

THE AVIATION MAGAZINE

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Nº 68 March-April 2020
Volume 11, Issue 2



- ✈ Farewell at Hyakuri, Japan
- ✈ Exercise BLUE FLAG, Israel
- ✈ Gripens Home Again, Hungary
- ✈ F-AIR, Colombia
- ✈ And so much more ...

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Cover: RF-4EJ Kai *Phantom II* of the Japan Air Self-Defense Force at Hyakuri AB, Japan, © 2019 Ralf Jahnke

This page: F-4EJ Kai *Phantom II* of the Japan Air Self-Defense Force at Hyakuri AB, Japan, © 2019 Peter Thivessen



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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, 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.

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NEWS FROM THE EDITOR

Welcome to another edition of THE AVIATION MAGAZINE. This edition brings to you a lot of great pictures from two events of the Japan Self-Defense Force: the airshow at Hyakuri and the air festival at Tsuiki. The Hyakuri Airshow marked the sundown of the RF-4EJ Phantom II, the reconnaissance version of the F-4 Phantom II, which flew for the first time 62 years ago. Leaving Japan, we continue to Taiwan for a spotting tour showing you a wide variety of aircraft of the Republic of China Air Force (ROCAF). Leaving the Asian continent for the American continent, we report on the International Aeronautic Industry Fair F-FAIR COLOMBIA 2019. Back in Europe, we cover events in France, Germany, Hungary, The Netherlands, and Serbia.

In the next issue, we will have more Phantoms II with a special report on the RF-4EJ and F-4EJ of the Japan Air Self-Defense Force along with another photo-report on the ROCAF. We will also have a deeper look into air policing over Europe with some air-to-air photos of fighter jets armed with live weapons.

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Ralf Peter WALTER
Publisher & Editor

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FAREWELL AT HYAKURI

REPORT BY WOLFGANG JARISCH AND PHOTOGRAPHY AS NOTED



Japan Maritime Self Defense Force (JMSDF)
Kawasaki P-1 maritime patrol aircraft



Japan Air Self Defense Force (JASDF) Raytheon U-125A, specially engineered and equipped for maritime search-and-rescue duties.



Japan Maritime Self Defense Force Kawasaki P-1 maritime patrol aircraft

SUNDOWN FOR THE LAST SAMURAI

The Kōkū Jieitai (Japan Air Self-Defense Force) have now based all surviving F-4s at Hayakuri Air Force Base, in the Ibaraki prefecture, located about 85km northeast of the capital of Japan. It is the fighter base closest to Tokyo. The airfield was established by the Imperial Japanese Navy in 1937. The airbase has two parallel 2,700-meter long runways (03-21 L&R) and most of the time, civil and military aircraft use different runways. The civil apron is located on the west side of the airfield, the military on the east side.

Enthusiasts from around the globe had a final chance to see the last Japanese F-4 *Phantoms* in action at the Hyakuri Air Show at the end of 2019. Two active squadrons are flying the F-4: the 301 tactical fighter squadron and the legendary "Recce Rhinos" of 501 Hikotai. Both squadrons belong to the 7th Kokudan (Air Wing). A few trainer aircraft from type Kawasaki T-4 also belong to the inventory of both squadrons. Around 70,000 people made a pilgrimage to this

event from November 30 to December 1, 2019. Even a week before hundreds of enthusiasts took the opportunity to take countless pictures as the last memory of these wonderfully painted *Rhinos* from the Japanese Self-Defense Force. The show, which cannot be compared to a European or a US show, was small but fine. The highlights were the F-4s: a formation flight with six Rhinos, a simulated air to ground gunnery and the impressive "Combat Break" after a two-ship take-off.

The flying display ended with the JASDF Aerobatic Team "Blue Impulse". A small static display, including most of the remaining *Phantoms* in all different color schemes (including the specially painted F-4s from the 302 squadron that retired in March 2019), Kawasaki C2, Mitsubishi F-2, Kawasaki CH - 47J *Chinook*, Mitsubishi UH-60J, F-15J *Eagle*, Kawasaki P-1 and T-4, Raytheon U-125A, Fuji T-7 and a Gulfstream U-4.

Looking back

On 1 November 1968, the Japanese Air Self-Defense Force selected the McDonnell Douglas F-4 *Phantom* as

the new fighter to defend the country and to replace its fleet of Lockheed F-104J *Starfighters*.

Only the first two F-4EJs were built in the US. They flew on January 14, 1971. The next 11 F-4EJs built by McDonnell Douglas were delivered in kit form to Mitsubishi Heavy Industries for assembling. The first aircraft assembled in Japan flew on May 12, 1972. In the following nine years, the rest of the 127 Rhinos followed. They were built exclusively by Mitsubishi Heavy Industries.

In 1972, the Japanese government decided to replace the aging RF-86Fs by 14 RF-4Es. On October 1, 1974, the first RF-4E was deployed to Hyakuri. Fourteen "Recce Phantoms" were delivered, all originally built by McDonnell Douglas.

The production ended on 21 May 1981 when the last of an overall production of 5,195 Phantoms were delivered. This was the last F-4 ever built in the world. A total of seven squadrons were equipped with the F-4s and some aircraft of the first batch were delivered to the Air Development and Test Command (Koku

Kaihatsu Jikken Shudan) at Gifu, in order to perform air-to-ground capability and fighter-interceptor tests.

- 301 Hikotai - Hyakuri AB (Nyatabaru AB in 1985, back to Hyakuri AB in 2016)
- 302 Hikotai - Chitose AB
- 303 Hikotai - Komatsu AB
- 304 Hikotai - Tsuiki AB
- 305 Hikotai - Hyakuri AB
- 306 Hikotai - Komatsu AB
- 501 Hikotai - Hyakuri AB

Both types went through an extensive modernization program, which was announced by the JASDF in October 1982.

Ninety-six F-4EJs were upgraded to the F-4EJ Kai (extra) standard, which included additional 2,000 flight hours to the airframe, installation of the new AN/APG-66J radar, a new central computer, a head-up display, a new IFF system, a new radar warning system, new UHF antennas in the dorsal spine and the



undercarriage door to improve the communication capabilities. The modernization also included carrying the 610-US gallon fuel tank in the centerline. The modernized aircraft are now also able to carry the Westinghouse AN/ALQ-13 advanced multimode electronic countermeasure pod. The weapon capabilities were expanded to launch the AIM-7E/F *Sparrow* and the AIM-9L/P *Sidewinder* including the ability to launch the Mitsubishi ASM-1 anti-ship missile.

Mitsubishi was awarded a contract for the conversion of seventeen out of the remaining 29 F-4EJs to the RF-4EJ configuration in order to extend the reconnaissance capabilities of the JASDF. These

aircraft are different from the original RF-4E's bought from the US. The RF-4E's don't carry any internal reconnaissance equipment, only external pods. The remaining RF-4EJs have also been submitted to a modernization program, which was equal to the modernization of the F-4EJs and are now called RF-4EJ Kai. The initial test flight of the first F-4EJ Kai took place on 17 July 1984 and the aircraft was delivered to 306 Hikotai on 24 November 1989.

301 Hikotai

On 16 October 1973, the 301 Hikotai was established as an F-4EJ *Phantom II* squadron at Hyakuri Air Force Base. In 1986, the unit moved to Nyatabaru. In

October 2016, the squadron relocated to its birthplace Hyakuri. The jets of 301 Hikotai carry a frog on the tail, found on Mount Tsukuba, close to Hyakuri.

501 Hikotai

The first of an initial batch of 14 unarmed RF-Es arrived at Hyakuri in 1974, two years after Japan's budget included provisions for the type to replace the aging RF-86F *Sabre*. The newly built RF-4E were later joined by seventeen existing F4-EJ's, which went through the conversion program.

The squadron carries the American cartoon Woody Woodpecker emblem with Woody wearing a bowtie. The use of a woodpecker also refers to a tac-tic, used by Takeda Shingen from the battles of Kawanakajima

in the 16th century. Some jets have received different markings, displaying the unit's years of operations, from 1961 to 2020.

The *Phantom* force is slowly dissolving and Hyakuri is now waiting for the Mitsubishi F-2 of the 3rd Hikotai from Misawa and then the sound of the phantom will disappear forever from the Land Of The Rising Sun.



JASDF McDonnell Douglas F-4EJ Kai *Phantom II*. This is an upgraded version of the F-4EJ with improved avionics and ground attack capability.





JASDF McDonnell Douglas RF-4EJ Kai *Phantom II*, tactical reconnaissance aircraft

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JASDF McDonnell Douglas F-4EJ Kai *Phantom II*

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McDonnell Douglas F-4EJ Kai *Phantom II* with a special color scheme to celebrate the final year of F-4EJ operations in the JASDF



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JASDF RF-4EJ Kai Phantom IIs (left top and middle, above) and F-4EJ Kai Phantom IIs (left bottom and below)





▲ JASDF F-4EJ Kai *Phantom II*
▼ JASDF RF-4EJ Kai *Phantom II*



JASDF RF-4EJ Kai *Phantom II* ▲▼





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JASDF Mitsubishi F-15CJ *Eagle*. This all-weather air superiority fighter is based on the McDonnell Douglas F-15 *Eagle*



JASDF Mitsubishi F-15CJ *Eagle*

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JASDF Mitsubishi F-15DJ *Eagle*

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- JASDF Mitsubishi UH-60J, is a license-built Sikorsky S-70/UH-60L (main image and inset right)
- JASDF Kawasaki Heavy Industries CH-47J *Chinook* (inset left)



BLUE FLAG

REPORT AND PHOTOGRAPHY BY CARLO KUIT AND PAUL KIEVIT



The fourth edition of the biennial exercise Blue Flag took place between the 3 and 14 November 2019 at Ovda Air Base, Southern Israel. Blue Flag is the largest international air force exercise the Israeli Air Force (IAF) organizes. The 2019 edition hosted over 1000 personnel and about 70 aircraft from various nations. Though fewer countries participated, compared to 2017, the exercise was still the largest of its kind in Israel.

"The cooperation enabled high-quality international training, mutual learning, and development of flight

techniques, and after-action review techniques offered an opportunity to strengthen relations between countries and become stronger together" adds Tal Herman, the Head of Blue Management Team. He clearly underlines the importance of the exercise.

Mr. Herman continues "Success factors for us are to be able to operate from one airbase, plan and debrief together and have centralized exercise management, both base ops, and exercise ops. All units involved are located at Ovda. The main challenge we encounter is

the various levels of English language skills of the participants".

Ovda airbase has been in service since 1982 and is perfectly suitable for large scale exercises with close proximity to various ranges with low level flying options and ability to simulate Surface to Air Missile (SAM) threats. It currently houses 115th squadron "Flying Dragons" which is the dedicated aggressor unit in the Israeli Air Force operating with seven F-16Cs "Barak" fighter aircraft.

Blue Flag is held in the airspace across the whole

Southern part of Israel. During the missions, the airspace is unlimited available for the participants with no limitations in altitude or speed. Commercial flights to the new Ramon International Airport near Eilat are re-routed during exercise hours. Flying operations are conducted with two missions a day (Sunday-Thursday) by the Blue Forces. Night missions were also planned. On average a mission takes 60-90 minutes. The exercise has a similar set up as the annual exercise "INIOCHOS" hosted by Greece and "Anatolian Eagle", the last edition of this exercise

This Israeli Air Force F15C Baz belongs to 133 Squadron, based at Tel Nof air base. They played a major role as Red Force during the exercise.



took place during mid-2019 at Konya Airbase in Central Turkey. In total, 19 day and night sorties were flown during the two weeks. The Red force provided a significant challenge. The "Reds" started out easy during the first few flights, but their tactics were changing as the days went by. They operated differently each day, and the Blue Forces had to act accordingly. Blue Flag Air Forces consisted of the following countries besides Israel: The United States (USAFE), Italy, Greece, and Germany. Compared to the 2017 edition the number of countries is more limited with the USAFE and Greece being returning participants

from the start in 2013. This year both the Italians and Israeli Air Force have been showcasing their new F-35A and F-35I "Adir", the Israeli customized variant of the F-35A Lightning II. It is a game-changer for the exercise introducing a 5th generation fighter aircraft working together with F-16s, F-15s, and Eurofighters. The F-35I "Adir" was the main star of Blue Flag 2019 and this represented also the jet's first exposure to foreign air forces in an international exercise. The "Adir" worked closely with the Italian F-35s to further develop the aircraft capabilities. Though not all information could be shared between the Italian

and Israeli aircrew still valuable lessons have been learned operating this new platform. The first two "Adirs" were delivered to the Israeli Air Force in December 2016 with a historical landing at Nevatim Air Base, the home of the fleet of the F-35I fleet. On Sunday 24 April 2017, another three F-35s were delivered. The same year the "Adir" achieved operational status and were involved in operational raids in the region. Deliveries to date have seen 19 aircraft being delivered to 140 squadron "The Golden Eagle Squadron". The latest delivery of two aircraft took place in mid-July 2019. Israel has agreed to purchase at least 50 F-35Is jets from Lockheed

Martin. They will be delivered in batches until 2024. The first nineteen stealth jets received by Israel will actually be standard F-35A's while the following thirty-one will be F-35Is modified to integrate Israeli-built hardware. It is expected the initial batch will be retrofitted to F-35I standard. The F-35Is will have an Israeli-built C4 program that runs "on top" of Lockheed's operating system. The new system will also allow the IDF to install Israeli-built datalinks and defensive avionics systems such as radar-jamming pods. Israel is developing two different sets of external fuel tanks to extend the F-35's range. The first will be non-stealthy 425-gallon underwing tanks

A F-16C Barak of 117 Squadron takes off for an afternoon mission during the Media Day at 11 November. The F-16Cs of 'The First Jet Squadron' are based at Ramat David.

developed by a subsidiary of Elbit—these could be dropped when approaching enemy airspace, or used for missions in which stealth is not necessary. In the future, Israel Aerospace Industries (IAI) wants to co-develop with Lockheed conformal fuel tanks which will not compromise stealth and aerodynamics. Further, as part of its "I" modification, the "Adir" will have the ability to use Israeli armaments, such as the Python short-range air-to-air missiles or guided precision bombs from the Spice family (Smart, Precise Impact and Cost-Effective). Spice is an Israeli-developed, EO/GPS-guided guidance kit for converting air-droppable unguided bombs into precision-guided bombs. Blue Flag was led this year by the 133rd Squadron "Knights of the Twin Tail" (operating the F-15C/D "Baz"), which planned the scenarios in cooperation with 115th Squadron. With the "Adir" participation in mind, scenarios had to be adjusted in order for the fourth and fifth-generation aircraft to integrate and train together, each with their own missions and targets. The scenario of the exercise was based on two fictional countries Red (Nowhere Land) and Blue (Falcon State), with the Blue forces focusing on Defensive Counter Air missions during the first week to protect allied territory and attack missions into Red territory during the second week. The Falcon Land versus Nowhere Land war is the

centerpiece of "Blue Flag" in which fictional Falcon Land is made up of Germany, Italy, Greece, and the United States and Israeli Air Force squadrons. Their opponent, Nowhere Land, is led by the IAF's 115 squadron, which is specifically used in exercises to mimic enemy aircraft. Tal Herman, Head of Blue Flag Management Team explains the concept of "Blue Flag"; "the exercise is broken up into stages starting with BF0, Blue Flag week 0. During this stage, the participating air forces acclimatize themselves to the environment and to each other. The following stage (BF1) takes place during the second week, the participants rehearsed in what we call Theatre Entry and Defense Counter Air (DCA)". Mr. Herman continues "During some of the sorties, the participants flew against the "Flying Dragon" Squadron which simulated enemy forces, SAM batteries and MANPADS (Man-portable air-defense systems) amongst other threads to be found on the battlefield". "During BF2 the focus is on Small Force Employment (SFE) and was followed by a Large Force Employment (LFE) mission on 14 November. It is the most complex scenario of Blue Flag. Participating aircrew executed one sortie per day during the period due to the long preparation and debrief of each flight". Concludes Mr. Herman.

While most large-scale military exercises are conducted with a real or fictional enemy in mind, an international exercise like "Blue Flag" doesn't have these scenarios. In "Blue Flag" these are of a more generic nature with Air-to-Air battles, strike missions, defensive counter-air exercises, suppression of enemy air defense operations (SEAD), electronic warfare. During the "Blue Flag" Media Day Israeli Air Force officials stated the objectives: to deliver high-quality combat aerial training for both 4th and 5th generation fighters, mutual training and learning on combat missions and to strengthen diplomatic relations between the countries, expose the participating militaries to new tactics and techniques and improve military cooperation by forcing the air forces to work together. The logistics preparation of the participation of the "Adir" also provided an interesting fact: The F-35I did not fit inside the Hardened Aircraft Shelters of Ovda and some modifications had to be made. Some of the HAS concrete had to be removed by saws saw in order to properly fit the "Adir" in. This means that Ovda is now capable of housing the "Adir". Not all Israeli airbases are capable of hosting the new aircraft. The next edition is expected to take place during November 2021. According to reports Japan, United

Kingdom, Croatia, the Netherlands, Spain, and France participated as observers and might join during Blue Flag 2021.

Participants

Aircraft	Unit	Air Force
9 x F-15C/D	133 Sqn	Israel
6 x F-35I	140 Sqn	Israel
7 x F-16C/D	115 and 117 Sqn	Israel
1 x G550	122 Sqn	Israel
6 x Eurofighter	TLG71	Germany
4 x F-16C/D	335 Sqn	Greece
6 x F-35A	13 Sqn	Italy
6 x Eurofighter	9, 10, 12 & 18 Sqn	Italy
1 x G550	14 Sqn	Italy
12 - F-16C/D	480 Fighter Sqn	USA

Participating as well were a number of helicopters, drones, Gulfstream 5 and one Boeing 707 from the Israeli Air Force.



Israeli Air Force F-15D Baz assigned to 133. The two-seat F-15D clearly shows the high bandwidth satellite communications dome just behind the environmental cooling system vent forward spine.



Hellenic Air Force F-16D Block 52 (▲) and F-16D Block 52 (▼) belonging to 355 Squadron. The fighters are based at Araxos, previous home of the A-7 fleet.



The F-16I Sufa is based on the F-16D and is heavily modified with Israeli-designed systems. Clearly visible are the Conformal Fuel Tanks (CFT) and the larger 600-gallons underwing fuel tanks. U.S. Air Force Europe F-16CM *Wild Weasel* assigned to 480th Fighter Squadron





Israeli Air Force Lockheed Martin F-35A *Lightning II* assigned to 140 Squadron (above and left)

Italian Air Force (ItAF) F-35A *Lightning II* assigned to 13° Gruppo. On 30 November, 2018, the ItAF was the first European operator to declare initial operating capability (IOC) of the F-35A. (below)



German Air Force EF2000 assigned to TaktLwG 71. Six of its Eurofighters were deployed already late October to Ovda.



Italian Air Force EF2000 *Typhoon* assigned to 18° Gruppo



During the early 1980s, the IAF received the improved F-15C/D 'Baz'. Eighteen F-15Cs and eight F-15Ds were delivered during 1982-1983. These new jets were more capable than their predecessors in almost every aspect, although their airframe remained visually almost identical to the older A/B models. Over the years the 'Baz' fleet has been upgraded according to local requirements. Today's F-15C/D's are capable to employ GPS guided weapons (JDAM) which allows them to work as pinpoint, all weather, fixed target strikers without having to rely on optically guided weaponry. Therefore the 'Baz' can also work as standoff weapons system.



- A G550 *Aitam* is departing for another Blue Flag mission. The aircraft is part of 122 squadron 'The Nachshon Squadron' which also operates Gulfstream V 'Nachshon Shavit'. The Nanchshon was modified for Conformal Airborne Early Warning (CAEW) mission by IAI (Israeli Aircraft Industries). Ordered in August 2003, the first of two aircraft was delivered to Israel in September 2006 and then was locally outfitted with the IAI Elta mission equipment. IAI delivered the first mission-configured *Aitam* to the IASF (Nevatim, 122 Squadron) in February 2008 and the second in May 2008. (left)
- Seen during the Media Day was this C-130J assigned to 103 Squadron 'The Elephants Squadron' operating out of Nevatim. During Blue Flag a number of C-130s were used to transport VIPs to Ovda. (right)



SLOBODA 2019

REPORT AND IMAGES
BY IGOR BOZINOVSKI



Organized to mark the 75th anniversary of the liberation of Belgrade from the 1,287 days-long Nazi occupation during the World War II, Sloboda 2019 unveiled VS's newest acquisitions as well as the newest systems developed by Serbia's military-industrial complex. In total, more than 2,400 soldiers, over 100 combat and non-combat vehicles and systems, and 27 aircraft (including two Russian helicopters) were seen at Batajnica.

Shown for the first time were the four new helicopters that Ratno Vazduhoplovstvo i Protivvazduhoplovna

Odbrana (RV i PVO, Serbia Air Force and Air Defense) received on 16 October: One Airbus H145M twin-engine multi-role helicopter and three Mi-17V-5 Hip-H twin-engine transport/assault helicopters fitted with four external weapon racks, UV-26 countermeasure dispensers and armor plates for the cockpit and transmission protection.

Notably, RV i PVO's newest, Kazan-made Mi-17V-5s came in two different airframe configurations with the one with serial 12493 having a rear, hydraulically-

driven loading ramp. The remaining two helicopters have the traditional, manually-operated and removable clamshell doors allowing fast conversion of the aircraft into a platform that is better suited for fast rope insertion operations. With the delivery of these three aircraft, RV i PVO now has five Mi-17V-5s, the other two delivered in 2016, both with hydraulically-driven loading ramps. The number of Hips in RV i PVO, however, is six as the air force also uses one 1981-manufactured Mi-8T Hip-C.

Serbia's military-industrial complex used Sloboda 2019 to demonstrate a part of its diverse offer, including the following prototypes seen for the first time:

- Two multicopter unmanned aircraft systems (UAS) - one in a jamming configuration and the other one in a form of weaponized multi-copter featuring electro-optical system and four M80 Zolja (Wasp) 64 mm portable one-shot disposable unguided anti-tank rocket-propelled grenade;

Serbian Air Force Airbus H145M assigned to 119.mhe (119th Mixed Helicopter Squadron)



- MTU-4 mobile very short-range air defense (VSHORAD) system that, being integrated on the chassis of Zastava NTV 4x4 terrain vehicle, features two Strela 2M (NATO: SA-7b Grail) and two 9K38 Igla man-portable (MANPAD) surface-to-air missile systems (SAMs) in addition to electro-optical module, digital compass and a digital link to connect the system with RV i PVO's modernized M85 Žirafa air defense radars (an Ericsson Giraffe M75 radar mounted on Yugoslav-made FAP2026 truck) with command and control capability; and
- Modernized 9K38 Igla that, being coupled with AM General's HMMWV, features MTU-4 capabilities with the sole difference being that the SAM operator is equipped with a helmet-mounted display system that reduces its head and eye motion while allowing the use of thermal image and the target data acquired from the other elements of the air defense network.

Also shown for the first time on a military parade were three artillery systems still under development in Serbia:

- Aleksandar 155mm self-propelled howitzer based on 8x8 MAN truck chassis **(left, top)**;
- Tamnava 8x8 wheeled self-propelled multiple launch rocket system (MLRS) that, named after a river in western Serbia, carries four disposable launch modules with a total of 96 unguided surface-to-surface rockets 122 mm and range of up to 40 km or 48 unguided surface-to-surface rockets 267 mm and range of up to 70 km **(left, middle)**; and
- Modularni Oganj (Modular Fire) self-propelled armored artillery system that, using the chassis of the Yugoslav-made FAP2026 6x6 truck, features remote-controlled weapon station (RCWS) installed on the roof of the vehicle cabin in addition to two launch modules - one with four guided-missile canisters arranged in a rectangular shape (two rows of two canisters) and one with a container with 12 launching tubes - carried on a turntable that can be elevated and turned away from the vehicle cabin **(left, bottom)**.

VS used Sloboda 2019 to also show a number of novelties: HMMWVs equipped with 30 mm automatic grenade launchers and IED jammers; the new version of Mali Miloš (Little Milosh) unmanned ground vehicle (UGV) armed with a pair of rocket launchers;

and its newest armor - all 10 BRDM-2MS (MS stands for Modifikacija Srpska that translates as Serbian Modification) armored reconnaissance vehicles that Moscow gifted in July.

The Russian presence was also visible on the skies over Batajnica - a pair of Mi-24VM (export designation Mi-35M3) attack helicopters were part of overflying aircraft echelons. These two helicopters which came to Serbia from Ostrov airbase near the Estonian-Latvian border, are identified as military equipment of the Pskov-based 15th Army Aviation Brigade that is subordinated to the 6th Red Banner Leningrad Army of Vozdushno-kosmicheskiye sily (VKS, Russian Aerospace Forces).

Another Russian "intruder" at Sloboda 2019 was a Russian Armed Forces T-72B3 tank (321) fitted with built-in Kontakt-5 explosive reactive armor. This tank as well as the Mi-24VM helicopters, was presented by the official speaker as "the weapons that Serbia would soon receive from Russia". This is in line with the expected delivery to Belgrade by year's end of 20-more BRDM-2MS, 30 modernized T-72S tanks, and four Mi-35M attack helicopters from Russia.

According to officially unconfirmed local media reports, Serbia is also to acquire the Pantsir-S1 (NATO: SS-22 Greyhound) self-propelled, short to medium-range surface-to-air missile (SAM) and anti-aircraft artillery weapon system in the near future. Interestingly, noted at Batajnica were two VKS Ilyushin Il-76MD heavy-lifters parked alongside RV i PVO's rarely-seen Antonov An-26 Curl turboprop transporters.

During Sloboda 2019, VS units demonstrated counter-terrorism, combat search and rescue (CSAR) and close air support (CAS) operations with the following RV i PVO assets flying at Batajnica: six MiG-29 jet fighters (four single-seat and two twin-seat); four single-seat and three tow-seat J-22 Orao (Eagle) ground-attack jets; four G-4 Super Galeb (Super Seagull, local military designation N-62) advanced training and light attack jets, eight Gazelle helicopters; and one-each Airbus H-145M, Mi-8T, and Mi-17V-5 helicopters. Notably, pilots flying MiG-29s during Sloboda 2019 were RV i PVO's youngest Fulcrum "drivers" that were sent to Russia completed type's conversion training in 2018, and advanced training only a few months ago. Thus, the very soft "dogfight" performances demonstrated over Batajnica are very likely results of them still accommodating to the type or to some operational limitations of the aircraft that are in a constant process of structural modifications



and avionics modernization. For the execution of Sloboda 2019, Serbian president Vučić gave VS mark "very good" that in Serbia's five-point grading scale equals to "4" and is just below the best possible grade "excellent" that equals "5". Like many times over the previous years, Sloboda 2019 clearly demonstrated the resurrection of Serbia's military power and was used for politicians to

announce the continuation of the military investments. "We're building capacity, not because we're getting ready for anything, it's a way to save the land", Vučić told local Prva TV on 20 October and explained that he is concerned about the possible destabilization and escalation of conflicts in the region. "Bulgaria, Romania, Hungary, Croatia and other smaller countries are arming themselves to their

capabilities. We also see who is arming Albanians on Kosovo and what helicopters Montenegro is looking for", Vučić said and added that Serbia is not financially capable to follow Romania when it comes to the acquisition of armaments and systems, but that it can follow countries like Bulgaria and Hungary. "One has to think about radar-electronic warfare and jamming as everything works on a different

level now", Vučić explained and without wanting to advance too much the information on what kind of weapons Belgrade is yet to acquire, confirmed that there will be "good, important, significant anti-aircraft systems and additional, most-modern unmanned aerial vehicles."

Serbian Air Force Mi8/Mi-17 and Airbus H145M assigned to 119.mhe



Serbian Air Force J-22 Orao ground-attack aircraft (main image and inset)



- Aerospatiale/Soko SA341H *Gazelle*, Serbian Air Force designation is H-42M GAMA (inset)
- Formation of Russian Air Force Mi-24VM (export designation is Mi-35M3) and Serbian Air Force H-42M (main image)



▼ Serbian Air Force Mi-17V-5, assigned to 890.mhe



▲ Serbian Air Force Mi-8T (Serbian AF designation HT-40) ►





▲ Serbian Air Force MiG-29UB (Serbian AF designation NL-18) assigned to 101.lae (101st Fighter Squadron)
▼ Serbian Air Force G-4 (Serbian AF designation N-62) assigned to 252.shtae (252nd Training Squadron)



Serbian Air Force MiG-29A (Serbian AF designation 9-12A) assigned to 101.lae (101st Fighter Squadron) ▲
Serbian Air Force G-4 (Serbian AF designation N-62) assigned to 252.shtae (252nd Training Squadron) ▼



TSUIKI AIR FESTIVAL

REPORT AND
PHOTOGRAPHY
BY RALF JAHNKE



This year's Tsuiki Air Festival was dedicated to the 60th anniversary of the 8 Hikotai, one of two squadrons of the 8th Air Wing based at Tsuiki AB. The 8 Hikotai and its sister squadron, the 6 Hikotai, are flying the Mitsubishi F-2A multi-role combat aircraft. On the second weekend in December, about 60,000 visitors attended the family day on Saturday and the public festival on Sunday.

As always for air shows in Japan, it was an early start! Countless aviation enthusiasts lined up in front of the main gate of the Tsuiki AB long before sunrise. The gates opened as early as 6:30 a.m. However, it

was only possible to enter the "market square" at this time. This was a good opportunity to get something to eat or to buy military aviation souvenirs. Access to the main ramp was from 7:30 a.m., and this was the first opportunity to take pictures of flight line activities. F-2A's of the 6 and 8 Hikotai were being made ready for their 8 a.m. take-off to open the flying program for the day. A six-ship formation of the jet from each of these two squadrons performed a very nice flyby. The formation was spearheaded by an F-2 with a special red and yellow color scheme mark the 60th anniversary of the 8 Hikotai "Black Panthers". The Tsuiki Air Festival was an F-2 fighter

festival! Throughout the day, the two local squadrons performed role demonstrations such as flying air-to-ground attack profiles or demonstrating their skills in formation flying. There were plenty of opportunities to shoot countless photos of the F-2A, which is derived from the General Dynamics F-16 Fighting Falcon. For a change, in addition to the many F-2A displays, an F-15J from Nyutabaru AB performed an impressive solo display despite its three attached fuel pods. In the morning, there were also some formation flybys of four T-7 trainer aircraft from nearby bases as well as an aerobatic demonstration by the "Whiskey Papa Competition Aerobatic Team" flying the Extra 300.

Around noon, the JASDF jet aerobatic team Blue Impulse with its striking white and blue painted T-4 trainers performed an excellent, 45 minutes long, flying display.

As in the previous years, the static display presented a wide variety of Japanese Self Defense Force assets: large aircraft, such as a C-2 transporter or a JMSDF P-3C maritime surveillance aircraft, helicopters, and liaison jets. The highlight of the static display was the presence of a ShinMaywa US-2 flying boat from the 71 Kokutai in Iwakuni AB.

ShinMaywa US-2 amphibious flying boat assigned to 71 Kokutai. The US-2 has a maximum take-off weight of 43t with a take-off distance of 330m on water. It has a maximum cruise speed is over 480 km/h and an extremely low cruise speed of about 90 km/h. The range is over 4,700 km



- Lockheed P-3C *Orion* assigned to 1 Kokutai (main image and left inset)
- ShinMeiwa US-2 amphibious flying boat assigned to 71 Kokutai (right inset)



This Mitsubishi F-2A Viper Zero belongs to 6 Hikotai and has a special color scheme on the occasion of the squadron's 60th anniversary.



▲ Mitsubishi F-2A Viper Zero
▼ assigned to 8 Hikotai



Mitsubishi F-2A Viper Zero assigned
to 8 Hikotai ▲ and 6 Hikotai ▼





Blue Impulse are the Japan's Air Self Defense Force (JASDF) aerobatic display team, flying the Kawasaki T-4 trainer aircraft



Kawasaki C-2 assigned to 403 Hikotai





▲ Bell AH-1S *Cobra* assigned to 3 Taisensha Herikopotatai
▼ Lockheed C-130H *Hercules* assigned to 401 Hikotai



Boeing CH-47J *Chinook* assigned to Koku Kyunandan ▲
Mitsubishi F-15J *Eagle* assigned to 305 Hikotai ▼



FIGHTER WEAPONS INSTRUCTOR TRAINING

REPORT AND PHOTOGRAPHY BY JORIS VAN BOVEN



The third and final phase of the 'Fighter Weapons Instructor Training' (FWIT) took place from 21 to 31 October 2019 at the Dutch Leeuwarden airbase. In this concluding 'Mission Employment' (ME) phase, all the lessons learned from the previous seven months are put into practice. In spring 2019, this exercise started at Leeuwarden airbase with Dutch, Belgian and Portuguese pilots of the European Participating Air Forces (EPAF) in their F-16s, where the pilots are trained as weapons instructors. The FWIT course is organized by the Dutch 322 TACTESS squadron. The air-to-air components of the FWIT syllabus

were trained before the summer holidays. With the support of German Eurofighters, American F-15s, and American F-35s, the FWIT pilots have practiced various forms of air combat. The Eurofighters and F-15s acted as opponents and the F-35s as supporting aircraft. Even though only F-16 pilots were present in the FWIT, the participation of the F35 in the exercise played - the Royal Netherlands Air Force is transitioning to the F-35 - an important role. The FWIT provides an excellent opportunity to integrate 4th generation combat aircraft such as the F-15 and the F-16 with the latest 5th generation combat

aircraft such as the F-35. The F-35 has many sensors and cameras making this aircraft the "eyes and ears" of a mixed group of combat aircraft.

After the summer holidays, the training focused on air-to-ground warfare with various practice bombs being dropped on the nearby Vliehors range on the island of Vlieland. German Tornados were used to disable enemy air defense systems (Suppression Enemy Air Defense (SEAD)). In the final 'Mission Employment' (ME) phase, the pilots are examined on theoretical and practical knowledge. After having

successfully passed the ME phase, they can proudly wear the much wanted 'Weapons Instructor' badge.

During the ME phase, two Royal Air Force Hawks flew from Leeuwarden airbase in the aggressor role as well as German Eurofighters out of their home base Wittmund in northern Germany.

Five Dutch, three Belgian and two Portuguese pilots participated in the FWIT 2019.

Royal Netherlands Air Force F-16AM *Fighting Falcon* taking-off in rainy weather



WEAPONS INSTRUCTOR

A 'Fighter Weapons Instructor' is the theoretical and practical knowledge-holder within a squadron. Current weapon instructors have the knowledge to optimally deploy the F-16, in cooperation with other types of fighter aircraft from NATO partners, but also with other weapon systems such as flying radar stations (E-3 AWACS), anti-aircraft systems, ships, flying electronic reconnaissance aircraft (like RC -135 RivetJoint and J-STARS) but also with transport aircraft such as the C-130 Hercules. These weapons instructors are also called the 'Masters of Integration' because they must and can integrate all types of weapon systems into an

effective combat force. Lessons from other exercises and operational deployment in the past such as operations above Libya and Iraq are combined into a large knowledge base. In the operational squadron, the weapon instructor trains young pilots and also coaches experienced pilots in their progression towards leadership and supervision roles.

The FWIT also integrates the 'Transport Weapons Instructor Course' (TWIC) for C-130 Hercules pilots. For a couple of weeks, C-130 Hercules aircraft from the Netherlands and Belgium take part in the FWIT,



flying complex missions together with the F-16s. The slow C-130s are then protected by the fast F-16s, both in the air and on the ground to, for example, deliver soldiers or pick them up again. During this combined phase, a C-130 pilot can also perform the role of mission commander for the entire group of aircraft of the TWIC/FWIT.

Four Dutch and two Belgian future weapons instructors participated in the TWIC.

- Flightline with F-16AM's from the Netherlands, Portugal, and Belgium (top left)
- Portuguese Air Force F-16s parked alongside three Hawk T1A of the Royal Air Force (bottom left)
- Pilots heading to their aircraft for the next training flight (above)
- Two C-130 Hercules used for the 'Transport Weapons Instructor Course' (below)



EPAF FIGHTER WEAPONS SCHOOL (EPAF)

EPAF is a collaboration between initially Belgium, the Netherlands, Norway, and Denmark; the Portuguese Air Force joined in 2001. The EPAF was set up to jointly deliver F-16 weapon instructors every two years. Over the years, the focus has shifted from a technically oriented weapon instructor for the F-16, to a broadly oriented integrator of various weapon systems who can well transfer knowledge to a varied audience, but who also has the right leadership qualities to be able to make the right choices during complex air operations.



■ F-16AM's from Portugal, the Netherlands, and Belgium lining-up for take-off (above)
■ Three Hawk T1A's of the Royal Air Force acting as Red Force (left)



▲ Royal Netherlands Air Force F-16AM
▼ Royal Air Force Hawk T1A



Portuguese Air Force F-16AM ▲
Belgium Air Force F-16AM ▼



SPOTTING IN TAIWAN

REPORT AND PHOTOGRAPHY BY ALISTAIR ZAMMIT



The first day of the trip let us to an open day held by the Taiwanese air force at their Tainan airbase. We had to apply beforehand to be able to access and enter the base as usually these open days are not open for foreigners. Following the necessary checks, we were finally able to enter and start taking pictures of the static display. Taiwan shows off almost every type from its military aviation portfolio, from air force trainers, army helicopters to cargo aircraft and frontline combat aircraft. Notable highlights included an E-2T *Hawkeye*, a Lockheed Martin P-3 *Orion*, and an AH-1W *Cobra* of the Taiwanese Army. The following day was a Sunday, and we spent the morning in the approach at Chiayi AB. The airbase is home to three squadrons - 21st TFG, 22nd TFG, and 23rd TFG - flying the Lockheed Martin F-16A/B and a rescue squadron flying the UH-60M/S-70. The

Taiwan Air Force flies on weekends too, so we had the chance to take photos of various F-16A/B's. This included some F-16s which were recently overhauled and modified to the latest F-16V standard by AIDC at Taichung AB. These F-16V's will form a new "Ninja" squadron at Chiayi AB.

The following day was spent at two airbases. In the morning, we went to Gangshan AB, home to the T-34s and AT-3s of the air force training academy. First, a mass of T-34s took off early in the morning. After their landing, a mass of AT-3s took off for their missions. The AT-3 is an indigenous trainer produced and developed by AIDC and is only flying with the Taiwan Air Force. In the afternoon, we relocated ourselves to the approach of Tainan AB with many sorties of the AIDC F-CK-1D *Ching Kuos*, Taiwan's indigenous fighter manufactured in-country. On Wednesday, we were on

the roof of our hotel. We had booked a hotel close to Taitung AB that provided elevated views on the base, allowing for some take-off shots of the ROCAF F-5s. Similarly to other airbases, the F-5s all flew nonstop all morning. Since the weather had deteriorated by 1 p.m., we decided to call it a day and traveled up north towards Hualien AB. Thursday proved to be the most difficult day weather-wise in Taiwan, with cloudy weather surrounding the base also owing to the mountains surrounding the base. However, pictures of F-16s were still possible due to the contrast created by the mountains. In the afternoon, we relocated onto a supermarket car park where we were able to view the base from an elevated position. Along with Hsinchu AB, Hualien AB is probably the only military base that can be viewed from outside as all other bases have brick walls surrounding them that make

looking on the base virtually impossible. On Friday, the last day of our tour, we were at Hsinchu AB, home of three squadrons of Mirage 2000s of the ROCAF. Again, we were surprised at how much the ROCAF flies, as we noted no less than 20 mirages just in the first morning mission. In the afternoon, we relocated to another side of the base to try frontal shots of the mirages as they taxied for take-off. Thanks to the possibility to stand on a disused container present in a field this was a success.

This trip to Taiwan truly was an unbelievable experience and the weather helped make the tour unforgettable. Many thanks to the hospitality of the Taiwanese citizens and the military police who cordially helped us without creating too much hassle.

Mirage 2000Ei assigned the to 2nd TFW at Hsinchu AB



F-CK-1D (above) and F-CK-1C (below)
assigned to the 1st TFW at Tainan AB



AH-1W assigned to the Army Aviation Training Center at Gueiren AB (above)



P-3C assigned to the 34th Sqn of the Maritime Group at Pingtung AB (above)
OH-58D assigned to the Army Aviation Training Center at Gueiren AB (below)





F-16A-20-CF assigned to the 21st TFG / 4th TFW at Chiayi AB. The aircraft is armed with live AIM-120 AMRAAM (at the wingtips) an AIM-9 Sidewinder (under the wing) air-to-air missiles.



F-16B-20-CF assigned to the 23rd TFG / 4th TFW at Chiayi AB. The aircraft carries an Aircraft Instrumentation Subsystem (AIS) pod as part of the Tactical Aircrew Combat Training System / Air Combat Maneuvring Instrumentation (TACT/ACMI) system installed at the Taitung AB training range.



F-5F (main image and left inset) and F-5E (right inset) of the 7th FTW, Tactical Training & Development Center at Taitung AB



Beech 1900C-1 assigned to the Special Transport Squadron at Songshan AB (above)
C-130H assigned to the 6th T/WW at Pingtung AB (below)



AT-3 assigned to the Air Force Academy at Gangshan AB (above)



T-34C assigned to the Air Force Academy at Gangshan AB (above)
F-16A-20-CF assigned to the 26th TFG / 5th TFW at Hualien AB (below)





Mirage 2000Ei assigned to the 2 TFW at Hsinchu AB

GRIPENS HOME AGAIN

REPORT AND PHOTOGRAPHY
BY ISTVÁN KELCSÉNYI



On December 17, 2019, after a six-month absence, the JAS-39 *Gripens* of the Hungarian Defense Forces 59/1 TFS Puma returned to their home base at Kecskemét. While the wing operated out of Pápa Air Base, Kecskemét Air Base underwent an extensive maintenance and modernization program with the help of the NATO Security Investment Program.

The development of the Kecskemét Air Base started in 1935. During World War II, in 1944, it played an important role for German troops as an air transport hub. After being severely damaged during the war, it was rebuilt until 1948. In 1952, the runway was extended and in 1953, the 62nd Fighter Wing at Kunmadaras airport moved to Kecskemét. In 1975, 1981 and 1983, the runway and taxiways were improved. The runway, built of coarse concrete cubes, was designed to operate Russian aircraft with a more robust landing gear than that of the JAS-39

Gripen. Due to the nature of the runway and the small diameter of its landing gear wheels, the landing gear suspension members were subjected to much higher loads than originally expected. On 10 June 2015, a single-seater JAS-39C had a belly landing because of a landing gear failure. One of the possible causes was due to coarse concrete runway. The pilot, Major Sándor Kádár, ejected successfully but suffered spinal injuries.

In addition to the 2019 improvement of the runway and the extension of taxiways, other operating areas and support infrastructure were upgraded and renewed to accommodate heavy lifters such as the C-5M *Galaxy* and C-17 *Globemaster III*. In addition to the relocation of NATO units, this may also be necessary to service the planned new transport/multirole tanker aircraft. Within their European Deterrence Initiative (EDI), formerly known as European Reassurance Initiative (ERI), the U.S.

Department of Defense plans to provide additional funds for the further expansion of the airbase, such as building a new taxiway parallel to the runway that could also be used as an alternative runway.

During the first phase of the modernization of Kecskemét Air Base from May 2019, the runway was not suitable for the operation of fixed-wing aircraft. However, Helicopters continued to use Kecskemét. AN-26, A319, Falcon7x transport, and VIP transport aircraft were stationed at the Budapest Liszt Ferenc International Airport, while the *Gripens* were relocated to Pápa AB. Air policing missions for the Hungarian and Slovenian airspace now were flown from Pápa AB. For the second time in the history of the Hungarian military aviation, four to five combat aircraft were deployed to Lithuania as part of NATO's Baltic Air Policing (BAP). After the BAP ended on September 30, the JAS-39 *Gripens* including all personnel and

technical equipment returned to Pápa AFB.

Pápa AB is home to NATO's C-17 Strategic Airlift Capability (SAC) with three C-17 *Globemaster III* heavy transport aircraft. The aircraft are registered and flagged in Hungary and are carrying the Hungarian military insignia. Unlike Kecskemét AB, there is not sufficient hangar space for all combat aircraft at Pápa AB, which is a problem for the *Gripen* and other 4th generation combat aircraft in adverse, wet weather. With the onset of winter, the first DAM (Deployable Aircraft Maintenance Facility) mobile hangars from Sweden were installed.

Returning to Kecskemét on December 17, Brigadier General Nándor Kilián, Inspector of the Hungarian Air Force, and Brigadier General Csaba Ugrik, Commander of the 59th Szentgyörgyi Dezső Air Base (Kecskemét Air Base), welcomed the *Gripens* back home.

JAS-39C *Gripen* upon arrival at Kecskemét AB



- Three single-seat JAS-39C *Gripen* overhead Keckemét Air Base (main image)
- JAS-39C *Gripen* in Quick Reaction Alert (QRA) configuration with LITENING III targeting pod and live AIM-9L *Sidewinder* air-to-air missiles (left inset)
- Two-seat JAS-39D *Gripen* (right inset)



- Two-seat JAS-39D Gripen (left inset)
- single-seat JAS-39C Gripen (right inset)
- Brigadier General Nándor Kilián, Inspector of the Hungarian Air Force welcomes the pilots of the 59th TFW back home (main image)



QRA at Pápa AB

These JAS-39C/D's are each armed with two live AIM-9L *Sidewinder* air-to-air missiles. The JAS-39C *Gripen* shown in the left inset carries a LITENING III targeting pod mounted to the centerline hardpoint.





QRA at
Pápa AB



F-AIR COLOMBIA

REPORT AND PHOTOGRAPHY BY ANTHONY SEYCHELL

F-AIR Colombia

The event is primarily a trade event that promotes itself as an opportunity to generate new commercial and business links. It aids to position Colombia as a leader in the aviation market in the region, while encouraging foreign investments at the same time. Thus, F-AIR Colombia helps to create

- a space where civil and defence aviation companies and public and private customers can meet,
- information-sharing opportunities with academic sessions focused on topics of interest to the aviation industry



José María Córdova International Airport

F-AIR Colombia and José M. Córdova Airport are closely linked because it was the 15th operational anniversary of this airport that led to the first F-AIR Colombia. The airport was inaugurated in 1985 and has become the most important airport in the Antioquia Department, and in western Colombia. It also serves as the main hub for low-cost airline Viva Colombia. The 3550m long asphalt runway is shared with Air Combat Command No. 5 (CACOM 5) of the Colombian Air Force



From 11 to 14 July, 2019, the skies of Antioquia were filled with various types of aircraft from the Fuerza Aérea Colombiana as they displayed during the Feria Aeronautica Internacional F-AIR Colombia. The ninth edition of this fair, organized by the Unidad Administrativa Especial de Aeronáutica Civil together with the Colombian Air Force and operated by Corferias, the International Business and Exhibition Center of Bogotá, was held at José María Córdova International Airport in the town of Rionegro, not far from the city of Medellín.

The event, a combination of a trade show and a public airshow, offered a fine opportunity to see and photograph several aircraft of the Colombian Armed Forces and the Policía Nacional de Colombia. This year, in addition, the fair hosted the 100-year commemoration of the Colombian Air Force. Thus, there was a significant presence of FAC assets both in the static and flying displays. Besides the aircraft on display, more than 200 exhibitors from countries such as Germany, Brazil, Canada, Korea, Chile, France, Honduras, Venezuela, Ecuador, and Guatemala had trade exhibits or presented in the various seminars

and conferences held during the F-AIR. The exhibits included not only military combat, transport, training, and aero-medical aircraft, but also radars, radio aids, aerospace technology, drones, satellites, ground logistics support equipment, and aerospace medicine. According to media sources, around sixty-two thousand visitors (aviation professionals, aircraft spotters/photographers, and the general public) visited over the four days of the show.

The only international participant in the aircraft static and flying displays was the United States of America. The USAF deployed four F-16s from 157th FS 'Swamp Foxes'. The Air Demonstration Squadron 'Thunderbirds' was considered to be the star of the flying display. A Boeing B-52H Stratofortress (60-0057/BD) from USAF 340th Weapons Squadron, stationed at Barksdale Air Force Base, performed a couple of passes accompanied by four FAC Kfirs on Saturday 13th.

This static display held a nice mix of civil and military Colombian aircraft and helicopters. The civil static aircraft, spearheaded by an immaculate Beechcraft

200 King Air of the Aeronáutica Civil de Colombia, included several executive jets and twin-props together with a number of very light aircraft and microlights, some of them locally built. Considering that the event was also commemorating the 100th anniversary of the Fuerza Aérea Colombiana, the military static display was dominated by FAC assets, including the first-ever public outing of a Kfir COD. Other assets in the display came from the Armada República de Colombia (Aviación Naval), Ejército de Colombia - División de Aviación Asalto Aéreo and the Policía Nacional de Colombia.

The short flying display was dominated by the sometimes tiresome Thunderbirds. On the other hand, the FAC provided two very interesting duo displays. A pair of Kfir single-seaters from ESCOM 111 of Comando Aéreo de Combate No 1 performed a display, which was closer to a role demo, with plenty fast passes, rolls and flares. A pair of Sikorsky AH-60L Arpia from ESCOE 512 performed a lively display, which included firing lots of flares and making smoke patterns in the sky. The air force special forces also participated in the display with a parachuting

demonstration including spot-landing exhibitions and a canine parachutist.

The display on Saturday 13 July was slightly different as this day was the official commemoration of the 100 anniversary of the FAC. Unfortunately, the day started with a heavy downpour that lasted nearly the whole morning, which completely upset the planned schedule. Yet, after this inclement weather, there was a bright and sunny sky, which was graced by formation passes, first one consisting of eight FAC helos, a mix of Sikorsky UH-60s and AH-60s, then the FAC's B767 Jupiter with Kfirs, the USAF B-52 accompanied by more Kfirs and, finally, twenty-seven Tucanos forming "100" in the sky. It would have been nice if there had also been an AC-47T Fantasma and the venerable Colombian 'Spooky' in the flypast.

F-AIR Colombia 2019 was very noteworthy with remarkable Colombian assets that were very well presented in a nice and scenic location.

Colombian Air Force AC-47T *Fantasma*. The aircraft is equipped with infrared sensors to track guerilla movements on the ground and engage them with three side-mounted .50-caliber Gatling guns.



- Colombian AF Kfir COA. The Israeli-built all-weather multirole combat aircraft based on the French Dassault Mirage 5 (main image)
- Colombian AF Cessna T-37B, basic jet trainer (inset left)
- Colombian AF AT-29B *Super Tucano* light attack aircraft (inset right)





▲ Colombian AF CASA C295M tactical transport aircraft
▼ Colombian AF Cessna 208B



Colombian Navy Airbus Military CN235-300 MPA (Maritime Patrol Aircraft) ▲
Colombian Army CASA C-212-100CB Aviocar ▼





Fuerza Aérea Colombiana

Law 126 of 1919 of December 31 established the Escuela Militar de Aviación (military aviation school) of the Colombian Army. Operations were started in 1921 with around 10 French-built aircraft. Regrettably the school did not last long because it was closed down due to financial difficulties in 1922. However it was reopened in 1925 although extensive operations were commenced only a few years later when in 1932 Colombia went to war with Peru. In less than two years, the Fuerza Aérea Colombiana had grown considerably having around 150 aircraft on its books.

The Aviación Militar soon after World War II became the independent Fuerza Aérea Colombiana. Since 1948, Colombia, unfortunately, has seen periods of intense internal strife and the formation of extensive

drug cartels. This led to the further development and enlargement of the Colombian airforce.

Today the Fuerza Aérea Colombiana, one of the largest in South America, operates an eclectic mix of almost vintage aircraft, albeit refurbished and upgraded as much as possible, like the AC-47T Fantasma, the Huey, the Kfir and the OA-37 Dragonfly together with aircraft such as the Schweizer SA2-37A Condors and Cessna 560 Citations equipped with the latest surveillance technologies to monitor guerrilla and drug-related activities, supported by COIN-optimised EMBRAER Tucanos and Sikorsky Black Hawks (Arpia).

Colombian Air Force Sikorsky AH-60L Arpia IV attack helicopter



▲ Colombian AF Bell 212 *Rapaz*
▼ Colombian AF Bell 206B-3 *JetRanger III*

Colombian AF Bell UH-1H *Iroquois* ▲
Colombian AF UH-60L *Halcon* ▼





- Colombian Navy Eurocopter AS365N-3 Dauphin (main image)
- Colombian Army Mi-17-1V Hip in Search and Rescue configuration (inset left)
- Policia Nacional de Colombia Sikorsky UH-60L armed with two or three miniguns (inset right)



- Colombian AF *Tucanos* in "100" formation to commemorate the 100th anniversary of Colombian military aviation (main image)
- Colombian AF UH-60s and AH-60s (inset above)
- U.S. Air Force B-52H *Stratofortress* in formation with Colombian AF Kfir's (inset left)
- Colombian AF Boeing KC-767 MMTT *Jupiter* with five Kfir's (inset right)



LA FERTE-ALAIS

PHOTOREPORT
BY PACO JOVER

The 47th edition of the French airshow "Le Temps Des Hélices" was dedicated this year to the 75th anniversary of the D-Day. The airshow took place during the weekend of June 8 and 9, 2019.



Douglas AD-4N Skyraider, built in 1951. The aircraft is in the colors of the French Air Force Squadron 1/20 Aures Nementcha during the Algerian War (1961-1972).



- Curtiss H75-C1 *Hawk* built in 1939 (left, top)
- Supermarine Spitfire TR Mk.IXc built in 1944 (left, bottom)
- Vought F4U-5NL *Corsair* built in 1944 (main image)
- CASA C-352L (Ju 52/3m). Built in Spain by CASA (Construcciones Aeronáuticas, S.A., nowadays AIRBUS), this flying jewel is based in La Ferté-Alais and operated by the Amicale Jean Baptiste Salis (right, top)
- North American AT-6 *Harvard* (right, bottom)



- North American T-28B *Trojan* (left, top)
- Grumman F8F-2P *Bearcat*. The only *Bearcat* flying in Europe belongs to "The Fighter Collection" based in Duxford (UK). The *Bearcat* is the last piston-engined aircraft before the jet age. (left, bottom)
- Yakovlev Yak-3U (main image)
- North American OV-10B *Bronco* (right, top)
- Cessna L-19E *Bird Dog* (right, bottom)



- Formation of two North American T-28 Trojans (main image)
- P-40N-5-CU Warhawk (left)
- Grumman F8F-2P Bearcat (right)





- Polikarpov Po-2 (left, top)
- Boeing PT-13 Kaydet (left, bottom)
- SE5a-1, a replica of the Royal Aircraft Factory S.E.5 (main image)
- Caudron GIII replica (right, top)
- Blériot XI-2 replica (right, bottom)



- Patrouille Tranchant, based in Rennes with five Fouga CM-170 *Magister* (main image)
- Fouga CM-175 *Zephir* (inset top)
- French Navy Rafale M (inset bottom)



- Douglas DC-3C built in 1945, painted with "invasion stripes" (main image)
- Model 12-A *Electra Junior* (left inset)
- Canadair CL-13B *Sabre* Mk.6 (North American F-86E), the only *Sabre* in flying condition in Europe. It was built in 1958 and shows the U.S. Air Force color scheme of 1965. This *Sabre* is based at Avignon in Southern France. (inset right)



THE ICONIC LOCKHEED CONSTELLATION OVER THE YEARS . . .

ARTICLE, ART AND PHOTOGRAPHY BY LÁSZLÓ NYÁRY UNLESS NOTED



The Lockheed Constellation has a very interesting history and some urban legends which falsely include that Howard Hughes designed it. Actually, Hughes only specified the speed and range he wanted and placed a secret order for forty of them for his TWA airline. However, due to WWII, all the Constellation made during this period was taken over by the Army Air Force.

In 1939, Lockheed began to develop its Model 44 Excalibur A and eventually designated it as the L-049 Constellation. The U.S. Army Air Force (U.S.A.A.F.) designation is C-69. The Constellation was designed

with a unique triple tail that was raised to get it out of the prop wash, a porpoise-like fuselage shape, and huge Wright R-3350 supercharged twin-row radial engines.

Hughes borrowed the number-two prototype Constellation, a C-69 owned by the U.S.A.A.F. She was repainted in TWA colors and used to set a west-to-east transcontinental record in April 1944 from Burbank, Calif. to Washington National in 6 hours and 58 minutes. However, Hughes did not receive any Constellation until the end of the war when he bought back the C-69 from the military.

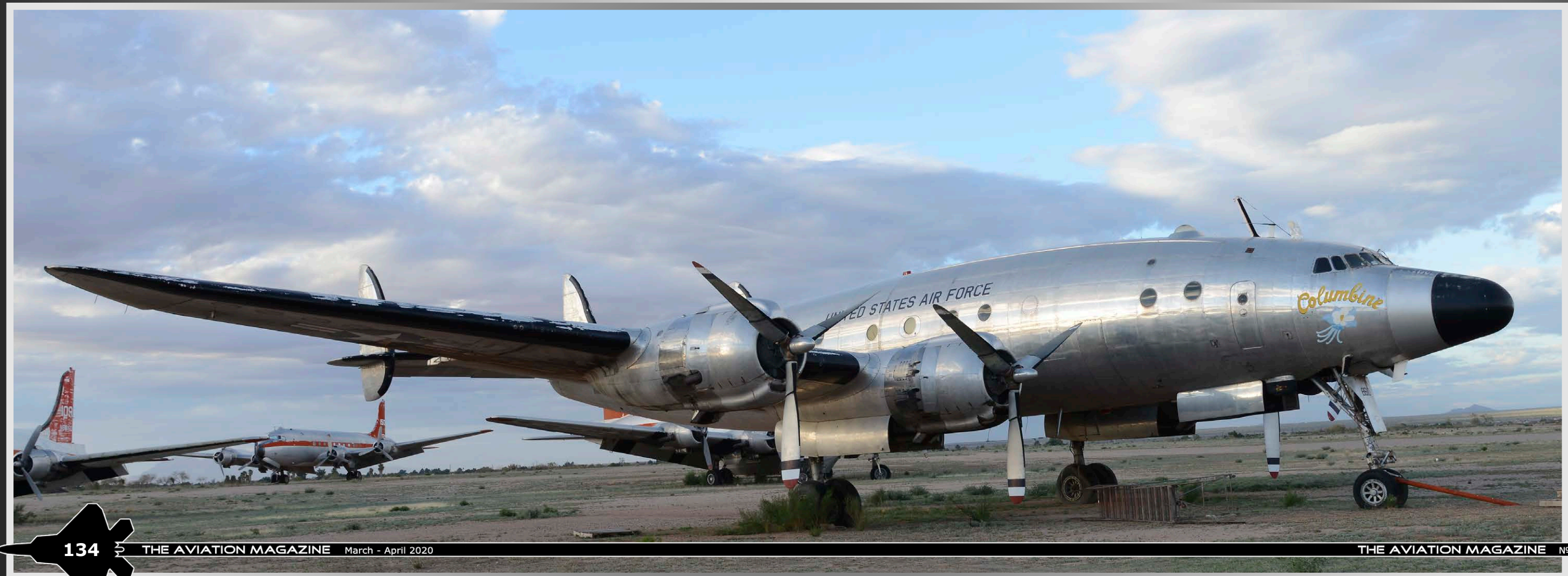
As the military wanted a big troop and cargo transport, the Constellation's future looked bright enough. Unfortunately, the Wright R-3350 engines were prone to engine-fires. As a consequence, the U.S.A.A.F stopped the C-69 production at just 13 (plus the prototype) and turned to the Douglas C-54 for its dependable service.

In February 1946, the Constellation finally entered airline service with TWA between New York and Paris and a month later, between New York and Los Angeles, whereas Pan Am flew from New York to Bermuda. The only surviving C-69, which was

converted for civilian use, can be seen in TWA livery at the Pima Air & Space Museum, located in Tucson, Arizona. The museum is one of the world's largest non-government funded aerospace museums with several different Constellation models.

In 1948, airline economics did not look good and airline orders were stagnant. The production of the Constellation was about to end. However, a large military order for their redesigned versions, the L649 and L749 kept the assembly lines alive. The L749 was essentially an L649 with an additional 1,130 gallons of fuel for a longer range.

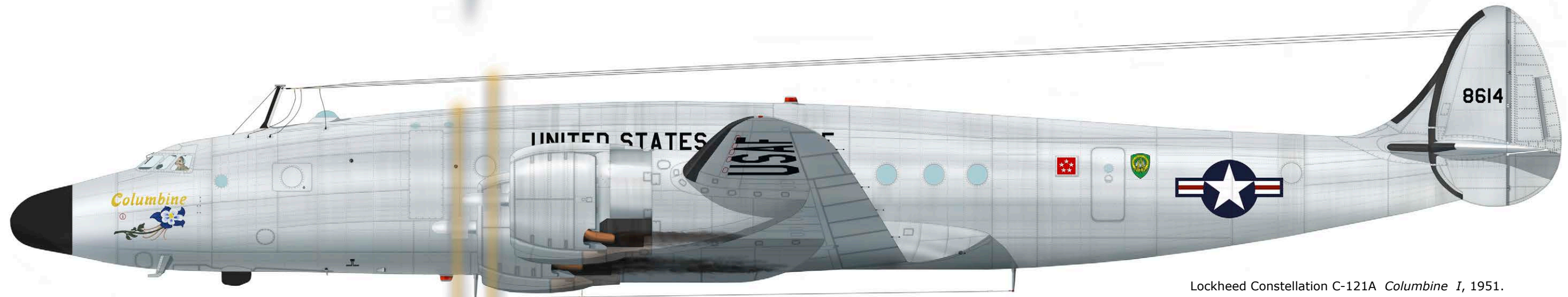
The C-121A *Columbine I*
in Pima, Arizona



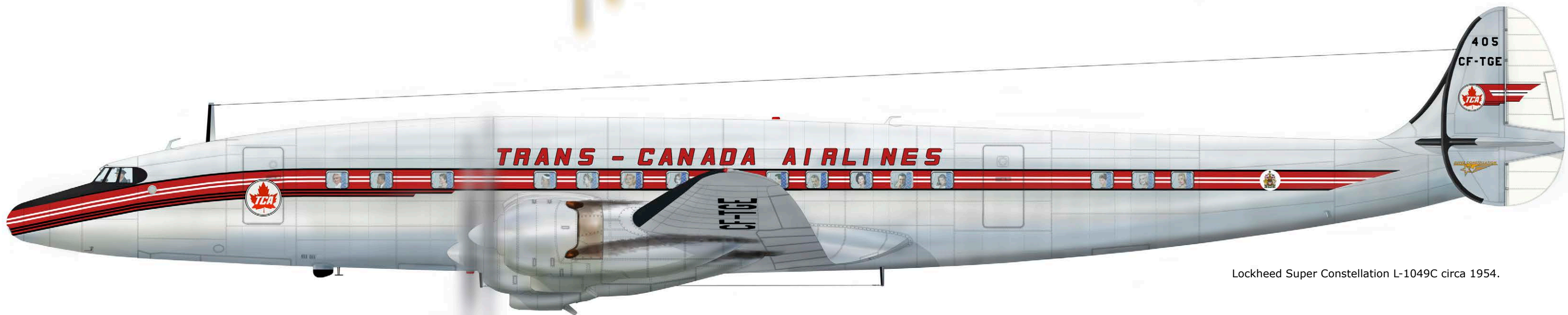
The C-121A *Columbine II*
sitting in the desert at
Marana Regional Airport,
AZ, in 2014.



Lockheed Constellation C-69 L-049, 1946.



Lockheed Constellation C-121A *Columbine I*, 1951.



Lockheed Super Constellation L-1049C circa 1954.

Relative size differences between various models.

The U.S. military decided to use it as the C-121 in several military roles such as Electronic Reconnaissance version. Also, some foreign airlines like BOAC, Lufthansa, KLM bought these improved versions with higher-horsepower engines, far more comfortable cabins with rubber isolation mounts between double skins for noise suppression and several other improvements. They were the first true Constellation airliners. The number of variants was quite amazing, ranging from RC, EC, NC, VC, YC with models from A to T.

The Constellation saw action in Vietnam with the USAF as EC-121 Warning Star, used as electronic reconnaissance and airborne early warning aircraft and a forerunner to the Boeing E-3 Sentry AWACS. Even the U.S. Navy Blue Angels have been using it for two years before switching to the C-130 Hercules.

One of the C-121A delivered to the USAF on February 4, 1949, which was converted to a VC-121A in 1950 by the USAF, is on display at Pima. Just as it was used by General Eisenhower as Supreme Commander of NATO, while the plane was based at Paris-Orly from June 1951 to March 1952. This Constellation was named Columbine (first of the three Columbines) after the state flower of Colorado.

Another C-121A Presidential aircraft "Columbine II", which was used from November 1952 to November 1954 by the 34th president, Dwight D. Eisenhower, is the first to bear the call sign "Air Force One". The aircraft officially retired in 1968. It was stored at Marana Regional Airport, AZ from 2003 to 2016. In 2015, she was purchased by Dynamic Aviation of Bridgewater, VA, and made airworthy in 2016. In March 2016, she was then flown to their restoration facility.

The next evolution of the Constellation was the L-1049 Super Constellation. A total of 579 airplanes were built between 1951 and 1958. Three-hundred-and-twenty of these went to the military and the rest to commercial operators. The Super Constellation was stretched by eighteen feet by inserting constant diameter fuselage plugs forward and aft of the wing. To expedite development, the first Constellation, c/n 1961, was purchased from Howard Hughes in May 1950 for a total of \$100,000 and modified as the Super Constellation prototype. Eventually, the Super Constellation incorporated over 550 design changes and the first production aircraft flew on July 14, 1951.

One of the L-1049C Super Constellation that was in service with Trans Canada Airlines, now known as Air Canada, but later converted to the G configuration, was on display near the Toronto International Airport as a restaurant/bar for several years. In 2005, this Constellation was sold to the Seattle's Museum of Flight, taken apart and transported by road from Toronto to the former Griffis AFB in Rome, NY on June 7, 2007. Over the next two years, it was inspected, repaired, reassembled and painted in TCA colors (late 1960's livery). It is now on display on a berm in front of the museum since January 31, 2015.

Another L-1049 Super Constellation, the one of a kind USAF VC-121E 53-7885 Columbine III, is now on display at the USAF Museum at Wright Patterson AFB in Dayton, Ohio.

The ultimate Constellation was the Model 1649A version also known as the Starliner, which was a new design with longer fuselage and wings, upgraded with 3,400 hp – EA2 turbo compound engines and a fuel capacity of 9,000 gallons giving it a range of 5,000 miles. This model became the largest piston-driven airliner and the fastest one when in long-range cruise mode. Sadly, only 44 of them were built due to the impact of jet-age. TWA was the largest operator with twenty-nine aircraft. Others included Lufthansa and Air France, also taking delivery of new aircraft. All commercial operations were ceased by the early 1980s. You can see one at the TWA Hotel opened as a cocktail lounge on May 15, 2019, near JFK.

In the 31st issue of The Aviation Magazine, there was a report on one of the few flying Constellations, the Breitling Super Constellation. To see the article, just click here:

http://www.theaviationmagazine.com/4_Archives/AllIssues/31_edition_of_the_Aviation_Magazine.pdf

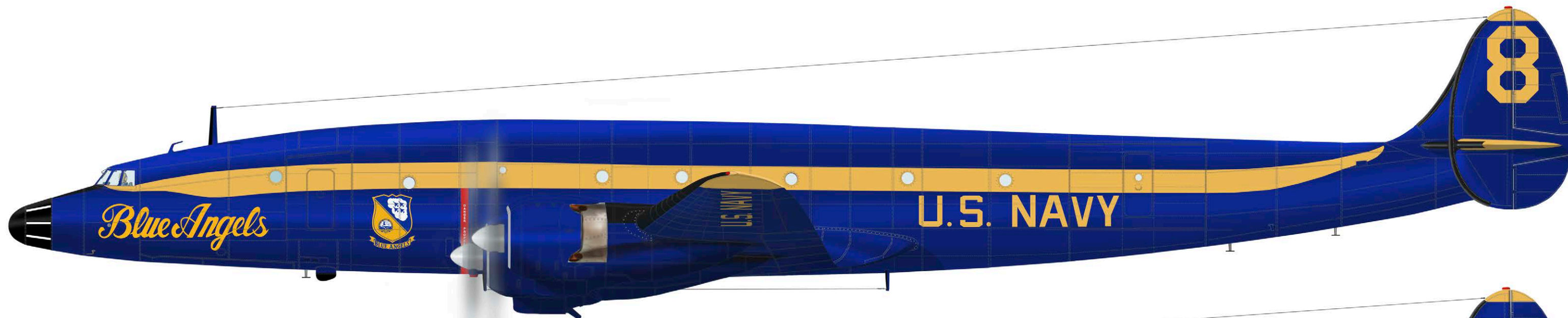


▲ The former TCA L1049G with wing tanks, as it was in 2005 in Toronto
▼ The C-121A *Columbine II* - President Eisenhower and First Lady Mamie Eisenhower exit "Air Force One" in 1953 (U.S. Government photo)

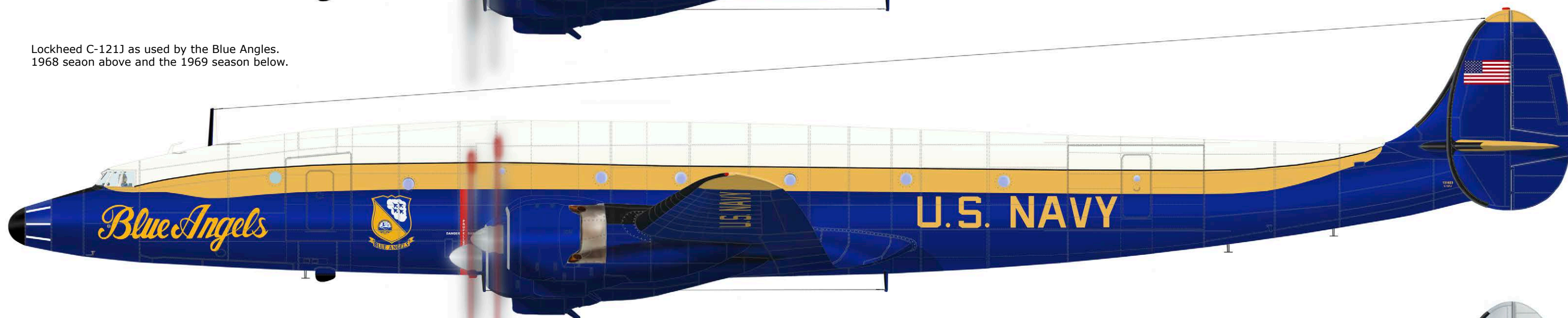


▼ Lockheed EC-121T *Constellation* 53-0554, 79th Airborne Warning and Control Squadron, Homestead AFB, Florida, as displayed at the Pima Air & Space Museum, Arizona.





Lockheed C-121J as used by the Blue Angels.
1968 season above and the 1969 season below.



"Columbine III" the only Lockheed VC-121E built, served
as President Dwight D. Eisenhower's personal airplane
from 1954 until he left office in January 1961.

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MILITARY MOVEMENTS 2019 AT STUTTGART, GERMANY

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- US Navy Boeing E-6B *Mercury* of VQ-4 (main image)
- US Air Force Dornier C-146A *Wolfhound* of the 524th SOS (left inset)
- US Air Force Pilatus U-28A of the 319th SOS (right inset)

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- US Army Beech C-12U *Huron* of the 2-228 AVN (left top)
- US Air Force Beech C-12D *Huron* of the USE Budapest (left middle)
- US Air Force Gulfstream C-37A of the 76th AS (left bottom)
- US Army Cessna UC-35A1 of the 2-228 AVN (right top)
- Gulfstream C-20G of the VMR Det MCB Kaneohe Bay (right bottom)





▲ US Air Force Lockheed MC-130J *Commando II* of the 67th SOS
▼ US Air Force Lockheed C-130H *Hercules* of the 700th AS



US Navy Lockheed C-130T *Hercules* of VR-64 ▲
US Navy Lockheed C-130T *Hercules* of VR-62 ▼





▼ Polish Air Force Boeing 737-86X of the 1.BLT

▲ Equatorial Guinea Government Boeing 777-2FBLR

NASA research aircraft Boeing 747SP-21 SOFIA ▼





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