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HANWHA MAKING CHUNMOO-3 FOR EXPORTS

Korea's Hanwha Corporation is making a mobile variant of the Korean Tactical Surface-to Surface Missile (KTSSM) or Chunmoo-3 for exports. The 600 mm class guided missile will have a maximum range of 290 kilometres.

"We will start exporting this short-range ballistic missile from this year end, and aim to complete the deliveries by 2021," says Kim Jin Ho, Manager, Rocket Systems Team at Hanwha Corporation tells Daily News on the sidelines of the ongoing ADEX 2019. He, however, declined to name the initial customer.

The weapons are being exported even before the South Korean army deploys the short-range ballistic missiles. The Republic of Korea Army (RoKA) is expected to start inducting the missile only from 2022, he informs. Hanwha is also developing an intermediate size Chunmoo-2 surface-to-surface missile. The 400 mm class missile will have a range of 180 km. The 230 mm Chunmoo-1

has a range of just 80 km. All three, plus the unguided K136 Guryong unguided rocket, can be launched by the launcher of the Chunmoo system.

"Chunmoo can precisely strike an enemy at its source of fire from a distance, while being safely out of range from the enemy's long-range artillery. Chunmoo's high accuracy also ensures the safety of nearby friendly forces. Since its development by Hanwha Defense in 2015, has been serving the South Korean Army with its capability to fire various types of ammunition," he says. KTSSM can hit hardened targets from fixed launchers. KTSSM and the weapon of intermediate size, Chunmoo 2, have inertial and GPS guidance.

The Chunmoo launcher has room for two – one in each of its two independently elevating pods. The launcher alternatively can carry 40 Guryong rockets (of 130 mm dia.), 12 Chunmoos (239 mm) or, if it goes into service, four rounds of the



Chunmoo 2 (400 mm) and two rounds of the new Chunmoo 3 or KTSSM with 600 mm (24 inch diameter). The company says the new weapon has a more powerful warhead, longer range and greater resistance to jamming than the other versions of Chunmoo. According to Hanwha, their guided rocket is used as a "bunker buster" solution by the army because of its penetrator warhead. ■

HANWHA SHOWCASES NEXT GENERATION 'REDBACK' IFV

Korean defence conglomerate Hanwa Defence is showcasing a new generation Infantry Fighting Vehicle (IFV) called 'Redback'. The new IFV was recently shortlisted by the Australian military as one of the contenders for the Land 400 Phase 3 Programme, which seeks to deliver up to 450 IFVs and 17 support vehicles from 2024/25 onwards. Rheinmetall Defence with the Lynx41 is the other platform competing against the Redback.

South Korea also has a requirement for a new IFV, though its timelines are not aligned to the Australian requirement. The two selected now proceed to the Risk Mitigation Activity (RMA) stage. The shortlisted vehicles will undergo a rigorous testing and evaluation phase, which will conclude in 2021. A full contract award is expected in 2022.

Redback is fitted with a 30 mm cannon for which Electro Optic Systems (EOS) has teamed exclusively with Hanwha Defence Australia (Hanwha) as prime contractor to offer EOS' T2000 turret on the Redback. Other armament includes, Anti-Tank Guided Missile (ATGM), 12.7 mm



Remote Weapons System (RWS) and 7.62 mm machine gun.

The Redback, will have a crew three and be able to carry eight infantry soldiers. It has a combat weight of 42 tonnes and a maximum speed of 65 kmph. Cruising range is said to be 530 km. ■

RAYTHEON AND KOREAN AIR TO GIVE MULTI-INT FOR ROKAF

Raytheon and Korean Air have agreed to pursue the Republic of Korea's Air Force's Intelligence Surveillance Target Acquisition and Reconnaissance programme. Under the agreement, Raytheon will be the prime contractor and provide multiple-intelligence, or Multi-INT, technologies for the aircraft. Korean Air will deliver design, logistics and life cycle support services. "Technology is changing the way we fight and the speed at which we do it. For today's commanders, a few seconds can make the difference between success and failure," said Roy Azevedo, president of Raytheon Space and Airborne Systems, after signing the agreement at the ongoing Seoul ADEX2019.

"BY COMBINING MULTIPLE SENSORS WITH ADVANCED COMMUNICATIONS SYSTEMS, WE GIVE KOREAN COMMANDERS THE INFORMATION THEY NEED, WHEN THEY NEED IT," Azevedo said. ■

HYUNDAI ROTEM EXPLORES MARKET FOR K2 BLACK PANTHER



Hyundai Rotem is looking at markets in Europe, the Middle East and in Asia Pacific region for its K2 Black Panther after it re-commenced mass production of the main battle tanks (MBTs).

The South Korean defence manufacturer has already delivered two of the over 100 second batch of tanks ordered by the Republic of Korea Army (RoKA). Production of the remaining tanks is expected to be completed by 2021. The first batch of 100 units have already been delivered, a defence system research team member of Hyundai Rotem tells Daily News on the sidelines of the ongoing ADEX 2019. The second batch of K2 serial tanks of 106 units, ordered by Defense Acquisition Programme Administration (DAPA) as an option to the contract of December 29, 2014, are powered by new hybrid powerpack of South Korea engine and German transmission.

“THE TANKS ARE DESIGNED TO LEAD THE FUTURE COMBAT ENVIRONMENTS. THEY HAVE TRULY INCORPORATED THE LATEST TECHNOLOGIES AND EXCELLENT FUNCTIONS SUCH AS THE DIGITAL BATTLE MANAGEMENT SYSTEM CONNECTED WITH THE C4I (COMMAND, CONTROL, COMMUNICATION, COMPUTER & INTELLIGENCE) SYSTEM,”

The Korean government is also considering a follow-on contract for a third batch of K2 MBTs. “We expect this to happen in the near future,” he says, without revealing any numbers.

The ROKA has a requirement for over 600 K2 tanks complementing its K1 MBT force and replacing its ageing fleet of M48 Patton MBTs. With the resumption of mass production, the company is also looking at exporting the main battle tanks. In 2018, the company unveiled a desert version of the K2 Black Panther, with an eye to capture the Middle Eastern market. “Several countries in the Middle East have shown keen interest in the main battle tank,” he adds.

The company has made several modifications for the tanks meant for the Middle East market. “To face the extreme hot conditions, we have built an additional air conditioning system in the turret, and we have fitted the tracks with heat resistant rubber, additional remote-control weapon systems, and 360-degree situational awareness system as per the users’ requirement. The desert version



tanks were tested in Oman last year,” he informs. “These tanks have the same transmission, but we have increased the pulling system,” he adds. It was reported earlier that Hyundai Rotem is looking to sell over 75 MBTs to Oman, through a deal that could reach an amount up to US\$884.6 million. The government of Oman had floated a tender to acquire 76 main battle tanks and the supplier is expected to be selected by the end of 2019. The South Korean company is also eyeing an Indian requirement for about 2000 units of Future Ready Combat Vehicles (FRCVs).

The Indian Army as part of its modernisation plans is keen on a FRCV which is similar to the Russian T-14 Armata, Ukrainian Oplot, French LeClerc and the K2 Black Panther main battle tanks, to replace its old fleet of about 2,400 Soviet-origin T-72 tanks. The company has already responded to India’s Request for Information issued in November 2017, which specified that the Original Equipment Manufacturer (OEM) should offer technology transfer, the platform should have 40 percent indigenous content, and create ecosystems, life cycle costs and upgrade plans to build locally. If all goes as per the schedule, the FRCVs are expected to enter service between 2025-27.

Last year, a Polish firm H. Cegielski – Poznań announced at a defense exposition in Kielce that it was partnering with the Korean firm to offer the Polish Army a K2PL “Wolf” variant of the Black Panther. Hanwha Defense Systems, formerly known as Doosan DST, developed a 1,500hp engine for the K2 Black Panther, co-developed by the state-funded Agency for Defense Development and Hyundai-Rotem. The batch-two mass production project was signed in 2014 and should have been completed by 2017. But the business was suspended for more than two years because the domestic transmission failed to pass durability tests

“HOWEVER, THE MINISTRY OF NATIONAL DEFENSE DECIDED TO COMBINE THE DOMESTIC K2 ENGINE WITH A GERMAN TRANSMISSION SYSTEM. AND THIS HELPED THE K2 TO PASS THE DRIVING TRIALS AND COLD-START TRIALS AT THE BEGINNING OF THIS YEAR WITHOUT ANY ABNORMALITY,” the official says. ■

TURKISH AEROSPACE REVEALS T629 ATTACK HELO PLAN



► Jay Menon & Atul Chandra

Turkish Aerospace is building a new six tonne attack helicopter T629, which will reside between the T129 ATAK and the recently announced 10-tonne multi-role heavy combat helicopter, the company's CEO Prof. Dr. Temel Kotil reveals to Daily News.

"The designs have been finalised and we plan to carry out the first flight of this new helicopter in about a year," Prof Kotil says on the sidelines of the ongoing ADEX 2019. The announcement to build the T629 helicopter comes amid TAI's decision to build a 10-tonne Multi-Role Heavy Combat Helicopter ATAK-2, which TAI claims will have a weapons payload that is as much as the AH-64 Apache attack helicopter. Technical specifications of the new T629 was not immediately available.

But the Heavy Class Attack Helicopter Project ATAK-2, which was launched early this year, aims to design and produce an effective and advanced attack helicopter with high maneuverability and performance that is capable of carrying a large useful load, resistant to challenging environmental factors and equipped with state-of-the-art technology target tracking and imaging, electronic warfare, navigation, communications and weapon systems.

The project also aims to maximize the use of domestic systems to ensure supply security and export freedom. "We have chosen not to go ahead with design partners as we now have enough technical and design skills to complete our programmes," Prof Kotil says. The Performance Evaluation Phase of the Heavy Class Attack Helicopter Project is expected to be completed this year and the first test flight of the helicopter is planned for 2024. The heavy helicopter to be developed will have a takeoff weight approximately twice that of the current ATAK helicopter and will be among the top-class attack helicopters.

The technical properties of the helicopter include two turbo shaft engines. The new helicopter will be able to accommodate over 1,200 kilograms of useful load and will have a tandem cockpit, capable of working in high altitude and high-temperature conditions and be resistant to environmental factors. With advanced electronic warfare and countermeasure systems, the helicopter will be equipped with high-caliber cannon, new generation 2.75-inch rockets, long-range anti-tank missiles with different guidance systems and air-to-air missile systems.

Referring to the new generation, twin engine, 6 tonne class GÖKBEY Multirole

Helicopter, Prof Kotil says, "It is presently undertaking certification trials in Turkey. Deliveries are planned to start in 2021 and I believe the 12-seater will offer operators and customers best in class performance. It is very cost competitive as well."

Turkish Fighter

Giving an update on the 5th generation Turkish Fighter programme, Prof. Kotil says, "We are working on the weapons systems and low observability features and the programme is going very well. The roll-out of the Turkish fighter is planned for 2023, with the first flight scheduled to take place in 2025. Customer deliveries are planned to commence in 2029.

"TF-X is going great now. We are working day and night and we have hired 1,000 engineers for our fighter programmes and are building massive intellectual capabilities. We are investing very heavily in new composite facilities and are building a 95,000 sq feet new facility. It will be ready in a year. We are sufficiently funded to complete the programme and that is not a worry," he adds.

TAI's Focus at ADEX2019

Besides various helicopter programmes, Turkish Aerospace is currently amid an expansion in its activities, with the development of a 5th generation fighter aircraft, trainer aircraft and more sophisticated unmanned aerial systems (UAS).

"WE ARE TAKING PART IN SEOUL ADEX 2019 FOR TWO REASONS, ONE IS TO SHOWCASE OUR PRODUCTS HERE IN SOUTH KOREA AND SECONDLY TO INTERACT WITH COMPANIES THAT ARE ATTENDING THE SHOW," Prof Kotil says.

"KOREA HAS A FULL-SCALE AEROSPACE INDUSTRY WITH ALL THE SUB SYSTEMS REQUIRED AND WE ARE LOOKING TO ENGAGE FURTHER WITH KOREAN COMPANIES, EVEN THOUGH WE ARE NOT PARTICIPATING IN ANY TENDERS HERE. WE ARE LOOKING AT GREATER COOPERATION WITH OUR CUSTOMERS," he adds. ■

ASIA DEBUT FOR LEONARDO CJS WITH TERMA ECIPS

The ongoing ADEX, marks the Asian debut of the new generation Leonardo Compact Jamming System (CJS) which has been integrated onto a Terma F-16 Electronic Combat Integrated Pylon System (ECIPS). Leonardo is positioning its Electronic Warfare (EW) solutions to meet upcoming Republic of Korea (ROK)



requirements, which has various fighter class programmes underway, including upgrades to its KF-16s. “We would look to offer our new compact jammer to air forces that will continue to operate the F-16 for a reasonable period of time and would welcome discussions with the Republic of Korea Air Force (ROKAF) to provide additional details on our system,” Rob Laidlar, EW Sales Campaign

Manager, Combat Air & Space Systems at Leonardo tells Daily News.

Daily News understands that while the ROKAF is performing a Mid-Life Update on its KF-16s (approx 130 in number), there is no upgrade to the aircraft’s EW systems. The CJS can be integrated onto existing national assets or new platforms providing an immediate high-end DRFM based jamming capability to customer forces and rapid access to world class levels of RF protection. “We will now pursue the F-16 market, with whom we have a longstanding relationship, to find a launch customer. With our strong partnership with F-16 operators, we are also looking to finalise our partner for flight testing of the new digital jammer with the integrated combat pylon,” Morten Weise Schousen, Business Development



Director, Asia-Pacific at Terma, tells Daily News.

The new CJS was presented in public for the first time at last year’s Farnborough Airshow and a launch customer is yet to be obtained. There is however, a sizeable market of F-16 operators who could consider the new system as it requires minimal changes to be integrated. Laidlar also highlights the fact that the brand new digital jammer is ITAR free and is ideally suited for customers who don’t build their own EW kit but manufacture their own aircraft and helicopters. The CJS is a Digital Radio Frequency Memory (DRFM) combined with an associated techniques generator, receive antennas, transmitters and power hardware into a very compact form factor. It provides a complete self-contained jamming capability able to counter the most advanced new threats.

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- » SUFFICIENTLY COMPACT TO FIT MOST AIR PLATFORMS
- » MISSION REPROGRAMMABLE AGAINST EMERGING THREATS - AIRBORNE AND GROUND BASED
- » EFFECTIVE AGAINST MODERN AND FUTURE A2AD SYSTEMS ■

ELBIT SYSTEMS WIN US\$153 MLN CONTRACT IN SE ASIA



Israel’s Elbit Systems Ltd. has won a contract valued at approximately US\$153 million to supply an Army of a country in Southeast Asia with a comprehensive, multi-layered array of Unmanned Aircraft Systems (UAS). The contract will be performed over a 22-month period. Under the contract, Elbit Systems will supply a networked multi-layered UAS solution, including more than a thousand THOR Multi-Rotor Vertical Takeoff and Landing (VTOL) mini-UAS, scores of Skylark LEX,

Skylark 3 and Hermes 450 tactical UAS as well as Universal Ground Control Stations. Bezhalel (Butzi) Machlis, Elbit Systems President & CEO, commented: “This contract award underlines our competitive edge as armies increasingly view multi-layered UAS solutions as key to providing superior intelligence while maintaining a high level of operational flexibility.”

The THOR VTOL Mini UAS is a low altitude multi-rotor platform, designed for a wide range of surveillance and reconnaissance missions. With an automatic takeoff and landing capability and autonomous mission flight, THOR is suitable for operation in urban areas with non-line of sight communication, as well as in marine zones.

Skylark 3 is a tactical mini UAV system



(UAS) optimized for both dismounted and vehicle-based operation. Based on the battle-proven Skylark I-LEX, Skylark 3 enables performance of ongoing covert operations, providing real-time intelligence during day and night. Hermes 450 is a multi-role high-performance tactical UAS. As the primary platform of the IDF in counter-terror operations, Hermes 450 is a mature and combat-proven UAS with over 300,000 operational flight hours and a class-leading safety and reliability record. ■



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KF-X 1:1 모형 공개

ADEX 전시회 첫날에 한국항공우주산업주식회사 KF-X의 1:1 모형이 공개되었다. KF-X는 9월 말에 상세 설계 검토(CDR)를 완료했다. 4.5세대 KF-X 전투기 프로그램의 예산은 8조 8,000억 원에 이른다.

KF-X는 2016년 1월부터 개발에 착수하여, 2018년 6월에 기본 전투기 설계를 마무리했다. “현재 한국 전투기 개발은 상세 설계 검토 단계를 거쳐 지금은 프로토타입 구성 및 테스트 단계의 문제를 해결 중입니다.” 정광선 한국전투기 사업단장이 말했다. “우리는 관련 조직과 협력하여 군에서 만족하는 성능을 보여주는 전투기를 제작하기 위해 최선을 다할 것입니다.”

KF-X 프로그램은 항공기 부품 개발을 위한 대규모 설계 프로젝트를 통해 한국 국방 산업의 미래를 굳건히 할 것이다.



KF-X 프로토타입의 출시는 2021년 상반기로 계획되어 있으며, 022년 상반기에 첫 비행을 할 것으로 예상된다. KF-X의 설계와 개발은 2026년까지 완료되어 생산에 들어간다. ■

수출용 수리온, 드디어 공개



한국항공우주산업주식회사가 제작한 KUH 수리온 기동 헬리콥터가 ADEX 에어쇼에서 처음 공개된다. KUH 1E(수출용)는 해외 바이어의 요구 사항에 부합하여 몇 가지 버전으로 출시될 예정이다. 이번 에어쇼에서는 로켓, 미사일, 건팻의 무기화 버전을 선보인다. 새 수출용 수리온은 몇 년 동안 개발을 거쳤으며, 업그레이드된 항공 전자 및 센서를 선보일 것이다.

KUH 1E는 최대 이륙 중량이 8,709 kg으로, 한국군의 500MD와 UH-1 로터크래프트 대체하기 위한 용도로 설계 및 개발되었다. 이미 한국군과 준공공 기관에 인도한 수리온이 100기가 넘는다. 한국항공우주산업주식회사는 최근에 수출 주문 수주에 어려움을 겪고 있으며, 신규 수출 고객을 찾고 있다. ■

레오나르도, AW159로 매력적인 조건 제시



레오나르도 사가 ADEX 에어쇼에서 한국 공군을 위한 최적의 솔루션으로 AW159를 선보인다. 회사 관계자들의 말에 따르면, 이미 한국 방위산업청의 MOH Batch 2 프로그램에 좋은 조건을 제시했다. 한국 공군에서는 대잠수함(ASW)과 대수상함(ASuW) 작전 역량을 갖춘 해상 헬리콥터를 12기를 추가로 구매해야 한다.

“AW159는 2016년부터 공군의 주요 헬리콥터로서 성공적으로 운용되면서, 대잠수함 및 대수상함 역량 개선에 큰 도움이 되었습니다. 레오나르도 사는 동일한 유형의 헬리콥터를 추가로 12기 구매하면 큰 이점이 있다고 믿습니다. 현재 공군에서 MOH를 성공적으로 운용 중이기 때문에 AW159를 선택하면 군함의 구조적 변화나 기지의 인프라 변경도 필요 없습니다.” 회사 대변인이 Daily News와의 인터뷰에서 전했다.

“마찬가지로, 현재 존재하는 기본 정비, 내구성, 훈련 조직 및 관련 시설을 활용할 수 있습니다.” 레오나르도 사는 향후 한국 공군에 시스템 업그레이드도 제공이 가능하다. “특히, IFF Mode5 업그레이드 프로그램과 링스 헬리콥터 엔진 업그레이드에 관심이 집중되고 있으며, 링스를 운용 중인 여러 고객들이 이미 업그레이드 계약을 체결했습니다.” ■

GA-ASI 그레이 이글의 탁월한 합동 작전 역량



미군이 GA-ASI의 그레이 이글 무인 항공기와 AH-64 아파치 헬리콥터를 활용한 작전을 펼친 이후로, 무인기 유인기 합동 작전(MUM-T)에 대한 전 세계의 관심이 크게 높아졌다.

위험한 대규모 전투 작전(LSCO)에서 회전익 및 고정익 항공기와 무인 항공기 시스템(UAS)을 동시에 활용하면, 유인 항공기의 파일럿과 지상군은

무인 항공기의 센서 데이터를 수신할 수 있게 된다. 정교한 데이터 링크와 지상 인력, 유인 항공기, 무인 항공기의 정보와 정찰, 감시(IRS) 탑재 장비를 통해 의사 결정 및 미션 효과를 개선할 수 있다. 유인 항공기의 조종석에 주변 상황 정보를 제공함으로써 운항의 안전성이 높아지는 것이다. GA-ASI 사는 2000년대 초에 아프가니스탄에서 MUM-T의 기본 개념을 도입하는 데 핵심적인 역

할을 했다. UAS 프리데이터 제조사인 GA-ASI는 AC-130 무장 헬리콥터에 데이터 링크를 제공하여 풀 모션 비디오(FMV) 수신을 가능하게 함으로써 미국 공군의 임무 수행을 지원했다. MUM-T 역량은 AH-64 아파치에만 국한된 것이 아니다. GA-ASI의 무인 항공기와 다른 유인 군사 항공기와의 공조를 통해 동일한 결과를 도출할 수 있다. ■

KUS-FS 중고도장기체공 무인항공시스템 전시



대한항공이 개발한 고성능 KUS-FS 중고도장기체공(MALE) 무인항공시스템(UAS) 프로토타입이 이번 에어쇼 야외에서 고정 전시된다. 3m 높이의 KUS-FS는 2012년에 첫 비행을 했으며, 이번에는 LIGNex1(길이 13m, 윙스팬 25m)이 에어쇼에서 첫선을 보인다.

KUS-FS의 군사적 용도로는 통신 릴레이 임무, 정보감시정찰(ISR) 임무, 전자전(EW), 신호 정보(SIGINT) 등이 있다. 민간용 버전으로는 해상 및 국경 감시, 환경 및 과학 정찰 및 모니터링 용도로 사용이 가능하다. 기체 설계 및 개발은 대한항공이 맡고, LIGNex1에서 지상 제어 시스템(GCS), 데이터링크, 합성개구레이다(SAR)를 제공한다. LIGNex1에는 일반적으로 2-4 비행 시스템, 전자광학, 적외선(EO/IR), SAR 페이로드가 장착된다. 지상 제어 시스템은 약 24.6톤의 무게로, 컨테이너 트럭을 이용해 이동이 가능하다.

KUS-FS는 기상 조건에 관계없이 밤낮으로 고해상도 SAR/GMTI 이미지를 수집할 수 있는 X밴드 합성개구레이다(SAR)와 1200hp 엔진을 갖추고 있다. 하지만 비행 항속 시간과 최대 속도, 순항 속도와 범위는 아직 공개되지 않았다. ■

KA-32 GLASS COCKPIT ON DISPLAY



Russian Helicopters is displaying an avionics demonstrator of the proposed 'glass cockpit' upgrade available for the Ka-32 helicopter. This modernisation effort will involve the replacement of analogue gauges in the cockpit with three LCD displays, ranging from 14-17", based on customer requirements. Also included are terrain avoidance systems, a flight computer and a digital autopilot.

The new displays will enhance the functionality and ergonomics of the cockpit, company officials tell Daily News, while

adding that various configurations can be discussed. The new displays will also allow information to be shared between displays, further enhancing flight safety. Ka-32 helicopters in other parts of the world, have already received these avionics upgrades.

South Korean Ka-32 helicopters have been in operation since the mid-90s and are now in need of an upgrade that involves installation of a 'glass cockpit', more powerful VK-2500PS-02 engines and a new firefighting system. ■

KARI SHOWS OFF TR-60

Korea Aerospace Research Institute (KARI) is showcasing the 200-kilogram TR-60 small vertical take-off and landing (VTOL) tiltrotor drone at the ongoing ADEX2019. According to a KARI official, the UAV can be used in several areas, including intelligence, surveillance, and reconnaissance (ISR) missions, search-and-rescue operations, transport, communication, and relay.

The TR-60 is an upgraded version of the TR-100 tiltrotor developed by KARI in 2012, which weighed 1000 kg. The TR-60 is constructed from lightweight composites and is powered by a 55 hp rotary engine which transfers power mechanically to the twin swivelling nacelles. The UAV is capable to operate at a top



speed of 250 km/h and at a maximum altitude of 14,763 ft. It measures 3 m in length and approximately 5 m wide. It has a maximum take-off weight of 210 kg. It can carry a 30 kg payload, such as a stabilized forward looking infra-red (FLIR) and have a 200 km radius of action with an endurance of 5-6 hours.

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ROBOTS FOR RESCUE



South Korea's Institute of Civil-Military Technology Cooperation has developed a military rescue robot for casualty extraction task. The new rescue robot is equipped with electric actuators for the casualty extraction task on the battlefield. ICMTC is testing these robots so that they can be soon used to rescue wounded soldiers under fire without risking additional lives. ■

COLLINS AEROSPACE COMPLETES CDR FOR KF-X/IF-X PROGRAMME

Collins Aerospace Systems has completed the Critical Design Review (CDR) for a number of key power and controls systems, that it is supplying for the KF-X/IF-X 4.5 generation fighter programme. The company is providing environmental control, engine start and electric power generation systems for the KF-X, which will also be the first platform to be fitted with Collins Aerospace's newest, more electric Variable Speed Constant Frequency (VSCF) generator. "Collins is honoured to work with KAI and KAES Hanwha on the KF-X/IF-X program," said

Tim White, president of Power & Controls. "Our systems are designed to help make this 4.5-gen fighter more electric, more reliable and easier to maintain. We look forward to supporting the KF-X/IF-X program in the years ahead as we continue to deepen our longstanding relationship with KAI." The VSCF will be part of the fighter's Main Electric Power Generation System, which Collins Aerospace is working with KAES Hanwha to design, develop and produce for KAI. The KF-X's complete Environmental Control System (ECS), including air conditioning, bleed



air control, cabin pressurization and liquid cooling systems are being provided by Collins Aerospace, which is integrating the air conditioning and liquid cooling systems into a single pack to reduce size and weight. Also being provided are the aircraft's engine start system components, including the air turbine starter and flow control valve. ■

KOREAN BUILT LCH PROTOTYPE TO FLY NEXT MONTH



In an important milestone, Korea Aerospace Industries (KAI) will undertake the first flight of the Korean built prototype of the Light Civil Helicopter (LCH) next month. "The first South Korean built prototype of the new Light Civil Helicopter (LCH) will fly next month," Oh, Kwangsoo, General Manager at KAI tells Daily News. The first LCH prototype was built in France and made its maiden flight last year. The South Korean prototype LCH PT-2, will be the last of two prototypes built as part of the design and development programme. KAI is now manufacturing the parts and structures for the first production batch

of three helicopters. Kwangsoo tells Daily News, that a substantial amount of the manufacturing processes, material technology and design will be provided by KAI for the programme, which also has a large South Korean vendor base. The LCH will also feature composite rotor blades developed by KAI.

EASA certification for the LCH is planned to be achieved by middle of 2020. The 5-ton class rotorcraft is based on Airbus Helicopters' H155 (formerly known as the EC155). The multi-mission LCH will be offered for VIP, Executive, Public Service (EMS, Firefighting) and Police services. ■



GBP AEROSPACE & DEFENCE IS EXCLUSIVE OFFICIAL DAILY AT EURASIA SHOW

GBP Aerospace & Defence, the leading publisher of aerospace and defence titles, Asian Defence Technology, Asian Airlines & Aerospace and Daily News is the Official Exclusive Daily at the second EURASIA show to be held in Antalya from April 22 to 26, 2020.

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said Vittorio Rossi Prudente, Editor and Publisher of GBP Aerospace & Defence.

For further details regarding editorial contributions and advertising in Daily News for EURASIA Airshow 2020, please contact vittorio.prudente@gbp.com.sg ■



mission operators, BIRD's RCD and MSIS reduces the operator workload and enhance the operational experience of our customers," says Ronen Factor, Co-Chief Executive Officer and Founder at BIRD Aerosystems. "BIRD Aerosystems provides turn-key solutions that are specifically tailored for the needs of each customer, and we are honoured that HENSOLDT has selected BIRD to develop the control interface for its PreclSR Multi-Mode Radar Family," he adds.

The RCD and MSIS reduces mission crew workload, by using state of the art algorithms and an easy to use, intuitive, human-machine interface. This enables the crew to efficiently perform detection and classification of only relevant targets. Data from the PreclSR radar is collected and processed by BIRD's MSIS. This information is then automatically classified, prioritized and the relevant information is clearly displayed along with additional information from the other onboard sensors. The innovative RCD and MSIS are part of BIRD's portfolio of patented cutting-edge solutions. ■

Israeli firm BIRD Aerosystems is demonstrating the integration of its Radar Control and Display (RCD), Mission Management System (MSIS) with HENSOLDT's PreclSR1000 radar at the

ongoing ADEX. The company has developed the control interface for the PreclSR Multi-Mode Radar Family, using RCD and MSIS.

"Designed by the most experienced

HENSOLDT PRESENTS TWINVIS PASSIVE RADAR SYSTEM

Leading sensor solutions provider HENSOLDT is displaying sensor solutions with a major focus on airborne solutions at the ongoing airshow. The company's range of sensor solutions can be installed on helicopters, aircraft and Unmanned Aerial Vehicles (UAVs). Hensoldt is making the maiden presentation of the live air picture of its "Twinvis" passive radar system for the first time in Seoul. "The highly sensitive digital receivers now make it possible for a single Twinvis system to monitor up to 200 aircraft in 3D within a radius of 250km, which opens up new options for civil and military applications", says Nathan Manzi, head of Asia-Pacific at HENSOLDT. The Twinvis system enables large-area surveillance using networked receivers. It offers a decisive operational advantage in that "passive radar" systems cannot be located by the enemy. Several interconnected systems can be deployed to improve target acquisition in mountainous regions and the high level of resistance to disruptive reflections, such as from mountain slopes. The Twinvis system does not emit its own

signals to monitor air traffic, but simply analyses the echoes of signals from radio or TV stations. The system can be integrated into an all-terrain vehicle or a van. The passive radar systems work as mere receivers and detect targets by analysing the signals reflected by them in response to third-party emissions. When deployed in the civilian sector, passive radar can provide air traffic control with an inexpensive supplement to existing sensors, e.g. as a backup for other sensors. ■



BOMBARDIER SHOWCASES SPECIAL MISSIONS ABILITY

Bombardier Specialized Aircraft is participating at the ongoing ADEX and presenting its capability as a one-stop solution for operators around the world, with the ability to develop and deliver a range of capabilities. The Canadian airframer is showcase its range of customizable solutions for operators. Bombardier's Global, Challenger and Learjet offerings form three distinctive product lines for Governments or operators that are looking at mission optimised platforms.

The larger Global business jets have been sought after as an attractive platform for strategic missions such as ISR (Intelligence, Surveillance and Reconnaissance) and head of state transport because of their excellent dispatch reliability, performance and endurance, and their optimized operating costs. Bombardier's Challenger business jets offer the flexibility, range and reliability to respond to a wide range of missions and remain a popular platform for medevac and search-and-rescue. The smaller Learjet's yet remain a nimble and affordable platform for shorter-range VIP and medevac missions. ■



U.S. ARMY RECEIVES TROPHY ACTIVE PROTECTION SYSTEMS

The first Trophy Active Protection Systems (APS) have been delivered for U.S. Army M1 Abrams Main Battle Tanks (MBTs). The contracts for the fitment of Trophy APS on Abrams MBTs was awarded last year on an urgent needs basis by the U.S. Army's Programme Executive Office for Ground Combat Systems. Leonardo DRS, Inc. and Israel's Rafael Advanced Defence Systems Ltd. of Israel are partners in the deal, which calls for equipping front-line U.S. Army and Marine Corps M1 Abrams tanks with their first APS systems. Both firms were tasked to meet challenging production timelines, an integration process and the most challenging test scenarios.

Trophy provides combat-proven protection against rocket and missile threats, while at the same time locating and reporting the origin of the hostile fire for immediate response.

Four brigades of tanks will be ultimately fitted with the Trophy APS. The Trophy fully integrated APS was first deployed in 2011. It is currently installed on the IDF's Merkava Mk3 and Mk4 tanks and Namer APCs and has made numerous combat interceptions with no injuries to crews, dismounted troops or damage to platforms. Trophy has accrued over 500,000 operating hours and is under contract for serial production for thousands of systems. ■

HANWHA SYSTEMS DISPLAYS KF-X LARGE AREA COCKPIT DISPLAY

The large touchscreen display takes up less space and displays a greater amount of information. It will also provide greater flexibility and situational awareness. ■



SUCCESSFUL TEST FOR GROUND-LAUNCHED SMALL DIAMETER BOMB



A successful test fire for the Ground-Launched Small Diameter Bomb (GLSDB) has taken place in Norway. GLSDB is a partnership between Saab and Boeing and the test firing saw the destruction of a predetermined target in the sea, 130

km away from the launcher. The launcher used in the test firing was a custom made, fully autonomous, 20 foot container.

"IN COLLABORATION WITH BOEING, WE HAVE DEVELOPED

A HIGHLY COMPETENT SYSTEM THAT OFFERS HIGH PRECISION AT LONG RANGE. WE SEE A LOT OF POTENTIAL IN THE GLSDB, SINCE IT PROVIDES ARMED FORCES AROUND THE WORLD WITH A LONG RANGE ARTILLERY CAPABILITY, WHICH THERE IS A GREAT DEMAND FOR". Görgen Johansson, Head of Saab business area Dynamics.

The GLSDB system offers high accuracy over long ranges with the ability to fly complex trajectories and manoeuvres to strike targets that cannot be reached by conventional direct and indirect fire weapons. It can be fired from a containerised solution, as well as any launcher capable of using the M26 launch pod container e.g. HIMARS, M270 and ChunMoo. ■

ROKA UNVEILS KOREA ARMY TIGER 4.0



The Republic of Korea Army (ROKA) is banking on innovation as part of its plan to emerge as a futuristic combat forces in the coming decades. Taking a step closer to its objective, the ROKA unveiled, at the ongoing ADEX, its vision of future combat force with reduced reliance on manpower and greater use of technology.

The ROKA has maintained a manpower focussed 2.5 generation force, However, with the postponement in introduction of next generation weapon systems, the gap with future joint forces is widening. To reduce this gap, the ROKA will place a greater emphasis on survivability and combat efficiency with use of technologies of the 4th industrial revolution.

Transformative Innovation of Ground forces Enhanced by the 4th industrial Revolution technology or TIGER 4.0 is the name of the new initiative for which the ROKA has adopted 'Hoguki' as its mascot, a character representing the Mt. Baekdu Tiger. Till 2020, the ROKA will conduct combat experiments and make use of wheeled APCs, prototypes of network equipment, purchase and lease drones for combat experiments. From 2023-2025, battalion level integration trials will start, and these will focus on improving the capabilities of 2 APC infantry battalions with RCWS for trial purposes. The usage of already integrated drone and



network equipment's is also planned.

As part of TIGER 4.0, Infantry units will be made more manoeuvrable with greater availability of bulletproof vehicles and sensor-to-shooter features. Maneuverability, Network and Artificial Intelligence will enable the ROKA to cope with various threats more effectively and efficiently in the future. There will be a much greater emphasis on the connectivity between the sensor to shooter into an integrated network and C4I system. Identify targets, recommend and deter-

mine the most feasible strike methods for each target using AI. Infantry units will receive greater manoeuvre capability through use of warrior platforms, dronebot combat systems and wheeled armoured personnel carriers. Every individual soldier will be equipped with a personal combat system called Warrior Platform along with cutting edge firearms and communication devices.

Wheeled APCs will serve as the forward base in conjunction with sensors, RCWS and capabilities to supply power to drones. Remote Controlled Weapon Station (RCWS) will ensure protection of operating crew through RCWS.

A key aspect of TIGER 4.0 for the ROKA is the creation of a hyper connected network of combat platforms with a multi-level communications system and establishment of an integrated database to create an AI environment. This will call for establishment of a multi-level communications system with integrated satellite, air and ground nodes in order to combine every platform in one single network. As a result, information collection and processing will be a key aspect of the new initiative. Sensors in each and every one of the platforms are to be combined with AI. Sensors will be used to detect and alert troops to enemy presence and then recommend an optimal way to conduct combat after overall analysis and evaluation of the situation.

There will also be a wheeled command carrier which will be optimised for combat C2 and execution of various missions. Each vehicle will contain a C4I system onboard for each echelon. ■



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- SHOW PREVIEW is a popular offering at defence shows and trade exhibitions worldwide, due to its handy size and quality editorial content
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