



SHOW BUSINESS

DAY
2

IDEX/NAVDEX SHOW DAILY

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Royal approval for record-breaking show

The 16th edition of the International Defence Exhibition & Conference (IDEX 2023), and the seventh edition of the Naval Defence & Maritime Security Exhibition (NAVDEX 2023) organised by ADNEC Group, in cooperation with the UAE Ministry of Defence, was

officially opened yesterday.

His Highness Sheikh Mansour bin Zayed Al Nahyan, deputy prime minister of the UAE and minister of presidential affairs (pictured left), officially opened IDEX. Meanwhile, His Highness Sheikh Hamed bin Zayed

Al Nahyan, managing director, Abu Dhabi Investment Authority (ADIA), officially opened NAVDEX.

The shows are expected to witness a record number of visitors with delegate numbers set to double from the previous editions.

PERFECT LANDING

HOMEMADE SUCCESS LAUNCH



For the second IDEX/NAVDEX running, the UAE is using the platform provided by the show to display a vessel made almost entirely in-country.

Alongside at the quay is the UAE Navy's latest vessel, the landing ship Tunb Al Kubra, which will be commissioned during the show. Named after

one of the nation's 200 islands, Tunb Al Kubra is the second of a three-ship class providing essential support to the nation's offshore territories.

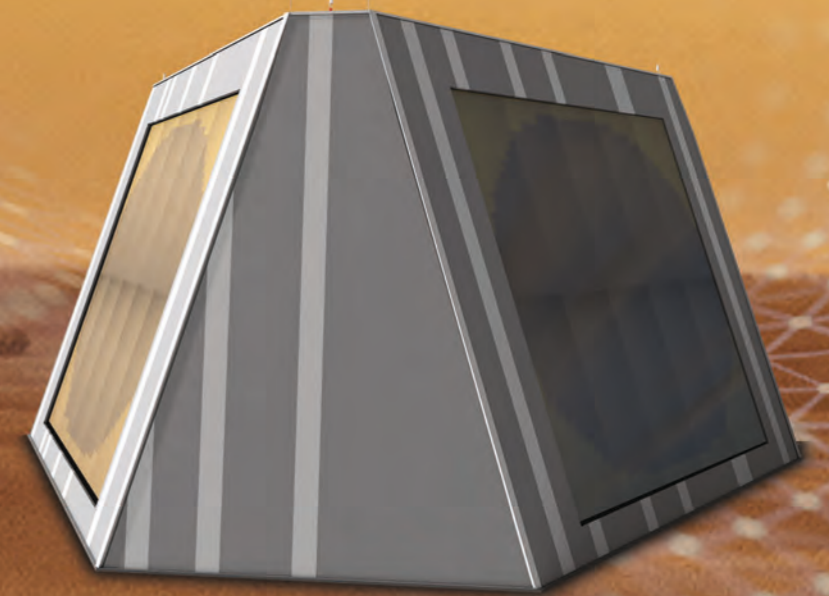
The vessel will be used for a variety of logistic tasks, said IDEX/NAVDEX 2023 spokesman, Colonel Mohamed Al Jallaf. "It will provide medical care and supplies. Moreover, it is a very good ship for disaster relief."

The latter role is increasingly important in an era of global warming, which is forecast to lead to increasingly extreme meteorological events.

The new vessel will supply the UAE's islands, said IDEX/NAVDEX 2023 spokesman, Colonel Mohamed Al Jallaf

CONTINUED ON P5

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CONTINUED FROM P1

Tunb Al Kubra's open cargo deck can typically carry 16 to 18 trucks, or any other type of cargo. Vehicles drive off the drop-down ramp at the bow. The vessel was constructed by shipbuilder Al Fattan. The capability of the UAE's shipyards is such that this class of vessel can now go from keel-laying, through systems integration and testing in under a year, said Al Jallaf. Virtually the entire vessel was built in-country, although some components, such as the engines, were imported.

Looking for the best

One reason for the success in building vessels so rapidly, he said, was the realistic attitude taken by the country's leadership. "They are always looking for the best of the best, but the best that suits us here in this region."

The government and ministry of defence took into account upcoming risks, but also kept a careful eye on whether, for example, the country had enough skilled people to crew ships that they wanted to induct into the country's service: "Your operational requirements and your logistic capability need to be in line. You need to be able to maintain it, both in terms of material and personnel," said Al Jallaf.

The 70-metre Tunb Al Kubrah has a maximum speed of 10kts. Although her role is primarily supply, the NAVDEX brochure notes that she maintains a self-defence capability in the form of 30mm cannon and the UAE-developed LOGIR low-cost guided rocket system, intended to counter fast inshore attack craft. ▲



Ongoing commitment to the Middle East – Jeff Shockey

Raytheon passionate over 'Made in the UAE'

Jeff Shockey, Raytheon Technologies' senior vice president for global government relations, has been speaking at IDEX about his company's ongoing commitment to the Middle East.

Raytheon now does between \$800 million and \$1 billion of business in the region annually, building on 50 years working in the UAE and Saudi Arabia – including participation at IDEX since the show began.

The company's commitment to partnership, and to measured projects that allow it to build progressively on success, has seen Raytheon announce an exciting agreement for local production of the Coyote Counter UAS system.

Today will see the signing of a memorandum of understanding (MoU) with five local companies, further demonstrating Raytheon's commitment to the 'Made in UAE'

initiative. Shockey is fervent about the value of partnerships in the region, which he says offers the necessary resources and education for success, as well as a willingness to train and invest in its workforce and infrastructure.

"We are working in concert with the US Government and our customers in the Middle East to build the tight partnerships that will ensure our mutual success," Shockey said.



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MASMAK-2

A HIGH-END MRAP VEHICLE, MASMAK-2 WILL BE LAUNCHED BY STREIT GROUP AND SAUDI GROUPS AT IDEX 2023, MARKING THE FIRST-EVER COLLABORATION BETWEEN EMIRATI AND SAUDI FIRMS.

The unveiling marks three significant moments: the first update to MASMAK since its initial release in 2012, the first-ever collaboration between Emirati and Saudi private entities, and establishment of manufacturing facilities in Saudi Arabia, for production of MASMAK – 2 and other armored and security vehicles.

MASMAK – 2 is a versatile armored vehicle personnel carrier that can be adapted to fit a variety of settings and roles. With a STANAG 4569 Level 4, the vehicle can easily and swiftly perform missions as an armored personnel carrier from 2+8 crew members, battlefield ambulance, and command vehicle in tough rural terrain and perform perfectly as an urban transport in metropolitan areas. With a compact size and mobility suitable for urban environments, MASMAK – 2 is ideal for special operation forces, anti-terror groups, and tactical intelligence teams.

 For more details talk to our expert: sales@saudigroup.com | sales@armored-cars.com



SCORPION-3

SCORPION-3 is a Mine Resistant Ambush Protected Vehicle which has been designed for tactical response teams and can be configured for a multitude of military applications. The advanced Shape design of the SCORPION incorporates a high ground clearance and acute turning circle, allowing for a superior off-road capability. The SCORPION is fully armored to STANAG Level 3 and is able to withstand blast effects from mines and IED attacks.

COBRA-4

The innovative adaptable design of COBRA-4 will support a variety of life-saving mission-specific tasks including peacekeeping, convoy escorts, and urban and border patrol.

A versatile and affordable LAMV, combines everything we know about the armored protection with the best of 4x4 engineering delivers this extremely versatile vehicle, which is completely at home in the city or tough rural terrain. With capacity of 4 crew members, COBRA fits perfectly into modern military formations, carrying out tasks for law and order or military alike. Cobra-4 comes in variation of SUT (Support Utility Truck) and APC (Armored Personnel Carrier) with capacity of 4 (SUT) or 8 (APC) people.




SPARTAN MONOCOQUE

One of the mostly awaited Monocoque MAV (Medium Armored Vehicle) affordable armored security vehicles manufactured by Streit Group, the SPARTAN Monocoque, is designed to enhance the success of both off-road and on-road missions in communities in need of updated security measures. The vehicle's standard crew configuration is ideal for a crew of 8 with a driver and commander, with adaptable seats that can be rearranged to meet the unique needs of each mission.

The SPARTAN Monocoque is powered by a 6.7L engine, which easily generates 245 hp. With a 4 WD/ LHD driving configuration, the vehicle is resilient in every type of terrain. Despite its size, the SPARTAN Monocoque is easy to handle with an automatic transmission and diesel fuel capacity of 300 L. The vehicle's armoring level comes at Stanag 2, with the option to upgrade to Stanag 3.



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AIRBUS

Edge announces billion dollar corvettes deal with the Angolan Navy

The UAE's Edge Group opened IDEX/NAVDEX yesterday with news of a landmark \$1.06 billion order for corvettes for the Angolan Navy.

The vessels will be built by the group's naval arm, Abu Dhabi Ship Building (ADSB).

The number of vessels was not revealed – the order was described merely as 'a fleet' of the BR71 MKII vessels – but, depending on equipment fit, the value of the order suggests three ships.

Landing a major export order is an indication of the growing international reputation of ADSB, as reflected by a comment from Edge's president - platforms & systems, Khalid Al Breiki: "Signing a \$1.06 billion defence export deal represents a momentous

achievement for Edge as well as ADSB. This demonstrates our strategic approach and steadfast commitment to increasing national exports in line with the UAE leadership's directive."

ADSB CEO, David Massey, said there was a "tremendous sense of pride" at having won the order.

"The BR71 MKII corvette is a highly advanced vessel capable of performing multiple missions to secure Angola's 1,600km coastline. We look forward to fulfilling the Angolan Navy's operational requirements and strengthening their naval capabilities, while expanding ADSB's avenues of growth."

The BR71 MKII is a 71-metre vessel whose systems include a 3D



A fleet of BR71 MKII vessels is on order

radar, electronic warfare suite, a main gun – typically a 76mm or 57mm weapon – plus surface-to-surface and surface-to-air missiles.

It is an upgraded development of the UAE's Baynunah Class corvettes, which were also built by ADSB.

Mine-resistant Isotrex Meteor breaks cover

The UAE-based Isotrex has unveiled the Meteor mine resistant ambush protected (MRAP) vehicle.

"The heavy-duty armoured vehicle, completely built from the ground up in the UAE, has successfully completed field trials and is making its first public appear-

ance at IDEX," said a senior company official.

"We expect to start production this year," he added.

Meteor has been designed for swift and agile tactical response in rough terrain, while still providing the safety, comfort, and significant

heavy-duty protection expected from a large-class vehicle.

"Unlike several other MRAP vehicles, Meteor has major off-road capabilities and has been developed to face harsh desert conditions and mountainous terrains. The trials proved that it can easily climb steep

sand dunes," the official added.

The Meteor MRAP features an 8.9 litre Cummins electronically controlled engine, Allison automatic transmission, independent swinging axles suspension, and central tyre inflation system.

"It's a fully packaged armoured vehicle for today's warfighters," the official said.

The monocoque design protects all components and shafts (from the transfer case to the wheels and differentials) against dust, moisture, and outer mechanical damage. Also, it features a V-shaped design and provides crew mine protection.

"The turret outclasses all similar manned turrets in protection and versatility and has proven a battle record," the official said.

Meteor can carry 10 personnel, including two crew members, and can cruise up to 120km per hour. It weighs 12.5 tons, but can take up to 19 tons, the official said.

"There is already an interest in the platform and we are sure Meteor will have a good market in the MENA region," he concluded.



The heavy-duty armoured Meteor has been built from the ground up in the UAE

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Stronger together

UAE Coproduction of Coyote® Interceptor

Local manufacturing of Coyote Counter-UAS Interceptor to support growth in UAE's defense industry and expand Raytheon Technologies' global supply chain.



Tawazun signs deals worth \$1.2 billion

The UAE's Tawazun Council announced deals worth a total of AED 4.5 billion (\$1.2 billion) with local and international companies yesterday at the show.

There were six local contracts signed worth AED 2.3 billion and five international ones totalling AED 2.2 billion announced in a press conference hosted by Tawazun.

There will be similar press conferences during the show with further major deals anticipated by Tawazun, which will round up the deals daily, explained Zayed Saeed Al Meraikhi, official spokesman of Tawazun Council.

The local deals signed yesterday were: Halcon Systems, a subsidiary of Edge Group, to procure Thunder P3 air-launched missiles (AED 2.14

billion); Maplin Marine Systems & Services to provide vessel technical support services (AED 78 million); Mohamed Abdulrahman Al-Bahar LLC to provide technical support services on behalf of Caterpillar Vehicles (AED 45 million); Atlas Telecom to procure SR Hawk radars and portable radars (AED 26 million); Romco International to provide mine clearance (AED 4 million); and Al Hamra Trades to provide maintenance services on inspection devices and explosive detectors (AED 8 million).

The international contracts were: PT PAL Indonesia for the procurement of Multi-Mission Vessel (AED 1.5 billion); Thales LAS of France for the procurement of GM403 radars (AED 421 million); US firm Allant



Zayed Saeed Al Meraikhi, official spokesman of Tawazun Council, announcing the deals yesterday

Techsystems to buy ammunition (AED 202 million); MBDA to provide missile technical support services (AED 92 million); and German firm Rohde & Schwarz to provide communication system technical support (AED 3 million).

In a new format that reflects the role of Tawazun as the coordinating government entity that works with the UAE Ministry of Defense and UAE security agencies on procurement, it was Tawazun that announced the deals in this collective manner.

A wealth of great new ideas

A new start-up initiative is being displayed for the first time here at the show.

IDEX Next Gen is a space, located in the concourse outside hall 1, dedicated for start-ups.

It will enable entrepreneurs to

demonstrate their solutions and technologies in the defence and naval sector to leading figures in the industry.

"We have more than 80 start-ups from 20 countries participating in IDEX Next Gen around a

focal area of a pitch competition stage," explained Nathan Waugh, portfolio director at ADNEC.

"The pitch competition is welcoming 28 start-ups to deliver three-minute pitches to a number of industry experts and judges."

Round 1 will be today at 10.30am, with round 2 tomorrow and round three – the final round which will see the top 10 companies go through – will be at 2pm Wednesday.

"All the start-ups offer a lot of innovative solutions in various sectors; aerospace, electric vehicles, uncrewed vehicles, whether on in the air or on sea, and ammunition," said Waugh.

"Winners will be awarded a trophy and have the opportunity to take some space, free of charge, at the next IDEX. And second and third prizes will be delivered too. So, please all do come along and hear all about these great start-ups and what they offer."

One start-up taking part is US company, Vita Aerospace, which produces a hoist stabiliser for medical evacuation for use on any helicopter.

"Our hoist offers autonomous stabilisation, assisting with the most complex part of medevac operations by holding the hoist position from the moment it leaves the helicopter," explained Caleb Carr, CEO.

The company's clients include the UAE National Search and Rescue Centre.

"Being a part of IDEX Next Gen is a great opportunity," said Carr.



Vita Aerospace's Layla Kainber will be demonstrating the company's hoist stabiliser for medical evacuation

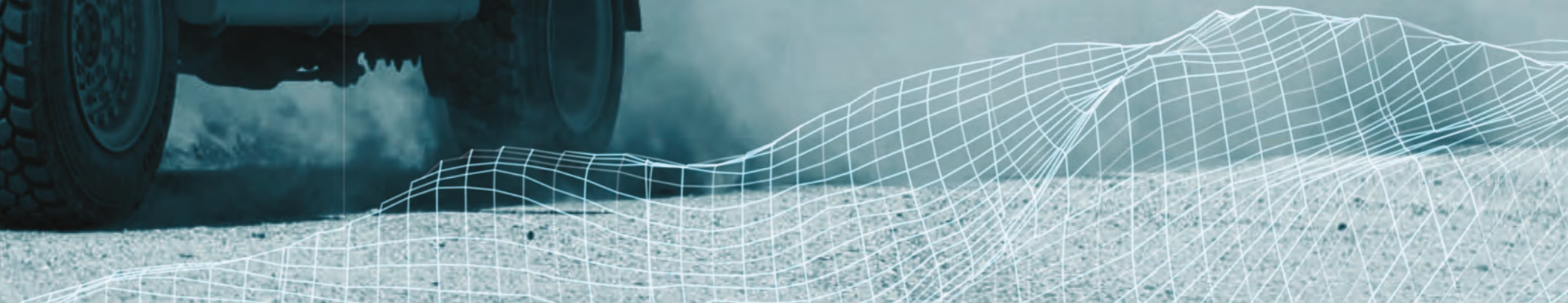


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A thick, solid green diagonal line that starts from the top right and extends towards the center of the image, pointing towards the vehicle.

**BUILDING AND DEVELOPING
LOCAL CAPABILITIES ACROSS
THE SPECTRUM OF THE
DEFENSE INDUSTRIES.**



Revvng up the drone market

Czech engineering company, PBS, is demonstrating its range of turbojet engines, notably the TJ150, developed for UAVs and target drones. The TJ150, the most powerful model in the company's range, is developed from the TJ100, but develops 20% more power (up to 1,500N) within the same outer dimensions and engine weight as the earlier engine. Testing of the new model has included immersion in salt water, simulating the recovery of a UAV powered by the TJ150 from sea landings. The powerplant is designed to be reusable, despite having been submerged.

TAI shows off its largest drone

The TAI Aksungur is a twin-engined medium-altitude long-endurance (MALE) uncrewed aerial vehicle (UAV) and uncrewed combat air vehicle (UCAV) developed from the Anka-S. It was originally known as the Anka-2 before adopting the Aksungur name and is designed for tactical surveillance and reconnaissance by the Turkish Armed Forces.

However, it has increasingly been adapted for armed missions using a variety of (largely indigenous) weapons.

Largely based on existing technology from the earlier Anka family of UAVs, the Aksungur has a twin-tailed, twin-boom configuration, and is powered by a pair of Tusas Engine Industries (TEI) PD-170 dual-turbocharged diesel engines, each driving a three-bladed tractor



propeller. It is TAI's largest drone, with a maximum payload almost four times greater than that of its predecessor. There are three hardpoints under each wing for the carriage of external payloads, including weapons or sonar buoys. These hardpoints are rated for loads of 150, 300 and 500kg respectively, working from outboard inwards.

The Aksungur is able to stay aloft for up to 12 hours as an attack or maritime patrol aircraft or for up to

24 hours during signals intelligence missions.

The prototype first flew on March 20 2019, and the aircraft entered production in early 2020. The first production aircraft was delivered to the Turkish Naval Forces on October 20 2021. Three aircraft are estimated to be operational with the Turkish Naval Forces and three more with the Turkish Air Force.

Six were ordered by the Algerian Air Force in October 2022.

Other Turkish drones are available...

The wars in Nagorno-Karabakh in 2020, and in Ukraine last year, brought the Bayraktar TB2 to public attention.

But the Baykar company is not Turkey's only drone manufacturer, and Turkish Aerospace itself offers a range of uncrewed aerial systems –

two of which are on show at IDEX this year.

The TAI Anka is a family of medium-altitude long-endurance (MALE) unmanned aerial vehicles developed for the Turkish Air Force by Turkish Aerospace Industries.

The initial Anka-A flew for the first time on

December 30 2010 and spawned a succession of derivatives, including the Anka +A 'hunter killer' high-altitude long-endurance (HALE) version armed with Roketsan Cirit missiles, the Anka-B, with an Aselsan synthetic aperture radar/ground moving-target indicator payload, and the fully-weaponised Anka-S, seen in the static display at IDEX.

The Anka-S has a distinctive 'satcom' hump above the forward fuselage, and though early examples were fitted with a StarFIRE 380-HDL FLIR payload, later examples use the indigenous Roketsan CATS sensor.

Other examples are also powered by an indigenous Turkish Engine Industries (TEI) TEI PD170 or PD180st engine, rather than the Chinese Thielert Centurion 2.0S used by earlier aircraft.

The Anka-S completed its first live fire tests on August 17 2018, firing the Roketsan MAM-L – tandem pairs of which can be seen under the wings of the Anka-S at IDEX.

Although Anka has an operational range of about 100 miles, the satellite-enabled Anka-S is capable of flying beyond 'line-of-sight' and, in 2019, broke its own endurance record by staying aloft for longer than 24 hours.



The TAI Anka has a distinctive 'satcom' hump above the forward fuselage

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Gulf work just the first step, says Allen-Vanguard

Allen-Vanguard is looking at more collaborations in the MENA region after successfully helping a Gulf nation to enhance its electronic countermeasure (ECM) capabilities.

"We are committed to creating an indigenous capability that is locally owned and operated, so that sovereign nations have operational autonomy to detect, protect, and deter terrorist threats, all backed by a first-class technical training and support infrastructure, provided by Allen-Vanguard and our partners," said Stuart Wilson, the company's

business director for Africa.

"The initial capability and support for this country is the first step in this process," he added.

The company aims to grow the necessary connections to local defence partners and academia, thus allowing regional initiatives to support all aspects of ECM capability, from manufacture and assembly through to the most crucial aspects of threat management and advanced mitigation techniques.

"This is an excellent example of how we seek to create local

capability to help defeat terrorist threats in the MENA region. I am very proud of the excellent systems that Allen-Vanguard designs and produces, but equally I relish working with the customer to help create and develop a fully integrated and supported local capability that will evolve and endure as the threat changes," Wilson said.

Allen-Vanguard is developing and supplying ECM equipment for Gulf armed forces through a partnership with the TRUST International Group (TIG). TIG has supported the supply

of the Ancile counter uncrewed aerial system and Scorpion portable explosive ordnance disposal ECM equipment to improve the local defence capabilities in electronic countermeasures.

"The fully integrated vehicle-mounted Ancile has the capability to be quickly transitioned to a ground-based system to provide a simple and robust protective zone. This system has been previously successfully deployed at the G7 conference and other similar major events in the region," Wilson added.

GIDS unveils two new systems

Pakistan's state-owned Global Industrial and Defence Solutions (GIDS) has unveiled

Taimoor, a highly precise, long-range and all-weather-capable air-launched cruise missile (ALCM).

It can be deployed in the air-to-ground operational role, and is capable of carrying

conventional warheads for land attack, incorporating an imaging infra-red seeker. With a range of 290km, the weapon can fly very low over ground at a programmable height, thus increasing its survivability. It is equipped with warheads designed for lethality against specific targets.

GIDS also revealed the indigenous MALE class combat UCAV Shahpar-II to the global audience.

The new version is the successor of the Shahpar-II (block-I) with superior features and newer aerodynamic design. The combat version has an endurance of 12 hours and a ceiling of 21,000ft.

The maximum take-off weight is 1,075kg and it is capable of carrying four air-to-ground-missiles in the operational mode. It has a data link range of 300km and 1,500km (with SATCOM).

GIDS is Pakistan's only state-



GIDS has also revealed the indigenous MALE class combat UCAV Shahpar-II



Taimoor: A highly precise, long-range and all-weather-capable air-launched cruise missile

AR3 MULTIPLE LAUNCH ROCKET SYSTEM

The AR3 MLRS, a world leading ground-based long range precise strike weapon system, is mainly deployed in artillery, border and coastal defense troops. It consists of fire strike, command, reconnaissance and support units. With flexible configuration, the system can operate in battalion or battery level, or operate in single launcher vehicle. Characterized by long and wide firing range, excellent precision and high mobility, the weapon system can engage enemy targets 290 km away and accurately destroy high-value and clustered targets on both land and sea surface. AR3 is not only of high tactical value, but also of national strategic significance.



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MD Helicopters bullish over Cayuse Warrior Plus



▲ Steve Suttles—enthusiastic about the Cayuse Warrior Plus

MD Helicopters' senior director of sales, Steve Suttles, is enthusiastic about the company's latest military product, the Cayuse Warrior Plus light scout, reconnaissance, and attack helicopter, which he describes as: "The very best helicopter in its class technically, and from a price standpoint and a delivery standpoint."

Though it looks like an MD550, MD Helicopters is trying hard to get away from using that designation for the Cayuse Warrior Plus, which is an all-military helicopter from the ground up, and not a civil helicopter with military equipment 'bolted on'.

The Cayuse Warrior Plus incorporates major structural modifications to the airframe, which is 'beefed up' to withstand the rigours of military operations. This is, after

all, a military aircraft that will be firing rockets and machine guns, that will manoeuvre hard, and that might itself be fired upon.

The aircraft has a ballistically tolerant, crashworthy fuel system, new door fairings that allow the doors to be closed when weapons are carried, and a high-capacity landing gear.

The variant has a new weapons management system from Moog (previous Cayuse Warriors, like those supplied to Afghanistan, Lebanon and Kenya, used a Dillon Aero system), and mounts an MX-10D sensor turret.

This opens the door to the use of precision-guided weapons like the advanced precision kill weapons system (APKWS) rocket and Hellfire missiles.

Suttles said this makes the Cay-

use Warrior Plus "Lethal, with a qualified precision kill capability."

Though Suttles is loath to talk about specific competitors, it is clear that the Cayuse Warrior Plus represents a compelling alternative to more expensive scout helicopters – including Boeing's AH-6i Little Bird, which, ironically, uses an MD Helicopters-supplied airframe. The AH-6i is an FMS-only aircraft, at the far-right hand edge of the international traffic in arms regulations (ITAR) spectrum, whereas the Cayuse Warrior Plus is fully ITAR-approved and compliant.

"We're not competing in quite the same space," Suttles said, acknowledging the AH-6i's six-blade main rotor and higher gross weight, and only grudgingly acknowledging that the Cayuse Warrior Plus "can do everything

that they can, at a much lower price point."

Since MD Helicopters changed owners last year, the company has closed down its former airframe manufacturing facility in Mexico and its helicopters are now 100% US-made in Arizona. Suttles describes a company that has 'start-up levels of energy and resourcing', with a bright future ahead.



Tales of the unexpected: The Kamov Ka-62 helicopter

Kamov springs an IDEX surprise

Winning the prize for the most unexpected exhibit at IDEX this year is the Kamov Ka-62 helicopter.

A civil helicopter – albeit one based on the military Ka-60, the Ka-62 programme was reported to be moribund last year, with development reportedly put on hold.

This is because the aircraft had been designed for western markets and had, accordingly, used a high proportion of western parts and systems (about 60%), including its Safran Ardiden 3G engines, the supply of which were cut off

by sanctions. In November 2022, Alexander Neradko, the head of Russian Federal Air Transport Agency, said that although the aircraft had received a limited category certification in 2021, its type certification was not going to be continued. "Currently all further work on this project is frozen due to known reasons," he said.

But at IDEX, a Russian Helicopters spokesman said that "of course" work on the aircraft was continuing, and that the type was in production, presumably with some degree of 'import substitution'.



Search and rescue solutions for a safer world

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Airbus frustrated over stalled sales to Saudi Arabia

ALAN WARNES REPORTS

The German block on arms exports to Saudi Arabia has hit the ambitions of more Airbus sales to the desert kingdom

It has been just over five years since Germany banned the export of arms to Saudi Arabia and other countries involved in the war in Yemen. The ban has hit German businesses hard, as well as the likes of Airbus Defence and Space, the military arm of the massive Airbus business.

The British Government has tried to convince the German Government to relax the ban, but to no avail. Which means that the agreed £10 billion sale of 48 Eurofighter Typhoons to Saudi Arabia is now on hold, much to the frustration of BAE Systems, which led the bid, as production of the Typhoon at its Warton final assembly line begins to come to an end.

While BAE Systems will not discuss any Saudi business, at a gathering of journalists in Madrid

the Airbus Defence and Space CEO, Mikle Schoellhorn, was hopeful of a breakthrough: "We have seen the German coalition government agree to export arms to the Ukraine, the first time it has agreed to export into a war zone almost immediately.

"Airbus is still in discussion over the Kingdom of Saudi Arabia (KSA) in alignment with our home nations. There is an agreement on some products, like the A330 MRTT [Multi Role Tanker Transport], and there are others where a solution needs to be found.

"Depending upon what that product is, there is an increasing degree of complexity and difficulty."

Schoellhorn indicated, however, that there might be some hope of movement, with German

Chancellor, Olaf Scholz, saying recently that the country needed to re-adjust its stance towards export and stop taking an isolated position that was different from its European partners.

Germany's stance is obviously different from its other three partner nations – Italy, Spain and the UK. Schoellhorn said: "It does pose the question of what are European values if we don't share the same type of assessment on the situation."

Just a week earlier than the media brief, Spanish company, Navantia, announced that a memorandum of understanding had been signed with the Saudi Government to build multi-mission combat ships for the Saudi Navy.

So, while Airbus Defence and Space can't sell weapons, the



Alan Warnes

Among the last deliveries before the ban notice came into effect were the four presidency of state security C295Ws

could be accepted with conditions, probably in agreement with partner nations.

"On some programmes there have been agreements like the A330 MRTT, but on the A400M this still needs to be discussed. It requires real politics and the industrial policy of our countries. We (Airbus Defence and Space) are a humble player in serving the interests of our country and our export customers, when coherent with the policies of other countries (partner nations)."

The Royal Saudi Air Force has purchased six A330 MRTTs, which were delivered between January 2013 and March 2015. In early 2015, Saudi's presidency of state security ordered four C295Ws in an intelligence, surveillance and reconnaissance (ISR) role, with the first delivered in 2017. ▲

individual partner nations can. "It's a sensitive subject," explained Jean Brice Dumont, Airbus head of military air systems. "National initiatives with national players with national government-to-government agreements are much easier than trying to export a multi-

national organisation's products. So, you see countries exporting, which goes with relationships that governments have together."

Airbus was confident, four years ago, that the Royal Saudi Air Force would buy the A400M. But, of course, with this German legisla-

tion currently in place it can't now happen.

Dumont said "When we sell an aircraft to KSA, it's more difficult with the German considerations in mind. I think it must come from Germany that they accept an export could be achieved, and it

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Over the next 20 years, millions of new drones will enter our skies, creating a highly complex aviation ecosystem and a range of significant safety and security challenges.

- By 2024, 70% of civilian drones used for commercial purposes will be flying out of sight.
- By 2050, there will be approximately 7.4 million drones flying in Europe versus 15 000 today
- By 2050, it is predicted that ¼ million urban air mobility vehicles will be in operation

Considered a game changer – small drones – both for commercial purposes and in theatres of operation, remain very difficult to detect considering their size and slow speed. **Detection is key.**

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GROUND MASTER 200 RADAR FAMILY

Whether to complement long-range radars in providing airspace protection behind masks or to provide Ground-Based Air Defence (GBAD) to deployed forces – or both – the Ground Master 200 is the medium-range radar of choice around the world, addressing low, slow, small to high manoeuvring stealth targets, as well as pop-up helicopters. Similarly the GM 200 MM/A multi-mission, all-in-one, with AESA technology provides more time-on-target, with unrestricted multi-beam steering flexibility in elevation and bearing, further extending capabilities and superiority in air surveillance detection.

Highly mobile, both radars are autonomous solutions designed to fit the radar, a mast, a Power Generator Unit

(PGU) and an operational cabin to accommodate two operators within a 20ft ISO shelter. Transportable on a truck and deployable for operations in 15 minutes, with a decamp time of 10 minutes, it provides operators with crucial asset survivability – a key benefit of these radars.

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- Counter Unmanned Aerial Solutions – capitalising on both military and civil expertise and enhanced by partnerships with a wide range of partnerships with small & medium companies around the world.

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Airspace protection relies on highly advanced and integrated systems based on air surveillance of all threats, ground-based air defense and weapon location solutions. Thales systems cover the entire decision-making chain: from detection, to identification, to neutralisation



Ground Master 200: Mid-range radar

United States

US small vessel specialist, SAFE Boats International, geared up for the show by bringing in a vessel for the company's first live demonstrations on the water. Alan Dron reports

Why new-variant interceptor is making waves

This will be the first time at IDEX/NAVDEX that SAFE Boats has undertaken an in-water demonstration. One of the company's 11-metre Multi-Mission Interceptors (MMIs) will be displaying its interception capabilities for potential buyers.

The MMI can carry up to 14 personnel in shock-mitigated seats at speeds of just over 60kts. Up to four weapons foundations can be installed to allow a variety of weapons to be mounted.

"The MMI was launched several years ago and has become very popular with the military and law enforcement agencies," said SAFE Boats' director of business development and strategy, Rob Goley. "We felt it was a good time, with IDEX/NAVDEX coming back to its pre-pandemic levels, that we demonstrate our top-of-the-line interceptor at the show."

The MMI is powered by twin 600hp Mercury Marine outboard motors, but SAFE Boats is seeing a desire in the marketplace for alternative forms of propulsion – both hybrid and full electric. These make for quieter, more stealthy vessels, giving them a tactical advantage in operations, as well as being more environmentally sensitive.

A variant of the MMI is in service with Saudi Arabia's Border Guard, as well as with Jordan and Tunisia. The version being shown at IDEX/NAVDEX is the newest configuration, which has yet to be sold into the MENA region.

The company hopes that its appearance at the show – especially with the ability to give demonstrations to potential

▲ The 11m Multi-Mission Interceptor will be giving demonstrations to prospective purchasers



▲ The Mark VI patrol boat was a familiar sight in the Gulf for many years

customers – will change that situation.

Headquartered in Bremerton, near Seattle in the USA, SAFE Boats produces a range of vessels from seven metres to 20 metres, with the largest in its range – used by Tunisia, for example – being its 20m patrol boat. This is used for a variety of extended offshore patrols, as well as for search-and-rescue missions.

Goley sees the move towards autonomous vessels as one of the main trends in the marketplace. Uncrewed surface vessels (USVs) hit the headlines in October 2022

when seven Ukrainian canoe-sized USVs attempted to penetrate the Russian Navy's base at Sevastopol.

The USVs – thought to have been similar to one that was found washed up on the coast of Crimea earlier last year – were loaded with explosives and attempted to ram Russian warships. Results of the raid remain uncertain, although one Russian minehunter is thought to have been damaged.

The sophistication of such vessels is constantly growing, said Goley, with advances in sensors, navigation and weapons systems: "There are a lot more options than there were even a few years ago."

Steady sales

In the 25 years the company has been in existence, it has consistently received a significant portion of its business from the military, either from the US or foreign nations.

Goley can see increased defence budgets in many countries, but SAFE Boats' contracts remain

consistently steady. The MENA region is an important one for the company: "We've got lasting relationships throughout the region and we do feel that our platforms bring a level of performance and sophistication that's pretty much unmatched in the region," he said. "We have three contracts that I can't really talk about active in the Middle East."

There is a definite market in the Arabian Gulf and Red Sea for patrol boats and interceptors, said Goley. Until 2020, the US Navy operated a batch of the company's Mark VI patrol boats out of Bahrain; current customers include Ukraine, which has ordered eight of them.

He describes the Mark VI as a sophisticated and complex boat, with high-level weapons capabilities, plus communications and navigational suite "unmatched for a 20m patrol boat". This means that "it's not a matter of ordering them and getting them in a month or two". ▲

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The Dassault Rafale won its biggest export deal in December 2021, when the United Arab Emirates Government ordered 80 of the latest F4 standard – the first F4 customer outside of France. Alan Warnes reviews the project's progress

WHY DASSAULT'S RAFALE F4 IS THE REAL DEAL

The UAE Air Force and Air Defence (UAEAF&AD) had been looking for a Mirage 2000-9 replacement for nearly a decade, with the Eurofighter also an option.

But the \$19 billion order to France, which also included 12 twin-engined long-range H225M Caracal tactical helicopters – valued at around \$800 million – opened a new chapter in the region's air power capability.

Dassault has carved out an incredible number of export successes (224 new aircraft and 24 second-hand) with a lot of support from the French Government in just five years. It actually forced the company to halt production of the Rafale for the French Air and Space Force (FASF) in 2018 to free up floor space at Bordeaux.

This allowed Egypt (which has ordered 54), Qatar (36) and India (36) to start receiving theirs, before domestic production started again in late-2022. Croatia (12 ex FASF), Greece (12 ex FASF, 12 new build), UAE (80) and Indonesia (six plus an additional order for 36 on option) are now waiting for their aircraft.

All the Rafales delivered to customers so far are of the F3 standard.

The on-board Thales RBE2 airborne electronically scanned array (AESA) radar, the aircraft's jewel-in-the-crown, was integrated on to the Rafale in 2012, making it the first European AESA radar to fly with a military in Europe.

Egypt, India and Qatar Rafales are all equipped with this radar.

The system can track multiple air targets for both close combat and long-range interception, as well as multiple sea or ground targets in a busy environment in all weather.

Additionally, the RBE2 can generate, in real time, three-dimensional maps for terrain-following, as well as the real-time generation of high-resolution ground maps for navigation and targeting.

Other key benefits are the extended-range capabilities to support low-observable target detection and the full use of new weapons like the Meteor beyond-visual-range air-to-air missile.

The purchase of the much more capable F4 standard, still under development, means the UAE Rafales will not be delivered until around 2027.

There are two paths to this

standard – F4.1 and F4.2, with full qualification of the former expected imminently.

The new standard's armament will include a 1,000kg variant of the Armement Air-Sol Modulaire (modular air-to-ground armament, AASM). On the export market it is known as the Hammer (highly agile, modular munition extended range).

Multimode seeker integration

Longer term, MBDA is looking to integrate a multimode (inertial/laser/infrared) seeker. It is unclear, though, if the UAE Government will opt for this derivative, with UAE's Edge already developing an Al Tariq 1,000kg precision-guided munition with a variety of different guidance systems.

One weapon the UAEAF&AD is currently using is the Scalp stealth cruise missile, which it refers to as the Black Shaheen. Already integrated on to the Mirage 2000-9s, the UAE will undoubtedly seek to acquire the new modernised version, with its increased resistance to the

global positioning system (GPS) receiver being jammed, causing the weapon to miss its target.

With the US reluctant to export cruise missiles to air forces in the Middle East, the Europeans have saved the day because of the more relaxed view on such restrictions – one of the reasons why the Eurofighter and Rafale are in the region.

Another new missile for the F4 standard is the Mica NG – a new generation Mica, with a new rocket motor because of the decreased weight of the avionics to boost the range.

A new infra-red, or radar proximity fuse, will allow the pilot to select the best mode to hit the target. Development should be completed in 2026 when the second path – F4.2 is completed. This will also see the introduction of three new systems to collate and disseminate information, aided with an Inmarsat satellite link, that should see F4 development being completed in 2025. ▲



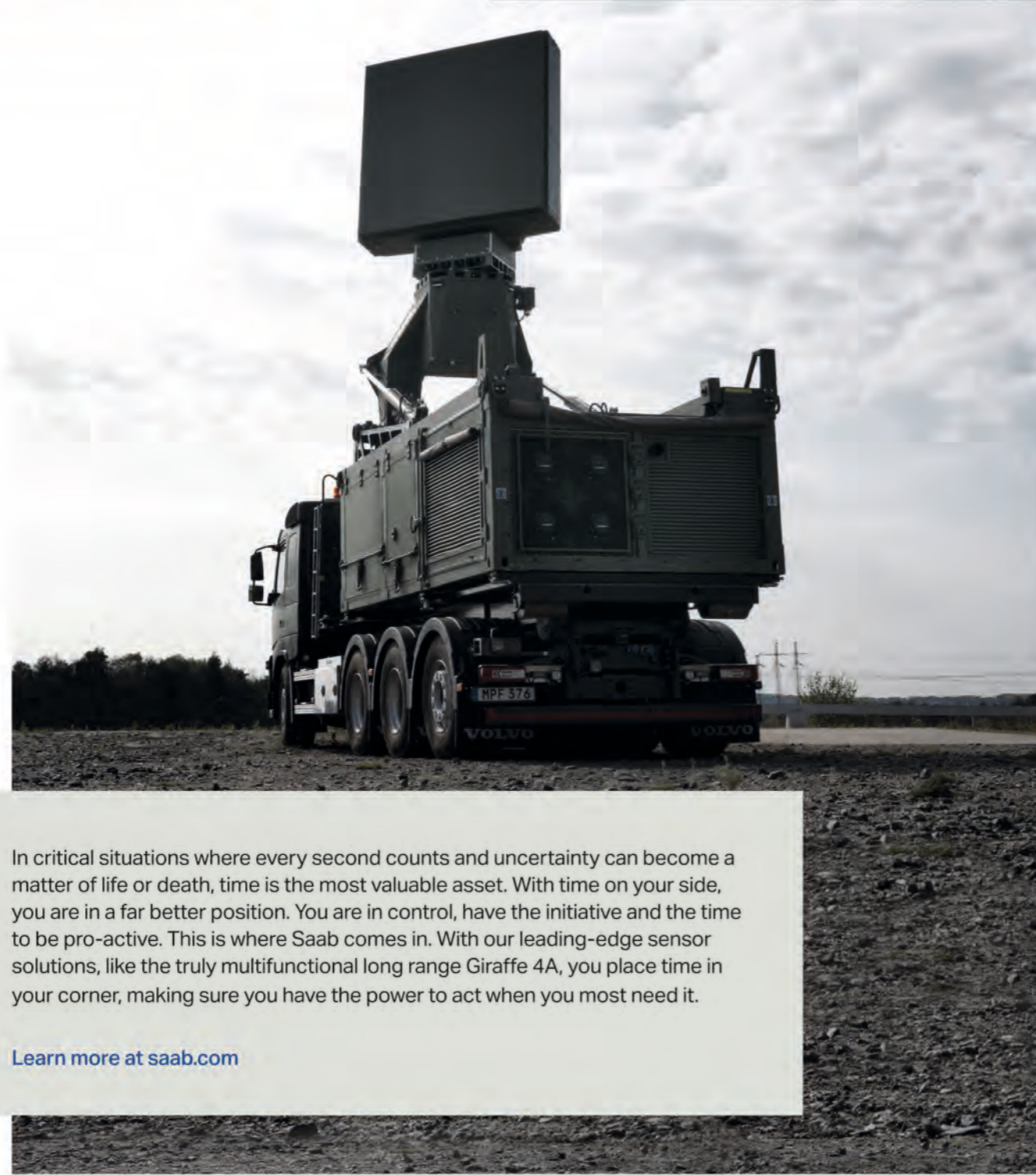
▲ The UAE is set to become the first export customer for the highly capable Dassault Rafale F4 standard jet

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Jordan

Jadara sets sights on big growth ambitions

Jadara is at IDEX with plans to launch new products with more advanced systems and better specifications.

“This year we have very promising projects and we will make a big jump,” said Khaled Jafar, vice chairman, Jadara Equipment and Defence Systems.

The company plans to launch the much-awaited shoulder-fired anti-tank rocket launcher, designated as RPG Raptor, which is aimed to replace the man-portable rocket-propelled grenade launcher RPG32.

“We just finished the development of the launcher, after successfully completing the development of the rocket and the launch tube. We are currently working on the development of the ballistic table and we hope it will be ready soon,” Jafar said.

Raptor’s fin-stabilised 107mm calibre missile has a range of 500 metres, as compared to RPG 32’s 350 metres, and has a penetrating capacity of up to 500mm.

Amid the rising demand for anti-tank guided missiles (ATGMs) in the region, Jafar said a new product, which will be launched this year, is the Terminator FM. This new beam-riding ATGM has a calibre of 152mm, a range of up to 5,000 metres, and is equipped with a tandem HEAT warhead capable of penetrating rolled homogeneous armour (RHA) after explosive reactive armour (ERA) up to 1,000mm.

“The system is almost ready. We are in the final stages of the development of the guidance sight.

Jay Menon talks to Jordan’s leading military equipment manufacturer about its latest ambitions for growth

We are trying to make it much better with high resolution so that it can acquire the target at a maximum range of five kilometres, better than any systems currently available in the market,” said Jafar.

The launcher component of the system weighs 27.3kg, while the missile in its container weighs 29.7kg. Jadara claims that the Terminator-FM can operate at temperatures from -40 to 60°C.

Referring to other developmental projects, Jafar said: “We are also working on replacing our sights. We just started; we want to move into using digital sights using cameras instead of

optical sights.

“We are also working on introducing fire-and-forget systems for the laser-guided weapons that we produce. These are already under development.

“We have finished the development of the software algorithms. We design our own guiding algorithms for target acquiring and tracking under severe weather and visibility conditions.”

The initial version Terminator ATGM has a minimum range of 100 metres and a maximum range of 2,300 metres. It is being marketed with two different warheads, with the missile itself having a diameter of 107mm.

The offered warheads are a tandem high-explosive anti-

tank, which is claimed to be able to penetrate at least 550mm of conventional steel armour protected by explosive reactive armour, and a high-explosive fragmentation warhead, which can also penetrate 550mm of conventional steel armour, as well as having a fragmentation effect.

The missile is laser-guided and all the operator has to do is to keep his sight locked on to the target until impact.

In the pipeline

In addition to the standard man-portable tripod-mounted version of the Terminator, it can also be mounted on a remote weapon station, with the gunner under armour protection in the hull.

Also in the pipeline is a new ATGM called ‘Spear’, which can be operated in two control modes selectable by the operator. There is manual control mode, where the operator can control the missile by continuous target tracking until the target is destroyed, or second control mode using fire-and-forget technology, where the system locks and tracks the target and guides the missile automatically until the target is destroyed.

“An advanced locking and tracking algorithm, capable of achieving very high hit probability under severe weather and visibility conditions compared to similar systems from other manufacturers, is being used in this system.

“Almost 60% of the development work is complete and we expect to test the missile by the end of this year,” Jafar concluded. ▲

▼ RPG Raptor aims to replace the man-portable rocket-propelled grenade launcher RPG32



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Cummins makes powerful engine statement at IDEX

Cummins has used IDEX to unveil a new 540hp engine geared up for defence applications.

Speaking at the show, the company's EMEA defence lead, Garry Talbot, said: "This is the latest stage five off-highway and latest on-highway Euro six-engine technologies that have been merged to create this engine for the defence sector."

The ISL 9 – indicating a nine-litre engine – has already been proven in a wide variety of equipment both on-road and off for the commercial sector, and also for military vehicles like armoured personnel carriers, infantry fight-

ing vehicles and logistical trucks. But recognising the special requirements of the military, the UK company has developed the new variant that has increased the power by 20%.

Torque capability is also increased up to 1,900Nm.

The increases are a direct result of integrating the Cummins HE 500 variable geometry turbo-charger (VGT) into the engine.

The VGT has a unique patented one-piece sliding nozzle design, which precisely adjusts the airflow delivered to the engine. This effectively combines the benefits of a small and a large turbocharger in a single unit. The sliding nozzle



▲ Garry Talbot – We've made sure that this engine (the ISL 9) is adaptable

varies the exhaust gas flow into the turbine wheel to provide rapid boost at low engine rpm and then maintain higher boost at higher rpm.

Cummins is playing a part in the defence sustainability initiative.

"We've made sure that this engine is adaptable," Talbot said. "We can utilise this with hybrid technologies going forward, as we see the move towards net zero. With the fuels that are currently used in the military it's very difficult to move to latest technologies, so we see a transition to hybrid electric as a solution to reduce fuels going forward."

The small Reach with a big future

Edge's new Halcon Systems Reach-S uncrewed aerial vehicle is on display equipped with four 30kg Desert Sting-16 munitions.

The prototype platform is actually on show at the Edge stand, after making its first flight just two

weeks ago, coming more than two years after it was unveiled at Dubai Airshow in November 2021.

According to a company official, the Reach-S flew four times from November 7-11, with the first flight lasting around four hours.

"All our objectives were met," the source said.

Reach-S (S for small) is set to have an endurance of 24 hours and will cover both the attack and reconnaissance role.

Flights so far have only been checking the UAV's airborne capabilities, and no electro optical/infrared (EO/IR) turret was mounted. Instead, a dummy was added to check it could fly with the additional 50kg weight.

The next step is to begin integration of the weapons.

With a 110hp engine, a maximum take-off weight of 600kgs and a communications range of 200kms, there are now aspirations to develop a larger medium-size Reach UAV, imaginatively called Reach-M, that will undoubtedly boast a longer range and the ability to carry more weapons.



▲ The Reach-S UAV on show is the real deal and flew for the first time on February 7, although it wasn't the armed version as configured here



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Saudi Arabia

Bigger, better, bolder

The World Defense Show will reveal the extent of its new and enhanced features for 2024 at IDEX today. Alison Hardaway reports

The World Defense Show (WDS), which is sharing a stand with founder, GAMI, in the Saudi Arabian pavilion, will take place from February 4-8 next year at the newly extended custom-built venue on the outskirts of Riyadh.

The theme for the second edition is 'equipped for tomorrow'.

Andrew Pearcey, CEO, explained: "Equipped for tomorrow is what WDS will enable our participants to be."

"The show will have the future of defence woven into all its features and will be looking ahead in terms of the technology and innovation on display and at how the defence

landscape will be defined over the next decade.

"We will once again host daily forums and thought leadership programmes discussing and collaborating on the major challenges facing the industry, such as sustainability and developing a pipeline to bring young talent into the sector."

Building on the success of the inaugural show in 2022, WDS 2024 will be bigger in size and wider in scope, to accommodate a range of new features.

Pearcey said: "We have increased the available exhibition space from 37,000sqm to 47,000sqm by building a new, third hall. This increase in size allows us now to accommodate up to 700 exhibitors, and already 70% of that space is either sold or committed."

"We have been delighted by the demand, which includes a number of new and expanded country pavilions."

Turkey has emerged as a new and major exhibitor to WDS 2024. Pearcey said: "Turkey, a first-time exhibitor, is currently the fourth largest country pavilion. We also have Denmark as a new country, and have seen increased participation from China, the USA, France, the Czech Republic, Italy, South Korea and Spain. It is truly a world defence show."

Focusing on future technology and innovation, added features for 2024 include new hubs for innovation, R&D and, importantly, space.

Pearcey said: "We have added the space arena as this domain is a growing sector in future defence strategy and planning. It will highlight Saudi Arabia's ambitions

to deliver policies, develop technologies, and implement a national space strategy for the sector. The arena's aim is to attract global government agencies and related parties to collaborate on common goals for global space aspirations.

"We have also introduced the 'future of defence forum', which will bring together defence leaders to discuss and collaborate on major topics affecting the industry."

The show will also see a wider range of networking opportunities. Pearcey explained: "We have expanded to five days, to include a dedicated VIP and exhibitors' preview day."

"The show seeks to bring together large and small players in the global defence industry, with investors, Saudi Government entities and high-ranking officials from 115 delegations representing around 50 countries."

"Through the delegation programme and the meet the KSA Government programme, it offers unique access to the opportunities in Saudi Arabia for defence companies across the supply chain."

"This aligns with our objective to support Saudi Arabia's 'vision 2030'. We provide a pathway for government entities and the private sector to work together towards the localisation of 50% of domestic defence equipment and services expenditure in the kingdom by 2030."

The WDS team is offering priority rates to visitors and exhibitors at IDEX. Pearcey said: "We will be available in force at IDEX to speak to companies across the supply chain to help them finalise their requirements for the coming event."

"Our expanded space is filling rapidly, but we are happy to offer this opportunity to our valued partners in the industry. We will be delighted to offer insights into the show's unique features, specialist hubs, and targeted programmes and discuss a host of participating options." ▲

"We have expanded to five days, to include a dedicated VIP and exhibitors' preview day"

ANDY PEARCEY
WORLD DEFENSE SHOW CEO



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South Africa

Next year it will be 30 years since Ivor Ichikowitz founded the Paramount Group in South Africa – a journey he described as an absolute rollercoaster ride, an adrenalin rush, which has now broadened into a new phase. Sam Basch reports.

Poised for global expansion

This week at IDEX the Paramount Group is revealing a stylish new brand and branding strategy.

“Over the past 30 years, the world has changed significantly, and so has the trajectory on which we embarked all those years ago,” explained Paramount Group founder Ivor Ichikowitz.

“It’s time to use the building blocks of our success to create the platform for our expanding global growth.”

Ichikowitz is clear that Paramount is a technology development partner for governments around the world and not just an equipment supplier.

The company’s projects relate to evolving technology it has developed for each customer, coupled with its existing skills and expertise in developing systems, to solve specific requirements that each country might have.

Underlying this philosophy is portable production, which he says Paramount utilises for all its technology solutions, be it for air, land, sea, robotics, or space platforms.

“In the current geopolitical environment, defence industrial autonomy is probably one of the most important considerations for any government,” he argued. “On that basis, Paramount’s relevance in regions like the Middle East is increasing substantially.”

He believes that Paramount is one of a few organisations in the world with the depth and breadth

of capability across all domains, and the business model is based on sharing technology and the development of domestic industrial capability.

“For years I’ve been preaching to governments that no one country should be ruled by another, and it is now truer than ever,” he said.

Security of supply is an important priority worldwide, with the Middle East probably most affected by this truism. Many countries in the region, including the United Arab Emirates, are therefore seeking to build their own industrial capability, both in general and defence.

For them the challenge is that it takes years to develop such a capability. No matter how much money is thrown at the endeavour, it still requires many years to bring to fruition.

“Paramount has the advantage that we’ve invested the time and funds to develop the base technology, to develop the product and get it certified,” he explained. “This adds huge value to our industrial partners, because with our portable production, they have a running start.”

He cites a market like India, where Paramount’s methods have proven highly successful. The

company transferred equipment and developed new technology, which resulted in production commencing in less than a year.

This has resulted in the local production of the Kalyani 4, which featured prominently in the vehicle parade of India’s national day celebrations in January. Ichikowitz is visibly proud of the success of this project.

“The product is already certified and in service elsewhere, which we’ve evolved for a specific local requirement,” he explained.

● CONTINUED ON P40



“In the current geopolitical environment, defence industrial autonomy is probably one of the most important considerations for any government. On that basis, Paramount’s relevance in regions like the Middle East is increasing substantially”

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By Ophir

South Africa

● CONTINUED FROM P39

“We’ve transferred a minimum of 80% by value of production into our partner country, India. Capacity in the Indian operation is already 250 vehicles a year – that is, from a standing start one year ago to 250.”

For many countries and defence companies, protection of jobs is a priority. Therefore, Paramount believes production jobs go to partners, who take ownership of the product.

The partner country has the production line, as is the case with the KM4 in India, which is totally Indian manufactured; the entire supply chain is Indian.

He confirmed that portable manufacturing implies migrating 100% of production to a partner country and that the project is not simply vehicle assembly or delivery of kits.

Having perfected this methodology, Paramount intends to roll it out extensively, with the Middle East a primary and very important target region.

“I can mention some countries

like India, Kazakhstan and Thailand, but we’re already engaged in several others we can’t mention yet,” Ichikowitz said. “We’re embarking on large scale and important projects in two Middle East countries.”

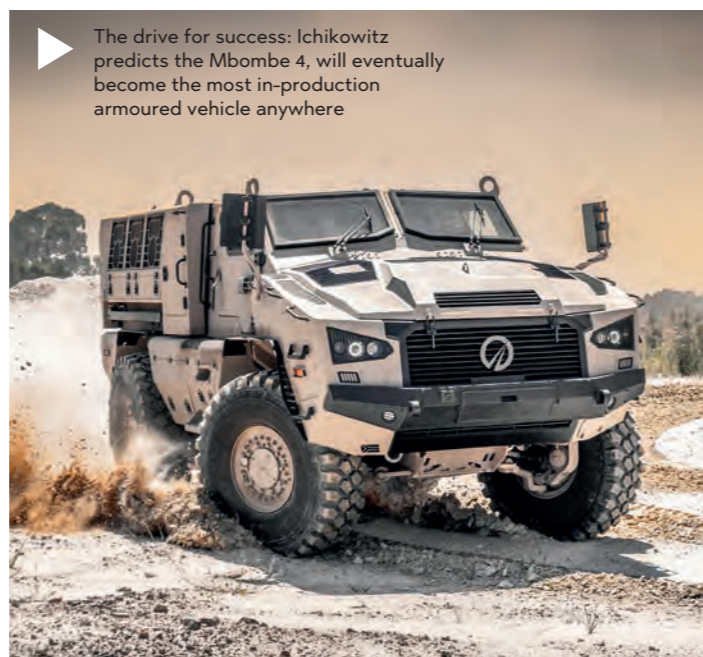
Portable production

In his view the Mbombe 4, Paramount’s latest, highly advanced flat-floor 4x4 mine-protected vehicle, will eventually become the most in-production armoured vehicle anywhere: “we’ll achieve this through multiple satellite manufacturing operations around the world.”

With India already producing more than 250 vehicles a year, Thailand having the same potential, along with Kazakhstan’s equally strong capacity, Paramount is aiming for a minimum of 1,000 armoured vehicles a year.

“Our objective for the next five years is to expand portable production, spread among five or six production facilities around the world,” he explained.

“In fact, seeing that this



▶ The drive for success: Ichikowitz predicts the Mbombe 4, will eventually become the most in-production armoured vehicle anywhere

partnership model is in place with several governments and strategic partners, we could reach our objective in three years.”

Questioned on electric and hybrid-electric land vehicles, he

was adamant that electric drive is inevitable in the defence sphere. The company will soon announce an important alliance that will make Paramount a pioneer in the non-Itar electric vehicle space. ▲

The push for better gender-balance in the industry

Pushing against a brass ceiling

The role of women in the defence industry will come under scrutiny at this year’s IDEX. Undoubtedly there will be more women gracing the aisles in the exhibition hall and on the stage for the event’s conference.

According to Boeing’s president of business development, where she leads a team representing Boeing’s defence, space and government services portfolios around the world, Heidi Grant said it is not before time.

Before joining Boeing just over a year ago, Grant was director, Defense Security Cooperation Agency, and a member of the senior executive service in the Pentagon. Clearly one of the highest-ranked civilians at the Pentagon, she was a champion in the cause to bring greater gender balance to the industry and has

been often critical of what she called the “brass ceiling”, where the uniform would clearly signify background and experience.

“When people enter a room with their uniform on, there is an instant shared trust, bond, credibility, and respect based on their earned ‘brass’. However, for a career civilian, in a business suit, you don’t have the same level of instant recognition and bond,” she said.

“Over time, I earned the bond, trust, and credibility needed to best support the warfighters – while I was in a business suit. I was invited

“If you have a goal, understand what it takes to achieve it and show your value; you can open doors”

HEIDI GRANT BOEING

into the room, the majority of the time with all of the military, and offered a prominent seat at the table.”

Grant has a clear message for other women pushing at that brass ceiling. “If you have a goal, understand what it takes to achieve it and show your value; you can open doors. Once they’re open, it’s up to each person to decide how hard they want to work to get to the next ones.

“We need to ensure we are not creating our own artificial barriers. While opportunity isn’t equal in all parts of the world, overall things are probably better today than I’ve seen at any other time throughout my career.

“My recommendation is to find passion for mission, push yourself out of your comfort zone, continue to build your diverse network, and never stop learning.” ▲



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UAE shows off its life-saving aircraft

The UAE's National Search and Rescue Centre (NSRC) is showing one of its Leonardo AW139 helicopters in the static display at IDEX.

The organisation is tasked with conducting search-and-rescue (SAR) operations across the UAE's seven emirates, aiming to meet the highest international standards laid down by the International Civil Aviation Organisation (ICAO), and the International Maritime Organisation (IMO).

It maintains five AW139 helicopters on a round-the-clock alert at Al Bateen Airport, Al Ain, Al Hamra and Liwa (Abu Dhabi), and at Fujairah IAP (Fujairah).

Aircraft are required to take off in no more than 15 minutes (by day) or 30 minutes (by night) from receipt of the distress call. The helicopters can reach any spot in the UAE within one hour (the so-called golden hour), even allowing

for a 15-minute briefing.

The UAE's SAR cover was originally supplied by five AW139s operated by the UAE Air Force and Air Defence (AF&AD), in military markings, co-ordinated through the UAE Armed Forces Joint Operations Centre (JOC). The decision was soon taken to overhaul the system and the NSRC was established at the 2015 Dubai Airshow under the Supreme Council for National Security – placing it in a separate but recognised administrative structure to the military and police.

The UAE armed forces had already ordered a further six AW139s in 2015, and though these are 'owned' by the UAEAF&AD, they are operated and maintained by Abu Dhabi Aviation (ADA) at Al Bateen in a smart red and white colour scheme.

All 11 aircraft are fitted with a Spectrelab SX-16 NiteSun searchlight, and an L3 Wescam FLIR



One of the UAE NSRC's Leonardo AW139 helicopters on the static display

turret. The initial five helicopters use the MX-10, the others using the MX-15, with a shortwave infrared (SWIR) capability giving better performance in haze.

The helicopters are routinely

operated by a pilot and co-pilot from the UAE's Joint Aviation Command, and an Abu Dhabi Aviation rear crew with a crewman and a paramedic, the latter all certified as category one trauma nurses.

Turkish Aerospace's Hürkus trainer still hoping for Middle East role

Turkish Aerospace is exhibiting a mock-up of the TAI Hürkus turbo-prop trainer and light attack aircraft at IDEX, albeit one that wears the registration of the second prototype

and the colour scheme used by Turkish Air Force trainer aircraft.

The choice of this colour scheme may reflect an understanding that the light attack end of the market

has become very crowded, and that more opportunities may exist for a basic training variant of Hürkus.

Though the basic training needs of the UAE Air Force and Air

Defence (UAEAF&AD) have been met by the country's purchase of 25 PC-21s, and though both Saudi Arabia and Qatar also operate the Pilatus trainer, there are some potential market opportunities for an aircraft in the Hürkus class in the region, not least in Bahrain and Kuwait, and perhaps in the medium term in Oman.

Though the Hürkus prototype made its maiden flight 10 years ago, on August 29 2015, it has made relatively slow progress since then, with about two dozen built, and relatively small numbers in service, mainly with the Turkish army and air force, including about six Hürkus HYEU aircraft for training forward air controllers.

In the pilot training role, the Hürkus enjoys good visibility from both cockpits with a 50 degree view over the nose for the instructor in the rear cockpit. Both pilots sit on Martin-Baker Mk T-16 N zero-zero ejection seats and the glass cockpit has hands-on-throttle-and-stick (HOTAS) controls that are broadly representative of modern fast jets.



True colours: the TAI Hürkus mock-up wears the colour scheme used by Turkish Air Force trainer aircraft

Making space for the great and the good

STEVE NICHOLS REPORTS

Giants like Airbus, Thales, BAE Systems and Lockheed Martin will be rubbing shoulders with smaller companies from around the world ranging from Aitech Systems from Israel, which specialises in rad-hardened hardware for spacecraft, to intelligent systems specialist Wind River in the USA.

Wind River software and expertise are said to be "accelerating the digital transformation of mission-critical intelligent systems that will increasingly demand greater computing capabilities, while delivering the highest levels of security, safety, and reliability".

There is also a big presence from companies that specialise in innovative computer vision and machine-learning technology. For example, software from Edgy Bees instantly makes motion and satellite imagery accurate and ready for machine-based analytics and human-assisted decision support.

Satellite images are amazing for what they can tell us about what's happening around the world. But, did you know that the locational accuracy and precision of these images can be off by as much as 200 metres?

Edgy Bees' software co-registers your satellite imagery to your choice of foundation base – in seconds – delivering accurately aligned images that you can confidently rely on for operational decisions, while removing the need

Space is playing an important role at IDEX this year with nearly 40 companies listed as having a 'space' component.

for time-consuming and costly manual corrections.

HawkEye 360 is another high-tech company that says it aims to become the world's leader in spectrum-based 'geoanalytics'. National borders can span thousands of miles and run through rugged or remote terrain. It says monitoring them efficiently, especially when resources are limited, can be tough.

With HawkEye 360's radio frequency (RF) analytics, however, you can quickly identify and geolocate activities of interest – no

matter the weather or geography – so that you can deploy resources effectively and with confidence.

Another company exhibiting is Abu Dhabi-based G42, an artificial intelligence specialist that augments remote sensing technology, used to detect and monitor natural phenomena using various types of sensor modalities, including optical, radar, and radio frequency. The imagery and data captured are then processed and analysed to deliver meaningful and valuable insights.

The company says remote sensing technologies play a vital role in many areas, including environmental mapping, urban development, and public safety.

G42 recently signed a contract with Yahsat to bring together a powerful combination of advanced space technology and satellite communications expertise with

artificial intelligence (AI) and 'big data'.

Space is now an integral part of any defence programme. It is estimated that, of the 7,000 active satellites circling the globe, only a few hundred are military installations. However, commercial satellites are being put to military use too. You just have to look at the Ukrainian conflict to see how the Starlink system, using Elon Musk's mass-produced satellites in low-Earth orbit, is being used by the military.

Ukrainian soldiers with a Starlink terminal can communicate key battlefield intelligence after powering up a system in just five minutes. "If you can communicate and then move before the adversary can find you and respond, then you've won," Andy Lincoln of Viasat told the Global MilSatCom Conference in London recently.

"The most impressive thing about what the Ukrainians have done is that they've adapted and overcome."

Starlink was used to connect drones operated by US and allied forces in a recent NATO exercise off the coast of Portugal. During the exercise, approximately 120 unmanned aircraft, vessels and underwater vehicles were integrated into a common network. It also is being used in multinational military exercises that require connectivity between ships, aircraft, and operators on the ground.

Starlink is scheduled to offer coverage over Asia, Africa, and the Middle East sometime in 2023. ▲



Starlink satellites are also being put to military use

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Artificial Intelligence (AI) is one of the hot topics at IDEX. Alan Warnes takes a look at some of the latest innovations which have seen uncrewed flights take to the skies

Drop the pilot

Why UAE military is embracing AI

Artificial intelligence is now being adopted by many of the UAE's military forces, as Colonel Staff Pilot, Abdulnasir Mohamed AlHameedi, the spokesperson for IDEX, NAVDEX has revealed.

"We have certain initiatives with regards to AI, but since it is an emerging technology we have adopted a building block approach," he said.

"All three services – the air force, navy and land forces – are looking to see what industry is doing for the future and are looking at AI initiatives in the training domain." He continued: "The system is fairly new, but it is identifying the weaknesses and strengths of students."

The UAE Air Force and Air Defence (UAEAF&AD) uses the Grob 115T as a screener, and a Pilatus PC-21, where virtual reality, AI, and simulation are used. "From PC-21s our pilots go directly to the front line, flying Mirage 2000-9s, F-16s and other platforms. It's an initiative that we took 10 years ago in the UAE," said AlHameedi.

"The PC-21 can pull 7G and a 300 knots cruise, so it is very

similar to fighters, and we think they are trained well for that."

But, he added, that doesn't cancel out the importance of having advanced jet training platforms, which could be complimentary for intermediary training.

Open debate

"We are now working on the simulation for advanced jet training. The requirement for an advanced jet trainer is an open debate.

"Some people think there should be something between the PC-21 and the fast jets but, with AI and advanced simulations, it is doable and fairly efficient to go from high-performance props to fighters."

The UAEAF&AD intends to purchase 12 Hongdu L-15s to replace the Leonardo MB 339s currently serving the Al Fursan aerobatic team in two or three years. The aircraft could also be used as an intermediary trainer.

The announcement was made at UMEM last February and could lead to an additional 36 being acquired as a trainer and a light combat aircraft – something still



"All three services – the air force, navy and land forces – are looking to see what industry is doing for the future and are looking at AI initiatives in the training domain"

COLONEL STAFF PILOT, ABDULNASIR MOHAMED ALHAMEEDI

under discussion.

On a fifth-generation asset, AlHameedi said the MoD is always

seeking such solutions.

"There are still discussions on the [Lockheed Martin] F-35, but there are also other options in the east. There are many programmes launched across the world – fifth/sixth generation. It's a rapidly changing landscape – especially when it comes to UAVs."

Asked about the biggest threat to the UAE, AlHameedi would only say: "The biggest challenge for the UAE is helping others to maintain stability. We are straight-forward and want to maintain a good neighbourhood, maintain peace in the region and everything we do is for that goal." ▲

One-off VISTA changing the face of air power

The Lockheed Martin VISTA X-62A, a one-of-a-kind training aircraft, was flown by an artificial intelligence agent for more than 17 hours recently, representing the first time AI engaged on a tactical aircraft.

Lockheed Martin announced on February 13 that the VISTA, short for variable in-flight simulation test aircraft, is working on a Lockheed Martin F-16 at the US Air Force Test Pilot School (USAF TPS) at Edwards Air Force Base in California.

VISTA is a one-of-a-kind training aircraft developed by Lockheed Martin Skunk Works in collaboration with Calspan Corporation for the USAF TPS. It is fitted with software that allows it to mimic the performance characteristics of other aircraft.



The one-of-a-kind Lockheed Martin VISTA X-62A training aircraft

"VISTA will allow us to parallelise the development and test of cutting-edge artificial intelligence techniques with new uncrewed vehicle designs," explained Dr M Christopher Cotting, US Air Force Test Pilot School director of research.

Recent upgrades by the US Air Force include an updated VISTA simulation system (VSS) provided by Calspan, and Lockheed Martin's model following algorithm (MFA), and system for auto-

nous control of the simulation (SACS).

The SACS and MFA systems integrated together provide new capabilities to the VISTA so it can be used to conduct the most advanced flight-test experiments emphasising autonomy and AI.

VISTA is a modified F-16D block 30 Peace Marble II aircraft upgraded with block 40 avionics. Previously designated NF-16D, in June 2021 VISTA was recognised by the US Air Force and

deemed a national asset with a formal redesignation to VISTA X-62A.

This new mission system capability with VSS, MFA and SACS emphasise advancing autonomous aircraft algorithm development and integration.

For decades, Lockheed Martin has been applying and deploying trusted AI technologies to help its customers maximise performance, safety, and situational awareness across all domains.

Uncrewed helicopter flown using an ALIAS

An uncrewed helicopter, flown entirely under AI control earlier this month, was discussed at this week's IDEX and NAVDEX conference in the ADNOC Business Centre.

The Defense Advanced Research Projects Agency (DARPA), a research and development agency of the United States Department of Defense, used the aircrew labor in-cockpit automa-

tion system (ALIAS) program to control a UH-60A Black Hawk helicopter without anyone on board.

Sikorsky, a Lockheed Martin company, completed the 30-minute flight with the optionally piloted vehicle (OPV) over the US Army installation at Fort Campbell, Kentucky on February 5th. An additional uninhabited flight was also conducted on February 7th.

Lockheed Martin's Middle East chief executive, General (Ret'd) John Nicholson, discussed the AI topic briefly at the IDEX and NAVDEX conference.

The Black Hawk was retrofitted with Sikorsky MATRIX autonomy technologies that form the core of ALIAS and can change the way aviators and air crews execute their missions by providing assistance when flying with limited visibility or without communications.

The system is a flexible, extensible, automation architecture for existing manned aircraft that enables safe reduced crew operations, facilitating the addition of high levels of automation into existing aircraft.

It also provides a platform for integrating additional automation or autonomy capabilities tailored for specific missions.

"With reduced workloads, pilots can focus on mission management instead of the mechanics," explained Stuart Young, program manager in DARPA's tactical technology office. This unique combination of autonomy software and hardware will make flying both smarter and safer."

The programme has leveraged the considerable advances in aircraft automation systems over the past 50 years, as well as similar advances in remotely piloted aircraft. Even in today's most automated aircraft, pilots must still manage complex interfaces and respond to unexpected situations.

ALIAS aims to support execution of an entire mission, from take-off to landing, including autonomously handling contingency events, such as aircraft system failures. Easy-to-use interfaces facilitate supervisor-ALIAS interaction.



Lockheed Martin

▲ Wot no pilot? The uncrewed helicopter was flown entirely under AI control earlier this month

▲ NEWS IN BRIEF

Search-and-rescue boost for the UAE

The UAE's National Search & Rescue Centre (NSRC) will integrate QinetiQ's BRACERTM tactical satellite communications system into its fleet of search-and-rescue (SAR) helicopters, as well as equipping its medical and rescue personnel.

Following an extensive trial and test integration period throughout 2022, BRACERTM will provide NSRC with global beyond-line-of-site (BLOS) communications and asset tracking to improve overall situational awareness and help coordinate SAR missions in some of its most challenging theatres of operation – often where traditional radio communications cannot always be relied upon due to distance, geography, or weather conditions.

Dr Stephen Toumajan, general manager, NSRC said: "The BRACERTM satellite communication and tracking capability is a game-changer for SAR operations. It allows us the ability to talk to and track our crews anywhere in our area of operations." Tim Williams, senior sales manager, QinetiQ added: "NSRC operates in challenging air, maritime and land environments and embraces the need to use best-of-breed technology to deliver its life-saving service."



▲ The AS565 Panther now looks rather more anonymous, with a simple toned-down JAC badge on their tail fins

Panthers in the pink

The Airbus Helicopters AS565SB Panther helicopters of the UAE's Joint Aviation Command (JAC) have long been a popular feature of IDEX exhibitions and Dubai Airshows.

Distinctive-looking, with their unusual 'flat plate' under-nose radar antennas, the aircraft have finally shed their UAE Navy markings, and now look rather

more anonymous, with a simple toned-down JAC badge on their tail fins, above their fenestron tail rotors.

The AS565 Panther is a twin-engine, medium-sized multi-mission rotorcraft capable of performing a wide range of roles, from search-and-rescue, casualty evacuation and vertical replenishment, to surveillance and special forces operations.

The AS565SB is a specialised sub-variant, tasked primarily with anti-submarine and anti-surface warfare missions.

All UAE Army and Navy helicopters and fixed-wing assets now come under JAC control, with the former Navy AS332B1, AS332M1, AS565MB and AS565SB helicopters being assigned to Group 21 at Sas al Nakhil airbase.

Tupan looking for Middle East partners

Brazilian aerospace company, Tupan, is showcasing its high-speed vertical take-off and landing (HSVSTOL) uncrewed aerial vehicles in the Marina Hall.

These versatile air vehicles are capable of carrying out multi-missions in both the civil and military fields, operating under low or high flight speeds due to their versatile propulsion options – turbofan, propeller or electric ducted fan (EDF).

"IDEX is the premier event for the defence industry in the Middle East and we are thrilled to be participating

as an exhibitor," said Tupan CEO Alberto Carlos Pereira.

"We look forward to sharing our innovative air vehicle technology with attendees and to demonstrating their versatility and capabilities."

The company currently has three HSVSTOL UAV versions in its portfolio – Tupan 1000 (payload of 120kgs), 2000 (220kgs) and 3000 (400kgs).

It and is committed to expanding its activities in the UAE by actively seeking strategic partners within the region.



▲ Tupan is thrilled to be exhibiting its HSVSTOL uncrewed aerial vehicles at IDEX



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