenced by the growing number of major international companies that participated in this event, not to mention the increasing number of visitors to the exhibition to see the latest technologies in the field of military defense industries. Military exhibitions in general are a meeting place for all stakeholders and decision-makers around the world, as they bring together various international companies specializing in defense industries with leaders and decision-makers in governments and armies in various countries of the world and provide all with opportunities to see the latest state-of-the-art equipment and techniques. In fact, we have benefited greatly from the continued participation in different international exhibitions organized by the UAE, and we are going to raise the level of participation at the Dubai International Airshow.

Do you think that cyber warfare could pose an additional challenge for the armed forces in general?

Yes, I think so. Cyber attacks have been

UAE & South African Chiefs of Staff during the signing of an agreement

Biography

- 1956 Born in Alexandra Town Shape in Johannesburg.
- 2000 Appointed as manpower Support Commander in Major General Rank.
- 2004 Promoted to Lt. General rank and was appointed as Land Forces Commander, then became the South African National Forces Commander up to May 2011.
- Completed his military basic training in Angola, and then trained in USSR after the National African Conference was released.
- Then he became a member in the Private Conference Administration to organize it.
- Was a member in the committees those made easy the peaceful transference of South Africa and its armed forces.

reported in Africa and other parts of the world, and the armed forces should be prepared for these wars because wars of the future will also include cyber wars.

How can the UAE cooperate with South Africa in the consolidation of peace and security regionally and internationally?

It is important to consolidate regional and international peace and security. We should ensure that there is peace and security among neighbors. We always promote peace through the international community, and also by offering peaceful solutions to resolve various disputes through dialogue. We also seek constantly to maintain world peace.

How can the UAE and South Africa cooperate to curb the threat of piracy on the high seas?

Everyone knows the depth of cooperation between South Africa and the UAE in this sector. We both share and participate in international conferences on combating piracy, and we can collaborate to meet this threat and come up with common solutions to this problem.

The UAE has recently established the National Defense College. How important is it to national security and stability? And can this institution help to meet the aspirations of the leadership in other countries?

I think that this college is one of the most important scientific military institutions in the UAE, and it is a good and useful experience by all accounts. Knowledge enables us to understand what is going on around us, and this type of military educational institution contributes significantly to promoting the concept of national security.

The UAE Armed Forces are celebrating the 37th anniversary of their consolidation. Your comments.

To begin with, we congratulate the UAE Armed Forces on this important occasion, for the UAE has been able over the past years to build a strong army capable of maintaining the safety and security of the country and its citizens, as well as protecting its resources and wealth. It has also developed the necessary plans to strengthen this army more and more by providing it with modern capabilities.

We - in South Africa - have a similar occasion as the various units of the armed forces were consolidated under one flag in 1994.

How important is military media for the armed forces of various countries in the world?

I think the military media is extremely important as a means of communication and connection because it enables militaries and peoples to communicate positively with the outside world and offers a platform to share opinions and impressions. It is very important for the military and should be an integral part of its communication strategy. Without it, we would not know what is going on around us or recognize our position in the world. The military media in its various forms play an important and effective role in the lives of military personnel whatever their positions and responsibilities. The military media is an effective communication tool that helps a soldier to interact with his larger environment•

Environmental Profile in the UAE

Official Practices and Behavior

Since the establishment of the Federation of the United Arab Emirates on the second of December 1971, it has been a priority for the government to ensure a balance between sustainable development and protection of the environment. Concerned agencies in the UAE are dealing with environmental protection issues not, as a developmental luxury, but as a fundamental commitment and a national duty that must be fulfilled.

By: Editorial Board

Ensuring a balance between suntainable development & protection of the environment

AbuDhabi - an untraditional Green tourism

The concern over the issue is well reflected in the institutional frameworks, integrated legislation and operational mechanisms of governance.

During his visit to the Republic of Kazakhstan in mid-October 2011, His Highness Sheikh Khalifa bin Zayed Al Nahyan, the UAE President, may God protect him, emphasized that efforts at the environmental and cultural level in the UAE aim to achieve a comprehensive renaissance in the country. The Kazakh President, Nursultan Nazarbayev, praised the achievements of the UAE in the optimal exploitation energy resources and natural wealth in a way that safeguards environmental protection and conservation. This underscores the deep attention paid by the UAE Leadership to the environmental profile.

The importance accorded to environment has certainly provided a state of balance between growth and economic development on the one hand, and environment protection and non-depletion of natural resources on the other. This is indeed a challenge for the government which has to ensure a decent life for its citizens, simultaneously protecting the rights of future generations to natural resources.

A Historic Interest in the Environment

The late Sheikh Zayed bin Sultan Al Nahyan, God rest his soul in peace, had a keen interest in the issues of environmental protection and development. This has also been praised by all global agencies specialized in this field. Development programs and plans included scientific studies about the economic and social effects of development projects; special institutions and authorities were established for the management and protection of the environment; environmental strategies were drawn and environmental work was prioritized, including air and water pollution control, the fight against desertification, and conservation of natural resources.

Right from his reign of the Eastern Province, which began in 1946, Sheikh Zayed had shown his concern for environment conservation. He had paid attention to develop the agricultural potential through the reclamation of new agricultural land, building of springs, and the establishment of channels, in addition to providing water free of charge. After assuming power in the Emirate of Abu Dhabi in 1966, he had banned hunting in the emirate, launched the pioneering initiative to planting the desert. Thanks to his wise policy, the UAE was able to tame the desert and turn it into green land.

Sheikh Zayed also took the lead in combating desertification, paying attention to groundwater, construction of dams, use of fertilizers, establishment of fertilizer plants and attention to salinity-resistant crops. He also worked on the afforestation of both sides of Al Ain-Abu Dhabi road, and this project was the first step of his success in handling the rigors of the desert. Thanks to these efforts, the UAE has been able to re-green the desert areas. The Director General of the Food and Agriculture Organization (FAO) commended these efforts of the UAE.

Through the directives of Sheikh Zayed, may God rest his soul, the UAE has also attached great importance to the issue of water. Thanks to the vision of Sheikh Zayed, a number of natural reserves were created including mainly the reserve of Sir Bani Yas island, which is one of the largest reserves established by man in the Arabian Peninsula in terms of area and quality. It includes rare species of endangered animals and birds, thus becoming a haven for wild animals and birds, and in particular Rhim animals (Slender-horned Gazelle), ostriches, the Arabian gazelles (Gazella arabica) and the bent-horned Arabian Maha (Oryx). Thanks to the personal attention

The late Sheikh Zayed bin Sultan Al Nahyan, God rest his soul in peace had a keen interest in the issues of environmental protection & development

of the late Sheikh Zayed, the plans and programs to maintain the Arabian Oryx were a success.

In 1977, Sheikh Zayed ordered that the Asian Houbara bustard be bred in captivity at Al-Ain zoo even before it became endangered, and he announced in 1982 the first Houbara chick hatching in captivity in the United Arab Emirates. In 1989, the National Center for Research on birds was established, which later became part of the Environment Agency - Abu Dhabi, and launched his ambitious program for breeding Asian bustards. Besides, the Emirates Center for Wildlife Propagation (ECWP) launched "the Program for Breeding Bustards" in Missour in Morocco, which was established under the guidance of the late Sheikh Zayed. The Center is considered the first of its kind in the world that could apply the global strategy for conservation of houbara bustard. Since its creation in 1995, it has been breeding bustards in captivity to release some of them in the wild. The late Sheikh Zayed revived the tradition of re-launch of many of his falcons into the wilderness at the end of the hunting season, and Zayed Program for Release of Falcons started in 1995, and by the year 2004 the number of released falcons totaled nearly a thousand lanner and Peregrine falcons, which succeeded in returning to their natural wild life after their launch on the path of their original migrations in Pakistan and Central Asia. The "Falcon passport", approved by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), has also had a major impact in reducing illegal hunting activities in the neighboring countries.

Features and Indicators

Although the UAE relied on oil revenues as the main source of income in the

Butinah island in AbuDhabi

UAE - an ideal model in solar energy

early stages of development, it gradually moved towards the diversification of its sources of income through investment of oil revenues in sectors like tourism, real estate, infrastructure, domestic and foreign trade, financial and banking services, and pharmaceutical, chemical and building materials industries. It went even further by investing in renewable energy sources. Such investments aim to protect and preserve the environment, by reducing dependence on oil as a source of environmental pollution and expanding reliance on clean energy sources such as solar energy, in order to reduce carbon dioxide emissions and the resulting environmental problems, not the least of which is global warming.

Other pioneering initiatives are the Masdar City project, the first city in the world that relies entirely on solar energy, as well as the fact that the UAE was able to host the permanent headquarters of The International Renewable Energy Agency (IRENA). Certainly, the existence of IRENA headquarters in the UAE is an encouraging and attractive factor for all countries in order to enter into partnerships with the UAE in renewable energy projects.

Ambitious Environmental Visions and Initiatives

"The Emirates Green Building Council (Emirates GBC)" has already drawn up an ambitious vision in this regard that aims to facilitate the UAE's position among the 5 most prominent global leaders in ecological footprint reduction of the built environment by 2015. This can be done by remolding of existing building and construction plans and making them environment-friendly. Abu Dhabi Water & Electricity Authority (ADWEA) also seeks to participate in the achievement of environmental objectives, through the development of facilities, improvement of the quality of public services, the adoption of environmental solutions that contribute to the rationalization of water and electricity consumption, and encouragement of the population to choose and use these solutions. In addition, many municipal departments throughout the UAE adopt ambitious initiatives aimed at promoting the areas of waste recycling.

One of the brilliant models for environmental sustainability in the United Arab Emirates, is the initiative of Environment Agency - Abu Dhabi (EAD) to assign June 3 of every year as the "Day Without Paper", to reduce paper consumption in the workplace through what is known as the "digitization" of administrative work.

Green Tourism - Another Face of Tourism

Abu Dhabi has embraced the promotion of green tourism, a globally unprecedented initiative, which certainly helps to attract spotlight on Abu Dhabi's position as a global unconventional tourist destination. UAE has also introduced initiatives that contribute to the application of standards of environmental protection and conservation. Examples in this context include the decision of the Emirates Authority for Standardization

and Metrology (ESMA) in March 2012, on the prohibition of trading of used or restored tires in the country, a decision that has very vital and important dimensions to the security of motorists and traffic as well as to the environment. The Technical Regulations of the decision have identified the lifespan of the car tires at five years as a maximum, both in case of actual use or storage. This decision applies to all light passenger cars and motorcycles.

Emphasizing the priority of the environmental dimension in the policies of the Emirate of Abu Dhabi, EAD has renewed its partnership with the United Nations Environment Program at the end of last March. The partnership, which is supervised by Abu Dhabi Global Environmental Data Initiative (AGEDI), aims to continue working to bridge the data gap between developing and developed countries, whereby Abu Dhabi Global Environmental Data Initiative (AGEDI) and the United Nations Program for Environment facilitate access to data and reliable environmental information in a timely manner to all who need it.

The Convention, signed by Achim Steiner, Executive Director of the United Nations Environment Programme, and Razan Khalifa Al Mubarak, Secretary General of the Environment Agency - Abu Dhabi (EAD), allows Abu Dhabi Global Environmental Data Initiative (AGEDI) to continue to make further progress on the commitments that were identified through the outputs of the United Nations Conference on Sustainable Development - Rio+20 for a more sustainable future.

The Environment: An Exceptional Emirati Priority

It is evident that the environmental file is receiving a lot of attention and care in the UAE, as suggested by practices on the ground and demonstrated by operational policies that reflect the attention paid to it by the decision-makers, led by His Highness Sheikh Khalifa bin Zayed Al Nahyan, the UAE President, may God protect him. This contributes to the interest shown towards the environment all over the UAE and also provides an opportunity for the proper implementation of laws and regulations for protection of the environment, since care for wildlife seems a pure commitment by the UAE citizens. All of these indicators help to nourish the expectations of a rapid improvement - over the coming years - in the country's environmental profile. As a result the environmental situation in the country has improved immensely resulting in optimum use of water and energy•

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CLARION EVENTS

Hubble Never Sleeps

Breaks Record in Search for Farthest Supernova

NASA's Hubble Space Telescope has found the farthest supernova so far of the type used to measure cosmic distances. Supernova UDS10Wil, nicknamed SN Wilson after American President Woodrow Wilson, exploded more than 10 billion years ago. SN Wilson belongs to a special class called Type Ia supernovae. These bright beacons are prized by astronomers because they provide a consistent level of brightness that can be used to measure the expansion of space. The discovery was part of a three-year Hubble program, begun in 2010, to survey faraway Type Ia supernovae.

To see farther

From the dawn of humankind to a mere 400 years ago, all that we knew about our universe came through observations with the naked eye. Then Galileo turned his telescope toward the heavens in 1610. The world was in for an awakening.

In Saturn, we learned, had rings. Jupiter had moons. That nebulous patch across the center of the sky called the Milky Way was not a cloud but a collection of countless stars. Within but a few years, our notion of the natural world would be forever changed.

In the centuries that followed, telescopes grew in size and complexity and, of course, power. They were placed far from city lights and as far above the haze of the atmosphere as possible. Edwin Hubble, for whom the Hubble Telescope is named, used the largest telescope of his day in the 1920's at the Mt. Wilson Observatory near Pasadena, California, to discover galaxies beyond our own.

Hubble, the observatory, is the first major optical telescope to be placed in space, the ultimate mountaintop. Above the distortion of the atmosphere, far above rain clouds and light pollution, Hubble has an unobstructed view of the universe. Scientists have used Hubble to observe the most distant stars and galaxies as well as the planets in our solar system.

Who Does What?

NASA chose Marshall Space Flight Center in Huntsville, Alabama, as the lead NASA field center for the design, development, and construction of the renamed Space Telescope (ST). Marshall delegated Perkin-Elmer Corporation (now, Hughes Danbury Optical Systems) the task of developing the Optical Telescope Assembly and the Fine Guidance Sensors. Lockheed Missiles and Space Company (now, Lockheed Martin) was selected by Marshall to build the cylindrical casing and the internal support systems (the Support Systems Module) and assembling the telescope together.

NASA chose Goddard Space Flight Center in Greenbelt, Maryland, to be the lead in scientific instrument design and ground control for the space observatory. Scientists were organized into "Instrument Definition Teams" which would translate scientific aims into scientific devices and incorporate them into the space telescope housing. After an announcement was made to the astronomy community, proposals were received and judged, and five devices were selected as the initial instruments that would be aboard the Space Telescope: the Faint Object Camera, the Wide Field/Planetary Camera, the Faint Object Spectrograph, the High Resolution Spectrograph, and the High Speed Photometer.

The Johnson Space Center in Houston, Texas, and the Kennedy Space Center in Florida supplied Space Shuttle support. In all, dozens of contractors, a handful of universities, and several NASA centers, spanning 21 states and 12 other countries worldwide, made the dream of a telescope above the clouds and in space a reality.

The Lockheed Martin team

The Lockheed Martin team includes individuals from Lockheed Martin Missiles & Space, Lockheed Martin Technical Operations, Lockheed Martin Federal Systems, Jackson and Tull, Orbital Sciences Corporation, Raytheon Optical Systems Inc., Allied-Signal, and Raytheon STX.

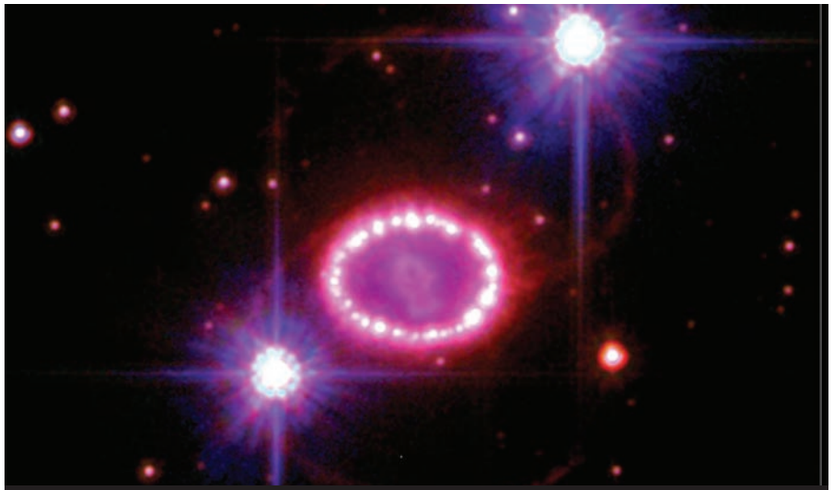
To see more, see farther, see deeper

Since the earliest days of astronomy, astronomers have shared a single goal — to see more, see farther, see deeper.

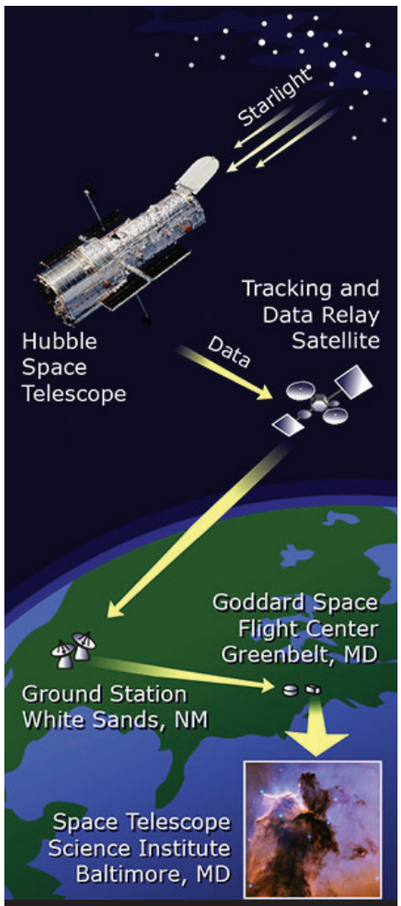
The Hubble Space Telescope's launch in 1990 sped humanity to one of its greatest advances in that journey. Hubble is a telescope that orbits Earth. Its position above the atmosphere, which distorts and blocks the light that reaches our planet, gives it a view of the universe that typically far surpasses that of ground-based telescopes.

Hubble is one of NASA's most successful and long-lasting science missions. It has beamed hundreds of thousands of images back to Earth, shedding light on many of the great mysteries of astronomy. Its gaze has helped determine the age of the universe, the identity of quasars, and the existence of dark energy.

Among its many discoveries, Hubble has revealed the age of the universe to be about 13 to 14 billion years, much more accurate than the old range of anywhere from 10 to 20 billion years. Hubble played a key role in the discovery of dark energy,



A String of 'Cosmic Pearls' Surrounds an Exploding Star



Path that Hubble data must travel before becoming an image

a mysterious force that causes the expansion of the universe to accelerate.

Hubble has shown scientists galaxies in all stages of evolution, including toddler galaxies that were around when the universe was still young, helping them understand how galaxies form. It found protoplanetary disks, clumps of gas and dust around young stars that likely function as birthing grounds for new planets. It discovered that gamma-ray bursts — strange, incredibly powerful explosions of energy — occur in far-distant galaxies when massive stars collapse. And these are only a handful of its many contributions to astronomy.

The sheer amount of astronomy based on Hubble observations has also helped make it one of history's most important observatories. More than 10,000 scientific articles have been published based on Hubble data.

Hubble Policies

The policies that govern the telescope have contributed to its incredible productivity. The telescope is an instrument for the entire astronomical community — any astronomer in the world can submit a proposal and request time on the telescope. Teams of experts then select the observations to be performed. Once observations are completed, the astronomers have a year to pursue their work before the data is released to the entire scientific community. Because everyone gets to see the information, the observations have given rise to a multitude of findings — many in areas that would not have been predicted by the telescope's original proposals. Hubble's success with these policies has helped spread them throughout the astronomical community, and they are becoming common with other observatories.

Gathering images from space is more than a "point and shoot" proposition. The Hubble Space Telescope explores our universe 24 hours a day, 365 days a year. Operating and maintaining such a tireless observatory and converting its raw data (digital signals) into images require considerable effort from the people on the ground.

Data Management

The raw data collected by the telescope have a long way to go before they become actual Hubble images. As Hubble completes a particular observation, it converts the starlight into digital signals. The digital signals are then relayed down to a ground station at White Sands, New Mexico through two orbiting Tracking and Data Relay Satellites (TDRS). The ground station then relays the data to Goddard Space Flight Center's ground control system, where staff ensures its completeness and accuracy.

Goddard then sends the data via data lines to the Space Telescope Science Institute for processing and calibration. Institute personnel translate the data into scientifically meaningful units — such as wavelength or brightness — and archive the information on optical disks. Hubble sends the archive enough information to fill about 18 DVDs every week. Astronomers can download archived data via the Internet and analyze it from anywhere in the world.

Primitive galaxies

Using NASA's Hubble Space Telescope, astronomers have uncovered a previously unseen population of seven primitive galaxies that formed more than 13 billion years ago, when the universe was less than 4 percent of its present age. The deepest images to date from Hubble yield the first statistically robust sample of galaxies that tells how abundant they were close to the era when galaxies first formed.

The results are from an ambitious Hubble survey of an intensively studied patch of sky known as the Ultra Deep Field (UDF). In the 2012 campaign, called UDF12, a team of astronomers led by Richard Ellis of the California Institute of Technology in Pasadena used Hubble's Wide Field Camera 3 (WFC 3) to peer deeper into space in near-infrared light than any previous Hubble observation.

The observations were made during six weeks in August and September 2012. The results show a smooth decline in the number of galaxies looking back in time to about 450 million years after the big bang. The observations support the idea galaxies assembled continuously over time and also may have provided enough radiation to reheat, or re-ionize, the universe a few hundred million years after the theorized big bang.

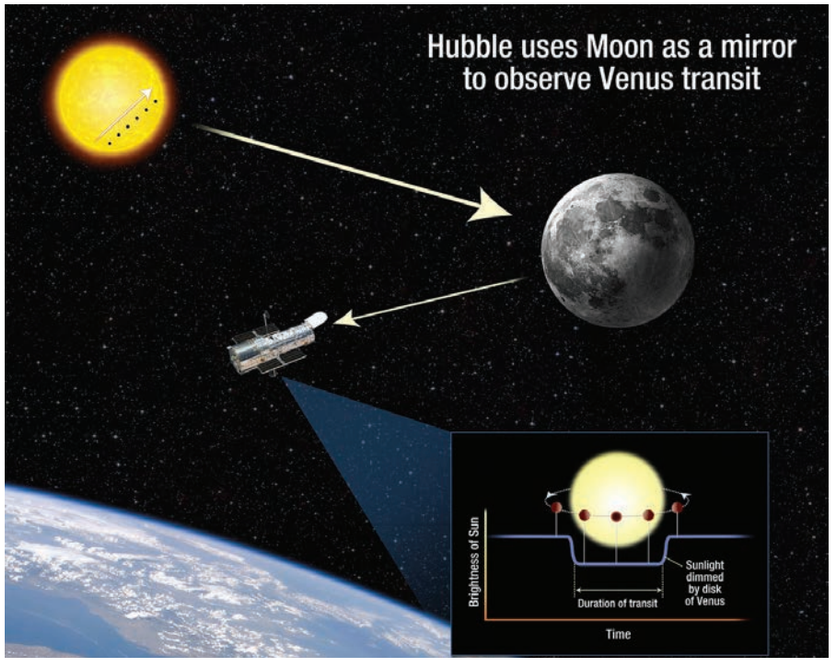
Looking deeper into the universe also means peering further back in time. The

universe is estimated to be 13.7 billion years old. The newly discovered galaxies are seen as they looked 350 to 600 million years after the big bang. Their light is just arriving at Earth now.

Redshift

Astronomers study the distant universe in near-infrared light because the expansion of space stretches ultraviolet and visible light from galaxies into infrared wavelengths, a phenomenon called "redshift." The more distant a galaxy, the higher its redshift.

The greater depth of the new Hubble images, together with a carefully designed survey strategy, allows this work to go further than previous studies, thereby providing what researchers say is the first reliable census of this epoch. Notably, one of the galaxies may be a distance record breaker, observed 380 million years after the birth of our universe in the big bang, corresponding to a redshift of 11.9.



Mission Factoids

- Hubble does not travel to stars, planets, and galaxies. It takes pictures of them as it whirls around Earth at 17,500 miles an hour.

- In its 20 years of viewing the heavens, NASA's Hubble Space Telescope has made more than 930,000 observations and snapped over 570,000 images of 30,000 celestial objects.

- In its 20-year lifetime the telescope has made more than 110,000 trips around our planet.

- With those trips, Hubble has racked up plenty of frequent-flier miles, about 2.8 billion, which is Neptune's average distance from the Sun.

- About 4,000 astronomers from all over the world have used the telescope to probe the universe.

- Astronomers using Hubble data have published more than 8,700 scientific papers.

- Hubble weighs 24,500 pounds -- as much as two full-grown elephants.

- Hubble is 13.3 meters (43.5 feet) long -- the length of a large school bus

Re-ionization

Astronomers have long debated whether hot stars in such early galaxies could have provided enough radiation to warm the cold hydrogen that formed soon after the big bang. This process, called "re-ionization," is thought to have occurred 200 million to 1 billion years after the birth of the universe. This process made the universe transparent to light, allowing astronomers to look far back into time. The galaxies in the new study are seen in this early epoch.

The data analyzed by the team confirm that re-ionization was a gradual process, occurring over several hundred million years, with galaxies slowly building up their stars and chemical elements.

Hubble Digs Up Galactic Glow Worm

A charming and bright galaxy, known as IRAS 23436+5257, was captured by the NASA/ESA Hubble Space Telescope. It is located in the northern constellation of Cassiopeia, which is named after an arrogant, vain, and yet beautiful mythical queen.

The twisted, wormlike structure of this galaxy is most likely the result of a collision and subsequent merger of two galaxies. Such interactions are quite common in the universe, and they can range from minor interactions involving a satellite galaxy being caught by a spiral arm, to major galactic crashes. Friction between the gas and dust during a collision can have a major effect on the galaxies involved, morphing the shape of the original galaxies and creating interesting new structures.

When you look up at the calm and quiet night sky it is not always easy to picture it as a dynamic and vibrant environment with entire galaxies in motion, spinning like children's toys and crashing into whatever crosses their path. The motions are, of course, extremely slow, and occur over millions or even billions of years•

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www.nasa.gov

COMMANDO Armored Vehicles

A Commando for every mission with supreme protection

Textron Marine & Land Systems designs, produces and supports advanced wheeled combat vehicles and cutting-edge maritime craft used by U.S. and international armed forces, as well as civilian entities around the globe. Its COMMANDO family of armored vehicles offers a full range of vehicle options delivering enhanced survivability, mobility, lethality and sustainability.

COMMANDO four-wheeled armored vehicles enable troops to strike swiftly by delivering exceptional performance across the full spectrum of military operations. Rigorously tested and proven in the toughest environments, the COMMANDO family of vehicles offers a range of affordable options to customers. Drawing from four vehicle lines, Textron delivers customized capabilities that meet each customer's mission needs.

As a full-spectrum armored vehicle provider, Textron supports the customers every step of the way, with vehicle fielding, training and logistics support in addition to excellence in vehicle design and manufacturing. As for lethality, COMMANDO vehicles can accommodate any combination of weapons. They also feature a digital backbone for vehicle systems monitoring and future electronics expansion.

Development

Textron Marine & Land Systems' legacy began with the V-100. It was the first in a series of 4x4 Armored Security Vehicles, developed in 1963 with amphibious capability and used extensively in the Vietnam conflict, particularly for reconnaissance and in convoy escort roles.

Based on lessons learned from Vietnam, the V-150 was developed as a hybrid variant, had some V-100 features and could be equipped with diesel or gasoline engines. Most were produced for the Royal Saudi Arabian National Guard.

Textron Marine & Land Systems later developed a 6X6, light armored vehicle. The V-300 series includes 15 variants. The Cadillac Gage V-300 is Textron Marine & Land Systems only six-wheeled vehicle that is still in service internationally.

As the world changed, the Military Police Corps defined a requirement for a four-wheeled armored vehicle to be used by its MP teams. In 1995, Textron Marine & Land Systems began development of the M1117 Armored Security Vehicle. This vehicle provided crew protection in a light and lethal vehicle. It offered substantially increased security, mobility and survivability far superior to the HMMWV used throughout the army.

Mobility in Iraq and Afghanistan had remained dangerous and deadly for troops. The safer alternative was Textron Marine & Land Systems' M1117 Armored Security Vehicle or the ASV. This ASV filled the gap between heavier armored vehicles and small trucks, with

Commando MortarVehicle

a long list of protective advances.

The vehicle includes optimized survivability, all terrain performance, and increased lethality. The ASV's record for protecting its soldiers from RPGs, mines and IED attacks is unmatched by any vehicle in its class. Add to that a top speed of over 65 mph, and we have a vehicle that delivers.

It is no accident that more than 3,100 ASVs have rolled off production line to the US Army and are in the hands of warfighters. Combining more than 45 years of experience of military vehicle design, development, and production Textron Marine & Land Systems is one of the most experienced manufacturers of wheeled armoured military vehicles in the world.

COMMANDO Advanced four-wheeled armored vehicles, derived from Armored Security Vehicles (ASV), are combat proven over 10 years, in locations including Afghanistan, Iraq and Colombia. These durable armoured vehicles offer excellent on-road and off-road mobility enabling them to operate in urban, jungle, desert and mountainous terrain. The COMMANDO Family of Vehicles are synonymous with swift Strike

The COMMANDO family of vehicles includes the COMMANDO Advanced series, COMMANDO Select series, COMMANDO Elite series, and the COMMANDO Utility series. Each is customizable to deliver the unique multimission capabilities customers require.

COMMANDO Advanced

The COMMANDO Advanced four-wheeled armored vehicles, derived from Textron's Armored Security Vehicles, have been combat hardened over 10 years in locations including Iraq, Afghanistan and Colombia. These durable armored vehicles offer excellent on-road and off-road mobility enabling them to operate in urban, jungle, desert and mountainous terrain. Crew protection is reinforced with a V-shaped monocoque hull and 360-degree protection from direct fire. Customers utilizing the current COMMANDO Advanced fleet can upgrade to MRAP+ crew protection through an Enhanced Survivability package.

Commonality across COMMANDO vehicle types makes them easy to operate, maintain and repair. COMMANDO Advanced vehicles are extremely dependable. COMMANDO Advanced vehicles in use by the U.S. Army have delivered an excellent operational readiness rate - consistently in excess of 90 percent.

Reconnaissance Vehicle: COMMANDO Advanced Recon Vehicles provide an

armored reconnaissance platform that incorporates both ballistic and blast protection.

Armored Personnel Carrier: COMMANDO Advanced Armored Personnel Carriers (APCs) provide additional troop capacity to a highly mobile, survivable medium armored vehicle.

Armored Security Vehicle: COMMANDO Advanced Armored Security Vehicles provide substantially increased mobility and survivability compared to other medium armored vehicles.

COMMANDO Select

The COMMANDO Select four-wheeled armored vehicles offer an enhanced combination of lethality, survivability, mobility and sustainability. MRAP level + crew protection is built into all COMMANDO Select vehicles, which are in use today in Afghanistan. Greater survivability, however, does not mean sacrificing vehicle mobility. These vehicles deliver greater mobility than other MRAP type armored vehicles on the market. COMMANDO Select Vehicle can be configured to accommodate up to 10 (three crew plus passengers) to enable greater troop carrying capacity. Select Vehicles are designed to be easy to operate and maintain, with readily available parts, training and service support

Armored Personnel Carriers (APC) with Turret: COMMANDO Select Armored Personnel Carriers with Turret substantially increase security, mobility and survivability using knowledge gained from more than 10 years of dual combat theater use.

APC Ambulance: COMMANDO Select APC Ambulance provides ballistic and blast protection to the medical crew during patient treatment and transport.

Mortar Vehicle: COMMANDO Select Mortar vehicles meet the emergent requirements of today's combat units for a more operationally flexible and adaptable indirect fire capability while taking advantage of the vehicle's mobility and survivability. The new COMMANDO Select Mortar Vehicle is capable of firing up to 120mm mortars from a common mount, and stowing up to 82 rounds of high explosive, illumination and smoke

rounds. The vehicle is expandable to other fire control systems. The Mortar Vehicle mount also can fire at an azimuth of up to a 360-degrees and a firing elevation of 45 to 85 degrees.

COMMANDO Elite

The COMMANDO Elite four-wheeled armored vehicles offer an optimum package of features and benefits. Most highly-protected vehicles, the COMMANDO Elite series provides superior direct fire and MRAP level ++ mine-blast protection. These vehicles also come equipped with latest drive-train enhancements, adding more maneuverability in a wider range of environments. Lethality is achieved through multiple sensors and weapons options. COMMANDO Elite vehicles are flexible enough to accommodate nearly any remote weapon station available - single or dual weapon mix. They also feature a digital backbone for vehicle systems monitoring and future electronics expansion. COMMANDO Elite vehicles are easy to maintain and repair, with readily available parts, training and service support

COMMANDO Utility

The latest addition to COMMANDO family of vehicles is the COMMANDO Utility vehicle. The new Baserunner 4x4 selectable gas/electric hybrid COMMANDO Utility vehicle is built to facilitate missions in forward and rear echelon operational environments. These vehicles perform demanding tasks with ease, allowing users to efficiently and safely complete tasks. In gas mode the Baserunner powers through rough terrain and adverse conditions while electric mode provides quiet vehicle operation.

The COMMANDO Utility vehicle line also includes the Survivable Combat Tactical VehicleTM (SCTV) System, an MRAP-style fully armored monocoque v-hull crew capsule designed to replace the crew compartment of the HMMWV in a one-for-one exchange. The SCTV is offered by Granite Tactical Vehicles Inc. and Textron Marine & Land Systems.

Whether serving as an ambulance, an armored personnel carrier, a command and control vehicle, a reconnaissance vehicle, a support utility vehicle - or directly engaging the enemy in combat – all of COMMANDO vehicles are ready for action and with Textron Marine & Land Systems' reliable vehicle fielding, training and logistics support package, COMMANDO vehicles will continue to serve customers with distinction for many years to come•