



## TRAINING THE FUTURE NATO PILOTS

For more than 35 years, many NATO countries have joined forces to build the world's best fighter pilot training program: the Euro-NATO Joint Jet Pilot Training Program.

### ADIR DECLARED IOC

The Israeli Air Force's F-35A "Adir" Lightning 2 was declared IOC during the first week of December '17.

### ALPHA RETIREMENT

For over two decades, the Alpha Jet has provided the Portuguese Air Force with their fast-jet training needs.

### KUWAIT AVIATION SHOW

For the first time in history, Kuwait hosted an airshow. The show, dubbed Kuwait Aviation Show (KAS).

A lot of NATO countries has joint together for the past 35 years, in training their future pilots at Sheppard AFB in the Euro-NATO Joint Jet Pilot Training Program (ENJJPT). We take a look into that program.

We hope you like the magazine - enjoy!

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# ADIR DECLARED IOC

TEXT & PHOTOS - YISSACHAR RUAS

Following a series of rigorous inspections, the Israeli Air Force's "Golden Eagle" Squadron which flies the F-35A "Adir" Lightning 2 was declared IOC during the first week of December '17. Yissachar Ruas reports from Israel.



*The Israeli F-35A "Adir" has just become IOC.*

*Photo by Yissachar Ruas*

## Adir declared IOC

Following a series of rigorous inspections, the Israeli Air Force's "Golden Eagle" Squadron which flies the F-35A "Adir" Lightning 2 was declared IOC during the first week of December '17. If there was any question regarding which country took delivery of the F-35 outside of the US first, following the Italians pulling a fast one on the Israeli Air Force F-35 ferry flight through Italy last year, its pretty clear which Air Force has been ramping up its F-35 activity and pressing the aircraft's capabilities to the max.

The declaration of IOC for the IAF F-35 Squadron was made by Israel's Air Force Commander General Amikam Norkin in a letter circulated to all IAF units, this is the first step towards its growing operational use. Having received the first 2 aircraft on December 12 2016 (SN 901 + 902), the race was on to implement and integrate as much of the F-35's capabilities as possible. The sense of urgency may be related to foreign reports that the Israeli Air Force is currently engaged in an ongoing aerial campaign against Iranian Revolutionary Guard forces attempting to enlarge their footprint in Syria and Lebanon. These attempts are being made following what seems to be the stabilization of Bashar El Assad's regime following nearly a decade of Civil War in Syria.

The behind the scenes activity which includes the allegedly striking of surface missiles being transferred to the Hezbollah terror organization are at the top of Israel's priority list. Having suffered indiscriminate long range missile attacks against its civilian population in the 2006 Second Lebanon War as well as rocket attacks from the South in Gaza – Israel is always on constant alert. Gen Amir Eshel was quoted as saying that the IAF has conducted dozens of missions beyond Israel's border on its Northern Front since 2012 (the beginning of Eshel's tenure).

The volatile situation has been keeping Israel on a path of trying to expand its advantage over based SAM defenses in Syria. If various online reports are true and Israel has in fact struck Syria using stand off missiles, it would seem that the need for the Adir to face actual combat is not yet necessary. It is very likely that now with IOC declared, the IAF will look for ways to incorporate the Adir into the fold and let it test the waters.

## A strong signal

The caveat to the above is the fact that Norkin's predecessor Gen (ret) Amir Eshel planted the directive that the IAF is to match itself to the "Adir" not the other way around. What exactly this entails is still highly classified. Russia's presence in Syria may well affect how the F-35 is employed. Russian SAM radars are capable of covering most of Israeli Air Force bases and this means that Israeli non stealth platforms are probably exposed from the second they take off. With the Russian Air Force seeking a long term presence in Syria, this could be a driving force behind acquiring additional stealth or low visibility platforms over the next decade.

The IAF Magazine has shed some light regarding the process in several of its features including an article regarding the declaration. The Squadron was inspected for several weeks leading up to the declaration in various scenarios with regards to different aspects of cohesion with other IAF units. The Squadron Commander LT Col. Yotam was quoted as saying *"The inspection checks every aspect of the Adir's operational and logistical envelope, it includes examination from the Wing level through Ground Control units, Nevatim Airbase and other aspects and is much like peeling an onion, and inspecting every layer."*

The Adir has conducted refueling sorties with the IAF's "Desert Giants" Squadron (120). Given the sensitivity the US boomers have with regards to accuracy when refueling, it would be safe to assume the same grade must be achieved when local boomers are handling IAF F-35s.





### Training with the “Negev”

Another angle that came to light was that The Golden Eagle squadron has been receiving support from The “Negev” squadron since the arrival of the aircraft. This role taken on by Israel’s first F-16I Squadron replicates a similar process conducted by Hill AFB when the F-35 first started flying there. The IAF set a goal to have an established squadron escort the absorption process in an effort to both gain knowledge as well as establish various protocols through an active squadron.

The Negev Squadron based a detachment of F-16i s in Nevatim on a full time basis. The Negev squadron was the first squadron to receive the F-16I in 2004 and provided invaluable knowledge regarding the standing up of the “Adir” fleet.

The Negev Squadron acted as “Red Air” for the Golden Eagle Sqn. pitting 5th gen vs 4.5 gen aircraft in an effort to both enhance knowledge regarding the F-35 and its capabilities as well providing a credible threat to the F-35 in order to develop new tactics for the IAF if and when the F-35 would need to engage in the potential conflict arena.

One of the aspects the IAF addressed was the fact that in many ways the F-35 acts as a command and control aircraft and can delegate missions to other aircraft with better accuracy, similar to the job of a Weapons Officer, this led to consultations between Golden Eagle Operators and Negev Wizzos.

### It shows you everything

Additionally LTC Yotam was quoted in saying that the IAF Adir has tested certain munitions for the first time worldwide without elaborating. Other key milestones that were noted were among other events the inauguration of the F-35 Simulator. The IAF is currently planning on all conversions to the “Adir” to take place “in house” as opposed to sending Aviators for training in the US which was the first batch of Adir operator’s path.

At current moment the IAF has some time to evaluate its force before the next aircraft are delivered around April-June (LRIP ?). With 9 aircraft already flying, 6 more are expected in 2018. Although the size of the force is small, all reports note just how much information one F-35 can accumulate can be surmised from Gen Eshel’s farewell interview with Israeli Daily “Haaretz” where he recounted his own experience flying the aircraft and experiencing the wealth of information he was receiving from the aircraft one of his training flights:

*“You take off from Nevatim AFB, climb to 5,000 ft, all of a sudden the aircraft shows you everything that is going on whether near or far, the entire Middle East and potential threats and objectives are on the screen in front of you. American pilots that come here aren’t used to this as much because they fly in Florida or Arizona where they aren’t likely to encounter such a hostile environment as a regular day at the office”.*

General Eshel as well as General Norkin are the only Air Force Commanders in the World that have flown as such on the F-35.

Now with IOC declared it remains to be seen when where and how the IAF decides to employ it in the Middle East arena which is currently one of the World’s most complex combat airspaces.

Regardless, one thing is for sure, The “Adir” will be a key component in the State of Israel’s Defense Forces.



# KUWAIT AVIATION SHOW 2018

TEXT & PHOTOS - STEFAN GOOSSENS & ARNOLD TEN PAS / 4AVIATION

From 17 to 20 January 2018, for the first time in history, Kuwait hosted an airshow. The show, dubbed Kuwait Aviation Show (KAS) was held at Kuwait International Airport, marked the first step of an ambitious plan to become a major player in the aviation industry in the Middle East.



*A Kuwaiti F/A-18C Hornet seen on the ramp at the KAS show.*

*Photo by the authors*

## Kuwait Aviation Show 2018

From 17 to 20 January 2018, for the first time in history, Kuwait hosted an airshow. The show, dubbed Kuwait Aviation Show (KAS) and held at Kuwait International Airport, marked the first step of an ambitious plan to become a major player in the aviation industry in the Middle East. This plan includes becoming the largest cargo-handling area in the region.

The event, also marketed as 'Your aerospace gateway to the G.C.C. (Gulf Cooperation Council)' was held in an aircraft hangar and adjacent static aircraft display area. This first edition appeared to have attracted only a limited number of participants, judging by the lay-out of the exhibition area and the empty booths. Visitor numbers on both trade days seems to leave room for a lot of improvement. But, let's not forget it was the first edition.

On Wednesday 17 January, the show was opened by Sheikh Salman Sabah Al-Salem Al-Homoud Al-Sabah, the President of Civil Aviation in Kuwait. Following the opening speeches, the Kuwait Air Force (KAF) performed a fly by with three AH-64Ds from Ali al-Salem Air Base followed by a flypast of a Kuwait Airways Boeing 777 flanked by four F/A-18s. After a performance of the Turkish Air Force F-16 of Solo Türk, the flying display of the opening day was closed by a performance of the Saudi Hawks.

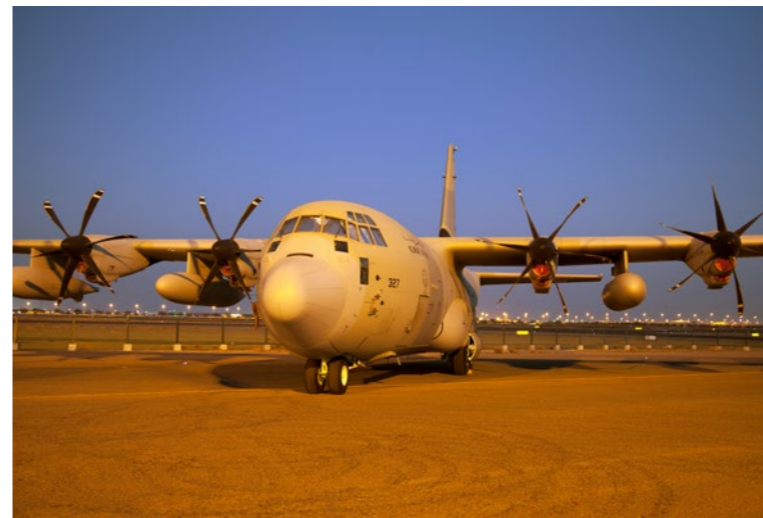
Of the four days in total, two days were trading days while the last two days were open to the public. With only the Saudi Hawks performing at all days the flying display was very limited and missed a large KAF and civil participation.

Besides adding to the somewhat limited flying displays, the Kuwait Air Force presented several assets in the static display. Since assets of the KAF are hardly ever seen outside the country, the Kuwait Aviation Show presented a nice opportunity to detail the Kuwait Air Force.









## Training

Representing the training fleet of the KAF, both a Tucano T52 as well as a Hawk Mk64 were on display, while helicopter training was represented by a Gazelle.

Initial training for KAF pilots is being done abroad, in France. Défense Conseil International (DCI) offers training at its International Centre for Academic and Aeronautical Training (CIFAA) in Salon de Provence, in partnership with Aix-Marseille University and the French Air Force Academy in Salon de Provence. The syllabus is identical to that of the French Air Force and covers a period of two years, using civil registered Cirrus SR-20 & SR-22 aircraft.

Next steps for future helicopter pilots are also in France, as DCI-H (or International Helicopter Training Centre), the helicopter school of DCI, also provides the basic helicopter training at Dax-Seyresse and Le Luc/Le Cannet using civil registered EC120Bs. This course includes a two-week high-altitude training in the Pyrenees simulating operations in hot weather conditions. After finishing the basic helicopter training, a type-conversion is done in France on ALAT Gazelles before returning to Kuwait for further training.

After finishing the DCI-course at Salon de Provence, fixed wing pilots return to Kuwait for their follow-up training. The KAF uses the Tucano T52 for training with 19 Training Squadron, based at Ali al Salem air base. Sixteen aircraft were delivered in the mid-nineties, of which twelve remain active. Fighter pilots transfer to 12 Training Squadron, flying nine Hawk Mk64s, before eventually transferring to the 61 Fighter & Attack squadron equipped with the F/A-18C/D.

Besides that, Kuwait Air Force pilots have been flying the M346 from Lecce in Italy since 2015. The Italian Leonardo company was present at the show, hoping Kuwait will become one of the new customers for the M346 on short term.

DCI is also heavily involved in follow-up courses including ground/simulator training at Cognac, fighter courses at Tours and Cazaux and transport specialisation at Avord.



## Transport

The KAF has a long history of using Lockheed aircraft for their transport needs. Since the early seventies two L-100-20 and later 4 L-100-30 were used. From 2014 onwards, three C-130J are being used by 41 Transport Squadron, while 3 of the four L-100-30 are still serviceable and being used. A giant boost for the transport capabilities was given when two C-17As were delivered to 41 Transport Squadron in 2013 and 2014. The static park both had a C-130J and a C-17A on display.

## Helicopters

The backbone of the KAF helicopter force is formed by the Eurocopter products. Eight SA330L are assigned to the 32 Helicopter Squadron at Ali el-Salem, while sister squadron 62 Utility Squadron flies five AS332B and an unknown number of AS532SC.

The Gazelle also soldiers on in Kuwaiti service, with no less than fifteen SA342K assigned to the 33 Helicopter Squadron. Five Sikorsky S-92As are in service with the 91 Special Squadron. One of the AS532s was being used to drop parachutists on several days, while a S-92 was seen in the static display.

Dating back to 2005, sixteen AH-64D were delivered to 17 and 20 Attack Squadron after a period of training in the United States. Besides the three AH-64Ds performing a fly-by, one helicopter could be seen in the static display.

## Fighters and fit for future

When the Gulf War ended, the fighter fleet of the KAF was quickly modernised. The existing fleet of A-4 Skyhawks and Mirage F1s were replaced by 40 F/A-18C/Ds of which 26 F/A-18C and 7 F/A-18D remain active with 9, 25 and 61 Fighter & Attack Squadrons. One of the F/A-18s from 25 Squadron was in the static display, while four aircraft from both 9 and 25 Squadron performed in the opening of the show.

In 2015 it was announced that the KAF had signed a deal for the delivery of 28 Eurofighter Typhoons (tranche 3, 22 single-seaters and 6 dual-seaters), to be delivered from 2019 onwards. The aircraft will be based at Ali al-Salem airbase but initial training will be done in Italy, with Kuwaiti pilots getting their training at Grosseto with 20 Gruppo.

Besides that, it was announced in November 2016 that a deal for at least 40 F/A-18E/F Super Hornets (32 F/A-18, 8 F/A-18F) was approved by US Congress. Local media suggest this deal could still be 'on' but no confirmation was given so far.

## In Conclusion

The Kuwait Aviation Show will be held again 2020 and certainly has potential to grow, but it will take some effort to show the aviation industry what makes this show different from other shows in the region.



# THE FINAL BOW FROM THE LYNX

TEXT & PHOTOS - DARREN WILLMIN / AVIATION IN ACTION

The Westland Lynx helicopter are being retired by many of it's operators, replacing the old lady with it's successor, or other types. Darring Willmin takes a look at the Lynx.



*The silhouette of the iconic Lynx.  
Photo by Darren Willmin*

## Lynx retirement

The Westland Lynx (Agusta Westland since 2000) is a British designed and developed multi-purpose military helicopter built by Westland Helicopters at its factory in Yeovilton, Somerset, UK.

The Lynx was first intended for both naval and non-military (civilian) usage, which led to the design and development of both land-based and naval warfare versions. The Lynx begun operational service in 1977 and was later adopted by other armed forces from over a dozen nations globally. Its key roles in service were destined to be combat utility, anti-armour, anti-submarine and search and rescue missions.

The Lynx was the world's first fully aerobatic capable helicopter with the ability to perform loops and rolls, then in 1986 adding to its accolades, a specially upgraded Lynx set the current official Federation Aeronautique Internationale airspeed record for helicopters at just under 220 knots, which to this day remains unbroken.

The British Army Air Corps (AAC) ordered over 100 Lynx helicopters to fulfil several distinct roles including transporting troops, armed escorting, reconnaissance, evacuation and anti-tank warfare with BGM-71 TOW missiles mounted on the side of the aircraft. The airframes were designated at the time, the Lynx AH.1.

The Lynx began its service with the AAC back in 1979, followed by an order from the Royal Navy for a sea born version of the Lynx to join the Fleet Air Arm in 1981 which was designated the HAS.2. The Navy's Fleet Air Arm upgraded the Lynx to the HAS.3 model during the 1980s and then further to an HMA.8 model in the 1990s.

Many of the AAC aircraft were upgraded and enhanced to the Lynx AH.7, then later the AH.9 and AH.9A. The prototype of these variations flew in the mid-1980s before the aircraft was commissioned into Army Air Corp service during 1991.

## The many operators

During the Cold War era, it was proposed that AAC Lynx would work with Westland Gazelle helicopters to counteract any issues with Soviet armoured vehicles. The Naval Lynx variants HAS.3 and HMA.8 conducted anti-submarine warfare and maritime attack missions armed with Sting Ray torpedoes, Sea Skua anti-ship missiles and depth charges whilst operating from Royal Navy warships.

The Lynx also served with 3 Commando Brigade Air Squadron of the Royal Marines and the Commando Helicopter Force of the Navy's Fleet Air Arm, operating as reconnaissance and attack helicopters to support the Royal Marines. The Royal Navy's fleet of Lynx helicopters has been indispensable to maritime patrol operations, including non-military roles such as counter-narcotics missions in Africa. Additionally, the Lynx helicopter operated and undertook a vast spectrum of tasks in The Falkland Islands plus counter-drug operations in the Pacific where The Royal Navy boasted helping their allies to seize more than six tonnes of contraband.

The Army Air Corps Lynx served with both 670 and 671 Squadron's at the School of Army Aviation, Middle Wallop in Hampshire under the command of 7 (Training) Regiment. Their role was to conduct "conversion-to-type" training on the Lynx, Gazelle and Bell 212 for graduates undergoing operational training stages. The Lynx also saw a period based at AAC Dishforth in North Yorkshire, UK. AAC Dishforth housed three squadrons of Lynx, 659, 669 and 672 falling under the command of 9 Regiment AAC, a combined force of both the AH.7 and AH.9A variants. Sadly though, the Lynx force at Dishforth was disbanded in July 2016 with the closure of all flying activity.

Throughout its service life, the Lynx has proved itself globally in conditions such as the freezing lands of Northern Canada, the jungles of South East Asia and Central America, the frozen territory of the Arctic to the deserts of the Middle East whilst supporting British troops on active duty. It has seen combat in the conflict locations of Bosnia, Kuwait, Afghanistan and Sierra Leone. The Lynx also spent many years in Northern Ireland based at RAF Aldergrove when the IRA were predominate causing many issues, there to support the British Army throughout the unrest.







## Many variants

Typically, the Lynx adopted a range of offensive and defensive equipment on board during combat missions, such countermeasures and door machine guns when it was being used in the anti-tank role. The aircraft was also capable of being armed with BGM-71 TOW missiles to counteract threats such as infrared-guided missiles when the situation dictated. Additionally, for the Royal Navy, the Sea Skua short-range air-to-surface missiles could be utilised in the maritime anti-surface Lynx variant, plus additional armaments that have were interchangeable including rockets, 20mm cannons, torpedoes and depth charges.

A distinguishing feature of the Lynx was that of the undercarriage, both the AH.5 and AH.7 variants were equipped with skids, but the AH.9 model saw the skids developed, or more accurately replaced with a tri-wheeled undercarriage. The AH.9 was marketed by Westland as the combat Lynx in the late 1980s, with deliveries beginning to the AAC in 1991. On the other hand, the Navy variants of Lynx were fitted with wheels as standard due to being requirement for easy ground handling on the deck of a warship.

The first variant of Lynx for the Royal Navy was known as the Lynx HAS.2 when it entered its service career with the Fleet Air Arm. At the time, it was distinguishable from the AAC Lynx AH.1 with its tri-undercarriage and deck restraint system, folding main rotor blades, emergency flotel system and nose-mounted radar. The Navy quickly developed the Lynx to a HAS.3 standard which was an improved variant receiving various updates. The Royal Navy continued to upgrade and develop the Lynx throughout its time in service as technology progressed and mission sets evolved. The Fleet Air Arm eventually upgraded to a Super Lynx model which was known in service as the Lynx HMA.8.

As of 2002, Flight International reported more than 40 variants of the Lynx had been developed and put in service, with almost 400 aircraft delivered to various customers. The agility of the Lynx led to its use as a display aircraft, having been the AAC's helicopter of choice with the Blue Eagles display team.

## The replacement - the Wildcat

However, they unfortunately suspended the team from the 2010 season due to financial and operational circumstances. The Royal Navy's Black Cats display team also used the Lynx HMA.8 up to 2014, but with the introduction of a new platform converted to the Agusta Westland Wildcat and continue to display to this day.

Moving into the 21st Century the new and improved Agusta Westland AW159 Wildcat helicopter will replace the Lynx as it continues to be produced in Yeovil, Somerset. The British MOD intends to incorporate these both for the AAC and the Royal Navy with the purpose to be a multirole combat helicopter.

In August 2014, the Wildcat AH.1 formally entered service with the Army Air Corps and in March 2015, the Royal Navy's first Wildcat HMA.2 began its initial operational deployment on board HMS Lancaster. As of September 2015, a total of 48 Wildcats have been delivered between the AAC and Royal Navy.

To celebrate the withdrawal of the Lynx from British Army service, on the 16th January 2018 the Army Air Corps last four remaining airframes took to the skies from RAF Odiham in Hampshire with a call sign of Valhalla Flight on what would be a final farewell and memorial tour. The route would see them cross much of the country, heading to some of the sites and locations which the aircraft was associated with.

AAC Middle Wallop, Upavon on Salisbury Plain, Yeovil, Duxford, RAF Wattisham, RAF Shawbury and many other connected points of interest witnessed a flypast from the four aircraft during the day. The flight flew in a box formation throughout the flight, with the final stages seeing the formation fly down the River Thames over Central London.

After this, the formation returned to RAF Odiham for the final time. The lead Lynx (ZG917) was flown by the Commanding Officer of 657 Squadron Army Air Corp, Major James Peycke who said that bidding farewell to the iconic machine is a huge moment for everyone who has flown the Lynx over the years.



# THE FUTURE NATO PILOTS - ENJJPT

TEXT & PHOTOS - SØREN NIELSEN

For more than 35 years, many NATO countries have joined forces to build the world's best fighter pilot training program: the Euro-NATO Joint Jet Pilot Training Program (ENJJPT). Søren Nielsen reports from ENJJPT at Sheppard AFB, Texas.



*The sun is rising on the flightline of Sheppard AFB. It's calm now, but by the end of the day, more than 230 sorties has been flown. Photo by Søren Nielsen*

## The joint fighter pilot program

For more than 35 years, many NATO countries have joined forces to build the world's best fighter pilot training program: the Euro-NATO Joint Jet Pilot Training Program (ENJJPT).

Sheppard Air Force Base (AFB) is home of the 80th Flying Training Wing (FTW), which hosts the ENJJPT, a multi-national flying training program with a mission to produce the best combat pilots for NATO, as well as build relationships between the NATO countries.

## The start of ENJJPT

It all started in 1973, when a group of European NATO nations began to examine the possibilities and costs of conducting a consolidated undergraduate flying training program. This was initiated due to the rapidly rising costs of pilot training, and the need to improve the interoperability of the NATO air forces. The much restricted airspace, and the lack of continuously good weather, was another thing that the participating countries also hoped to solve with this initiative.

The United States joined the group in 1974, where the United Kingdom, United States, Italy, Turkey and Canada all proposed a plan to host the joint undergraduate pilot training program. A thorough review of all the proposals showed that the United States, with Sheppard AFB and the 80th FTW located in Texas, could offer the best combination of good flying weather, adequate training airspace, existing facilities and growth potential to accommodate the proposed annual requirements.

## Sheppard got chosen

In 1978, the United States was formally selected to host the ENJJPT program for a 10 year period, as a short term solution, while studies on relocation to a European base continued.

Following the selection of the United States to host ENJJPT, a multi-national group visited Sheppard AFB to survey the facilities and organization of the 80th FTW, which was already conducting undergraduate pilot training for the German and Dutch air forces.

In June 1980, US Secretary of Defense, Harold Brown, announced the selection of Sheppard AFB as the site for the proposed program, and the Euro-NATO Joint Jet Pilot Training Program held its official opening ceremony on Oct. 23, 1981. The initial 10 year hosting period of the program at Sheppard AFB has been extended multiple times throughout the years, and is now extended through 2026, with no current plans of relocating ENJJPT.







## The program today

Today, the program consists of fourteen nations: Belgium, Canada, Denmark, Germany, Greece, Italy, the Netherlands, Norway, Portugal, Romania, Spain, Turkey, the United Kingdom, and the United States, with Romania as the latest nation to join the program back in 2016. A continuous development of the program has led to a shared governing structure.

All the participating nations have a say as to what the program should contain and what direction it should move in. This gives this unique program a mission, not only to train NATO's best fighter pilots, but also to strengthen the NATO partnerships, as U.S. Air Force Colonel Andrea E. Themely, commander of the 80th FTW, explains: "The unique part about it, is that all fourteen participating nations all have a say in what the syllabus is, and how the program is run. That's because we're governed by a steering committee made up of all fourteen participating nations, and representatives of their respective Ministry of Defense. That allows that body to provide direction as to what their nation's needs are for the end product, and the end result."

## Eleven nations

All the positions in the program, besides the wing commander, can be empowered by the participating nations. Each nation contributes with both students and instructors, where the costs are shared between the nations, depending on how many students they have in the program. As Lt. Col. Lars "Slug" Roeine, Norwegian Senior National Representative (SNR) and Instructor Pilot (IP), illustrates: "The program works on a cost-share basis, whereby you put in students, (and depending on how many students you put in the program), you need to put in a required number of instructor pilots."

Currently, pilots from eleven nations run the program. All the positions of the program rotate between the nations, with exception of the wing commander, which is always an American. The Operations Group Commander rotates between the U.S., Germany and Italy, but besides that, all the positions are up for grabs by any nation that is involved in the program."

The students that are sent to ENJJPT are selected by the air force of their nation, where they have already conducted the initial basic flying training. They've passed the required, challenging tests to ensure that they are the ones that will succeed in becoming the next fighter pilot of their nation. The shared cost theme adds efficiency to the program; as Lt. Col. Roeine says: "Great success rate, very efficient, and cost wise – yes, it's expensive, but if you look around in the world, you cannot get anything near this program at the same cost, with the same result."

For us it's a great success. We have been a part of it since it started in 1981, and this is our sole fighter pilot providing community. We don't have anywhere else in the world to produce our pilots up to required standards.

We outsource everything and totally rely on ENJJPT as being our basic fighter training program - and it works. 36 years and we're still going to continue doing it."





*A pair of basic trainers, the T-6 Texan II.  
Photo by Søren Nielsen*

## The 80th Flying Training Wing

The flying training at Sheppard AFB is provided by the 80th FTW, under the Air Education and Training Command. The wing has more than 200 planes, divided into five Flight Training Squadrons (FTS), with two of those flying the T-6A Texan II, and other three flying the T-38C Talon.

The Beechcraft T-6A Texan II is a single-engine turboprop aircraft, based on the Swiss Pilatus PC-9. The Texan is used for basic flight training for the new students coming to Sheppard. It was introduced into service with the USAF in 2001, and replaced the Cessna T-37B Tweet, which was the backbone for basic flight training in the USAF.

The advanced flight training has been conducted in the USAF for more than 55 years, by the T-38 Talon, a two-seat, twinjet supersonic jet trainer, that was the world's first supersonic trainer. Today they fly the T-38C, an upgraded version of the T-38A. The C-model has received structural and avionics upgrades from the original T-38, to increase thrust and improve reliability.

The 80th FTW consists of the following Flight Training Squadrons:

- **Flying the T-38C**  
88th FTS 'Lucky Devils'  
90th FTS 'Boxing Bears'  
469th FTS 'Fighting Bulls'
- **Flying the T-6A**  
89th FTS 'Banshees'  
459th FTS 'Twin Dragons'

Arriving at Sheppard AFB before sunrise reveals a packed flightline with more than 200 planes nesting in the sun shelters. The flying starts at sunrise, and converts this packed flightline into a buzzing beehive. As Col. Themely illustrates: *"We have around 240 sorties a day, from 7 o'clock in the morning to 6 p.m. for the last landing during the summer, and in the winter, we're flying from sunrise to sunset. So, when every single one of those minutes of the day are used for takeoff and landing, then sometimes the capacity limitation is literally just daylight."*

There are many aspects of ENJJPT that make this program unique. Some of these include having fourteen different nations joining forces to participate in the program and making sure that the program goes in the right direction with the steering committee.

## What makes ENJJPT unique

Col. Themely explains the importance of the steering committee: *"The steering committee meets twice a year in a non-U.S. country in the fall, and then, in the spring, they always meet here in Wichita Falls. What this committee will do is to decide on the future. They commit to the students in the program, they commit to syllabus changes, they commit to all the different program management aspects that need to be done on a strategic level from their Ministry of Defense."*

*"What we saw from this past steering committee meeting, was just this big appetite for growth, so all the nations wanted to figure out how do we increase capacity, and continue to produce the best pilots. We want to make sure that we never sacrifice quality in our pursuit of quantity."*

The fact that this program is not just about teaching pilots how to fly planes, but also building a relationship with the other nations and having the young pilots getting used to a multi-national working space, is just as important as the flying is.

As Col. Themely illustrates: *"The partnership aspect of it - you know we're not going to fight wars by our self anymore, coalition warfare is the future. The coalition against ISIL has sixteen nations participating. There are 17,000 sorties we have flown, dropping bombs on 32,000 ISIL targets."*

*"There is no way that the U.S. could have done that alone. Such an important part of that coalition building is right here, right now - learning how to train, how to integrate, how to be interoperable in this training environment, before we ever go off to combat together. It's such a critical part of coalition airpower for the future. It just becomes seamless in combat."*

Taking the social aspect to another level are the local sponsors, another thing unique to ENJJPT. Each nation has their own sponsor in the local community, creating social arrangements, events for the students, instructors and, maybe more importantly, their families, who can stay here for up to 4 years.







### Help from the local community

*“The local community has been so welcoming and so wonderful, with our international students in particular. A lot of these students have never lived outside Europe or Canada, and they come here, and they are given a sponsor family who welcomes them into their home, who pays for their wings, who gives them all kinds of activities during the year [to] be able to make them feel at home in the Texoma region. This community has done nothing but bend over backwards to help accommodate and bring these people in and make them feel like they are welcome in this community. So we are very grateful for their support,” Col. Themely explains.*

Lt. Col. Roeline adds: *“I have not seen anything like it, anywhere at all. It’s a great program, the initiative from the local community to have this program, connected to the ENJJPT. It makes a whole lot of difference for all the nations here, in particular for the instructors that are going to stay here with their families for three to four years. It’s really nice to have that social opening - it’s an opening to the social community through your sponsors.”*

### The training programs

ENJJPT is also unique due to its four distinct training programs. In addition to Undergraduate Pilot Training, ENJJPT also provides its own Pilot Instructor Training (a program that teaches pilots to be instructor pilots), Introduction to Fighter Fundamentals (IFF) and IFF Upgrade Instructor Pilot training (a program upgrading instructor pilots to be an IFF instructor). About 200 student pilots earn their wings at ENJJPT annually. About 80 new instructor pilots are trained annually, and up to 150 pilots transition through IFF each year.

The Undergraduate Pilot Training (UPT) has eight classes a year, each class with around 25 students in it, running for a 55-week period, divided into three phases. Not all students go through all phases of UPT, depending on what nation they are coming from, or what they are going to fly. For example, they might only take the first two phases, join the program on the third phase, or pass UPT altogether and into IFF directly, etc.

The students receive not only IPs from their own nation, but are also provided with a mix of IPs from all ENJJPT nations, making this a truly multi-national program.

### The different phases

Phase 1 – ‘Academic Classes and Pre-Flight Training’ is the first phase the students go through coming to Sheppard. The first phase is a combination of academics and pre-flight training, such as altitude chamber test, ejection seat & egress training and parachute landing falls.

Once the first phase is completed, the class moves on to the second phase, ‘Primary Aircraft Training’. The second phase has the purpose of teaching the students the basic flying skills, which consists of approximately 125 hours of flight training in the T-6 Texan II, spread across 26 weeks. Flight training consists of basic instrument flying, as well as 2-ship formation and navigation.

Some students already know what they are going to fly when they arrive at Sheppard, some know what track they will be on (Fighter, Bomber, Multi-engine, or Helicopter), and some might not know until the end of phase 2. As they approach the end of phase 2, the students that do not know what track they are going to, depending on the nation, will fill out a dream sheet, then get a track selected by a combination of the sheet, their individual test scores and the need for pilots on the different tracks.

Phase 3 – ‘Advanced Aircraft Training’, a 26-weeks long track, prepares the graduates for fighter/bomber assignments. The track consists of approximately 135 flying hours in the T-38, where the students go through instruments/ navigation, formation-basic and advanced (2 & 4 ship), and low-level (1 & 2 ship) flying.

Once completed, the graduate will receive their wings at the graduation ceremony. The path for the new young pilot depends on the nation, as does the plane the pilot will be assigned. Most fighter pilots will continue at ENJJPT and take the IFF before starting the conversion for the type they are going to fly, and some might stay at ENJJPT as an instructor on either the T-6 or T-38. As Lt. Col. Schumann, German Senior National Representative, illustrates: *“The best of the best graduates can be selected to become instructors and train the new pilots here at Sheppard if they want to, and if they also have the skills for training and officership.”*





The advance jet and IFF trainer, the T-38 Talon.  
Photo by Søren Nielsen

## The future of the program

The ENJJPT program has never been more important than it is now, with a shortage of pilots in many air forces, and a higher demand for new pilots than in previous years. As Col. Themely explains: *"We have an important mission right now, as we have a fighter pilot crisis in the United States where we don't have enough pilots to fill up all of our airframes."*

*The other nations in the program are also experiencing the same kind of crisis. Some of them haven't experienced it to the level we have, that's just because our air force is so much bigger, but they are affected just as we are. So, we know our role is going to be critical in the years ahead to continue to build a backup from that loss of pilots we have right now, and to continue to train the best fighter pilots possible, while doing that."*

Even with the high importance of this program, the program must continuously evolve, and ENJJPT has a bright future with the T-X (a program established to find the replacement of the T-38) giving the program an even bigger capability to get the soon-to-be pilots an insight in the fifth-generation fighters.

Col. Themely shares her thoughts and visions for the program: *"Our future of the program is predicated on two main factors. One of them is the pilot crisis. Our job from [our] steering committee, from all fourteen nation-members, is how do we realistically grow? Right now, our maximum student load is 28 students per class. They want us to evaluate our capacity limitations for 32, 35, and 40 per class, and how we are able to get to those numbers. Due to the nations wanting to add at the same time, it makes it difficult for us, because we have limitations."*

*These aren't solely the amount of aircraft on the flightline or the hours of daylight. The numbers of simulators we have available to us and also, of course, our instructor core is also being pushed. So, we have to look at that and evaluate how we're going to be able to accommodate that increase in capacity without losing training quality."*







## Getting ready for 5th generation

Col. Themely continues: *“The second part of my vision is to also respond to the next demand, which is the 5th generation aircraft. So, we are obviously sending more and more students to the F-35, to the F-22, and as seven of partner nations out of the fourteen have bought the F-35, we want to make sure that we continue to provide the best training to get them to that 5th generation platform.*”

*Right now, our T-38 syllabus is designed for the 4th generation fighter, so we continuously have to adapt that syllabus until we get the T-X, the T-38 replacement, and be able to ensure that we are giving our students every single bit of information, sensor management, air-to-air refueling, night vision goggles and all the things that the T-X will bring us, to be able to better prepare them for that next generation fighter.*

*All of those countries that bought the F-35 are very interested in ensuring that we adapt our syllabus, and to optimize the best way for the least amount of cost, that we can train these pilots to succeed on the next platform.”*

The ENJJPT Program seems to hit the nail on the head, and get the best out of everything, and is incomparable and irreplaceable with anything else. Lt. Col. Schumann explains: *“I worked for the German Air Force to look for other programs throughout Europe, and even looked theoretically at others outside Europe, such as China. The conclusion was [simple]: ENJJPT is the best program we can get - it's the best, period.”*

Col. Themely concludes: *“We are super proud of our program, and I think that all of the nations that we have here are also very proud of it.”*

The author would like to thank Debi Smith, Col. Themely, Lt. Col. Roeline, Lt. Col. Hansen and Lt. Col. Schumann for making this article possible.



# UKRAINE FRONTLINE FIGHTERS

TEXT - ERIK BRUIJNS  
PHOTOS - ERIK BRUIJNS & ALEXANDER GOLZ

Erik Bruijns reports from the heart of Ukrainian Air Force with a selection of legacy Soviet build fighters, consisting of Sukhoi Su-27's and Mikoyan MiG-29's.



*Light conditions in November are providing an amazing view on this Su-27S as it returns to Myrgorod*

*Photo by Erik Bruijns*

## Ukraine frontline fighters

At the heart of the Ukrainian Air Force is a selection of legacy Soviet build fighters, consisting of Sukhoi Su-27's and Mikoyan MiG-29's. Both types have been in Ukrainian service since the 1980's and are gradually increasing in numbers. Ukraine inherited a large inventory of aircraft from the Soviet Union. These were mostly decommissioned and stored as the nation had little use or funding to keep a large fleet active.

However, in 2014 Ukraine began a program of restoring the stored aircraft to active duty. Following the March 2014 Russian annexation of Crimea and the following violence and insurgency in east Ukraine, Ukraine tried to increase its defence spending and capabilities, with returning equipment to service being a key part of the spending drive. Since 12 July 2014 the Ukrainian Air Force has been put on full combat alert.

## Air Command Center

Part of Air Command Center, situated at Vasylyk just South-West of the capital Kiev, are 40th Tactical Aviation Brigade and 831st Tactical Aviation Brigade operating the legacy fighters. Operating out of Vasylyk Air Base, is 40th Tactical Aviation Brigade. Since 1993 the regiment has been based at Vasylyk Air Base. In 2000 the 40th Fighter Wing was formed on a base of the 92nd regiment, and in 2007 it was re-named into the 40th "Red Banner" Tactical Aviation Brigade.

The Red Banner designation is part of the long history of the unit. On the 28th of April 1945 the 92 Fighter Aviation Regiment was awarded with the Order of the Red Banner for the exemplary performance of combat missions during the liberation of Hungary. In 2012 the 39th Tactical Aviation Squadron, operating Su-27's at the time, based at Ozerne Air Base merged with 40th TAB. The 39th TAS will turn into an independent squadron in 2018, when the unit will convert into the 9th Tactical Air Brigade.

As one of three main MiG-29 operators in Ukraine, 40th TAB is mainly tasked with the defence of the capital and simultaneously looking to the borders in the East and in the North. With the high level of preparation of flying personnel, both new pilots and more seasoned pilots and their combat capabilities, the unit takes one of the leading positions in the Ukrainian Air Force.

## National and international operations

Situated around 230 kilometres to the East of Kiev is Myrgorod Air Base, home of 831st Tactical Aviation Brigade, one of two operating bases of the Su-27 within the Ukrainian Air Force. The roots of the unit date back to the second World War, while the current form the units operates in, 831st TAB, was established on August 1st 2003 on the basis of 831st Aviation Regiment. The aviation brigade has the permanent operation readiness due to their location close to the East and regularly executes combat missions in defence of air borders.

The unit has been heavily involved in the conflict in the Eastern part of the country since 2014. Their personnel need high proficiency and morale to perform combat air defence patrolling missions against Russian aggression and attacks of international terrorism. Permanent combat training is key to retaining the advantage in the air. During 2014-2016 the technicians of the unit considerably improved the maintenance and readiness of the aircraft which has contributed to increased operational availability.

Both units have been involved in many national and international joint operations. In 2011, during the preparation for the European Football Championship, held in Ukraine and Poland the following year, an international exercise called "Safe skies 2011" took place at Myrgorod Air Base. The exercise, which saw participation of American fighter planes and cooperation with the Polish Air Force, focussed on joint operations to act against a possible terrorist attack from the air as well as joint air traffic management.

During EURO 2012 itself, the units participated in anti-terrorist security of the host cities of the different football matches. Since 1994, 831st TAB is also famous for having participated in many international air shows all over the world. In 1998 the unit flew the first ever transatlantic flight to Seymour Johnson Air Force Base in the United States after the 4th Fighter Wing had visited Myrgorod in 1997. The two units are very much linked to each other as in 1944, during the second World War, the 4th FW was based at Myrgorod during operation "Frantic" with the P-51 Mustang.

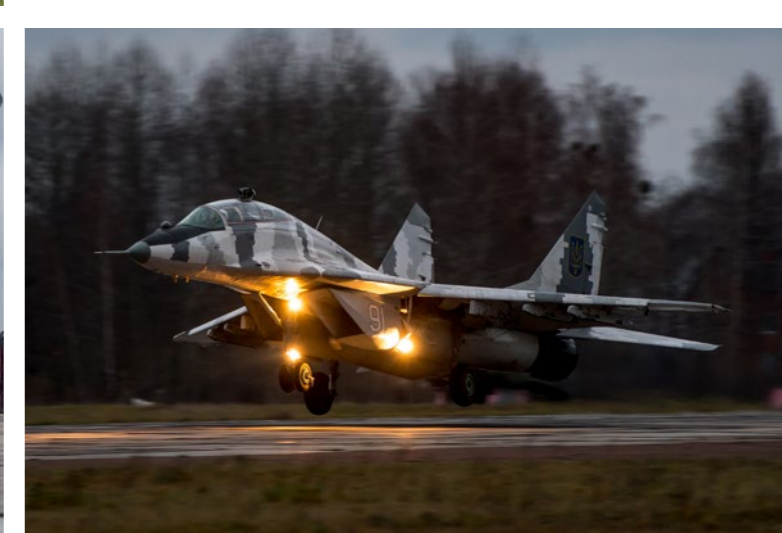


## Downward trend

At the time of the collapse of the USSR it is believed that around 74 Su-27's remained on Ukrainian territory. These consisted of 2 T-10 (prototypes), 43+ Su-27's, 14 Su-27P's, 14 Su-27UB's, 1 Su-27K (Su-33). In the 1990's and 2000's, the number of existing Su-27's in the Ukrainian Air Force dropped steadily. This was due to some accidents, expiration of (spare)parts and engines, and the sale of some Su-27's to other countries.

Of the six squadrons that came from the USSR after the collapse, in the period from 2008 to 2010, only as little as 10-15 airframes remained active. Of the three active air regiments in the mid-2000s, there was only one left at the end of the decade. Money for the repair of fighter aircraft was unevenly allocated. If in the late 1990's and early 2000's two to four airframes a year were repaired, then in 2005-2010 this figure was on average only up to one per year.

The economic situation, as in many other countries coming out of the Soviet Union, did not help during these years, causing only a minimal number of airframes to remain operational. The situation improved somewhat in the years that followed. Airframes were steadily repaired, but there were quite frequent delays in the payment of work performed by the Zaporizhia State aviation repair factory "MiGremont" (the only aircraft plant in Ukraine specializing in the repair and modernization of the Su-27).





## Also the MiG-29

The same fate fell on the MiG-29's. At the time of the collapse of the USSR, there were more than 220 MiG's in different versions that remained in Ukraine. The "youngest" MiG-29 (marked as a 9-13 variant), inherited from the USSR in the same way as all other airframes in use at the same time, was delivered on March 29, 1991. At the time of delivery to the unit it had a designated service life of 20 years.

With intermediate repairs and one major overhaul the service life was extended with nine years. Problems with safely operating the entire fleet of serviceable airframes became inevitable at the turn of the 21st century. At that time the number of operational airframes had already been reduced and the modernization programs delayed due to lack of funds and this would further affect the already running modernization programs.

At the end of the 2000's a focus on operational availability started to show effect on the operational employment of the number of available aircraft and the number of flying hours annually flown by Ukrainian Air Force pilots, which increased to an average of approximately 40 per year which was still a factor 4 less than the standard set for NATO pilots.

## Getting back on track

In 2014, Russia made several military incursions into Ukrainian territory. After the Euromaidan protests and the fall of Ukrainian president Viktor Yanukovich, Russian soldiers without insignias took control of strategic positions and infrastructure within the Ukrainian Crimea territory.

Russia then annexed Crimea after an unconstitutional referendum in which Crimeans voted to join the Russian Federation, according to official results. Subsequently, demonstrations by pro-Russian groups in the Donbass area of Ukraine escalated into an armed conflict between the Ukrainian government and the Russia-backed separatist forces of the self-declared Donetsk and Lugansk People's Republics.

In August of that year, Russian military vehicles crossed the border in several locations of Donetsk Oblast.

## Demand for combat readiness aircraft

The air force is currently still taking part in the conflict against the 2014 insurgency in Donbass. During this conflict it has been unfortunate to have lost several planes and helicopters. These unfortunate events led to an accelerated program to upgrade existing aircraft and return to service of aircraft that had previously been put in storage.

The demand for combat readiness aircraft also meant that there was an increased need for pilots. This meant attracting young pilots into the air force and even getting already retired pilots back into active duty. The experience of these retired pilots was very valuable in times of extreme pressure on the country and the air force.

Work on the Su-27 is performed by the repair plant Zaporizhia ARZ "MigRemont" and with the allocation of sufficient funds for the repair and modernization there has been a steady flow of aircraft coming from the plant. As a result, from 2014 to 2016, at least seven repaired airframes were in overhaul. By the end of 2016, there was a steady flow of another one to two aircraft coming of the line.

In 2017, the plans for the repair of the Su-27 continued and it is likely that Zaporizhia ARZ "Migremont" will have released at least an additional two to four planes. The dual seat Su-27UB's operated by 831st Tactical Aviation Brigade at Myrgorod have received the same fighting capabilities as single-seat modifications, therefore they are rightly considered to be combat-ready as well.

## Modernization programs

With several State-owned repair plants in Ukraine there has always been a good possibility to retain knowledge of the systems that are in place and gain technical advantage of the different systems and airframes. The basic activities of these repair plants are to repair and modernize specific types of aircraft.

This includes their systems, such as control-measuring service equipment with the subsequent certifications. To keep up with the ever changing and more complex technology, this leads to the development, manufacturing, and introduction of automated test technological equipment.







## The Zaporizhia ARZ plant

With the increased availability of funds since 2014, the Ukrainian Air Force has finally been able to get the needed upgrades done on the Su-27's. The modernization program of the Zaporizhia ARZ plant in eastern Ukraine has been available for some years and overall the plant is carrying out repairs and modernizations to several types of aircraft.

In the 1970's the plant started focussing on to the modernisation and repair of the (at that time) new MiG-25, a first example of which arrived at Zaporizhia for work in 1978. 1993 saw the introduction of the Su-27 into the portfolio of the plant.

A first Zaporizhia-overhauled Su-27 took to the air on 29 July 1994. As a result of the Ukrainian independence and in order to maintain technical standards within the Ukrainian air arms, the requirement emerged from 1997 to conduct repairs on the Su-17, Su-22 and Su-25. The plant in Zaporizhia took on this task in collaboration with the Flight test centre at Feodosia and the Aviation Institute of Ukraine.

The plant is responsible for repairing and modernising aircraft not only for the Ukrainian military, but also for 17 different international clients. Once the funds came available the modernization program for the Su-27 of the Ukrainian Air Force kicked into gear and the following main goals were realized;

- Expansion of combat capabilities and efficiency of the Su-27 aircraft combat mission solution, by increasing the range of detection of air targets by 30% and increasing the accuracy of unguided means of destruction for ground targets;
- Expansion of the capabilities of the navigational complex of the Su-27 aircraft;
- Ensuring the possibility of performing flights on international routes;
- Expansion of opportunities to control and register on-board parameters, their safety and ensure the use of modern flight information processing facilities.

## Modernisation programme

The Su-27M1 modernisation programme for the Ukrainian Air Force adds the Sn-3307 satellite navigation system, taking data from the American NAVSTAR GPS, Russian GLONASS, and the forthcoming European Galileo system. In addition, the upgrade brings the KURS-93M landing system with ILS capability.

The newly installed A-511 responder allows the fighter to operate on international operations under ICAO regulations. The upgrade also adds an air-to-ground capability, effectively bringing the Su-27P (PVO) to Su-27S standard. With the introduction of a new weapons control system and other changes, the 'Flanker' is rendered capable of deploying free-fall bombs up to 500kg, S-8 and S-13 unguided rockets, KmGU munitions dispensers and incendiary tanks.

Simultaneously, the modernization of the MiG-29 is performed by the Lviv State Aircraft Repair Plant LDARZ. The Lviv ARZ in the western part of Ukraine has a long history of repairing MiG fighters, providing repairs and modernizations to the MiG-15, MiG-17, MiG-21, MiG-23 and MiG-27.

Over 10.000 airframes came through the plant since the start on the first MiG-15 in October 1953. Since 1992 the MiG-29 has been added to program and over 120 airframes have been through the plant since. The work performed on the Ukrainian Air Force MiG-29's has been mainly on their internal system which included:

- Modernization of onboard radio-location station HO19;
- Installation of modernized blocks BPK-88KM;
- Installation of the EKARAN-13M system;
- Installation of satellite navigation system CH-3307-01;
- Modification of radio station R-862 as per ICAO requirements;
- Installation of modernized flight register type;
- Installation of aircraft responder.





*A Su-27UB sits on the flightline of Myrgorod waiting for the pilots.*

*Photo by Erik Bruijns*

## The improvements

The Ukrainian modernization program of the MiG-29 (9-13) brings the type up to MiG-29MU1 standard. The package includes the installation of a satellite navigation system, which is integrated into the avionics system, thereby increasing the accuracy of navigation and the range of automated means of landing. This is similar to the upgrades to the Su-27, thus providing ILS landing capability. The range of detection of air targets (up to 100 km in the front hemisphere and up to 45 km in the rear hemisphere) has been increased by 20%.

This improves the use of the R-27ER1 (radar-homing) and R-27ET1 (infrared-homing) medium-to-long-range air-to-air missiles, produced by the Ukrainian State Company Artem, which have a launching range of up to 95 km. In addition to the system upgrades, each aircraft that leaves the factory also receives a new grey digital or "pixel" camouflage. This colour scheme is becoming increasingly common in the skies over Ukraine as also the Su-24 and Su-25 receive similar digital camouflages, slowly phasing out the old colour schemes.

## Future

In a rather short period of time, caused by a very challenging situation, the Ukrainian Air Force has seen a rapid increase in capabilities. The return of many aircraft back into active service, meant an increase in workload on all fronts. Modernization programs were introduced, maintenance improved, retired pilots reinstated and more important young new pilots trained.

In 2017, 60 young officers graduated from the Kharkov National Air Force University, 17 of them with experience in flying the MiG-29 and Su-27 combat aircraft and qualifying for a "third-class" pilot class. With new pilots and upgraded aircraft the Ukrainian Air Force has very quickly been able to bounce back from difficult times. With aircraft on the ramp of both Vasylkiv and Myrgorod still wearing old, Russian style, camouflages you can easily see that there is still a need to further modernize the fleet. Only after a visit to one of the two excellent repair facilities will the aircraft receive their new paint scheme.

Visiting both bases in November of 2017, the author saw a great amount of flying, continuing well into the night. Not something several of the western European countries nowadays can come close to. It is believed that over 70 fighters (MiG-29's and Su-27's) are currently operational. With the modernization programs still in full swing there will be enough service life left in the legacy fighters for the near future, which will enable the Ukrainian Air Force to further develop their combat readiness and remain alert for any situation.



# STRATOFORTRESSES DEPLOY TO UK

TEXT & PHOTOS - ERIK BRUIJNS AND MARK DE GREEUW

On the 11th of January the first B-52H Stratofortress assigned to the 5th Bomb Wing at Minot Air Force Base, North Dakota, landed at RAF Fairford, Gloucestershire, for a two-week deployment in the European skies. Erik Bruijns and Mark de Greeuw reports.



*Allied air power over Europe - A Minot based B-52H 60-0005 MT flanked by two Lankenheath F-15Cs  
Photo by the authors*

## B-52s deploy to Europe

On the 11th of January the first B-52H Stratofortress assigned to the 5th Bomb Wing at Minot Air Force Base, North Dakota, landed at RAF Fairford, Gloucestershire, for a two-week deployment in the European skies.

A total of four strategic bombers and approximately 300 Airmen were deployed to the base to conduct theater integration and training in the United Kingdom and mainland Europe.

This first deployment of 2018 will see the bombers also include joint and allied training to improve bomber interoperability. The Air Force Global Strike Command bomber presence in Europe is a visual representation of the U.S. Air Force's ability to utilize long-range, precision air power.

## Global Strike Command

*"The B-52s are instrumental in providing basic bomber assurance and deterrence, supporting the widest array of mission sets of any bomber platform,"* said Capt. Matthew, 23rd Expeditionary Bomb Squadron assistant director of operations for logistics and aircraft commander. *"We can support anti-sea maritime missions, close-air-support and precision strike, and wind-corrected munitions."*

The purpose of the deployment of Air Force Global Strike Command's B-52s to RAF Fairford is to exercise a state of readiness at United States Air Forces in Europe's forward operating location for strategic bombers. *"We have the versatility to work with many allied nations, giving them an opportunity to work with bombers that they normally don't get,"* said Matthew. *"Ultimately, it's good for everybody - in addition to other countries, it allows us to train in the region to maintain a state of readiness and ability to deploy with no notice."*



# BREITLING JET TEAM - AMERICAN TOUR

TEXT - SHERVIN FONOONI  
PHOTOS - SHERVIN FONOONI & BREITLING JET TEAM

There are stories of adventures that make you dream, others envy, the Breitling Jet Team's story impresses. The team undertook journeys that no other aerobatic team had done before.



Breitling Jet Team - American Tour - High above Toronto, Canada  
Photo by Breitling Jet Team

## Breitling Jet Team - American Tour

There are stories of adventures that make you dream, others envy, the Breitling Jet Team's story impresses. The team undertook journeys that no other aerobatic team had done before.

Building on its Asian tour success, the world's largest professional civilian jet-flying team reiterated the experience and traveled to the land of Uncle Sam and Aviation.

The 2014 season had not yet started; however, Breitling had announced that the Jet Team was going to make a tour in the United States.

The team has experienced many ups and downs during its trip to China, through Russia and Japan. The team could not send the L-39s into containers in Zhuhai. It would have been necessary to disassemble, pay customs duties and reassemble them. Ensuring such a planning, with commitments for each step, would be simply impossible.

This time, the planes crossed the Atlantic by sea. If the pilots did not have the pressure of the shuttle flight to the United States, the mechanics had a considerable workload to dismantle and to reassemble the Albatrosses, on time and without damaging them: "It was a very important technical part and an intense pressure for the mechanics. There was a deadline to put them in the box" revealed Abderrahim. Nicknamed "Abder", he is one of the six mechanics and has been working with the aerobatic team for seven years.

His colleague Jean-Yves Moreau developed: "The deadline was the first flight in airshow, so before, there was the training. We had targets that stemmed from the first objective and the schedule was done backwards. The assembly was done with the Estonians, because the workshop that supports us technically is in Estonia. There is no workshop in France for L-39s. This workshop has the most extensive knowledge in L-39 in Europe. Of course, we French would like to maintain this plane but there are things we cannot do, and in addition there are no work permits - authorizations of troubleshooting signature".

Once this mission has been accomplished, Jacques Bothelin and his men traveled to Florida to start their tour. Well, it was not as simple as that...

## The States

One might have thought that the French team had left behind all the administrative problems encountered in Asia, but it was without considering the extreme rigor of the American authorities, especially the Federal Aviation Administration (FAA). Patrick Marchand, the Left outside wingman reported: "There were phases of compliance upgrade, regulatory immigration, FAA regulations, the technical status of our aircraft in the United States, the implementation of the display adapted to the regulations... It was not easy at all, but once in place, we were gone for two years with the same rules".

Thanks to the success of the Dragon Tour, the aerobatic team was able to assess the needs at all levels. They then decided to send the aircraft in containers, for several reasons.

With the prevailing winds coming from the west, the autonomy of the planes was very limited. It would have been necessary to wait for exceptional conditions to be able to fly.

However, the BJT had no schedule constraints as was the case with the Dragon Tour. For Asia, the European airshows season ended in mid-September and the team was scheduled to travel to Zhuhai in November. For the US trip, the organization was simpler as the 2014 season ended in October, on the anniversary of the Spanish Air Force. The planes then were disassembled in Dijon and from March 2015 their operations started in Florida.

Moreover, the culture within the French aerobatic team is based on safety and quality, sending aircraft in shuttle flight was a risk-taking: "It is not the aim of our profession, which is to carry out displays. Shuttle flight is the way to do our job. So, if we can avoid doing it, it's no worse" reminded the leader of the group.

Backed by the Asian experience, the US Tour organization allowed to anticipate better the regulatory constraints. The main difficulty was first to obtain flight authorizations.





*Breitling Jet Team - American Tour - Monument Valley*

*Photo by Breitling Jet Team*



## Restrictions from FAA

It turns out that Americans are less flexible than one might think, when it comes to flying on their territory. Administrative requests had to be made beforehand and the team could participate in all the airshows, or fly over certain symbolic sites, such as the Statue of Liberty. The requests therefore concerned display flying authorizations for pilots and airworthiness reconnaissance, as well as authorization for air operations in the United States.

Moreover, the pilots could not fly with their additional tanks, FAA regulations oblige. These regulations constrained the French airmen to multiply the stages to shuttle the L-39Cs from the east coast to the west coast, and from north to south.

For a team such as the BJT, it is necessary to have qualities of negotiator. Each country has its own regulations that differ from one another on several points, and surprises can happen at any time: *“When getting started, we were told standby and three days later, we were still there because a document was missing, or a country found it unsuitable. We have been blocked in Egypt by going to Abu Dhabi, because Saudi Arabia did not want us to pass because we were military, and it was not possible for us to be civil (at the controls of the L-39)”* explained the leader, and Patrick Marchand added: *“Likewise in Mauritania and Vietnam, they refused us to fly over and we turned around to return to Thailand”*.

The airmen also have been forced to modify and adapt their program in relation to the US regulations, which differ from Europe on many points concerning safety and trajectory: *“Our aim was to try to preserve as much as we could, our habit, our routine but adapting our display, to still be acceptable to the Americans, but without doing an American show. We wanted to try to keep as much as possible our know-how”* indicated the team leader.

On the other hand, US airport infrastructures are irreproachable. The air traffic control is very efficient and standardized: *“You do not compare the US Business Aircraft Services FBOs (Fixed Base Operator) and the Russian offices where we were on the corner of the wood... We were not in the same world, and it was much more comfortable in the United States”* judged Jacques Bothelin.

## Here we are!

For its first American tour, the team was training with a slightly updated display, two to three flights a day, four days a week.

The first show took place in Lakeland, then the many stages followed one another. Like the Dragon Tour, the displays were done in a supervised context. The main challenge remained shuttle, as emphasized “Charbo”, the Right inside wingman: *“The big challenge was still to take the team, the equipment, the planes, the whole caravan, from France to the other side of the world, whether in Asia or the United States, and to set up and be ready. When we start to take part in airshows, we stay in a little more familiar setting. But the main thing is to go there, but also come back! We had to bring everyone back afterwards, whether it be in flight for Asia, passing by a different route, or the containers with eleven planes and 20 tons of equipment”*.

For two seasons, the BJT crisscrossed, to say the least, all over the United States, the opportunity to once again discover grandiose landscapes, especially since the team had very few weather problems during the period it flew: *“The first year we started in Florida and we went up step by step to Boston. We crossed Vancouver in Canada, Texas... everywhere!”* described Patrick Marchand, and Christophe Deketelaere, the First slot added: *“The United States is a fantastic country to fly over, everything is wide, varied, it is Extraordinary!”*

In the second year, the pilots made a new appearance on some events like in 2015, such as the Sun International Fly-In & Expo in Lakeland, the Bethpage Air Show in Jones Beach, Toronto for the Canadian International Air Show. But the team also made new displays in 2016, among others, at the McGuire Air Force Base Air Show in Burlington County, New Jersey, and at the Beach Air Show in Huntington, California. All in all, fifteen airshows for that year.





## The puzzle of planning

Breitling sought a global visibility on North America for the Jet Team, which implied a complex logistics to meet the expectations of everyone: *“Given the dimension of the country, it became difficult to establish a program in which we had weather considerations, the timing of the events we wanted to attend, and at the same time we were obliged to limit the amount of overall flight hours of our fleet, so as not to fall under the obligation to stop the fleet, for an annual maintenance made in the middle of the season. It also conditioned the course we were going to have, because when we multiplied the diagonals in the United States, we accumulated the hours of flight”* developed Patrick Marchand.

## Exceptional resources

Besides the seven Albatrosses flew in airshows, an eighth L-39C was used for air-to-air images, while a final L-39 spare was stationed in Florida.

During all the stages, a support Fairchild Swearingen Metroliner accompanied them, with personal luggage and repair tools, as well as a Nascar truck (motorhome) carrying a reactor and supports: *“If there was a problem, the Estonians would just have to come and do the troubleshooting and the plane left again. It’s been a tremendous time-saving trick”* underlined Jean-Yves Moreau. *“Everything was set up in this truck, with drawers, tool boxes, lockers for personal belongings, a briefing room and, of course, all the truck was air-conditioned”* Abder developed.

*“This truck was leaving once the planes took off. When we had a 2,000-kilometer journey that we did in one afternoon, the truck would take two to three days. It could be delayed because of technical problems, customs passages like when we were in Canada - Abbotsford and Toronto”.*

*“When you are for a month and a half nomad, to have a huge comfort like this... This initiative came from Apache Aviation, to get into the American spirit. In Asia, it was impossible to have this, it would have been necessary to have a Transall like the Patrouille de France”* pointed out Jean-Yves Moreau.

Finally, 18 people participated in this adventure.

## Their partner of choice

Exceptional means, certainly, but on a civilian scale, because on a military scale, it is a completely different matter. By way of comparison, the British display team Red Arrows had a hundred people with two transport aircraft C-130 Hercules on tour in the Middle East and Asia. For its US Tour, The Patrouille de France benefited from an Airbus A400M carrying 50 tons of equipment and a Falcon 50 for the navigation of the sea crossings: *“We were not at all in a comparable logistic organization”* conceded Jacques Bothelin.

*“If there was a side of technical performance, even sportsmanship in our field, it is to have demonstrated it, but to have done with assistance, logistics that is extremely limited compared to military aerobatic team. No aerobatic team left eleven months of itinerant traveling. And we did it with a Metroliner, a ton of payload for the Asian tour. Period!”*

Nevertheless, the Jet Team can count on a partner of choice: Breitling. The Swiss manufacture is often associated with the world of aviation and its history.

Always disposed to support the biggest aeronautical events, to accompany the exploits of the aviators, the watchmaker brand with the winged B has a very close connection with the aerobatic team of Jacques Bothelin for 15 years: *“Breitling has the generosity to give us the means to work properly. We have the quality-security cursor that we optimize of course. They really know aviation. The owner of Breitling is a helicopter pilot, also number two. They never put pressure on the operational side.”*

*They submit questions, problems, challenges, that we study. We give them the results of our studies and they decide whether we go or not, but they know that we can have problems, that we cannot do the impossible. So, we always have the last operational word.”*





## The country of aviation

In the land of the Yankees, aviation is a field - in the literal sense - extraordinary and infrastructure and logistics prove it: *"A Cessna 150 is welcomed in the same way as a Global Jet in an aerial port. Everything is done so that you can work simply. We never had a problem with hotel rooms, rented cars, meals. We can land with ten planes unexpectedly on a field, we will have in the minute everything we will need"* affirmed Patrick Marchand.

*"Small aircraft can land on major airports. This is a great advantage" the leader added. Same observation was made by the mechanics: "They have a much more developed aeronautical culture than in Asia" declared Jean-Yves Moreau. "There, a regional airport like here (Dijon)... we see the difference. Here, we do the minimum with what we can, and it works very well. But compared to the airport of Lakeland for example, which is as big as Dijon, that has nothing to do. In Lakeland, there is always an airplane in the air"*.

The language barrier was no longer a constraint, by contrast to certain Asian countries, as Abderrahim emphasized: *"We spoke English without difficulty. In deepest China, out of one hundred people, there were only ten who spoke English"*.

The Americans have also reserved a warm welcome for the team: *"You cannot even imagine. We went to eat at their home! They adopted us for two years, in Lakeland"* related Jean-Yves Moreau. *"These people lent us their shed"* continued his colleague.

The Airshows are a real business with a display culture different from Europe and Asia: *"It's day and night" Abderrahim noted. "They go over the top, airshows are disproportionate, night shows that do not exist in us. They give it all you've got, ending with fireworks which last an hour, fire walls, simulations of warbirds with the Corsair, B-22... They are very patriotic with this paratrooper who begins the ceremony with the American flag, total silence, everyone looks at him with his hand on his chest, with the national anthem"*.

## Aeronautical heritage

Moreover, is it necessary to remember that the Americans have one of the most, if not the most important aeronautical heritage in the world? They own two national aerobatic display teams: the US Air Force Thunderbirds, on the F-16 Fighting Falcon, and the US Navy's Blue Angels, who fly on F-18 Hornet. Both are internationally renowned and offer to the public great precision demonstrations.

It was a wonder how the BJT expected keeping pace with this smart set? Especially since his status was leading to confusion: imagine that at each of your presentations, you must explain to the public that your team is French, that the sponsor is Swiss, that the plane is Czech and that it is registered in Estonia...

However, the pilots have succeeded in winning the hearts of the Americans as Patrick Marchand, nicknamed Gaston, remarked: *"I sensed that we were really a novelty and that they were curious and satisfied with this discovery"*.

It's no secret for everyone, the Americans love the show, the resounding music, the huge exploits: *"We could not compete with the national aerobatic teams in terms of power, noise. On the other hand, in terms of show creativity, the formation changes in the figures were something completely amazing for them, because they were not used to seeing"* revealed Jacques Bothelin.

If the Blue Angels have showcased all their intensity and dexterity, the Breitling Jet Team has demonstrated all its know-how, both measured and esthetically pleasing: *"Everyone must play with his weapons. We were told very often that it was a ballet, it had an elegant side, much more than a demonstration of power as an F-18 can have with post combustion"* continued the captain of the Jet Team.



## Admiration

If we were to summarize this tour in a word, it would probably be admiration.

Come “to cross swords with” the Americans, at home, is a challenge and the BJT has succeeded its. Professional aviators, amateurs and enthusiasts have deservedly expressed respect and admiration for French pilots and mechanics.

On this point, the team was touched by this welcome: “The public was extremely warm. Whether it is Asia or the United States, the public is far warmer than in Europe” confided Bernard Charbonnel, and his leader confirmed his words: “People who express their satisfaction, their positive emotions openly and without restraint, to applaud and say that they are happy. We are probably more reserved in Europe”. A difference of culture, certainly, but this could be worth thinking about...

Admiration also for the Jet Team with what it experienced for two years.

They have been invited to major events such as the Fleet Week in San Francisco, or Miramar Air Show. They also made appearances at the Red Bull Air Race in Las Vegas and the mythical Reno races in Nevada. Many will say they were lucky. Anyway, everyone in the French aerobatic team is aware of that: “Circling Golden Gate and Alcatraz is after all a privilege. Period!” summed up “Charbo”.

And these landscapes! How can an aviator cross an entire country and its majestic sites, such as Niagara Falls, Mount Rushmore, Badlands National Park, the Devil Tower National Monument... and not be amazed and fascinated?

## The magic moment

It's simple, ask the pilots which flight has made a deep impression on their minds. “The question is difficult because there are many!” replied the Left outside wingman. For almost all crews, one of the highlights is undoubtedly one of the last displays in San Francisco Bay, which was “exceptional!” according to Bernard Charbonnel.

“The demonstration of San Francisco is an image. We had flown San Francisco Bay, we had done photo flights before, so we had already seen the site. But the first loop made in the bay, under the conditions that we did... it was the magic moment!” related Patrick Marchand and Jacques Bothelin added: “Exceptional conditions, very beautiful, super visibility, a calm air, an extraordinary light. Personally, if I were to remember one display during the two years in the United States, it would be this one”.

## Home Sweet Home

After a final display at the Surf City USA Air Show (sponsored by Breitling), which took place in Los Angeles, specifically at Huntington Beach, now it was time for the mechanics to disassemble the aircraft and to load the eleven containers for their return to the Old Continent.

To sum up, the American Tour was 30 airshows, 70 displays, 35 visited states and 46,300 km traveled.





## Arriving back at Dijon

Upon arrival in Dijon, the crews met family and friends. And now, where to begin? Words were failing to describe what they have experienced.

The Breitling Jet Team discovered a country like none of its citizen will contemplate: *“There were many Americans who told us: you are lucky, you have seen our country as we will never see it. Go from East to West, or from South to North, imagine the distance it makes! Do it by plane will be very expensive. We had the opportunity to fly over the monuments, from places forbidden to other planes. It was just amazing among Niagara Falls, Mount Rushmore, Central Park, Golden Gate, it’s...”* Abder described.

Do they have regrets? Maybe...: *“In Lakeland, the Sun ‘n Fun will start in a few days. They will bring thirty (P-51) Mustang and the Patrouille de France... That bothers me not to be present”* admitted the team leader. *“Since 2015, I have traveled twice a year to the United States and since then I have not been there. But we are ready to go back, the containers are still there...”* declared Jean-Yves Moreau.

In two seasons, the ambassador of the Swiss watch brand has made over 70 demonstrations and has performed all over the North America. Without realizing it, two years to discover all the landscapes and events, or to go to meet the people of this atypical country, seem finally insufficient. However, they have succeeded what no aerobatic team in the world has managed to do. We can only congratulate them.

Henceforth, it will be Europe: *“A priori we settle for Europe for three years, but we may expect to go to the Middle East, Moscow... etc.”* affirmed the boss of Apache Aviation.



## The conclusion

In 2017, the BJT has made several demonstrations in Italy, Norway, Portugal, England, Switzerland, the Czech Republic, and of course in France: *“It’s our usual place”*, according to Patrick Marchand.

To conclude, the first American tour of the Breitling Jet Team was a success like its Asian tour, which was so complex, thanks to the professionalism of its highly skilled airmen. We can bet that there will still be challenges and stories to tell.

Special mention also for all the mechanics who have achieved feats, despite all the constraints and difficulties encountered.

Finally, and for once, pay tribute to the L-39 Albatros for its qualities and its reliability. Except an incident in flight, the crews never had any major problem with the aircraft: *“Apart from Abderrahim’s plane which struck a bird, we had no unexpected in the United States. They were forced to leave the plane on place and an Estonian team made the trip to change the engine”* remembered Jean-Yves Moreau.

Patrick Marchand, who knows the model very well, attested: *“I know no airplane which allowed to take seven jets in flight from Dijon to Hong Kong, with four mechanics, in nine days without breakdown, with no particular problem, in any case, nothing that cannot be repaired instantly between two stages. Reliability and robustness of the aircraft worked in our favor”*.



# PORTUGUESE ALPHA RETIREMENT

TEXT & PHOTOS - SAM WISE / AVIATION IN ACTION

For over two decades the venerable Alpha Jet has provided the Portuguese Air Force with their fast-jet training needs, but a combination of funding issues and airframes at the end of their service lives will see this come to an end in 2018. Sam Wise looks at the history of the type in Portuguese service.



An Alpha Jet sits on the hot ramp.  
Photo by Sam Wise

## Portuguese Alpha Retirement

For over two decades the venerable Alpha Jet has provided the Portuguese Air Force with their fast-jet training needs, but a combination of funding issues and airframes at the end of their service lives will see this come to an end in 2018. Sam Wise looks at the history of the type in Portuguese service.

The Portuguese Air Force, (Força Aérea Portuguesa, FAP) has operated the Dassault/Dornier Alpha Jet since 1993 when the air arm received 50 airframes (Alpha Jet As) from the Luftwaffe, who were at the same time disposing of their trainers as surplus to requirements following a post-Cold War restructuring programme.

The German Air Force presented the Alphas to the FAP as payment for their presence at Beja air base - which the Luftwaffe had seen constructed in the first place as northern European air space was too crowded for tactical training - for nearly thirty years (18 aircraft were already stationed at the base in Portugal).

Of the 50 aircraft received, only 40 were actually entered into service, with the remaining 10 being kept for spares. Over the years, as the flight hours of the airframes grew ever higher, the fleet gradually reduced in numbers down to as few as ten by 2006, and then six by the end of their service with the air force.

The Alpha Jets were brought on to replace three types recently removed from FAP service at the time - the T-33C Shooting Star and T-38A Talon with Esquadra 103 "Caracóis" (Snails) at BA 11 at Beja, with whom the type served until retirement, and the Fiat G.91R with Esquadra 301 "Jaguars" (Jaguars) at BA 6 at Montijo. Esq. 301 subsequently moved to Beja and the fleet was pooled, with neither esquadra actually being assigned its own aircraft.







*A special painted Alpha Jet touches down after a sortie.*  
*Photo by Sam Wise*



### A sharing group

The initial training for both pilots and ground crew was conducted in Germany, but Portugal soon formed an information sharing group with the French and Belgian air forces, the only other operators of the type in Europe, to share and collect technical data and experiences about the aircraft and develop solutions to common problems.

The aircraft were subsequently upgraded and modernised with new equipment fitted, including the SPS-1000 radar warning receiver, AN/ALE-40 chaff/flare launcher, and KN-4071 Attitude and Heading Reference System (AHRS) integrated INS/GPS platform.

In addition to their role as trainers, the jets were initially also used in their ground-attack configuration, taking on the missions performed by Esq. 301's Ginas. They reached 20,000 hours on the type in this role, but in 2005 the esquadra converted to the F-16 and the combat role of the Alpha Jet was retired, with 301 moving to BA 5 at Monte Real.

### Asas de Portugal

The FAP had operated the T-37C Tweet until 1992, however a fatal crash in 1990 and subsequent fleet-wide structural investigation had seen them removed from service. It was on this type that the Portuguese national aerobatic display team, the Asas de Portugal (Stars of Portugal), had been formed in the seventies, firstly to represent the country at the 1977 International Air Tattoo. With the withdrawal of the Tweet, the team was stood down.

The team was reformed on the Alpha Jet and appeared first as a pair in 1997, in regular service colours, and only performed within Portugal itself before disappearing again in 1998. The team was then brought back once again in 2004 in order to commemorate the 50th Anniversary of the FAP, and flew as a pair until 2009, with the team's final year being 2010 with just a solo jet. Though the team did not perform again, three jets were kept in the display colours.

In 2012 the fleet passed 50,000 flying hours in Portuguese service. The aircraft that met the milestone was 15236 (ex-Luftwaffe 41+03, c/n 0103), which was later given commemorative markings recognising this significant number. Across almost 25 years of service with the type, the FAP saw just one serious Alpha Jet accident, when, in 2003, two of the aircraft collided. One was able to make an emergency landing at Beja while the second (15234, ex-Luftwaffe 41+00, c/n 0100) crashed and was written off. The pilot successfully ejected.

Now, 25 years on, the cash-strapped FAP is retiring their advanced jet trainers with no replacement announced or, indeed, expected. After a quarter-century of service the Alpha Jet A has run its course for Portugal with only six serviceable aircraft remaining in the last few years.

The aircraft was expected to meet retirement in January 2018 but was then billed to take part in Exercise Real Thaw in February of the same year, taking place on the 1st of the month. This will probably be the jets' final appearance and future fast-jet training for the FAP will take place with the US Air Force, continuing existing training programmes there. One of the airframes has already been placed in the national Air Force Museum, while the future of the rest of the aircraft remains under review.



# THE NEXT ISSUE OF FLYMAG MAGAZINE

The next issue of FLYMAG will be published in June of 2018. FLYMAG reports from the home of the Bone, Dyess AFB. We continue the story of the Breitling Jet Team, this time with their Asian tour, and we're taking a look at the German Helicopter Transport Wings, flying the big CH-53 Sea Stallion.



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