

THE AVIATION MAGAZINE

WWW.THEAVIATIONMAGAZINE.COM

Nº 66 November-December 2019
Volume 10, Issue 6

- ✦ Exercise Rapid Forge
- ✦ Berlin Airlift
- ✦ RIAT 2019
- ✦ Exercise Garuda
- ✦ And so much more ...

10
YEAR
ANNIVERSARY

THE AVIATION MAGAZINE

www.TheAviationMagazine.com

Nº 66 November-December 2019

Volume 10, Issue 6

Content

- 6 Exercise Rapid Forge, Europe
- 16 Tag der Bundeswehr - German Armed Forces Day
- 34 D-Day - Sainte-Mère-Église, France
- 42 Exercise Market Garden and Falcon Leap, The Netherlands
- 54 Berlin Airlift - 70th Anniversary Celebration, Germany
- 64 Royal International Air Tattoo RIAT, UK
- 110 Paris International Parade, France
- 122 Exercise Garuda 2019, France
- 132 European Air Refueling Training 2019, Europe
- 142 Open Day at Graf Ignatievo Air Base, Bulgaria
- 152 Royal Air Force Base Visits And Last Tornados, UK
- 168 Budarös Airshow 2019, Hungary
- 180 Festival Aéreo de Gijón, Spain

Cover: USAF F-35A from the 421st FS receives fuel from a KC-135 of the 351th ARS, © 2019 Ben Gorski

This page: USFAE F-15E from the 494 FS at the Royal International Air Tattoo 2019, © 2019 Peter Thivessen



© 2019 THE AVIATION MAGAZINE



THE AVIATION MAGAZINE

by www.TheAviationMagazine.com

e-mail: editor@TheAviationMagazine.com

THE AVIATION MAGAZINE is published six times a year by a team of volunteers interested in aviation. We are devoted to cover a wide range of aviation events ranging from air shows, air base visits, military exercises, civilian spotting, and pilot and veteran interviews -- accentuated with exceptional photography. THE AVIATION MAGAZINE is a leader in the e-magazine format since 2009, bringing exclusive and fascinating reports to our global aviation enthusiasts digitally.

Do you feel addressed and want to be part of our team? We would love to publish your work too, so feel free to shoot us an e-mail to editor@TheAviationMagazine.com. Please note that we do not accept any unsolicited articles or images for publication.

The people behind THE AVIATION MAGAZINE

Publisher & Editor

Ralf Peter Walter
editor@TheAviationMagazine.com

Contributing team members

Wolfgang Jarisch
Peter Thivessen

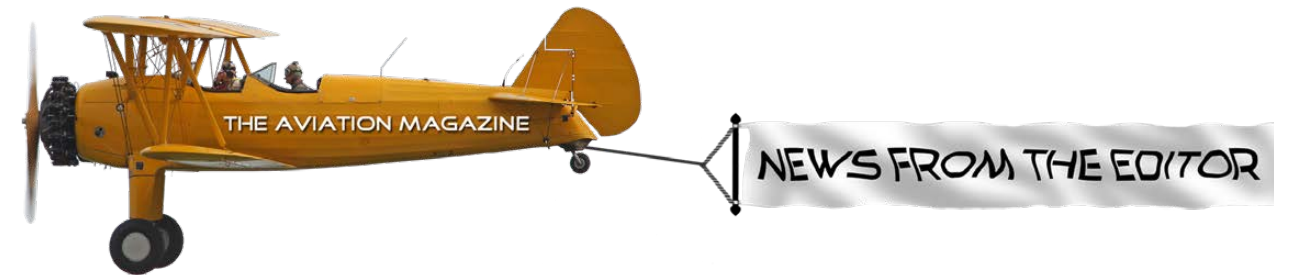
Occasional Contributors

Kris Christiaens
Joe Cilberti
Carlo Cuit and Paul Kievit
Patrice Dochain
Ralf Jahnke
Paco Jover
István Kelecsényi

Mathias Leischner
Udo Leischner
David Mazón Gómez
Ben Gorski
Felix Mayer
Tommaso Munforti
Jason Phelan
Anthony F. Seychell
Jeroen van Veenendaal & Team
Joris van Boven
Alex van Noye
Jeroen Oude Wolbers

Copyright ©2019 THE AVIATION MAGAZINE.

No part of this e-publication may be reproduced in any form without prior written consent from the publisher. Copies of THE AVIATION MAGAZINE may not be sold. However, you are free to distribute a link to our website. While we strive for factual reporting of events. THE AVIATION MAGAZINE is not responsible for the accuracy of the content or for the opinions expressed by authors of their respective articles and reports, and they are not necessarily those of the editor or publisher. All trade names, trademarks, manufacturer names, photographic images and textual works used in this publication are the property of their respective owners.



Welcome to our **10th ANNIVERSARY** edition of THE AVIATION MAGAZINE. Sixty regular and six special issues in ten years covering military and military related events and airshows all over the world. Just download this amazing issue **here**.

I would like to thank all those who have contributed to this success story through their reports, and especially those who have made these reports possible in the first place. A big thank you to our readers who have remained loyal to us. This is the most comprehensive edition to date, with around 180 pages. Look forward to thirteen varied articles and great images.

This issue is also the last issue this year. We will be back in January 2020 with another exciting issue.

Stay tuned for our reports and join us by downloading THE AVIATION MAGAZINE, the BEST and FREE e-based magazine since 2009, imitated by so many, but never surpassed.

Thank you very much for reading and downloading THE AVIATION MAGAZINE.

Ralf Peter WALTER
Publisher & Editor

This and all previous issues are also available for download from the issuu platform at <https://issuu.com/theaviationmagazine>



EXERCISE RAPID FORGE 2019

ARTICLE BY BEN GORSKI AND PHOTOGRAPHY AS NOTED



4th Fighter Wing



388th Fighter Wing



100th Air Refueling Wing



86th Airlift Wing



317th Airlift Wing



352nd Special Ops Wing



Rapid Forge is a U.S. Air Force Europe-led exercise to bring the readiness of the Air Force and its NATO allies to a higher level. Based on the Combat Support Wing concept, the exercise is conducted to test their ability to function at locations other than their main air bases. This concept gives the Air Force more ability to rapidly deploy to forward operating locations closer to combat zones. Within this concept, multifunctional capability is key, for example, weapon-loaders will learn how to drive a fuel truck, security forces are taught to refuel an aircraft, and a maintainer can secure the area.

When aircraft are able to get close enough to the enemy to execute strike or other missions, they may also need places where they can divert to. This can be due to mechanical problems, battle damage, or other operational issues such as fuel requirements that cannot be met with air-to-air refueling. Hence, the ability to land to refuel, re-arm, or even do maintenance will give the Air Force more flexibility – and perhaps more survivability.

The USAF had deployed F-35A *Lightning II*s from the 421st FS, 388th FW at Hill Air Force Base, Utah

and F-15E *Strike Eagles* from the 4th FW at Seymour Johnson Air Force Base to Spangdahlem Air Base, Germany for Operation Rapid Forge. Additional participating USAF based aircraft were two C-130J from the 86th AW at Ramstein Air Force Base, Germany, two C-130J from the 317th AW at Dyess Air Force Base which were deployed to Ramstein Airbase, one MC-130J from the 352nd SOW and two KC-135T from the 100th ARW. Both located at Mildenhall Air Force Base, United Kingdom.

For this exercise, the F-35As and F-15Es were forward deployed to several locations in Europe including Poland, Lithuania, and Estonia - and this all in one day. The four C-130Js transported the loadmasters, fuel crews, and maintainers from Spangdahlem AB to both Powidz Air Force Base in Poland and Siauliai Air Force Base in Lithuania. These bases were used as forward operating locations.

At these locations, the aircraft were "hot" – meaning the engines are still running – refueled and rearmed with inert ammunitions.

At Ämari Air Base, Estonia, the crew flew with a MC-130J to the landing strip where they set up a temporary base with equipment and fuel lines. With

the temporary base established, they transferred the fuel from the MC-130J to the aircraft on the ground as a mobile gas station. In parallel, the aircraft were rearmed and checked by the maintenance crew so they could take off and resume operations.

For the pilots, landing at a temporary airfield in a potentially hostile environment, this is not business as usual. They have to trust the crew on the ground to have secured the area, and that they will get them back in the air as quickly as possible. Because of this, it is essential to have the right people and right equipment in place at the right time. The maintainers from the 388th FW are trained in all aspects of F-35 maintenance tasks, and are able to work on more than one part of the aircraft. This has allowed a reduction in 65% of maintainers. Additionally, two KC-135Ts were in the air to provide the aircraft with extra fuel. This was also an extra exercise for the new boom operators of the 100th ARW and for the F-35 pilots. Some of them completed their F-35 training shortly before their deployment to Europe.

The 421st Fighter Squadron received their first F-35A only six months before they deployed to Europe. For them, it was another test for the combat capability

of the F-35A. The squadron was on a tour through Europe, starting on May 23rd at Aviano Air Base, Italy and ending on August 21st at Spangdahlem AB. While in Europe, they trained together with other NATO allies including Italy, Spain, Netherlands and Norway. They also participated in different exercises such as 'Astrial Knight' at Aviano AB, Fighter Weapons Instructor Training at Leeuwarden Air Base, The Netherlands and the Tactical Leadership Program at Albacete Air Base, Spain.

For the F-15E Strike Eagles from 4th FW at Seymour Johnson Air Force Base, North Carolina, the tasks performed in the exercise were familiar because they hosted the Combat Support Wing proof-of-concept back in May of this year. They were at Spangdahlem AB only for Rapid Forge, which took place from July 15th through July 26th. They arrived there the week before and returned home on July 26th.

F-15E *Strike Eagle* assigned to the 4th Fighter Wing, waiting to receive fuel from a KC-135 *Stratotanker* assigned to the 351st Air Refueling Squadron, 100th Air Refueling Wing (photo © 2009 by Ben Gorski)



- F-15E *Strike Eagle* of the 4th Fighter Wing receives fuel from a KC-135 *Statotanker* of the 351st Air Refueling Squadron, 100th Air Refueling Wing (insets)
 - F-15E *Strike Eagle* flies away from the tanker after receiving fuel (main image)
- All photos this page © 2019 by Ben Gorski



A F-15E *Strike Eagle*, assigned to the 4th Fighter Wing, and a F-35A *Lightning II* assigned to the 388th Fighter Wing, fly side-by-side behind a KC-135 *Stratotanker* assigned to the 100th Air Refueling (main image, U.S. Air Force photo by Tech. Sgt. Emerson Nuñez)

A F-35A *Lightning II*, assigned to the 421st Fighter Squadron, 488th Fighter Wing, taxis on the flightline at Spangdahlem Air Base past the parked F-15E *Strike Eagles* of the 4th Fighter Wing (inset, U.S. Air Force photo by Airman 1st Class Kyle Cope)



A F-35A *Lightning II* assigned to the 421st Fighter Squadron, 388th Fighter Wing of the 388th Fighter Wing receives fuel from a KC-135 *Stratotanker* of the 351st Air Refueling Squadron, 100th Air Refueling Wing (insets)
All photos this page © 2019 by Ben Gorski



U.S. Air Force Special Tactics Operators and Special Operations aircrew conduct a forward arming and refueling point mission with USAF aircraft. Special Tactics is a U.S. Special Operation Command's tactical air and ground integration force, and the Air Force's special operations ground force, leading Global Access, Precision Strike, Personnel Recovery and Battlefield Surgery operations on the battlefield. The MC-130J *Commando II*, and aircrew, are able to execute refueling missions in austere, sensitive or hostile territories.

(U.S. Air Force photos by Staff Sgt. Rose Gudex)





TAG DER BUNDESWEHR ARMED FORCES DAY

REPORT AND PHOTOGRAPHY BY MATHIAS LEISCHNER



Jagel Air Base
German Air Force



On June 15th, the "Tag der Bundeswehr" (Day of the armed Forces) was held at various military installations in Germany.

This is a relatively new event, having taken place for the first time in 2015 for the 60th anniversary of the Bundeswehr. Each year on a rotational basis, different military installations open the gates for the public, demonstrating their capabilities.

Two days before the public event, a spottersday was held at Jagel Air Base, home of the "Taktisches Luftwaffen Geschwader 51" (TaktLwG 51 – Tactical Air Wing 51).

A mix of military aircraft from the Bundeswehr could be seen; also some international guests from Italy, Hungary and the Czech Republic showed up. For many enthusiasts, the main attraction, however, was

the presence of no less than ten C-47/DC-3 landing and taking off for a formation fly-by. The Dakotas were gathering for the 75th anniversary of the D-Day in Europe, and also for the 70th anniversary of the "Berliner Luftbrücke" (Berlin Airlift) from which Jagel was one of the airfields used to fly supplies into Berlin during the Berlin Blockade. The sight of the Dakotas flying in formation was a unique opportunity and one to remember!

Another highlight was the presence of the host wing's specially painted Tornado which took part in this year's NATO Tiger Meet in France.

The spottersday mainly saw the rehearsals for the main event and the arrivals for the guests taking part in the static display.

German Air Force Tornado ECR, TaktLwG 51 "Immelmann"



▲ German Army NH-90TH, THR 30
▼ German Air Force CH-53G, HSG 64



German Air Force Tornado IDS, TaktLwG 51 "Immelmann" ▲
German Air Force Tornado ECR, TaktLwG 51 "Immelmann" ▼





This Douglas A-4N Skyhawk belongs to Top Aces. The company is contracted by the German Air Force for air combat training and based at Wittmund AB in Northern Germany.



▲ German Navy Lockheed P-3C, MFG 3
▼ Hungarian Air Force Antonov An-26, MH 59. Sz.D.R.



Czech Air Force Aero L-159A, 212.tl
E.I.S. Aircraft GmbH Pilatus PC-9B



Dornier Do-28D-2, ex German Navy





▲ Douglas C-47 "Placid Lassie" built in 1942 | N74589
▼ Douglas C-47 built in 1941 | N150D



Douglas C-47A "Virginia Ann" | N62CC
Douglas C-47A "Miss Virginia" built in 1943 | N47E ▼





▲ Douglas DC-3C built in 1949 | N877MG
▼ Douglas DC-3A "Miss Montana" built in 1944 | N243320



Douglas DC-3C "Liberty" built in 1943 | N25641 ▲
Douglas DC-3A built in 1939 | N341A ▼



▼ Douglas C-47B built in 1945 | F-AZOX



Naval Air Station Nordholz

German Navy



Naval Air Station Nordholz also was one another host for the „Tag der Bundeswehr“ 2019. The Base is the home for the Naval Air Wings (Marineflieger Geschwader – MFG) MFG 3 for the fixed wing aircraft P-3C Orion and Dornier Do-228 and MFG 5 for the Helicopters Sea King Mk41A and Sea Lynx Mk88A. Nordholz also opened its doors for a spotterday one day before the public event, but in contrast to Jagel the spotterday was mainly a static exposition

with only very limited flying activity. Still a very nice opportunity to see the aircraft from the German Navy and international guests from France and Great Britain.

Alltogether the Tag der Bundeswehr 2019 saw some 270.000 visitors all over the participating Bases and facilities all around Germany.



German Navy P3-C, MFG 3



▲ German Navy Sea King Mk41, MFG 5
▼ German Army NH90-TTH, IntHubschrAusbZ



German Navy Super Lynx Mk88A, MFG 3 ▲
Royal Navy AgustaWestland Wildcat HMA2, 815 NAS ▼





▲ German Federal Police Aerospatiale AS332L Super Puma
▼ Douglas A-4N Skyhawk of contractor Top Aces



▼ Civil Eurocopter EC135P2+ contracted to German Navy



French Navy Dassault ATL2 Atlantique, Flottille 21F



75TH ANNIVERSARY OF THE D-DAY LANDINGS IN SAINTE-MÈRE-ÉGLISE

REPORT BY JORIS VAN BOVEN
AND ALEX VAN NOYE WITH
PHOTOS BY JORIS VAN BOVEN

On Sunday, June 9th, 2019, the D-Day activities in Normandy were closed with a parajump near Sainte-Mère-Église. Around 900 paratroopers were dropped from aircraft from the United States, the Netherlands, France, Belgium and Romania. Just as the C-47 *Dakotas* had their own "Daks over Normandy", these transport aircraft almost had their own "Herky over Normandy". In addition to a French C-160 *Transall*, the formation consisted of various C-130 *Hercules* aircraft.

The aircraft were based on Base Aérienne Evreux and Airport Cherbourg, the paratroopers all boarded the aircraft in Cherbourg. The first wave of aircraft departed in the morning at around ten o'clock and

then waited for an hour in the holding until the second wave of aircraft flew from Evreux to Cherbourg to take the remaining paratroopers on board. After this, a "racetrack" was flown above the drop zone and each aircraft delivered the paratroopers. Due to an accident with a parachutist, the dropping was stopped for fifteen minutes, after which the last parachutists jumped down.

The contribution of the USAFE was special because the current 37th Airlift Squadron (part of the 86th Airlift Wing with the Lockheed C-130J *Hercules* at Ramstein Air Base, Germany), participated in the invasion by dropping parachutists at Sainte-Mère-Église on June 6th, 1944. Flying at that time with the Douglas C-47

Dakota was the 37th Troop Carrier Squadron (TCS), with the squadron code 'W7' painted on the C-47s.

Sainte-Mère-Église is known for the parachutist at the church tower. Parachutist John Steele came to hang with his parachute at the church tower at night and remained silent there for several hours. Later in the day, he was freed from his predicament. This is remembered by attaching a doll and a parachute to the church tower.

Participants

C-130s from USAF Europe, USAF ANG, USAF Reserve, Royal Netherlands Air Force, Belgian Air Force, French Air Force and a C-160 of the French Air Force.



An U.S. Air Force C-130J *Hercules* from the 37th Airlift Squadron drops paratroopers over the town of Sainte-Mère-Église



- U.S. Air Force Reserve Command C-130H *Hercules* from the 731th Airlift Squadron at Peterson AFB, Colorado (inset top left)
- U.S. Airforce C-130J *Hercules* from the 41st Airlift Squadron at Little Rock AFB, Arkansas (inset top right)
- French Air Force Transall C-160R from ET00.064 at BA 105 Evreux (inset bottom left)
- Belgian Air Force C-130H from 20th Squadron at Bruxelles Airport (inset bottom right)
- Royal Netherlands Air Force C-130H *Hercules* from 336th Squadron at Eindhoven AB following the Belgian Air Force C-130H (main image)





Nineteen aircraft from multiple nations and parachute jumpers from Belgium, France, Germany, the Netherlands, Romania, United Kingdom and the United States dropped civilians and soldiers in front of thousands of spectators



- The doll with the parachute is to remember the parachutist John Steele who came to hang with his parachute at the church tower in the town of Sainte-Mère-Église when landing at night (inset left)
- Douglas C-47B built in 1943 | N47SJ (inset top right)
- Douglas C-47 "Placid Lassie" built in 1942 | N74589 (inset bottom right)
- Paratroopers landing at the perimeter of Sainte-Mère-Église (main image, U.S. AirForce photo by Airman 1st Class Jennifer Zima)

MARKET GARDEN AND FALCON LEAP

REPORT AND PHOTOGRAPHY BY JORIS VAN BOVEN AND ALEX VAN NOYE



Operation Market Garden was an Allied offensive against the Germans in the Netherlands in September 1944. This operation was the main operation which took place in the Netherlands during the Second World War. Operation Market Garden was for the biggest part a failure because the last bridge in Arnhem could not be occupied. The result of this failure was a famine in the northern part of the Netherlands. Operation Market Garden consisted of two large operations which both played a key role. The first operation was a large airborne landing behind the German lines called Market. The second operation was a ground offensive from Belgium to the Netherlands under the name Garden. The British, American and Polish airborne troops would occupy the important bridges over the Dutch rivers; the ground force would come quickly from Belgium to the IJsselmeer. The German troops in the Netherlands would therefore be cut off from Germany and the route to the east would be opened. This way, the Ruhr River in Germany would quickly be invaded. This was very important because this area was the industrial heart of the Germans. Operation Market Garden was seen as a failure by the Allied High Command. The most crucial objective was the bridge at Arnhem. This bridge could not be taken because the landing troops were dropped too far from Arnhem. By missing this bridge, the road was not open to the Ruhr and the war lasted at least half a year longer than expected. However, securing the sector Antwerp was achieved during this operation. Safeguarding the port of Antwerp was an important milestone during the operation because from here, the troops would be spread during the following campaign in Germany.

The major aircraft during the landings of Operation Market Garden was the Douglas C-47 *Skytrain*. The *Skytrain* was the military version of the Douglas DC-3 *Dakota*. The big difference between the civilian and military variant is the large cargo door on the left side of the *Skytrain*. Also, the *Skytrain* has a reinforced floor for transporting heavy loads. Many Allied countries used the C-47 *Skytrain* during the Second World War for carrying heavy loads and transporting troops and wounded. More

than 10,000 aircraft of this type were produced at the Douglas plant in Santa Monica, California and Oklahoma City, Oklahoma. The plant in Oklahoma has built over 5,354 Skytrains between March 1943 and August 1945. The C-47 was a perfect aircraft for dropping paratroopers. The aircraft was commonly used during several major actions in the Second World War such as the dropping of paratroopers during the Normandy landings in France and Operation Market Garden in the Netherlands. The aircraft played a key role during these actions when thousands of paratroopers were dropped behind the German lines.

These forces often had the task to capture various bridges and other strategic points; they had to occupy these points until the main Allied forces would arrive. The C-47 was also able to pull gliders which could land silently behind enemy lines. The C-47 also played an important role during the Berlin Airlift after the Second World War. The *Skytrain* served in the United States Air Force until 1967. After the Second World War, most planes of the *Skytrain* fleet entered service at civilian companies where the aircraft would serve as cargo plane.

The second important aircraft type during the landings around the bridges were the British Airspeed Horsa gliders. The Horsa consisted of three versions, namely the AS51 Horsa 1, the AS52 and the AS58 Horsa 2. A total of 3,750 units of this type of glider were built. All aircraft were literally lost during the various airborne operations. The aircraft were built to land only once behind enemy lines with the element of surprise as the best. The specimens



drawn up at museums after the since the design drawings are two pilots aboard the Horsa were able to fly along.

The operation was started with the Dutch cities on September 17, 1944. dropped around Eindhoven and the in Nijmegen. The 101st was dropped They were tasked to capture the bridges at St. Oedenrode and the Zuidwillemsvaart capture the bridge at Grave over the river of the bridges over the Maas-Waal canal at according to plan. Simultaneously with the troops of the 1st Airborne Division were dropped The British unit would receive support from the

Second World War are well-built replicas still available for this type. There were gliders and a total of 25 equipped soldiers

dropping of parachutists above three major The American 101st Airborne Division was American 82nd Airborne Division was dropped at Eindhoven, Best, St. Oedenrode and Veghel. over the River Aa at Best, the Wilhelmina Canal (canal) at Veghel. The task of the 82nd was to Maas, the bridge over the river Waal and one Nijmegen. This part of the operation went all droppings around Eindhoven and Nijmegen, British near Arnhem in Wolfheez, Ede and Oosterbeek. Polish Independent Airborne Division.



Royal Air Force Hercules C4, 24/47 Sqn



U.S. Air Force C-130J, 37th AS



The British 30th Corps had to come from Lommel (Belgium) via the route over the captured bridges. The British units during the Garden Operation consisted of over 50,000 men and over 22,000 vehicles. The whole caravan was forced to move to Arnhem via one road making it vulnerable to enemy forces. Due to the fierce fighting, it was named "Hell's Highway". In order to protect the flanks, two army corps were deployed to protect the vehicles in the caravan. The ground troops were able to advance within the specified times and to reinforce the paratroopers who had taken a position at the bridges, except for the bridge at Arnhem. The Germans had concentrated themselves near the bridge in the city of Arnhem; the bridge was eventually not being taken. The troops that made the advance from the south came across two German armored divisions which had buried themselves on the route just before Arnhem near Elst. The ground troops were unable to force a passage to Arnhem. The troops who occupied the bridge were caught up and soon ran out of ammunition due to German opposition. They had to withdraw from Arnhem after a few days despite the support of the Polish Forces who had arrived in the meantime. At the end of September 1944, the Allied advance in the southern part of the Netherlands stranded. The result was a long hunger winter in the northern and western part of the Netherlands, where the Second World War lasted until May 1945.

A total of 1,800 British and Polish soldiers died in the Arnhem area and over 2,300 escaped via a crossing over the Rhine during Operation Pegasus.

75th commemoration in 2019

The Market Garden Memorial was set up largely this year by the organization because this famous airborne operation took place exactly 75 years ago. More than 1,100 Red Barrettes from eight different countries would follow in the footsteps of their predecessors on Saturday, September 21st. Airborne soldiers can be recognized worldwide by the red Barrett they wear. On September 17th in 1944, more than 75 years ago, the largest airborne operation of history took place under the name Market Garden. The mission began to recapture the Netherlands from the Germans and push through to the Ruhr area. Every year, people in this area, especially on the Gelderse Ginkelse Heide near Ede and Arnhem, pay attention to this major airborne operation. During the commemoration, there is a drop of paratroopers on various days at various locations (often in Gelderland and North Brabant). Prior to the Operation Market Garden, the Falcon Leap exercise was held. This exercise is an international parachutist exercise that takes place in the Netherlands annually. During the two weeks in September, different facets of the modern deployment of "airborne" troops are central. The last days of this major exercise are dominated by the Operation Market Garden during the commemorations at Groesbeek, Ede and Arnhem. The Market Garden Memorial is the final part of this international exercise. The Falcon Leap exercise is mainly aimed at the airborne troops who actually perform the parachute jump and the associated crews of the transport aircraft. The main objective of the exercise is international cooperation and learning from each other's tactics and procedures during this type of operation.

The aircraft that would bring all paratroopers to their target areas would fly during the Falcon Leap and Market Garden exercise from the Eindhoven Air Base in Eindhoven. These missions were led by the American command. A total of eight large military transport aircraft were to fly during the Market Garden Memorial. The participating aircraft came from the Netherlands (two C-130 *Hercules*), Belgium (one C-130 *Hercules*), Germany (one C-160 Transall), Great Britain (one C-130 *Hercules*), Italy (one C-130 *Hercules*) and the United States (two C-130 *Hercules*). The Poles also flew separate missions with a single CASA C-295M that would often fly together with two German An-28s of the German army. Finally, an authentic C-47 Skytrain also flew along. This aircraft is an original plane that has actually occurred during the invasion of Normandy and the air landings during Market Garden. In addition to the planes that flew during the dropping, paratroopers from all over the world were also present at Eindhoven. The dropping of the paratroopers would be led by the Dutch soldiers of the 11 Airmobile Brigade from Schaarsbergen. The participating paratroopers came from the Netherlands, Belgium, Germany, the United States, Great Britain, Poland, the Czech Republic and South Africa. In a large hanger at Eindhoven air base, the paratroopers were prepared for their jump in separate sections. When the aircraft was ready, the parachutists were guided in a column to their aircraft to board the transport planes.

The first major dropping in the context of Operation Market Garden was on Wednesday September 18th, in Groesbeek. A total of more than 1,000 paratroopers would land near the village at the Den Heuvel Estate in Gelderland. In September, it is exactly 75 years ago that paratroopers from the 82nd Airborne division landed in Groesbeek as part of the Operation Market Garden. On Wednesday, September 18th, 2019, more than 1,000 paratroopers once again set foot at Groesbeek during the annual commemoration. The paratroopers were dropped in this area during multiple waves between 10 a.m. and 3 p.m. The second major dropping which was commemorated was the dropping of the troops near Arnhem who were dropped on the Ginkelse Heide in 1944. The commemoration of this dropping was visited by many people. On Saturday, September 21st, more than 100,000 people were present at the Ginkelse Heide. Visitors were transported from and to stations and parking places by shuttle buses. The organization had great difficulty transporting so many people because the weather played ball during this anniversary edition. It was also very busy. A total of three waves were flown in which more than 1,000 paratroopers were dropped. Unfortunately, not all paratroopers were dropped during the morning wave. Due to the strong wind above the Veluwe, not all paratroopers were dropped from the aircraft during the

first wave. These paratroopers returned to Eindhoven Air Base somewhat disappointed. During the second wave, the wind had subsided and all paratroopers were dropped. The paratroopers were welcomed and applauded by the general public at the Ginkelse Heide.

During the commemoration of the operation, some prominent figures from the Dutch and British royal family were also present. For example, the British crown prince Prince Charles was present in a military uniform. On behalf of the Netherlands, the ceremony was attended by Princess Beatrix. Both royalties laid floral wreaths at the Airborne Monument and gave a speech. Ten veterans still alive were present at the ceremony. Veteran John Jeffries also laid a floral wreath on behalf of the survivors. For the second time in his life, the 97-year-old veteran Sandy Cortmann jumped over the Ginkelse Heide in Ede under the guidance of The Red Devils Army Parachute Display Team from the United Kingdom. This time, he did not land in hostile circumstances. He was not fired at all, but instead there was loud applause for him. In addition to the parachute landings, there was also a display of the modern Dutch Airmobile Brigade which are nowadays often used with the helicopters of the Defense Helicopter Command at Gilze Rijen Air Base. The 11th Air Maneuver Brigade demonstrated with helicopters and the military how tactical airborne operations of this kind are currently being conducted. There was also plenty to do on the ground because many enthusiastic hobbyists have been maintaining the old military vehicles from this period of the Second World War for years. Dressed in the uniforms of the time and equipped with the equipment of the time, the part of Operation Garden was shown extensively. Throughout this spectacle, the 75th anniversary of the largest airborne landing in history was appropriately commemorated by young and old. Lest we forget.



Paratroopers lining up behind a U.S. Marine Corps KC-130J, ready to go on board the aircraft



Paratroopers jumping out of a Royal Netherlands Air Force C-1310H *Hercules* of the 336 Squadron



This Douglas C-47, civil registration N473DC, was built in 1942





- German Air Force C-160D, LTG 63 (top left)
- Royal Netherlands Air Force C-130H, 336 Sqn (top right)
- Polish Air Force C295M, 8.BLT/13.el (bottom left)
- U.S. Marine Corps KC-130J, VMGR-252 (bottom right)
- A C-130 taking-off into the sunset (main image)

BERLIN AIRLIFT

70TH ANNIVERSARY CELEBRATION

REPORT & IMAGES
BY RALF JAHNKE



Douglas C-47A "Miss Virginia" built in 1943 | N47E



From June 24th, 1948 to May 12th, 1949, the Soviet Union had completely blocked all access roads to West Berlin. To save two million people from starvation, the West Allies provided the city with supplies by air for nearly a year, soon to become known worldwide as the "Berliner Luftbrücke - Berlin Airlift". The Airlift showed people back then in Berlin that they would not be left to the Soviets. The blockade was a first dramatic climax of the Cold War.

As part of the 70th anniversary celebrations of the Berlin Airlift, the "Candy Bombers" from many nations came to Germany on a star flight. The first stopover was on June 10th and 11th, 2019 at the U.S. Army Airfield Wiesbaden. From there, on June 13th, the "Candy Bombers" flew to the Schleswig-Jagel Air Base. On the same day, all aircraft took off to Faßberg Air Base to fly from there on June 16th again over Berlin to commemorate the end of the Berlin Airlift seventy years ago. From all three airbases

Wiesbaden, Jagel and Faßberg, then supply flights to Berlin took place.

The landing of a total of nine "Candy Bombers" was a historic moment in Schleswig-Jagel. Seventy years ago, the "Candy Bombers" flew from this airfield in to Berlin to provide the city with vital supplies. During the airlift, three planes crashed at Schleswig-Jagel, killing seven in total. The pilots of the DC-3 and the commander of the TaktLwG 51 "Immelmann" laid down in honor of those killed, wreaths at the monument of the Berlin Airlift at the air base.

With a total of about 280,000 flights in 318 days, more than 2.3 million tons of food, coal, machinery and other supplies reached West Berlin. The highest number of flight within 24 hours was 1,398, the highest amount of cargo was 12.940 tons. In peak times, planes landed with one minute separation. Each pilot was allowed one attempt to land in Berlin.

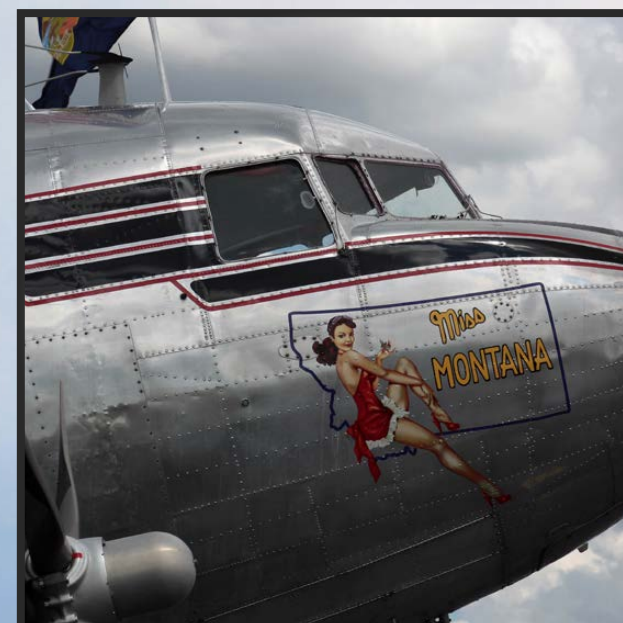
After a missed approach, he had to fly back to the base he came from. The planes were called "Candy Bombers" as pilots used to drop candies, chocolates, and chewing gum from the plane during final approach for the children on the ground.

The following C-47 *Skytrains* and DC-3 *Dakotas* participated in the commemoration:

DC-3 N24320 "Miss Montana"
 DC-3 N877MG PAN AM Airways System
 C-47 N62CC "Virginia Ann"
 C-47A N47E "Miss Virginia"
 DC-3 F-AZOX "ChalAir"
 DC-3 24320 "Miss Montana"
 C-47 N74589 "Placid Lassie"
 DC-3C N25641 "Liberty"
 DC-3 N341A



- Douglas C-47 "Placid Lassie" built in 1942 | N74589 (main image)
- The only three permissible air corridors to Berlin (inset)



- Douglas C-47 built in 1941 | N150D (left inset)
- Douglas DC-3A "Miss Montana" built in 1944 | N243320 (right inset)
- Line-up of four DC-3s/C-47s, waiting for their taxi-clearance (main image)



Douglas DC-3A built in 1939 | N341A



- Douglas C-47A "Miss Virginia" built in 1943 | N47E (top)
- Douglas DC-3C built in 1949 | N877MG (left)
- Douglas C-47B built in 1945 | F-AZOX (right)



RIAT

Royal International Air Tattoo 2019

TEXT BY PACO JOVER AND PHOTOGRAPHY AS NOTED



Boeing B-747-400 BOAC (British Overseas Airways Corporation, nowadays British Airways) and RAF Red Arrows.

Without a doubt!! The best and largest military airshow in Europe and worldwide. The display was held during the weekend (July 20th and 21st) and the event included Friday and Monday with the arrivals and departures of the aircraft participating in the flying and static display. Four days of the best in military aviation.

Royal Air Force (RAF) Fairford airbase is the home of the Tattoo. It is located in Gloucestershire, a perfect place for the annual aviation display due to its location, huge tarmac, long runway and infrastructure. The British and American air forces used it in World War II and it was a major air base during D-day. During Gulf and Iraq war, it was the air base for the United States Air Force B-52s.

RIAT 2019 STATISTICS

- 170,000 visitors
- 245 aircraft
- 39 air arms
- 25 nations
- 67 flying displays
- 7 aerobatic teams

The Aviation Magazine thanks the RIAT team of about 40 permanent staff and a 1,500+ strong army of volunteers for organizing the most spectacular event in military aviation in 2019. See you again in 2020!



Finnish Air Force F-18C, HävLLv 31

© 2019 Kris Christiaens



© 2019 Peter Thivessen



- Royal Norwegian Air Force F-16BM, 331 skv (inset bottom left)
- Royal Danish Air Force F-16AM, Esk 727 (inset top right)
- German Air Force EF2000, TaktLwG 71 "Richthofen" (main image)

© 2019 Kris Christiaens



Royal Air Force F-35B Lightning II, 617 Sqn



Sukhoi Su-27P Flanker, Ukraine Air Force

The Sukhoi Su-27 is a heavy air superiority fighter designed during the cold war and its maiden flight was in 1977. The model UB was on static display, both are of the 831st Tactical Aviation Brigade, based at Myrhorod in central Ukraine (above and main image).



U.S. Air Force Europe F-15E, 494th FS



Turkish Air Force F-4E-2020, 111 Filo



All photos these pages © 2019 Peter Thivessen



Mig 21 Lancer C, Romanian Air Force

The MiG-21 is a supersonic fighter, its first flight was in 1956 and since then it has flown in more than sixty air forces. Romania is one of a handful of nations that continue operating the Mig 21.



EAV-8B Harrier II PLUS duo, Spanish Navy

The Spanish Navy sent two planes of the 9th Squadron with a special painted tail with a cobra (aircraft callsign) dedicated to the Air Tattoo. One of the Harriers had a brake fire when landing on arrival at Fairford. The Spanish team worked hard to fix this. Both aircraft flew their displays as planned showing the capabilities of the aircraft and the skills of their pilots and mechanics. The 9th Squadron carries the heritage of more than hundred years of the Spanish Naval Aviation founded back in 1917. They operate in many theaters both ashore and from the LHD (Landing Helicopter Dock) Juan Carlos I. The Harrier II PLUS version is a totally redesigned model with a larger fuselage, new wing fuel tanks and a Rolls-Royce F402-RR-408 engine.



- Belgian Air Force F-16AM, 10 Wing (top)
- German Air Force Tornado IDS, TaktLwG 51 "Immelmann" (above)

F-16AM, Belgian Air Component

Captain Stefan Darte, callsign Vador, is the demo pilot of the Belgian Air Component and his aircraft is the F-16AM. With more than three thousand hours on the type, Vador impressed the crowd with amazing aerobatics (main image). The Belgian Air Component also sent two F-16AM with "invasion stripes" to commemorate the 75th anniversary of D-Day (insets top).

- Belgian Air Force F-16AM, 2 Wing (top)
- Swiss Air Force F-18C, F1St 11 (above)



RAF Typhoon FGR4, IX(B) Sqn (left)
Royal Air Force Hawk T2, 4 Sqn (right)



Royal Danish Air Force F-16BM,
Esk 730 (left)
Italian Air Force Tornado IDS MLU,
GEA 6° Stormo (right)



Swedish Air Force JAS39C, F7 (left)
Civilian Leonardo M-346 (right)





WAH-64D Apache, Army Air Corps

The stage is set for a spectacular show of the Army Air Corps and its Apache helicopter. This display is one of the most renowned and desired of the Air Tattoo, amazing manoeuvres with pyrotechnics, smoke, and fire. Unforgettable!

© 2019 Kris Christiaens



- Civilian UH-1H, ex U.S. Army 71-21509 (left top)
- French Army SA342M, 3 RHC (left bottom)
- Royal Navy AgustaWestland Wildcat HMA2, NAS Yeovilton (right top)
- Civilian OH-6A, ex U.S. Army 69-16011 (right middle)
- French Army SA330B, 3 RHC (right bottom)





- Royal Air Force Chinook HC6A, 18 Sqn (left top)
- Royal Netherlands Air Force AS532U2, 300 Sqn (left middle)
- Italian Air Force HH-139A, 81° Centro AE (left bottom)
- German Navy Super Lynx Mk88A, MFG 3 (right top)
- HM Coastguard S-92A, Bristow Helicopters (right bottom)





NATO E-3A, NAEW&CF

© 2019 Peter Thivessen



09-27



- Hungarian Air Force A319-112, MH 59. Sz.D. R (inset above)
- U.S. Air Force Europe KC-135R, 351 ARS (inset top right)
- U.S. Air Force KC-10A, 60th AMW (inset bottom right)
- Turkish Air Force KC-135R, 101 Filo
- Royal Air Force Voyager KC3, 10/101 Sqn (inset bottom left)
- U.S. Air Force B-52H, 20th BS (main image)



▲ U.S. Navy P-8A, VP-9
▼ Royal Air Force Sentinel R1, 5(AC) Sqn



Canadian Air Force CP-140, 14th Wing
HM Coastguard Fisheries Patrol Reims Cessna F406 Caravan II ▼



All photos these pages © 2019 Peter Thivessen



76683

ИЛ-76МД ЗБРОЙНІ СИЛИ УКРАЇНИ

Олександр Белий

Ukraine Air Force Il-76MD

© 2019 Peter Thivessen



Royal Jordanian Air Force C-130H,
3rd Sqn (left)
Royal Netherlands Air Force C-130H,
336 Sqn (right)



Qatar Emiri Air Force C-130J,
12th Sqn (left)
U.S. Air Force MC-130J, 67th SOS
(right)



Italian Air Force KC-130J,
50° Gruppo TM (left)
Swedish Air Force Tp84,
71th Airlift Sqn (right)





Hungarian Air Force C-17A, HAW (left)
Civilian A400M, Airbus Military (right)



Qatar Emiri Air Force C-17A,
12 Sqn (left)
Romanian Air Force C-27J,
Esc.902 Av.Tr. (right)



U.S. Air Force C-17A, 437th AW (left)
German Air Force A400M,
LTG 62 (right)





U.S. Air Force CV-22B, 7th SOS

© 2019 Peter Thivessen



▲ Hellenic Air Force T-6A, 361 MEA
▼ Royal Navy Avenger T1, 750 NAS



Royal Air Force Tucano T1, 72 Sqn
Civilian EMB-314 Super Tucano, Embraer



All photos these pages © 2019 Peter Thivessen



Italian Air Force MB339 PAN, Freece Tricolori

© 2019 Peter Thivessen



Participating aerobatic teams

- Royal Air Force Red Arrows. BAE Systems Hawk T1 (inset)
- Italian Air Force Frecce Tricolori. Aermacchi AT-339A
- French Air Force Patrouille de France. Dassault Alpha Jet
- Royal Jordanian Falcons. Extra 300LX
- Blades Aerobatic Team. Extra 300
- Breitling Jet Team. Aero L-39C Albatros

Red Arrows and Patrouille de France. An amazing display with two teams sharing smoke colours, blue, red, and white. It was a salute to the 50th anniversary of Concorde's first flight (main image).



Civilian Hunter Mk.58, Hawker Hunter Aviation Ltd

© 2019 Peter Thivessen



Supermarine Spitfire and Hawker Hurricane, Battle of Britain Memorial Flight

The Battle of Britain Memorial Flight participated with their Supermarine Spitfire and Hawker Hurricane. The Spitfire along with the Hurricane are very well renowned for winning laurels in the battle of Britain.

The Royal Air Force Battle of Britain Memorial Flight (BBMF) operates from Coningsby air base and its mission is to keep the priceless airplanes of the RAF heritage in airworthy condition.

The Supermarine Spitfire was produced in greater numbers than any other British combat aircraft; more than twenty thousand Spitfires were built in twenty-two different versions together with the naval version (Seafire).

The Hawker Hurricane is one of the classic fighters of all time, designed and built by Hawker Aircraft. There are twelve Hurricanes still airworthy worldwide and six of those are in the UK.



Civilian Jet Provost T5, Jet Aerobatics

The RIAT 2019 award winners

Best Overall Flying Demonstration: Swedish Air Force - Saab JAS-39C Gripen

As The Crow Flies' Trophy (FRIAT Trophy): Finnish Air Force - F/A-18C Hornet

Best Flying Demonstration by a UK Participant: Royal Air Force - The Red Arrows

Best Solo Jet Demonstration: Ukraine Air Force - Sukhoi Su-27P1M Flanker

Best Individual Flying Demonstration: Finnish Air Force - F/A-18C Hornet

Best Flying Demonstration by an Overseas Participant: Italian Air Force - Frecce Tricolori

RIAT CEO Award: Spanish Navy - EAV-8B Harrier II

Best Paint Scheme Award: German Air Force - Eurofighter EF2000 of the TaktLwG 71 "Richthofen"

Civilian OV-10B, Invicta Aviation



PARIS NATIONAL MILITARY PARADE

REPORT AND PHOTOGRAPHY
BY JORIS VAN BOVEN AND
ALEX VAN NOYE UNLESS
NOTED OTHERWISE

Every year on July 14th, the National Military Parade ("défilé") is held in the French capital Paris to commemorate the beginning of the French Revolution. On July 14th, 1789, the Bastille prison was raided by the people of Paris, an event that started the French Revolution. A military parade is held on the ground on the Champs Elysees with foot-soldiers, trucks and tanks; while aircraft and helicopters make a flyby over Paris in the air parade ("défilé aérien"). The theme of this year was European Cooperation, with many aircraft and helicopters cooperating with the French armed forces.

Air Bases

The flying participants flew from various air bases, sometimes from their home bases: C-130 *Hercules* and A400M *Atlas* from Base Aérienne (BA) Orleans, E-3F AWACS from BA Avord, C-135F from BA Istres, Navy Rafales out of BAN Landivisiau, and Navy support aircraft used BAN Lahn-Bihoue. If fuel was an important factor, air bases close to Paris were used: BA Evreux (north-west of Paris) for fighters and transporters, BA Villacoublay (south of Paris) for the Patrouille de France, and BA Creil (north of Paris) for all helicopters.

Base Aérienne Evreux

In the morning of the 14th at BA Evreux, there was a photo-moment to witness the flight-preparations and take-offs of most fighters. The participating Rafales, Mirage 2000s and foreign visitors (Spanish and British Eurofighters, German Tornado, Belgian F-16) took off from runway 04 to fly over Paris while the spare aircraft did their flight-preparations but only left BA Evreux after the parade was over. All French aircraft returned directly to their home base afterwards while the foreign jets returned to BA Evreux. A Dutch F-16 flew directly from its home base Volkel AB and returned home immediately after the parade. From BA Evreux, a local C-160G Transall *Gabriel* and a CASA CN235 flew in the parade while a visiting Spanish C-130 *Hercules* landed afterwards. For the C-160G Transall *Gabriel*, it was the last time as the two remaining C-160G's will be retired soon.



Every July 14th, several Air Force squadrons have the privilege to fly over the Champs Elysees (photo: Armée de l'air)



- French Air Force Mirage 2000D, EC02.003 (above)
- French Air Force Mirage 2000-5F, GC01.002 (below)





Participants of the aircraft parade

Patrouille de France

- 9 x AlphaJets (with the french colours red, white, blue)

Permanent posture of European security

- 1 x E-3F AWACS (EDCA 00.036)
- 2 x M2000-5 (2e escadre de Chasse)
- 1 x Typhoon (Spain)
- 1 x Typhoon (United Kingdom)

Opération Chammal (the fight against IS/ISIS/DAECH in Syria/Iraq)

- 1 x C-135F (GRV 2/91 Bretagne)
- 1 x Rafale C (30e escadre de Chasse)
- 1 x Rafale B (4e escadre de Chasse)
- 1 x Tornado (Germany)
- 1 x F-16 (the Netherlands)
- 2 x Rafale B (4e escadre de Chasse)
- 1 x F-16 (Belgium)

Opération Barkhane (the fight against IS/ISIS/DAECH in central Africa)

- 3 x M2000 D (3e escadre de Chasse)
- 2 x M2000 C (2e escadre de Chasse)

Nuclear Deterrence

- 1 x Airbus A330 (Phenix)
- 2 x M2000-5 (2e escadre de Chasse)
- 4 x Rafale (4e escadre de Chasse)

Preparation for the future

- 2 x Rafale B (ETR 3/4 Aquitaine)
- 2 x Alphajet (Ee 3/8 Côte d'Or)
- 1 x Fokker 100 (DGA-CEV, first appearance)

Returned from deployment/ upgrade to standard F3R

- 4 x Rafale M (Marine Nationale)

Training formation

- 2 x Alphajet (EAC)
- 2 x PC21 (EPAA, first appearance)
- 3 x TB30 EPSILON (EPAA, last appearance)

Intel

- 1 x C-160 Transall Gabriel

Support flight

- 1 x FALCON (ET 60)
- 1 x CN-235 CASA (ET 64)
- 1 x Atlantique 2 (Marine National)
- 1 x Falcon 50 M (Marine National)

Operational commitment

- 1 x A400M (61e Escadre)
- 1 x C-160 H FS
- 1 x CASA CN-235 (portugal)

European Cooperation

- 1 x C-130J (ET 2/61 Franche-Comté)
- 1 x C-130 (Spain)
- 1 x A400M (Atlas, Germany)

Sécurité civile

- 1 x Canadair CL415
- 2 x Dash Q400 MR

French Air Force Mirage 2000D taxiing to the runway for take-off



German Air Force Tornado IDS, TaktLwG 33 (above)
 Royal Air Force Typhoon FGR4, 29 Sqn (below)



Belgian Air Force F-16AM, 2 Wing (above)
 Spanish Air Force EF2000(T), Ala 14 (below)





Participants of the helicopter parade

Attack Helicopters

- 1 x Gazelle HF-v
- 2 x Tigre
- 1 x Tigre (Spain)
- 1 x Tigre (Germany)

Assault helicopters

- 2 x NH90 Caïman
- 2 x Cougar
- 1 x NH90 Caïman (Spain)
- 1 x NH90 Caïman (Germany)
- 2 x CH-47 (United Kingdom)

Special Forces

- 1 x Tigre HAP
- 1 x Gazelle
- 1 x Cougar

IMEX Module

- 1 x Puma PC
- 1 x Tigre
- 1 x Cougar

French-German helicopter school (EFA)

- 1 x Tigre
- 1 x Tigre (Spain)
- 1 x Tigre (Germany)

Joint NH90 training centre (CFIA NH90)

- 1 x NH90 Caïman
- 1 x NH90 Caïman (Spain)
- 1 x NH90 Caïman (Germany)

Territory protection and external intervention

- 1 x Caracal (1/67 Pyrénées)
- 2 x Fennec (3/67 Parisis)

Naval Combat and Rescue

- 1 x NH90 Caïman (31F)
- 1 x Panther
- 2 x Lynx
- 2 x Dauphin ESHE

Gendarmerie nationale

- 1 x EC145
- 2 x EC135

Sécurité civile

- 2 x EC145

French Air Force Rafale C of EC03.030
taking off towards Paris



French Air Force C-160G, EEA00.054 (above)
 Spanish Air Force KC-130H, Ala 31 (below)



French Air Force C-160G, EEA00.054 (above)
 French Air Force CN235-200, ET01.062 (below)



EXERCISE GARUDA 2019

REPORT AND PHOTOGRAPHY BY
JORIS VAN BOVEN & ALEX VAN NOYE



The Garuda VI exercise is a bi-national recurring exercise of the French and Indian Air Forces that is held every 3-4 years in alternating countries. In 2019, it was organized at Base Aérienne 118 "Colonel Rozanoff" Mont-de-Marsan in southern France. The training is part of the French relationship with the Indo-Pacific region. It aims to improve the level of interoperability of French and Indian crews in air defense and ground attack missions. The exercise scenarios were jointly developed by the two nations. The French and Indian crews had to prepare their missions together and then focus on mixed patrol work. The objective is to bring French and Indian crews together to prepare their missions and use their respective aircraft in realistic complex

tactical situations.

This 2019 edition included the participation of a large number of aircraft of the French Air Force during the second week of the exercise

- Dassault Rafale
- Alphajet
- Dassault Mirage 2000 C/D
- Boeing C-135F tanker aircraft
- Boeing E-3F AWACS
- Lockheed C-130 medium transport aircraft
- CASA-235 light transport aircraft

The Indian Air Force brought

- four Sukhoi SU-30 MKI

- one Ilyushin-78 tanker aircraft
- two Boeing C-17 heavy transport aircraft to bring personnel and supplies to and from India.

The Indian Sukhoi SU-30 MKI belong to the 24th Squadron "Hunting Hawks" at Bareilly Air Force Station (AFS) and the IL-78 tanker belongs to the 78th squadron "Battle-Cry" at Agra AFS, India. The Indian detachment left India on June 26th, with intermediate stops at the Arab Emirates and later in Egypt, and arrived in France on Friday 28th. Base Commander of Mont-de-Marsan Colonel Gaudillere welcomed the Indian Air Force contingent on arrival. The final exercise day was July 12th with the departure

back to India on Monday July 15th. For the Indian Air Force, the Garuda exercise was their largest exercise of the year. The Indian contingent consisted of some 110 personnel.

The French host was the 2nd squadron of the 30th Fighter Wing (Escadron de Chasse EC2/30) named 'Normandie-Niemen', flying the Dassault Rafale.

Future

The Indian Air Force ordered the Dassault Rafale for their inventory and this exercise gave the Indian pilots a chance to see their new planes real close. Early October this year, the Indian Defence Minister

Indian Air Force Su-30 MKI with the speed brake deployed to reduce the landing run



Rajnath Singh was in Paris to take delivery of the first Rafale. After some six months of training, testing and evaluation in France by Indian pilots, the aircraft will be flown to India for the formal acceptance in the Indian Air Force.

Preparations

The preparations for this exercise started some six months before the exercise with an initial planning session at BA Mont-de-Marsan, where the fighter planners and the tanker planners brainstormed about the Garuda exercise.

There, the duration of the exercise was decided, the number of missions, the build-up of the missions and the number of required aircraft was decided.

With this homework, the Indian planners returned to

discuss the scope of the exercise with the Indian Air Force staff and to make further plans

During a mid-term planning session, the final scope of the exercise was defined. The first week would start with familiarization flights to get familiar with the French flying environment and the French air traffic regulations.

Later in the first week, some basic fighting maneuvering exercises were planned: 1 versus 1, 1 versus 2 and 2 versus 2, etc.

During the second (and last week) the aim was to fly LFE (Large Force Engagements) with many aircraft of the "BLUE-AIR" country opposing the aircraft of the "RED-AIR" country.

Two missions per day were planned, whereby the Indian and French Air Force would alternate for the

role of mission leader.

Back in India, the workup phase was started to get the pilots acquainted to fly in large packages of dissimilar aircraft in a compact air space, especially for the younger pilots. Also air-air refueling was integrated in these exercise preparations.

For the air-air refuelers a very important objective was to plan the trip of the whole contingent for the flight to France and back to India. Flying a formation of military jets is definitely not the same as flying a commercial airplane from Mumbai (IN) to Paris (FR).

The pilots need a minimum level of being fully operational and at least a two-ship leader, in a mix of experienced and young pilots.

CDC

After the launch of the aircraft, the media was brought to the on-base Detection and Control Centre (Centre de Détection et de Contrôle (CDC) 04.930 de Mont-de-Marsan) with callsign 'MARINA' to watch the morning wave of the exercise. The 'MARINA' CDC is responsible for all flying activities in southwest France. Both are monitoring air traffic, controlling exercises and Air Defense QRA missions (Permanence Operationelle, PO) in that region. The control center cooperates closely with other regional CDCs and the centralized French CDC at the Lyon-Mont Verdun air base, callsign 'RAMBERT'.

At the Mont-de-Marsan CDC, French and Indian crews monitored and controlled the exercise.

Indian Air Force Su-30 MKI taxiing to the runway for take-off



Debriefing

After the morning mission landed, the debriefing took place in the afternoon, while the media could be present for 15 minutes, despite that phones and cameras were normally not allowed during briefings and debriefings.

History

The Strategic Partnership between France and India was signed in January 1998 by President Jacques Chirac and Prime Minister I.K. Gujral, and then launched during Prime Minister A.B. Vajpayee's visit to Paris in September 1998. Strategic cooperation between France and India dates back to 1951, with the first agreement between the Indian and French Atomic Energy Commissions, and, ever since, has constantly developed and expanded in scope. Garuda is the name of the series of exercises jointly carried out by the air forces of India and France:

- Garuda I, 2003: in India at Gwalior AFB
- Garuda II, 2005: in France at BA Istres-Le Tubé
- Garuda III, 2007: in India at Kalaikunda AFB
- Garuda IV, 2010: in France at BA Istres-Le Tubé, tri-national exercise with Singaporean F-16s temporarily based at BA Orange
- Garuda V, 2014: in India at Jodhpur AFB
- Garuda VI, 2019: in France at BA Mont-de-Marsan



As the large force also consisted of aircraft flying from their homebases in France, video connection was setup to connect to these participants as well. At first, the mission commander checked whether all participants were present and continued with the debriefing. The aim of the mission was to protect a slow moving transport aircraft delivering paratroopers to a DropZone (DZ) and the Indian Sukhoi (BLUE-AIR) were tasked to protect this transport aircraft



■ Indian Air Force Ilyushin Il-78MKI tanker (right)
■ Indian Air Force Su-30 MKI (below)

The Indian Ilyushin-78 tanker aircraft is comparable to the French KC-135, both equipped with four engines and three refueling points. There are plans to replace the aging Ilyushin tanker aircraft and during the first week of the exercise the Indian tanker crews were able to see the new french Airbus A330 MRTT tanker at BA Istres.





- French Air Force Alpha Jet E (left inset)
- French Air Force Mirage 2000D, ECE01.030 (right inset)
- French Air Force Rafale C, EC02.030 (main image)



The Indian VCAS Air Marshal RKS Bhadauria flew in a Rafale with LtCol Antoine Courty, Commanding Officer of the EC 2/30 Squadron.



Indian Air Force Su-30 MKI

EUROPEAN AIR REFUELING TRAINING 2019

REPORT AND IMAGES
BY JORIS VAN BOVEN
AND ALEX VAN NOYE



The European Air Refueling Training (EART) exercise runs in parallel to the exercise Frisian Flag that was held in the first two weeks of April 2019 at the Royal Netherlands Air Force air base Leeuwarden. Organized by the European Air Transport Command (EATC) at Eindhoven Air Base, EART provides tanker support for the aircraft participating in Frisian Flag. Up to five tanker aircraft operated out of Eindhoven air base: a Royal Netherlands Air Force McDonnell Douglas KDC-10, a German Air Force Airbus A310 MRTT, a Royal Air Force Airbus A330 Voyager, a

French Air Force Boeing C-135F and an U.S. Air Force Boeing KC-135R. However, the latter aircraft was only present at Eindhoven airbase for one day, the remaining missions were flown from its home base RAF Mildenhall in the United Kingdom. Besides the refueling of fighter jets, the exercise also focuses on operating both tankers and fighter jets in a small airspace.

According to EART "Exercise Director" Colonel A. Massucci (Italian Air Force), at present, the Euro-

pean countries heavily rely on the capacity of the U.S. Air Force. Accordingly, measures have been taken to become more independent from the U.S. Air Force. Therefore, among other things, the EATC acquired its first Airbus A330 MRTT tanker. The aircraft (M-1) is expected at Eindhoven AB in early 2020. Ultimately, a total of eight aircraft will be purchased, part of which will be located at Eindhoven Air Base and part at the German Cologne-Bonn Air Base.



GAF A310 MRTT (left), USAF KC-135R (middle) and FAF C-135 (right) at Eindhoven Air Base



French Air Force C-135FR of GRV02.091



Royal Air Force Voyager KC2 of 10/101 Sqn



German Air Force A310-304MRTT of FBS BMVg



U.S. Air Force KC-135R of 351st ARS



German Air Force EF2000 of the TaktLwG 31 "Boelcke" taking up fuel from a German Air Force A310MRTT



The pilot of a German Air Force EF2000 of the TaktLwG 31 "Boelcke" is flying alongside a German Air Force A310MRTT waiting until it's his turn to receive fuel



The pilot of a German Air Force EF2000 of the TaktLwG 31 "Boelcke" is still waiting until another EF2000 of the TaktLwG 31 has finished refueling at the A310MRTT

OPEN DAY AT GRAF IGNATIEVO AB IN BULGARIA

REPORT BY ISTVÁN KELECSÉNYI AND PHOTOGRAPHY BY ISTVÁN KELECSÉNYI AND PATRICE DOCHAIN



On June 29th this year, the Bulgarian Air Force held an open day at its main fighter base Graf Ignatievo Air Base. The event was to celebrate three round anniversaries: it was 40 years ago when the Mi-24 *Hind* combat helicopters entered service in the Bulgarian Air Force followed ten years later by the MiG-29 *Fulcrum*. 20 years ago, the Bell 206 helicopter was the first Western type of aircraft that flew with the Bulgarians.

After the change of regime, the Bulgarian military began changing its inventory to Western models. Six Pilatus PC-9M trainer aircraft and three Alenia C-27J

Spartan medium transport aircraft were acquired. The Air Force received twelve Eurocopter AS532 *Cougar* medium transport helicopters and the Bulgarian Navy four Eurocopter AS565 *Panther* utility helicopters. Further acquisitions, except one Airbus A319 VIP transport aircraft, were put on hold due to a lack of funding.

The Air Force's main fighter aircraft are the single-seater MiG-29B *Fulcrum* and the two-seater MiG-29UB *Fulcrum*. With only three to four aircraft in flyable condition the combat capability of the MiG-29 *Fulcrum* fleet was never lower. The neuralgic

point was the maintenance support for engines and for overhauls. The previous government did not want the Russians to overhaul the aircraft, and the repair of the RD-33 turbines with the Polish would have no guarantee from the Russians. Additionally, the Polish overhauls were not successful in their own air force, they lost two MiG-29 *Fulcrums* for technical problems. The Bulgarian combat capability was so low, that there were U.S. Air Force F-15 and F-16 fighters on a rotational basis at the Graf Ignatievo AFB to support the Bulgarian Air Force under a bilateral contract for several years.

Bulgarian President Rumen Radev (former MiG-

21/29 fighter pilot and Commander of the Air Force) contracted Russian support and today, the Air Force has at least half a dozen combat-ready MiG-29 *Fulcrums*. The other type of combat aircraft in the inventory is the Su-25K/UBK *Frogfoot* strike aircraft whose operation is similarly problematic. The 22/1 Stumovo Avia Escadrilla (Strike Squadron), operating from the Bezmer Attack Air Base, was temporarily withdrawn from service. Most of the *Frogfoot* aircraft were repaired by Belarusians and the Bulgarian Air Force resumed flying with four to five aircraft. The overhaul and service life extension led to the accusation of embargo violation (probably because

MiG-29B *Fulcrum* taxiing back to the flight line after its aerial display



Russian-made parts were used). The first aircraft are ready, however, the Western banking systems blocked the money transfer.

Due to money problems, the supply of parts for the AS532 *Cougar* helicopters was also an issue. Therefore, the acquisition of a larger quantity of helicopters was canceled. Out of six Mi-24V *Hind* combat helicopters and five Mi-17 *Hip* medium transport helicopters, two *Hinds* and one *Hip* received a major overhaul in the own facilities in Krumovo, southern Bulgaria.

Preparations for the replacement of the MiG-29 *Fulcrum* were already long-lived, as they first wanted to purchase or lease the Swedish JAS-39C/D *Gripen* combat aircraft. After the government changed, the

process of buying the Lockheed F-16V started. The U.S. wanted \$1.6 billion for the aircraft, training, armament and equipment. However, based on a parliamentary decision, the Bulgarians would spend a maximum of \$1.04 billion to change the type. According to Prime Minister Mladenov, Sweden was asked for an update of their offering price, but this may only have been to put pressure on Lockheed. Certainly, there is no contract right now.

The open day was also taken seriously by the government, President Rumen Radev and his wife attended the event. The static exhibition showed current aircraft such as the MiG-29B *Fulcrum* and MiG-29UB *Fulcrum* and two AS532 *Cougar* as well as

the retired MiG-21Bis and MiG-21UM. Also on display were the anti-aircraft missiles 2K12 Kub (SA-6) and S-200 Angara (SA-5).

The dynamic display started with a Mi-17 *Hip* helicopter carrying the Bulgarian national flag. The AS532 *Cougar* helicopter dropped paratroopers. Two *Cougars* followed with MEDEVAC and CSAR demonstrations with a Mi-24V *Hind* providing defensive air support. Two Su-25K *Frogfoot* conducted a Close Air Support demonstration – with pyrotechnics on the ground – destroying ground targets. One highlight was a MiG-29 *Fulcrum* two-ship formation that demonstrated its peacetime role of air policing. The *Fulcrums* intercepted a C-27J *Spartan* and forced the pilot to land at Graf Ignatievo AB. Displays of the PC-9M,

L-39ZA *Albatros*, Bell 206, Mi-24 *Hind* and a single MiG-29B *Fulcrum* followed. Another highlight was the BFM (Basic Fighter Maneuvers) demonstration of two MiG-29 *Fulcrum* fighters. A Mi-17 *Hip* helicopter performed a firefighting demonstration using a Bambi-Bucket with a capacity of up to three tons of water.

Overall, Bulgaria is performing its peacekeeping and NATO Integrated Air and Missile Defence (NATO IAMD) missions and control of their country's sovereignty now without any foreign assistance.

Emblem of the Bulgarian Air Force and a pilot in his MiG-29B *Fulcrum*



▲ L-39ZA Albatros, UAGr.
▼ C-27J Spartan, 16.TrAB

Su-25K Frogfoot, 22.ShtAB ▲
PC-9M, UAGr. ▼





© 2019 Patrice Doachin

© 2019 Patrice Doachin



- MiG-29B Fulcrum, 3.IAB (inset left and middle)
- MiG-29UB Fulcrum, 3.IAB (inset right and main image)

© 2019 István Kelecsényi



▲ Mi-24V *Hind*, 24.VAB
▼ AS532AL *Cougar*, 24.VAB



Mi-17 *Hip*, 24.VAB ▲
Bell 206B, 24.VAB ▼



ROYAL AIR FORCE BASE VISITS AND LAST TORNADOS

REPORT AND PHOTOGRAPHY BY WOLFGANG JARISCH



In February 2019, a historic event took place at RAF Marham. The legendary "Tonkas" were taken out of service after almost 40 years in action. No. 9 Squadron and No. 31 Squadron at RAF Marham were the last to operate the Tornado. On the farewell tour from February 19th to 21st, some of the last of 13 airworthy Tornado GR4s flew over most RAF bases and important places associated with the Tornado. Two weeks earlier, the last Tornados returned to RAF Marham from frontline duty in the Middle East where they flew missions against ISIS.

Already in 2011, the F3 variant was withdrawn from service and now, after a successful takeover of all tasks by the Typhoon, it was time to say goodbye to the GR4 variant. The station commander, Group Captain "Cab" Townsend, organized this unique event in appreciation of the British taxpayers. Hundreds of people went on pilgrimage to Marham to say goodbye to this great workhorse of the Royal Air Force. If you watched the crowd, you could even see tears in the eyes of some of them. A very emotional farewell.



Three-ship formation of Tornado GR4s flying over RAF Marham







- Royal Air Force F-35B *Lightning II*, 617 Sqn (main image and insets left)
- Royal Air Force Tucano T1, 72 Sqn (right)





RAF CONINGSBY



Two Typhoon T3 two-seaters and one Typhoon FGR4 single-seater of No. 29 Squadron are returning to their home base RAF Coningsby from a training mission



▲ ▼ Typhoon FGR4, No. 3(F) Sqn



Typhoon FGR4, No. XI(F) Sqn ▲ ▼







▲ Typhoon FGR4, No. 29 Sqn
▼ Typhoon T3, No. 29 Sqn



Typhoon FGR4, No. 41(TES) Sqn ▲
Typhoon T3, No. 41(TES) Sqn ▼



BUDARÖS AIRSHOW 2019

REPORT AND PHOTOGRAPHY BY ISTVÁN KELECSÉNYI



On August 31st and September 1st, the Hungarian capital's grassy airport held an Airshow at Budaörs.

The slogan "Fly into Autumn with the Kings of the Air" is not exaggerated. Those who live and move in civil and sport airplanes have almost all paid tribute to the event. Some names: aerobatics world champions Péter Besenyei, Zoltán Veres and Ferenc Tóth, astronaut Bertalan Farkas, Colonel Ferenc Varga. The commentator of the airshow was Jenő Nagy (Zena), former MiG-21 pilot.

At the opening of the airshow, a Li-2 and three An-2 passenger planes flew, followed by parachute jumps. Then, the Hungarian-developed Genpro aircraft took

off. We saw a joint flight of the R-18C Kánya and the soviet made Po-2 oldtimers.

The military part of the program was the demonstration of the AS350B *Écureuil* light utility and Mi-17 *Hip* medium transport helicopters of the Szolnok Helicopter Base. This was followed by a display of a Hiller H-23D-UH *i* and the agricultural version of the Kamov Ka-26.

During the demonstrations, there were An-2 and Li-2 passenger flights as well as several helicopters with passengers. Next came the Hungarian-made light helicopter, the Hungaro Copter HC-1 with HA-XCD registration. After that the Hughes 269C helicopter dropping candies for the children. They were followed by Hellicoop helicopters.

A few minutes after one o'clock in the afternoon, the QRA JAS-39 *Gripen* armed with live AIM-9 Sidewinder air-to-air missiles performed an impressive display. After the *Gripens* headed back to Papa Military Airport, Lajos Imreh took off with his Mi-2 helicopter for his demonstration, using pyrotechnic effects. Then, two Jak-52Ms started, one with Gyula Vári, who on four occasions brought various trophies from the Royal International Air Tatoo in England at the time with his MiG-29 dynamic display. After these two Jaks, the all-black Aero L-29 *Dolphin* jet trainer roared through the sky.

On Saturday, world aerobatics champions Zoltán Veres and Péter Besenyei held a presentation with

their aerobatics aircraft. Ferenc Tóth once again showed why he is the sixth world champion in gliding. Two Schweizer 300 helicopters were flying their ballet in the air. Then, we saw a formation of one Hawker 900XP and two BeechJet 400.

At the end of the day, the Slovakian Retro Sky Team featured Czech-made Zlin-226M, -226T, -326M, -526AFS and Russian-made Yak-52 and AN-2TD aircraft in a half-hour German-Soviet air battle.

PZL-Mielec An-2s (in Poland manufactured Antonov An-2) in formation with a Lisunov Li-2T



- PZL-Mielec An-2TD (right inset)
- PZL-Mielec An-2R (left inset)
- Lisunov Li-2T, a Russian licensed version of the Douglas DC-3 (main image)



- Former Soviet trainer aircraft Yakovlev Yak-52 (inset top left and right)
- Two-seat trainer aircraft Zlin Z-226MS, produced by the Czechoslovak manufacturer Moravan Otrokovice (inset bottom left)
- Zlin Z-526AFS-V, primarily used for towing glider planes (inset bottom right)
- Aero L-29 Delfin, military jet trainer (main image)



- Schweizer 269C-1 (left top)
- Hiller UH-12D (left middle)
- Hughes 269C (left bottom)
- Hungarian Air Force Mi-17 of the MH 86.HE (right top)
- Hungarian Air Force AS350B2 of the MH 86.HE (right bottom)



- Rubik R-18c Kanya, a two-seat glider tug and utility aircraft (left inset)
- Polikarpov Po-2. The plane was designed by Polikarpov as an training aircraft in 1927. This particular Po-2 was built in 1954 (right inset)
- Agricultural helicopter Kamov Ka-26 (main image)



- PZL-Swidnik Mi-2 (inset top left)
- MXR Technologies MXS with Veres Zoltán at the controls (inset top right)
- Two-seat trainer aircraft Zlin Z-226T (inset bottom left)
- Single-seat aerobatic glider Margański & Mysłowski Swift S-1 with Ferenc Tóth at the controls (inset bottom right)
- Formation of a Hawker 900XP with two BeechJet 400 business jets (main image)

FESTIVAL AÉREO DE GIJÓN

REPORT AND PHOTOGRAPHY
BY DAVID MAZÓN GÓMEZ

The Festival Aéreo de Gijón is an air show that is held annually in the month of July at San Lorenzo Beach, in Gijón (Spain).

This year was its 14th edition, an event that was about to be canceled due to the weather but with good judgment, the organizer decided to delay the show until 2.30 p.m. time for which the weather forecast was better. Even though it rained in the morning, the public did not give up and waited patiently for the show to begin. An estimated 200,000 people attended as spectators.

The flying display included the jet aerobatic team Patrulla Águila, Eurofighter EF2000, Airbus Military A400 Atlas and Canadair CL-215. The French Air Force presented a Rafale and the Swiss Air Force sent the PC-7 Team. Also on display were the "emergency 112" helicopters, SASEMAR Cantabrian Helimer and the helicopters of Guardia Civil.

Despite the fact that the F86 Sabre was planned to fly at the festival, for unknown reasons, its participation

was canceled some weeks before the airshow. However, this was completely compensated by the A400M of the Spanish Air Force since this aircraft has rarely been seen until now at an air festival in Spain. Taking advantage of the presence of the latter, and to the great satisfaction of the attendees to end the show, the Patrulla Águila made a slow pass with the A400M painting with colored smoke the Spanish flag in the sky over Gijón.

Spanish Air Force CL-215 of the 43 Grupo



French Air Force Alpha Jet E of the EAC00.314



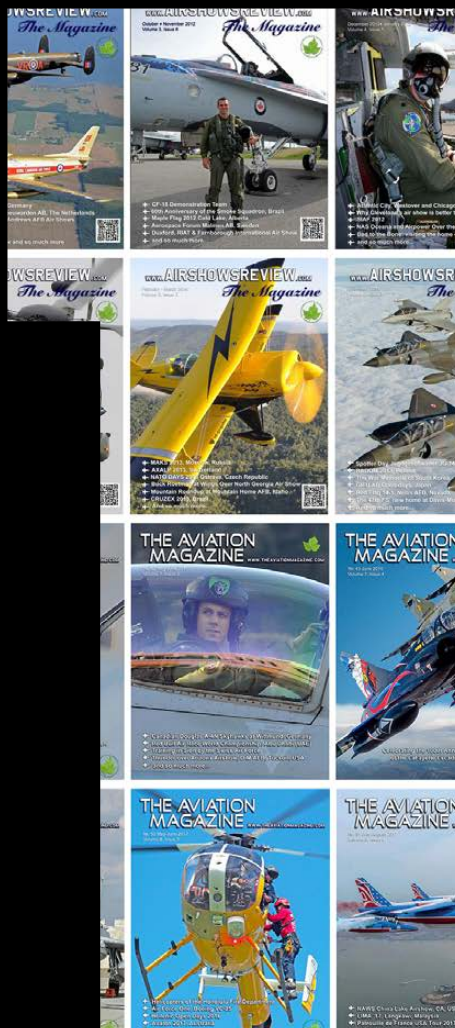
Spanish Air Force EF2000 of the Ala 11

French Air Force Rafale C of the ERT03.004



- AgustaWestland AW-139 from the Sociedad de Salvamento y Seguridad Marítima SASEMAR (top left)
- Eurocopter AS365N-3 *Dauphin* of the Guardia Civil (bottom left)
- Aerospatiale 350B3 *Ecureuil* with a Bambi Bucket for aerial fire fighting (top right)
- Agusta Bell AB212+ of the Eslla 003 (bottom right)
- Airbus Military A400M *Atlas* of the Ala 31 (main image)





Since 2009, we bring you the **BEST** for **FREE**
Aviation Magazine



© 2019 THE AVIATION MAGAZINE