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KOREAN AIRPOWER ON CENTRE STAGE



Seoul ADEX 2019 marks the first show appearance of Republic of Korea Air Force (ROKAF) F-35A, a full scale KF-X mockup by Korea Aerospace Industries (KAI) and the ROK Army's new Light Attack Helicopter (LAH).

The Republic of Korea (ROK), today, has

a strong indigenous defence industry, which is bagging export contracts with increasing frequency. The ROK's strong defence market and growing export clout, is a major reason for the growth of Seoul ADEX, which has 430 companies from across 34 countries taking part this year.

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SAAB LAUNCHES GLOBALEYE CAMPAIGN IN SOUTH KOREA

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ROTORCRAFT SELF DEFENCE CAPABILITY FOR SOUTH KOREA

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KOREAN AIRPOWER ON CENTRE STAGE

The ROKAF continues to receive more F-35As, deliveries of which commenced earlier this year. The air force is slated to end the year with a fleet of 10 F-35As. The remaining 30 aircraft on order are due for delivery by 2021. An additional 20 aircraft buy is also said to be in the pipeline. The induction of the F-35s, also marks the end of the road for legacy F-4 Phantoms which will be phased out of service.

The ROKAF will end the year with a total of three A330 Multi Role Tanker Transports (MRTT) which receive the

designation 'KC-330 Cygnus'. "The introduction of aerial refuelling tanker planes has enabled the Air Force to improve its operational capabilities at long distances, resulting in more effective implementation of operations in the Korean Air Defense Identification Zone (KADIZ) such as Dokdo and leodo island," an air force spokesperson says.

The KC-330 fleet will be fully operational by July 2020. The ROKAF's KC-330s are operated by the 5th Air Mobility Wing (5th Wing). ■



LIG NEX1 SHOWCASES GROWING DEFENCE RANGE

The ongoing ADEX is witness to the growing prowess of South Korean defence firm LIG Nex1, which is showcasing its growing range of defence products. LIG Nex1 is displaying missile systems, fighter aviation products and drones, which are planned for future battlefields.

The company is also eyeing a greater share of the global defence exports market, with its missile products such as the Chungung Medium Altitude Surface to Air Missile system and Hyeongung Infantry missile system. Also being showcased is the Bigung 2.75 inch unguided rocket. ■

ROTORCRAFT WERE BEING DEVELOPED IN PARALLEL. OUR COMMON OBJECTIVE IS TO COMPETE WITH FOREIGN MANUFACTURERS, NOT WITH EACH OTHER. CONSOLIDATION OF TWO SCHOOLS SHALL ADVANCE THE OBJECTIVE,"

Mikhail Korotkevich

Economic effect from design bureau consolidation is expected due to optimization of the use of common ground infrastructure and reduction of expenses for performing same-type tests. At the same time, a part of freed resources shall be channelled towards enhancing scientific and technical potential and engaging new designers. ■

RUSSIAN HELICOPTERS TO MERGE MIL AND KAMOV DESIGN BUREAUS



Russian Helicopters has decided to merge Mil and Kamov into one unit – National Helicopter Center – for more efficient and higher-quality rotorcraft design and upgrade. The individual brands shall be preserved as freestanding and the personnel of both bureaus shall make part of the newly formed NHC. The board of directors of Russian Helicopters, which is part of the larger Russian government owned Rostec State Corporation, took this decision as part of its effort in getting rid of administrative, legal and economic barriers currently in the way of cooperation between the two design teams.

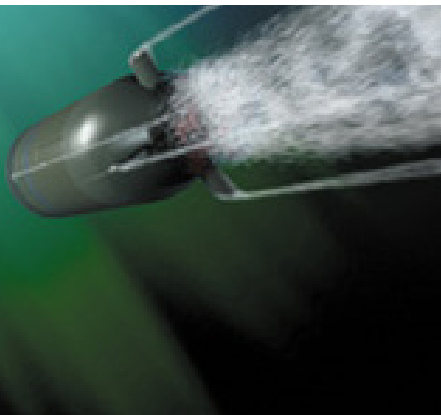
"Working as a united team shall optimize the activities of a number of back-office and administrative units. Such an approach will set up the environment for smooth exchange of technical solutions and achievements, efficient distribution of workload between the subdivisions and unification of technical standards. Among the expected benefits are reduced labour costs, improved managerial and production efficiency, enhanced quality of design and less time before release for serial

production," says Mikhail Korotkevich, Deputy Director General for science and technology policy and helicopter development at JSC "Russian Helicopters", who presented the roadmap for consolidating design bureaus at the Board meeting.

The first stage when two design bureaus are scheduled to make one company shall be completed by mid-2020. Further integration processes aimed at optimization of the two design bureaus' activity within one company shall take up until 2022. Russian Helicopters estimates that the distribution of tasks between the two design bureaus, and serial and aircraft repair plants of the Holding Company should cumulatively free up around 15 per cent to 20 per cent of annual working capacity of two design bureaus which can be allocated to the creation of technical groundwork and development of new helicopters.

"EARLIER, THERE WAS CERTAIN COMPETITIVENESS BETWEEN THE COMPANIES; THE SAME TYPES OF

ROK TO EQUIP P-8A WITH MK 54 TORPEDOES



The Republic of Korea (RoK) will soon get 31 MK 54 all up round lightweight torpedoes to equip its six new P-8A aircraft, being bought from the U.S. The MK 54 torpedoes is being purchased at an estimated cost of US\$72 million, according to RoK defence officials. The deal includes torpedo containers, Recoverable Exercise Torpedoes (REXTORP) with containers, Fleet Exercise Section (FES)

and fuel tanks, air launch accessories for fixed wing, torpedo spare parts, training, publications, support and test equipment. The principal contractor will be Raytheon Integrated Defence System.

Last year, the US State Department had approved the potential sale of six P-8A patrol aircraft to the Republic of Korea under an estimated US\$2.1 billion contract. South Korea's decision to pick

Boeing's P-8A Poseidon as its new maritime patrol aircraft was made known in June 2018. The P-8A would replace the fleet of P-3C Orion MPAs which entered service in the 1990s.

Integrated onboard the MH-60R maritime helicopter, the MK 54 is the primary weapon for the helicopter's ASW mission. Most recently, the U.S. Navy successfully launched the first MK 54 lightweight torpedo from the P-8A Poseidon aircraft. The torpedo adds a critical capability to these long-range ASW, anti-surface warfare, intelligence, surveillance and reconnaissance aircraft, which will be capable of broad-area, maritime and littoral operations. The MK 54 programme leverages the most modern torpedo technologies from the MK 50 and MK 48 ADCAP (advanced capability) programmes. It also utilizes the proven MK 46 warhead and propulsion subsystems, according to Raytheon. ■

PHILIPPINE AIR FORCE TO GET SIDEWINDER FOR FA-50

The Philippine Air Force (PAF) expects to take delivery of AIM-9 Sidewinder air-to-air missiles, which will be the primary armament of the South Korean FA-50 "Fighting Eagle" light-interim fighter aircraft, later this year. The Sidewinder contract is worth PHP1,016,734,088 (USD 19.7 million).

The PAF didn't provide the specific number of the missiles that will be acquired. But a spokesman says the "weapons are sufficient for all of the country's FA-50s." All

AIM-9s to be acquired are "all live rounds and fresh from the factory".

The Sidewinder missile uses homing device for guidance and tracking and has a top speed of Mach 3 or three times the speed of sound. The missile's warhead weighs around 20 pounds and has a length of nine feet and 11 inches.

As of May 2017, 12 Korean-made FA-50 fighter planes have beefed up the air defense capability of the Philippine Air

Force. The Philippines is reportedly considering acquisition of a further 12 FA-50 jets, according to official sources.

The Raytheon made AIM-9 Sidewinder is a supersonic, heat-seeking, air-to-air missile, which has a high-explosive warhead and an infrared heat-seeking guidance system. The Sidewinder was developed by the U.S. Navy for fleet air defense and was adapted by the U.S. Air Force for fighter aircraft use. Early versions of the missile were extensively used in the Southeast Asia conflict. ■

U.S. MILITARY HIGHLIGHTS ROK PARTNERSHIP



The United States military is displaying a wide range of military aircraft at the ongoing airshow, as has been the tradition in all previous editions of Seoul ADEX. U.S. Air Force (USAF) F-16 Fighting Falcon, A-10 Thunderbolt II, C-17 Globemaster III, KC-135 Stratotankers, and E-3B Sentry aircraft are part of the static displays and

aerial demonstrations. The U.S. Navy is displaying a P-8A Poseidon, EA-18G Growler and MH-60 Seahawk; while the U.S. Army brings a CH-47F Chinook and MQ-1 Predator; and the U.S. Marine Corps is displaying an MV-22 Osprey.

"The alliance between the United States

and Republic of Korea has secured peace and helped promote democracy for more than six decades," said Lt. Gen. Ken Wilsbach, 7th Air Force commander.

"WE HAVE A PARTNERSHIP UNLIKE ANY OTHER, AND SHOWCASING AMERICA'S AIRPOWER AT THIS YEAR'S SEOUL ADEX IS A TRIBUTE TO OUR CONTINUED PLEDGE TO PROMOTE PEACE, STABILITY AND PROSPERITY ON THE KOREAN PENINSULA."

Also making an appearance at the show is the USAF Academy Wings of Blue jump team, who will perform a "blended jump" with their Republic of Korea Air Force counterparts. The U.S. contingent comprises of 180 service members. ■

Naval Force Multiplier



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GA-ASI SHOWCASES MQ-9B SKYGUARDIAN, SEAGUARDIAN

General Atomics Aeronautical Systems, Inc. (GA-ASI) is highlighting the capabilities of the MQ-9B Remotely Piloted Aircraft (RPA), which has the ability to fly in non-segregated airspace, at Seoul ADEX 2019. The RPA will be delivered to UK Royal Air Force (RAF) as the Protector RG Mk1 in the early 2020s.

Demand for the MQ-9B SkyGuardian and SeaGuardian, the maritime variant of the RPA, has grown in recent months. The Government of Belgium has approved Belgian Defense to negotiate the acquisition

change for us in terms of capability,” says RAF Group Captain Lyndon Jones

“THE NEW AIRCRAFT WILL OFFER GREATER RANGE AND ENDURANCE, AND WILL BE CERTIFIED TO FLY IN UK AIRSPACE.”

As part of its efforts to collaborate with international partners to integrate RPAS in civil airspace, GA-ASI has signed an MoU with the Korean Advanced Institute

Ground-Up Redesign

GA-ASI expects MQ-9B, which is a ground-up redesign of earlier variants, to achieve certification in the early 2020s, when the aircraft will meet NATO STANAG-4671 airworthiness standards, and subsequently meet commercial airworthiness certification standards in cooperation with the U.S. Federal Aviation Administration (FAA). The SkyGuardian’s capabilities include a new Certifiable Ground Control Station (CGCS), automatic takeoff, landing and taxi over SATCOM, Portable Pre/Post-Flight Equipment (P3E) and the Mission Intelligence Center. Other recent development achievements for the MQ-9B include successful lightning tests, and SATCOM Launch and Recovery using Expeditionary Command and Control (XC2).

Maritime

In the basic configuration, the SeaGuardian is equipped with a high-definition Electro-optical/Infrared (EO/IR) sensor and a high-performance 360° multi-mode maritime radar to support maritime patrol and surveillance missions.

In addition to exceptional endurance, SeaGuardian offers ISR capabilities for a wide range of operational and threat environments. Capable of operating at Beyond Line of Sight (BLOS) ranges at altitudes over 40,000 feet and in inclement weather conditions, the MQ-9B can also provide EO/IR Full Motion Video (FMV), Synthetic Aperture Radar (SAR) imagery, and Ground Moving Target Indicator (GMTI) data about potential threats to military commanders in real-time from stand-off ranges without harm to the aircrew.

The platform can also be equipped with a multi-mode maritime search radar, an Inverse Synthetic Aperture Radar (ISAR) capability, and an Automatic Identification System (AIS) detection capability. ■



sition of SkyGuardian to meet the nation’s RPA requirements. The aircraft is also being considered by the Australian Defence Force, which has selected GA-ASI to supply an RPA system for Project Air 7003.

The RAF is excited to add the SkyGuardian to its arsenal. “Protector will be a step

of Science and Technology (KAIST), which is host to CR2CENT, Korea’s Civil RPAS Research Center (CR2CENT).

Given the RPA’s unique capabilities, company officials expect it to be demand in the Asia Pacific region as well. Already, India is said to be in discussions for the purchase of the SeaGuardian.

RUSSIAN HELICOPTERS TO MODERNISE KA-32



Russian Helicopters is embarking on a new modernisation programme for the family of Ka-32 multi-role helicopters. With the support of its official dealer RH Focus Group, the Russian Helicopters will present the modernisation programme, particularly for the Ka-32A11BC helicopters at the Seoul ADEX International Aerospace and Defence Exhibition.

“WE WILL OFFER OUR COLLEAGUES A COMPREHENSIVE SOLUTION, PROVIDING PRACTICALLY COMPLETE UPGRADE OF THE HELICOPTER AND ITS OPERATING PERFORMANCE. THE KA-32 MODERNISATION PROGRAM INCLUDES A NEW COCKPIT WITH AN AVIONICS SYSTEM, MORE POWERFUL VK-2500PS-02 ENGINES AND A NEW FIRE EXTINGUISHING SYSTEM. THE MODERNIZED VERSION OF THE HELICOPTER WAS INDEXED AS KA-32A11M,” CEO of Russian Helicopters, Andrey Boginsky.

The technical solutions in the avionics of the Ka-32A11M helicopter have already been tested on the civilian multi-purpose helicopters Ansat, Mi-38 and Ka-62. Compared to its international counterparts, the new Russian-made water tank SP-32 comes with a more favourable price and 4 ton capacity, digital control as well as upgraded water intake and discharge ergonomics. In-addition, it can be operated at sub-zero temperatures, Boginsky said.

The all-weather civilian helicopter Ka-32 with coaxial rotors is developed by the Kamov design bureau of the Russian Helicopters holding company. Serial production of the Ka-32 helicopters is carried out by JSC Kumertau Aviation Production Enterprise. Currently, over 240 machines have been built, which are operated in over 30 countries all over the world. The coaxial rotor scheme provides the helicopter with a range of important stabilization and maneuverability advantages, especially for fire extinguishing missions.

Ka-32 has been in operation in South Korea since 1993. Today, the country wields a fleet of over 50 Russian-made helicopters. Russian Helicopters will also present a stand simulating the new “glass” cockpit of the modernized Ka-32.

Along with Ka-32A11M it will also showcase the medium multi-purpose Mi-171A2 and the light multi-purpose Ka-226T and Ansat helicopters.

It may be noted that the Korean Office of Civil Aviation (KOCA) and the Russian Federal Air Transport Agency (Rosaviatsiya) have concluded an agreement related to airworthiness. This document is aimed to support and streamline the validation of Russian aircraft supplied to the Republic of Korea, in particular, type certification validation applications for the Mi-171A2 helicopter and the VK-2500PS-03 engine.

Mi-171A2 is the newest representative of the Mi-8/17 family, embodying the best features of these world-famous machines. The helicopter is equipped with integrated onboard digital flight and navigation system, which makes it possible to operate the machine without an engineer on board, thereby reducing its crew to two people. Depending on what the operator needs, Mi-171A2 can perform search and rescue missions, medical transportation, cargo operations, fight fires or carry passengers day and night, at temperatures from -50°C to +50°C, at high altitudes, in a desert, in tropical climate, in high humidity conditions, it can also fly over water. ■

러시안 헬리콥터 사의 Ka-32 현대화 계획



러시안 헬리콥터 사가 Ka-32 다목적 헬리콥터 현대화 프로그램을 새로 출범한다.

러시안 헬리콥터는 공식 딜러인 RH 포커스 그룹의 지원을 받아 서울 ADEX 국제 항공우주 및 방위산업 전시회에서 Ka-32A11BC 헬리콥터를 중심으로 하는 현대화 프로그램을 소개할 계획이다. “우리는 헬리콥터 및 헬리콥터 운용 성능을 거의 모두 업그레이드하는 포괄적인 솔루션을 제공할 것입니다. Ka-32 현대화 프로그램에는 항공 전자 시스템을 갖춘 새로운 조종석, 강력한 VK-2500PS-02 엔진과 새로운 소방 시스템이 포함됩니다. 헬리콥터의 현대화된 버전

이 Ka-32A11M입니다.” 러시안 헬리콥터 사의 CEO, 안드레이 보긴스키(Andrey Boginsky)가 밝혔다.

Ka-32A11M 헬리콥터의 항공 전자 기술 솔루션은 이미 민간 다목적 헬리콥터인 Ansat과 Mi-38을 통해 이미 검증된 것이다. 경쟁사들의 헬리콥터에 비해 러시안 사의 새 모델 SP-32는 가격이 저렴하고, 4톤의 용량과 디지털 컨트롤 기능, 업그레이드된 물 용량과 배출 공학 기능을 갖추고 있다. 뿐만 아니라, 영하의 기온에도 운용이 가능하다.

모든 날씨에 운용이 가능한 동축 로터 Ka-32

헬리콥터는 러시안 헬리콥터의 지주 회사, 카모프의 디자인 팀에서 개발한 것이다. Ka-32 헬리콥터의 연속 생산은 JSC 쿠메르타우 비행생산기업(Kumertau Aviation Production Enterprise)에서 담당하고 있다. 현재 240기의 생산이 완료되어 전 세계 30여 개 국에서 운용 중이다. 동축 로터 시스템은 특히 소방 임무를 중심으로 여러 가지 중요한 안정성 및 기동성 이점을 제공한다.

Ka-32는 1993년부터 한국에서 운용 중이며, 현재 한국에서 운용하는 러시안 사의 헬리콥터는 50여 기에 이른다.■

ADEX, 한국 공군력의 세계 전시장

한국 공군력을 보여주는 12번째 서울 국제 항공우주 및 방위산업 전시회의 막이 올랐다. 최근 한국군은 새로운 세대의 플랫폼을 추가하여 전투력을 크게 개선했으며, 한국은 미국의 태평양 지역 주요 방위 및 안보 파트너로서 계속해서 미국 최고의 군사 장비를 활용하고 있다.

최근에 한국은 강력한 국내 방위 역량을 개발하는 데 있어 중대한 진전을 이루었고, 해외 수출에서도 다수의 성공을 거두었다. 강력한 국내 방위 시장을 갖춘 한국의 해외 수출 역량이 높아지면서 이번 ADEX 전시회에 35개국의 400여 개사가 참여했다.

대한민국 공군이 최근에 새로 도입한 두 개의 플랫폼은 록히드 마틴의 F-35A 라이트닝 II 5세대 전투기와 에어버스 A330 다목적 공중 급유기(MRJT)다.



올해 초에 F-35A기의 인도가 시작되면서 대한민국 공군은 올해 말까지 통상 이착륙(CTOL) F-35A를 10대 보유하고, 이미 주문한 30대는 2021에 인도받을 예정이다. F-35기의 도입과 함께 대한민국 공군에서는 F-4 팬텀 기가 단계적으로 퇴출된다.

대한민국 공군은 연말까지 ‘KC-330 시그너스’

로 명명한 총 세 대의 A330 MRTT를 보유하게 된다. 공군 대변인의 발표에 따르면, “대한민국 공군은 공중 급유기의 도입으로 장거리 운용 능력을 향상함으로써, 독도와 외도 같은 방공 식별 구역(KADIZ)에서 항공기를 보다 효과적으로 운용할 수 있게 되었다.” KC-330 기는 2020년 7월까지 작전 배치 가능할 전망이며, 현재 제5공중기동비행단(5비)에서 공군 KC-330기를 운용 중이다.■



장 다니엘 코소브스키: 2019년 ADEX에서 한국 시장에 적합한 ATR 42-600, ATR 72-600 모델을 선보입니다.

ATR은 한국 시장의 전망에 대해서 매우 긍정적이며, 한국 시장에는 4개의 핵심 중형 수송기 시장 부문이 존재한다고 믿는다. ART의 한국 담당 세일즈 디렉터인 장 다니엘 코소브스키(Jean-Daniel Kosowski)가 Daily News와의 독점 인터뷰에서 밝혔다. "한국에서 중형 항공기에 다시 관심이 집중되면서, 중형 항공기의 다목적성과 유연성에 대한 이해가 높아지고 있습니다." 또한, ATR은 새로운 경로와 시장을 개발하기에 가장 적합한 항공기로서, 아시아 태평양 지역의 강력한 고객 네트워크도 장점이라고 강조했다.

인터뷰 요약본

ATR 사는 2019년 서울 ADEX에서 어떤 항공기를 선보일 계획입니까?

우리는 2년 전에도 ADEX에 참여했습니다. ADEX는 한국 시장을 주도하는 에어쇼이기 때문에 반드시 참여해야 한다고 생각해요. 또, 한국과 한국의 항공 산업에 대한 우리의 신뢰와 지지를 보여주기 위한 것이기도 합니다. 2년 전 ADEX 전시회에 참여했을 때도 미팅에서 좋은 결과를 냈습니다. 한국에서 중형 항공기에 다시 관심이 집중되면서, 중형 항공기의 다목적성과 유연성에 대한 이해가 높아지고 있습니다.

우리는 ADEX 2019에서 한국 시장에 적합한 ATR 42-600, ATR 72-600 모델을 선보이고 있습니다. 현재 한국에는 ATR의 핵심 시장이 4개 있다고 생각합니다.

- 한국의 2단계, 3단계 도시를 연결하는 새로운 국내선 서비스 신규 취항
- 중국 북동부와 한국을 연결하는 단거리 국제선 서비스 신규 취항

- 한국의 남부 여러 도시와 일본 남부 도시를 연결하는 단거리 국제선 서비스 신규 취항
- 한국에서 곧 건설될 신규 섬 공항을 연결하는 국내선 서비스 신규 취항

ATR은 한국 시장에서 어떤 사업적 성장 가능성을 보고 있나요?

현재는 한국에서는 남쪽과 북쪽을 연결하는 국내선 노선이 대부분이고, 거의 모든 노선이 서울이나 제주를 경유합니다. 그래서 동쪽과 서쪽의 도시를 연결하는 직항 노선을 신설할 좋은 기회가 있다고 생각합니다. 특히 고속철도로 연결되지 않은 동쪽 지방의 도시들이 유력하죠. 또, 한국은 부산, 청주, 무안, 대구 등 국제적 관문으로 활용할 수 있는 대안 도시들이 있어요.

이미 해외 여행자들이 이 도시로 들어오고 있습니다. 이 공항들이 대안적인 국제적 관문 도시 및 항공 허브로서 인기를 모으게 된다면, 그 다음에는 이 도시들을 오가는 국내선 노선을 개발할 필요가 있어요. 해외 여행자들은 이 도시에서 머물다가 다른 도시로 이동하길 원할 테니까요. 한국에는 서울과 제주 외에도 여행할 도시가 아주 많고, 둘러볼 만한 곳도 많아요.

또, 재방문을 유도하기 위해서는 새로운 것을 제공할 필요가 있어요. 이미 서울과 제주를 방문한 사람의 경우, 새로운 장소를 가보고 싶어할 거예요. 그러니까 ATR 항공기를 이용해서 한국 내 새로운 기착지와 경로를 개발할 기회인 셈이죠. ATR은 신규 경로와 시장을 개발하는 데 최적화된 항공기니까요.

곧 ATR 72-500 기종을 활용해 운항을 시작하게 될 하이에어의 최근 소식을 알려주세요.

하이에어는 최근에 두 번째 ATR 72-500을 인도받았고, 향후 몇 개월 이내에 운항을 시작할 계

획입니다. 현재, 규제 당국에 운항 증명(AOC)을 신청 중입니다. 하이에어는 울산에 기반한 항공사로, 우선 국내선을 운항한 후에 나중에 국제선으로 노선을 확대할 계획입니다.

하이에어가 ATR 항공기를 선택한 이유는 동급 제트기에 비해서 연료 효율이 40% 이상 높고, 이산화탄소 배출량이 40% 이상 낮기 때문입니다. 신규 항공사이기 때문에 아시아 태평양 지역에서 ATR 항공기를 운용하는 항공사들이 많아서 강력한 고객 지원 네트워크가 구축되어 있다는 사실도 중요한 요소로 작용했습니다.■

로터크래프트, 한국의 자주 국방 역량 강화 지원



유럽 전자전의 리더, 레오나르도 사가 이번 ADEX 전시회를 통해 한국 헬리콥터 업그레이드 프로그램의 이상적인 후보로서 자사의 전자전 시스템을 홍보 중이다. 이미 검증이 완료된 SAGE 전자전 시스템은 한국군의 레오나르도 AW15 헬리콥터에 설치되어 있으며, CH-47 치누크와 UH-60 블랙호크 헬리콥터에도 '미래형' 전자전 성장 경로를 제공할 계획이다.

레오나르도는 대한민국 해군, 공군, 국방과학 연구소를 대상으로 전자전 지식 이전 프로그램을 실행한 경험이 있다. 이 프로그램을 통해 새롭게 등장하는 위협에 대응하여 AW159의 전자전 시스템을 조율하는 방법을 교육하고, 공군 62중대의 김해 기지에 전자전 지원 시설을 설치했다. 레오나르도는 현재, 그리고 미래의 운용 요구 사항에 부합하는 SAGE를 제작하기 위해 한국 파트너사와 협력하는 데에도 관심이 많다.

SAGE는 헬리콥터 생존 장비의 일부로, 매우 효과적인 레이더 경보 수신 장치(RWR)다. 비교적 기본적인 RWR 시스템과의 핵심적인 차이는 진보된 정보-감시-정찰(ISR) 기능을 갖추고 있다는 점이다. 그래서 SAGE를 장착한 헬리콥터는 지대공 미사일 화기 관제 레이더 등 무선 주파수(RF) 송신기의 위치를 파악할 수 있다. 위협의 회피 또는 대응 여부 결정에 활용하고 다른 아군 장비에도 전달할 수 있어서, 전투에서 매우 중요한 자산이 되는 귀중한 정보다.

또한, 레오나르도는 브라질 해군의 AW159 헬리콥터, 해상 작전 헬리콥터(Lynx Mk21A) 업그레이드에 SAGE 전자전 시스템을 제공하고 있다. 인도네시아 공군도 고정익 항공기에 적용할 시스템으로 SAGE를 선택했다.■



knowledge transfer programme for members of the RoK Navy, Air Force and the Agency for Defense Development (ADD), to train Korean forces to adapt the AW159's EW systems in response to new threats as they emerge. This included the creation and establishment of a Korean EW support facility on-site at RoK Navy 62 Squadron's Gim Hae base. Leonardo is also interested in working with a Korean partner company in the manufacture of SAGE, to meet current and future operator needs.

SAGE forms part of a helicopter's survivability suite and is a highly effective Radar Warning Receiver (RWR). The key difference with the SAGE EW system as compared to other, more basic RWR systems is that SAGE also provides an advanced Intelligence, Surveillance and Reconnaissance (ISR) capability. This allows helicopters equipped with SAGE to identify the location of Radio Frequency (RF) emitters such as surface-to-air missile fire-control radars, allowing operators to build up an accurate picture of the battlespace. Such capability is a useful battlefield asset, as the valuable intelligence so generated, can be used to avoid or engage the threat, and passed on to other friendly assets.

Leonardo is also supplying SAGE EW systems for Brazilian Navy's upgrade for its fleet of Lynx Mk21A helicopters. The Indonesian Air Force has selected SAGE for a fixed-wing application. ■

ROTORCRAFT SELF DEFENCE CAPABILITY FOR SOUTH KOREA

Leonardo, the European leader in Electronic Warfare (EW), is promoting its proven SAGE EW system at the ongoing ADEX, as an ideal candidate for the Republic of Korea's (RoK) helicopter upgrade programmes. SAGE is already

installed in RoK's Leonardo AW159 helicopters and will also provide a 'future proof' electronic warfare growth path for the country's CH-47 Chinook and UH-60 Blackhawk helicopters. Leonardo has already executed an EW

KAI NIGHT INTRUDER VTOL COMPLETES MAIDEN FLIGHT

Korea Aerospace Industries (KAI) recently completed the maiden flight of its Night Intruder-600 unmanned helicopter prototype. The NI-600VT is a modified version of a twin-seat commercial helicopter in the 600 kg class. The NI-600VT Vertical Take-off & Landing (VTOL) platform is being developed with company funds by KAI. The company started work on the programme in 2015 and work on developing a technology demonstrator commenced in 2017.

The NI-600VT's first flight, took place at Goheung Aerospace Center, South Jeolla Province in September and according to KAI, "the NI-600VT showed hovering and horizontal direction conversion functions and by doing so, the copter confirmed its flight control performance and safety."

KAI has developed the NI-600VT's auto flight controls and avionics, as also flight critical equipment, including flight control computer, sensors and data-link. The prototype NI-600VT is capable of locat-



ing its position automatically even under emergency conditions and execute a safe return to base.

KAI has also announced its intention to complete the first phase of development of the NI-600VT, within this year and then move on to phase 2, which will involve automatic take-off and landing capability for the unmanned helicopter.

The unmanned helicopter can be used for tasks such as mountain and marine reconnaissance, SAR and cargo transport.

KAI had displayed prototype of the KUS-10 optionally piloted vehicle, at ADEX 2017. It was being developed with the goal of developing an unmanned helicopter based on the MD 500 light rotorcraft. ■

STRONG MARKET FOR ATR IN KOREA

At ADEX 2019 we are promoting our ATR 42-600 and ATR 72-600 models which are ideally suited to the Korean market: Jean-Daniel Kosowski. ATR is bullish on its prospects in South Korea, where it sees four key market segments for its regional transport aircraft family.



“THERE IS RENEWED INTEREST IN KOREA FOR REGIONAL AIRCRAFT AND A GROWING APPRECIATION FOR THE VERSATILITY AND FLEXIBILITY OF REGIONAL AIRCRAFT,” Jean-Daniel Kosowski, Sales Director for ATR in Charge of Korea tells **Daily News** in an exclusive interview.

Kosowski offers that the ATR is the best aircraft for developing new routes and markets and that the existence of a strong customer network in the region is a major factor for potential operators.

Edited Excerpts of the Interview

What will ATR be showcasing at Seoul ADEX 2019?

We participated in ADEX two years ago as well. We feel it is important to be at ADEX because it is the leading airshow in Korea and we want to show our support for Korea and its aviation industry. We also had some good meetings two years ago at the previous ADEX show. There is renewed interest in Korea for regional

aircraft and a growing appreciation for the versatility and flexibility of regional aircraft.

At ADEX 2019 we are promoting our ATR 42-600 and ATR 72-600 models which we see are ideally suited to the Korean market. We see there are four key markets for the ATR in Korea

- launching new air services connecting second and third-tier cities in Korea direct.
- launching new short-haul international air services linking Korea to northeast China
- launching new short-haul international air services linking cities in Korea, especially those in the south, to cities in southern Japan
- launching new air services to the new island airports that will soon be built in Korea.

What is the potential that ATR sees in the Korea market for commercial turboprops?

Currently the domestic flights are mostly north-south and nearly all the flights are routed through either Seoul or Jeju. But we see there are opportunities to link cities in the east and west direct, particularly those cities in the east that are not connected to high-speed rail. South Korea also has alternative international gateways such as Busan, Cheongju, Muan and Daegu.

So you already have international travellers flying into these cities. For these airports to become thriving air hubs, what needs to happen next is for domestic air services to be developed from these alternative international gateway cities. International travellers will want to stay in these cities and then be able to travel to other parts of the country. And when I say other parts of the country, I don't just mean Seoul and Jeju. There are so many other parts of the country that people can explore.

Also, you will notice that to generate repeat visitation, you need to offer something new. If people have already been to Seoul and Jeju, it means on their next trip they will want to try some place new in Korea. So there's clearly an opportunity to develop new routes and destinations in South Korea using ATR aircraft. The ATR is the best aircraft for developing new routes and markets.

Please provide an update on Hi Air, which plans to launch

soon using ATR 72-500s?

Hi Air recently took delivery of its second ATR 72-500 and plans to launch operations in the coming months. It is currently going through the air operator certificate (AOC) application process with the regulator. The airline is based in Ulsan and plans to launch domestic services first and later look to expand internationally.

It chose the ATR aircraft because it has at least 40 per cent lower fuel burn and at least 40 per cent lower CO2 emissions than jet aircraft in the same size category. It is a new airline, so the fact that there are many ATR operators in the Asia Pacific region and ATR has a strong customer support network in the region was also a factor.■

S. S. WHITE FLEXIBLE SHAFTS ON DISPLAY

U.S. based S. S. White Technologies, a leading supplier of flexible rotary shafts for the commercial and military aerospace and aviation industry, is exhibiting its wares at the ongoing airshow. The company is celebrating its 175th anniversary this year. S.S. White's Flexible Shafts are fitted on most commercial aircraft produced in the world, be it a helicopter, military jet or airliner, with the exception of Russian aircraft. The company is considered as the world leader in the design and manufacturing of Flexible Shafts and related assemblies.

The U.S. firm supplies flexible shaft assemblies for Thrust Reverser actuation systems, which are highly engineered to withstand the extreme temperatures and torque loads. Flexible shaft assemblies also used to drive actuators that enable the flap and slats to extend and retract. S.S. White Flexible Shafts also drive the actuation of Variable Bleed Valves, that are used on all turbine aircraft engines to increase efficiency and prevent possible stalls at starting, idling, and low speed operation. Up to a dozen flexible shafts may be used on one engine.

One of the largest S.S. White Flexible Shaft assemblies used on an aircraft, is used as a drive shaft on the 25mm GAU-12 Gatling Gun on the AC130. S.S. White's flexible shaft assemblies are also used on the Joint Surveillance Target Attack Radar System (JSTARS) Radome Drive, Hubble Space Telescope Soft Capture Mechanism (SCM) and V-22 Osprey Rescue Hoist.■

2ND BATCH MBDA TAURUS DELIVERIES BEFORE YEAR END



European missile major MBDA, will commence deliveries of a second batch of Taurus stand-off cruise missiles later this year. “The original Taurus contract was placed in 2013, with a second batch of missiles ordered in 2018. Production of this second batch is on-going, with deliveries starting this year and concluding in mid-2020,” company officials inform Daily News.

MBDA is a long-term partner for the Republic of Korea Armed Forces, with

missile programmes including Mistral, Sea Skua, Taurus, and now the programme to integrate Meteor on KF-X. “South Korea is a strategic market for MBDA, and – befitting a company whose purpose is to foster international co-operation - we are building partnerships with South Korean industry on a number of levels and actively seeking co-operation programmes,” company officials say.

The Taurus KEPD 350K is a modular stand-off missile system with a range of

approximately 500 km. It weighs 1,397 kg and has been designed and developed to fly at a very low terrain-following level and is INS/GPS guided. Attack profiles include, pop-up, low pop-up, dive attack and air burst. Two Taurus KEPD 350K can be carried on an F-15K.

The missile contains a highly effective dual stage warhead system, with penetration capabilities for hard and deeply buried targets and blast-and-fragmentation capabilities against point and area targets. ■

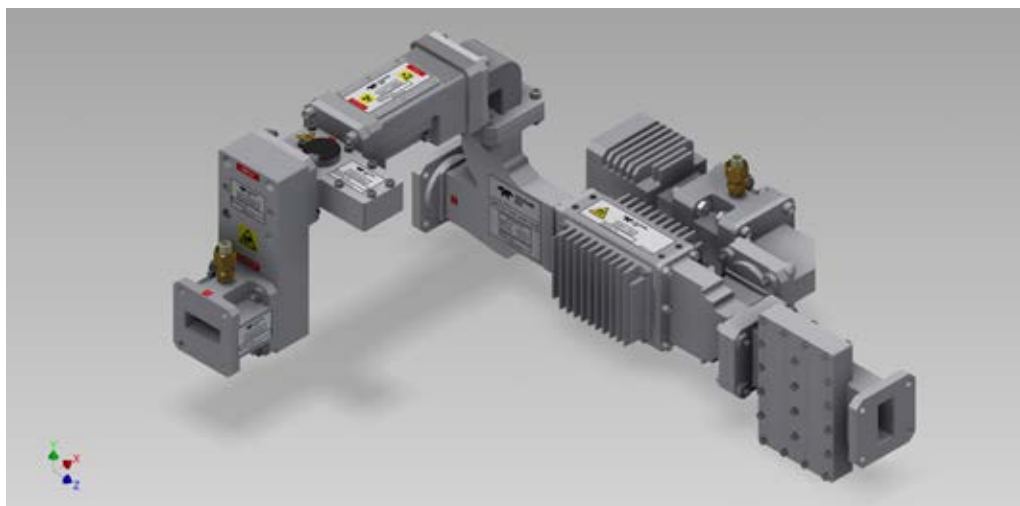
TELEDYNE E2V SHOWCASING ADVANCED SEMICONDUCTORS

Teledyne e2v, a leading manufacturer of aerospace qualified advanced semiconductors, is showcasing a wide range of offerings at the ongoing show. Teledyne e2v is showcasing its novel multi-com-

ponent synchronization solution, which provides tight timing alignment and control requirements in large channel-count applications. Demonstrations are being held at the show, which showcase syn-

chronization of two of the company’s latest ADCs, the EV12AQ600 reaching 8 synchronized channels at 1.6GSps, or 2 synchronized channels at 6.4GSps. Also being showcased is the Qormino platform, which brings a high level of computing power in a reduced form factor, for easy integration in aerospace and defence system designs. It also offers an important ‘Time To Market’ reduction.

Also being displayed is the N20181 broadband helix travelling wave tube and MTA2000 Microwave Power Modules (MPMs). The N20181 is capable of providing a minimum of 100 W output power over the frequency band 4.5 – 18 GHz. Saturation gain is typically 40 dB. The MTA2000 series delivers high power over an extremely wide band and is designed to operate in the toughest military environments including airborne, ship-borne and ground mobile roles. Options are available covering 2 to 18GHz and providing in excess of 125W. ■



Israel Aerospace Industries (IAI) is showcasing a wide range of strategic defence systems at the ongoing ADEX aerospace and defence show, as it seeks to make greater inroads into South Korea's burgeoning defence market. IAI is placing a strong emphasis on its Multi Mission aircraft, Unmanned Aerial Vehicle (UAV) command and control stations, precision strike systems such as loitering munitions, TopGun Course Correction Fuze and Rampage, long-range, air-to-ground, seeker-less, precision strike weapon, in addition to a selection of the company's strategic systems.

"IAI Offers a wide range of advanced technological systems for the Republic of Korea (ROK) – a country we see as a strategic partner. IAI has been working with the Korean defence industries and armed forces for many years. It is through this experience that we have been exposed to the country's unique needs and requirements and we hope to expand our presence in Korea by means of cooperation with local companies, long-term collaboration, joint development and production, technology transfer



and technical support," says Eli Alfassi, IAI's EVP Marketing. Alfassi adds, "We find that the Republic of Korea and Israel have similar defence needs and we hope we can continue and share our technological experience as Israel largest aerospace and defense company with our partners in the ROK."

IAI already has many current activities in the ROK, with a number of IAI products

now being in operational service with the Korean military for many years. The company hopes to further expand its collaboration with leading local companies to integrate strategic state-of-the-art systems for the ROK. IAI is also participating at the "Korea-Israel defence industry cooperation strategy" seminar on October 15th, where company officials will present a lecture "Leading by Innovation." ■



AIRBUS HIGHLIGHTS SOUTH KOREAN PARTNERSHIP

European airframer Airbus is putting up a strong show at the ongoing ADEX, where it is showcasing a wide range of products, services and strong industrial partnerships, covering commercial aircraft, helicopter and defence and space markets. South Korea is a key market for Airbus, which has received orders for commercial aircraft, helicopters, military and space product lines.

On display are scale models of the A350-1000 widebody airliner, A400M military airlifter, TerraSAR-X weather independent imaging radar Earth Observation satellite and the tactical Unmanned Aerial System VSR700. There is also a dedicated area with an immersive experience via virtual reality, HoloLens and 3D holographic projections. The Surion utility helicopter and Light Civil Helicopter/Light Armed

Helicopter (LCH/LAH) programmes feature a partnership between Airbus and KAI. More than 100 Surion helicopters have been delivered to Korean army and parapublic operators. The first LAH prototype made its maiden flight in July and service entry with the Korean Army is targeted by 2023. The Republic of Korea Air Force has received three of the four A330 Multi Role Tanker Transports on order.

South Korea has approximately 140 Airbus passenger aircraft in airline service, covering the entire Airbus product line, including the A220, A320 Family, A330, all-new A350 XWB and the A380 super-jumbo. Another 50 aircraft are on order for future delivery. Airbus also designed and manufactured South Korea's first geo-stationary satellite – GEO-Kompsat, developed the first geo-stationary ocean imager, and co-developed three Earth observation satellites.

Korea Aerospace Industries (KAI), Korean Air Aerospace Division (KAL-ASD), and small and medium enterprises such as AeroSpace Technology of Korea (ASTK), are today producing many components that are installed on various Airbus commercial aircraft product lines. The company's sourcing activities are worth USD 600 million per year for the South Korean economy and support over 6,000 highly skilled Korean jobs. ■



SAAB LAUNCHES GLOBALEYE CAMPAIGN IN SOUTH KOREA

Saab's GlobalEye multi-role airborne surveillance system is now in production and moving towards its first delivery to launch customer United Arab Emirates (UAE). The flight test programme is slated to be completed 'soon', paving the way for hand-over. The UAE refers to its aircraft as the 'Swing Role Surveillance System', underlining its unique multi-domain capabilities.

Saab has identified several other potential sales and has made no secret of its willingness to offer the GlobalEye to the Republic of Korea (ROK) now that an air force requirement here for a next-generation surveillance system has emerged as a definite acquisition track. Company officials note, that the GlobalEye delivers capabilities that go beyond any other in-service AEW&C platform, in a solution that is both sophisticated but simple to maintain and operate. Korea has been identified as a potential customer with a near term requirement – specifically a

follow-on buy to the existing 'Peace Eye' aircraft acquired from the U.S. almost 15 years ago. "GlobalEye can be seamlessly integrated into any existing force structure to work together with existing assets, as well as delivering a huge leap forward in next-generation capabilities," company officials tell Daily News.

At the heart of the GlobalEye design is an all-new Erieye-ER S-band AESA radar (using Gallium Nitride technology) plus an equally advanced (and also brand new) command and control system. Each aircraft carries a number of other sensors, such as the Leonardo Sea Spray 7500E maritime surveillance radar, electro-optics, ELINT/SIGNIT plus communications, datalinks and self-defence equipment. The result is a multi-role aircraft capable of performing simultaneous surveillance operations at very long ranges in the air, over land and at sea. A single GlobalEye

effectively functions as an Airborne Early Warning & Control (AEW&C), a Maritime Patrol Aircraft (MPA) and a JSTARS but all in a single platform. The advanced sensor system is highly effective against high-speed and so called 'stealthy' targets while at the same time capable of detecting small and slow targets such as Unmanned Aerial Vehicles (UAVs), missiles and even hovering helicopters.

The UAE Air Force launched the GlobalEye with an order for two aircraft (and several other programme components) valued at US\$1.27 billion, at the 2015 Dubai Airshow. Orders for two aircraft from the UAE were followed by a third, announced at the 2017 IDEX show. Saab's Linköping home was the site for the maiden flight of the GlobalEye in March 2018. In fact, Saab was ready to fly sooner, but Swedish weather got in the way. The maiden flight of the second aircraft took place in January 2019. ■

HENSOLDT ON ASIA-PACIFIC EXPANSION

Leading European sensor solutions provider HENSOLDT has acquired a radar solutions and services provider, IE Asia-Pacific Pty Ltd, headquartered in Canberra, Australia, as a continuation of its Asia-Pacific expansion. Now to be known as HENSOLDT Australia Pty Ltd, "The local support of our customers in Australia and in the Asia Pacific, markets is extremely important to HENSOLDT", says Thomas Müller, CEO of HENSOLDT.

"HENSOLDT Australia is a part of our Global Customer Support & Services

business and provides our customers with unparalleled radar solutions and systems support." HENSOLDT Australia currently employs more than 20 highly trained staff and generates annual revenues exceeding €4m. It offers radar support, testing, training and installation services to the Australian Defense Force and other agencies. HENSOLDT has a large and longstanding customer base in the APAC region, delivering radars, electronic warfare systems, electro-optic devices and air traffic control equipment. HENSOLDT Australia will



also be able to provide support to this wide range of products, thereby providing enhanced services and support for the firm's regional customers. ■



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▶ HIGHLIGHTS

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- DAILY NEWS is a popular offering at defence shows and trade exhibitions worldwide, due to its handy size and quality editorial content
- Daily News (e-edition) to be released online on three days of the exhibition (November 18, 19 and 20) for unmatched local and international exposure
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