The biennial International Defence Industry Fair (IDEF) took place in Istanbul from May 9-12. Unprecedented security was the story of the show’s first day due to the presence of Turkish Prime Minister, Binali Yildirim. Despite at one stage having his camera confiscated, Alan Warnes reports in both words and pictures.

**R-R deal takes Turkey closer to fighter dream**

The unveiling of two new air-to-air missiles, the first to be designed in Turkey, caused quite a stir on the opening day. The bigger Bozdogan (Merlin) beyond-visual-range missile is on the left, while the Gokdogan (Peregrin) within-visual-range AAM is on right.

EVENTS

IDEF 17 provided us with a chance to gauge the progress of Turkey’s domestic aerospace defence industry – and we weren’t disappointed.

Hall 12 was the magnet – with Aselsan, Havelsan, Roketsan and Turkish Aerospace Industries (TAI) taking up the bulk of the space.

Other notable were Tubitak SAGE, Bayraktar and Vestel, while the pick of the foreigners included BAE Systems and Pakistan Aeronautical Complex (PAC).

Rolls-Royce was also present with its new Turkish joint venture partner, Kale Group.

On the eve of the exhibition they announced that they would bid together to develop the national engine for Turkey’s new indigenous fighter, TF-X. Turkey’s aspirations to design and build an indigenous fighter, TF-X, came a step closer at IDEF.

In a ceremony at the TAI stand, Stephen Phipson, head of the UK’s Defence and Security Organisation (DSO) and Dr Ismail Demir, Turkey’s Undersecretary for Defence Industries (Savunma Sanayii Müsteşarı, SSM), signed a phase 1 agreement to span four-years and worth more than $100 million. It will pave the way for future TF-X cooperation, the first of many multi-million pound contracts between British and Turkish firms over the life-time of the project.

The fifth generation twin-engine fighter is expected to make its first flight in 2023, to celebrate Turkey’s 100th anniversary, and enter Turkish Air Force service in 2029.

With an urgent need to speed up the jet’s preliminary design review (PDR), a decision on the jet’s powerplant is expected by the end of the year. Rolls-Royce, in partnership with Kale Group, is bidding, as is Eurojet.

**Immediate requirement**

Another immediate requirement is the selection of a flight control system, with Leonardo keen for a piece of the action.

BAE Systems managing director military air and information, Chris Boardman, said: “These are the most important decisions and they have to be made by the end of the year if the 2023 deadline is to be met.”

TAI and BAE Systems, which was selected as the foreign collaboration company in mid-2015, also signed an agreement on how the two companies will work together.

The Turkish Government is seeking the new fighter to replace its fleet of F-16s, with the block 30s being the first.

The F-16s will be replaced, one for one, so there will be a need for around 250 new aircraft to work alongside the F-35A Joint Strike Fighters on order by the Turkish Air Force.

In 2029, six years after first flight, deliveries of serial production aircraft will begin. It’s an optimistic plan, but Boardman is confident that the deadlines can be met, based on previous experience on the likes of Mantis.

TAI chairman and CEO, Temil Kotil, was delighted by the announcement, believing that TF-X will launch the company into the big time.

“We will require many engineers to carry out this contract, to work alongside BAE personnel. They will be our future and the ability to launch TAI into a new era.”

Kotil said that TAI was keen to complete the PDR within three years instead of four – he appears to be a man keen to speed up TAI progress.

**Two new AAMs unveiled**

The unveiling of two new air-to-air missiles, the first ever to be designed in Turkey, caused quite a stir on the first day.

It was due mostly to Turkish Prime Minister, Binali Yildirim, making his way to Tubitak SAGE (defence industry research and development institute) with the press on his heels and personal security personnel in tow.

There, he pulled back the covers to reveal the Peregrin within-visual-range (WVR) and Merlin beyond-visual-range (BVR) air-to-air missiles (AAMs). They are both expected to be among the bids to arm the indigenous needs for the TF-X programme well into the next decade.

According to Tubitak director, Erdal Cakmak, they have been under Project Goktug development since 2012. He added: “Both missiles should be integrated and test fired within the next two years.”

According to one source, the Peregrin (Gokdogan) has a range of 30kms (20 miles), while the larger Merlin (Bozdogan) has around 65kms (40 miles). They may be at the design stage but Cakmak believed: “It was an appropriate time to show them off.”

While Tubitak SAGE has designed both AAMs, a decision on which company will be responsible for producing them has not been taken. In the recent past, when Tubitak SAGE developed the SOM stand-off missile for the F-4E and F-16 and SOM-J for the F-35, Roketsan took on the production.

The government-backed institute claims the Peregrin will have a high-resolution dual-colour imaging infrared seeker, with a comprehensive off-bore sight capability, along with advanced counter-measures. The Merlin has a solid-state radio frequency seeker built by Aselsan, with an advanced counter-measure capability and datalink update.
Vestel UAV shows plenty of variation

Vestel Defence Industry was exhibiting its new UAV, the Karayel-SU (Silahli Uzun – long version) – so called because of its 13-metre wingspan.

With its 120kg under-wing payload it can be armed with four weapons, with the example at IDEF fitted with two lightweight semi active 22kg smart micro munition mini Akilli Muhimmat – Laser (MAM-L) and two 8.5kg MAM-C (Cirit) under each wing. Both have a range of 2.8kms.

There are four variants of Karayel tactical UAVs. The original system is used for surveillance with an endurance of 16 hours; the armed Karayel-S has an endurance of eight hours; the Karayel-U, with a 13-metre wingspan but only for surveillance; and the Karayel-SU. The latter has an endurance of 20 hours with an EO/IR turret – the version on show was a L3 Wescam system. With a 60kg payload it can stay up for 12 hours and with 120kgs, for eight hours.

During June 2016, the Karayal-SU fired live munitions during a demonstration to the Turkish land forces but a Vestel spokesman claimed that there had been no conclusion to those trials.

The UK and Turkey signed a TF-X agreement on May 10, which could lead to 250 aircraft being delivered to the Turkish Air Force.
A full-scale mock-up of the Hurkus C on display at the TAI Stand.

Endurance seals Hurkus C agreement

TAI signed an agreement with Turkey’s SSM at IDEF to launch the armed Hurkus development and serial production project.

The Turkish Army Aviation has a requirement for 24 armed Hurkus Cs, with 12 of them being on option. The Jandarma also has a requirement for a further six, with six on option.

A full-scale mock-up of a Hurkus C (combat) light attack/armed reconnaissance aircraft could be found at the TAI stand.

Unlike the trainer Hurkus A and B models, these will be armed with the Laser-UMTAS long-range anti-tank missile and Cirit 2.75 inch rockets, but will progress to bigger weapons like the Teber 81 (Mk 82 bomb fitted with a Mubitak SAGE HGK-3 laser guidance kit), Teber 82 (Mk 81 bomb fitted with HGK-5 laser guidance kit) and machine gun.

According to Ozcan Oertem, TAI’s aircraft group vice president: “The advantage for the army is that the Hurkus C will utilise the same weapons as the T-129 ATK helicopter. It can stay airborne for four hours — an endurance you can’t find on a helicopter. The army is considering them for its combat air patrols and fast response team and that’s why there will be an EO/IR turret underneath.”

TAI has converted one of the Hurkus A development aircraft into the C prototype – the main difference between the two is a self-protection system, an Aselsan cockpit and the ability to fire weapons.

Armed Bayraktar UAVs pack a punch

The Bayraktar tactical unmanned aircraft system (UAS) is probably the most successful indigenous UAS built in Turkey.

After political issues over the acquisition of 10 IAI Herons in 2009, Turkey embarked on development of the Bayraktar for the domestic market.

Having earlier produced the prototype tactical block 1 (TB-1) in 2005, the company opted to develop a TB-2 variant for the army.

The platform has recorded 15,000 hours since being introduced into service in September 2015. The first 12 were delivered in two batches – six by November 2014 and another six by June 2015. Initially they were used for the intelligence, surveillance and reconnaissance (ISR) role with the army, which started testing an armed version in December 2015, with first firing in June 2016.

Lufti Bayraktar, general manager of the family-run firm, said: “It has been a year since the army first fired the weapons in combat and there has never been any collateral damage. High-quality imaging by the L3 Wescam MX-15D easily distinguishes armed militia from civilians. And the weapon is small, so the impact area is small.”

With weight being a critical factor, Roketsan has designed the mini smart munition (MAM) with the laser version (MAM-L) on display underneath the UAS. Bayraktar added: “The UAS is currently fitted with two pylons, but an additional two pylons will be added this summer. It does reduce the duration — without weapons it can fly 24 hours and with a full weapons payload for 14 hours. But that’s still a lot!”

The Bayraktar UAS has been used in Syria against Daesh and its MX-15D electro-optical/infrared (EO/IR) turret can ‘lase’ (pinpoint the target) for armed helicopters and F-16s.

Six unarmed versions have also been delivered to the Turkish Polis and Jandarma in the ISR role. Work is now under way by Bayraktar on developing a five-six tonne UAS.

Turkey’s Super Mushshaks

After nearly a year of discussions, the Pakistan Aeronautical Complex (PAC) Kamra and the Turkish Air Force finally sealed a deal for 52 Super Mushshaks at IDEF. The PAC chairman, Air Marshal Arshad Malik, signed the contract with Dr Ismail Demir, Turkey’s Undersecretary for Defence Industries, after the 260hp trainer was selected in August 2016.

All the aircraft will replace the Turkish Air Force’s fleet of SF260s and Cessna T-41s for student pilot/undergraduate training. They will be fitted with the Garmin 950 avionics in the cockpit. The first pair will be supplied within nine months, according to the PAC chairman. The remaining 50 aircraft will follow within three years.

It is unclear as to where the aircraft will be produced; some believe it would be easier for them to be produced in Pakistan, whereas the government is keen to carry out the work in Turkey.

TAI unveils utility helicopter

TAI showed off its brand new indigenous utility helicopter for the first time. The T625 designation is derived from the six tonne weight of the helicopter, two engines and five rotor blades.

The full-scale mock-up, fitted with elements of the real helicopter, is expected to make its first flight on September 6, 2018. There will be two more prototypes that will follow in six-month intervals, according to executive vice president, Metin Sancar.

Each will be used to speed up the certification of the helicopter.

“In the military market, the Turkish Army and Turkish Air Force has an ageing fleet of UH-1Hs, while the Turkish Police have also shown interest,” said Sancar.

The military derivatives will cover the utility role as well as search and rescue, which will include a hoist being attached.

The helicopter should be completed by the end of the year and ground-testing is expected in early 2019. Turkish certification is being targeted by the end of 2020 and European Aviation Safety Agency (EASA) certification afterwards.
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