

THE AVIATION MAGAZINE

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- ▶ Superbase Iruma, Japan
- ▶ Flashback – Goose Bay, Labrador
- ▶ Helicopter Weapons Instructor Course, Netherlands
- ▶ LTG 63 – Last Call, Germany
- ▶ SOFIA Flights From Germany
- ▶ And so much more ...

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Cover: Hot refueling of a German Army Aviation Eurocopter Tiger assigned to KHR 36 during the Helicopter Weapons Instructor Course © Danny Reijnen

This page: German Air Force Transall C-160D of LTG 63 with "Fairwell" color scheme © Peter Thivessen



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

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

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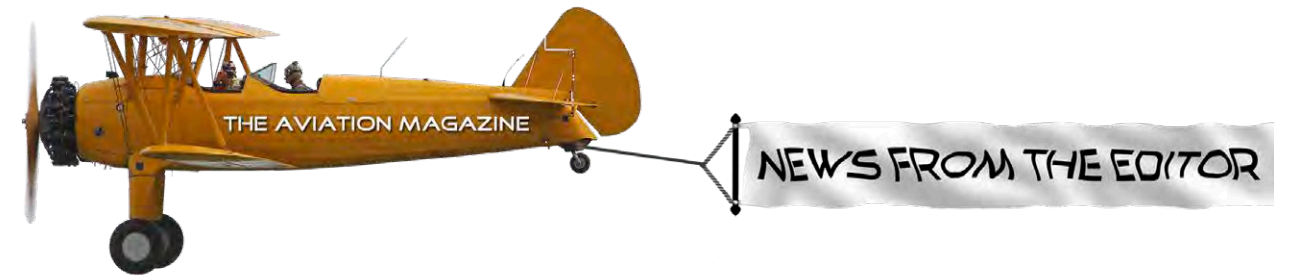
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COVID-19 continues to dominate all our lives around the world. But there is 'light at the end of the tunnel'. The first major events and exercises involving the media are being planned. Keep your fingers crossed that these will actually be carried out and that we will be able to report on them.

With this issue, we are once again presenting you with a varied and interesting compilation of the most diverse reports - from the CFB Goose Bay 30 years ago to the B747SP SOFIA at Cologne Bonn Airport these days. Reports from Japanese bases such as the Iruma Superbase or from helicopter exercises such as the Helicopter Weapons Instructor Course, where you can be up close and personal, are always inspiring.

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Ralf Peter WALTER

Publisher & Editor

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SUPERBASE 伊予市太

入間 基地

REPORT BY RALF JAHNKE WITH IMAGES BY
RALF JAHNKE AND S. NAKADA



Iruma Air Base is a base of the Japan Air Self-Defense Force (JASDF) in Sayama, Saitama Prefecture, northwest of Tokyo, Japan. In December 2019, I had the opportunity to visit the big base in Iruma as part of a privately organized Japan tour. During the two days, there was heavy flying and all Iruma based types of fixed-wing aircraft and helicopters were used. Why can this base be called a superbase? Quite simply, because many superlatives come together at once. A total of twelve different aircraft and helicopter versions are stationed here. More types than on any

other base! The Iruma AB is home to a total of eight different flying units. In addition, this base has a large part in military history, but more on that later. It has to be mentioned that the annual Iruma Air Show always draws up to 200,000 visitors on "Culture Day", a Japanese holiday on the 3rd of November. No other air show in the world has so many visitors in just one day! This is of course due to its proximity to Tokyo, the largest city in the world with 37.5 million residents. Visitors can only get to the air show by public transport as there are few parking spaces in

this densely populated megacity.

On both of my visiting days, there was a light north wind with changeable weather, so runway 35 was in use. Overall, the area at the runway offers great opportunities for taking photos along the fence. Aircraft taking off and landing can be observed from an elevated position, and the main taxiway also runs right along the outer fence. Thus, there were the best opportunities for action-shots of the different types of aircraft. I was particularly happy that the old aircraft types Kawasaki C-1, Kawasaki EC-1, NAMC

YS-11, and British Aerospace U-125 were flying. The Japanese designs Kawasaki C-1 and NAMC YS-11 have been in use since the 1960s. All of these types will be decommissioned shortly and replaced by the new types Kawasaki C-2, Kawasaki EC-2, and Cessna Citation Latitude U-680A. In the meantime, the British Aerospace U-125 has already been replaced by the Cessna Citation Latitude U-680A in April 2020. The Flight Check Squadron receives a total of three aircraft of this type and performs flight calibration services of all JASDF airfield systems.

NAMC YS-11BE of Denshi Sakusen
(Electronic Intelligence Squadron)



Kawasaki EC-1 of Denshi Sakusen
(Electronic Intelligence Squadron)



In the morning and afternoon, the aircraft flew at least one operational sortie each. All types were used, what a piece of luck! Some C-1 started on transport missions, but also some Kawasaki C-1, Kawasaki C-2, and Gulfstream U-4 constantly trained traffic patterns and carried out several touch and go's. A Kawasaki C-2 was used by the 403rd Tactical Airlift Squadron from Miho AB to Iruma to train future pilots. The days of the old Kawasaki C-1 are numbered! A Kawasaki T-4 of the support squadron of the central air command flew several missions for half an hour each, although all Kawasaki T-4s had massive technical problems with the engines at the time of my visit. The NAMC YS-11 were used in different versions off the airfield and came back to Iruma AB after about two hours of flight time. A Lockheed C-130H from Komaki AB visited the base for a short stop, still painted in the old green camouflage color scheme. The Saitama Prefecture Police Department was flying their Eurocopter EC 135. The typical rattling sound of the Boeing CH-47J Chinook could be heard all day long. The Chinooks belonged to the helicopter airlift squadron at Iruma, a very important unit for Japan as this country is often hit by natural disasters.

In addition to eight different flying units, the Central Air Defense Command Headquarters (CADC HQ) is located at Iruma AB. The combat squadrons at Komatsu AB with Mitsubishi F-15 and Hyakuri AB with Mitsubishi F-2 as well as two Air Defense Missile Groups are commanded from the CADC HQ. On 28 November, 2020, the last McDonnell Douglas F-4EJ Phantom II of the 301st Squadron flew in from Hyakuri AB to take part in the JASDF 2020 Air Review. A few days earlier, the last Phantom squadron was officially withdrawn from operational use!

History of Iruma AB

In 1937, the airfield was established by the Imperial Japanese Air Force and named Irumagawa Airfield. Initially, the Air Academy of the Japanese Air Force with training aircraft was stationed there. During the Second World War, Sentai Mitsubishi Ki-67 mid-bombers were based at the airfield and the Yokosuka MXY7 Ohka kamikaze attack aircraft were used specifically against American ships off the coast. After the war ended, the United States Army Air Forces (USAAF) Fifth Air Force Headquarters on Okinawa was moved to central Japan and the base

was renamed Johnson Air Base in honor of Lt. Col. Gerald R. Johnson, the former commander of the USAAF 49th Fighter Group. In the postwar period, this base was very important to U. S. Air Force Far East Air Force in Japan, especially during the U. S. occupation and the Korean War. During the Korean War, B-29s launched from Johnson AB and neighboring Yokota AB accounted for about 80% of all attacks. In 1962, the USAF ended the use of the air base when the headquarters of the 41st Air Division moved to Yokota AB. The air station buildings were converted into the Johnson Family Housing Annex for American

family accommodation in Japan. In September 1978, the last USAF facilities were closed and completely returned to the Japanese government. This included a telecommunications center with various antenna systems and electrical power plants. In parallel to the use of the USAF air base, the JASDF set up an Iruma rescue team early in 1963. The Kawasaki C-1A transport aircraft followed in 1973.

The following units and aircraft are stationed on Iruma AB

- Flight Check Squadron with NAMC YS-11FC and Cessna Citation U-680A
- Central Air Command Support Squadron with Kawasaki T-4 and Gulfstream U-4
- Electronic Warfare Squadron with Kawasaki Kawasaki EC-1 and NAMC YS-11EA
- Electronic Intelligence Squadron with NAMC YS-11EB
- Air Rescue Wing with British Aerospace U-125A
- Iruma Helicopter Airlift Squadron with Boeing CH-47J *Chinook*
- 2nd Tactical Airlift Group/ 402nd Tactical Airlift Squadron with Kawasaki C-1 and Gulfstream U-4
- Saitama Prefecture Police Department with Eurocopter EC 135/635



This Lockheed C-130H *Hercules* of the 401 Hikotai at Komaki AB visited Iruma AB



Kawasaki C-2 of 403 Hikotai (Tactical Airlift Squadron) from Miho AB used at Iruma AB for pilot training





Kawasaki C-1 of 402 Hikotai
(Tactical Airlift Squadron)



Kawasaki T-4 of Chubu Koku Homentai Shireibu
Shien Hikotai (Central-ADF HQ Support Squadron)



▲ U-4 of Chubu Koku Homentai Shireibu Shien Hikotai (Central-ADF HQ Support Squadron)
▼ YS-11FC of Hiko Tenkentai (Flight Check Squadron)



U-125 of Hiko Tenkentai ((Flight Check Squadron) ▲
U-4 of 402 Hikotai (Tactical Airlift Squadron) ▼





Boeing CH-47J *Chinook* of Iruma Herikoputa Kuuyutai (Helicopter Airlift Squadron) ▲
Eurocopter EC 135/635 of the Saitama Prefecture Police Department ▼





The last McDonnell Douglas F-4EJ Phantom II of the 301st Squadron flew in from Hyakuri AB to take part in the JASDF 2020 Air Review.
Photos by S. Nakada



Photo by S. Nakada



RHEINLAND AIR SERVICE SPECIAL MISSION AIRCRAFT

REPORT BY PETER THIVESSEN AND RALF PETER WALTER,
PHOTOGRAPHY BY PETER THIVESSEN UNLESS NOTED

You would not expect to see special mission configured aircraft of the Nigerian Air Force's Air Maritime Group or the Pakistan Navy at a civilian airport in Germany. However, thanks to the German company Rheinland Air Service (RAS) there is a good chance to spot some of these unique aircraft at the Mönchengladbach airport in the mid-western part of Germany, close to Belgium and the Netherlands.

RAS, established in 1972, provides aircraft maintenance, repair, and overhaul for commercial and business aircraft, plus aircraft and parts sales, support, and integration and modification of aircraft and systems. RAS employs around 300 aviation professionals and has a Special Mission Team. This team is composed of highly experienced specialists, with extensive know-how in the aerospace and defense industry covering the entire service portfolio from avionics, structural and mechanical engineering, to mechanical integration, and flight testing.

The RAS Special Mission Aircraft division designs, certifies, and delivers mission critical solutions based on industry-leading airborne platforms. The supported platforms include the ATR 42 and 72 families, larger commercial aircraft, various turboprop aircraft and several prevalent business jets and helicopters. RAS has vast experience in aircraft modifications, including the installation of several airborne radar systems, high performance EO/IR systems, electronic warfare systems, multipurpose specialized antennas, line of sight and beyond line of sight tactical communications systems, as well as aerial survey sensors and scientific research equipment.

ATR 72-212A Sea Eagle of the Pakistan Navy,
assigned to 29 ASW/EW/IW Squadron

Photo: Rheinland Air Service

RAS 72 MPA Configuration

01 Observation Windows

Specifically designed for airborne law enforcement, the window installation offers significant visibility improvement for observer personnel during surveillance missions.

02 ESM/ELINT System

The system performs tactical surveillance with warning and self-protection capabilities. In addition, the ESM system provides accurate data for military intelligence (technical ELINT function).

03 Store Management System

Weapon pylons including an aerodynamic frame, ejector release unit and spigot device providing rapid launch of a wide range of weapon types including torpedoes and missiles for several warfare scenarios.

06 Line of Sight and Beyond Line of Sight Datalink Capabilities

Line of Sight and Beyond Line of Sight Datalink Capabilities SATCOM system with the capability to send high-definition full motion video and sensor data from the action theater back to command authorities beyond the horizon. Additional datalink features may include AFAPD, Link 16, IDM, Link 22, JREAP, SADL, Link 11 and VMF.

04 AESA 360° Multimode Radar

Features multi-domain capabilities with high performance sea and land surveillance through a wide swath, high resolution ground mapping, small and low speed ground target indication, and air-to-air surveillance, tracking and intercept modes.

07 AIS, IFF and DF

Standard AIS capabilities fully implemented with the mission management system. DF operating on all frequency bands used for rescue missions, including emergency frequencies and channel 16 for the marine band.

05 EO/IR High Definition System

Superior image stabilization, ultra-long range imaging performance, and true metadata embedded in the digital HD video. Features MWIR thermal imager, HD color and low-light cameras, as well as multiple laser payload options.

10 Chaff and Flare Dispensing System

The CFD system protects the asset from air-to-air and surface-to-air radar and heat-seeking missiles. The self-defense suite includes passive countermeasure capabilities. The system is interfaced with various electronic warfare sensors and controlled by the mission management system.

09 Sonobuoy Launching System

Pneumatic powered sonobuoy launching system for maritime patrol and anti-submarine warfare applications. The launcher is electrically and functionally interfaced with the mission management system and reloadable in-flight. A, F and G-size sonobuoys can be supported.

08 Acoustic Processing System (APS)

APS fully integrated into the aircraft's mission management system. It can process active and passive acoustic data received from sonobuoys for detection, tracking, localization and classification of surface and sub-surface targets.

© Rheinland Air Service

MPA Sea Eagle

The Sea Eagle for the Pakistan Navy is based on the RAS 72 MPA configuration and is a cost effective multi-role maritime patrol aircraft (MPA) with anti-submarine warfare capabilities and equipped with state-of-the-art technology for superior situational awareness. The Sea Eagle is a variant of the twin-engine turboprop, regional aircraft ATR 72 series. In the offered configuration, the aircraft is equipped with a long-range multimode radar and EO/IR sensor to deliver aerial, maritime and ground surveillance. Moreover, the aircraft features an acoustic processing system with sonobuoy launchers, a self-protection suite and two weapon hard points, enabling unique maritime and anti-submarine warfare capabilities.

The installed mission systems and sensors are managed by the Aerodata AeroMission system. The AeroMission can display feeds from the installed sensors on each control station and has a sensor fusion algorithm, providing the onboard crew with comprehensive situational awareness.

The first of the ATR 72 twin-engine turboprops converted into MPAs was delivered to the Pakistan Navy in the second quarter of 2018, while the second aircraft was delivered in June 2019.

Mission equipment

- Mission management system "AeroMission"
- AESA 360° multimode radar system
- Two weapon carriers
- Sonobuoy launching system
- Broadband satcom system
- Tactical data link capabilities
- Self-protection suite and electronic support measures systems

This Pakistan Navy ATR 72-500 arrived on 27 June 2020 at RAS at Mönchengladbach airport and will be modified to the Navy's third MPA Sea Eagle





One of two Nigerian Air Force ATR 42-500MP, assigned to 81 Air Maritime Group





▲▼ Nigerian Air Force ATR 42-500MP, assigned to 81 Air Maritime Group ►



▼ Nigerian Air Force Falcon 900 ►





ATR 72-212A Sea Eagle of the Pakistan Navy
assigned to 29 ASW/EW/IW Squadron

Photos: Rheinland Air Service

FRISIAN LIGHTNING II

REPORT AND PHOTOGRAPHY BY JORIS VAN BOVEN AND ALEX VAN NOIJE



F-35A *Lightning II* taxiing to the runway for a night mission at Volkel AB during exercise Frisian Lightning II



Exercise Frisian Lightning II

In November 2020, the Royal Netherlands Air Force (RNLAf) exercise Frisian Lightning II was conducted at its Volkel Air Base. For the first time in the Dutch history of this aircraft, the F-35A *Lightning II* fighter aircraft from Leeuwarden Air Base were deployed. Late afternoon on 9 November, four brand new F-35A *Lightning II*'s landed at Volkel AB. The exercise took place until Friday, 20 November when the aircraft returned to their home base Leeuwarden AB. The aircraft flew two waves per day during the exercise. The first wave was in the afternoon and was flown in daylight. The second wave was flown in the darkness of the evening. The flights lasted about an hour and a half each time. The intention was to have as many F-35A *Lightning II*'s sorties as possible to reach a maximum of training. The entire detachment consisted of about 150 men and women. The pilots who participated in this exercise were all trained on the F-35A *Lightning II*, and all have many years of experience on the F-16 Fighting Falcon. Previously, the logistics, IT and security departments of the squadron already practiced at Leeuwarden AB during the exercise Frisian Lightning I. The objective of this exercise was to train packing and preparing ground equipment and spare parts to be moved to a new location. Frisian Lightning I was a dry run in preparation for a real move, this time to another air base within the Netherlands.

During Frisian Lightning II, the 322 Squadron from Leeuwarden AB was temporarily based at Volkel AB. This exercise focused on the logistical relocation of the unit and it is part of the step-by-step plan that will lead to an initial deployment capacity of the squadron by the end of 2021. Frisian Lightning II, the second in a series of exercises, is part of the so-called "Road To Initial Operational Capability" (R2IOC). While the RNLAf exactly knows what material, e.g. tools, spare parts to bring along with an F-16 *Fighting Falcon* deployment, it is necessary to gather appropriate experience with regard to



F-35A *Lightning II* returning from a mission late afternoon (above) and F-16 *Fighting Falcon* taking off (left)



the new F-35A *Lightning II*. One of the objectives of this exercise was to review and, if necessary, adjust the packing list and the corresponding planning. A roadmap has been prepared by the RNLAf for the full introduction of the F-35A *Lightning II*. This roadmap started from the arrival of the first aircraft at Leeuwarden AB at the end of 2019, and it will continue until the IOC is achieved at the end of 2021. One of the steps is this relocation exercise at Volkel AB. In addition, the Royal Netherlands Air Force is continuously taking steps, such as further building up the squadron and continuous training of personnel (pilots, technicians, armaments, IT staff). The facets

of conducting night flying ops, loading and dropping training bombs are also part of the R2IOC. If the unit achieves Initial Operational Capability (IOC) by the end of 2021, it means that the 322 Squadron will be able to deploy a unit of four F-35A *Lightning IIs*, including personnel and equipment for a short period of time anywhere in the world. The next step is a similar deployment exercise abroad. Then, personnel will find out if the RNLAf has everything ready when the national borders are crossed.







In order to avoid being detected and tracked by enemy radar, and to be able to attack enemy targets or perform aerial reconnaissance quickly and undetected, the pilots must be capable to fly at an extreme low-level. Extreme low-level flight means flying at a speed of close to Mach 1 at treetop height, i.e. at around 550 knots at 100 ft above ground. In doing so, the aircraft covers around 1.000 ft per second, a physical and especially mental challenge for both pilot and co-pilot. There are highest demands on the crew's skills and performance. They need to be mentally way ahead on the aircraft's flight path, and

to be able to handle extremely short reaction times. There is no margin for any error, while being exposed to high g-loads and simultaneously fulfilling a mission such as reconnaissance of a target or its engagement. Such training flights are not possible over a densely populated Europe. However, that is not a problem over the almost deserted wilderness of Labrador. In the 1980s and the 1990s, the German Air Force, Royal Air Force, Royal Netherlands Air Force, and the Italian Air Force used the Canadian Forces Base Goose Bay for lowest-level flight training. Called German Air Force Training in Canada (GAFTIC), from April through

October, the German Air Force regularly deployed Phantoms, Tornados, Alpha Jets, and Transalls to Labrador. The Phantoms and Tornados flew nonstop from Germany to CFB Goose Bay with support from U. S. Air Force tanker aircraft. The flight took about six hours westbound and, thanks to the Jet Stream, about five hours back home. Each aircraft was refueled five or six times en route. This ensured that in the event of an emergency - should a tanker aircraft fail or a technical defect in the aerial refueling probe prevent the German fighters from taking-on fuel - there was sufficient fuel on board the jets at any point during

the Atlantic crossing to reach an alternate airfield in Iceland or Greenland. The Alpha Jets, which had no air refueling capability, chose a route with refueling stops in Scotland, Iceland and Greenland.

The photos in this report were taken in 1988 and 1991 during a deployment of RE-4E's from the German Air Force Aufklärungsgeschwader 52 (Reconnaissance Wing 52).

Ground crews of the Aufklärungsgeschwader 52 (Reconnaissance Wing 52) make their RF-4E Phantom II's ready for the deployment to Goose Bay in 1991









German Air Force B-707 of the Flugbereitschaft des Bundesministeriums der Verteidigung (1988)



German Air Force Transall C-160D of the Lufttransportgeschwader 63 (1988)



▲▼ German Air Force Alpha Jet assigned to Jagdbombergeschwader 43, note the different color schemes (1988)



German Air Force Alpha Jet assigned to Jagdbombergeschwader 41 (1988) ▲▼







▲ Royal Air Force, 14 Squadron (1988)
▼ Royal Air Force, 31 Squadron (1988)



Royal Air Force, 9 Squadron (1988) ▲
Royal Air Force, 15 Squadron (1988) ▼





▲ NATO B-707TCA, NAEW&CF (1991)
▼ U. S. Air Force C-141B, 438th MAW (1988)



U. S. Air Force C-5A, 60th MAW (1991) ▲
Royal Air Force TriStar K1, 216 Sqn (1988) ▼





1



2



3

64



4



5

- 1 Royal Canadian Air Force CC-130H, 8 Wing (1988)
- 2 Turkish Air Force C-130E, 222 Filo (1991)
- 3 Royal Air Force Hercules C.3P, Lyneham Trspt Wing (1988)
- 4 Turkish Air Force C-130E, 222 Filo (1991)
- 5 U. S. Air Force C-130E, 314 AW / 62 AS (1988)

65





- 1 Royal Canadian Air Force CT-133 (T-33AN), 439 Sqn (1991)
- 2 U. S. Navy C-2A, VR-24 (1991)
- 3 Royal Canadian Air Force CH-113 (BV107.II-9), 424 Sqn (1988)
- 4 Royal Canadian Air Force CC-115 (DHC-5A), 442 Sqn (1991)
- 5 Royal Canadian Air Force CH-135 (UH-1N), 424 Sqn (1988)



SPOTTED AT LAAGE AB

PHOTO-REPORT
BY RALF JAHNKE



Laage Air Base is a military air base of the Deutsche Luftwaffe (German Air Force – GAF) that is also used for civil aviation. It is located in the state of Mecklenburg Vorpommern in the northeastern part of Germany (53° 55′ 5″ N, 12° 16′ 42″ O).

Laage AB is home to the Taktisches Luftwaffenge-

schwader 73 "Steinhoff" (TaktLwG 73 "S") that flies the EF2000 Eurofighter. The TaktLwG 73 "S" was the first of four frontline wings to receive the Eurofighter in early 2004. Until then, they operated the F-4F Phantom II and MiG-29 Fulcrum. Currently, the wing has a total of about 35 EF2000s. Its main objective is the training of Eurofighter pilots of the

German Air Force as well as the Austrian Armed Forces (Österreichisches Bundesheer). In addition, the wing is regularly tasked with air policing (QRA – Quick Reaction Alert) to secure the airspace over northern Germany, although this is the main task of its sister unit, Taktisches Luftwaffengeschwader 71 "Richthofen" based at Wittmund AB.

Maintenance personnel performs the last checks of these four Eurofighters before they taxi to the runway for takeoff.





In 2019, this aircraft received a special color scheme to celebrate 15 years of the Eurofighter at the TaktLwG 73 "S" and in the German Air Force.

WILLKOMMEN IM GESCHWADER "STEINHOFF"



This two-seat EF2000 takes off for a training flight.



The two-seat EF2000 Eurofighter is primarily used for pilot training.

HELICOPTER WEAPONS INSTRUCTOR COURSE

REPORT AND PHOTOGRAPHY BY DANNY REIJNEN



The Helicopter Weapons Instructor Course (HWIC) started on 6 January 2020 with the Tactical Continuation Training (TAC), the first of three parts of the HWIC. The main focus of this module was to practice and instruct evasive manoeuvres in small and large formations. Military helicopter crews must be able to perform these manoeuvres under any threat of an enemy.

The entire HWIC consisted of the modules TAC, SOF (Special Operation Forces), and STRIKE. TAC was held at Fritzlar Airfield in Germany in January. For the first time, German airmen were also participating in the entire 2020 course. They took part with the NH90 transport helicopter and the Tiger UHT Attack helicopter. The Royal Netherlands Air Force participated

with the CH-47D Chinook, the AS-532U2 Cougar, and the AH-64D Apache.

After the first part of TAC ended, the world was confronted with the COVID-19 virus, which delayed the exercise. Normally, the entire HWIC takes approximately 17 full weeks of which the flying part usually is seven weeks, assuming there are no delays.

In addition to a big theory part, the course consisted of three flight modules, SOF (Special Operation Forces) being the second. This part took place in October at

Gilze-Rijen Air Base and various other locations in the Netherlands. The SOF course involved special deployments in collaboration with Special Forces.

To participate in the HWIC, pilots have to be at least section leaders, which means being able to lead a flight of three helicopters. The pilot and loadmaster need to have multiple years of experience with

their squadron. The urge to learn new things and improve themselves is a must for every participant. "The training not only contains fixed scenarios. The students are also confronted with unexpected situations, to be solved while flying. Being able to deal with uncertainty is very important for a military pilot and loadmaster", Major Bas emphasizes. Major

Royal Netherlands Air Force CH-47D
Chinook assigned to 299 Squadron

"Loekie" Bas, AH-64 pilot and instructor, is head of TACTics Training Evaluation Standardization (TACTES). TACTES is a part of the 299 Squadron, which is the Royal Netherlands Air Force unit that organizes the HWIC. "Being flexible, coming up with solutions, and making decisions in stressful situations receives top priority during the HWIC", Major Bas stated.

The German and Dutch participants have different levels of experience. Therefore, some elements, such as operations with SOF units, are new to the Germans. According to Major Bas, there is only one way to catch up on that difference and that is by just doing it. However, the German participation has a great advantage for this exercise. For example, they provided the TAC part of the training. "As a result, we had access to a perfect practice area which cannot be found anywhere in the Netherlands", Major Bas stated.

The HWIC is an intensive training, not only because it is relatively short compared to the FWIT (Fighter Weapons Instructor Training) with a duration of five months. "We are limited in the available assets. The squadrons also need the helicopters for regular training, and exercises are expensive. We have tried to balance this, combining HWIC flights with our normal operations by using hot refueling capabilities to use the helicopters as much as possible."

This 2020 edition of HWIC was the second time that Germany participated with helicopters, the NH90s, and Tigers. The first time was in 2008 with two Bo-105s. "The initiative came from my classmate in 2008



Royal Netherlands Air Force AH-64D
Apache assigned to 301 Squadron



RNLAF CH-47D Chinook and AH-64D Apache approaching the landing zone.



and because we knew each other from exercises, participation was quickly a fact", Major Bas added. During SOF, the goal for the participants was to fly their regular missions and train with Special Forces at the same time. The training was conducted with the Army Special Forces (KCT), Special Security Missions Brigade (BSB), and the Maritime Special Operations Forces of the Marine Corps (MARSOF). This was new for many students and outside their comfort zone but therefore, much rewarding.

The third module, STRIKE, originally planned for Bergen in Germany, focused on live firing. Due to the measures concerning COVID-19, the STRIKE eventually took place in November in the Netherlands, after being postponed twice. All participating transport helicopters were temporarily deployed at naval air base The Kooy for one week to use the shooting

range The Vliehors. During the live firing sorties, only Dutch units took part. The CH-47's and AS-532 were therefore based on The Kooy. While flying their missions during day and night time on The Vliehors, they trained with a Joint Terminal Attack Controller (JTAC) designating their targets. Because of the live firing exercises, one CH-47 was equipped with the FN M3M (GAU-21) single barrel rapid-fire machine gun suitable for rotary-wing aircraft, providing defensive firepower ranging out to nearly 2,000 meters.

In the second week of STRIKE, missions were flown out of Gilze Rijen airbase again, combining all lessons learned. "When I was a student myself, I loved the fact that I was allowed and able to work at a next level", Major Bas remembers. "Getting the best out of yourself and then, sharing it with the pilots and

loadmasters you are going to train, so that they improve too, gave me a rush. We regularly train the Weapons Instructors to stay on the best possible level. You always have to keep learning because the world is changing too. Therefore, once a year, a Weapons Instructor Standardization course is held for all weapons instructors. In this one-week course, we invite all weapons instructors to study and evaluate the current and new tactics".

Currently, the HWIC is a combined German/Dutch exercise and there are no plans yet to expand the training with participants from other countries. According to Major Bas, that would be a logistic challenge. "It takes a lot of preparation to arrange a HWIC. The more countries involved, the larger the organization must be. The Netherlands and Germany

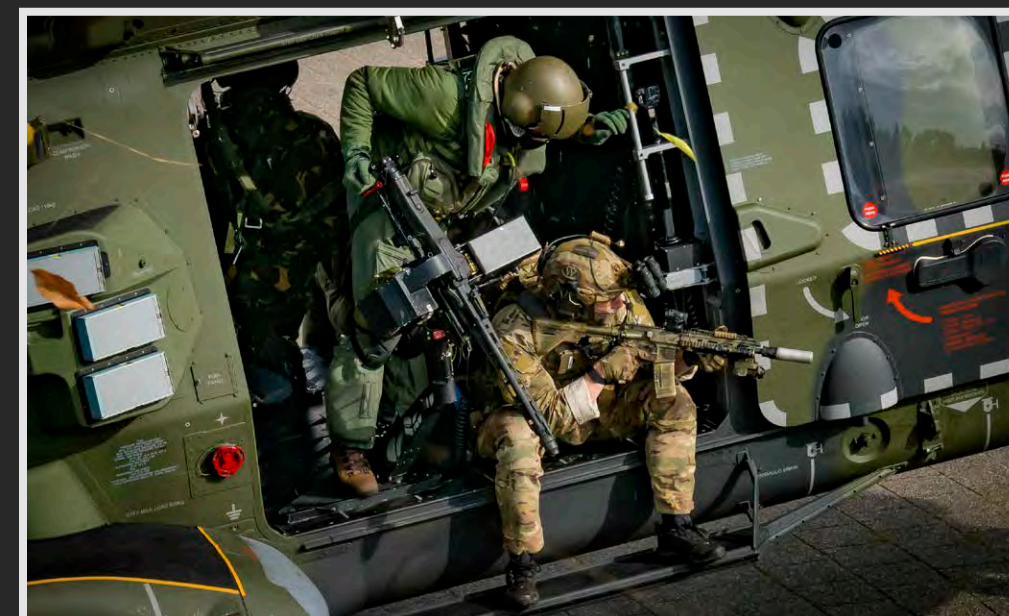
are neighbor-countries, which helps. Some – larger – NATO countries have their own (international) training. However, this could change in the future."

On 9 December 2020, nine of the 11 participating Dutch students received their Helicopter Weapons Instructor Course diploma at Gilze-Rijen AB. Eight of the 11 German students received their diploma later because they could not make it to the Netherlands on 9 December.

We would like to thank the Royal Netherlands Air Force, and in particular Major Bas and the men and women of 299 Sqn and the Defence Helicopter Command, for their tremendous help to create this article.

German Army Aviation NH90 assigned to Internationales Hubschrauberausbildungszentrum (International Helicopter Training Center)





MISSION

- ◇ Door gunners on utility and cargo helicopters are concerned with threats to the helicopter and crew on board, whether the helicopter is in the air or on the ground. Door gunners must be able to acquire and engage a variety of targets from many different flight profiles.
- ◇ Door gunners are normally helicopter crew chiefs. They may also be soldiers from within or outside the unit. Crew coordination is critical between the door gunners and the helicopter's pilots. The door gunners and pilots maintain communication and work as a team to acquire targets, as well as safely fly the helicopter.

DOOR-GUNNER DUTIES

- ◇ Door gunners provide direct fire as protection for the aircraft and crew. To effectively employ their weapon, door gunners must —
 - Thoroughly understand weapon system's functional characteristics and operation, as well as its capabilities and limitations.
 - Have a thorough knowledge of tactical helicopter employment.
 - Be prepared to act independently, based on the threat, and engage targets without a specific command from the pilot.
 - Act as observers to assist the pilot and copilot in safe operation of the helicopter.
- ◇ During flight and ground operations, door gunners will maintain a watch for hazards and obstructions to flight. These obstructions may vary from high tension wires and other aircraft along the flight path to obstacles such as tree stumps in the landing zone.
- ◇ Reporting potential or actual targets to the pilot/copilot is a specified task of the door gunner. From the gunners side of the aircraft, the primary observation sector is normally 60 degrees off the nose of the helicopter all the way to the rear.
- ◇ During both combat operations and training, door

gunners must maintain situational awareness. They must know the location of friendly troops, the location of other aircraft in their formation (including escorting attack helicopters), and the classification and location of the target(s) to be engaged. A door gunner may also be required to mark a ground location with smoke grenades or tracers.

Source: [GlobalSecurity.org](https://www.globalsecurity.org)



German Army Aviation Tiger assigned to Kampfhubschrauberregiment 36 (Attack Helicopter Regiment 36)





Royal Netherlands Air Force CH-47D Chinook



RNLAF AS532U2 *Cougar* and CH-47D *Chinook*



RNLAF AS532U2 *Cougar* assigned to 300 Squadron





Royal Netherlands Air Force CH-47D
and German Army Aviation NH90

25 YEARS OF SERVICE - COUGARS OF THE ROYAL NETHERLANDS AIR FORCE

REPORT AND PHOTOGRAPHY BY
MARTIJN VENIX UNLESS NOTED



Three of six AS-532U2 *Cougars* of the Royal Netherlands Air Force's 300 Squadron that were launched on 17 February 2021 to celebrate the 25th anniversary of the helicopter entering service.



2021 is the year in which the Aerospatiale AS-532 Cougar has been in service with the Royal Netherlands Air Force (RNLAf) for 25 years. In honor of this anniversary, this was celebrated on February 17 with a formation flight of 6 Cougar helicopters!

In 1996 the Cougar entered Dutch service at 300 squadron which belongs to the DHC (Defense Helicopter Command). At that time we received 17 Cougar helicopters of which 12 are still in active service. At that time, the helicopters were still stationed at Soesterberg Air Base, but after a major reorganization within the Dutch Air Force, the squadron was stationed at Gilze Rijen in 2008. At that time, the squadron had also several Alouette III helicopters in addition to the Cougar.

The RNLAf uses the AS532 Cougar mainly for the transport of personnel and equipment. Heavier external loads can be transported underneath the helicopter as a sling load. This means that the helicopters can also be used for firefighting and a so-called "Bambi Bucket" can be hung underneath. Some examples are equipped with floating components so that the helicopters can also serve from naval ships. For some special missions, the crew can be equipped with a "doorgunner". Together with the loadmaster, an FN MAG 7.62 mm machine gun can be operated from the opened side door.

Technical Data

- ◇ Length: 16.79 m (main rotor folded), 19.50 m rotors turning
- ◇ Height: 4.60 m (4.97 m with tail rotor turning)
- ◇ Width: 3.86 m (main rotor folded), 16.20 m main rotor turning
- ◇ Rotor system: main rotor 4 blades, diameter 16.20 m, 265 revolutions per minute; tail rotor 4 blades, diameter 3.15 m, 1,279 revolutions per minute
- ◇ Powerplant: two Turbomeca Makila 1A2 Turboshaft
- ◇ Power: max continuous 1,236 kW; max at takeoff 1,376 kW for five minutes; max continuous single engine 1,420 kW. In an emergency: 1,467 kW for 2 minutes / 1,573 kW for 30 seconds
- ◇ Weights and loading: empty 4,900 kg, useful load 4,850 kg, standard fuel weight with crashworthy tanks 1,548 kg, max t/o weight 9,750 kg with internal load, max slung load 5,000 kg, max flight weight with slung load 10,500 kg
- ◇ Speed: never exceed 315 km/h, fast cruising 273 km/h, econ cruising 244 km/h
- ◇ Range: no reserves, standard fuel, econ cruise 796 km; no reserves, max fuel, econ cruise 1,176 km
- ◇ Altitude: 3,050 m cruising altitude, 3,960 m for 30 minutes
- ◇ Crew: two pilots and a loadmaster
- ◇ Endurance: standard fuel and at 130 km/h 4 h 20 min

Source: Jane's All The World's Aircraft





The SFIR Markings indicate that this helicopter participated in the operation 'Stabilization Force Iraq SFIR'



This Cougar took part in the multinational peace keeping force SFOR (Stabilisation Force) in Bosnia and Herzegovina

MISSIONS AND DEPLOYMENTS

Over the years, Cougars have been deployed several times in various conflicts and humanitarian missions worldwide:

- ◇ In 2001 and 2002, the helicopters took part in Stabilization Force (SFOR) in Bosnia.
- ◇ In 2004, the Cougar took over from the Chinook Detachment in Iraq as part of operation Stabilization Force Iraq (SFIR). The helicopters mainly transported personnel and equipment and were on standby 24/7 for medical evacuations of Dutch soldiers. During Iraq's first free elections, the Cougars were used to transport and distribute voting tickets across the country.
- ◇ To support fighting forest fires, in 2005, RNLAF Cougars were sent to Portugal, and in August 2007 to Greece.
- ◇ The helicopters have also been used during anti-pirate missions of the coast of Somalia.
- ◇ From April 2006 to 2010, the Cougars were active during ISAF in Afghanistan on behalf of Task Force Uruzgan.
- ◇ From naval vessel Hr. Ms. In Rotterdam they carried out reconnaissance flights in 2012, 2013, and 2017, transported boarding teams of marines and even stopped suspicious ships.
- ◇ Until 2015, the device was used within the country's borders as patients transport from the Wadden Islands which are located in the upper north of the Netherlands in the Wadden Sea.
- ◇ In 2019, 300 Squadron was deployed with two Cougars for emergency relief after Hurricane Dorian in the Bahamas and recently in 2020, they flew from naval vessel Karel Doorman in the Caribbean for the deployment of people and equipment in the fight against the COVID-19.







2

3

4

5





The Future of the Cougar Fleet

In the course of major cutbacks within the Dutch armed forces, the RNLAf had to retire the Cougars much earlier than planned. To be replaced by the new NH90 helicopter, in 2011, the Cougars were taken out of service. In 2012, nine of the helicopters went into storage. The rest of them were to be phased out by 2017. However, this turned out to be only temporary!

Due to problems with the deployability of the NH90 – mostly attributed to corrosion issues of metal components during initial maritime operations – the RNLAf decided to reactivate the mothballed helicopters so almost all Cougars currently are in operational service again. However, because of the early retirement, the helicopters never received a mid-life update (MLU). To keep the helicopters in service and deployable until the end of their lifespan around 2030, the RNLAf plans to perform some updates/upgrades in the near future.

So the Cougars in Dutch service are still "going strong"

LTG 63 – LAST CALL

REPORT AND PHOTOGRAPHY BY RALF JAHNKE UNLESS NOTED

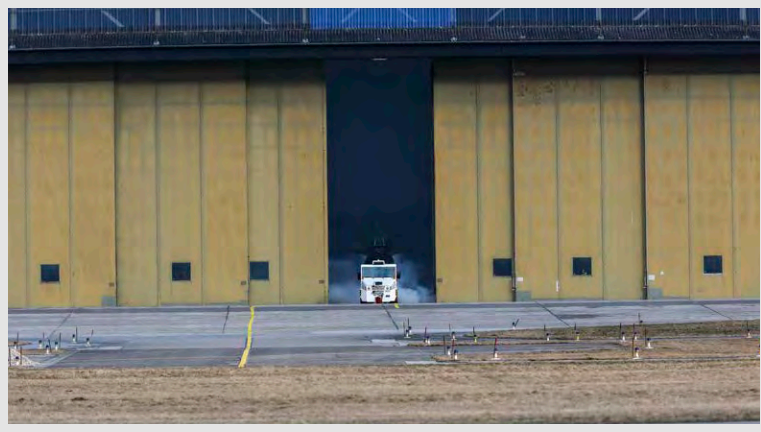


This year will mark another important milestone in the history of the Luftwaffe (German Air Force). At the end of 2021, after more than 53 years of service, the last 12 Transall C-160D transport aircraft will be decommissioned at Hohn AB. At the same time, the Lufttransportgeschwader 63 (LTG 63) will be disbanded and the home of the Luftwaffe's air transport will be relocated to Wunstorf.

On 9 March 2021, the LTG 63 presented its last, specially painted Transall (nickname "Retro Brummel") with a rollout ceremony to the public. An impressive aerial display concluded the ceremony with the wing's commander, Colonel Oberst Markus Kleinbauer, at the controls.

Photo © Bundeswehr / Volker Muth

ROLLOUT ON 9 MARCH 2021





The Transall with the tactical number 50 + 40 was delivered to the Luftwaffe on 16 September 1970 and has since then accumulated 13,249 flight hours and 12,749 landings. 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. A Transall came under heavy fire in Sarajevo and could only be saved from crashing through luck and skill. 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. The team needed a total of 900 working hours to paint the aircraft with this amazing farewell scheme. In June, this Transall will be presented in various actions on a virtual "Day

of the Bundeswehr". In late summer, there will be a Farewell Tour. That way, all Luftwaffe units will have the opportunity to say goodbye to the Transall. In September the official Fly Out of the Transall will take place at Hohn AB. This also ends the Transall's tactical flight operations in the German Armed Forces since 1968! All Transalls still remaining with the Luftwaffe are to be scrapped at Hohn AB. After the Transall's operational service life within the Luftwaffe was extended from 2019 to 2021, the Lufttransportgeschwader 63 will celebrate its 60th

anniversary shortly before its disbandment.

The future air transport capability of the Luftwaffe will be based solely at Wunstorf Air Base with the Lufttransportgeschwader 62 (LTG 62). In total, the German government decided to procure 53 A400Ms, 36 of which have so far been delivered to Wunstorf AB. Ten aircraft of the A400M fleet are planned to operate from Lechfeld Air Base in southern Germany as a permanent detachment of the LTG 62.

Photo © Bundeswehr / Volker Muth





Photo © Bundeswehr / Volker Muth

SOFIA FLIGHTS FROM GERMANY

REPORT AND PHOTOGRAPHY BY PETER THIVESSEN AND JÜRGEN MOLL



NASA's Stratospheric Observatory for Infrared Astronomy, SOFIA, will conduct its first ever series of science observations from Germany in February and March, 2021. Many of the observations seek to answer fundamental questions in astronomy, including how stars can transform galaxies and what is the origin of cosmic rays in the Milky Way galaxy.

SOFIA, a joint project of NASA and the German Aerospace Center, DLR, recently completed scheduled maintenance and telescope upgrades at Lufthansa Technik's facility in Hamburg, Germany. Now, the observatory will take advantage of its proximity to science teams at the Max Planck Institute of Radio Astronomy in Bonn and the University of Cologne, which operate the instrument called German Receiver

at Terahertz Frequencies, or GREAT, to conduct research flights from the Cologne Bonn Airport

SOFIA regularly flies to Christchurch, New Zealand, to study objects only visible in the skies over the Southern Hemisphere, and completed one science flight from Germany in 2019. But this is the first time a multi-flight observing campaign will be conducted

over European soil. Over the course of six weeks, SOFIA will conduct about 20 overnight research flights that will focus on high-priority observations, including several large programs that were rescheduled from spring 2020 due to the COVID-19 pandemic.

Source: NASA

The SOFIA Boeing 747SP arrives at the Cologne Bonn Airport for a series of science observations flights from Germany



SOFIA's Mission

SOFIA, the Stratospheric Observatory for Infrared Astronomy, is a Boeing 747SP aircraft modified to carry a 2.7-meter (106-inch) reflecting telescope (with an effective diameter of 2.5 meters or 100 inches). Flying into the stratosphere at 38,000–45,000 feet puts SOFIA above 99 percent of Earth's infrared-blocking atmosphere, letting astronomers study the solar system and beyond in ways that are not possible with ground-based telescopes. SOFIA is an 80/20 partnership of NASA and the German Aerospace Center (DLR). The aircraft is operated and maintained by NASA's Armstrong Flight Research Center Building 703, in Palmdale, California. NASA's Ames Research Center in California's Silicon Valley manages SOFIA's program, science and mission operations in cooperation with the Universities Space Research Association (USRA; Columbia, Md.) and the German SOFIA Institute (DSI; University of Stuttgart).

Source: NASA

SOFIA Science Themes

- ◇ Interstellar medium physics and star formation in our galaxy.
- ◇ Planet formation in nearby star systems.
- ◇ Origin and evolution of biogenic atoms, molecules, and solids.
- ◇ Composition and structure of comets, planetary atmospheres and rings, star formation, dynamics, and interstellar medium chemistry of other galaxies.
- ◇ The dynamic activity in the center of the Milky Way.
- ◇ Ultra-luminous IR Galaxies (ULIRGS) as a key component of the early universe.

Source: NASA

SOFIA and the Infrared Universe

Studying the universe using only visible light results in a very limited view, as you can see from the two images on the right. Visible light — the light you see with your eyes — reveals only part of the universe. Astronomers observe many other types of "light" to expand our views of the universe. SOFIA is designed to specifically observe the infrared universe.

Infrared energy is just one part of the electromagnetic spectrum, which includes visible light, x-rays, radio waves and others. Many objects in space emit almost all their energy at infrared wavelengths. Often, they are invisible when observed in ordinary visible light. In other cases, clouds of gas and dust in space block the light emitted by more distant objects, but allow infrared energy to reach our telescopes. In both cases, the only way to learn about other objects is to study the infrared light they emit.

During 10-hour, overnight flights, SOFIA observes the solar system and beyond at mid- and far-infrared wavelengths gathering data to study:

- ◇ Star birth and death
- ◇ Formation of new solar systems
- ◇ Organic compounds in space
- ◇ Nebulae and the ecosystems of galaxies
- ◇ Celestial magnetic fields
- ◇ Black holes at the center of galaxies
- ◇ Planets, comets and asteroids in our solar system

SOFIA's telescope instruments — cameras, spectrometers and polarimeters — operate in the near-, mid- and far-infrared wavelengths, each suited to studying a particular phenomena. Spectrometers spread light into its component colors, in the same way that a prism spreads visible light into a rainbow, to reveal the chemical fingerprints of celestial molecules and atoms. Polarimeters are sensitive to the effect magnetic fields have on dust in and around celestial objects, allowing astronomers to learn how magnetic fields affect the birth of stars and other objects.

Source: NASA



Magnetic field streamlines detected by SOFIA are shown over an image of the Whirlpool galaxy, M51, from NASA's Hubble Space Telescope. For the first time, SOFIA's infrared view shows that the magnetic fields in the outer arms do not follow the galaxy's spiral shape and are instead distorted. The intense star formation activity in these regions, shown in red, may be causing the chaos, along with the forces from the yellow neighboring galaxy, NGC 5195, tugging on one of the spiral arms.

Credits: NASA, the SOFIA science team, A. Borlaff; NASA, ESA, S. Beckwith (STScI) and the Hubble Heritage Team (STScI/AURA)



Aircraft Facts

Model: Boeing 747SP (Special Performance)

Number built: 45; still in service: 14

Registration: N747NA

Manufacturer's serial number: 21441

Based: NASA Armstrong Flight Research Center, Building 703, Palmdale, Calif.

Staffing: Flight Crew: 3; Mission Crew: 2-6; Observers/Educators: 5-15

Fuselage Length: 53.9 meters (177 feet) Standard 747-400: 70.5 meters (232 feet)

Wingspan: 59.7 meters (196 feet)

Powerplants: 4 x Pratt & Whitney JT9D-7J turbofan engines (50,000 lbf thrust each)

Service Ceiling: 45,000 feet (13.7 km) — above 99.8 percent of the Earth's atmospheric water vapor

Airspeed at 41,000 feet: Mach 0.8 (450 knots or 520 mph)

Range: 12,270 km (6,625 nautical miles)

Mission Duration: 7 to 9 hours (standard); 12.2 hours (maximum)

SOFIA empty weight (zero fuel): 171,458 kg (378,000 pounds or 189 short tons)

SOFIA Maximum Take Off Weight: 315,700 kg (696,000 pounds or 348 short tons)

Maximum Fuel Load: 136,100 kg (300,000 pounds; 44,776 U.S. gallons)

Fuel Usage: 68,040 to 113,400 kg (150,000 to 250,000 pounds) (standard duration mission)

Cavity Door weight: 1,430 kg (3,150 pounds)

NASA's SOFIA 747SP reached a milestone Dec. 18, 2009, when the doors covering the aircraft's German-built infrared astronomy telescope were fully opened during flight.
Photo: NASA



▲ SOFIA over the NASA Dryden Aircraft Operations Facility in Palmdale
▼ SOFIA in restricted airspace near Edwards Air Force Base and the Dryden Flight Research Center

Photos: NASA



An F/A-18 mission support aircraft shadows NASA's SOFIA 747SP during a functional check flight in restricted airspace near Edwards Air Force Base and the Dryden Flight Research Center on Dec. 9, 2009. View at the 2.7 m (106 inch) reflecting telescope

Photos: NASA





▲ Touchdown of the 747SP at Cologne Bonn Airport
▼ Ready for a new mission, SOFIA is taxiing to runway 14L



SOFIA taxis to the ramp at the Cologne Bonn Airport after its arrival from Hamburg ▲
SOFIA is waiting for the clearance to enter runway 14L for takeoff ▼



DUTCH WINTER TRAINING

REPORT AND PHOTOGRAPHY BY JORIS VAN BOVEN AND ALEX VAN NOIJE



Boeing CH-47D *Chinook* of 298 Squadron approaches the landing zone in the low-flying area "GLV5"

Early February 2021, the Netherlands faced very "winterly" weather conditions. At night, temperatures were as low as -10 to -15°C with some 10 to 20 cm of snow. The last time this kind of winter weather was seen in the Netherlands was about a decade ago.

Due to the COVID-19 travel-restrictions and the prevailing arctic conditions, the Royal Netherlands Air Force Helicopter Command (Koninklijke Luchtmacht Defensie Helikopter Commando) decided to take advantage of this weather. Instead of going on an arctic deployment to Norway, it was possible to conduct arctic training in the Netherlands.

During the warm summer months, the helicopter crews train "brownout" landings and takeoffs on sandy ground. This year, they had the opportunity to train landing and taking-off in "whiteout" conditions just at home in the Netherlands, in the military low-flying area named "GLV5" near Eindhoven Airbase.



Definition Brownout/Whiteout

Brownout is the condition where there is little or no out-the-cockpit window visibility caused by dirt and dust being stirred up by the rotor downwash and then re-circulated by the rotor blades of a helicopter during taking off or landing in an arid climate. Similar conditions can be created by landing or taking off in snow (whiteout) or over water. It should be noted that WO in snowy conditions is also commonly referred to as "snowball" by aircrew to distinguish this particular condition from atmospheric WO caused by omnidirectional cirrus cloud formation, fog, or overcast sky over continuous snow surface or intermittent cloud blend in with snow-covered terrain.

Source: NATO STO



Boeing CH-47D Chinook of 298 Squadron



Eurocopter AS532U2 *Cougar* of 300 Squadron

BELGIAN HERC AT 50

REPORT BY KRIS CHRISTIAENS WITH
PHOTOS BY KRIS CHRISTIAENS & GERT TRACHEZ

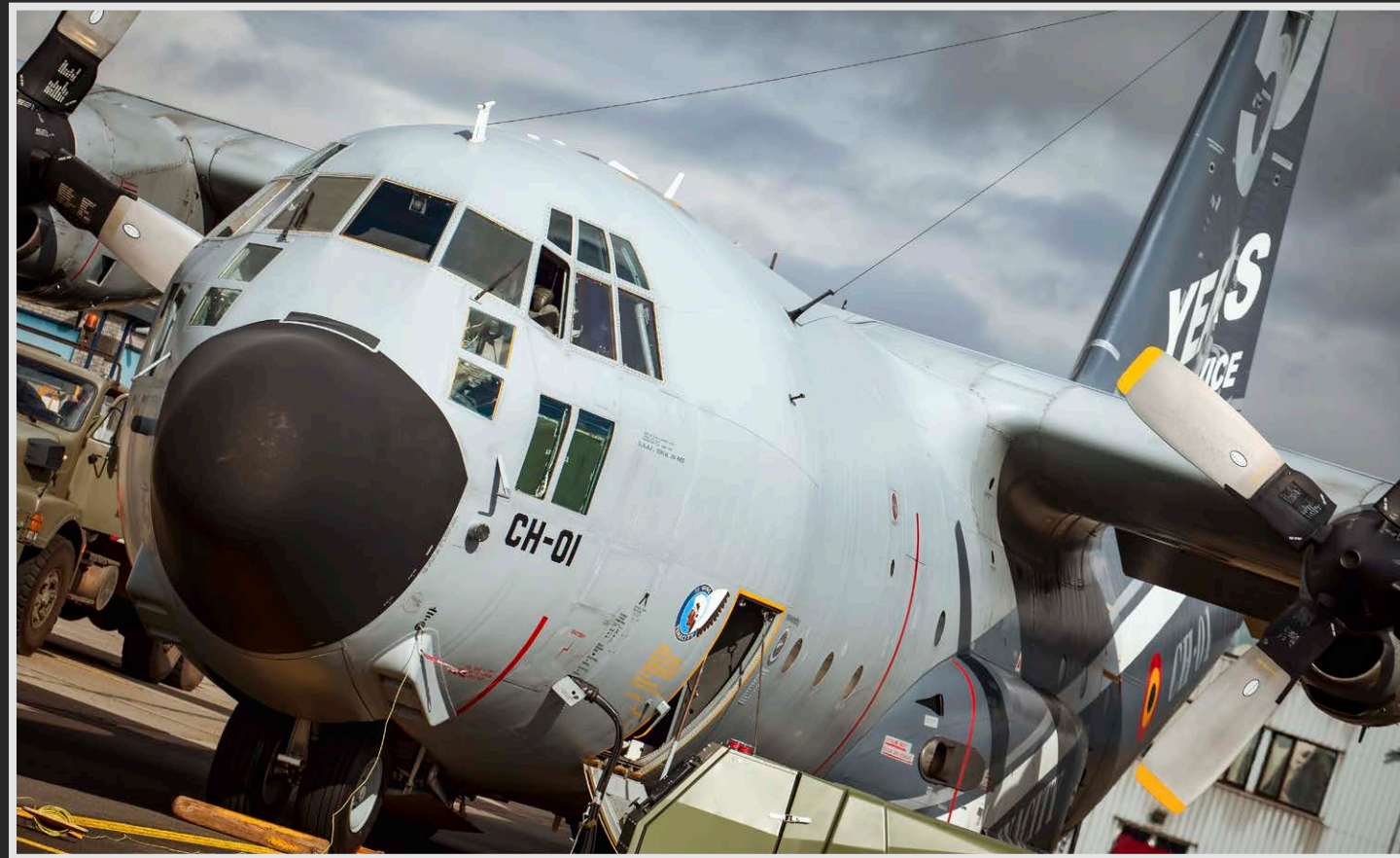
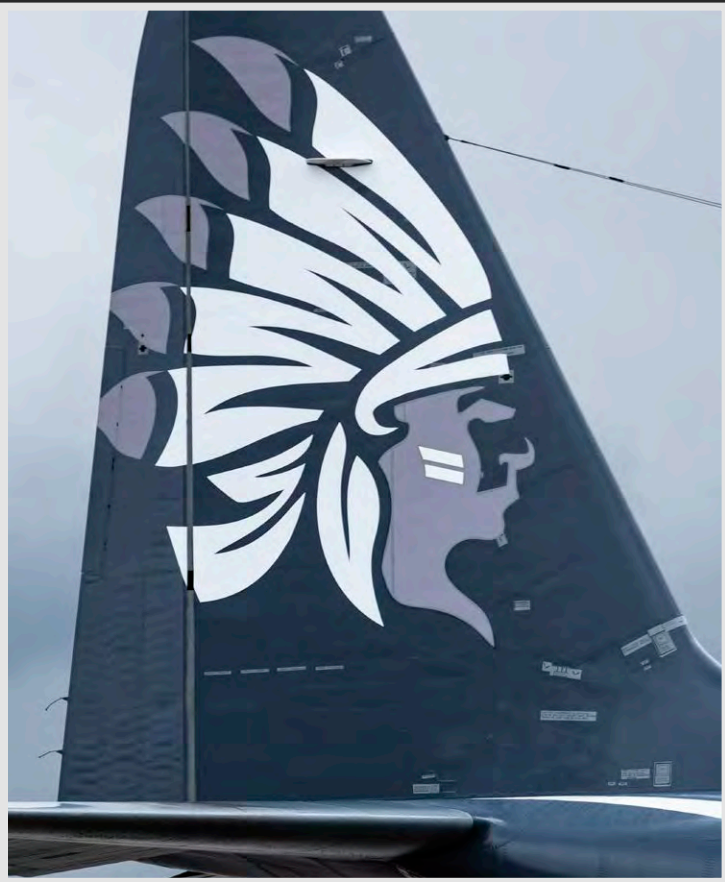


After almost 50 years of service, the Belgian Air Force will say goodbye to the C-130 *Hercules* transport aircraft by the end of 2021. To honor the 20th Squadron of the 15th Air Transport Wing and its fleet of C-130 *Hercules* transport aircraft for their many years of dedication and tenacity, the C-130 *Hercules* CH-01 was given a unique and special color scheme. With this, the Belgian Air Force honors 50

years of inexhaustible dedication of the flight crews, maintenance and support staff. The design of this special painting was made by Kristof Moens from the public relations office of the 15th Air Transport Wing. The head of a Sioux Indian is the official emblem of the 15th Wing, and the word 'tenacity' is its official motto. This special scheme will stay on the aircraft until it is taken out of service at the end of 2021. The

CH-01 was chosen for this special painting, as this was the first C-130 *Hercules* that entered service in the Belgian Air Force in 1972. During the first years of operation, the *Hercules* wore a 'Vietnam'-style camouflage color scheme which later was changed to overall grey. In the past, the *Hercules* CH-01 also received some special paintings following the modernization of the cockpit and missions to Kenya,

which gave the aircraft the temporary nickname 'The Nairobi Belle'. On Monday, 15 March 2021, the 15th Air Transport Wing organized a special press event at the Melsbroek Air Base. During this event, about twenty photographers had the opportunity to photograph the CH-01 up close, after which the aircraft took off for a new mission.







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