

THE AVIATION MAGAZINE

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Nº 65 September-October 2019
Volume 10, Issue 5



- On Board of the Aircraft Carrier Charles de Gaulle
- The DARK FALCON over Belgium
- LIMA 2019
- RED FLAG 19-2
- And so much more ...

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Cover: Swiss Air Force F/A-18C at the Zigermeet 2019 © 2019 Ralf Peter Walter

This page: Royal Malaysian Air Force F/A-18D *Hornets* of No. 18 Squadron at LIMA 2019 © 2019 Wolfgang Jarisch



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THE AVIATION MAGAZINE

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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, pilot and veteran interviews all 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.

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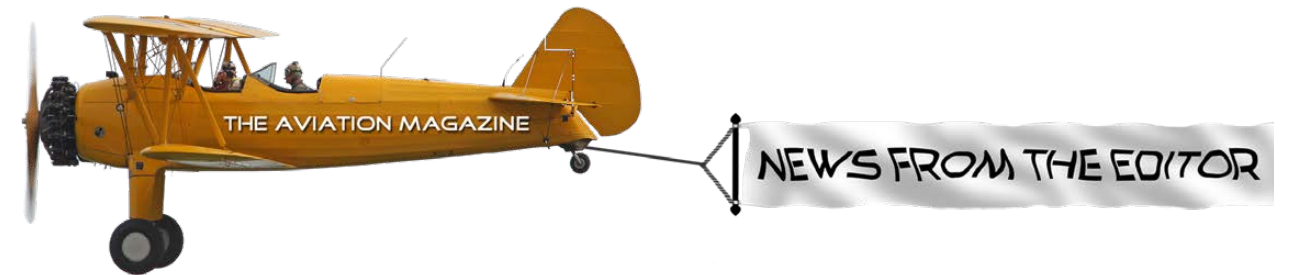
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Welcome to the 65th edition of THE AVIATION MAGAZINE. This issue covers events from four continents. We were in Asia at the Langkawi International Maritime & Aerospace Exhibition LIMA 2019 and at various events in Western and Eastern Europe. We report about the exercises RED FLAG 19-2 in the USA and DAWN STRIKE in Australia. Not to forget some great air-to-air shots of the DARK FALCON of the Belgian Air Force F-16 Demo Team. Curious? Just download our latest issue **here**.

Still one issue to go until the year is over. In the upcoming issue we will have a photo-report of the Royal International Air Tattoo (RIAT) and cover the exercise Anatolian Eagle at Konya Air Base in Turkey. We will also give our readers an insight into the air policing activities of the Hungarian Air Force in Lithuania and remember the time of the Berlin Airlift 75 years ago. Look forward to this and more in our next 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.

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Ralf Peter WALTER
Publisher & Editor

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A SAD DAY FOR THE PATRULLA AGUILA



© Spanish Air Force

Comandante Francisco Marín Núñez

On August 26th, 2019, **Comandante Francisco Marín Núñez** died in a crash with his CASA C-101 *Aviojet*. He was training his airshow display routine over the sea off the coast of La Manga del Mar Menor (Murcia). During a dive he could not level the aircraft before hitting the surface of the water. The cause of the accident is still under investigation.

Comandante Francisco Marín Núñez was working as a flight instructor at the General Air Academy at San Javier Air Base and flew as a solo pilot (Aguila 5) with the Spanish aerobatic team Patrulla Aguila in the 2018 season. He had more than 3,000 flight hours.

We at *The Aviation Magazine* would like to express our deepest sympathy and condolences to his family and friends.



Above and main image
© 2019 David Mazón Gómez

FRENCH AIRCRAFT CARRIER CHARLES DE GAULLE

ARTICLE AND PHOTOGRAPHY BY
JORIS VAN BOVEN/ALEX VAN NOYE



The carrier strike group (CSG), formed around the French aircraft carrier Charles de Gaulle (R91), sailed from the Naval Base Toulon in France on Tuesday, March 5th 2019 for a deployment of several months under the name 'Mission Clemenceau'. High level training has been held around Sicily in Italy and in the Strait of Messina on March 8th and 9th with the Italian air carrier group which was structured around the Italian aircraft carrier Giuseppe Garibaldi. These two days were used to conduct high level exercises during which the two navies conducted operational maneuvers in many areas of engagement. With the Danish frigate Niels Juel and Portuguese Corte Real which were integrated into the French CSG, this meeting highlights the ability of European partners to work together at sea.

After the warming up training, French, European and international means from Australia, Denmark, United States, Portugal and the United Kingdom, are deployed around the French aircraft carrier under the name of 'Task Force 473'. The units offer France and its allies multiple capabilities such as power projection, control of airspace, and gathering maritime intelligence. The Task Force 473 is commanded by Rear-Admiral Olivier Lebas and is a real politic and military tool. The task force will deploy in areas of strategic interest in the Mediterranean Sea, the Indian Ocean and finally in the Pacific area. The airborne group (Groupe Aérien Embarqué, GAé) on board of the Charles de Gaulle consists of twenty Dassault Rafales M, two air surveillance aircraft of the type Grumman E-2C Hawkeye, two Eurocopter Dauphin rescue helicopters and one NH-Industries NH90 NFH Caiman helicopter. The naval aviation group on board of the Charles de Gaulle operates under the name 'Task Force 473'.

On March 13, 2019, the Charles de Gaulle arrived off the coast of Syria, and the carrier battle group which was formed around the aircraft carrier conducted its first air missions during 'Operation Chammal', the long standing French operation against IS/ISIS/DAESH. Marine Rafales and Hawkeyes were launched to support the ground troops in the vicinity of Syria and Iraq and to acquire intelligence. Other aircraft from the carrier and the surface ships provided control of the air-sea space. The arrival of the French naval air group reinforces the French military capabilities involved in 'Operation Chammal' and



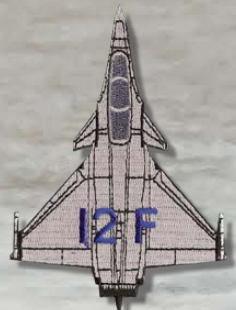
consolidates the coalition acting within the 'Operation Inherent Resolve' to fight against IS/ISIS/DAESH. The French air carrier group is familiar with this theater of operations in the Levant since it has already led three 'Arromanches' missions since January 2015. The French aircraft carrier played a significant role in the military campaign which was contributed to the dismantling of IS/ISIS/DAESH. This capacity building illustrates the determination of France and its European and American allies to complete the military defeat of DAESH. While the current fighting

is now concentrated in a small territory, this naval force provides naval air surveillance, situational awareness and intervention to observe any possible reconfiguration and counter a potential resurgence of the terrorist group.

To contribute to the defeat of IS/ISIS/DAESH, the Charles de Gaulle is launching fully armed Rafales on a daily basis to operate over the operational theatre. Thus prepositioned, this naval force will be able to intervene according to the operational needs and to fight against the threats weighing on the interests of France and the French but also of Europe and the Europeans. This means that the Rafales of the Charles de Gaulle are always available for intervention, but sometimes they will return to the carrier without having dropped their bombs. The integration of the naval aviation group into 'Operation Chammal' during its presence in the eastern Mediterranean comes within this framework.

In addition, this deployment against IS/ISIS/DAESH, will enable France to strengthen its strategic partnerships by developing strong links, work habits and mutual knowledge essential to operational efficiency. Exchanges and exercises will be conducted throughout the cruise, especially with Australia, Egypt and India, to cooperate with the French allies and partners and to make France shine in the world. With Egypt the 'Ramses' exercises will be held before the Charles de Gaulle and its battle group will move along to the Indian Ocean via the Suez Canal. In the Indian Ocean an Australian vessel will join the carrier strike group during the second part of 'Mission Clemenceau'. When the formation reaches India, they will join the Indian forces for a few major interoperability exercises. India is a very important partner for France and its strategic partners. The final part of the mission will be conducted in the vicinity of Singapore.

Mission Clemenceau will end for the battle group in that area and the ships will return to Europe after this deployment. But until then the Task Force 473 is active during the missions over Syria.



Rafale M taxiing to the catapult (main image)
Emblems of Flottille 12F (left insets) and Flottille 17F (right insets), based at BAN Landivisiau





Rafale Ms just about to "hit the deck"



Fully loaded Rafale M of the
Flottille 12F on final approach



Flight operations are conducted 24 hours a day

THEIR PROFESSIONALISM AND DEDICATION ENSURES THAT THE CHARLES DE GAULLE IS ABLE TO CONDUCT ITS MISSION ANYTIME, 24 HOURS A DAY, SEVEN DAYS A WEEK





E-2C Hawkeye of the Flottille 4F seconds from touchdown



The **SA365 Dauphin** is the primary SAR helicopter aboard the Charles de Gaulle. The crew of the Dauphin consists of four crew members during a typical SAR standby: a pilot in command, a co-pilot, a hoist operator and a rescue swimmer. During Mission Clemenceau, the detachment of the 35 Flottille on board the Charles de Gaulle consists of six pilots, three hoist operators, three rescue swimmers and 26 technicians. The detachment of the 35 Flottille has two SA365 Dauphin helicopters on board.

While flying the SAR standby during aircraft operations, there are specific patterns which the helicopter flies. The fixed-wing aircraft use a more spacious circuit around the ship, while the helicopter is hovering closer to the ship. The Dauphin also flies a lot lower than the aircraft to maintain the flight safety margins. According to Philippe, the capacity of the Dauphin is large enough to save the entire crew of five from a Hawkeye in the event of an emergency. Normally the Dauphin keeps moving during SAR standby, because at a low speed of 70 knots the helicopters can stay in the air for more than 2.5 hours.



In addition to the Dauphin operations, a **NH90 Caiman** from the 31 Flottille is also deployed aboard the Charles de Gaulle. During Mission Clemenceau, there is only one NH90 flight crew and twelve technicians aboard the carrier. Usually the crew consists of a pilot, an observer, a sensor operator, and a rescue swimmer. Benjamin specifically explains that only one pilot is deployed on board of the Caiman. The NH90 is mainly used to detect ships and, if necessary, to eliminate them with anti-ship missiles. The helicopter can be equipped with two anti-ship missiles which can be attached to the sides of the fuselage. The helicopter is also being used to search for submarines hidden deep under water. For attacking submarines, the NH90 can be equipped with two MU90 torpedoes. In addition to deployment at sea, the NH90 Caiman can also be used for Personnel Recovery (PR) missions. The Caiman can only be used for PR and not for CSAR tasks. PR missions are planned from the sea in the same way and with the same mindset as PR missions on the mainland. The Caiman is able to take more than fourteen people on board, excluding the crew.





At sea, the Danish Navy has an **EH101 Merlin** helicopter available during 'Mission Clemenceau'. The helicopter crew consists of two pilots, a flight engineer who is also the hoist operator during SAR missions, and a mission system administrator who has various tasks such as communication, acting as a radar operator, FLIR operator, and backup rescue swimmer. The fifth person on board is the rescue swimmer for SAR operations. During 'Mission Clemenceau', however, there will be a sixth crew member. This is an additional flight engineer, so the two flight engineers can support each other in the *Merlin*. The *Merlin* is from the 722 Squadron which is based at the Danish air base Karup.

The role for the Danish EH101 in Mission Clemenceau consists of Search And Rescue (SAR) missions, maritime reconnaissance flights, and logistical flights. For the latter, the helicopter is capable of carrying a sling load of up to 3,000 kg.



FAMILY-DAY AT SZOLNOK AB, HUNGARY

REPORT AND PHOTOGRAPHY
BY ISTVÁN KELECSÉNYI



At the end of May this year, the MH 86th Szolnok Helicopter Base in Hungary held its traditional family day. The base was open to family members of the serving soldiers and invited guests only. In his speech, base commander Brigadier General Dr. József Koller pointed out that this was "the day when children can see what Mom and Dad work, what they do."

The static display showed all types of helicopters and aircraft currently operating out of Szolnok: Mi-24P, Mi-24V and Mi-24D combat helicopters, Mi-8T and Mi-17 medium transport helicopters, and the Zlin 242L trainer aircraft. Also on display were former aircraft such as the Polikarpov Po-2, Jak-52, L-29 and L-39 training jets along with MiG-21 and MiG-29B fighters.

The flying program had a three-ship formation of Zlin 242Ls followed by displays of two Mi-24P, one AS350 and two Mi-17. A rare sight was the deployment of paratroopers from a Mi-24. The 59th Tactical Fighter Wing sent the JAS39 of its 1st Fighter Squadron.

The Mi-8Ts had a "50-year" insignia to commemorate 50 years of service of the Mi-8T with the Hungarian Army/Airforce. By the end of this year, the Hungarian Defence Forces will receive their first Airbus H145M in Light Utility Helicopter (LUH) configuration. Hungary ordered twenty of these helicopters in 2018. In

December 2018, Hungary also ordered sixteen Airbus H225M Caracal medium multi-purpose helicopters equipped with the HForce weapon management system, expected to be delivered in the near future.

In Szolnok, the fostering of family and social relations is especially strong and a wonderful tradition to follow. Families of men and women serving at the base are confident in the future and committed to the military profession.

The author and The Aviation Magazine like to thank Anita Vári for making this report possible.



Mi-24P Hind combat helicopters



- L-29 *Delfin* (inset top left)
- Zlin 242L (inset top right)
- MD-901 (inset bottom right)
- JAS39C *Gripen* (main image)



- Mi-8T *Hip* (insets left & bottom right)
- Mi-17 *Hip-H* (inset top right)



Preserved aircraft

- MiG-29B (left, top)
- MiG-21UM (left, middle)
- L-29ZO (left, bottom)

- MiG-15bis, preserved (above)
- Mi-2, preserved (right, bottom)
- Mi-17 (main image)



THE DARK FALCON OVER BELGIUM

REPORT AND IMAGES
BY KRIS CHRISTIAENS

On Tuesday the 28th of May, 2019 I was invited by the Public Affairs Office of the Belgian Air Force and the F-16 Dark Falcon Solo Display Team to take part in the official air-to-air photo-shoot of the Belgian Air Force F-16 solo display aircraft. After I arrived at the Florennes Air Base I received a safety and flight briefing with Vador, the pilot of the F-16 solo display and the crew of the C-130 Hercules of the Belgian Air Force that served as photo-ship for this air-to-air shooting. Take-off was shortly after noon and the air-to-air photos were taken above the Ardennes at an altitude of approximately 10,000 feet. The air-to-air shooting lasted about half an hour and during this shooting there was plenty of opportunities to photograph this beautifully painted jet from all sides and angles.

Senior Captain Stefan Darte Vador was born in 1977 and is a highly experienced pilot. He spent most of his career flying with the 1st Squadron, 2nd Tactical Wing, based at Florennes Air Base. He is currently a fighter weapons instructor and has more than 3,000

flight hours on the F-16. The Belgian Air Force has a longstanding tradition to have a F-16 solo display team during the airshow season. Since 2018 this task has been taken up by Vador who is currently in his second year as F-16 display pilot. The design of his F-16's color scheme consists of black and grey shades which underline the speed and agility of the F-16 Fighting Falcon. This resulted in a unique and very striking aircraft that was named Dark Falcon. To underline the partnerships of the Belgian Air Force with other nations, one of the elevons of the aircraft always carries the flag of the country where it performs a show. Thanks to the impressive skills of Vador and the unique design of his F-16, the Dark Falcon has become an icon in the world of airshows.

The author and *The Aviation Magazine* would like to thank the Public Affairs Office of the Belgian Air Force, the F-16 Dark Falcon Solo Display Team and the Florennes Air Base for this fantastic experience and unique opportunity.









LIMA 2019

REPORT & PHOTOGRAPHY BY WOLFGANG JARISCH AND PETER THIVESSEN

LANGKAWI
MARITIME &
AEROSPACE
EXHIBITION



Royal Malaysian Air Force Airbus A400M Atlas of No. 22 Squadron and Pilatus PC-7 MkII of the 1 FTC (Flying Training Centre) during the opening ceremony flying display



The Langkawi International Maritime & Aerospace Exhibition, popular as LIMA, is the largest show of its kind within the Asia Pacific region. This year the 15th edition of this important biennially held event since its debut in 1991 took place. LIMA is an ideal platform where industry stakeholders can liaise and expand their networks towards forging new partnerships and business agreements. LIMA is a high impact, high profile event of global interest. The trade fair is a unique showcase for both, the aerospace and maritime industries in the rapidly growing Asian commercial aviation and defense markets.

LIMA 2019 was officially opened by a speech of Prime Minister Tun Dr. Mahathir bin Mohamad. In his speech, his thoughts went back to 1991, when up to 172 companies from 20 countries participated in the first edition of LIMA. This time the 15th edition hosted delegations from 32 nations and 406 defense and commercial companies. On the opening day, a press conference with Defense Minister Mohamad Sabu was held. He, too, pointed out the importance of this event for the region.

After the opening speech from the prime minister the first part of the flying display followed, the so called "Opening Gambit 2019" with an impressive demonstration from the Royal Malaysian Air Force. The Royal Malaysian Air Force (RMAF) showcased the full potential of their air power. Among the highlights were 3 x SU-30MKM, 5 x BAe Hawk Fighter Jets (Mk 108 and Mk 208), 3 x FA-18D *Hornet*, 7 x Pilatus PC-7, 2 x EC725 *Caracal*, 2 x Sikorsky S-61A-4 *Nuri* and 3 Airbus A-400M *Atlas*. Undoubtedly the absolute highlight was a high speed low level flight of an F-18D *Hornet* near the sound barrier.

At LIMA 2019 the audience could see a large presence of U.S. air and naval forces. Both countries have maintained close bilateral cooperation for years at this geographic location which is so important for the U.S. The U.S. military participation included everything, from the fantastic U.S. Navy Pacific fleet band to the legendary B-52H *Stratofortress*, that opened the second part of the flying display on the first official trade day. Other US aircraft on display were the C-17 *Globemaster III*, KC-135R *Stratotanker*, MQ-9

Reaper, EA -18G *Growler*, MH-60R *Seahawk* up to the ISR platform P-8A *Poseidon*.

The show was also a show of the premiers. Embraer brought their E190-E2 to Malaysia for the first time and it was the first time that potential customers could inspect the aircraft in the full cabin configuration. It sported a shark livery to represent the aircraft as "Profit Hunter", so the words of Cesar Pereira, Asia Pacific Vice President of Embraer Commercial Aviation. Embraer forecasts a demand for 10,550 new aircraft with up to 150 seats worldwide, worth USD 600 billion, over the next 20 years, more than 3,000 of which will origin from the Asia Pacific region, including China.

The interest of the RMAF in an UAS ISR-platform to boost maritime surveillance capability brought some manufacturers to Langkawi. The RMAF expressed an interest in the MQ-9B *Sea Guardian* and so they sent a "Request for Information" to General Atomics. As an example, General Atomics brought a MQ-9B *Reaper* in the static display. But also the Chinese manufacturer AVIC was there with the successful UAV platform

Wing Long II. The manufacturer showed the UAV in full combat capability. Meanwhile AVIC has exported 100 combat drones to ten countries. Also the Turkish Aerospace Industry showcased for the first time in South East Asia their combat proven ANKA Medium Altitude Long Endurance (MALE) UAV. According to the manufacturer, ANKA performs day and night, all-weather reconnaissance, target detection/identification and intelligence missions with its EO/IR and SAR payloads, featuring autonomous flight capability including automatic take-off and landing.

Two other premiers attended the event due to the requirement of replacing the aging BAE Hawk of the RMAF that has now been in service for 25 years. So it was the LIMA debut for the Russian YAK-130 and the Indian Light Combat Aircraft TEJAS.

From the YAK-130 160 aircraft are now being built for Russia (110), Algeria (16), Belarus (8), Bangladesh (16), and Myanmar (10) and Laos becoming the latest operator with six out of the ten on order. The YAK-130 was designed primarily as Lead in Fighter Trainers for Russian fighter types, but the jet fulfills a secondary



combat role. Due to its strong performance which it provides with a high payload this jet is a record breaker and well situated for training of 4+ and 5th generation fighter pilots.

India has spared no expense and effort to bring two Light Combat Aircraft from type TEJAS, developed by Hindustan Aerospace, to Langkawi. India's first self-made LCA "TEJAS" is now combat ready. Both aircraft came from No. 45 Squadron, the "Flying Daggers" based at Sulur AFS. The nimble, single-engine fighter jet that has been indigenously developed by the Hindustan Aeronautics Limited for the Indian Air Force was the star attraction at the 15th edition of LIMA 2019. Air Chief BS Dhanoa from the Indian Air Force said, "We are happy with the TEJAS LCA and it is already displaying high serviceability rates and precision attack capability in the IAF". The Indian Air Force looked for greater interaction with the Malaysian Air Force during LIMA 2019. The staff of the IAF did

a great job during the event and they did everything for the TEJAS to appear in the best light. As support aircraft the Indian Air Force sent one C-130J *Hercules* and one Ilyushin Il-76MD *Gajraj* to Langkawi. We are curious whether we will see a Yak-130 or a TEJAS with Malaysian national emblems in two years' time. Another premier, only in the flypast, was the brand new Airbus A330 MRTT from the Republic of Singapore Air Force in the full livery. For the static display the Republic of Singapore Air Force brought a fully armed F-15SG *Eagle* to Langkawi.

The "Russian Knights" and the "Jupiter Aerobatic Team" from Indonesia provided for aerobatic feeling. One Sukhoi SU-30 SM from the "Russian Knights" performed an impressive dynamic display in the sky over Langkawi. The flying display was split in two parts and was not as big as at similar events, but it was not an air show, it was an exhibition for making business. The Royal Malaysian Air Force presented

their wide range of air power every day, especially their two combat jets in dynamic displays, the legendary Sukhoi Su-30 MKM, the "beast from the East" and the Boeing F/A-18D *Hornet*, the "best from the West", so the speaker from the Royal Malaysian Air Force, Maj. Kunte.

The Royal Malaysian Navy demonstrated their air power at the Resorts World in Langkawi. Involved in the demonstration were the Super Lynx 300 Mk.100 from 501 Squadron, the H555 *Fennec* from 502 Squadron. Also involved was the Malaysian Maritime Enforcement Agency with AW 139 and AS365 Dauphin, and the Royal Malaysian Police with AW139 and AS355 *Ecureuil*. The Canadair CL-415MP airtanker was not present this year.

All in all, a great place to be. It was a well-organized event in a unique place on earth. Great flying demos, fantastic ground displays combined with a professional organization. Job well done!!! The Aviation Magazine would like to express their thanks to the Media-Team, to Major S. Thayala Kumar Ravi Varman for the great support on site and especially for his kindness and helpfulness. Also a special thanks to Maj. Kunte and Capt. More-G from the Royal Malaysian Air Force and to "Vivek" from the Indian Air Force.

- Royal Malaysian Air Force Eurocopter EC725 Caracal/Airbus Helicopters H225M (main image)
- Maj Kunte of the RMAF, one of the speakers during the airshow (inset)



- Indian Air Force LCA (Light Combat Aircraft) TEJAS. The aircraft is designed and built by the Indian Aeronautical Development Agency (ADA) and Hindustan Aeronautics Limited (HAL) for the Indian Air Force and Indian Navy (insets above and main image)
- The Chief of the Royal Malaysian Air Force Tan Sri Affendi Buang and his wife visited the Indian delegation with their TEJAS (inset right)



© 2019 Indian Air Force via "Vivek"



■ Helicopters of the Malaysian Maritime Enforcement Agency
o AgustaWestland AW139 (main image)
o Eurocopter AS365N3 Dauphin (right inset)
■ Royal Malaysian Navy Eurocopter AS555SN Fennec (left inset)



Royal Malaysian Air Force Su-30MKM *Flanker H*
of the No. 11 Squadron





- RMAF S-61A Nuri, No. 3 Sqn (top left)
- RMAF A109LOH, No. 881 Sqn (bottom left)
- RMAF Mi-8MTV-1, BOMBA (top right)
- U.S. Navy MH-60R, HSM-37 (middle right)
- RMNavy Super Lynx Mk.300, No. 501 Sqn (bottom right)



▲ Russian Air Force Ilyushin Il-76MD *Candid*
▼ U.S. Air Force KC-135T *Stratotanker*, 92nd ARW



U.S. Air Force C-17A *Globemaster III*, 729th AS ▲
U.S. Navy Boeing P-8A *Poseidon*, VP-47 ▼





Indonesian AF Boeing 737-4U3 (left)
RMAF Airbus A319-115X(CJ) (right)



RMAF Learjet 35A (left)
Embraer Embraer 190-300STD (right)



U.S. Navy Boeing C-40A *Clipper* (left)
Air Asia Airbus A320-216 (right)





U.S. Navy EA-18G Growler of VAQ-132



Royal Malaysian Air Force F/A-18D Hornet of the No. 18 Squadron (insets bottom and main image)



Royal Malaysian Air Force Pilatus PC-7 MkII
of the No. 1 FTC (Flying Training Center)



▲ ▼ Indonesian Air Force C-130H *Hercules*,
31st Air Squadron (Skadron Udara 31)



RMAF C-130H *Hercules*, No. 20 Squadron ▲
RMAF C-130H *Hercules*, No. 14 Squadron ▼



Royal Thai Air Force C-130H *Hercules*
of No. 601 Squadron ▼

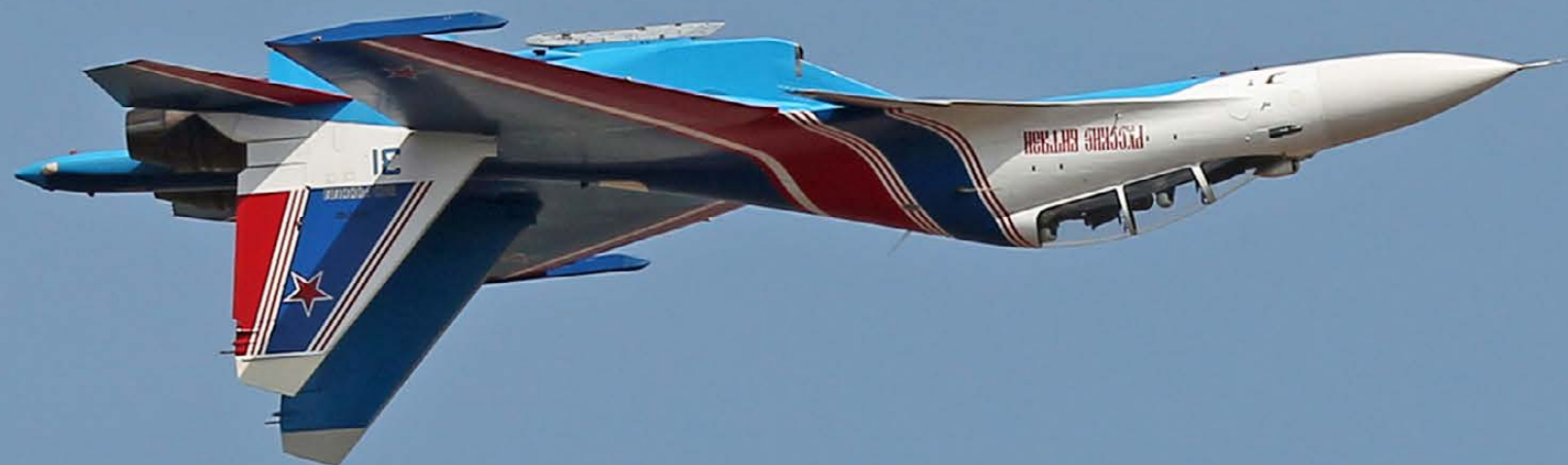




- Russian Air Force Yakovlev Yak-130 (images left)
- UAV platform Wing Loong II from the Chinese company AVIC (top right)
- Republic of Singapore Air Force Boeing F-15SG Eagle (bottom right)



The JUPITER AEROBATIC TEAM from the Indonesian Air Force is flying the KT-1B *Woongbi*



LONE PARATROOPER

REPORT AND PHOTOGRAPHY
BY DAVID MAZÓN GÓMEZ
UNLESS OTHERWISE NOTED

The international exercise *Lone Paratrooper* took place at León Air Base in Spain. Participants in this exercise were tactical teams from Special Operations Forces of the Spanish Army, Air Force and National Police (with a reduced group of the renowned G.E.O.), as well as Special Operations members from other countries such as Portugal, France and the United States. The objective of *Lone Paratrooper* is to train parachute infiltration into the enemy zone and to ensure that all groups are familiar with the procedures and tactics. There are basically of two types jumps: HAHO (High Altitude and High Opening) and HALO (High Altitude Low Opening).

The following aircraft were used in the exercise: KC-130J Hercules of the U. S. Marine Corps, an Eurocopter EC-135-P2 of the Spanish National Police, two Spanish Air Force CN295M belonging to the Ala 35 and a Hercules C-130H belonging to Ala 31 of the Spanish Air Force. A case apart is the flamboyant Short SC-7 Skyvan from Pink Aviation Services, which gave a special colour to the exercise and conducted a significant number of flights alternating with both CN295M.

The author wishes to thank Pablo Mateos Neira and Juan Miguel Anatol for their support.





Military Free-Fall (MFF) parachuting allows Special Operations Forces personnel to deploy their parachutes at a predetermined altitude, assemble in the air, navigate under canopy, and land safely together as a tactical unit ready to execute their mission. Although free-fall parachuting can produce highly accurate landings, it is primarily a means of entering a designated impact area within the objective area. The following are two basic types of MFF operations

- High-altitude low-opening (HALO) operations are jumps made with an exit altitude of up to 35,000 feet mean sea level (MSL) and a parachute deployment altitude at or below 6,000 feet above ground level (AGL). HALO infiltrations are the preferred MFF method of infiltration when the enemy air defense posture is not a viable threat to the infiltration platform. HALO infiltrations require the infiltration platform to fly within several kilometers of the drop zone (DZ).
- High-altitude high-opening (HAHO) operations are standoff infiltration jumps made with an exit altitude of up to 35,000 feet MSL and parachute deployment altitude at or above 6,000 feet AGL. HAHO infiltrations are the preferred method of infiltration when the enemy air defense threat is viable or when a low-signature infiltration is required. Standoff HAHO infiltrations provide commanders a means to drop MFF parachutists outside the air defense umbrella, where they can navigate undetected under canopy to the DZ or objective area.

Source: U. S. Army

- Spanish Air Force C295M leaving the ramp for take-off (inset)
- Multinational paratroopers prepare to board a Spanish Air Force C295M (main image)



- Spanish Air Force C-130H (top left)
- Spanish Air Force C295M (top right)
- Short SC-7 Skyvan (bottom left)



- Multinational paratroopers prepare to perform a HALO jump from a USMC KC-130J *Hercules* (top left)
 - USMC KC135J *Hercules* taxiing an León AB (top middle)
 - Spanish paratrooper performs a HALO jump from a USMC KC-130J *Hercules* (top right)
 - Multinational service members board a USMC KC-130J *Hercules* (main image)
- All photos this page U.S. Marine Corps by Cpl. Margaret Gale



RED FLAG 19-2

Article and photography by Geoffrey Arnwine



From March 11-12, 2019, Nellis Air Force Base, Nevada hosted their second Red Flag of the year known as 19-2. The participants for this exercise included many squadrons from the United States Air Force and Navy as well as a from the United Arab Emirates, Belgium, Colombia, The Netherlands, and Saudi Arabia.

F-16 *Fighting Falcon* of the U.S. Air Force Fighter Weapons School banking hard to the left after take-off



Royal Saudi Air Force F-15SA Advanced Eagle of the newly reactivated No. 29 Squadron



▲▼ Belgian Air Force, F-16AM



Royal Netherlands AF, F-16BM ▲
Royal Netherlands AF, F-16AM ▼







Participating Units

USA

16th Airborne Command & Control Squadron, Robins AFB, GA - E-8C J-STARS
20th Fighter Wing, Shaw AFB, SC - F-16CM
24th Tactical Air Support Squadron, Nellis AFB, NV - F-16
53rd Fighter Wing, Nellis AFB, NV - A-10, F-15, F-16
55th Rescue Squadron, Davis-Monthan AFB, AZ - HH-60G
57th Fighter Weapons Wing, Nellis AFB, NV - A-10C, F-16CM, F-22, F-35A
62nd Fighter Squadron, Luke AFB, AZ - F-35A
64th Aggressor Squadron, Nellis AFB, NV - F-16C
71st Rescue Squadron, Moody AFB, GA - HC-130J
79th Rescue Squadron, Davis-Monthan AFB, AZ - HC-130J
92nd Air Refueling Wing, Fairchild AFB, WA - KC-135R
122nd Fighter Squadron, Louisiana ANG - F-15C
336th Fighter Squadron, Seymour Johnson AFB, NC - F-15E
366th Fighter Wing, Mountain Home AFB, ID - F-15E
428th Fighter Squadron, Mountain Home AFB, ID - F-15SG
964th Airborne Air Control Squadron, Tinker AFB, OK - E-3G
VAQ-134 "Garudas", NAS Whidbey Island, WA - EA-18G
Draken International, Nellis AFB, NV - L-159E, A-4K, A-4N

Belgium

10 Wing, Belgian Air Component - F-16MLU

Colombia

Colombian Air Force - KC-767 MMTT

The Netherlands

322d Squadron, Royal Netherlands Air Force - F-16MLU
334th Squadron, Royal Netherlands Air Force - KDC-10

Saudi Arabia

29th Squadron, Royal Saudi Air Force - F-15SA

United Arab Emirates

1 Group, United Arab Emirates Air Force - F-16E/F

This list might be incomplete, since no list of participating units was published



- US Air Force F-15SG of the 428th FS. The squadron trains and qualifies pilots of the Republic of Singapore Air Force on the F-15SG (inset)
- Four U.S. Air Force F-15E of the 366th FS returning to base after their mission (main image)



- U.S. Air Force F-15E, 422nd TES (inset top)
- U.S. Air Force F-16CM, 422nd TES (inset right)
- U.S. Air Force A-10C, 422nd TES (main image)





▲ U.S. Air Force F-16CM, 16th WPS
▼ U.S. Air Force A-10C, 66rd WPS

U.S. Air Force F-35A, 6th WPS ▲
U.S. Air Force F-22, 433rd WPS ▼





▲ United Arab Emirates AF F-16F
▼ U.S. Air Force F-35A, 62nd FS



Draken International A-4K ▲
U.S. Air Force F-16CM, 24th TASS ▼





▲ U.S. Air Force HC-130J, 71st RQS
▼ United Arab Emirates AF C-17A



Colombian AF KC-767 MMTT, ESCTA 811
Royal Netherlands AF KDC-10, 334th Sqn ▲



ZIGERMEEET 2019

REPORT AND PHOTOGRAPHY BY RALF PETER WALTER



This Hunter T.Mk.68 was decommissioned on December 16th, 1994 after 1.523 flight hours with the Swiss Air Force. It now belongs to the "Hunter Flying Group" and is based at Altenrhein, Switzerland



On the 16th and 17th of August 2019, the seventh edition of the ZIGERMEET took place at the former Swiss Air Force base Mollis. The airfield is located in a valley east of the Swiss capital Zurich. The valley with its steep and high rock faces offers a spectacular mountain scenery for the biggest air show in Switzerland.

The event takes place every three years and is a perfect mixture of military and civil aircraft. Oldtimers and current aircraft were on show, many of them in the flying display, others only in the static display (e.g. Airbus A400M of the German Air Force, PC-21 of the French Air Force).

Both days were packed with about 9 hours of flying displays of a wide variety of aircraft. Be it the North American P-51D Mustang, the mighty Grumman TBM Avenger 3E, one of the last flying Devoitin D.26, a Boeing Stearman or the "Classic Formation" consisting of a DC-3 and three Beech 18. The Swiss Air Force demonstrated an Eurocopter AS532UL Cougar and the Czech Air Force one of their Mi-35 Hind combat helicopters. The Swiss Air Force is currently evaluating four different fighter jets to replace their outdated Northrop F-5 Tiger. While Boeing and Lockheed Martin only presented a full scale mockup of the F-35 Lighting II, the Airbus Defence & Space

Eurofighter and Dassault Rafale took part in the flying display. Although not any more part of the evaluation program, a Saab JAS39C Gripen of the Swedish Air Force performed an impressive flying display. No less impressive was the performance of the F/A-18 Swiss Hornet Display Team. The absolute highlight of the ZIGERMEET 2019 was the display of the Sk-37E Viggen of the Swedish Historic Flight. With the incredible noise of its single turbojet engine, the Viggen demonstrated its very short take-off and landing capability. The Viggen's high-speed and low-speed fly-bys, steep climbs into the sky and tight turns impressively showed what this old aircraft still is capable of. Representing the early jet age was a Hunter T.Mk.68 of the Swiss "Hunter Flying Group".

No airshow without aerobatic teams: The civilian "Baltic Bees" Jet Team showed their display routine for the first time in Switzerland; the "Patrouille Suisse", celebrating its 55th anniversary; the "Krila Oluje" of the Croatian Air Force flying the Pilatus PC-9M and the civilian "P3-Flyers" with the Pilatus P-3. A total of about 30,000 people attended the ZIGERMEET 2019.

The Aviation Magazine congratulates the ZIGERMEET team to a successful event! Well done and we are looking forward to the next one in 2022!



- North American SNJ-5 Texan (inset top)
- North American P-51D Mustang in two-seat configuration (inset bottom)
- Grumman TBM Avenger 3E (main image)



Dassault Rafale C of the French Air Force



Eurofighter EF2000 of the German Air Force TLG 71



P3-Flyers aerobatic team with ex Swiss Air Force Pilatus P-3



This Saab SK 37E Viggen is one of only two Viggens that are flying with the "Swedish Historic Flight"





- Baltic Bees Jet Team with L-39C *Albatros* (images top row)
- Patrouille Suisse with Northrop F-5E *Tiger II* (bottom right) and in Formation with a Hunter T.Mk.68 (bottom left)
- Krila Oluje aerobatic team of the Croatian Air Force flying the Pilatus PC-9M (image right)





- Patrouille REVA from France flying the Rutan VaryEz and Rutan LongEZ (images left and middle top)
- The "Classic Formation" from Switzerland is flying with one DC-3 and three Beech 18s (images right and above)





Swedish Air Force Saab JAS39C Gripen ▲
Swiss Air Force F/A-18C Hornet ▼





▲ Stinson L-5WV, ex Swiss Air Force A-96
▼ Dewoitine D26, ex Swiss Air Force U-284

Pilatus PC-7, ex Swiss Air Force A-907 and A-909 (main image)

FFA AS 202/32TP Turbo Bravo ▲
Pilatus PC-7, ex Swiss Air Force A-909 ▼



▲ Czech Air Force Mil Mi-35 *Hind*
▼ Swiss Air Force AS532UL *Cougar*



Swiss Air Force Pilatus PC-6 *Turbo Porter*,
also used as support for the Patrouille Suisse ▲ ▼





DAWN STRIKE

REPORT AND PHOTOGRAPHY BY JEROEN OUDE WOLBERS

2019



Exercise 'Dawn Strike' is the final activity of the biennial Royal Australian Air Force (RAAF) Air Warfare Instructor Course (AWIC) and the candidates' final mission prior to graduation.

The AWIC started at RAAF Base Pearce in January 2019 with 'Diamond Seas' in a maritime-focused scenario with Navy and Army elements before moving into 'Diamond Shield', a defensive counter-air exercise from RAAF Base Amberley and RAAF Base Williamtown. 'Diamond Storm', at RAAF Base Darwin and RAAF Base Tindal, has seen course members plan and execute offensive counter-air scenarios.

The AWIC is an intensive five-months course for a range of Royal Australian Air Force personnel and platforms including F/A-18A/B *Classic Hornets*, F/A-18F *Super Hornets*, E/A-18G *Growlers*, C-130J *Hercules*, P-8A *Poseidon*, AP-3C *Orion* (Electronic Warfare version), E-7A *Wedgetail* supported by Hawk Mk.127, C-17A *Globemaster III* and KC-30A Multi-Role Tanker Transport aircraft.

On Friday 31 May 2019, just before sunrise, two F-35A *Lightning II* and eleven F/A-18A *Classic Hornets* departed RAAF Base Williamtown to play Red Air in a offensive counter-air exercise just off the coast from RAAF Base Williamtown against the newly graduated Air Warfare Instructors (Blue Air) who took off from RAAF Base Amberley. After the exercise all of the participating aircraft conducted a simulated attack on RAAF Base Williamtown. Aircraft involved in the so called Dawn Strike were 24 F/A-18A/B *Classic Hornets*,

four F/A-18F *Super Hornets*, four E/A-18G *Growlers*, two F-35A *Lightning II*, a single C-130J *Hercules* and a single E-7A *Wedgetail*. Before 08.15 AM all the aircraft had recovered safely to RAAF Base Williamtown.

One of the participating aircraft was *Hornet* F/A-18B serial A21-116 from 2 Operational Conversion Unit (2OCU) wearing a special tiger paint scheme to commemorate 2OCU's final year of *Classic Hornet* operations. 2OCU was the RAAF's first *Classic Hornet* unit, taking delivery of its first aircraft (F/A-18B A21-101) at Naval Air Station Lemoore, California in 1984. This aircraft and F/A-18B A21-102 were delivered to Australia in April 1985 after completing a non-stop ferry flight from NAS Lemoore to RAAF Base Williamtown.

2OCU is expected to relinquish its *Hornets* in December 2019 at the completion of the RAAF's final *Classic Hornet* operational conversion course, after which 2OCU will be re-established at Luke Air Force Base, Arizona to take delivery of the F-35A. 2OCU is scheduled to return to RAAF Base Williamtown with its F-35A at the end of 2020, in time for the RAAF to declare initial operational capability with the F-35A.

After 34 years and 15 courses the 2019 edition of the AWIC marks the last time that 2OCU will conduct a course on the *Classic Hornet*. 2OCU Commanding Officer, Wing Commander Scott Woodland at a media briefing during 'Diamond Storm': "This will be the last AWIC 2OCU conducts. We will have *Classic Hornets* participating in 2021 as 75 Squadron still operates them at that stage". Regarding the F-35A's role in upcoming AWICs, Wing Commander Scott Woodland continued: "At this stage the F-35 is currently planned for 2025, however, post 2019 exercise and depending on the progression of the current F-35s at 3 Squadron there will be a decision made as to whether they will be integrated into the 2021 AWIC as well, be that potentially as a Red Air or participating with Blue Air with students from the course as well. As said, that's yet to be confirmed or decided".

Congratulations to the new Air Warfare Instructors and a big Thank You to the Royal Australian Air Force Media Team for their assistance prior, during and after the Air Warfare Instructor Course 2019.



No. 2 Squadron, E-7A *Wedgetail*









BASE AÉRIENNE 120 CAZAUX

MEETING DE L'AIR 2019

REPORT & IMAGES BY
DAVID MAZÓN GÓMEZ



On the 29th and 30th of this past June, the second annual aeronautical event, organized by the Fondation des Œuvres Sociales (FOSA), was held at the French air base Cazaux after the one organized at Orange Air Base on May 25 and 26, 2019.

The mission of the Fondation des Œuvres Sociales de l'Air is to provide assistance to Air Force personnel, the General Directorate of Civil Aviation, Météo France and their families, if they have difficulties after a member suffers a life accident.

Five years later, the very successful air show, in honor of the 80th anniversary of the French Air Force FOSA, was once again holding a major air show at the Cazaux Air Base, a key hub in French military aviation for more than 100 years. Located in the south west of France, the base is mainly used for training and integration of French fighter pilots and gunnery training over the Bay of Biscay, which is

only 26 meters above sea level and its runway has a length of 2,408 meters.

The organization, as in other editions, enabled days for spotters: Friday for arrivals and rehearsals, Saturday and Sunday coinciding with the show, and Monday for departures.

Undoubtedly, the highlight for many of the attendees was the Sukhoi 30 of the Indian Air Force

announcement on participation in the show. This was possible because these multirole fighters were in a joint exercise with the French Air Force at the nearby Mont-de-Marsan base. However, their presence did not work out. Nevertheless, even without the presence of the Sukhoi, the event was really plentiful and varied, comprising both civilian and military aircraft and planes (combat jets, helicopters and trainers) from most of the periods of aviation from WWI to present days.

This Canadian-built Canadair CL-13B Sabre is painted as a F-86E of the USAF 461st Fighter Squadron



- Douglas AD-4 *Skyraider*, built 1951 (left inset)
- Yak-3UA replica (right inset)
- Reims-Cessna FTB337G *Skymaster* (main image)



- French Navy Falcon 10MER, Escadrille 57S (left)
- French Air Force PC-21, EPAA 00.315 (above)
- French Air Force CN235M-200, ET 01.062 (right)
- French Air Force EC725R2 *Caracal*, EH 01.067 (main image)



▲ Morane-Saulnier MS 317

Nord NC-858S ▼



▲ North American T-6G Texan



▲ Fougas CM-170 Magister

Nord 1101 Noralpha ▼





▲ French Air Force Alpha Jet E, ETO 01.008



▲ French Navy Rafale M, ETR 03.004

Royal Air Force Hawk T2, No.4 Squadron ▼



▲ French Air Force Mirage 2000D, EC 01.003

French Air Force Mirage 2000-5F, GC 01.002 ▼



MI-24P LIVE FIRING EXERCISE IN HUNGARY

REPORT AND PHOTOGRAPHY BY ISTVÁN KELECSÉNYI

In 2017-18 Hungary had six Mi-24P (331, 332, 334, 335 336, and 338) and two Mi-24V (711 and 720) helicopters overhauled and upgraded in Russia. From April 10th to 18th, 2019, some of these upgraded helicopters participated in a live shooting exercise. The exercise took place at the Hungarian Army Bakony Battle Center (MH BHK) at the provisional helicopter port in Veszprém, Jutas-Újmajor. The MH BHK has four Mi-24 helicopters (serial: 332, 333, 335 and 336) equipped with a 30mm GSh-30K double pipe automatic gun. Missions were flown day and night and targeted runs were supported by forward air controllers (JTACs). Also participating in the exercise was the MH12 "Arrabona" Air Defense Missile Regiment with its SA-6 Kub and Mistral SAMs. Depending on the mission, the helicopters were either red or blue force. The modernized combat helicopters flew with an American-made AN / AVS-9 night vision system mounted on the Gentex SPH-4AF helmet.

Mi-24P, Mi-24W, and Mi-17N helicopters have been modified for NVG-compatible lighting. The pilots learned how to use the NVG in 30 hours.

With the return of the Mi-24Ps, the Hungarian Defense Forces once again have a night helicopter attack that is an essential element of 21st century combat.









LUCHTMACHTDAGEN VOLKEL 2019

PHOTOREPORT BY ISTVÁN KELECSÉNYI



Fly-by of eleven F-16s of the Royal Netherlands Air Force deploying flares



On June, 14th and 15th this year, the Royal Netherlands Air Force Luchtmachtdagen (Air Force Days) were held at Volkel Air Base. Almost twenty nations with a total of more than 70 aircraft participated in the event. Aerobatic teams like the Patrouille de France, the Patrouille Suisse, the Red Arrows, the Belgian Red Devils, along with the Dutch Hunter Team and the Swedish Historic Flight were only a few of the highlights of the air show. Impressive as always was the air power demonstration of the Royal Netherlands Air Force (RNLAf), simulating an attack on the air field involving most of the types of aircraft/helicopters that are in service with the RNLAf.

Hellenic Air Force F-4E (AUP) *Phantom II*
of the 338th Squadron at Andravida AB



Royal Netherlands Air Force

- CH-47D *Chinook*, 298th Squadron (left inset)
- AS532UL *Cougar*, 300th Squadron (right insets)
- C-130H *Hercules*, 336th Squadron (main image)



Royal Netherlands Air Force F-16AM *Fighting Falcons* of the 312th and 313th Squadron performing an "air power demonstration"



- Royal Netherlands Air Force KDC-10, 334th Squadron (top left)
- U.S. Air Force C-17A *Globemaster III*, 729th Airlift Squadron (left)
- Italian Air Force C-27J *Spartan*, 311° Gruppo RS (right)



▲ Belgian Air Force SF260M+, CC Air
▼ Royal Air Force Puma HC2



Royal Netherlands AF NH90-NFH, 860 Squadron ▲
Austrian Air Force PC-7, LAbt FläFlz ▼





Royal Netherlands AF F-35A
Lightning II, 308th FS (left)
AJS37 *Viggen*, Swedish Historic
Flight



Spanish AF EF2000, Ala 14 (left)
Royal Danish AF F-16AM *Fighting
Falcon*, 727 Squadron (right)



Czech AF JAS39C *Gripen*,
211 Squadron (left)
Italian AF T-346A *Master*,
212° Gruppo (right)



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