THE AVIATION MAGAZINE

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Volume 13, Issue 1

- Turkish Air Force Enhanced Baltic Air Policing
- Transall C-160D – Tribute to a Legend
- PC-7 Team
- Flashback – From NVA to Luftwaffe – Part 2
- 60 Years Frecce Tricolori International Airshow
- And so much more ...

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Content

Cover: Spanish Air Force EF-18M *Hornet* – Air-to-air shooting during execrise EART 2021. *Photo David Mazón Gómez*
This page: German Air Force Transall C-160D of LTG 63 painted in special retro livery on the occasion of the Transall's end of servicec with the German Air Force. *Photo Ralf Jahnke*

THE AVIATION MAGAZINE

by www.TheAviationMagazine.com e-mail: editor@TheAviationMagazine.com

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

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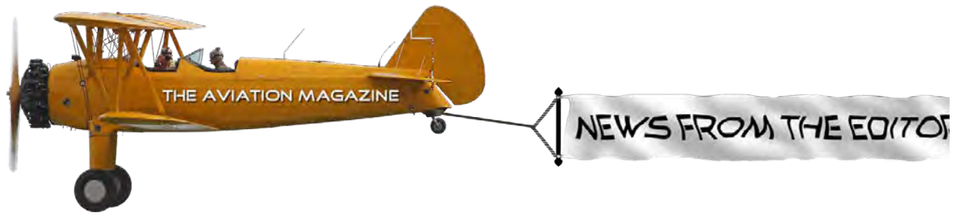

Dear Readers,

A difficult year with many ups and downs is coming to an end, and a challenging 2022 is waiting in the wings. We are very confident that it will be a good year, also for our magazine. This issue of THE AVIATION MAGAZINE is not only the first of the new year, it is also the most comprehensive issue to date. And not only that: We will be returning to releasing a new issue every other month. Let us surprise you and let's look forward to many great reports with outstanding photography.

We now wish you much pleasure in reading this new issue. Download your free copy of the 76th issue of THE AVIATION MAGAZINE **here**!

For today, the whole team of THE AVIATION MAGAZINE wishes you a very good start into the new year, all the best, a lot of confidence and patience, and above all:

BE SAFE AND STAY HEALTHY!

Ralf Peter WALTER
Publisher & Editor

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TURKISH AIR FORCE

ENHANCED BALTIC AIR POLICING

REPORT BY
JORIS VAN BOVEN

Turkish Air Force F-16C Block 40's carrying live weapons over the baltic sea. They are from 161 Filo at Bandirma AB.

For the NATO Enhanced Baltic Air Policing (EBAP), four Turkish Air Force (Türk Hava Kuvvetleri, THK) LockheedMartin F-16s deployed to Malbork AB in Poland.
From July 2021 until mid-September 2021, the Turkish F-16s were based at Malbork AB. The three single seat and one double seat F-16s were from the 161 Filo (161 Squadron), named 'Yarasa' (Bat), and are normally based at 6th Main Jet Base Bandirma AB in the northwestern Turkish province of Balikesir.

Malbork AB (22 Baza Lotnictwa Taktycznego) is the home base of the 41 Squadron (41 Eskadra Lotnictwa Taktycznego, 41.ELT), flying the Mikoyan MiG-29 *Fulcrum* fighter. The MiG-29s at Malbork AB were transferred from the German Air Force to Poland in 2004.

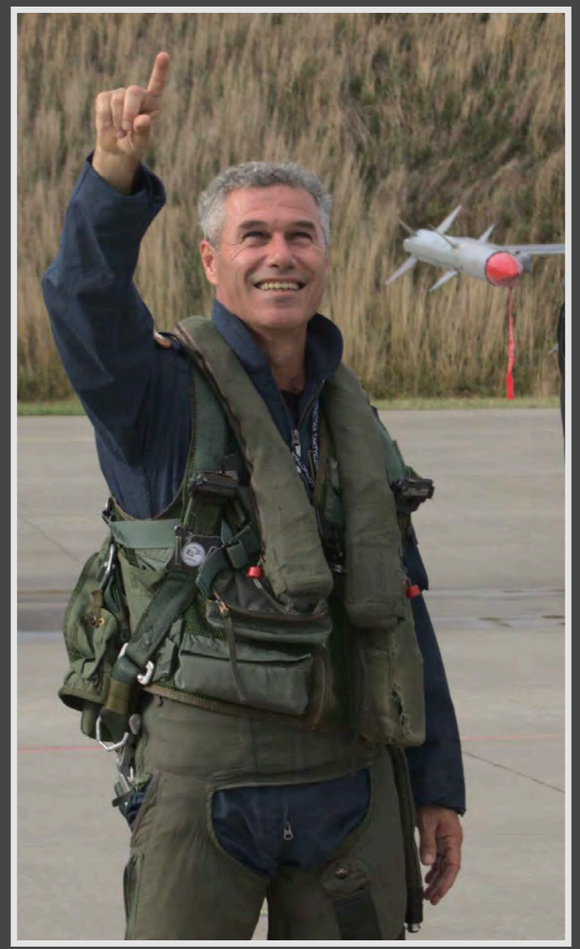
The Turkish F-16s were fully armed with the internal M61 Vulcan gatling gun and two kinds of external air-to-air missiles: AIM-120 (Advanced Medium-Range Air-to-Air Missile AMRAAM) and AIM-9X (Sidewinder). Together with the Polish MiG-29s from Malbork AB and the Polish F-16s from Lask AB (32. Baza Lotnicza Taktycznego), Enhanced Baltic Air Policing missions were flown.

This was the second time the Turkish Air Force contributed fighter jets to NATO Air Policing in the Baltic region; and it was the first Turkish deployment to Malbork AB, Poland.

Definition AIR POLICING

NATO Air Policing is a peacetime collective defense mission, safeguarding the integrity of the NATO Alliance Member's Airspace. The principle of collective defense is at the very heart of NATO's founding treaty. It remains a unique and enduring principle that binds its members together, committing them to protect each other and setting a spirit of solidarity within the Alliance. In fact, all member nations contribute in some form to NATO Air policing, be it through the use of national aerial surveillance system.

The F-16s are armed with live AIM-120 AMRAAM (Advanced Medium-Range Air-to-Air Missile) and AIM-9X (Sidewinder) air-to-air missiles.



Colonel Ahmet Çandir is the Detachment Commander (DetCo) of the Turkish Air Force detachment (consisting of ~80 persons) at Malbork AB.

"We appreciate this great opportunity to fly with our Polish colleagues and to practice precision maneuvers, formation flying and escort procedures", said Colonel Çandir, the Detachment Commander of Turkish Air Force members at Malbork augmenting NATO's Air Policing mission in the Baltic region. "It is a challenge to plan, coordinate and execute such an activity that benefits my pilots and their Polish counterparts. They have the chance to train and exercise procedures for combined employment in support of the Alliance's mission to provide deterrence, defence and security", he added.

Nowadays Air Policing

European skies are continuously monitored, 24 hours per day, 7 days a week, 365 days per year. European airspace is one of the most congested airspace with some 30,000 civil air movements per day. Sometimes, there are problems with aircraft. That could be a civilian aircraft with communication problems or it could be an unidentified aircraft testing NATO's military responses.
Most of the time, it is a communication problem with civil aircraft (COMMLOSS) and sometimes, it is a Russian military aircraft that flies through international airspace along NATO countries without filing a flight plan. Each time an assessment is made by a NATO Combined Air Operations Centre (CAOC) and if the decision was positive, one or two national jets are scrambled (QRA, Quick Reaction Alert) to identify/investigate the aircraft. The NATO detects but the national Control and Reporting Centers (CRC) take over, keeping national sovereignty in their national airspace.

Mostly, there are civil COMMLOSS cases that are re-established after a military fighter aligns next to the aircraft, a view that most civil aircraft pilots do not like to see.
Example: In December 2017, an airliner flew from Belarus to Italy where the aircraft did not respond to civil aviation controllers and it was intercepted until communication was re-established. But for 51 minutes, 350 miles and over three nations this aircraft flew uncontrolled through European airspace.

If aircraft do not follow international rules, like using a transponder, or identifying themselves to control centers or do not file a flight plan, then, the NATO QRA aircraft are scrambled to interrogate the aircraft that do not comply.
Within fifteen minutes, the QRA aircraft must be airborne, whereupon the national CRC will guide the QRA aircraft to the aircraft that needs to be intercepted.

When a 'rogue' aircraft has been intercepted, a report is sent to the CRC and a photo is made to confirm the aircraft's identity. If the intercepted aircraft is posing a danger to other aircraft or is heading towards a forbidden zone, the QRA aircraft need to deviate this aircraft into another direction. To attract the attention of its cockpit crew, the intercepting fighter aircraft flies close to the "intruder's" nose to be in the field of view of its pilots or they even deploy flares to attrackt atttention.

Most Baltic QRA intercepts occur on the airways between the Russian area of St. Petersburg and the Russian enclave Kaliningrad located between Lithuania and Poland. The only way for Russian citizens to travel to/from Kaliningrad without requiring a visa and custom-clearances, is by sea or by air. Also, sometimes unidentified helicopters fly between Kalinigrad and oilrigs at sea.

Definition QUICK REACTION ALERT (QRA)

Quick Reaction Alert (QRA) is a state of readiness and modus operandi of air defense maintained at all hours of the day by NATO air forces.

There are 3 kinds of scrambles

- ALPHA-SCRAMBLE: This is the real thing where the QRA aircraft are launched in less than fifteen minutes
- TANGO-SCRAMBLE: This is a training scramble where the full scramble is exercised, with a takeoff but without any aircraft intercepted later.
- SIERRA-SCRAMBLE: This is a training scramble where the full scramble is exercised, but without a take-off.

Source: Wikipedia

1

2

Allied Air Command

Air and Space Power for the Alliance on the European continent is delivered by NATO's Allied Air Command, the single service command for all Alliance air and space matters. It provides Command and Control of NATO's Integrated Air and Missile Defense mission, which incorporates all measures that contribute to the deterrence of any air and missile threat or to reduce or nullify the effectiveness of hostile air action.

Operating from four locations in Europe, 1,150 airmen and women from more than 30 NATO member and partner nations support 24/7 full spectrum Air and Space operations, the backbone of credible deterrence and defense for the Alliance. To support an adapted structure, the number of personnel will increase to more than 1,300.

Headquarters Allied Air Command is located at Ramstein, Germany, within Ramstein Air Force Base, which has been home to a NATO Airpower headquarters since 1974. The headquarters is responsible for planning, exercising and executing Integrated Air and Missile Defense Operations within NATO's European area of responsibility from peacetime through to conflict.

The Headquarters includes the Operations Centre for Air Policing, Ballistic Missile Defense and operational control of NATO's Airborne Early Warning and Control Force as well as for NATO's Alliance Ground Surveillance Force. The Headquarters can also host a Joint Force Air Component to command and control allied air operations during crisis and conflict. More than five hundred dedicated military and civilian personnel, increasing to some 620 in support of the adapted structure, serve at the Headquarters, representing 25 NATO member nations. The staff is permanently augmented by representatives from three of NATO's partner nations, Sweden, Finland and Azerbaijan. Subordinate units to the Headquarters are the two Combined Air Operations Centres (CAOC) at Uedem, Germany and Torrejón, Spain as well as the Deployable Air Command and Control Centre at Poggio Renatico, Italy.

Baltic Air Policing

The Baltic Air Policing is a rotational air defense role taken up by NATO countries, as the Baltic countries Estonia, Lithuania, and Lettonia do not have the means to maintain their own air defense fighters on a 24/7 basis. For three to four months, NATO partners deploy their fighters to Amari AB (Estonia) or Šiauliai AB (Lithuania). In times of higher tensions, the eastern air base of Malbork in Poland will also be used by NATO partners on rotational duty to protect the eastern NATO flank. The Malbork AB deployments are called Extended Baltic Air Policing.

The Baltic Air Policing missions are controlled by the Combined Air Operations Centre (CAOC) Uedem, near German the city of Kalkar.

The author and *The Aviation Magazine* would like to thank the NATO Allied Air Command, the Polish air Force and its CASA-CN295 crew, the Turkish Air Force, and Sławek 'Hesja' Krajniewski for making this report possible.

3

1 Polish Air Force MiG-29GT (ex German Air Force 29+24) of the 22.BLT (41.elt).

2 Turkish Air Force F-16D Block 40 of the 161 Filo.

3 MiG-29A of the 22.BLT (41.elt) crancks up its two old Tumanski engines and produces thick smoke.

4 Turkish Air Force F-16D Block 40 of the 161 Filo.

4

This Polish Air Force C295M of the 8.BLTr (13.el) served as platform for the photo-shooting.

TRIBUTE TO A LEGEND

REPORT BY RALF JAHNKE

High speed low-pass of a Transall C-160D. Clearly visibale are the flare dispenseres on the top of the fuselage behind the cockpit and the chaff dispensers under the wing which all are part of the upgraded self-defense system ESS (Erweitertes Selbstsschutzsystem).

Now it has come true, a legend has left the big stage. On 15 December 2021, in a solemn ceremony, the Transall C-160D transport aircraft was taken out of service with the German Air Force and the Lufttransportgeschwader 63 (LTG 63 – Air Transport Wing 63) at Hohn AB was decommissioned. This marked the end of a very long history of service in the German armed forces (Bundeswehr) for the "Engel der Lüfte" ("Angel of the Air"), as the Transall C-160D and its crew often were called. On countless humanitarian relief missions in crisis and disaster regions all over the world, they often have been the last hope for the people there. Many times, the crews risked their lives to ensure the survival of those in need of help. However, the Transall also made a name for itself among the troops. Whenever units were deployed for peacekeeping missions or commands, the Transall was an integral part of it. It not only carried material and personnel to the most remote areas of the world but also provided the armed forces with countless varieties of supplies. Every soldier felt connected to the Transall and in particular because of its reliability, the aircraft was very popular.

So far, no aircraft of the German Air Force has been given such a farewell as the Transall. The members of the LTG 63 played a major role in giving this legend a dignified farewell from the German armed forces last year! It all started in March with the presentation and official rollout of the "Retro Brummel". The special "goodbye livery" depicted the Transall's entire period of service with the Germany Air Force and the LTG 63 and ultimately, became a flagship for the Bundeswehr and aviation enthusiasts in Europe. The aircraft was to become one of the most sought-after photo subjects. LTG 63 organized a total of two official goodbye tours with the "Retro Brummel" through Germany. The first tour covered ten airfields in the north and east. The second tour covered more than twenty airfields in the west and south. Unfortunately, very often, the weather did not play along on these tours. Nevertheless, the "Goodbye Transall" visited several airfields later in the year. Smaller events for the friends of the Transall were organized at short notice and the "Retro Brummel" was presented to the public whenever possible. In June, at the virtual "Day of the Bundeswehr", the LTG 63 with its Transall was allowed to present itself as the main actor.

Unfortunately, an official event for the public had to be canceled at short notice due to the COVID-19 pandemic.

On 23 September, as the COVID-19 situation significantly improved over the summer and the restrictions were lifted, an official Fly Out ceremony was held at Hohn AB. At this event, about 2,000 guests had the opportunity to witness an impressive and perfectly orchestrated show with the LTG 63's last six airworthy Transalls. The aircrews were driven synchronously with six vans to the lined-up aircraft on the flight line. Then, exactly at the same time, the six Transall's engines were started and they taxied to the runway, lining up for takeoff. Despite the extremely adverse weather situation, the typical hum of the engines suddenly sounded in the sky and the formation flew over Hohn AB to bid farewell. After the formation was back on the ground, the subsequent taxiing back and shutting down of the engines was again absolutely synchronous and resulted in a goosebump moment – the final shutdown after 53 years of service. By the way, the six-ship formation corresponded to an operational readiness of 100%, all Transalls of the Luftwaffe were airborne! The formation flight had to be intensively trained in advance. Four weeks earlier, it started with a two-ship formation. Increasing the number of aircraft one by one, there were only two training days as a six-ship formation. In order not to bother the population with the deep hum of the Transall's engines, most of the training took place over the North Sea.

At the end of September, the Retro Brummel took part in the Malta Air Show to say goodbye on the international stage. One week later, the time had come for the "Retro Brummel" to be transferred to the Roth airfield. There, at the new German Air Force Officer School (Offizierschule der Luftwaffe OSLw), it will be used as a "walk-through" exhibit for officer candidates, which means that the venerable aircraft still fulfills an important task on the ground. Other Transalls were also transferred to other airfields, for example to Celle-Wietzenbruch to serve as a loading trainer, to Rotenburg/Wümme (for 50,660 €) as an exhibit for visitors to the airfield, to Jever for ground training, and Zweibrücken (for 50,790 €) to be converted into a hotel (Trallotel). The 50+88 received the "last inspection" of a Transall and carries a large special emblem on the left hatch. All remaining six Transalls were scrapped at Hohn AB. Under the command of TaktLwG 51 Immelmann, Hohn AB will be kept operational to a certain extent to serve the German Air Force as an alternate airfield. Furthermore, the GFD with its fleet of Lear jets will continue to operate out of Hohn AB. The GFD concentrates on the field of aerial target simulation with military training sessions and tactical training scenarios with the German Armed Forces as its main client.

The Transall's last year of operation was still very demanding despite its upcoming retirement. Until the end of April, the squadron was involved in the foreign mission in Mali (MINUSMA mission). Based in Niamey, Niger, the Transall conducted supply flights to Mali, particularly Gao, for the past eight years. One to two Transall aircraft had recently been permanently stationed there. Pilot training to maintain the flight license also had to continue, as did paratrooper exercises at various locations. In August, two Transalls took part in a Danish exercise in Aalborg and performed beach landings on the island of Rømø. Until December, one or two Transall flights took place every day. What had started at Celle AB in 1968 ended on 14 December 2021 at 1 p.m., when the last flight of a Transall ended at Hohn AB with LTG 63's commander Colonel Markus Kleinbauer at the controls. A legend has left the skies after 53 years of humanitarian service and peacekeeping. Goodbye Transall!

General Characteristics

Crew:	Pilot, Co-Pilot, tactical system officer, loadmaster plus max. 93 troops or 61–88 paratroopers
Length:	32.1 m (105 ft 4 in)
Wingspan:	40 m (131 ft 3 in)
Height:	11.65 m (38 ft 3 in)
Empty weight:	28,758 kg (63,400)
Std t/o weight:	44,200 kg (97,444 lb)
Max t/o weight:	49,100 kg (108,247 lb)
Std payload:	8,000 kg (17,637 lb)
Max payload:	16,000 kg (35,274 lb)
Powerplant:	2 × Rolls-Royce Tyne R.Ty.20 Mk.22 turboprop engines, 4,288 kW each
Propellers:	4-bladed, fully feathering constant-speed reversible-pitch propellers, 5.486 m (18 ft 0 in) diameter

Performance

Max speed:	536 km/h (289 kn) at 4,500 m (14,764) at a weight of 41,100 kg (90,610 lb)
Stall speed:	177 km/h (96 kn) flaps down
Range:	1,720 km (929 nmi), 16,000 kg (35,274 lb) payload, 30 min reserves 4,850 km (2,619 nmi), 8,000 kg (17,637 lb) payload, 30 min reserves
Service ceiling:	8,500 m (27,887 ft)
Rate of climb:	7,3 m/s (1,437 ft/min)

THE RETRO BRUMMEL

On the occaison of the decommissioning of the Transall C-160D in the German Air Force and the disbanding of the Lufttransportgeschwader the Transall 50+40 was painted in this special retro livery. The "Retro Brummel" features different paintworks: silver for the Transall prototypes of the 60s; orange engine nacelles, rudder and forward sponsons for the aircraft until the early 80s; white for the numerous and worldwide UN aid missions, which is why the Transall is also called "Angel of the Skies" ("Engel der Lüfte"). The paintings on the right side focus on the Transall's missions: the dangerous relief flights into Sarajevo 1992-1996, and the missions in the Hindu Kush from 2002 to 2014. The silhouettes of parachutists and the dropping of heavy loads characterize the versatility of this transport aircraft. The left side is dedicated to the Lufttransportgeschwader 63 and its emblem, the bumblebee.

2021
Goodbye Four


63
50 40
NEL WEIT IM EINSATZ

At the fly-out ceremony on 23 September all six remaining airworthy Transalls were in the air.

Never to be seen again: a six-ship formation of German Air Force Transalls.

BRIEF HISTORY OF THE LTG 63

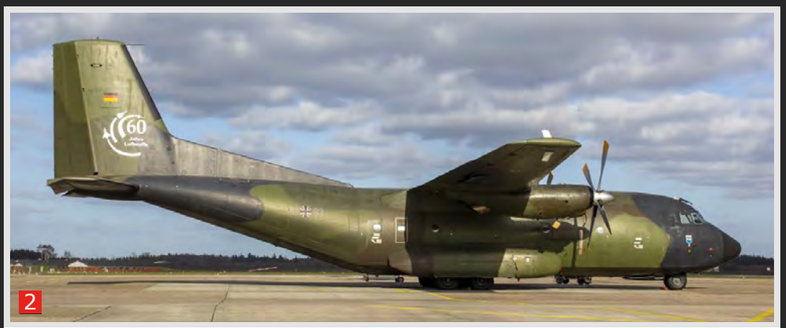
The German Armed Forces airlift started in September 1957 with the commissioning of the first wing at Erding. This was the basis for the establishment of the Luft Transport Geschwader 62 (LTG 62 – Air Transport Wing 62) at Celle-Wietzenbruch AB in 1959. With the redesignation of the 2nd Squadron of LTG 62 stationed to 1st Squadron, LTG 63 was born. In January 1963, it was declared fully operational with 43 French Nord 2501 Noratlas. The first transport missions included humanitarian aid missions for earthquake victims in Agadir, medicine transports for Niger and Yemen, support flights for the German embassy in Khartoum, and flights during the flood disaster in the German city of Hamburg in 1962, where more than 200.000 sandbags were airdropped. In 1964, the squadron presented its new squadron emblem, the stylized bumblebee. Well into the 1970s, LTG 63 was now also known as the "Hummelgeschwader" ("Bumblebee Wing"). With the transition to the Transall C-160D, the name "Brummelbiene" eventually caught on. In June 1967, LTG 63 moved from Celle AB to Hohn AB. In March 1970, the squadron ceased operations with the Noratlas and in September, the transition to the Transall was completed. The LTG 63 now had a very reliable, robust transport aircraft with much better performance characteristics. They were now able to safely fly to a wide variety of locations around the world in a relatively short time while tripling their payload. Among the most unusual missions in the early days were certainly the relief flights to East Pakistan, North Yemen, Algeria, Ethiopia, and Nepal. The first accident with a Transall was on 9 February 1975, when 50+63 crashed into the snow-covert Lefka-Ori mountains on approach to Chania airport on Crete in bad weather and heavy snowfall, killing all 42 people on board. During the 1980s, the wing participated in several famine relief operations. With a great effort, they established some airlift bases in the Sahel zone. For several months under the most difficult conditions, they provided relief supplies to the people of Ethiopia and Sudan. During the Gulf war, the LTG 63 supported NATO flank protection at the Turkish-Iraqi border and the operational forces deployed to Erhac. The Gulf War was followed by the wing's largest deployment, the Kurdish aid in eastern Turkey by airdrop. The next mission was supplying the encircled city of Sarajevo over four years. Several Transalls were fired upon during these humanitarian aid flights and one aircraft narrowly escaped disaster. This led to the so-called "Sarajevo Approach". In practice, a dive approach to the airfield to avoid enemy air defense on the landing approach. Another milestone was the deployment to East Timor in 2000, shortly followed by thirteen years of supplying troops in the Hindu-Kush, with the main base established in Tashkent, Uzbekistan. From there, supply flights were made to troops stationed in Afghanistan. In the

Patches of some of the humanitarian, relief and peacekeeping missions the LTG 63 participated in. **(right)**

From 9 October 1999 until 29 February 2000 two Transall -160D's participated in the international mission INTERFET (International Force East-Timor). The aircraft (50+54 and 50+77) were deployed to Darwin/Australia evacuate injured (MedEvac)members of the international peackeeping forces and UN employees from East-Timor to Australia. The two Transalls flew 47 sorties and transported a total of wounded people. (**top left - March 2000)**

The LTG 63 supported the International Red Cross and the Deutsche Welthungerhilfe (German for World Hunger Aid) activites in Sudan with its Transalls. As Sudan was in a state of war, the aircraft were painted completely white and in some cases additionally marked with a Red Cross on the fuselage and the vertical stabilizer to make the peaceful purpose of the aircraft clearly visible. (**bottom left - October 1990)**

1



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3

4

5

Until the early 1980s, Transalls had their engine nacelles, rudder, forward sponsons, and the uper and lower surface of the wing tips painted with dayglo orange to make the aircraft better to be seen **(1)**. Over the time, however, the color is faded **(5 and 6)**. The base paint scheme was NORM 72 **(3 and 4)**.

NORM 72 was followed by 1983B as seen at **(2)**. This aircraft also carries a logo on the vertical tail to commemorate the German Air Force's 60th anniversary.

6

context of "Operation Pegasus", two Transalls evacuated 132 people during the uprisings in Libya. The rescue operation included flights from Al-Nafoura to Crete. In 2014, the Ebola relief mission was underway in Senegal. An airlift base was established in Dakar and MEDIVAC Transalls were deployed. From 2013 to 2021, LTG 63 supported the mission in Mali (AFISMA, MINUSMA). Transalls were stationed at Dakar and later at Niamey, the capital of Niger. This was also the last deployment abroad for the Transall.

In addition to the two transport aircraft Nord 2501 Noratlas and Transall C-160D, the wing also used Do-27, Do-28D, and UH-1D aircraft for liaison and rescue missions. Not to be left unmentioned is the SAR services the UH-1Ds of LTG 63's 3rd Squadron provided for the Federal Republic of Germany. Thanks to LTG 63, many lives were saved back home in Germany and in many other places around the world.

Effective 31 December 2021, after well over 400,000 flight hours, the Lufttransportgeschwader 63 was disbanded. The "Bumblebee Wing" will never be forgotten!

At the 1989 Airlift Rodeo at U.S. Pope AFB, North Carolina, 50+42 was nicknamed "Else" by the ground crew. Early 2018, after 12,872 flight hours and 14,121 flights "Else" was taken out of service and disassembled for parts recovery.

Due to the low pressure created at the propeller blade tips at high speeds and high humidity, the moisture condenses making the tip vortices visible.

The cockpit features only very few digital instruments.

Speedbrakes on the upper and lower wing surface and the flaps fully deployed indicate that this Transall just had landed


← C2


1

THE SARAJEVO APPROACH

The Sarajevo Approach refers to a tactical approach (25-degree slope) that was designed to minimize the time an aircraft was exposed to small arms fire during operations into Sarajevo during the Bosnian War.

Special painting on the occasion of the 60th anniversary of the German Air Force (on the right side of the vertical stabilizer) and the 55th anniversary of LTG 63 (on the left side of the vertical stabilizer). The fuselage is painted identically on both sides in the state colors of Schleswig-Holstein and shows various landmarks of the state. On the white line along the fuselage are important milestones in the long history of the unit.

Special paint scheme for the 35th anniversary of LTG 63.

Fuselage: Colors of the Federal Republic of Germany.
Tail: National colors of the state Schleswig-Holstein.

Special paint scheme for 40 years of LTG 63 based at Hohn AB.

Tail: "Brummel Biene", the heraldic animal of LTG 63 National colors of the state Schleswig-Holstein.

Transall 50+85 received this spectacular scheme for the 50th anniversary of the wing.

The tail unit shows the outline of the federal state of Schleswig-Holstein with the national colors.

The basic paint scheme represents the starry sky and stands for the wing's operational readiness around the clock. The eagle in the front part of the fuselage stands for courage, vision, and strength. The silhouettes of the Noratlas, Do-28D, UH-1D, and Transall C-160D represent the aircraft types flown by the LTG 63 to date.

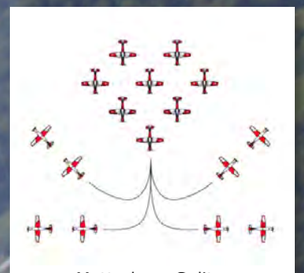
In autumn 2019 LTG 63 presented 50+72 in this special livery to mark 400,000 hours of flying the Transall. Next to the number "400,000" is the wing's heraldic animal, the "Humming Bee". The fuselage also shows the colors of the flag of the Federal Republic of Germany and the state of Schleswig-Holstein.


LTG 63
Hohn
400000
50 72

SWISS AIR FORCE PC-7 TEAM

ARTICLE BY MATTHIAS NEUROHR

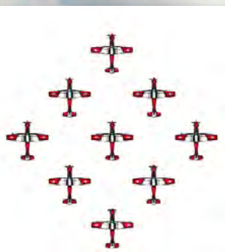
For more than 30 years, the PC-7 TEAM has stood for dynamism, elegance, and precision and shows the audience the high level of training and the capabilities of the Swiss Air Force at air shows.
The foundation stone for the now internationally renowned PC-7 TEAM was laid by the Air Force in the 1970s when acrobatics were flown simultaneously with two Pilatus P-3s. After the introduction of the PC-7 in 1983, solo demonstrations followed with the new, orange-silvery training aircraft. In 1987, the first nine volunteers met in Locarno at the Swiss Air Force's pilot workshop for a 3-day training course.
The first demonstration took place in Dübendorf on August 29, 1987, which was very popular with the public. The year 1989 is considered to be the foundation year when the TEAM was officially put together for the benefit of the anniversary celebration of "75 Years of the Swiss Air Force". Nine pilots tackled



Matterhorn Split

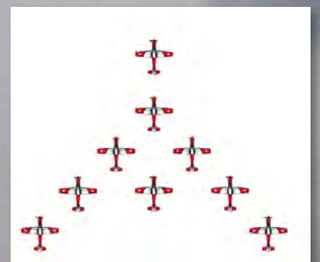
the demanding task of building an attractive program that takes into account all facets of formation flying with propeller aircraft.
The PC-7 TEAM of the Swiss Air Force has been flying up to 15 airshows at home and abroad every year since 1989 and has not only impressed the Swiss population. Over the years, the demonstration program has been continuously refined and expanded with new figures such as multiple crossings, mirror flight, but also with new formations.

In 2008, the PC-7 was completely modernized. The cockpit was brought up to date with the latest technology and the aircraft were painted in the Swiss national colors. In 2014, the PC-7 TEAM was able to put the new smoke system into operation, with which the audience can follow the formations and figures in the sky even better. In the Swiss Air Force, the PC-7



Flying Diamond

is mainly used in basic training, for the selection of new military pilots, and liaison flights.
The commitment of each team member under the leadership of Leader Major Cyril "Johnny" Johner (Turbo 1) is an additional task. The pilots of the PC-7 TEAM fly full-time in one of the three F / A-18 squadrons of the Swiss Air Force in Payerne or Meiringen. They accumulate about 110 flight hours on the Hornet each year. In this function, the pilots contribute to the fulfillment of the mandate of the Swiss Air Force. This includes maintaining air sovereignty and ensuring the air police service around the clock over Switzerland.
The fact that the PC-7 TEAM pilots all fly fighter jets full-time and fly in the PC-7 TEAM exclusively as an additional task is a rarity worldwide and underlines the high performance of the Swiss Air Force.
What is special for the pilots in the TEAM is the trust that they have in each other, the team spirit that the pilots live.
All pilots do their utmost to deliver a perfect demonstration to the audience at airshows.
The greatest motivation for the commanding officer of the TEAM, Lieutenant Colonel Daniel Stämpfli, is the shining eyes of the children at a show.
For Lieutenant Colonel Stämpfli, the development the TEAM has gone through in the last 30 years is outstanding – a constant development of the flight program, which is becoming more and more dynamic and spectacular.



Tell

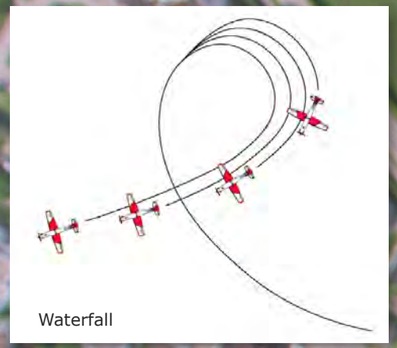
The individual pilots have additional tasks within the TEAM. Turbo 4 Captain Maurice "Moe" Mattle is the spokesman of the TEAM and takes care of incoming emails and inquiries about the TEAM.
New pilots are selected by the entire TEAM and the decision must be unanimous. The appointment to the TEAM is an honor for every pilot and they do their job with a lot of pride and motivation, so the statement of Captain Andri "Gaudi" Gaudenz, who as Turbo 2, is the newest member of the TEAM.
Captain Beda "Beda" Staehelin flies as Turbo 5 in the formation, the aircraft on the far left. The difficulty for him is to compensate for the limited performance of the PC-7 by thinking ahead and reacting early in formation.

All figures in the program are run through on foot on the ground during training, the show is simulated on the ground.
The trademark of the TEAM in the show is the "Flying Diamond" figure, with which each display is opened. It shows great symmetry and the typical "Swiss Precision".
Timing during the show is the main job of Leader Major Cyril "Johnny" Johner – being in the right place at the right time. That is why detailed planning is indispensable and very important for him. Reserves for the unforeseen are therefore important and always part of a day's planning. The weather and the location of the demonstration are decisive factors in the planning. The complete flight program

Super Flèche

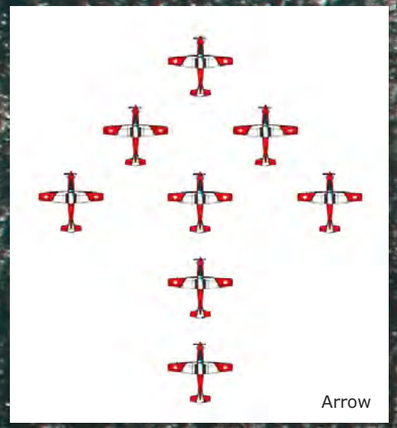
is discussed with all commands and all pilots are mentally prepared for the show by the leader.
For Captain Benjamin "Daffy" Matthey, flying in the PC-7 TEAM as 2nd solo pilot is a return to "original and pure flying". Working in the squadron and flying the F/A-18 is far more complex.
The PC-7 TEAM is a great challenge for him which requires great trust in the pilots and the aircraft.

In terms of team spirit and flying in formation, he learned a lot from being part of the TEAM.
Captain Alain "Fondue" von Büren is the 1st solo pilot and describes the transition from the preparation phase to the flight phase:
The pilot's work before the demonstration begins with checking all systems: fuel, electronics, navigation, and communication systems – everything is checked to make sure that the aircraft is 100% ready for the show and flight. After the system check, the cockpits are closed and the turbines are started. After rolling off, every pilot has to give 100%.
Captain Matthias "Nemo" Grossen, the second lead (Turbo 9) describes the phase before the show in the air very impressively. After starting in three groups, the aircraft form a tight formation called Picco. Then, the distances between the aircraft are increased and the instruments in the cockpit are checked again, followed by the smoke system. During the flight, the pilots work very hard to keep the respective positions exactly. Flying with autopilot is impossible.
During the show, the solo pilot demonstrates the capabilities of the PC-7 in a very dynamic program. He flies very tight turns with very high loads. The climax for the soloist is flying through the "Tunnel".
The formation "Grande" forms the end of the show. The PC-7 TEAM is returning to the base as a Flying Diamond. There is also time to take a quick look from the cockpit and enjoy the surroundings.
The mood after landing is very relaxed and any deficiencies in the performance are discussed in the debriefing.
It is fantastic to see the PC-7 TEAM in action and hopefully, this show can be admired for a long time to come, as it stands for the typical Swiss precision and the high level of the Swiss Air Force.



Waterfall

Vulcan



Arrow

The PC-7 Team in *Flying Diamond* formation

PILATUS PC-7 TURBO TRAINER

Field of operations	Basic training, aerobatics, formation and instrument flight
Construction	All metal low-wing construction with tandem seating cockpit
Length, wingspan, height	9.77 m, 10.40 m, 3.23 m
Maximum take-off weight	2,100 kg
Fuel capacity	470 L
Engine	Pratt & Whitney PT6A-25A Turbine
Performance	550 PS
Propeller	Hartzell three-blade, diameter 2.36 m
Maximum speed	270 kts, 500 km/h
Maximum flight altitude	25,000 ft / 7,620 m above sea level
Endurance	3 h 30 min
Range	780 NM, 1,440 km
g loads	+6 / -3 g

PC-7 TEAM 2021

Back row, from left: Capt. Matthias "Nemo" Grossen, Capt. Benjamin "Daffy" Matthey, Mai. Cyril "Johnny" Johner, Capt. Alain "Fondü" von Büren, Capt. Maurice "Moe" Mattle.

Front row, from left: Capt. Christian "Sassel" Savary, Capt. Beda "Beda" Staehelin, Capt. Andri "Gaudi" Gaudenz, Capt. Marius "Pnö" Egger.

***Photo** Swiss Aifr Force*

FALCON LEAP 2021

TEXT: JORIS VAN BOVEN & ALEX VAN NOIJE
IMAGES: JORIS VAN BOVEN & ALEX VAN NOIJE UNLESS STATED

The Dutch 11th Airmobile Brigade of the Royal Netherlands Army organized the international exercise FALCON LEAP. The unit specializes in the rapid deployment of troops by air, and for this, it practiced the so-called cargo drops. With the tactical C-130 *Hercules* transport aircraft of the 336 Squadron of the Royal Netherlands Air Force and international partners, loads were dropped over the Marnewaard (Netherlands), the Schaffen training areas (Belgium) and Deelen Air Base (Netherlands).

In total, about 80 container delivery systems and one heavy load were dropped. This was done in collaboration with American (C-130 *Hercules*), Polish (Casa C295M), and Italian (C-130 *Hercules*) colleagues. FALCON LEAP provided the opportunity to train together and become familiar with each other's equipment and procedures. A possible airborne operation nowadays always takes place in collaboration with coalition troops. Interoperability, using the same procedures and working methods, is then essential. The hermetically sealed 'delivery container' is very suitable for providing poorly accessible troops with vulnerable items such as food or ammunition. This also applies to relief supplies to people in a disaster area.

During FALCON LEAP, a so-called cross-loading was done for the first time. Dutch payloads were dropped from a Polish C-295M transport aircraft. A heavy load (more than 1,000 kilograms) was also dropped for the first time, led by American soldiers. Being able to drop such loads broadens the unit's deployability. In the future, the Airmobile Brigade wants to add this way of deployment to its operational 'toolbox'. In the second week of the exercise, the focus was on parachute drops of soldiers on the Ginkelse Heide, Heteren, Houtdorperveld, Renkum, Marnewaard and the Hechtelse Heide (Belgium). The second week of the exercise revolved around parachute drops by soldiers on Ginkelse Heide, Heteren, Houtdorperveld,

Parked on the ramp at Eindhoven Air Base are three U.S. Air Force (USAF) C-130J-30 *Hercules* assigned to 317 AW at Dyess AFB, Texas and one Royal Netherlands Air Force (RNLAF) C-130H *Hercules* of 336 Squadron.

Paratroopers are boarding the RNLAF C-130H *Hercules* at Eindhoven AB.

Takeoff-run of a RNLAF CH-130H *Hercules*.

▲▼ U.S. Army CH-47F assigned to 2nd Battalion, 1st Combat Aviation Brigade (2-1st AVN)

Czech Air Force Mi-17 assigned to 243.vrl ▲▼

Photo *Danny Reijnen*

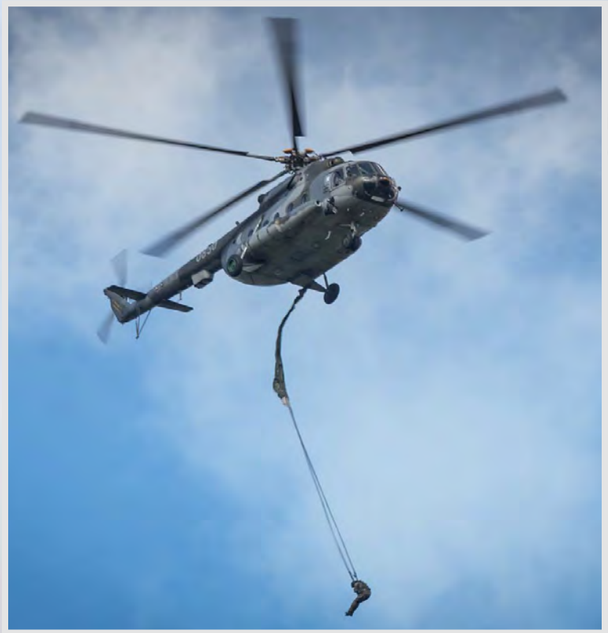


Photo *Danny Reijnen*

Photo *U.S. Army 49th Public Affairs Det.*

Renkum, Marnewaard (all in the Netherlands) and Hechtelse Heide (Belgium). Also, for the first time, soldiers were practicing airdrops from a helicopter (two American CH-47 *Chinooks* and one Czech Mi-17 *Hip*).

FALCON LEAP is organized by the 11th Airmobile Brigade. The participating parachute units joined from Belgium, Czech Republic, France, Germany, Great Britain, Greece, Italy, Poland, Portugal, and the USA. FALCON LEAP coincides with the annual commemoration of Operation Market Garden in Ede. The 11th Airmobile Brigade, the 336 Squadron, and the international partners supported the commemoration with a paratrooper drop on 18 September. This paradrop was executed at the same locations near the Arnhem bridge as back in 1944.

Photo *U.S. Army 49th Public Affairs Det.*

Photo *U.S. Army 49th Public Affairs Det.*

Photo *Danny Reijnen*

Photo *Danny Reijnen*

Italian Air Force KC-130J of 2° Gruppo at Pisa AB **(top left)**, Polish Air Force C235M of 8.BLTr (13.el) at Kraków/Balice AB **(top right)**, and two U.S. Air Force 130J of 317 AW at Dyess AFB **(above)**.

Two USAF and one RNLAF C-130 *Hercules* return to Eindhoven AB at sunset.

MEETING AÉRIEN INTERNATIONAL D'ALBERT

TEXT: KRIS CHRISTIAENS | **PHOTOS:** KRIS CHRISTIAENS & GERT TRACHEZ

After the 2020 edition was canceled due to the COVID-19 pandemic, a new edition of the Meeting Aérien International d'Albert took place at the Albert-Picardie Airport on 22 August 2021. This airport is located 4 km southeast of the city of Albert in the Picardy (Picardie) region of northern France. The Meeting Aérien International d'Albert (also known as Meeting Aérien International de la Somme-Hauts-de-France) became one of the largest air shows in northern France in recent years with numerous civil and military participants from France and beyond.

Despite the predicted bad weather conditions, the weather during the airshow turned out to be very good, making this event more than a success.

Despite the COVID-19 measures still in force, the organizers of this airshow managed to get some impressive participants from the French Air Force such as the Airbus A400M Tactical Demo, the Patrouille Requin Mike with their two Rafale fighter jets, and the famous Patrouille de France. In addition, a large military delegation from the Belgian Air Force was also present during this airshow with their Red Devils formation team, the A109 helicopter demo team, and the F-16 'Dark Falcon' display. Fans of biplanes and warbirds also had a great time during this airshow as various aircraft from the First World War or the Pacific War were on display. Some of the most beautiful and impressive warbirds were the Nieuport 28 biplane fighter, the Vought F4U Corsair carrier-based fighter-bomber, the Boeing-Stearman biplane, and a Fokker Dr.1 triplane. Another beautiful old aircraft that gave a demonstration during this airshow was the Dassault MD 315 Flamant light twin-engined transport airplane, built shortly after the Second World War for the French Air Force. Because the Albert-Picardie Airport is located in the region of the Battle of the Somme, the demonstration of aircraft of the First World War had a special significance.

In addition to the military participants and old aircraft, various civilian formation teams could also be admired during this airshow, such as the Belgian Victors with their four Piper PA-28 aircraft, the French

It is always impressing to see a helicopter like the A109 deploying all of its flares at night.

Yako Team with their Yak 52 and Yak 18T aircraft, and the French Patrouille Sparflex with their Albatros L39 jets. During the airshow, an old Antonov An-2 also brought paratroopers from the French Air Force up to a few kilometers altitude, after which they gave a beautiful demonstration.

Just like in 2019, a beautiful sunset show was also organized during this edition on Saturday, 21 August. During this sunset show, a limited group of photographers could enjoy the flying skills and demonstrations of the Airbus A400M Tactical Demo, the L'équipe de Voltige with their Extra 300 aircraft, and the A109 helicopter and F-16 'Dark Falcon' display of the Belgian Air Force. Both the A109 helicopter and the F-16 'Dark Falcon' deployed flares during their demonstrations at sunset, which resulted in spectacular scenes. At the end of the sunset show, the audience could enjoy the beautiful demonstration of the French Patrouille Carnet de Vol and accompanying fireworks.

French Air Force Rafale B assigned to EC01.004 *Gascogne* at Base Aérien BA 113 Saint Dizier.

French Air Force A400M assigned to ET01.061 *Touraine* at BA123 Orléans performing a tactical demo.

Belgian Air Force F-16 Solo Display 'Dark Falcon'.

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1 Vought F4U-5N *Corsair*, built in 1951.
2 Fokker Dr.1 (Replica).
3 North American AT-6 Texan, built in 1951.
4 Yakovlev Yak-3UPW (Replica).
5 Commonwealth CA-12 Boomerang (Replica).

Main image: Belgian Pitts Team.
Left inset: YAK Team with Yak-18T and 2 x Yak-52 (from left).
Right inset: The Victors Piper PA-28 team.

Dassault MD-311 Flamant.

The French Air Force Extra 330SC aerobatic plane is certified to a load factor of +/- 10 g.

French Air Force Rafale B of EC01.004.

Belgian Air Force F-16AM with special paint scheme to celebrate the 350 (F) Squadron's 80th anniversary.

Belgian Air Force F-16 Solo Display 'Dark Falcon' takes off for the sunset show.

CAP 222 of the *Patrouille Carnet de Vol*.

EART AND OCEAN SKY 2021

TEXT: DAVID MAZÓN GÓMEZ | **PHOTOS:** DAVID MAZÓN GÓMEZ AND JUAN MIGUEL ANATOL UNLESS STATED

Spanish Air Force Eurofighter EF2000 of Ala 14

EUROPEAN AIR REFUELING TRAINING 2021

European Air Refueling Training (EART) offers dedicated training opportunities to the tanker crews, focusing on similar and dissimilar "multi-tanker formation" and "tanker-to-tanker" rendezvous procedures. The exercise also emphasized on threat reactions and retrograde procedures. EATC also organized parallel cross-national maintenance activities. This year's seventh edition of EART took place in combination with the Spanish-Greek fighter exercise "Ocean Sky", held at Gando AB in Gran Canaria, the third-largest island of the Spanish Canary Islands in the Atlantic Ocean. The European Air Transport Command deployed three tankers to Lanzarote Air Base on the Lanzarote Island, the fourth-largest island of the Spanish Canary Islands. For the first time, the EART tankers were operating from an air base outside of the Netherlands. This was also an EART première for the Airbus A330 MRTT of the Multinational MRTT Unit and the French Air Force and also for the Spanish Air Force's A400M.

Spanish Airbus A400M

This was the first year that Spain participated in the EART exercise. For two weeks a Spanish A400M and its crew were training AAR scenarios with multinational counterparts and under the direction of EATC. EART 2021 offered them opportunities to test the integration of the A400M in a flow of tankers. The EATC experts supported them and investigated new dedicated A400M training opportunities in the air-to-air refueling (AAR) domain.
This was also the first time that an Airbubs A400M participated in EART. The A400M is not a strategic tanker like the Airbus A330MRTT or Boeing KC767. Some nations though use it as a tanker to refuel their fighters in operations. This is the case for instance for Spain or France and Germany.
Currently Spain operates eleven A400Ms of which five are AAR capable and may be equipped with seven sets of PODs and one HDU (Hose Drum Unit). The HDU and CHT (Cargo Hold Tank) configuration will be certified in 2022 by the Spanish Air Testing Center (CLAEX - Centro Logístico de Armamento y Experimentación). The Spanish A400M fleet has flown up to now more than 4,700 hours, whereas 6% are AAR training missions.
Ultimately, in 2023, the Spanish fleet will comprise fourteen A400Ms. Spain plans also to increase the number of AAR capable A400M assets to nine. The current plan is to procure a total of nine sets of PODs, three HDUs, and six CHT's. This will offer a high increase in AAR capability and performance to the Spanish Air Force, in comparision to the old AAR fleet.

Source: EATC

Spanish Air Force A400M of Ala 14 in tanker configuration (one AAR pod under each wing).

Spanish Air Force EF-18M of Ala 46, 462 Esc at GranCanaria AB **(main image, left)** and EF-18M of Ala 15 at Zaragoza AB **(above and right)**.

Photo Martijn Venix

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Photo Martijn Venix

Spanish Air Force Eurofighter EF2000 of Ala 14 at Albacete AB **(1, 2, 3)** and Eurofighter EF2000(T) of Ala 11 at Morón AB **(4)**.

Photo Martijn Venix

Photo Martijn Venix

Photo Martijn Venix

Photo Martijn Venix

Photo Martijn Venix

Spanish Air Force EF-18M of Ala 46, 462 Esc at GranCanaria AB.

Spanish Air Force F/A-18+ of Ala 46, 462 Esc at Gran Canaria AB.

Photo Martijn Venix

A330 MRTT Phénix

This was the first time that French Air and Space Force joined EART with a brand new A330 MRTT Phénix of the Forces aériennes stratégiques (Strategic air command). Two aircrews and a support detachment were deployed to Lanzarote airbase and trained AAR procedures under the direction of EATC.
During two weeks, planners, aircrews and technicians all enhanced their practice of common procedures and participated in combined operations scenarios. In addition to dedicated tanker training, such as "accompanied let-down" procedures, quick flow AAR and "on-scene commander", the Phénix took part in complex and realistic "Defensive Counter-Air" missions as a high value airborne asset. This is a preparation for high intensity warfare.
Since 2015, France has participated to EART with the KC-135. Multinational trainings, like EART, are essential to prepare air forces to operate together, as they do in Africa or Middle East. In addition, EART also facilitates the certification process between tanker and receiver aircraft. Training with the new state-of-the-art aircraft, the A330 MRTT Phénix, France re-confirms its intent to contribute to interoperability and to foster European military cooperation, as well as its determination to its partners.
The 31st AAR and strategic transport wing (EARTS) is currently operating five A330 MRTT Phénix from Istres airbase. In 2023, seven more aircraft will be delivered and three additional assets are expected to arrive at a later stage. These birds replace aged C-135FR tankers and A310/A340 strategic transport aircraft. As multirole aircrafts they will cover a broader spectrum of missions, participating to nuclear deterrence, power and force projection, aeromedical evacuations and soon airborne command and control.

Source: EATC

Photo Martijn Venix

French Air Force Airbus A330MRTT of ERVTS 01.031 at Istres AB

French Air Force Airbus A330MRTT of ERVTS 01.031 at Istres AB.

Photo Martijn Venix

Royal Netherlands Air Force Airbus A330-243MRTT of the Multinational MRTT Unit (MMU) at Eindhoven AB.

Category	Type of mission
Three periods of visual combat scenarios	One-on-one (1vs1)
Nine **main** missions (Main Wave in the morning) with up to 30 fighters involved.	• Defense of a No-Fly Zone • Recovery of downed personnel • Air defense and air control • Defense of High Value Air Resources.
18 **minor** missions (Shadow Wave in the afternoon) with up to 14 aircraft involved in two different simultaneous missions.	Same scenarios as above

OCEAN SKY 2021

OCEAN SKY is an international exercise specialized in advanced training of air-to-air missions. It is carried out in the airspace of the Canary Islands, Spain, in the area called Delta 79. This year's edition of OCEAN SKY took place from 15 to 29 October. This exercise has been conducted annually since 2004, known as DACT (Dissimilar Air Combat Training). It started as an exercise with the Spanish Air Force as the only participant. Over the years it has grown from a national exercise to an international one.

OCEAN SKY 2021 participants were the Spanish Air Force and the Hellenic Air Force. A total of about 50 aircraft conducted around 500 sorties during 27 missions. The fighter jets were deployed to Gando AB (Gran Canaria island) and support aircraft at the Lanzarote AB (Lanzarote island). Air-to-air refueling was provided by the EATC (European Air Transport Command) which linked its annual EART exercise with OCEAN SKY.

The objective of OCEAN SKY is to train the capabilities of the Command and Control structure of the Spanish Combat Air Command (MACOM) in an air superiority scenario to increase the air-to-air combat readiness of all participating units.

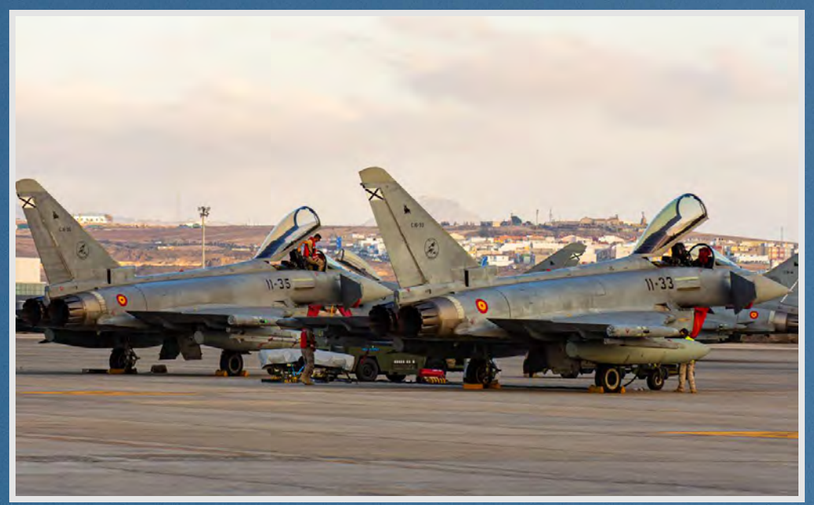
OCEAN SKY consists of four phases:

1. 'Generation and deployment of forces' to carry out all personnel and force preparation tasks, as well as the deployment of participating units.

2. A theoretical phase, which includes a series of 'Force Integration Conferences and Briefings' aimed at learning about the aircraft participating in the exercise, flight safety, combat tactics, etc., in order to complement flight training.

3. A practical phase with DACT-type missions in a wide variety of scenarios and with a large number of aircraft, that allow increasing interoperability between the different participating units, as well as evaluating and improving the tactics, techniques, and procedures used in this type of operation.

4. A final phase of 'retreat'.



top, left to right: Spanish Air Force EF-18M of Ala 12; F/A-18+ of 46 Ala; 462 Esc, and EF-18M of Ala 12; **bottom row**: EF2000 of Ala 11.

Spanish Air Force EF-18M of Ala 12 returning to Gando AB.

Spanish Air Force EF2000 of 11 Ala taking off.

The Hellenic Air Force participated in the exercise with three F-16C Block 52+ assigned to 343 Mira at Chania AB **(right inset)** plus a single F-16D Block 52+ assigned to 337 Mira at Larisa AB **(left inset)**.

NATO deployed one E-3A AWACS to Gando AB for the exercise. They flew three sorties while providing air command and control by delivering airspace surveillance and early detection of airborne threats.

Search and rescue (SAR) services were provided by the Gando AB based 802 SAR squadron with their AS332B *Super Puma* helicopters and the CN235MPA aircraft.

Not participating in OCEAN SKY but seen at Gando AB:
Airbus A310-304 of Grupo 45, 451 Esc based at Torrejón AB **(top)**, CN235-300MPA of the Salvamento Maritimo (Coast Guard) for long distance Search and Rescue missions **(left)**, and CASA 212-100 of 721 Esc, known as Escuela Militar de Paracaidismo (Paratroop school) at Alcantarilla AB **(right)**.

ANATOLIAN PHOENIX

ARTICLE WOLFGANG JARISCH AND PETER THIVESSEN

After a year of crisis and uncertainty, the world turned back in small steps towards normality and the Turkish Armed Force invited to the international CSAR (Combat Search And Rescue) exercise ANATOLIAN PHOENIX 2021, held from 24 May to 4 June 2021 at the Anatolian Eagle training center at the 3rd Main Jet Base Konya.

ANATOLIAN PHOENIX is a tactical Combined Joint Task Force (CJTF) exercise to prepare aircrews and all involved personnel for combat. The main objective of ANATOLIAN PHOENIX is to exercise tactics, technics, and procedures to increase the proficiency and the level of standardization for ground-assisted joint air missions. The Konya Range offers the perfect setting for this kind of exercise due to the realistic threat environment.

The following scenarios were mainly trained during these two weeks:

- Close Air Support (CAS)
- Medical Evacuation (MEDEVAC)
- Parachute Jumping
- Convoy Protection
- Combat Search and Rescue (CSAR)

As in previous years, the Turkish Air Force invited the international press to report on Anatolian Phoenix 2021. Senior officials from the host country and the participating countries were also invited to the media day to witness the action on Konya AB and at the Konya Range. After a short briefing, the guests had the opportunity to go to the flight line to take photos of the crews and their aircraft.

Turkish Aerospace Industries (TAI) took advantage of this event and presented the visitors a large portfolio of its products. The focus was on products in the field of CSAR. However, visitors were also able to learn more about future projects from TAI. In addition to the T-129 "ATAK" combat helicopter and the combat-proven UAV system "ANKA-S", which are already in successful operation, TAI informed about the planned T-625 "Gökbey" multirole helicopter family and the development of the new 5+ generation multirole fighter aircraft, currently called "Turkish Fighter".
In addition, the new version of the advanced training and light combat aircraft, HüRKUS HYEU, has been presented to the public for the first time. TUSAŞ Aircraft Deputy General Manager Product Director Nezaket Güneri Orbay and Fixed Wing Flight Test Training Manager Barbaros Demirbaş held a press conference on this modified version of the aircraft right on the apron. "In the near future, there should be six versions of this type available for a wide variety of missions", Orbay said.

Moreover, the Turkish Air Force had some surprises in store for the press day. After a long period of rest due to the pandemic crisis, the national display team of the Turkish Air Force, the "Turkish Stars" were showing an impressive flying display. No less impressive was the display of the F-16 "Solo Turk". Mostly with the afterburner engaged, the F-16 pilot showed the audience, that the "old" F-16 still is a capable and powerful fighter.

In the afternoon, the visitors were able to observe the various operational scenarios at the Konya range.

Formation of all helicopters participating in the exercise.

PARTICIPANTS

	Aircraft	Team
Azerbaijan	2 X Mi 17	1 x CSAR Team
Qatar	1 x C-130 1x C-17 2 x AW 139	1 x CSAR Team
Slovakia		1 x JTAC Team
Turkish Republic of North Cyprus	1 x AS 532	1 x CSAR Team
Turkish Army	1 x AS 532 2 x T-129 ATAK	1 x CSAR Team
Turkish SOF	1 x S-70	1 x Team
Turkish Navy		1 x SAT Team
Turkish Gendarmerie	1 x S-70	1 x Team
Turkish Air Force	1 x E-7T 6 x F-16 2 x AS 532 1 x CN235 1 x ANKA-S	3 x CSAR Team 1 x JTAC Team

They were able to convince themselves of the high level of training of the participating teams. Both, the flying units and the ground forces transported to the combat zones, presented what they are trained for: the rescue of aircrews from the enemy territory with the support of combat helicopters to secure the area. Forward Air Controllers at the control tower, connected with the F-16's Sniper pods, guided the inbound F-16s to attack designated targets. Three live bombs were dropped and precisely destroyed the targets. A-129 ATAK helicopters constantly secured the battle area, where the 20mm turreted gun with live ammunition came into use.

When all crews were rescued from the combat area, the helicopters quickly departed, to be followed by another highlight, the flight demonstration of the powerful HüRKUS HYEU.

The grand finale was a flyby of a formation of all twelve helicopters participating in the exercise at the control tower.

The Aviation Magazine would like to thank the Turkish Embassies in Austria and Germany and the Turkish Air Force Public Affairs Office Headquarters in Ankara for the perfect organization, and especially the AETC (Anatolian Eagle Training Center) for their fantastic support and hospitality on base.

A Turkish F-16 drops an unguided bomb during a close air support (CAS) demonstration.

Sikorsky S-70A-28D *Black Hawk* multi-misssion helicopter, Eurocopter AS532UL *Cougar* medium transport helicopter, and TAI T129B ATAK advanced attack and tactical reconnaissance helicopter (left to right) parked on the ramp.

Azerbaijan participated with two Mi-17V, an improved version of the Mi-8. The Mi-17 can be identified from the Mi-8 by the tail rotor mounted on the left side and the air filters on the turbine's air intakes.

The Turkish Air Force Eurocopter AS532UL *Cougar* assigned to 135 Filo at Konya AB is used for Combat Search And Rescue (CSAR) missions.

Turkish Air Force Eurocopter AS532UL *Cougar's* assigned to 135 Filo at Konya AB.

Turkish Air Force AS532UL *Cougar'* assigned to 135 Filo. The door-gunner with his machine gun is tasked with the suppression of hostile action on the ground against the helicopter approaching the landing zone to deploy extraction forces. This CSAR configured *Cougar* also carries a gunpod attatched to the left side of the fuselage **(main image and left inset)**.

The Hürkuş (Free Bird) is a turboprop aircraft being developed by Turkish Aerospace Industries (TAI) as a new basic trainer and ground attack aircraft for the Turkish Armed Forces. The armed version for close air support missions can carry a weapons load of up to 3,000 kg.

Sikorsky S-70A-28D

The T129 ATAK was developed to meet the Turkish Armed Forces' attack helicopter needs and is optimized for heavy weapon loads and challenging "hot temperature-high altitude" missions.

The T129 has a nose-mounted turreted 20 mm gun (500 rounds) and four wing store stations:

8 x UMTAS® Anti - Tank Missiles		
76 x 70 mm (2.75") Classic Rockets		
48 x 70 mm (2.75") Classic Rockets		
16 x 70 mm (2.75") CIRIT® Guided ATGM Missiles		
8 x STINGER® Air-to-Air Missiles		
2 x Aux Fuel Tanks (294 kg each)		

Sikorsky S-70i *Blackhawk* of the Jandarma Havacilik Komutanliği (Turkish Gendarmerie Aviation Command). This particular airframe was produced by PZL Mielec, since 2007 part of Sikorsky Aircraft Corp.

Qatar Emiri Air Force AgustaWestland AW139 assigned to 20 Squadron at Al Udaid Al-Udeid AB.

A Turkish Gendarmerie Aviation Command Sikorsky S-70i *Black Hawk* followed by a Qatari Emeri Air Force AgustaWestland AW139 on their way to the combat zone.

F-16 *Fighting Falcon* deploying flares.

'Turkish Stars' display team flying the NF-5A/B.

FROM NVA TO LUFTWAFFE

PART 2 HELICOPTERS AND TRANSPORTS

TEXT: RALF PETER WALTER | **IMAGES:** AS STATED

The second part of our photo-report on the aircraft of the German Democratic Republic's Nationale Volksarmee (NVA – National People's Army) covers the helicopters and transport aircraft that were taken over by the (West) German Armed Forces. Some of them were in active service with the Air Force, the Navy, and the Army. However, most of them were stored away and then scrapped or sold to non-military customers or museums. Some also found a new home within the military services of other nations, such as for example the Mi-24 Hind's which were sold to Hungary and Poland.

The following tables show how many aircraft and helicopters were transferred from the NVA to the Bundeswehr (German Armed Forces) in each case:

Type of aircraft	Number transferred
Antonov AN-2	0
Antonov AN-26	12
Let L-410	12
Tupolev TU-134	3
Tupolev TU-154	2
Ilyushin IL-62	3
Zlin Z-43	0

Type of helicopter	Number transferred
Mil Mi-2	25
Mil Mi-8	93
Mil Mi-9	8
Mil Mi-14	14
Mil Mi-24	51

Mi-14BT SAR of Marinehubschraubergeschwader to become 95+09 assigned to Marineflieger-hubschraubergruppe. ***Photo*** *Ralf Jahnke 1990*

Mi-14 *Haze*

▲ Mi-14SAR – 95+09, ex DDR 646. ***Photo*** *Ralf Jahnke*

Mi-14SAR – 95+10, ex DDR 647. ***Photo*** *Ralf Jahnke* ▲

▼ Mi-14PL – 95+08, ex DDR 643. ***Photo*** *Gerhard Lang*

Mi-14SAR – 95+12, ex DDR 653. ***Photo*** *Ralf Jahnke* ▼

The German Navy has taken over eight Mi-14PL ASW and six Mi-14BT mine countermeasures helicopters of NVA Marinehubschraubergeschwader. The Mi-14BTs were converted to Mi-14SAR helicopters. The Mi-14s were assigned to Marinefliegerhubschraubergruppe (MFHsG). In May 1991 the Mi-14PL and in December 1991 the Mi-14SAR were taken out of service.

Mi-8 *Hip*

In the course of reunification, a total of 101 Mi-8 "Hip" helicopters were transferred from the NVA (Nationale Volksarmee – National People's Army) to the German Air Force, German Army, and the German Navy:

- 33 x Mi-8T Utility helicopter, SAR
- 24 x Mi-8PS VIP-transport helicopter, SAR
- 36 x Mi-8TB Assault helicopter

The helicopters were assigned to:

- Lufttransportgruppe (LTGrp) at Brandenburg-Briesst,
- Heeresfliegerstaffel Ost (HFS Ost) at Army Airfield Cottbus,
- Heeresfliegerstaffel 70 (HFS 70) at Army Airfield Cottbus,
- Heeresfliegerstaffel 80 (HFS 80) at Army Airfield Basepohl,
- Marinfliegerhubschraubergruppe (MFHsGrp) at Parow, and
- Flugbereitschaft des Bundesministeriums der Verteidigung (FBS MBVg) at Köln-Bonn Airport.

Later, two Mi-8T's were handed over to the police and three more Mi-8TB's to the Deutsche Rettungsflugwacht.

Top: Mi-8TB – 93+69 (ex DDR 134) assigned to HFS Ost. ***Photo*** *Ralf Jahnke 1991*
Above left: Mi-8PS – 93+51 (ex DDR 914) assigned to FBS BMVg. ***Photo*** *Gerhard Hartmann 1994*
Above right: Mi-8T – 94+22 (ex DDR 912) assigned to LTGrp. ***Photo*** *Klaus Faber via Gerhard Lang 1991*

Top left: Mi-8T SAR of Transporthubschraubergeschwader 34 (THG-34) to become 93+12 assigned to Lufttransportgruppe (LTGrp). ***Photo*** *Ralf Jahnke 1990*

Top right: Mi-8T of THG-34 to become 93+04 assigned to LTGrp. ***Photo*** *Ralf Jahnke 1990*

Above: Mi-8T SAR of THG-34 to become 93+03 assigned to Marinefliegerhubschraubergruppe (MFHsGrp). ***Photo*** *Gerhard Hartmann 1990*

Mi-8PS *Hip*-C

▲ Mi-8PS – 93+45 (ex DDR 993) assigned to LTGrp. ***Photo*** *Ralf Jahnke 1994*

Mi-8PS – 93+60 (ex DDR 739) assigned to HFS Ost. ***Photo*** *Ralf Jahnke 1991* ▲

▼ Mi-8PS – 93+55 (ex DDR 735) assigned to LTGrp. ***Photo*** *Gerhard Hartmann 1992*

Mi-8PS – 93+80 (ex DDR 732) assigned to HFS 80. ***Photo*** *Ralf Jahnke 1991* ▼

Mi-8PS *Hip-C*

▲ Mi-8PS – 93+50 (ex DDR 911) assigned to LTGrp. ***Photo*** *Gerhard Hartmann*

Mi-8PS – 93+51 (ex DDR 914) assigned to LTGrp. ***Photo*** *Ralf Jahnke 1991* ▲

▼ Mi-8PS – 93+52 (ex DDR 945) assigned to LTGrp. ***Photo*** *Ralf Jahnke 1991*

Mi-8PS – 93+53 (ex DDR 950) assigned to LTGrp. ***Photo*** *Gerhard Hartmann 1990* ▼

Mi-8TB *Hip-C*

1 Mi-8TB – 93+86 (ex DDR 764) assigned to HFS 80.
2 Mi-8TB – 93+89 (ex DDR 937) assigned to HFS 80.
3 Mi-8TB – 93+74 (ex DDR 936) assigned to HFS Ost.
4 Mi-8TB – 93+68 (ex DDR 132) assigned to HFS Ost.
5 Mi-8TB – 93+90 (ex DDR 939) assigned to HFS 80.
6 Mi-8TB – 93+83 (ex DDR 750) assigned to HFS 80.

All photos *Ralf Jahnke 1991*

▲ Mi-8T – 93+50 (ex DDR 911) assigned to FBS BMVg. ***Photo*** *Ralf Jahnke 1993*
▼ Mi-9 – **Operations Command** helicopter. ***Photo*** *Ralf Jahnke 1993*

Mi-8PS – 93+39 (ex DDR 966) assigned to HFS 80. ***Photo*** *Ralf Jahnke 1993* ▲
Mi-8PS – 93+80 (ex DDR 732) assigned to HFS 80. ***Photo*** *Ralf Jahnke 1991* ▼

German Navy *Hips*

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1 Mi-8PS, 93+38, ex DDR serial 962. ***Photo*** *Ralf Jahnke 1992*
2 Mi-8PS, 93+41, ex DDR serial 975. ***Photo*** *Ralf Jahnke 1992*
3 Mi-8T, 94+12, ex DDR serial 831. ***Photo*** *Gerhard Hartmann 1994*
4 Mi-8T, 94+04, ex DDR serial 807. ***Photo*** *Ralf Jahnke 1992*
Main image Mi-8T, 94+03, ex DDR serial 907. ***Photo*** *Ralf Jahnke 1991*

German Navy Mi-8T, 94+14, ex NVA serial 832.
Photo *Gerhard Hartmann 1995*

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1 Mi-8T, 93+17, ex DDR serial 931. ***Photo*** *Ralf Jahnke 1994*
2 Mi-8T, 94+24, ex DDR serial 985. ***Photo*** *Ralf Jahnke 1992*
3 Mi-8TB, 93+64, ex DDR serial 128. ***Photo*** *Gerhard Hartmann 1990*
4 Mi-8T, 93+10, ex DDR serial 924. ***Photo*** *Klaus Faber via Gerhard Lang 1991*
Main image Mi-8T, 94+23, ex DDR serial 913. ***Photo*** *Gerhard Hartmann 1994*

Fly Out *Hips*

Top row: Mi-8PS with special fly-out color scheme on the occasion of the disbandment of the MFHsGrp.

Above: This Mi-8T received a special color scheme to mark the end of the LTGrp.

All photos *Ralf Jahnke 1994*

The Heeresfliegerstaffel 80 (HFS 80) at Basepohl AB painted a Mi-8TB in this interesting scheme to celebrate the units disbanding. ***Photo*** *Ralf Jahnke 1994*

Mi-2 *Hoplite*

▲ Mi-2 – 94+82 (ex DDR 381) assigned to LTGrp. ***Photo*** *Klaus Faber via Gerhard Lang 1991*

Mi-2 – 94+56 (ex DDR 310) assigned to LTGrp. ***Photo*** *Ralf Jahnke 1992* ▲

▼ Mi-2 – 94+63 (ex DDR 393) assigned to LTGrp. ***Photo*** *Ralf Jahnke 1992*

Mi-2 – 94+50 (ex DDR 301) assigned to LTGrp. ***Photo*** *Klaus Faber via Gerhard Lang 1991* ▼

Twenty-five Mi-2 light utility helicopters were taken over from the NVA and initially assigned to LTGrp of which five were later transferred to the Deutsche Rettungsflugwacht (DRF). The DRF provided SAR services in the eastern part of Germany. An additional 13 Mi-2 were taken over by the police in Berlin (two), Saxony (three), Saxony-Anhalt (two), and Brandenburg (six).

Mi-24D – 96+12 (ex DDR 524) assigned to HFS Ost. Each stub wing carries a 2P32M/K-4U under the endplate pylons at the wing tips with two launch rails for 9M17P *Falanga* (AT-2 *Swatter*) missiles and at the inner pylon an UB-32A-24 unguided rocket missile launcher. ***Photo*** *Ralf Jahnke 1991*

The German Army received 39 Mi-24D and 12 Mi-24P attack helicopters which were assigned to Heeresfliegerstaffel Ost (HFS Ost) and Heeresfliegerstaffel 70 (HFS 70) at Army Airfield Cottbus. In April 1991, Mi-24P with serial 96+51 (ex DDR 512) was transferred to the U.S. Army and registered as 92-2270. In 1995, six Mi-24P's and 14 Mi-24D's were sold Hungary. Also in 1995, Poland acquired 18 Mi-24D's.

▲▼ Mi-24P – 96+41 (ex DDR 358) assigned to HFS 80. ***Photo*** *Ralf Jahnke 1991*

Mi-24D – 96+23 (ex DDR 412) assigned to HFS 80. ***Photo*** *Ralf Jahnke 1993* ▲
Mi-24D – 96+12 (ex DDR 524) assigned to HFS Ost. ***Photo*** *Ralf Jahnke 1991* ▼

Left: Mi-24P – 98+34 (ex DDR 442 / ex 96+47) assigned to WTD 61 in 07/1992 from HFS 80. ***Photo*** *Gerhard Lang 1993*

Right: Mi-24P – 96+44 (ex DDR 415) assigned to HFS 80. ***Photo*** *Ralf Jahnke 1991*

Left: Mi-24P – 98+33 (ex DDR 357 / ex 96+40) assigned to WTD 61 in 07/1992 from HFS 80. ***Photo*** *Gerhard Lang 1991*

Right: Mi-24P – 96+49 (ex DDR 464) assigned to HFS 80. ***Photo*** *Ralf Jahnke 1993*

Left: Mi-24P – 96+47 (ex DDR 442) assigned to WTD 61 to become 98+34 and already carrying the WTD 61 marking below the rear cockpiti. ***Photo*** *Gerhard Lang 1991*

Right: Mi-24P – 96+04 (ex DDR 424) assigned to HFS Ost. ***Photo*** *Gerhard Hartmann 1990*

Mi-24P – 96+45 (ex DDR 422) with a special color scheme on the occasion of the HFS 80 fly-out. ***Photo*** *Ralf Jahnke 1993*

Two of three IL-62M's that were transferred to the Luftwaffe. All tthree of them were assigned to FBS BMvg.

11+20 is ex DDR 108.
Photo *Gerhard Lang*

and

11+22 is ex DDR 136
Photo *M. Riedesser via Gerhard Lang 1992*

Tu-134A *Crusty* and Tu-154M *Careless*

▲ Tu-134A – 11+12 (ex DDR 193) and 11+11 (ex DDR 184). ▲
▼ Tu-154M – 11+02 (ex DDR 128) and 11+01 (ex DDR 114). ▼
Photos *Klaus Faber via Gerhard Lang 1991*

The FBS BMVg operated three ex DDR Tu-134A and two ex DDR Tu-154M.

All 12 An-26 of the NVA were assigned to Transportfliegerstaffel 24 at Dresden-Klotzsche airfield and transferred to LTG 65. They were in operational service until 1994 and some of the aircraft flew humanitarian relief missions in Ethiopia and Mozambique.

An-26M – DDR 373 to become 52+10 **(main image)** and An-26T – DDR 367 to become 52+07 **(insets).** ***All photos*** *Ralf Jahnke 1990*

An-26S – 52+12, ex DDR 384 **(main image and right inset)** and An-26T – 52+01, ex DDR 371 **(left inset).** ***All photos*** *Ralf Jahnke 1991*

Let L-410 *Turbolet*

▲ Let L-410UVP of Verbindungsstaffel 14 to become 53+16 with FBS BMVg. ***Photo*** *Gerhard Lang 1990*
▼ Let L-410UVP – 53+12 (ex DDR 320) assigned to FBS BMVg. ***Photo*** *Ralf Jahnke 06.1994*

Let L-410UVP of Verbindungsstaffel 14 to become 53+10 with FBS BMVg. ***Photo*** *Ralf Jahnke 1990* ▲
Let L-410UVP – 53+12 (ex DDR 320) assigned to FBS BMVg. ***Photo*** *Ralf Jahnke 04.1994* ▼

The Let L-410UVP is a training, liaison and light transport aircraft. All 12 examples of this STOL aircraft were initially transferred to the LTG 65. Later, four were transferred to the FBS BMVg.

Let L-410UVP – 53+11 (ex DDR 319) assigned to FBS BMVg. ***Photo*** *Ralf Jahnke 1991*

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These aircraft never made it into the inventory of the German Armed Forces:

1, 4 Antonov An-2. ***Photos*** *Ralf Jahnke 1990*

2 Antonov An-14. ***Photo*** *M. Riedesser via G. Lang 1993*

3, 5 Zlin Z-43. ***Photo*** *Ralf Jahnke 1990*

60 YEARS FRECCE TRICOLORI

INTERNATIONAL AIRSHOW

ARTICLE: SALVATORE ROCCELLA

The Freccee Tricolori with "smoke on" in the national colors in a spectacular flyby at sunset.

Two days of exhibitions, four foreign aerobatic teams, numerous historic aircraft, and the main assets of the Italian Air Force on display, on the ground and in flight, to celebrate the 60th anniversary of the National Aerobatic Team. An event expected for over a year at the Italian air base Rivolto, in Friuli-Venezia Giulia, home to the 2° Stormo (2 Wing) and the 313° Gruppo Addestramento Acrobatico, known as the Frecce Tricolori, the Italian national aerobatic team (Pattuglia Acrobatica Nazionale – P.A.N.).

The opening day was characterized by the presence of the Head of State Sergio Mattarella, who arrived at the Friuli airport on board an Airbus A319CJ escorted by two Eurofighters, President of the Senate Maria Elisabetta Alberti Casellati, the Secretary of Defense Lorenzo Guerini, and numerous other institutional authorities. The second day was dedicated to other VIPs: Former members of the Frecce Tricolori and aerobatic teams that were representing Italy before the Frecce Tricolori were established and the Pagani Huayra Tricolore ultra high-performance car. The car was designed as a special tribute to the Frecce Tricolori. Only three of them will be built and sold at a base price of € 5,500,000 + VAT.
The common thread for both days was the passion and strong attachment to the Air Force and the Tricolor by the thousands of fans and members of the Frecce Tricolori Clubs who, in an orderly manner, crossed the gates of the military base from the early hours in the morning of the two days of the airshow.
A special birthday for the National Aerobatic Team, therefore, but also an opportunity to showcase the peculiarities of numerous assets of the Armed Forces and the skills that the crews can perform at the service of the country: From search and rescue to national air defense, to transport, essential in the historical and complex airlift recently carried out for the repatriation of thousands of people from Afghanistan. Many military aircraft were presented at the airshow. Among these were the jewels of the national aeronautical industry: the HH-139A and HH-101A helicopters, the T-346A transonic advanced jet trainer and light combat aircraft, Eurofighter and C-27J aircraft of the Experimental Flight Department, protagonists of the spectacular technical presentations in flight.
Apart from the displays of the aerobatic teams (Frecce Tricolori, Midnight Hawks from Finland, Patrulla Aguila from Spain, Patrouille Suisse from Switzerland, and the Polish Orlik Team) and formation and solo displays, the Italian Armed Forces presented their capabilities in a 30 minutes complex tactical event. This demonstration consisted of different tactical/operational scenarios: Slow mover intercept, air-to-air refueling, tactical airlift, SEAD (Suppression Enemy Air Defenses) and DEAD (Destruction of Enemy Air Defenses), CAS (Close Air Support), and CSAR (Combat Search And Rescue).
The absolute highlight was the demonstration of the F-35, both in the A and B versions, which left the spectators breathless with their performances.
At the end of both days, the Frecce Tricolori flew their 25-minute display. Everyone – including the pilots of the other display teams present – was holding their breath and never took their eyes (and cameras) from the sky, a unique spectacle that only the 10 MB339PAN of the National Aerobatic Team can offer.

The aircraft received special tail markings representing the Italian Air Force display teams that preceeded the Frecce Tricolori.

Left: The Freccee Tricolori in a tight formation with all nine aircraft. **Right:** The warm twilight during sunset gives the display an extraordinary atmosphere.

Team Orlik form Poland with PZL-130
Patrulla Águila from Spain with CASA C-101

Patrouille Suisse from Switzerland with F-5's.

Midnight Hawks from Finland flying the BAe Hawk.

Italian Air Force F-35A parked in front of its shelter and during the Air Power demo with open bomb bays loaded with GBU12 *Paveway II* bombs.

Main image: The "Formazione Legend" (Formation of Legends") presented Italian Air Force trainers of the past and present: a T-6 Texan, Fiat G-46, MB-326K, MB-326E, SF-260EA, S-208M, MB-339A, MB-339CD, and a T-346A.
Inset: Aermacchi MB-326K (right) and Aermacchi MB-326E (left).

Top: F-35B with two HH-101A in the background.
Left: HH-101A of the 21° Gruppo, based at Grazzanise AB.
Right: AW139 carrying the Italian flag.

▲ F-35B of the 13° Gruppo at Amendola AB.
▼ E-550A of the 71° Gruppo at Pratica di Mare AB.

MB-339CD of the 213° Gruppo at Lecce AB. ▲
"Formazione Legend" on the taxiway. ▼

Two AMX-ACOL of the GEA 51° Stomo at Istrana AB. ▼

Main image and top inset: F-2000A *Typhoon* (Eurofighter) of the 132° Gruppo at Istrana AB. **Inset left:** TF-2000A *Typhoon* of the 904° GEA at Grosset AB with GBU-48 *Enhanced Paveway*.

▲ KC-767A of the 8° Gruppo at Pratica di Mare AB.
▼ C-27J of the 98° Gruppo at Pisa AB.

Polish Air Force C235M of the 8.BLTr (13.el) at Kraków AB. ▲
KC-130J of the 50° Gruppo at Pisa AB. ▼

Pagani Huayra Tricolore ultra high-performance car and Frecce Tricolor MB339 PAN aircraft.

The Freccee Tricolori with the final break at the end of its display.

EXERCISE BALTIC HUNTER AND WEAPONS INSTRUCTOR COURSE

TEXT: RALF JAHNKE AND MATHIAS LEISCHNER
PHOTOS: RALF JAHNKE AND MATHIAS LEISCHNER UNLESS STATED

From 16 to 26 August 2021, the German Air Force held the major exercise BALTIC HUNTER 2021" at its Laage AB. All Air Force tactical wings were involved in the exercise and a total of 12 Tornados and 19 Eurofighters were deployed to Laage AB. The base is home to the Taktisches Luftwaffengeschwader 73 "Steinhoff" (TaktLwG 73 "S" - Tactical Air Wing 73 "Steinhoff") equipped with the Eurofighter and the Waffenschule Luftwaffe (WaSLw – Weapons School). The lead for conducting the exercise was with the WaSLw. On 1 October 2019, the WaSLw was established at Laage AB. Its motto is "Fight. Lead. Instruct." emphasizing the high standard it sets for itself. The main mission of this new unit is to train key personnel in air warfare operations to become Weapons Instructors. To be well prepared for future challenges, the WaSLw makes an important contribution to the continuous development of the Air Force. Specialist expertise and the various operational procedures of the different weapon systems in the air, such as the Tornado, Eurofighter, and A400M and on the ground are pooled and passed on in training.

Eurofighter of Tacical Air Wing 71 *Richthofen* on the taxiway.

BALTIC HUNTER was embedded in the Weapons Instructor Course 02/21 (WIC 02/2021) on 22 February 2021 and it takes eight months until the participants are graduated Weapons Instructors.
Starting with a theoretical phase in early March 2021, 15 WUGs (Weapons Undergraduates) from different Luftwaffe units gathered at Laage AB commencing the WIC 2/2021. The course addresses experienced aircrews – usually with "combat ready" status – of both fighter aircraft of the Luftwaffe, the Eurofighter and the Tornado. Also involved for the very first time were A400M aircrews. The aim is to teach technical and tactical capabilities of both, the own aircraft and the other participating aircraft. Each participant has to understand the capabilities and limitations available in a combined operation with various assets. This also requires understanding what the implications are if certain assets are destroyed or temporarily unavailable during a mission. Difficult decisions, such as whether a mission can be carried out as planned or under different conditions or even has to be aborted, have to be taken. After completion of the WIC, each Weapons Instructor is a true expert in air warfare tactics. They will be the future key players in their respective wing giving both advice and expertise to their fellow crews and to the wing commanders. This demands the highest possible knowledge and capabilities, and exactly this is what they will gain during these eight months (of which six months are truly course dedicated).

The WUGs are theoretically and practically supported and educated by very experienced Weapon Instructors (WI). The majority of them belong to the Waffenschule itself but there are also "borrowed" experts from other units.
Not only aircrews are involved in the WIC but also experts from the Luftwaffe Tactical Leadership (Luftwaffenführungsoffiziere) and Luftwaffe intelligence personnel (Nachrichtendienst). Special teams on the ground, the so-called "Joint Terminal Attack Controllers" from the Army and Air Force supported the air-to-ground missions. Typically, most parts of the course as far as real flying is concerned, take place at Laage AB for the Eurofighter community, Jagel AB for the Tornado crews, and Wunstorf AB for the A400M crews. This first part is the basis for the get-together during Baltic Hunter at Laage AB. Having done their "homework", this is the time to bring all this into combined operations.

The Weapons Instructor Course

Generally, the WIC is divided into four main blocks:

The **first block** is a theoretical phase, where the WUGs are prepared for the following demanding steps. Excellent and deep knowledge of both, the own aircraft's strengths and limitations and those of the other aircraft is simply said nothing else but the basis for the following months.

Eurofighter of Tacical Air Wing 73 *Steinhoff* (left) and Tactical Air Wing 31 *Boelcke* (right).

The **second block** is the "tactical training", and it is divided into four phases.
The first phase sees a high amount of simulator training (about 50%) and each WUG has to make his/her own way to the highest possible skill level. The demands during this flying phase are way beyond the normal day-to-day flying operations at the squadron level, this time, a very challenging and ever-increasing way to go.
The second phase is the "Surface Attack Standard Phase". By the nature of their missions, the way Tornado and Eurofighter aircrews train here, differs to some extent as the Tornado is a pure air-to-ground aircraft with only limited self-defense options in an air-to-air engagement. Getting into a dogfight with the Tornado is the very last option and should never occur if avoidable. Therefore, the Tornado crews concentrate from the very beginning in air-to-ground operations while the Eurofighter community's mindset is a more multi-mission one. This phase trains the use of weapons against ground targets with precision-guided bombs and guns during day and night with an emphasis on planning and evaluating tactical attack sequences. These sequences are created and developed by the WUGs themselves and tested in a complex scenario with a high threat from enemy air defense systems. This is an important part for the further progress of the crews. From the very beginning, they are taught to accept no losses, 100% survivability is the goal.
The third phase is the "Electronic Warfare Phase". Reconnaissance and the SEAD mission (Suppression of Enemy Air Defense) are the typical Tornado missions. Especially for the ECR Tornados with their HARMs (High Anti-Radiation Missile), this is where they train to "kick in the door", fighting a way through the hostile air defense by destroying or temporarily blinding it, guarantees a safe passage for the following Tornado IDS and Eurofighter air-to-ground strike package. This training still takes place from the respective home bases on the individual squadron/wing level.
Closing the tactical training block is the fourth phase, the "Live Weapons Phase". Both live air-to-ground weapons, such as the GBU-24 and GBU-54 for the Tornados and the GBU-48 for the Eurofighter, and air-to-air missiles, such as the IRIS-T, are being fired (mostly, a first time for the Tornado crews). This takes place at the Swedish live weapon range in Vidsel, the only place where Luftwaffe crews can drop live ordnance on such a scale. This weapon employment phase marks a milestone in the service for both, the aircrews and the supporting ground crews. Safe and confident handling of the weapons is the goal. From mission planning to maintenance, loading, and releasing, respectful use of the live weapons which is

Two Eurofighters taxi to the runway for takeoff past Tornados of the Tactical Air Wing 33.

hard if at all possible to train in Germany is learned in Vidsel. Being in Vidsel, just a short distance south of the polar circle guarantees both, a very low populated area for undisturbed training and nearly endless flying time as there is no real nighttime during the summer months. Also of notice is the friendly helpfulness of the Swedish military hosts providing helicopter support, if necessary, to deploy German JTACs around the range.

Having finished these two main blocks, the **third block** sees all participants of the different weapon systems come together at Laage AB for the BALTIC HUNTER exercise. Now, the basic integration begins and then, moves to the advanced integration. This block serves to perfect the skills acquired in theory and real flying to conduct joint operations. This interaction was practiced for the first time during this large-scale exercise. Up to 30 aircraft took off in two waves each day into the training areas over the northern part of Germany and the Baltic Sea. An A400M from Wunstorf and its crew had to leave the exercise at short notice because they were needed for evacuation flights out of Kabul, Afghanistan. Two CH-53G helicopters from Hubschraubergeschwader 64 in Laupheim supported the ground troops in the target area.

In the **fourth and final block**, the WUGs are entering the international arena: The "Mission Employment Phase" which takes place at Royal Netherlands Air Force Leeuwarden AB close to the North Sea coast with participants from Belgium, Germany, the Netherlands, and Norway. Here, the crews take the last step working together with their allies, expanding their knowledge about the pros and cons of Tornados and Eurofighter, now including all aspects of their international partner's F-16s and F-35s. For this phase, both Tornado and Eurofighter have new software available: ASSTA 4.1 for the Tornado and P2 for the Eurofighter. This enables the Tornado crews to get a better ECR situation picture and a more capable Link 16, and for the German Eurofighters, it is for the first time possible to use the Meteor long-range air-to-air missile.

After completion of the course, the WUGs are awarded their Weapons Instructor patch. Now, they belong to the very top of crews in their air force. Going back to their units, they teach their lessons learned to other less experienced crews to get the maximum out of them and their aircraft.

Two Tornados of Tactical Air Wing 51 *Immelmann* ready for takeoff.

These Eurofighters are loaded with two 264 gal (1,000 l) external fuel tanks, a Diel Aerosystems FPR (Flight Profil Recorder) on the outer pylon under the right wing, an IRIS-T air-to-air missile on the outer pylon under the left wing, and an ECM pod on each wing tip.


TaktLwG 74
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Left: The pilot of this Eurofighter of Tactical Air Wing 74 wears a state-of-the-art helmet, designed by BAE Systems.

The 'Helmet Mounted Symbology System' is a highly sophisticated helmet and support system that lets the pilot 'see' through the body of the aircraft, giving them a vital advantage when it comes to split-second decision-making.

Using the new helmet system, the pilot can now look at multiple targets, lock-on to them, and then, by voice-command, prioritise them.

Conventional systems mean pilots have to point the aircraft in the direction they want to fire to get the enemy in a field of view before they engage their weapons. The super helmet system allows the pilot to let his helmet do the pointing without having to waste vital time manoeuvring the aircraft - giving a big advantage in combat.

The bumps on the helmet (infra-red LED's) are used to calculate the pilot's head position and its angle. The LEDs on the helmet flash and the 3 sensors in the cockpit detect the flashing. The data is then used to calculate where the pilot is looking. As the pilot turns his head, the system continually re-configures to use the best sensor and LED combination to give the most accurate result. Accurate targeting is immediate; there's no delay

The pilot has a binocular display. The view is 40 degrees fully overlapped which means that both eyes get the same picture. This makes it more relaxing for the pilot over long periods of time as monocular display can cause fatigue.

SOURCE: BAE Systems

Right: Pilot with the "old" helmet

Tornado IDS (**left**) and Tornado ECR (**right**) configured with a LITENING target designating pod on the underfuselage pylon, two 410 gal (1,552 l) external fuel tanks on the inner wing pylon, an IRIS-T air-to-air missile on the left wing's inner pylon, a chaff and flare dispenser on the outer pylon of the right wing, and the TSPJ (Tornado Self Protection Jammer) ECM pod on the left wing's outer pylon.


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Shown here are two Tornado IDS of Tactical Air Wing 33 carrying a LITENING target designating pod on the underfuselage pylon, a 410 gal (1,552 l) external fuel tank on the inner wing pylon a chaff dispenser on the outer pylon of the right wing. 45+35 carries the new BOZ-101EC chaff dispenser of which the German Air Force bought 29 units.


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Before the pilot leaves the cockpit, the ground crew uses some kind of broom to discharge the static that builds up in flight on the plexiglas canopy.

WIC - LIVE WEAPONS PHASE AT THE SWEDISH VIDSEL TEST RANGE

Main Image: This Eurofighter of the Tactical Air Wing 73 *Steinhoff* (TaktLwG 73 "*S*") launches an IRIS-T live air-to-air missilile over the Swedish at Vidsel Test Range.
Vidsel Test Range is located in the almost unpopulated northern part of Sweden close to the Arctic Circle. With its 3,300 km² restricted ground space an 8,000 km² restricted air space, Vidsel Test Range is the largest facility of this kind in Europe. ***Photo:*** *Bundeswehr/Dr. Sefan Petersen*

Inset: Patch of the on 1 October 2019 established Waffenschule Luftwaffe (Weapons School Luftwaffe).

This Tornado IDS of Tactical Air Wing 33 is loaded with an inert GBU-54 Laser Joint Direct Attack Munition (LJDAM) bomb. The GBU-54 is precision guided by a combination of GPS/INS and Precision Laser guidance / target designation). It is used to engage both mobile and staionary targets with a 500 lb (227 kg) warhead.

Photo: *Bundeswehr/ Dr. Sefan Petersen*

Two Tornado IDS of Tactical Air Wing 51 *Immelmann* (left) and Tactical Air Wing 33 (right) on the taxiway.

Photo: *Bundeswehr/ Dr. Sefan Petersen*

Left: Mission accomlished - the crew leaves the cockpit.

Right: GBU-24 Paveway precision bomb with a semi-active Laser seeker. The German Air Force uses the 2,000 lb (907 kg) GBU-24 either with the Mk-84 general purpose bomb with a 1,040 lb (427 kg) warhead or the BLU-109 penetrator bomb with a 535 lb (243 kg) warhead. For target designation the Tornado uses the LITENING targeting pod.

Below: Takeoff of a Tornado of Tactical Air Wing 33 loaded with a LITENING pod and GBU-24 on the fuselage.
All Photos: *Bundeswehr/ Dr. Sefan Petersen*

Takeoff of a Tornado of the Tactical Air Wing 51 *Immelmann* loaded with
- a chaff dispenser on the outer pylon of the right wing,
- two 410 gal (1,552 l) external fuel tanks on the inner wing pylons,
- a LITENING target designation pod on the right underfuselage pylon,
- a GBU-24 *Paveway* on the left underfuselage pylon,
- a TSPJ (Tornado Self Protection Jammer) ECM pod on the outer pylon of the left wing.

Photo: *Bundeswehr/Dr. Sefan Petersen*

Takeoff of an Eurofighter of the Tactical Air Wing 73 *Steinhoff* loaded with
- an ECM pod at each wingtip,
- two 264 gal (1,000 l) external fuel tanks,
- a GBU-24 *Paveway* on the left wing's inner pylon,
- a LITENING target designation pod on the centerline pylon.

Photo: *Bundeswehr/Dr. Sefan Petersen*

HUNGARY RECEIVED ITS LAST H145M

ARTICLE BY ISTVÁN KELECSÉNYI

In June 2018, Hungary ordered 20 H145M multi-purpose light helicopters from the European aircraft manufacturer Airbus Consortium. The H-145M is planned to be a replacement for the Soviet/Russian-made Mi-8T, Mi-17 medium transport, and Mi-24P/V combat helicopters, together with the H225M medium multi-purpose helicopter, which will arrive in 2023.
The H145M helicopter's weapon system was tested in several countries, including Hungary, at the Bakony Combat Training Centre. The testbed was an BK-117D-2M.
In November 2019, the first two helicopters arrived at Szolnok Helicopter Base and on 3 December 2021, the last helicopter with registration number 05 was flown to Hungary. The H-145s were delivered to the Hungarian Defence Forces in three configurations: 10 multipurpose (MP), five search and rescue (SAR), and five armed (LUH) versions.
The H145M is powered by two Turbomeca Arriel 2E gas turbines. Each of them has a power output of 566 kW (771 hp), which can be increased to 657 kW (894 hp) at take-off, 764 kW (1,039 hp) for two minutes in an emergency, and 788 kW (1,072 hp) for half a minute.
The helicopters are equipped with the French Helionix avionics suite. They are fitted with the onboard weapon system HForce, developed by Airbus. HForce offers a wide range of weapons – machine guns, unguided and guided rockets and missiles - combined with a target acquisition and targeting capability formerly available for high-end helicopters only.
The SAR version of the H145M is equipped with a 272 kg Goodrich winch, capable of pulling loads and people on board from a depth of up to 90 meters. It is also equipped with a Trakka search reflector.
For the LUH variant, Hungary's H145M helicopters are equipped with the WESCAM MX-15D EO/IR airborne targeting and designation system. Its sensor gimbal is located under the nose and provides the pilot with images from Electro-Optical (EO) and Infrared (IR) cameras in HD quality. The laser rangefinder/designator allows the use of intelligent laser-guided munitions such as the FZ275 laser-guided 70mm missiles, as well as Israeli ER-Spike2 anti-tank missiles.
The H145M can also carry FN-Hertsal's D-HMP250 and D-HMP400 12.7mm machine gun containers, including a combined machine gun and three 70mm rocket containers known as RMP. Hungary has not purchased any of these containers. Instead, they purchased the NEXTER NC621 20mm machine gun container, which is also integrated into the HForce weapon system.
For self-defense against infrared-guided missiles, the H145M carries the missile launch detection system AN/AAR-60, known as MILDS, and four 6×5 Chemring 1-1 MTV type flare dispensers.
The last helicopter was flown over from Donauwörth by Brigadier General Dr.József Koller, Commander of the Helicopter Base, together with a German pilot, with an intermediate stop in Vienna, Austria.
The Hungarian Air Force helicopter force currently operates 20 H145M, six Mi-24, five Mi-17, and two AS-350B helicopters.

On 3 Dezember 2021, the last of 20 H145M helicopters arrived at Szolnock. It was flown over from Donauwörth by Brigadier General Dr.József Koller, Commander of the Szolnok Helicopter Base, together with a German pilot.

Main image: For the ferry flight, the helicopter still carries the German registration and the German flag.
Left inset: H145M with serial "05" is about to land for the first time at its new home base.
Right inset: Lieutenant General Romulusz Ruszin-Szendi, Commander of the Hungarian Defense Forces (left) and Brigadier General Dr.József Koller, Commander of the Helicopter Base (right) at the ceremonial reception of the last H145M.

The Hungarian Air Force currently operates 20 H145M **(main image)**, six Mi-24 **(left)**, five Mi-17 (**right),** and two AS-350B helicopters.

The ground crew prepares this H145M for a night mission.

One of five H145M LUH (armed version) in the Hungarian Air Force's inventory. The helicopter is equipped with a WESCAM MX-15D sensor ball under the nose, a NEXTER NC621 20mm machine gun container, and a 70mm rocket container.

The Hungarian Air Force has ten H145M in multipurpose configuration (MP) **(main image, left, middle)** and five in search and rescue (SAR) configration **(right)**.

One H145M SAR and two H145M MP (in the background) in action during a national exercise in October 2020.

CEREMONIAL FLYPAST IN HUNGARY

ARTICLE BY ISTVÁN KELECÉSNYI

The low number of patients in Hungary due to the COVID epidemic allowed the Hungarian Air Force to hold dynamic demonstrations during the traditional celebrations of the founding of the state and the National Day of King St. Stephen on 20 August, with the Hungarian Air Force flying over the Danube in Budapest and the Tisza River in Szolnok.

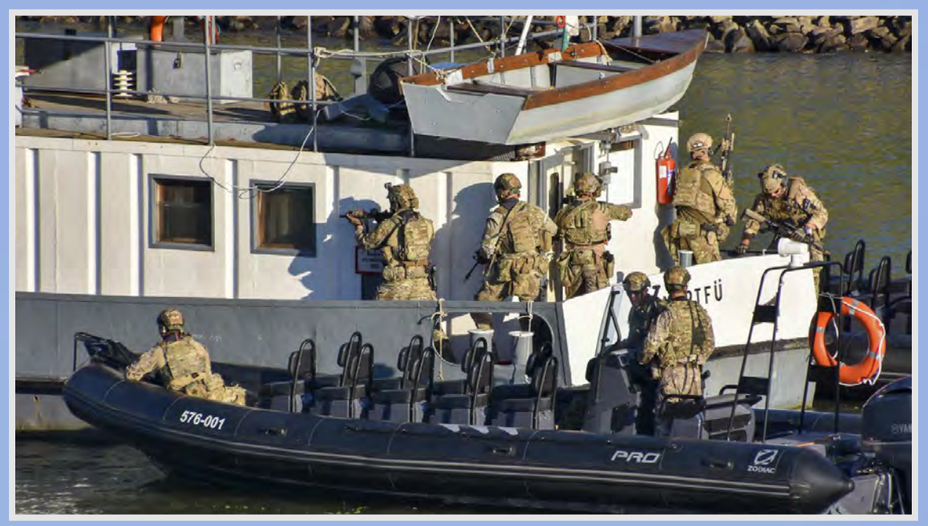
H145M MP over the City of Szolnok.

Mi-24P (ex German Air Force 96+22) flies along Budapest's skyline.

Budapest Flypast of a Mi-24P *Hind* **(main image)**, a four-ship formation of JAS39 *Gripens* **(left),** and two JAS39 *Gripens* in formation with a Dassault Falcon 7x **(right).**

H145M MP performing a low-level pass at the city of Szolnok.

Demonstration of a Special Operations Forces szenario to prevent a terrorist attack with a boat on the Tisza River in Szolnok. The forces are brought in by RIBs (rigid inflatable boat) (**images right)**, by winch from a helicopter **(main image)** or by helo-casting **(left images)**.



One of only two AS350B2 helicopters in the Hungarian Air Force's inventory performing a high speed low-pass over the Tisza River in Szolnok.

ROMANIA TO BUY NORWEGIAN F-16s

ARTICLE BY IGOR BOZINOVSKI

Romania cannot afford to buy the state-of-the-art 5th generation Lockheed Martin F-35 *Lightning II*. Instead, 32 Lockheed Martin F-16 *Fighting Falcon* aircraft will be bought second-hand from Norway, Romanian defense minister Vasile Dîncu unveiled in an interview given to Romanian TV channel Digi24 on 10 December.

"The planes that Romania would purchase will be tasked to monitor the airspace of NATO's eastern flank", Dîncu explained. He added that Norwegian F-16s have a remaining service life of about 2,500 flight hours each, allowing them to stay in operational use with the Romanian Air Force (RoAF, Forțele Aeriene Române) for a period of ten years.

"There will also be a process of refurbishment and modernizing of these jets as it is absolutely necessary to have planes and a much larger fleet that would be in line with the strategic position that Romania has in NATO", Dîncu said.

Dîncu's interview came a day after Romanian Ministry of National Defense (MoND) requested the Romanian parliament to approve the acquisition of 32 F-16s from Norway at a cost of € 354 million. The document, as quoted by local media, also states that an additional € 100 million would be needed for securing logistical support and acquisition of specific equipment from the US government.

"The only solution currently identified as a result of the analysis of the responses to the Requests for Information is the purchase from the Norwegian Government of a package of 32 F-16 aircraft in the M6.5.2 configuration (superior to the configuration of the 17 possessed [F-16] aircraft), logistical support equipment and training services", the MoND document reads.

The decision to begin the process of the acquisition of Norwegian jets has been made by MoND's Defense Planning Council that took in consideration the technical compatibility of the Royal Norwegian Air Force (RoNAF) surplus jets with the already existing Romanian F-16 fleet, the economical advantages of the Oslo-proposed package, the possibility of modernizing those planes, and the possibility to acquire logistical support and specific equipment needed to modernize the aircraft from the U.S. Government.

Five-ship formation of four MiG-21MF *LanceR-C* interceptors and one F-16AM *Fighting Falcon*.

Analysis

The RoNAF was one of the four initial European F-16 customers. Between 1980 and 1984, they took delivery of 72 aircraft (60 single-seat F-16As and 12 twin-seat F-16Bs) built in the Netherlands at Fokker's Schipol-Oost production line. An additional two F-16B attrition-replacement jets were delivered directly from the General Dynamics production line in the U.S.. By 2001, a total of 56 Norwegian F-16s passed an extensive Mid-Life Update (MLU) modernization program. These aircraft were re-designated F-16AM/BM. The fighters were operated by the 331st, 332nd, 334th and 338th squadron with the Bodø-based 331st squadron being the last RoNAF unit to operate the F-16 in expectation of the type's retirement by the end of 2021.

With 52 F-35A on order and 31 already delivered to the RoNAF (10 of these are based in U.S. for training purposes), the government in Oslo decided that the *Lightning II* will be the sole fixed-wing fighter aircraft in Norway's inventory starting in 2022. This has cleared way for the commercial re-sale of the RoNAF's remaining F-16 fleet that is estimated to some 44 aircraft that very likely would pass refurbishment and eventual modernization at Kongsberg Aviation Maintenance Services (KAMS) at Kjeller, near Oslo, before delivery to its new users.

Despite being frequently flown in inclement weather conditions and also approaching the end of their service life, the RoNAF *Fighting Falcons* are among the oldest but also best maintained F-16s globally. Being obviously an attractive and cost-effective investment, the first 12 Norwegian F-16s and the equipment necessary to operate them were sold to the US company Draken International on 22 November for use as part of Draken's training services provided to the US military. The delivery of these aircraft should begin next year after each aircraft has passed pre-delivery maintenance at KAMS.

Being the very likely recipient of the remaining Norwegian F-16s, Romania has declared its need for additional two fighter squadrons that according to the 2019-promoted MoND plan should be created through procurement of additional 36 new-build or second-hand *Fighting Falcons*. Once delivered, these jets would replace RoAF's obsolete, Soviet-era MiG-21 LanceR fleet of some 26 Elbit-modernised fighters (20 single-seat MiG-21MF/MF-75 LanceR-C interceptors and six twin-seat LanceR-B trainers) currently shared between the 711th Fighter Squadron and the 861st Fighter Squadron.
The acquisition of Norwegian jets would supplement the existing Romanian fleet of 17 refurbished and modernized F-16AM/BMs acquired second-hand from Portugal between October 2016 and March 2021. Serving with the 53rd Fighter Squadron "Warhawks" at Feteşti-Borcea, these aircraft are in the M.5.2R configuration (similar to Block 40 with some features of Block 50/52) and are currently scheduled for local modernization to M.6.X standard by the Bacău-based aerospace company Aerostar SA.

With three F-16 squadrons in service, RoAF should be able to ensure the defence of the national airspace in addition to executing reconnaissance missions and other missions in support to the actions of the Romanian Armed Forces, and fulfill Bucharest's obligations assumed towards NATO. The F-16 should also prepare RoAF for a smooth transition towards the service's ultimate goal – the 5th generation F-35 aircraft – which Romania will be ready to acquire in the summer of 2030, according to Major General Viorel Pană, chief of staff of the Romanian Air Force.

Romania will replace its fleet of 20 single-seat MiG-21MF/MF-75 *LanceR-C* interceptors and six twin-seat MiG-21UM *LanceR-B* trainers with second-hand Norwegian F-16AM/BM *Fighting Falcon*'s.

Ex Portuguese Air Force F-16AM's **(main image)** and F-16BM **(left inset)**. A total of 17 second-hand aircraft were acquired between 2016 and 2021 from Portugal.

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MiG-21MF *LanceR-C* **(1,2,3 and main image)** and MiG-21UM *LanceR-B* **(4)**.

WARBIRDS DOWN UNDER

REPORT BY JEROEN OUDE WOLBERS

Royal Australian Air Force 100 Squadron to be re-formed as Royal Australian Air Force Heritage Squadron

Ahead of the centenary commemorations of the Royal Australian Air Force (RAAF), 100 Squadron will be re-formed as the Royal Australian Air Force Heritage Squadron, operating from RAAF Base Point Cook, Victoria and Temora (Temora Aviation Museum,) New South Wales.

First established during World War II, in February 1942 at RAAF Base Richmond, 100 Squadron was an Air Force bomber and maritime patrol squadron. It trained on Australian-built Bristol Beauforts and conducted several successful missions throughout the war, taking part in the famous Battle of the Bismarck Sea in March 1943. It eventually disbanded in New Guinea on 19 August 1946.

The new Air Force Heritage Squadron headquarters at RAAF Base Point Cook would provide a historical connection to the community. The reestablishment of 100 Squadron coincides with the centenary of the RAAF, which was formed on March 31, 1921.

This Gloster Meteor F.8 was built in 1949 and operated by the RAF until 1982, carrying the serial number VZ467. Todays markings are of RAAF 77 Squadron. This is the only F.8 flying in the world.

Main image: This Supermarine Spitfire Mk.XVI was built in late 1944.

Above: Supermarine Spitfire Mk VIII, built in 1944 and shipped to Australia. It entered service with the RAAF and was placed into storage without ever been in active service.

Below: Commonwealth CA-18 Mustang 23 (P-51D), built in 1950 and delivered to the RAAF. In 1959, it was withdrawn from service.

Main image: Lockheed Hudson, built in 1939.

Above: This New Zealand Aerospace Airtrainer CT-4A was built in 1982.

Below: The Commonwealth Aircraft Corporation C-13A *Boomerang* was built in 1943 and spent its entire life with the RAAF 83 Squadron.

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