



10th EDITION OF INNOVATION & EXCELLENCE
IDEAS
2018
PAKISTAN
 ARMS FOR PEACE
 27 - 30 November 2018
 Karachi Expo Centre

SHOW DAILY

Published By
ASIAN MILITARY REVIEW
 ■ BANGKOK

Thursday, 29th November, 2018

STM SIGNS DOU IN CYBER SECURITY



On Tuesday at IDEAS, STM confirmed its experience in cyber security and IT when a Document of Understanding (DoU) was signed by the company and Pakistan Air University under the leadership of the Presidency of Defence Industries (SSB) of the Presidency of Republic of Turkey. Through the agreement, STM will provide solutions in integrated cyber security, big data and IT domains.

The signing ceremony was held with the participation of Mustafa Murat Şeker, SSB vice president; Murat İkinci, STM general manager; Air Vice Marshal Faaiz Amir, vice chancellor of Pakistan

Air University; in addition to other officials. The agreement will increase the cyber security capabilities of Pakistan Air University, which formalises cyber security strategies of Pakistan and is responsible for the establishment of Pakistan's National Centre of Cyber Security (NCCS).

STM will organize special training and internship programmes in cyber security and IT for Pakistan Air University students and organise international conferences and workshops; give consultancy to research projects in graduate programmes; and support the infrastructure for the establishment of the National Cyber Security Centre (NCCS) at the university.

54TH BALUCH DISPLAY BAKTAR ATGM JEEP

The 54th Baluch Battalion 'First to Guard' at IDEAS stand in front of a Baktar Shikan anti-tank guided missile jeep. Made in China, the system which can also be mounted on an armoured personal carrier and can fire two missiles at a range of up to three kilometres. The modern day Baluch Regiment was formed in May 1956 after it merged with the 8th Punjab and Bahawalpur Regiment. Further mergers have brought the strength of the Regiment to more than fifty battalions. The Baluch Regiment can trace its history to the old British Indian Army and is named after the Pakistani province of Balochistan.



The Chinese-built Baktar Shikan ATGM is operated by the 54th Baluch Battalion.

SURFACE-TO-AIR TRIO ON SHOW

The largest vehicles in the outside static area belong to the Army's 1st LOMADS Unit based at Malir. Three vehicles represent the unit's Chinese surface-to-air missile (SAM) capabilities. They comprise the IBIS-150 radar vehicle, which has a range of 150kms, and up to a height of 20,000m. If it detects unknown traffic, it will pass to the information to the truck-mounted guidance seeker/tracker sensor which will track it. If required, it will clear the way for the LY-80 Missile Firing Vehicle to fire its six LY-80 SAM missiles.



The Chinese-built LY-80 Missing Firing Vehicle on display is operated by the Malir-based 1st Low to Medium Air Defence System (LOMADS) Unit.

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SECURE COMMUNICATIONS FROM RHODE & SCHWARTZ



The German-based Rohde & Schwarz group is presenting its state-of-the-art secure communications products and systems at IDEAS 2018. The company is displaying SCA-compliant software-defined radios with high-data rate waveforms and VoIP-based communications solutions for naval platforms and for air traffic control (ATC). Rohde & Schwarz is the general contractor of the joint radio system of the German armed forces for digitizing land-based operations.

The core of this new generation of software-defined radios is an SCA (Software Communications Architecture) 2.2.2 radio platform, which marks a revolutionary change in tactical communications. The SCA radio platform supports standardised, legacy and Rohde & Schwarz proprietary waveforms and makes it easy to port waveforms.

The new member of the R&S SDxR family for airborne communications offers advanced command and control (C2) capabilities to achieve information superiority and total situational awareness. The R&S SDAR is the only software defined airborne radio that meets both military and civil safety avionics standards, providing full independence for joint civil-military operations.

The R&S SDTR is optimised for use in vehicles, meeting stringent requirements on vibration, size, weight and power consumption. It features high output power without external amplifiers and integrated cosite filters for interference-free operation.

R&S NAVICS is a reliable solution for internal and external communications on all ship classes.

Modern voice terminals with smartphone-like operation provide connections between all designated locations on board.

The use of IP allows the system to be expanded in order to include additional communications services such as video-over-IP/CCTV, broadcast and alarm (BAA) and ship's telephone equipment (STE) subsystems. R&S NAVICS permits integration with wireless headset systems or an on-board wireless communications system (WCS) to allow freedom of movement, e.g. on the bridge, the flight deck and the entire ship.

SHIBLI'S TARSIER MINI IN THE SPOTLIGHT

At this year's event, Pakistan's first private thermal imager manufacturer SHIBLI demonstrated its classic flagship indigenous un-cooled products, the Skua LR Long Range-thermal binocular which weighs in at less than 1.7kg and the Tarsier thermal weapon sight which is mountable on any firearm with a NATO standard Picatinny rail.

However, the star of the show this year was the new Tarsier Mini, a lightweight and technologically enhanced version of the Tarsier, this tactical thermal weapon sight, weighing in at less than 1kg, is engineered to perfection and facilitates maximum precision for close combat and target acquisition. A must have on the battlefield; this cutting edge technology comes directly from the best of the talent and resources of Pakistan, with more technologically superior and advanced products also in progress which are to be launched soon.

With the first ever export order on the way to the Middle East, recent contracts with the Pakistani Army (SHIBLI's primary customer) for both the Tarsier and Skua and national and other international defence forces showing interest means that production at the manufacturing facility in Islamabad, SHIBLI is well under way.

This year's event established SHIBLI's emergence as an innovative and leading producer and manufacturer of thermal imaging technology in Pakistan, complete with the capability to conceptualise, design, test and manufacture indigenous optronics product lines for homeland security and defence.



PGZ SHOWS POLISH KNOW-HOW FROM AIR DEFENCE TO PERSONAL EQUIPMENT



within foreign markets and develop competitive exports to international requirements.

It was established as a company capable of rendering manufacturing and other services to both Polish and foreign security customers. It concentrates more than 40 companies (in the defence, shipyard and new technology sectors), and has an annual revenue of \$1 billion (PLN ADPGZ). Furthermore, PGZ can manage the modernisation and maintenance of vehicles, aircraft, helicopters and vessels, including post-Soviet equipment.

As an organisation established to assure national security, PGZ dynamically responds to changes occurring in the international environment and new forms of handling conflicts, in order to provide security for soldiers using its equipment on the battlefield.

At IDEAS 2018 the company's representatives can discuss very short range air defence systems including Poprad with the Sola high mobility radar, the Rosomak Armoured Modular Vehicle (AMV) which was proven operationally in Chad and Afghanistan.

PGZ can also discuss the Rak 120mm self-propelled mortar on wheeled chassis and Krab 155mm self-propelled howitzer, regarded as a state-of-the-art self-propelled howitzers, the Grom mobile anti-aircraft missile set and its successor Piorun, together with various types of unmanned aircraft systems. The wider company portfolio also includes personal equipment, C4ISR, land, air and naval platforms as well as artillery and air defence systems.

Polish Armaments Group (PGZ) is exhibiting at IDEAS 2018 as the leader of the Polish defence industry and the largest entity in central and eastern Europe.

PGZ's main priority is broad participation of the Polish defence industry in the programmes of the Technical Modernisation Plan of the Polish Armed Forces. Its presence at IDEAS 2018 is also focused on strengthening its position

THUNDER STRIKES IN MANY FORMS

The PAC/Chengdu JF-17 Thunder has not just worked wonders for the tactical needs of the Pakistan Air Force (PAF), it has jump started the country's aerospace industry. When building an aircraft, it is not only about creating the infrastructure – that's the easy part.

Educating and training a work force in the necessary skills is even more important.

Pakistan Aeronautical Complex (PAC) Kamra has been building the JF-17 at its AMF (Aircraft Manufacturing Company) since 2007. Over ten years later, more than 100 have now been delivered.

Five operational squadrons are flying the JF-17 – Nos. 2, 14, 16, 26 and 28, with No 2 Squadron taking on the anti-shipping role courtesy of its new Chinese built C802AK missile. The JF-17 Combat Commanders' School, which could be described as running national 'Top Gun' courses, started its first class in July 2015. Another operational squadron will stand up next year. Today the JF-17 Block 3 is waiting for a decision on the new AESA (Airborne Electronically Scanned Array) radar and production is expected to start next year.

The first two-seat JF-17B version arrived in Pakistan earlier this year and is now being evaluated by the JF-17 test and evaluation unit at PAF Base Minhas. There are thought to be three initial two-seaters, one for AVIC (Aviation Industry Corporation of China) and two for the Pakistan Air Force. A second is expected to arrive in Pakistan next year. The inclusion of a two-seater in the testing and development programme, will speed up the integration of more weapons according to CATIC (China National Aero-Technology



A range of some of the weapons that are being integrated on the JF-17 or already being used at the Zhuhai Air Show in China during early-November.

Import & Export Corporation). This isn't necessarily for the Pakistan Air Force but for an export customer, neither PAF or CATIC have ever officially acknowledged.

A two-seater serving the PAF will allow pilots to move from any of the PAF's fighters or even straight from the PAF Academy, without having first go to the F-16. This is the procedure currently underway because the PAF wants its pilots to fly a high performance jet before getting into the JF-17.

With the PAF know-how and the Chinese technological wizardry helping to shape the Thunder, it is heading into tactical capabilities that pioneers of the jet could only have dreamt of. As such, the export market is likely to play a bigger part in the JF-17's success. To get there, it will need the continued drive and vision of both Pakistan and China - great allies who trust each other implicitly.

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“ANY MISSION ANY DAY” GIDS UNVEILS PAKISTAN’S NEW SURVEILLANCE UAV – BURRAQ

The advent of military UAVs has precisely transformed the entire concept of aerial operations across the globe. The concept has surpassed from the airborne fighter jets to small to medium smart / tactical UAVs engaged in the surveillance and reconnaissance missions in multiple domains.

UAVs are considered force-multipliers for the militaries in the present arena, since an effective employment of these unmanned systems in various war & peacetime situations is an overall value-addition. Pakistan has covered a long way to have strong foothold of attaining stronger & superior defence capability in multifaceted realms including high-end systems and UAVs. GIDS is Pakistan’s only state-owned & largest manufacturer of a wide-range of UAVs. These diverse unmanned platforms comprise medium endurance tactical UAVs, VTOL Quad-Copter and a variety of short range / hand launched systems. **In this IDEAS-2018, GIDS launches its new surveillance variant ‘BURRAQ’ symbolizing Pakistan’s stature in the pursuit**

of self-reliance and capabilities to counter all kinds of challenges.

BURRAQ is a medium altitude surveillance UAV with an endurance up-to 12 hours, effective for day / night surveillance and reconnaissance missions. With its superior capability and real time data-link range of 225 km; Burraq is battle proven and highly proficient to operate effectively in the hostile environments. It is currently operational with Pakistan Armed Forces.

Pakistan’s elite & largest state-owned defence conglomerate, GIDS (a multifaceted defence supplier) represents the hub of Pakistan’s core R&D activities in the defence domain, while offering a broad array of systems for military applications. The product portfolio comprises of an extensive range of systems and services in the domains of Air, Land, Sea, Security & Special Operations. By means of effectively materializing the concept of national self-reliance, GIDS take all the pride in delivering the quality products & services to the Armed Force of Pakistan (in war & peace times).



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W W W . G I D S . C O M . P K

CETC ROLLS OUT NEW EXPORT AIR SURVEILLANCE RADARS

China Electronics Technology Group Corporation (CETC) has developed a new range of export-oriented long-range air surveillance radars and is actively marketing these systems to the many countries located in Beijing's Belt and Road Initiative (BRI).

One of its latest developments, the '609 Intelligence Radar' was unveiled by the People's Liberation Army (PLA) at the recent Airshow China 2018 exhibition in Zhuhai, although the company has stated that it is also offering an export-variant of the radar. While the performance specifications remain classified, it is said to be capable of providing early warning of stealth aircraft, ballistic missiles, and near-space threats.

The 609 radar is believed to be a core asset within China's extensive air defence network, and can be easily integrated to existing air and sea combat systems to boost their interception potential.

CETC's Nanjing Research Institute of Electronic Technology



(NRIET) has also developed the mobile YLC-8B medium/high altitude long range 3D surveillance radar, which integrates mechanical scanning with two-dimensional active phased-array technology,

This system is designed to supplement fixed radar networks with additional sensing capacity against a range of air threats such as stealthy aircraft and ballistic missiles. It can also be used as a gap-filler radar as it can be rapidly moved to distant or austere locations.

Besides ground-based detection systems, CETC is offering an active phased array airborne early warning (AEW) radar called the Silk Road Eye, which will be used on a modified version of the DZK-03 airborne warning and control system (AWAC) that Pakistan acquired from China for its air force in the 2000s.

The Silk Road Eye is widely reported to be aimed meeting the future needs of

the Pakistan Air Force, although it has yet to announce a requirement for further airborne radars.

POONGSAN EYES RESURGENCE IN PAKISTAN



Production of the ammunition was undertaken the next year at the special weapons facilities of POF's Wah Cantonment Ordnance Complex. The two companies also co-operated on product marketing regionally and internationally.

The 804mm long K310 DP-ICM BB projectile weighs 46.8kg including the fuze, carrying 49 K221 bomblets with K-520 PD self-destruct fuzes, each bomblet weighing 290g and filled with Comp A4 explosive material. Depending on the ordnance and charge type, the projectile can provide maximum ranges of between 15km to 36km. It is also used by the Republic of Korea Army (ROKA).

Islamabad and Seoul have continued their warm defence relationships since, growing closer as trading partners - including a June 2008 agreement for the supply of components for the Pakistan Air Force's Cessna T-37 training aircraft - and signed a memorandum of understanding (MoU) to enhance defence co-operation in 2010. It also called for increased military personnel exchanges.

The agreement with South Korea is the continuation of a relationship that has seen the countries becoming closer defence partners over the past decade. More recently in May, Korean ambassador Kwak Sung-Kyu called on Pakistan's Federal Minister of Defence Production Barrister Usman Ibrahim in Rawalpindi, where the latter highlighted the two countries' robust and growing relationship. He stated that Pakistan is open to joint ventures for development of different defence products, proposing that an exchange of visits at various levels will explore the avenues of prospective defence collaboration and production.

South Korea's Poongsan, a manufacturer of conventional and specialty ammunition for land and naval forces, is once again exhibiting at IDEAS to highlight its latest offerings for the Pakistan armed forces and other regional customers.

The company hopes to build on its past success with the country, when it announced a partnership with the Pakistan Ordnance Factories in November 2006 to jointly manufacture 155mm DPICM base bleed (BB) K310 artillery ammunition for the Pakistan Army.

TIGR



more info at
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PAKISTAN'S AIR FORCE AND AVIATION INDUSTRY ON PARADE

IDEAS Show Daily news has been delighted to have the internationally regarded journalist *Alan Warnes* as its Deputy Editor. Alan has an extensive experience of reporting in Asia and especially on the Pakistan Air Force. Here we give a flavour of the achievements of the Pakistan Air Force and the successes of Pakistan's aviation industry.



◀ The Azerbaijan Air Force order for ten Aircraft Manufacturing Factory (AMF) Super Mushshaks saw five of them delivered in June 2018. The remainder are expected to be delivered by the end of next year. Longer term, AMF is hoping that Azerbaijan will acquire the JF-17 also. All photos, Alan Warnes



▶ Last year marked the 50th anniversary of the PAF ordering the Mirage, but 2018 marks the 50th anniversary of the Mirage being operational.



◀ A 26 Sqn 'Black Spiders' PAC-Chengdu JF-17 departs Peshawar with its Klimov RD93 in full reheat.

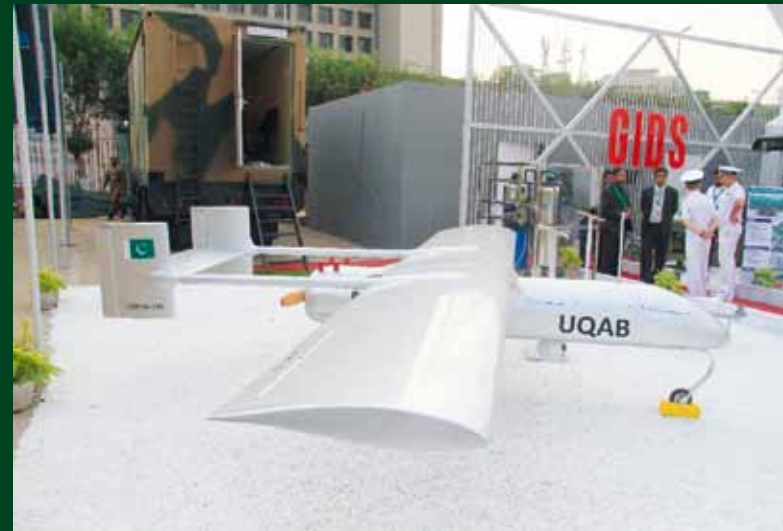


▶ The PAF operates the K-8P for both basic flight training and advanced flight training. The one on display here at IDEAS is armed with a cannon, and can be used for anti-UAV ops.

ASIAN MILITARY REVIEW



The specially marked Super Mushshak sitting in the static display, made its first appearance in these markings at Dubai Air Show in 2017.



State-owned Global Industrial and Defence Solutions (GIDS) has designed and built the Uqab UAV, which is operated by the Pakistan Navy. There is also believed to be at least one African operator.



A more modern Uqab-NG is now being developed by GIDS and made its public debut at this year's IDEAS.



Another popular GIDS UAV is the Shahpar used for aerial surveillance and believed to be operated by the Pakistan Army.



GIDS launched its latest UAV, the Burraq on Tuesday. The aircraft on display is the prototype.

AL KHALID I MAKES PUBLIC DEBUT AT IDEAS

The pride of place for the Pakistan Army at IDEAS is its new main battle tank. After several years of anticipation, the Al Khalid I built by Heavy Industry Taxila (HIT), is making its public debut here.

Among the enhancements to the original Al Khalid tank system is a new digital fire control system that replaces the older analogue set-up.

Operated by a crew of three and armed with a 125mm smooth-bore cannon, it has a capacity of 39+10 rounds onboard.

The commander, sitting in the right seat has a panoramic bi-axis, stabilised sight that designates targets for the gunner in the left compartment. The gunner and commander have dual day/night sights with thermal imaging, allowing accurate fire on stationary and mobile targets. This latest Al Khalid is also equipped with a laser warning system to detect incoming ATGMs and an improved radiation detector. A Kharkiv Morozov Design Bureau (KMDB) 6TD-2 liquid-cooled diesel engine powers the 46-48 ton tank. It has a maximum speed of 70km/h.

Al-Khalid is named after the 7th-century Muslim commander Khalid bin al-Walid. The original Al Khalid MBT was jointly



developed by Pakistan and China during the 1990s, based on the Chinese Type 90-IIM tank. The original prototype was developed as the MBT-2000, by China North Industries Corporation (Norinco).

WB GROUP SHOWS SECURE COMMS AND MINI/TACTICAL UAVS



Polish WB Group is presenting a demonstration of its Fonet and Topaz systems together at IDEAS 2018, together with its UAV technology.

Fonet is a digital vehicular communication and command platform, with over 6,000 systems deployed globally including within the US Army

where it is more commonly known as RF7800i. It has also been used by the Polish Army since 2001 (and deployed on 1,500 vehicles), the Swedish Army since 2003 and the Hungarian armed forces since 2004. In 2016, an office was established in Kuala Lumpur, Malaysia as the Malaysian Army made a decision to acquire Fonet.

Topaz is an integrated combat management software with all functions for the modern battlefield. Every command post is equipped with a ruggedised computer, allowing for commands to be given without the need for a spoken order. §The Topaz system has been deployed by the Polish Armed Forces for over 15 years as well as with multiple foreign customers.

Recently the WB Group has established a presence in North America looking to serve both that market and South America, as well as contributing towards Foreign Military Sales (FMS) programmes.

The core defence business sectors of the WB Group include C4ISR, fire control solutions, combat system integration, UAVs and battlefield communications solutions.

In terms of UAVs, WB Group offers its Flyeye - a mini class UAV with a 30km+ range and which has been used by the Polish Army since 2010 and the Ukraine Army since 2014. The later FT-5 tactical UAV has the capability to be armed.

Since 2018, the Polish government has had a 24 percent stake holding in the WB Group.

ALIT HIGHLIGHTS LY-80 AIR DEFENCE SYSTEM

Aerospace Long-March International Trade Company (ALIT) is once again promoting the domestically and internationally successful LY-80 medium range surface-to-air missile (SAM) system.

The LY-80 is the export version of the HQ-16 surface-to-air (SAM) system, which is in service with China's People's Liberation Army (PLA) and other countries in large quantities as their primary air defence system, according to ALIT.

It is used to provide area air protection for critical assets and ground-based troops by intercepting hostile aircraft, cruise missiles, air-to-ground missiles, unmanned aerial vehicles (UAVs), and other airborne threats.

The LY-80 features an interception range between 3.5km to 70km and altitude of 20,000 metres, with a single shot kill probability of 85 percent for aircraft and 60 percent for missiles.

The basic LY-80 unit comprises a command-and-control (C2) cell equipped with a surveillance radar vehicle and a C2 vehicle and three mobile firing batteries, with each of these composed of a tracking and guidance radar vehicle and four road mobile launch vehicles. These vehicles are armed with a missile launcher with six missile canisters.

Pakistan announced during IDEAS 2014 that it had awarded a deal worth \$226 million for three LY-80 batteries and a IBIS-150 radar. The missile system has already entered service with the army, according to a March 2017 statement by the Inter-Services Public Relations (ISPR).

General Qamar Javed Bajwa, the Chief of Army Staff of the



Pakistan Army, said at the LY-80's induction ceremony that the missile system will increase the service's "response capability to current and emerging air threats".

A maritime version of the missile, the LY-80N, is also being offered. This is designed to provide area air and missile defence for naval fleets against threats such as air and surface-launched anti-ship missiles and aircraft. The missile features a short reaction time of just eight seconds and is capable of engaging threats out to a range of between 15 metres to 20,000 metres interception altitude.

GUIDANCE SYSTEMS AVAILABLE FOR ROKETSAN'S 122/300MM MISSILES



Roketsan has added guidance capability to its 122mm and 300mm rockets, following a five-year design, development and qualification phase.

The TRG-300 TIGER missile was delivered to the Turkish Armed Forces in November 2016. With a minimum range of 30km and a maximum range of 120km, TIGER, is guided to its target using a Global Navigation Satellite System (GNSS) aided Inertial Navigation System (INS).

With its fragmentation (steel ball) warhead and proximity fuze, the missile can intensively and effectively cover critical point targets. At a range of 120km, its efficiency was proven during qualification tests conducted by the Turkish authorities.

The TRG-122 TIGER missile can effectively strike at targets from a minimum range of 18km out to a maximum range of 33km. It can be fitted with a high explosive (HE) warhead, HE-Fragmentation (steel ball) warhead and HE and HE-Fragmentation (steel ball) warhead.

Roketsan has developed systems that are capable of launching different types of rockets and missiles from the same platform. The T-107/122 Multi-Caliber and Multi-Barrel Rocket Launcher (MBRL) can fire 3x20 rounds of 107mm rockets or 1x20 round of 122mm rockets/missiles, using sealed and thermally insulated rocket pods.

The T-122/300 MBRL System can be equipped with a 122mm 2x20 tube or 300mm 2x2 tube sealed pod. Both systems are capable of automatically identifying the type of pod placed in their multi-purpose cradles.

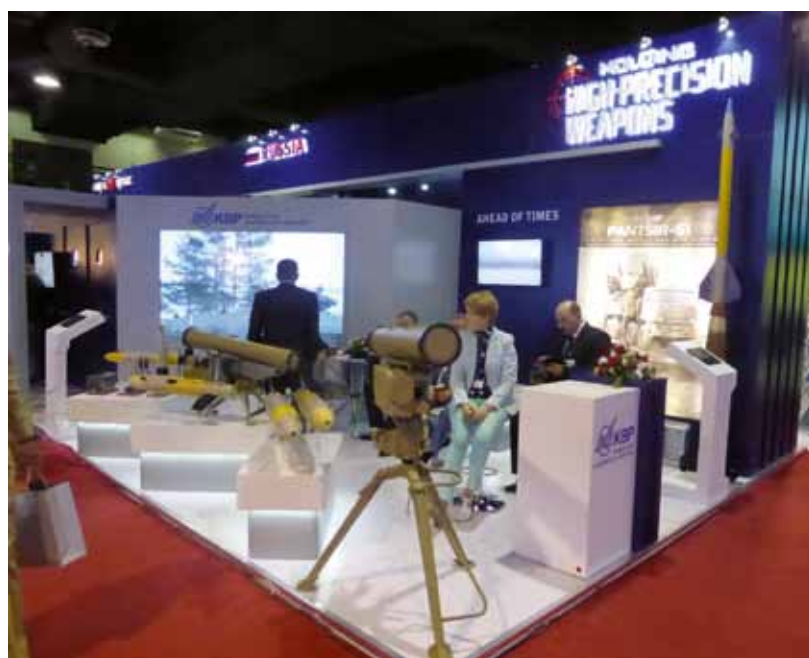
The pods offer minimum reloading time and maximum protection against adverse environmental conditions for the missiles and rockets placed on them. The configured systems on the 6x6 or 8x8 tactical wheeled vehicles include all the required sub-systems to launch missiles and rockets with high precision to their targets.

In addition to the innovations on its own artillery rockets, Roketsan can also develop tailor-made multiple cradle launchers for foreign customers.

"We are continuing to add new capabilities to our systems, which we have developed with the aim to cover the critical targets under fire quickly and effectively, by amending them in line with technological developments and our customers' requirements, said Selçuk Yaşar, president and CEO of Roketsan, adding that the company continues to support all of its customers without imposing any export or usage restrictions on its products.

NATIONAL GROUPS AT IDEAS

Throughout the eight halls at IDEAS 2018 there were a number of national groups, international Ministries of Defence and major corporations exhibiting under their own banners.



PAKISTAN NAVY RECEIVES FIRST ATR 72-500 ASW

After 30 years of service, the Pakistan Navy's veteran Fokker F27-200 Maritime Patrol Aircraft (MPA) are being retired. Once the backbone of the PN's fixed wing ASW fleet, three operated with a full-spec Thales Ocean Master radar, while the remaining trio and a sole F27-400M were used for humanitarian tasks.

Today the Fokker's MPA role is being replaced by three ex-airline ATR72-500s. Two were delivered in 2013 and a third in 2016, serving 27 Squadron. They were acquired with the intention of converting them from transport/cargo aircraft into maritime surveillance aircraft. However, the pilots had to be trained on them first, then in 2015 a tender was issued to industry to carry out the work.

Eventually Monchengladbach based Rheinland Air Service (RAS) were selected, supported by Aerodata, Leonardo MW and Marshall

Aerospace. The first aircraft (No. 79) was delivered to PNS *Mehran* on 18 June but has not been released with full operational capability yet. The PN is now working on that.

Aerodata president and CEO, Hans J Stahl said at Paris Airshow in June 2017: "We signed a contract in summer 2015 but didn't start until early 2016 as approvals were needed from several governments, and that took a while." He continued: "The Leonardo Seaspray 7300 radar system has been integrated along with a Star Safire III EO/IR system to support the maritime surveillance, anti-submarine warfare and search and rescue capabilities."

The third aircraft was acquired by the PN in August 2016 and with options on the upgrade of a further two it would appear the Navy intends to acquire a fourth ATR72 sometime in the near future.



T-129 was evaluated in Pakistan for two weeks on hot and high trials in May 2016. Seen here at Multan.

PAKISTAN ARMY ATTACK HELICOPTER OPTIONS

The future of the Pakistan Army's attack helicopter fleet has been uncertain in recent years. Its fleet of around 20 Bell AH-1F/S Cobras has done a great job supporting the Army fighting militants on the ground in the western reaches of Pakistan. The aircrews and maintenance personnel have performed miracles working with such old systems. However, these vintage attack helicopters do not boast the smart technologies the modern gunships need to fight today's wars. So it's not surprising that a replacement helicopter has been on the top of the Pakistan Army Aviation's (PAA) agenda for some time.

Unfortunately, things have not gone as smoothly as they could have done. Initially, an order for three AH-1Zs in August 2015 led to the aircraft being handed over to the PAA in the United States. By the end of 2017 they were being used to train PAA pilots. A subsequent deal in April 2016, saw the US Department of Defense (DoD) award a \$170 million contract to Bell to produce another nine AH-1Z Viper helicopters which would have been built by September this year.

However when the US government cancelled \$300 million in military aid in late August, it also included the three airworthy AH-1Zs and the remaining nine. The Vipers are now stored at Davis Monthan AFB, Arizona where the Aerospace Maintenance and Regeneration Group (AMARG) also known as the Boneyard, is located. In 1991, when the US Government embargoed the sale of 71 Lockheed Martin F-16C/Ds bound for the PAF along with three Pakistan Navy P-3Cs, it led to many of the F-16s and the Orions being flown into store at Davis Monthan AFB. It is unlikely the AH-1Zs will be delivered, despite unofficial comments coming from Bell that once the row blows over the AH-1Zs could find their way to Pakistan.

Following the stance of the US, there has been speculation that this could affect the sale of the Turkish Aerospace T129 ATK attack helicopter to the Pakistan Army. In late-May, Pakistan formally signed a deal for 30 T129s after years of discussions between the two parties. The helicopters are powered by the LHTEC800

turboshaft engine, produced by LHTEC a joint venture between Rolls Royce and Honeywell a US company, which could see the engines sanctioned.

However, a Turkish Aerospace official told *Asian Military Review* at the Bahrain International Airshow in mid-November, "delivery of T129 attack helicopters to Pakistan depends upon the US export licensing process and we know it is underway. We received the US advisor's opinion before discussions with Pakistan and after we signed the deal, we asked for the export license." He added, "We see no problem. Pakistan is not getting a new capability as they were getting AH-1Zs anyway."

The official went on to add that production of the aircraft was already underway. "The first ten T129s are being diverted off the Turkish Army production line and could be delivered within 2-3 months of the US giving the go ahead."

The Turkish Land Forces has 59 T129s on order, with 41 delivered so far. They have been heavily involved in anti-terror operations in south-eastern Turkey since being delivered back in 2013. They are supporting military operations in southeast Turkey, northern Iraq and northern Syria.

Back in May, 2015, Turkish Aerospace sent its factory T129, P6 to Pakistan where it was involved in a technical evaluation. As part of that procedure, the T129, spent ten days undergoing hot and high evaluation trials where it operated in temperatures of 52° C and was flown by a PAA pilot alongside a TAI test pilot. During the trials in the Hindu Kush in the Himalaya mountains, the T129 ATAK flew over 14,000 feet. A source said, "the helicopter is the best fit for all the Pakistan Army's requirements."

The T129s are expected to replace all the AH-1 Cobras currently housed at Multan, although the PAA does have a forward operating base at Peshawar. The aircraft are regularly flown up to heights well over its ceiling limits to keep out of the way of man portable air defence systems (MANPADS). According to crews who are flying them, they can hear the helicopter creaking caused by the thinning air pressure operating at heights the old airframes were never designed for.

PAF'S EAGLE-EYED VIEW



Alan Warnes

The PAF's air defences systems monitor every movement in its skies, and is showing its capabilities in the Pakistan Hall.

Protecting Pakistan's airspace, is the main role of the Pakistan Air Force (PAF). Under Project Vision, which commenced operations 19 years ago, the PAF has done a phenomenal job doing just that. Pulling together information from a number of multi-service sensors means the PAF has a single recognised air picture (RAP) that provides its air defenders with an eagle-eyed view. As a result it has 24/7 coverage of all its airspace, which can extend hundreds of miles out into the sea and across its borders.

One source told the IDEAS Show Daily, "we have US, European and Chinese short range, medium range and long range radars, that are both air based and ground based. They are coming from vintage and modern systems." He went on to say, "with all this information fed and merged into our Air Space Management Centre (ASMC) we get a Recognised Air and Maritime Picture (RAMP)."

The Army and Navy surveillance systems are also plugged into the ASMC, along with the Civil Aviation Authority (CAA) sensor, radar and flight plans, ensuring the air surveillance coverage is robust. One example of its airborne radar input combines aerial pictures of Sweden's Saab Erieye, French Dassault 20 and Chinese CETC ZDK-03s which are downlinked to the ASMC. It is difficult to know of such an air defence system anywhere else in the world that draws upon such a wide variety of foreign sensors. Clearly they



Nigeria's Air Force Commander, Air Marshal Sadique Abubaker is given a briefing on the Air Space Management Center at the PAF's stand on the first day of IDEAS 2018.

have come up with a complex system. "No, not really," said another spokesman, "we use our very own indigenous multi-radar tracker, integrated into all of air defence systems. We don't rely on the tracker of those particular systems."

At IDEAS, the same source added, "We now have a system that has been perfected over a couple of decades, so it is battle-hardened and time proven. The air threats are very unique too - they come from the long standing threat in the east and the effects of terrorism in the west, all happening along very long borders."

The PAF has four air defence centres, covering the complete aerial space of Pakistan.

"We stitch together all the sensor's pictures together to get the complete picture. How far it goes out to sea depends upon where the ship-borne radar is located."

When it comes to an unidentified flying aircraft, a fighter will be launched from one of the PAF's Air Defence Alerts (ADAs) situated around Pakistan. They are then directed onto the target by a Ground Control Interceptor (GCI). In the eastern borders there are a lot of unmanned aerial vehicles crossing the border and both sides are looking deep into each other's territories, to ensure they have an early airborne warning. Then there is the airspace over Afghanistan which is always uncertain because of the ongoing war on terror.

Defending Pakistan's airspace is obviously a major motivation for everyone in the military to ensure the country is well defended.

10th
ANNIVERSARY OF
IDEAS FOR PEACE

IDEAS
2018
PAKISTAN
ARMS FOR PEACE
27 - 30 November 2018

THEME

**SELF-RELIANCE THROUGH RESEARCH,
INNOVATION AND DEVELOPMENT**

**DATE
VENUE**

29 November 2018
Karachi Expo Centre
1000-1300 HRS

PAF
**CONFERENCE
2018**

CHIEF GUEST & KEYNOTE SPEAKER



**Air Chief Marshal
Mujahid Anwar Khan, NI(M)**
Chief of the Air Staff, PAF

WELCOME ADDRESS



Air Marshal Shahid Akhtar, HI(M)
DCAS (T) Pakistan Air Force

SPEAKERS & TOPICS



Air Cdre Rashid Habib
JF-17 Thunder, A Dream to Reality

Air Cdre Arif Saleem
Self Reliance through Research Innovation
& Development in the field of Avionics



Air Cdre Raup Rajapaksha
Self-Reliance through Research, Innovation
and Development, Sri Lankan Air Force experience



AM Sadique Baba Abubakar
Nigerian Air Force Perspective on Research,
Innovation and Development

Lt.Gen. Anwer Hameed
Iraqi Air Force viewpoint regarding Research,
Innovation and Development



Air Cdre Levent Balikci
Turkish Perspective for
Operational Independence

Air Cdre Liaquat
Aviation City Kamra :
The Future Aviation Hub in the Region



IDEAS 2018 - TRACKED AND WHEELED VEHICLES ON DISPLAY



◀ The Sakb command vehicle on display is operated by the Malir based 24th Cavalry Regiment. Operated by a three man crew, it can accommodate up to six people and can stay deployed for up to a year. Not too surprisingly a snare-kit comes as a standard fit to ensure the personnel can catch their meals! As a command vehicle, the Sakb works with the Al Khalid tanks, providing the MBT commanders the knowledge to ensure they remain in the right place at the right time.

The Light Tactical Vehicle (KLVT182) from Kia Motors has been designed for great mobility and high survivability. It is an agile reconnaissance vehicle with top-class survivability and field mobility for successful day and night missions. ▼



◀ The Multi-Purpose Infantry Fighting Vehicle (MIFV) Viper from Heavy Industries Taxila has Stanag Level IV all round vehicle protection. It has an unmanned remotely controlled turret with a crew capacity of 13, a maximum road speed of 75km/h and a cruise range of 500km. This version was displayed in Hall 8 at IDEAS on the company's stand.



▲ The Al-Qaswa is an armoured personnel carrier (APC) designed and manufactured in Pakistan by Heavy Industries Taxila (HIT). It is a modernised version of the M113-A2-Mk1 APC. Operating as a logistical vehicle, it can carry six tonnes of military supplies and is adaptable to fulfil a number of formats.



▲ The Al-Zarrar is a second generation main battle tank (MBT), which has been in service with the Pakistan Army since 2004. The tank is named as Al-Zarrar, which means 'main striker' in Arabic and Persian languages. It has a 125 mm smoothbore gun as primary weapon, weighs 44 tons, has a crew of four and can reach 65km/h.

TENTATIVE EVENT PROGRAM

Updated on May 2018

Day-3

Thursday, 29th November 2018



TIME (PST)	EVENTS	VENUE
930	Opening of Exhibition	KEC
1000-1300	PAF / Air & Avn Conf	Inauguration Marquee
1000-1100	Visit Dignitary of the Day	All Halls
1000-1030	Tri Svcs Ctr Terrorism Demo	Mob Display Area
1130-1230	Visit Dignitary of the Day	All Halls
1300-1400	CAS Reception	Reception Marquee
1430-1530	Visit Dignitary of the Day	All Halls
1600-1630	Pak Army Mob Display	Mob Display Area
1530-1630	Visit Dignitary of the Day	All Halls
1600-1700	Karachi Show	Sea View (Nishan-e-Pak)
1700	Closing of Exhibition	



ASIAN MILITARY REVIEW

CREDIT

Editor

Andrew Drwiega
Email: andrew@mediatransasia.com

Deputy Editor

Alan Warnes

General Manager

Jakhongir Djalmetov

International Marketing Manager

Roman Durksen

Digital Manager

David Siriphonphutakun

Sales & Marketing Coordinator

Wajirapran Punyajai

Graphic Designer

Khakanaa Suwannawong

Circulation Officer

Yupadee Seabea

MEDIA TRANSASIA LTD.

75/8, 14th Floor, Ocean Tower II,
Soi Sukhumvit 19, Sukhumvit Road,
Bangkok 10110, Thailand.
Tel: 66 (0)-2204 2370
Fax: 66 (0)-2204 2390 -1

SALES & MARKETING OFFICES

France/Spain

Stephane de Remusat, REM International
Tel: (33) 5 3427 0130
E-Mail: sremusat@rem-intl.com

Germany

Sam Baird, Whitehill Media
Tel: (44-1883) 715 697
Mobile: (44-7770) 237 646
E-Mail: sam@whitehillmedia.com

Turkey / Eastern Europe / UK

Zena Coupé
Tel: +44 1923 852537,
zena@expomedia.biz

Nordic Countries/Italy/ Switzerland

Emanuela Castagnetti-Gillberg
Tel: (46) 31 799 9028
E-Mail: emanuela.armada@gmail.com

Russia

Alla Butova, NOVO-Media Ltd,
Tel/Fax: (7 3832) 180 885
Mobile : (7 960) 783 6653
Email : alla@mediatransasia.com

USA (East/South East)/Canada (East)

Margie Brown, Blessall Media, LLC.
Tel : (+1 540) 341 7581
Email: margiespub@rcn.com

USA (West/South West)/Brazil/ Canada (West)

Diane Obright, Blackrock Media Inc
Tel : (+1 858) 759 3557
Email: blackrockmediainc@icloud.com

All Other Countries

Jakhongir Djalmetov, Media Transasia Limited
Tel: +66 2204 2370,
Mobile: +66 81 6455654
Email: joha@mediatransasia.com

Roman Durksen, Media Transasia Limited
Tel: +66 2204 2370,
Mobile +66 83 6037989
E-Mail: roman@mediatransasia.com



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