

# DISCOVERY AIR DEFENCE

Canadian defense contractor Discovery Air Defense has more aircraft and personnel than most air forces, the industry's first multi-national contracts in three countries across two continents, and ambitious plans to become the first civilian operator of the F-16 to compete in the fifth-generation pilot training arena.

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report: **Rich Cooper/**  
**Centre of Aviation Photography**



**Discovery A-4s work closely with Wittmund-based Eurofighters.**  
Stefan Petersen/  
Discovery Air  
Defence Services

*A handful of companies have been set up to provide commercial adversary support services to the US and allied militaries. In this series of features, we outline four leading commercial tactical air specialists: Discovery Air Defence, Airborne Tactical Advantage Company (ATAC), Draken International and Air USA.*

**F**OR A CIVILIAN company to operate an ex-military fighter, complete with ejection seats and external hardpoints, requires a great deal of regulation and planning. Canadian contractor Discovery Air Defence Services knows this story well.

Canada was one of the first NATO countries to use civilian contracts as a solution to tight defense budgets, but it was no easy ride. It began by using a number of US and Canadian companies, but it was becoming clear that the military's demand was greater than the initial contractors could provide. Furthermore, the US companies were unintentionally operating without Air Operators' Certificates, so had no right to conduct commercial activities in Canada. The flag was raised that they were operating under the 'lighter-touch' Experimental category, US FAA Part 91, but while this opens doors in the US, this wasn't enough for Canada. A study of Canadian rules revealed that, although the Minister of Transport has responsibility, if the matter relates to defense then it falls under the Minister of National Defence or the Chief of the Defence Staff, so the military had to take a second look at how US companies were operating in Canadian airspace on defense business. Transport Canada washed its hands of it, as it was rightly decreed a military matter, but the 'commercial service' angle was a sticking point and a regulatory headache.

After a mountain of paperwork, the resultant memorandum of understanding was unprecedented. To a large extent, it's what sets Discovery Air Defence apart today.

### Setting the pace

Formerly known as Top Aces, the company was awarded the newly-drawn contract in 2005 to provide the Canadian Forces with aggressor training. Now operating as Discovery Air Defence (DA Defence), it acquired its A-4N Skyhawks through the take-over of Advanced Training Systems International (ATSI) of Mesa, Arizona, in December 2013. These

ex-Israeli Air Force aircraft joined a fleet of ex-Luftwaffe Alpha Jets, and highlighted the company's ambition to make a footprint into Europe.

The company undertook depot-level servicing of the A-4s in Mesa, with the engines being sent out for full overhaul in New Zealand. Furthermore, it set about making the cockpit of its Skyhawks the best it could be to ensure future contract sustainability right from the outset. This capability — to break the jet down to depot level, build it back up, modify it in-house and certify it — is another area that sets DA Defence apart.

Alongside the acquisition of the A-4s, DA Defence recognized that the aggressor-based air support to defense operational training (ASDOT) market was working well within North America, yet Europe had not really caught up with the benefits that it can bring. This is especially true in the light of so many cutbacks resulting in fewer fighters, yet such training is still being undertaken in-house using costly front-line jets, and eating into precious spares and fatigue lives.

While ASDOT looks like a win-win, there remains a lot of convincing to be done in the upper echelons of European military decision-makers. Concerns are raised over undermining military ethos, the legitimacy of contracted aggressor roles, the age and performance of the platforms used, regulations, and the security implications of allowing tactics to be opened up. Each nation will view this differently and have its own perception of contracted services. But, armed with its unique framework and ambitious plans, DA Defence has made its first footprint on European soil.



Europe's longest-standing defense contractor provider was BAE Systems, operating out of Wittmund air base in Lower Saxony, northern Germany, and providing aggressor and target-tug duties for the German military. That company was accused of falling into a complacency trap as it had operated the Luftwaffe contract for decades, first flying F-100 Super Sabres before moving to A-4s. When the last five-year contract went to tender, the ASDOT industry had shifted up a gear and appeared to overtake BAE Systems' desire to stay in the market. DA Defence seized its chance, and in January 2015 commenced a five-year contract.

### A-4 operations

The 1,200-hour per annum deal covers German Air Force, Army and Navy duties, with 1,030 hours falling to the Luftwaffe (target, pilot training support, FAC training including the use of practice bombs and Red Air adversary training). The Army and special forces have 130 hours of FAC and exercise support, practice bomb delivery, and armed common fire support, while the Navy gets 40 hours of primarily target practice for air defense and missile simulation.

The first two jets arrived at Wittmund in November 2014, delivered by ex-Royal Canadian Air Force pilots Shawn 'Burner' Bryne and Brad 'Bear' Dolan on a routing that took them from Mesa to Ottawa (Québec), Goose Bay (Labrador), Greenland, Keflavik (Iceland) and Prestwick (Scotland) before touching down at

Wittmund. The jets are in full civilian Canadian markings and operated in a mix of three-tone grey, grey and white, and arctic 'blue' camouflage schemes.

The jets arrived while previous contractor BAE Systems was running its operation down, but there was no honeymoon period of smooth transition as Discovery had first hoped. BAE Systems provided a service until December 31 and DA Defence started work on January 1.

'They had operated the contract for the last 10 years. They re-applied for the tender once it came up for renewal, as did one other bidder, but we won it,' an insider said. 'The contract request for proposals [RfP] did not stipulate that it had to be operated by a Skyhawk, but the type fits the performance specification perfectly. It was our wish to have a smooth hand-over/take-over period but this was not given. The previous provider had the opportunity to decrease its flying hours in December 2014 to allow a draw-down. At the same time we started to build up our operation, but we were not operating together or talking to each other. There was no real cross-over; it was all pretty hands-off and we didn't even have access to the hangars or ops building until January, so we flew out of the shelters initially. In the end, it was a very formal process that saw the BAE Systems operations stop on one day and ours start the very next day. It literally happened overnight.'

An interesting dynamic in the German market is the War Weapons Control Act

(WWCA). It was important for DA Defence to have its aircraft civilian-registered in Canada, as the steps to allow an American-built fighter to operate in Germany were thereby made easier. 'To have won the contract in an international RfP showed our professionalism, our experience and our skills,' the company insider said. 'It was a hard, stony path to get there, so everyone in the company was happy and proud to have won the contract.'

Global logistics supplier GTE acted as strategic partner in the move, on hand to demonstrate German industry and thinking, and Discovery now has 26 employees in the country. These include five highly experienced German pilots (three ex-Phantom and two ex-Tornado, all ex-BAE Systems employees). A sixth pilot is in the middle of being recruited and there are two Canadian pilots on stand-by for human/operational factors. Under the stringent regulations the maintenance lead has to be a Canadian.

The most challenging part of the contract is the demand for aircraft availability. DA Defence can be tasked with up to 12 sorties daily, and it has to be able to provide six aircraft a day — an aggressive target that it is working hard to reach by matching its flight hours to an efficient maintenance schedule. It is known that the fleet flew 174 hours in July 2015 alone. After a delay, it is hoped the seventh aircraft will arrive before the end of the year to aid in meeting the target of six jets 'on the line.'

**In the hands of an experienced operator, the A-4 provides a very capable adversary platform at a sensible running cost.** Rich Cooper



The A-4N airframes have flying hours ranging from 2,000 to 4,500. Under Transport Canada rules, a Canadian national must sign off the Canadian-registered jets. Patrick Blois, a native Canadian, is part of the small team that is responsible for the high standards of maintenance. He explained how DA Defence is moving towards its target.

'The customer expectation to provide six aircraft a day with seven available is hard. Right now it is difficult — a lot of these aircraft haven't flown for years. Indeed, aircraft 367 was sat dormant for over a decade in the desert, but we have hit the targets. There's a lot of catch-up right now and they are getting better — we have had five aircraft in the air at once and a sixth serviceable. However, you quickly burn the hours on a serviceable jet before it hits phased inspection times, so when we get our seventh aircraft and the jets are more serviceable we

will be able to more efficiently rotate the fleet so there's always one in phased maintenance rather than the current situation. It's not difficult, but it has to be done right'. This serviceability-versus-availability conundrum will be somewhat alleviated upon delivery of the seventh aircraft, delayed after

an incident at Mesa during a test flight in late September. It is thought that an operational fleet of around 12 aircraft by the end of 2016 is considered the optimum number to achieve the aggressive requirements.

The Canadian head office maintains direct supervision, but with a welcome, well-managed, light-touch policy. 'In the beginning the control was pretty tight but now, with normal duties and the results we are delivering, our Canadian friends are satisfied with what we are doing and the reins are loose, all while overseeing that we are delivering the contact requirements', explained a company spokesman. 'We talk to Montréal once a week, with our chief operations officer, discussing any budget or solution requirements, but the trust is there and it's a very good working relationship. The message we have is that what we are doing here in Germany is correct.'

### Fighter cockpit

The man described as 'the glue' of the German operation is chief pilot Elmar Besold, a seasoned fighter pilot. He flew 3,500 Phantom hours between 1987 and 2003 and racked up 2,150 Skyhawk hours with BAE Systems, so is perfectly placed to describe the differences in the two operations.

As a pilot going to work every day, Elmar has noticed a big difference. 'The thing that strikes me the most is the level of motivation in the leadership. First of all, it is a very flat hierarchy. If I need the

boss of the whole company, I can just pick up the phone. Everyone is positive, always interested, and we have very close communication ties.

'In the past, we would have one phone conference a week where things would be talked over but we would not be included in any decision-making process. The decisions made in the company were made from behind a desk and imposed on us — now we are part of the decision-making process, and we are asked. They value our opinion and feedback.

'Another big difference is the in-house cockpit upgrade. This has resulted in the best cockpit installed in any defense contractor asset anywhere in the world.

'Our most common mission here at Wittmund is flying intercepts for the Luftwaffe ground control intercept [GCI] school. We brief, call up and agree on the airspace and the mission content, then fly as a two-ship into the area and split up into a 1-v-1 set-up for intercepts on each other. The German GCIs have a tiered approach, first controlling PC-9s, then medium-speed Learjets [operated by Gesellschaft für Flugzieldarstellung, GFD, at Hohn] before moving to our fast jets at the top end. In terms of our work with the EF2000 fleet, we have different profiles to fly against the Luftwaffe fighters, such as basic fighter maneuvers [BFM], air combat maneuvering [ACM] and dissimilar air combat training [DACT], and we could be tasked to fly anything up to six aircraft at once. We often undertake target-towing missions for gunnery combat training over





the North Sea, where we are able to stay on station for 45 minutes to an hour. We fly a circular pattern between 5,000ft and 24,000ft at 350kt, and the DOSK-6 target is trailed 1,500ft behind us. I can't see the target itself out the back of my jet but I can see the jets merging and shooting! One of the benefits of operating from Wittmund is that the jets from other bases can undertake gunnery over the sea, and then land at Wittmund for a face-to-face debrief after the mission. We carry a flight profile recorder and we then walk over to the

squadron buildings — it greatly enhances the learning curve.'

This work is set to increase dramatically when Wittmund transitions next year from a Taktische Luftwaffengruppe (TaktLwGrp, or Tactical Flying Group 'Richthofen') back to full Taktische Luftwaffengeschwader (Tactical Flying Wing, TaktLwG 71 'Richthofen') status. It currently has nine Eurofighters assigned to its Flying Group, but a decision has been made to bring all Luftwaffe Eurofighter fighter weapons training to Wittmund instead of the

original plans to be based at Holloman AFB, New Mexico, from summer 2016. This will result in a further €20-million investment in base infrastructure and the process will be complete by 2018. 'If the Eurofighters are in their work-up training we support them with offensive or defensive duties,' Elmar continued. 'It works well for them if we perform the offensive role, because then we can change roles and they get even more training. If we start as defensive, then that is what we stay — there is no way we can

Below: **Elmar Besold** stands proudly in front of two of the A-4Ns at Wittmund. Rich Cooper





transition from defensive to offensive against the Eurofighter.

'We fly 1-v-1 in BFM or BVR [beyond visual range] or 'butterfly' set-ups, where you keep the visual but you approach head-on. We fly 1-v-2 Eurofighters in ACM-type set-ups with Eurofighters, starting out defensive with one 'bandit' at the back just for their visual pick-up training and visual maneuvering. They like to go against a small opponent, one that's hard to pick up, and a very maneuverable, unpredictable target in the hands of a good pilot.

We are given set tactics to replicate for young pilots in their training — we need to precisely replicate whatever they are expected to see, driven by Luftwaffe policy. We are given a 'dance card' where they show the different scenarios for us to replicate as close as possible, often replicating MiG-21s and MiG-29s — we can't replicate any radar-emitting tactics, but we can replicate any given profile. We take pride in being able to provide exactly what the customer wants to see.

'A pilot will have seen a mission in the simulator and will be flying it for real against us. We must replicate an exact air picture in the air, so the pilots see the moves at the right time and they see the tactics develop at the right moments as well as how an opponent would transition its tactics for weapons release at certain stages of the merge.'

Elmar flew the BAE Systems Skyhawks against the 'Richthofen' F-4Fs before the Eurofighters arrived, and explained how that feels from within his cockpit.

'The maneuverability of the Eurofighter is striking in the vertical climb, and so is their acceleration. Their transition from high speed at high level to low speed at

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#### ELMAR BESOLD

low level is intense, and of course there is no smoke trail. They are very hard to see, especially nose-on. Once planform they are a little easier, but with a Phantom you could see them for miles! As a pilot, it is a lot harder against a Eurofighter, maybe 30 per cent more workload just to be able to track them... Usually you'll

find them behind you! The only time I can claim a success is if I am in a 'butterfly' set-up with a young pilot and I survive more than two or three passes — then that's pretty good going. It depends on the pilots. A main challenge of the young pilots is learning to be able to decelerate. If they keep the power up too much they fly straight past us; they must keep us in sight yet slow down as necessary to stay behind us.

'The A-4's roll-rate is high, we can keep our nose up and our turn radius can still cause surprises... It's a great adversary.'

#### European expansion

DA Defence foresees a steady rise of the European defense contractor industry, and its activities at Wittmund are being built up as a solid platform for future expansion. Rolf Brandt demonstrates a fighter pilot's confidence in DA Defence's prospects in Europe. As the newly-appointed business development lead for Europe, he says that he is enjoying working again with his former employer — those with whom he trained are now in positions of leadership, which is a sound place to start (Wittmund's group commander, Lt Col Finke included).

'We will engage with the neighboring countries to offer our services and it makes sense to grow organically with sustained, measured growth from Wittmund. It makes good sense to look at the Benelux countries, or southern Scandinavia, so we are looking at the Netherlands, Belgium, the UK and Denmark. The idea would be that we would be able to service those countries and return to Wittmund after the mission. We don't want to stretch our resources too thin and then deliver below

Top left to right: **Raimund Lenderman pre-flights his A-4N at Wittmund.**  
Rich Cooper

**Ready to taxi for a local mission against Laage-based Eurofighters.**  
Rich Cooper

**Back on the chocks after the morning mission.**  
Rich Cooper

expectations, but even with a transit flight of 90 minutes you have half of Europe within our reach. We have also had contact with Italy.

'Germany is a very risk-averse country. We have to provide absolute quality, to the world's highest regulations. We believe we owe that to the customer, and are

confident that it will translate well to other nations.'

Any future work would have to be a separate contract, and fulfilled using more aircraft. Rolf explained the company's pitch to a military decision-maker. 'Take an average-sized country, with 12,000 flying hours with a fleet of Typhoons, for

example. In our 'max savings' model we can take on 25 per cent of their services and leave the remaining 9,000 hours to be fully focused on top-quality combat hours. This will allow significant savings, and they will not have any 'negative' training — it's not good training to have your own forces training against each other. It also increases your fleet life by the 25 per cent, which nowadays could equate to decades. Alternatively we offer a 'max capability' model, which sees a customer keep the 12,000 flight hours and add the 3,000 contracted hours for about a 5 per cent increase in costs, but now those 12,000 hours are focused on the real needs and spent doing the job they are meant to be doing. Our third option is 'max efficiency', where you reduce your annual flying hours by around 500 hours and this equates to receiving the 3,000 hours of contracted hours at effectively zero cost. Nations are also interested in other areas of flight training, such as electronic warfare provision.'

## FIGHTING TALK

Olaf Tutay is one of the DA Defence pilots. 'I've just landed from performing a Red Air mission against Eurofighters from Laage in their tactical intercept training phase. I flew 25 minutes to the range and was able to spend 50 minutes on task. It was a 2-v-2 set-up, with one Eurofighter and I forming the Red Air package against two other 'Blue' Eurofighters. I was flying as 'Deep Red', flying a fighter-bomber profile, more or less a non-maneuvering asset, and the other 'Red' Eurofighter was protecting me while the 'Blue' pair had to defend against us. As an A-4, at some point you are supposed to die, and today I was the bait for a new Eurofighter pilot. We receive the most requests to perform Red Air duties from Laage, as that is the Luftwaffe training base. We also do a lot for the Wittmund-based assets since we are on-station here, and it is quite rare to perform 'Red' duties against Nörvenich fighters.'

Olaf was one of the original BAE Systems contract pilots. An ex-Luftwaffe F-4F pilot himself, he pitted the previous operator's A-4s against the Luftwaffe's legendary Phantom fleet for more than five years before joining DA Defence. 'We are flying more complex mission scenarios nowadays,

but still we fly within the A-4's limits. We mainly present a radar target, but sometimes we get in close for dogfighting and cause them a problem as we have an aircraft that is very hard to see in the visual arena. It's hard for them to maintain the 'tally ho' visual in a 2-v-1, keeping separated, and yet having to keep inside on the turn and press me. They have to work hard.

'The camouflage patterns used on these jets prove another challenge in the visual arena, while the blue and grey machines can make it easy to pick up depending on the weather conditions.

'The most complex scenario I have flown was 6-v-4, again with the Laage pilots, which consisted of two Skyhawks, two Eurofighters and two Learjets against four Eurofighters. The sky is filled up and you have to be very careful about what you are doing. As long as they are tactical intercepts, such missions are conducted over land, but as soon as a mission contains air combat maneuvering then we take it over the sea.

'In terms of changing the face of air combat, DA Defence is able to deliver realistic target behavior. It's as realistic as it can be.'

### Red 'Vipers'

While DA Defence continues its work in Germany under the gaze of other European nations, it is looking to the future. It claims that its current fleet is able to provide flight profiles and dynamics, and utilize added systems, to replicate 70-80 per cent of modern fighter characteristics. But, with the advent of the F-35, military training will have to step up yet another gear, and DA Defence is ready. It is set to acquire F-16 Fighting Falcons from an undisclosed source, with the knowledge of the benefits such a platform would bring to fourth and fifth-generation fighter pilot training. It is understood to be aiming for four single-seat Block 10 F-16A models and two F-16Bs, with plans for 10 in total. The jets in question are described as having a 'decent, low level of flying hours'. The potential fleet of 'Vipers' will



**The next stage?** The whole contractor air service sector is looking towards fourth-generation platforms such as the F-16 to fulfill fifth-generation training requirements. Discovery Air Defence Services

Right: **Olaf Tutay** about to get airborne for a 2-v-2 mission. Rich Cooper

Bottom: **The nimble A-4** has a rapid roll rate and is an ideal low-cost adversary. Rich Cooper



be offered as aggressor trainers for NATO allies, as a capable threat at a fraction of the cost.

Such a move is set to add weight to the company's argument against pitting the same types against each other, and the astronomical finances involved in an F-35 versus F-35 scenario. 'No-one really knows the full cost of flying the F-35 at this point,' said Brandt. 'We can look at the Eurofighter and F-22 and see that they are at least five, six, seven times our operating cost. The F-35 is expected to be more than that, and it makes no sense to use costly flight hours on negative F-35-v-F-35 scenarios, so we hope our services will become ever more attractive.'

The firm's marketing director Garrick Ngai is relishing the prospect, but knows there is a little way to go. 'The F-16 is a US military asset so it comes down to State Department approval. I can say it's a demilitarized aircraft but it still says 'F-16' on the piece of paper and that is seen as a warplane. It poses the question of, if this goes through, what does it mean for other future demilitarized aircraft? The jets themselves wouldn't be coming from surplus USAF stocks, but there are enough ITAR [International Traffic in Arms Regulations]-controlled parts and technical data involved that it needs to go through the US State Department.'

While remaining guarded about future contracts, Garrick did, however, explain that DA Defence is looking to fulfill the next Canadian requirement with what he called 'a very high-quality product'. The Canadian deal is subject to an RfP, published at the end of July 2015, for the next round of provision. Its wording includes a requirement for a more capable, radar-equipped aircraft over the next 15 years, with an eye on F-35 training requirements. With up to 40 F-35s due to form the Canadian front line in future, questions are being asked regarding how to fulfil the aggressor training role. 'We have to submit in January 2016 and we will be offering a very high-end solution,' said Garrick.

American companies are lining up to obstruct this move, but Rolf Brandt added that this is an important process. 'We are happy that this is a stringent process. It keeps us honest, and we like to have this oversight because it will result in another watertight process that our competitors can only aspire to.'

## Discovery channel

DA Defence is now proving its mettle in the European air combat theater for real. 'We have already started to change the face of air combat,' states Garrick. 'Unlike our competitors in the US, it's what we bring to the table. . . Look at the aircraft we have now and the investment we have made in them, the level of their airworthiness. Now look at the comfort level of our customers. Our customers know that we fly with them on their level. That changes everything. In the near future, when we get our supersonic fighters, we will step it up again as a civilian company able to offer this kind of training. We will change the game again.'

It makes good sense to test this 'marketeeing' against the customer itself. It is widely said that 'the customer is always right', so what does the end user have to say about the business? Sealing the stamp of approval, the Luftwaffe's 'Richthofen' Tactical Flying Group commander, Lt Col Gero Finke, was complimentary about the company's presence. 'We are very happy having DA Defence here in Germany. There are great benefits of having them on the base from a briefing and debriefing point of view. It has proved to have a positive impact on our training, which is a good way to work now, ready for when we step up our weapons training here at Wittmund and transition from a Tactical Flying Group to full Tactical Fighter Wing status next year. We profit from the synergy effects of the company having such good pilots; their experience counts, and we get on very well with everyone in the company. The A-4 is an excellent platform for our Red Air presentation and there [is talk] of an even better, radar-equipped aircraft coming on line. This would be very beneficial for us for the future. We look forward to a long future of working together in this excellent relationship.' ✈





# ATAC

## SMART FLEET SUPPORT

The Airborne Tactical Advantage Company (ATAC) is a leading contractor air service provider, with a proven track record with the US Navy in particular.

report: **Jamie Hunter** photos: **Rob 'Nuts' DeStasio**

**S**INCE 1996, THE Virginia-based Airborne Tactical Advantage Company, better known as ATAC, has been providing valuable contract air services (CAS) for the US Navy. ATAC's Kfirs and Hawker Hunters have become regular inhabitants of various Navy fighter squadrons' parking ramps as they provide a range of training services to both the Fleet and to fighter squadrons. ATAC has trained US Navy, Marine and Air Force aircrews,

ship crews, and combat controllers in the air-to-ship, air-to-air, and air-to-ground arenas. From five bases worldwide, including the US, Europe and the Pacific, ATAC has provided over 40,000 hours of tactical flying support, and is the largest company currently contracted to provide services to the US military. Indeed, ATAC has a contract with the US Navy that continues until 2020.

ATAC is the only civilian organization approved to train the US Navy's elite Fighter Weapons School TOPGUN. It has

also participated in Carrier Strike Group training, 'Red Flag', the famous RIMPAC exercises and Joint Terminal Attack Controller (JTAC) training in Europe. In an age of budget austerity, working with a company such as ATAC can clearly save millions of dollars in training and readiness costs while extending the life of front-line aircraft assets.

Matt 'Race' Bannon is ATAC's director of strategy and marketing, and he is typical of the high standard of employee at ATAC, being as he is a retired Lt Col TOPGUN graduate with over 22 years of service with the US Navy and USAF combined, and with over 7,000 flight hours across a multitude of aircraft from the Navy and Air Force, including in excess of 2,500 hours flying the F-14 Tomcat.

## TRACKING THE FIGHT

Cubic is the leading provider of air combat training systems worldwide. The company offers products that integrate airborne and ground sub-systems into a common operational picture, providing situational awareness for aircrews at training sites throughout the world.

The Air Combat Maneuvering Instrumentation (ACMI) systems feature air-to-air, air-to-ground, and ground-to-air weapons simulation, real-time monitoring capabilities, calculation of the aircraft's position, and post-mission debriefs to capitalize on lessons learned.

Fourth and fifth-generation ACMI systems provide rangeless/autonomous ACMI training that allow pilots to train in any available airspace without fixed infrastructure. The training exercise can be monitored on the ground in real time.

The ACMI systems include two major components — the airborne instrumentation pod that collects in-flight events and data, and the ground station

that furnishes real-time exercise control and post-mission debriefs.

The airborne pod provides on-board calculation of aircraft position, weapon 'fly-outs' and real-time kill notification to the pilots. The pods record all in-flight events and data, and also transmit the information to the ground stations. They can be mounted on a wingtip weapon station or packaged internally.

Cubic and DRS Technologies are offering the fifth-generation P5 Combat Training System/Tactical Combat Training System (P5 CTS/TCTS), which sets the standard for joint, multi-service and coalition training. The P5 system provides interoperable air combat training capabilities for US and allied forces and it will be embedded within the F-35. P5 supports up to 100 aircraft. It has a range of 80nm air-to-air and 125nm air-to-ground, allowing real-time weapons scoring for long-range weapons such as the AIM-120 AMRAAM.



Above: An ATAC Kfir formats on a VFC-13 F-5N during a mission supporting TOPGUN at NAS Fallon.

Box: This F-16C from the 64th AGRS carries a Cubic ACMI pod on the port wingtip station. Jamie Hunter

He told *Combat Aircraft*: 'Broadly speaking, contractor air service is a really smart and important solution for the military to help alleviate shortfalls in their adversary training requirement, while also reducing budgets. When I was a young F-14 fighter pilot 25 years ago or so, you'd see young enlisted personnel out cutting the grass on the base. The obvious question is, why would you use these highly trained military professionals who are getting paid all that money and not use them for their intended mission? So, that kind of thing got outsourced, and slowly over the years the military has realized that it can also bring in contractor air services to plug training shortfalls and preserve those expensive and valuable front-line assets. By not exposing these front-line assets

to an unintended use, such as to provide 'in-house' Red Air [aggressors], you can save the fatigue life on those assets and avoid having to fly them to the boneyard far earlier than originally planned.'

This model is one that has seen ATAC achieving significant success with the US Navy. Bannon continued: 'I fly out of TOPGUN all the time and have done so for the last 18 years. ATAC has been part of every TOPGUN class for the last 10-plus years and we've been used very efficiently in their scenarios. The Navy has training shortfalls everywhere and they figure out how to best use ATAC — for example, Fleet Replacement Squadron [FRS] training. The FRSs have so many sorties to fly but limited resources, so they in particular have identified huge value in contract air services. That training

is always local, and using their own FRS assets to fly as adversaries increases their sortie count by at least two-fold. Two days ago I was flying out of Point Mugu, California, supporting VMFAT-101 [Marine Fighter Attack Training Squadron 101 'Sharpshooters'] out of MCAS Miramar. I flew down from 200 miles away, flew all the runs required, and they completed their training event using half the aircraft they would have done if they'd done it in house. We do the same thing with VFA-106 [Strike Fighter Squadron 106] and 122 all the time — they need and appreciate the support.

'Our contract supports a minimum of 4,900 flying hours annually using our Hawker Hunters and Israeli Kfirs, which we supply to primarily get Carrier Strike Groups ready to deploy. We just



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came back from flying in Jacksonville, Florida, where we were working with the USS *Truman* battle group as part of its readiness program for a forthcoming deployment. They have a multitude of requirements to meet in order to be able to deploy, and part of what we do is to test ship capabilities. My last flight out there was to simulate an anti-ship missile — I was flying at nearly supersonic speed at 300ft above the waves and the ship had to simulate targeting me.'

The majority of early FRS adversary training requires fairly benign set-ups, and can easily be achieved using a platform such as the Kfir that offers far lower running costs over a front-line Super Hornet, for example. Matt Bannon adds: 'I'm not a Su-30 'Flanker' flying up at 40,000ft trying to kill their fighters dozens of miles away. I'm more of a MiG-21 with a specific mission of training the young fighter pilot at the other end of this range. If you ask an experienced fighter pilot what they want I'm sure they'd say a Su-30 or similar, but that's going to cost you a lot of money where it's often not needed, so that model sees the value of using a contractor air service being eroded.'

ATAC prides itself on the pedigree of its pilots. Everyone knows that a fast jet in the hands of a wily, experienced fighter pilot is going to be a force to be reckoned with. Matt Bannon adds: 'Every one of our pilots is either a US Navy, Marine Corps or USAF fighter pilot; most are former instructors and 70 per cent of them are either TOPGUN, aggressor squadron or Weapons School patch-wearers. That's the type of person we have sought after. We have a five-year TOPGUN instructor who leads our flying out there at NAS Fallon, and it's hugely important to have the credibility and experience to perform at that high level. TOPGUN debriefs are extremely critical of even the smallest mistakes, so you always have to operate at that same level.'

'We have 26 aircraft that account for 95 per cent of our flying, and that's with the Navy, plus the L-39s that provide JTAC training for the USAF in Europe and the Marines in the US. We have supported the USAF, but we are currently mainly focused on the Navy.'

The Navy has clearly realized the potential for using contractor air support, but until recently the USAF only modestly





This image: **The Kfir ticks many of the boxes required for basic adversary training.**

Below: **Ex-Swiss Air Force Hunter F58s are regularly employed by ATAC for threat simulation against surface vessels.**

Right top to bottom: **A Kfir leads two F/A-18Es back from a training sortie.**

**The Kfir is ideal in what it offers in terms of speed and endurance for the Navy basic adversary role.**

embraced such services. That was until it was announced in September that Draken International had been awarded a contract to provide them at Nellis AFB. Matt Bannon comments: 'We have seen signals of an increased demand from the USAF and that they are willing and moving towards contractor air services — we feel it's the next burgeoning market.'

Indeed, the deactivation of the 65th Aggressor Squadron at Nellis last year, plus the decreasing ability to 'bring in' Red Air from the combat air forces, has sparked a shortfall in available aggressors at Nellis to support operational testing, Weapons School and 'Red Flag' activities.

ATAC's current assets provide suitable performance for TOPGUN and FRS training support, but what of the higher-end threat? 'The USAF has radar-equipped fourth-generation platforms such as the F-16 for the aggressor role, but it can also be a matter of mass — needing more aircraft flying around out there. That's what we see as the eloquent solution provided by contractor air services. If they set the requirement too high, the cost per flight hour would be prohibitive. If they set the requirement for mass and they're willing to accept non-radar aircraft that offer the required endurance, speed, and electronics mixed with the radar-equipped bandits, then that is the sweet spot. By combining

a Weapons School graduate in a 'Viper' with a third-generation aircraft replicating a MiG-21 or a striker, that can alleviate the numbers shortfalls that air forces have, and that is what the Navy has realized.'

One of the additional, rapidly-emerging, requirements is adversary support for the growing F-35 community. It is a fact that ATAC is readily aware of and prepared for. 'It's a huge requirement', says Bannon. 'Fifth-gen fighters have immense capability, but their sortie requirements include many aggressor aircraft to test those capabilities to the full extent.'

Looking towards the F-35 training task, as well as emerging requests for proposals around the globe, ATAC is constantly examining potential platforms to meet higher-end needs. 'We can't just go and buy US aircraft', says Bannon. 'We have to go to foreign markets. Coincidentally, foreign markets have some of the threat aircraft the US military is interested in. It's pretty obvious who the threats are and we can find aircraft that provide a large percentage of the things they are after, be it radar emissions, speed, capability. We have a team constantly evaluating aircraft worldwide. ATAC would go out and find, acquire and use aircraft depending on the contract. We wait for the military requirement to mature and then we procure the appropriate hardware.'





# DRAKEN INTERNATIONAL



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**Draken made the headlines in August when its A-4s supported Dutch F-35A trials out of Edwards AFB, California.**

Draken International's impressive fleet makes it the largest private operator of tactical aircraft in the world. The company was founded as recently as 2011 when it evolved from the Black Diamond Jet Team, an airshow act owned by entrepreneur Jared Isaacman.

report and photos:

### **Frank Crébas/ Bluelife Aviation**

**D**RAKEN INTERNATIONAL IS a privately-owned company, based in Lakeland, Florida, that provides contracted air services. The company owns a fleet of aircraft including 14 A-4 Skyhawks, nine Aermacchi MB339CBs, 27 MiG-21s, and soon 21 L-159s.

The company made headlines last August when it was contracted by the Royal Netherlands Air Force to furnish Red Air support during operational integration tests with F-16s and F-35s out of Edwards AFB, California. The event marked the first time that the new stealth fighter had flown sorties with third- and fourth-generation aircraft.

The idea to begin contracted air services came from collaboration within the Black Diamond Jet Team, Jared Isaacman told Defence Media Network in 2013. 'The present fiscal environment calls for cost savings. So the opportunity is right for the business model we provide,' he stated. In an interview with this magazine, he added: 'The commercial air services industry exists because of its ability to provide tremendous cost savings to our military customers while enhancing training. Draken is already meeting that critical need with the quantity of aircraft we operate, their unique capabilities and low operating costs.'

### **Kiwi Skyhawks**

An important step in building the company was the acquisition of eight A-4Ks from New Zealand in 2012. This comprises nearly the full fleet of Royal New Zealand Air Force Skyhawks that became surplus after

the type's retirement in that country. Extra Skyhawks were added to the fleet in 2014 when Draken purchased six A-4Ns formerly flown by BAE Systems at Wittmund, Germany. Currently the L-159, bought from the Czech Republic, is entering the Draken fleet.

'We specifically purchased jets that are rich in modern capabilities', explains Isaacman, who is licensed to fly most of the types in his inventory. 'In the case of our A-4K Skyhawks, they are equipped with the AN/APG-66 radar, AN/ALR-66 radar warning receiver, countermeasures, electronic attack pods, head-up display, hands on throttle and stick [HOTAS] controls, MFD and a 1553 databus. For all purposes, our A-4Ks are outfitted similarly to an F-16A but at dramatically lower operating costs.

'We also purchased 21 L-159E jets. The L-159E is equipped with the Selex Grifo-L radar and attack software suite. [It is] a modern, virtually brand-new fourth-generation fighter aircraft with extremely low operational costs. In both cases, the A-4 and L-159 enable Draken to provide tactically relevant adversary support but at dramatically lower costs than a comparable military F-16 or F-15 fighter.'

It's not just the impressive fleet that makes Draken a unique company. The pilot roster is equally impressive and includes top names in the industry like Lt Col Jerry 'Jive' Kerby (ret) and CAPT Dale 'Snort' Snodgrass (ret), both of whom were in from the beginning and were part of the Black Diamond Jet Team. Both are now among a group of experienced aviators, with backgrounds ranging from weapons school and TOPGUN graduates to those with a history of flying in aggressor squadrons.

### Missions

Pilot experience is key in the type of missions the company offers to its clients. Next to Red Air support, similar to the work of aggressor squadrons, Draken supplies air-to-ground, fleet missile defense support, and aerial refueling via a 'buddy-buddy' system on the A-4s.

'Draken has been extremely busy supporting missions out of numerous operating locations', Isaacman continues. 'This includes USMC JTAC training, which involves releasing practice ordnance. We have been providing adversary support to the Air National Guard during large-force exercises. Most recently Draken

provided threat aircraft for a multinational F-35 exercise out of Edwards AFB. We also work with overseas allies. In fact, our A-4 Skyhawks have been seen flying across the Atlantic Ocean several times during this past year. Our service is heavily in demand and we are really looking forward to the arrival of our L-159E fighters.'

Not so busy at the moment are the 'Fishbeds', as Isaacman observes: 'We do not operate our MiG-21s. They are very low-time airframes and they include the latest bis models. Unfortunately, there has been very little demand from our customers for this type series. The MiG-21 is not known for its maneuverability or endurance, not to mention the radar capabilities are very limited. That stated, they are an extremely low-cost supersonic fighter and Draken has nearly 30 of them! They would make a great platform for various saturation scenarios, but, as of now, there has been almost no demand for them. They are all stored in our Lakeland facility.'

### Bright horizon

The purchase of the light but capable L-159 is an interesting

This image: **Draken operates a pair of two-seat TA-4K Skyhawks.**

Right: **Former RNZAF A-4K N146EM on the Edwards flightline in August.**





move. While a rival company is considering ex-Israeli F-16s, Draken continues to offer a cheaper solution with aircraft that it says offer similar fourth-generation capabilities. When asked why Isaacman isn't aiming for the 'Viper', he explains: 'We are very familiar with these aircraft [Israeli F-16s] and have inspected them several times. Most of our pilots have a lot of experience and admiration for the F-16. It is a great fighter aircraft. That being said, there are many reasons why an F-16 is a terrible platform for the commercial air services industry. Primarily, our industry only exists based on cost savings. That is why militaries from around the world want our service. Globally, the government budgets are shrinking and it doesn't always make sense for F-16s, F-15s, Eurofighters, etc to train against each other.'

'With Draken we can provide fourth-generation adversaries [electronic attack pods, radars and so forth] for a fifth of the operating cost of an F-16 or F-15. That is the value of our service. We deliver enhanced training for a much, much lower cost. If we were to purchase F-16s, we would not be able to offer any cost savings at all — not to mention, the F-16As for sale in Israel are some of the oldest ones still in service and have

virtually no upgrades. That would mean our military customers would not be saving any money. They would be paying essentially the same cost as they do for their own F-16s, but with dramatically lower capabilities. It really just doesn't make sense. If the US government wanted to keep flying against F-16s, they would not need to turn to private industry to accomplish the service. They could simply use any of the hundreds of F-16s that are stored in the boneyard that are all better equipped than the F-16As that are for sale in Israel. Draken already operates fourth-generation fighter aircraft in our A-4K and L-159E Advanced Light Combat Aircraft [ALCA], but at dramatically lower costs than old F-16As. We deliver the best value in terms of capabilities and price. That is what is really driving the demand for commercial air services in the global market.'

The outlook for contracted air services seems very positive, given that governments continue to invest in next-generation hardware while still axing training assets like the 65th Aggressor Squadron, disbanded at Nellis in 2014. 'The future is definitely very bright', states Isaacman. 'This has been our most demanding year in terms of flight hours and contracts served. In August, we were







Top left: **The Skyhawk nearest the camera is a former Israeli A-4N with extended jet pipe and a jammer pod under the centerline, with an ex-RNZAF A-4K leading the pair.**

Above: **A pair of Draken A-4s operate in the R-2508 ranges near Edwards AFB in August.**

Left: **Draken received its first L-159E in September. These aircraft are likely to head straight to Nellis AFB to support the company's latest contract.**  
Aero Vodochody/  
Jakub Fojtik

generating sorties from five different operating locations at the same time. That includes locations in Europe. So, we already have expanded heavily in the US and internationally. We are continuing to procure additional aircraft that provide tactically relevant training while still achieving our primary mission of cost savings. It has been an unbelievable year and we do not anticipate things slowing down anytime soon.'

Shortly before this article went to press, Draken announced a new adversary support contract from the USAF, using its A-4Ks and new L-159s to save the Air Force money by preserving its F-16s and F-15s. 'Personally, I am really looking forward to integrating with and complementing the USAF Nellis-based aggressors,' said Col Terry 'Stretch' Scott, a recently-retired USAF F-22 pilot and Nellis detachment commander for Draken. Isaacman added: 'We feel we are absolutely ready and fortunate to have this monumental opportunity. This is our time to demonstrate the capabilities of our service while still achieving considerable cost savings for the US Air Force.'

This September 30, Aero Vodochody Aerospace handed over a first L-159E ALCA to Draken International. The ALCA is the first of eight single-seat jets that will be delivered before the end of 2015 — part of a total of 21 on order.

'For our purposes, which [are] commercial air services and threat simulation training, this was the optimal airplane for us,' said Isaacman. 'We ran right after it and spent a lot of time to arrive to this point, which is why we are all so excited.'

'We anticipate [that] the L-159 ALCA will head right to Nellis AFB, which is home to 'Red Flag', a worldwide combat training environment, and participate as part of the aggressor force. It's going to have a big stage.'

**'Our A-4Ks are outfitted similarly to an F-16A but at dramatically lower operating costs'**

**JARED ISAACMAN**



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# AIR USA

**S**KIMMING OVER THE choppy waters of the Pacific at 400kt, a group of privately-owned jets heads toward a US Navy nuclear-powered aircraft carrier operating off the coast of southern California. The carrier's radar picks up the contacts and launches several F/A-18 Super Hornets to intercept them. While this might seem like the opening of a Tom Clancy novel, it's just another day at the office for former US Navy pilot Don 'Boss' Kirlin and his group of highly experienced tactical jet fighter pilots at Air USA.

Air USA was founded in 1994 after Kirlin identified an urgent need to reduce training costs associated with

keeping military personnel, including pilots, proficient despite decreasing military budgets in the US and other countries. Kirlin began a long process of importing surplus tactical jets including Aero Vodochody L-39s, MiG-21s, MiG-29s, Dassault/Dornier Alpha Jets and BAe Hawks from foreign countries to conduct adversary training. Like their contemporaries, the firm's business model was to fly these jets at a lower cost than current US aircraft, saving precious flight hours.

Kirlin began by purchasing seven L-39s from Kyrgyzstan in 1994. A few months later he bought a MiG-21 and 14 more L-39s. The aircraft were transported to Quincy, Illinois, a two-hour drive from St Louis, Missouri, where Kirlin operates

the headquarters for Air USA. 'Right now we have a shortage of front-line military aircraft such as F-16s and F/A-18s because all of the wars have consumed the available airframe hours much faster than was anticipated', he explains. 'My vision was to save combat aircraft for actual combat or critical combat pilot training evolutions, rather than using them for support roles such as dedicated training for student Joint Terminal Attack Controllers [JTACs] performing their first target talk-ons during a JTAC training course, like we are doing in Yuma, Arizona for Air Force Special Operations Command [AFSOC]. Right now the guy on the ground is talking to an Air USA Hawk rather than an F-16, but he is still getting the exact same training from our

Air USA operates a diverse fleet of fast jets that provide airborne adversary and Joint Tactical Airborne Controller training, with significant contracts that provide training for the US Marine Corps..

report and photos: **James Deboer**



This image: **One of Air USA's former Republic of Korea Air Force Hawk Mk67s flies with an L-39 during recent exercise support at MCAS Yuma.**

Left top to bottom: **An impressive line of Air USA assets on the tarmac at MCAS Yuma.**

**Ben 'Breeze' Breslin is the director of operations for Air USA as well as the chief pilot.**

cadre of combat-experienced fighter pilots.'

Indeed, the JTAC training service has been so successful that some JTAC instructors have noted that students are actually getting better training with Air USA than with operational military aircraft, thanks to Air USA's experienced pilot cadre. Before Air USA began JTAC training, the students on the ground were working with pilots who were often new to the aircraft and were, in many respects, students themselves once in the air — especially with regard to current close air support (CAS) tactics, techniques and procedures. Additionally, US military pilots often have multiple training objectives and are not always able to dedicate an entire flight purely

to CAS. By contrast, Air USA is paid to dedicate the whole sortie to the student JTACs. 'Last night I had two airplanes do 30 controls,' said Kirlin. A control consists of a 'nine-line' in which the JTAC or forward air controller (FAC) talks the pilot on to the target through various means. For a JTAC to become qualified they must complete six 'live controls,' of which two have to be conducted at night. A live control sees the JTAC talking to an aircraft overhead that is dropping ordnance. Kirlin added: 'Last night, 15 guys were able to get night-qualified compared to maybe six if they were working with an active-duty squadron, which had multiple other training objectives not associated with the CAS mission.'

The business model for civilian-operated companies providing training to the US military was not a huge success at first. 'I started the business in 1994 but it wasn't [until] 1999 that I got my first military contract,' Kirlin recalled. 'All that time I was doing airshows to let the industry know that there was a civilian company out there flying tactical military jets. Prior to 1999, the military thought they didn't need help from private industry because, up until then, they didn't. But because of budget cutbacks and aircraft shortages I knew it wasn't a demand that already existed. People were not getting trained because of a shortage of aircraft. The military never jumped on the bandwagon and said they were glad we were here, but rather they



were willing to give us a shot and see how it went. The rest is history.'

In 1999, Air USA received its first military contract with the US Navy, carrying electronic warfare (EW) pods to provide threat presentation in support of US carrier battle groups. These missions included launching up to four aircraft to simulate attacks on aircraft carriers. Once the carrier battle group picked up the adversary aircraft, the carrier would launch the alert fighters and the Air USA pilots monitored them as they were intercepted. The pilots conducted this training for about three weeks as part of pre-deployment training. Any time a carrier deploys, it must first go through a series of evaluations before it is certified. The three-week event becomes more aggressive by the day. The last day might consist of at least 12 aircraft trying to attack the carrier. That mission is flown with a mix of aircraft simulating different threats. Kirlin said: 'We performed this mission for a number of years working on both [the] east and west coasts of the US, and were the first civilian contractors to provide this type of service in Hawaii, Guam and Japan.' One of Kirlin's more interesting flights was the ferrying of two L-59s from Kadena Air Base, Japan to Iwo Jima and then on to Guam.

During its early years Air USA worked with the US Navy, Air Force, and

Army on several different training programs including carrier threat presentations and EW. In 2004 it began providing sustained airborne threat presentations carrying EW pods in support of Canadian Forces training. Air USA performed this mission on a continuous basis for over a year and based aircraft at all three Canadian fighter stations: Bagotville, Cold Lake and Comox.

The US Marine Corps then asked whether Air USA could employ ordnance. In 2010, with two wars ongoing, the Marines determined that they were not going to have the resources needed to be able to train their JTACs. At the time, Air USA operated former Luftwaffe Alpha Jets that were capable ground attack aircraft but had been demilitarized before being sold. Kirlin thus began a process of making them able to release ordnance again. This included reinstating a functioning head-up display (HUD). 'They wanted us to demonstrate a capability to drop ordnance in daylight VFR [visual flight rules] conditions, which we did as a proof-of-concept demo at Marine Corps Air Ground Combat Center Twentynine Palms, California, with another competing company. We brought two airplanes and the competitor brought three. We completed 16 out of 16 sorties while the other company only completed 11, so we got the contract.' Within two weeks of

the USMC competition AFSOC requested the same training capability, and Air USA began supporting both USMC and AFSOC training units with live CAS.

Next, the military enquired if Air USA could employ laser-guided training rounds (LGTRs) that simulate weapons like the GBU-12 laser-guided bomb. Air USA responded positively and achieved federal certification to release LGTRs.

Shortly thereafter, Air USA demonstrated a night bombing capability using night vision goggles (NVGs), and the JTAC schools quickly integrated night CAS into the training syllabus. Air USA was the first, and remains the only, company to perform live night CAS missions.

In 2011, the next challenge presented to Air USA was a request to provide digitally-aided CAS (DACAS) for training Marine Corp JTACs. Once again the firm provided the equipment, aircraft modifications, technology and certification to be the first in the industry to provide this training asset to a military customer.

While the USMC provides its own ordnance during the CAS missions, AFSOC requires Air USA to purchase, transport and store its own ordnance. This meant that Air USA became the first civilian company to purchase ordnance (the bomb, spotting charges, and explosives). The federal approvals required do this are quite complex: 'We are monitored



and inspected by numerous civilian and multiple military entities to ensure safety and compliance,' explained Kirlin.

To date Kirlin has imported 70 tactical jet aircraft into the US and has a crew of over 30 pilots and 40 maintainers and weapons experts at his disposal to help assist the US military with training. Air USA currently owns 12 Hawks, four L-39ZAs, four L-39Cs, three L-59s (an improved variant of the L-39), four MiG-29s and one MiG-21.

### High tempo

Reflecting the demand for Air USA aircraft and pilots, during a three-week period beginning in February 2015 the company conducted four major exercises that involved flight operations at four different locations on both coasts. Customers included three of the four US military services.

During February, Air USA supported training missions with USMC ground forces at Twentynine Palms, bringing two Hawks. They did this in a live-fire exercise (FIREX) that involved releasing Mk76 practice munitions in close proximity to friendly ground forces. This live CAS training supported the Expeditionary Warfare Training Group Pacific (EWTGPAC), whose mission is to train JTAC/FAC personal. It saw 20 live CAS sorties being flown over four days.

Immediately after the Twentynine Palms live CAS exercise, the Air USA Hawks joined L-39s and deployed to Creech Air Force Base, Nevada, supporting EW training as part of a 'Red Flag' exercise at the Nellis Test and Training Range (NTTR) complex. The L-39s flew with advanced EW pods, providing scenarios for US Army air defense systems such as the Patriot, while the Hawks provided a high-performance adversary capability with electronic identification features appropriate for a large-force exercise. Thirty sorties were flown over the two-week period, with a five-aircraft package of Air USA tactical jets airborne during each day of 'Red Flag' operations.

At the same time, Air USA aircraft were active at 'Bold Quest', a multi-national advanced technology demonstration event sponsored by the Joint Staff at Fort Benning, Georgia. Air USA flew multiple advanced DACAS missions using a tactical

communications hub. This allowed multinational ground forces to communicate targeting information to Air USA aircrew digitally, eliminating nearly all traditional verbal communication. Along with DACAS, Air USA flew an L-39 with an advanced MX-15 sensor featuring a video downlink that provided sensor imagery to ground forces to help with target identification.

Air USA ended the three-week period in March flying in support of AFSOC, when *Combat Aircraft* caught up with the company. It has been flying in support of AFSOC's live CAS exercises for four years, providing day and night missions in support of Special Operations Forces — JTAC (SOF-JTAC) training events. In this capacity, Air USA releases company-owned munitions via multiple federal certifications. On top of the live-fire events conducted at tactical speeds with Hawks, Air USA again provided training using a video downlink on the L-39. 'The

Above left to right: **Equipped with an electro-optical turret, this Air USA L-39 is conducting JTAC support.**

**Air USA's Hawks are night vision goggle-capable.**

*'Occasionally we'll hire a highly-qualified young fighter pilot with just over 1,500 hours, but that's rare. We are really looking for a recently-retired career fighter pilot with 3,000-plus hours'*

**BEN 'BREEZE' BRESLIN**



L-39 communicates and maneuvers to replicate an A-10 or F-16 with a Sniper pod by carrying an MX-15 sensor. A JTAC in the aft cockpit controls the MX-15 targeting system in a manner much like an F-16 or A-10 would employ the sensor. Combat-experienced Air USA pilots make all communications to the ground forces emulating a single-seat fighter aircraft and other airborne assets. The L-39 conducts simulated smart weapon attacks with the MX-15 sensor while the Hawks release actual ordnance or simulate strafe attacks. Each Hawk carries 12 practice bombs so a two-ship sortie can drop a total of 24 bombs. 'During the AFSOC CAS training we fly about 45 hours over a five-day period,' said Kirlin.

High operational tempos are normal for Air USA. From 2011 to 2014 the contractor conducted an average of 58 deployed military exercises per year, often involving multiple simultaneous exercises on both coasts of the US. Air USA aircraft and personnel were deployed nearly continuously.

With a mission completion rate of 98.7 per cent, Kirlin is clearly big on maintenance. Air USA typically flies over 700 missions per year. On average, just four sorties are lost each year due to aircraft maintenance issues. This is significantly better than most active-duty military squadrons, which average approximately 75 per cent. One of the challenges is setting up the logistics to support the aircraft once they are in the US. 'Even L-39s need parts. Where do you find a hydraulic pump for an L-39? I had to hire people in various countries to form a network to find parts as well as specialty maintainers,' explained Kirlin.

The T-59 Hawks recently purchased by Air USA are ex-Republic of Korea Air Force Mk67 versions and are great assets for the demanding JTAC training. With over 900 Hawks having been sold to over 18 operators around the world, parts are easier to come by compared to the Alpha Jet, as previously used, and other foreign aircraft. The T-59 designation was applied in RoKAF service, and these

aircraft are fitted with an extended nose to accommodate additional avionics. A total of 20 were delivered to South Korea by 1993, of which Air USA bought 12. It has six Hawks currently flying.

### Buying a MiG-29

Many adversary counties fly the MiG-29 as a front-line fighter and Kirlin thought it was important to get some genuine 'Fulcrums' operating in the US for adversary air training support. 'I thought it would be great if our military pilots could fly against an actual MiG-29, so that was the concept to bring them over,' said Kirlin. Hoping to use the aircraft for research and development as well as adversary training, Kirlin traveled to Kyrgyzstan to begin negotiations, knowing that the country had several aircraft that it could no longer afford to fly. He wound up living there for several months before the offer went through. The first two aircraft purchased from Kyrgyzstan were single-seaters with fewer than 150 hours on each airframe. They were in mint condition, both having



been stored in an underground hangar. Kirlin then bought a pair of two-seat MiG-29UBs from Ukraine. 'I was looking for two-seat aircraft that had a lot of life left in them, and that is something difficult to find because most air forces don't give them up that easy,' said Kirlin.

Getting the initial 'Fulcrums' to the US would be no easy task. 'We disassembled the first two aircraft but there were no drawings in terms of how to crate the aircraft in order to ship them. Also, foreign countries rate the steel differently so there were a lot of issues. For instance, the width of a MiG-29 from wing root to wing root is 13ft, which makes it an oversize load on a train, so we needed to go a special way to get to Estonia. One country tried to seize them, so I had to charter an An-124 to safely transport them to Estonia before I got them on a ship to Norfolk, Virginia.'

With the MiGs on US soil, Kirlin needed nine specialists from the Hungarian Air Force to fly over to rebuild the aircraft. Now he had to find a pilot. While back in the US after a deployment, a USAF pilot and former MiG-29 exchange pilot with the Luftwaffe, Fred 'Spanky' Clifton, heard

Above: **Most of Air USA's pilots are highly experienced fighter pilots, many of whom are Weapons School or TOPGUN patch-wearers.**

Inset left to right: **The missionized rear cockpit of Air USA's L-39ZA makes the type an ideal JTAC training aid.**

**An Air USA maintainer loads BDU-33 practice bombs.**

**Air USA's Alpha Jets are able to carry laser-guided training rounds (LGTRs).**  
Air USA

a story that someone had bought two MiG-29s. He quickly got hold of Kirlin on the phone and said 'I'm your guy.'

Clifton, a graduate of the USAF Weapons School, is one of many highly experienced pilots at Air USA. He was selected to fly F-15s out of flight school before moving to Nellis Air Force Base, where he flew the F-5 Tiger II with the 65th Aggressor Squadron. He then moved to Tunisia to instruct on the F-5 before coming back and getting an F-16 assignment in Japan. Clifton became the first MiG-29 exchange pilot with the Luftwaffe, flying the type in Germany for two-and-a-half years. He was later re-assigned to fly F-16s at Cannon AFB, New Mexico before finishing his 23-year USAF career at Nellis. Clifton said: 'The MiG-29 is a very robust, reliable and simple system. Navigation and fuel are lacking. The radar does not allow significant situational awareness for the pilot and so every time the MiG-29 has gone up against a US pilot, the MiG pilot has had to find an alternate means to get back to base.'

### Picking pilots

Kirlin, who is an instructor pilot and has provided aircraft-specific training to the majority of Air USA pilots, is type-rated in the L-39, Alpha Jet, and MiG-21. Additionally, he was the first to receive a type rating in the L-59, MiG-29 and most recently the Hawk.

To become a pilot for Air USA, candidates must have achieved a minimum of 1,500 hours operating US military tactical jet aircraft before they can be considered. Most Air USA pilots have 3,000 to 4,000 tactical jet hours and are either recently retired or still active in the Air National Guard (ANG) or Reserves.

Ben 'Breeze' Breslin, who joined the US Navy in 1989, is the director of operations for Air USA as well as the chief pilot. He interviews all prospective pilots. Breslin flew the A-6E Intruder for several years, including two cruises flying missions over Bosnia and Iraq, before transitioning to the F/A-18 Hornet and serving with Air Test and Evaluation Squadron (VX) 9 as an F/A-18 operational test director/pilot at China Lake, California. Breslin left the Navy and joined the ANG, where he flew the F-16 from 2000 to 2010, including two combat tours in Iraq, accumulating over 100 combat missions in his 23-year career. When his ANG unit transitioned to C-130s and HH-60s, Breslin made the move to Air USA, with whom he is qualified in the Hawk, Alpha Jet, L-39 and L-59.

'Occasionally we'll hire a highly-qualified young fighter pilot with just over 1,500 hours,' said Breslin, 'but that's rare. We are really looking for a recently-retired career fighter pilot with 3,000-plus hours. A prospective pilot needs to have flown in combat in the last five years to be competitive. We need people with significant CAS and adversary air experience. We prefer to select pilots from a variety of backgrounds rather than favoring one fighter community, so we hire experienced US military pilots from all branches of service.'

### The future

Air USA recently became the first company evaluated by Naval Air Systems Command (NAVAIR) following the release of Department of Defense (DoD) Directive 5030.61. Following multiple NAVAIR inspections, Air USA duly received an Interim NAVAIR Flight Clearance, allowing it to fly in support of USMC training efforts. Kirlin added: 'Ten years ago the Navy's only concern was that we operated in compliance with FAA regulations. Nowadays we are inspected by a team of active-duty military personnel who evaluate our operation for compliance to DoD regulations. This is a significant change to the industry. After operating in accordance with FAA practices and procedures for nearly 20 years we have had to transition to DoD compliance. Air USA has made the transition and we look forward to future military inspections.'

Kirlin has made a living out of seeing what the military needs before they ask for it. He has recently mounted 0.5in-caliber guns on an L-39ZA to provide live strafing for JTAC training. Air USA has thus again become the first and remains the only provider of this type of service to the military. Integrating the HUD and the gun pod was done in-house and tested successfully with live ammunition validating operability. Air USA is now prepared to offer live strafe training with 30mm rounds in its Hawk aircraft. This is the same caliber fired by the A-10 and will allow realistic firing distances, providing excellent training for JTACs. Night strafe training will soon be added as an additional option.

As more and more of the expensive fifth-generation F-35 Lightning IIs enter service, and the fleets of A-10s, F-16s and 'legacy' F/A-18s continue to draw down, the services of Air USA look set to be increasingly in demand. 