

RAMSTEIN FLAG

GUARDIANS of the Mont Blanc Skies

RAF ODIHAM OPERATIONS



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Cover: Eurocopter EC145

This edition's cover features a Eurocopter EC145

(now Airbus Helicopters H145), photographed

by Roelof-Jan Gort of High Aeromedia.com.

Guardi Rams CC-150



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GUARDIANS of the Mont Blanc Skies

Text and photography by Roelof-Jan Gort of High Aeromedia.com

The Gendarmerie Air Section in Chamonix

Nestled in the heart of the French Alps, the Gendarmerie Air Section (SAG) of Chamonix stands as a lifeline for those who dare to venture into the treacherous beauty of the Mont Blanc massif. Working in seamless coordination with the Peloton de Gendarmerie de Haute Montagne (PGHM), a specialized high-mountain rescue unit, these airborne heroes ensure that mountaineers, skiers, and hikers receive swift and expert assistance when danger strikes. But what is behind these operations? Roelof-Jan Gort visited the SAG Chamonix and spoke with Captain Herman, who has been Squadron Leader since 2019 and a pilot at the FAGN since 2005. As a qualified pilot on the AS350 Écureuil and the EC145, he has over 4,700 flight hours.

This morning, Captain Herman, the Commander and squadron leader of the Gendarmerie Air Section in Chamonix, is sitting

at his desk with a view of the platform, where the EC145 is being prepared by the ground crew behind him. In the background, the mountains are gradually becoming visible as the mist clears. "It's going to be a busy day today with various training missions, and we may also have some additional rescue missions to carry out," says Commander Herman as he reviews today's schedule.

As Commander of the SAG Chamonix section, Captain Herman is responsible for flight safety, effective management of technical resources, operational response, and crew preservation. Chamonix SAG offers a 24/7 alert system that includes a pilot, an onboard mechanic, and additional radio alert personnel. SAG Chamonix employs three pilots, four winch onboard mechanics, and one aerial surveillance operator, in addition to office staff. The assignment to SAG in Chamonix is based on volunteer participation. It is not possible to assign personnel who are not volunteers due to the technical demands and commitment required for this role. Additionally, candidates typically need to have served at one or two other mountain bases before being eligible for assignment in Chamonix, to ensure they have sufficient experience.

A Legacy of Aerial Rescue

The need for specialized mountain rescue services in France became evident in the mid-20th century as alpine tourism and mountaineering gained popularity. The treacherous conditions of the high mountains necessitated a dedicated force trained to manage emergencies in such environments.

The history of aerial rescue in the Gendarmerie dates to May 6, 1954, when France set up its first airborne unit, ushering in a new era of mountain rescue. Just three years later, in 1957, the introduction of the Alouette II helicopter revolutionized highaltitude operations, providing rescuers with the ability to reach climbers stranded on sheer rock faces or deep within icy crevasses In response to this need, the PGHM was established in 1958, focusing on mountain rescue operations. Recognizing the importance of aerial support in such missions, the Gendarmerie Air Section in Chamonix was subsequently formed. This collaboration between ground and air units revolutionized mountain rescue operations, allowing for quicker response times and more efficient rescues.



As technology advanced, so did the Gendarmerie's fleet. The AS350B Écureuil, introduced in 1978, brought increased agility and power, while the EC145, added in 2002, became the ultimate workhorse for high-altitude rescues.

These state-of-the-art helicopters, equipped with advanced medical and rescue gear, allow SAG to execute missions in some of the most challenging conditions on Earth. These aircraft are equipped with specialized gear such as winches, stretchers, and navigation systems tailored for mountain operations.

A Highly Trained, Elite Team

Operating in the extreme environment of the Mont Blanc region requires skill, precision, and courage. The sAG of Chamonix consists of eight elite military personnel, including highly trained pilots and expert winch operators. These professionals undergo rigorous training, often boasting years of experience in both military aviation and mountain flying.

Mechanics in the unit serve dual roles, not only ensuring that the aircraft remain in peak condition but also acting as in-flight winch operators, lowering rescuers into perilous situations where every second counts. Their ability is critical when evacuating injured climbers from near-vertical rock faces or extracting skiers caught in avalanches.

To get more information about the pilot training and mountain training within the FAGN, Roelof-Jan asked Captain Herman about the pilot training at the FAGN (Forces Aériennes de la Gendarmerie Nationale). He explained, "The pilot training in the FAGN begins with an 18-month basic training course in the Army's aircraft school based in DAX to obtain a pilot's licence. It continues with five to six weeks of additional training at CNIFAG to obtain the qualifications required for the Gendarmerie (winching, camera, type qualification, etc.)."

He continued, "Then assigned to a unit, the young pilot will have to continue his training by completing around fifty hours of operational flight in dual control. He will then be released on a mission. If he wishes to become a mountain pilot, he will have to, after a detection phase, confirm a mountain flight qualification provided in four 2-week courses spread over the four seasons. This training is given at the Mountain Flying Training Centre in Briançon, which is also situated in the French Alps, but further to the south."

The Role of the CNISAG

Central to the effectiveness of the PGHM and SAG is the Centre National d'Instruction de Ski et d'Alpinisme de la Gendarmerie (CNISAG), located in Chamonix. Established in 1988, CNISAG is responsible for training gendarmes in mountain operations, including skiing, alpinism, and aerial rescue techniques. The rigorous training ensures that personnel are well-prepared for the challenges of high-altitude rescues. The PGHM and SAG units are composed of highly trained professionals, including mountain guides, pilots, flight engineers, and rescue specialists. Their combined expertise allows for seamless coordination during complex rescue missions.

Rescue Missions

The primary mission of the sAG in Chamonix is to conduct aerial rescues in the Mont Blanc massif and surrounding areas. These missions often involve evacuating injured climbers, skiers, or hikers from inaccessible locations. The unit operates year-round, with increased activity during peak tourist seasons.

Beyond rescue operations, SAG also assists in law enforcement activities, including surveillance of protected areas, monitoring of illegal activities, and support during major events in the region. The SAG often collaborates with other emergency services, including the Sécurité Civile and medical teams, to ensure comprehensive response capabilities during emergencies.

Roelof-Jan asked Captain Herman about these rescue missions they perform. He explained how the rescue missions take place at the SAG: "Mountain rescue missions are conducted under the authority of the PGHM, which determines the necessary resources for each operation. If a helicopter is deemed the most effective option, the PGHM coordinates with SAG for assistance. During the day, the helicopter can be airborne in just a few minutes, while at night, a delay of approximately 40 minutes is typical. We can respond anywhere in the territory, both day and night, and at all altitudes. The only limitations we face are adverse weather conditions, such as intense winds, clouds, fog, and snow."

To conduct these rescue missions successfully, they need a crew made up of a pilot and a winch mechanic. They have equipment to perform each type of rescue mission, like a camera, night vision goggles (NVGs), thermal binoculars, searchlight, winch, etc. Depending on the type of mission, they can take rescuers, doctors, investigators, or intervention teams (GIGN) with them. They only take off at night for verified life-threatening emergencies and with stricter weather conditions than during the day. Captain Herman explains what a rescue team consists of and the tasks these individuals perform: "A rescue team typically consists of five members: a pilot, a winch operator, two PGHM rescuers, and a doctor. This configuration can be adjusted based on the specific type of rescue. For instance, in an avalanche situation, it may be necessary to quickly deploy more rescuers during the search phase. The doctor might only become involved in the second or third rotation. Each member of the team has a specific role. The crew's mission is to transport the rescue team to and from the scene of the incident. To conduct this mission, they must hold a mountain qualification issued by the Gendarmerie."

Captain Herman continues, "The personnel from the PGHM (Peloton de Gendarmerie de Haute Montagne) are trained first aiders, judicial police officers, and high mountain guides, and they are responsible for conducting the rescue operations. Additionally, the doctor is an emergency physician who can work independently in mountainous and high-altitude environments, and he or she oversees making medical decisions. About the clothing, the following. We carry a survival kit in case we get stranded in the mountains. To prepare for this, we undergo all mountain survival training. We are equipped with clothing suitable for the environment, which allows us to move comfortably and protects us from the cold."

The helicopters are equipped with skis, winches, and an aluminium floor. This setup allows for climbing with crampons and includes rescue and survival equipment. Their performance is consistent, but working at high altitudes necessitates taking off at a light weight. Therefore, they only carry the equipment, personnel, and fuel that are strictly necessary to maintain this lightness.

Swift Response in the Face of Tragedy

The sAG's work is more than just technical ability—it is a mission of life and death. On April 9, 2023, the sAG was instrumental in responding to a massive avalanche on the Armancette Glacier, which tragically claimed several lives. The swift action and coordination between aerial and ground units highlighted the critical role of the sAG in managing large-scale mountain emergencies. Their rapid response



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allowed rescuers to reach survivors trapped beneath tons of snow, showing the vital role of aerial intervention in mountain emergencies.

Beyond rescue missions, the unit is also instrumental in medical evacuations, law enforcement support, and high-risk interventions, ensuring that no corner of the Mont Blanc massif is beyond reach.

The Lifeline of the Mont Blanc Massif

With over 60 years of experience in mountain rescue, the Gendarmerie Air Section of Chamonix is more than just a unit—it is a symbol of dedication, skill, and heroism. Their presence enhances the region's safety, giving adventurers the confidence to explore the majestic yet unforgiving landscapes of Mont Blanc.

Whether soaring through stormy skies or hovering inches above a frozen peak, these airborne rescuers embody the spirit of mountain rescue, proving that when disaster strikes, help is never far away.

Routine Rescues

The sAG conducts numerous rescues annually, ranging from assisting injured hikers to evacuating stranded climbers. For instance, in August 2022, the unit conducted multiple operations, including rescuing paragliders and elderly hikers, showcasing their versatility and readiness.

Increasing Tourist Activity

With the growing popularity of mountain tourism, SAG faces the challenge of managing an increasing number of rescue operations. Ensuring the safety of both tourists and residents requires continuous training and resource allocation. The SAG is continually updating its equipment and training protocols to incorporate the latest technological advancements, ensuring that they remain at the forefront of mountain rescue operations.

Future Outlook

The Gendarmerie Air Section of Chamonix stands as a testament to France's commitment to mountain safety and rescue excellence. Through rigorous training, advanced equipment, and unwavering dedication, the SAG continues to safeguard the lives of those who explore the majestic yet perilous terrains of the French Alps.

Captain Herman about the future expectations of the sAG Chamonix: "First, I want to continue to thrive at sAG in Chamonix and prepare for the arrival of the next helicopter scheduled for 2026 (H145D3). This is another positive advancement with a helicopter that is in many ways superior to the current EC145. Next to this, the technological evolution of helicopters and climate change are the primary factors that will impact our profession.

"Climate change leads to issues such as landslides, melting glaciers, and rising temperatures, all of which affect our performance and introduce new dangers. We rely on manufacturers to provide us with innovative technologies that will help us maintain a high level of flight safety while carrying out our missions. Therefore, FAGN must adapt to these changes by continuing to develop its equipment, ensuring that we excel in this challenging environment, just as we have for the past 60 years."

We would like to thank Captain Allerme from the Headquarters at BA107 Villacoublay and Captain Herman from the Gendarmerie Air Section Chamonix for making this article possible.

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RAMSTEIN FLAG 2025 NATO's Finest in the Air

Text and photography by Patrick Dirksen and Frank Mink of Tristar Aviation, unless otherwise stated.

For decades, large international exercises have been held at Leeuwarden Airbase in the north of the Netherlands, from Diatit in the early nineties to the more recent Frisian Flag. Mostly, nothing new. But this year, for the first time, the exercise was not initiated by the Royal Netherlands Air Force but by NATO. And that wasn't the only difference—this time, a large part of the participating forces operated from other airbases.

That also meant fewer aircraft operated from Leeuwarden AB than in previous years. Air Battle Manager Major Marcel Burgers explains, "This was partly done because we fly until late in the evening. But it is also much more realistic. If it is for real, you won't all be operating from the same airbase either, with all challenges regarding communications and such."

The initiative for the exercise, which was held from March 31 to April II, came from AIRCOM, NATO Air Command based at Ramstein AB in Germany-hence the name Ramstein Flag. The Netherlands volunteered to organise the exercise, with Leeuwarden as the main base. For two weeks, Finnish F/A-18 Hornets, German EF2000 Typhoons, Greek F-16s, Swedish JAS-39 Gripens, and American and Dutch F-35s called Leeuwarden home. Other aircraft operated from Eindhoven (Dutch A330 MRTTs and a Canadian CC-150 Polaris), Skrydstrup in Denmark (Danish F-35s, Hungarian JAS-39 Gripens, and



Italian EF2000s, F-35s, and a G550 Command and Control aircraft), and Coningsby and Lossiemouth (British Typhoons), Marham (Spanish F/A-18 Hornets), and Fairford (Romanian and Turkish F-16s and a KC-135 Stratotanker) in the United Kingdom. E-3 Airborne Warning and Control System (AWACS) aircraft from NATO and France, operating from their respective home bases, supported the Dutch Air Operations Control Station at Nieuw Milligen. Finally, Dutch naval frigate HNLMS Tromp participated with its NH90 helicopter.

Because of the increasing Russian threat, NATO AIRCOM felt the need for NATO air forces to train together more frequently and effectively. Hence, another Flag exercise was born. The scenario was based on the well-known Article 5: an attack on one member is an attack on all members. Lieutenant-Colonel Willy van Kampen was the officer with primary responsibility in the AIRCOM Exercise Division at Ramstein.

Greek F-16 returning after the afternoon mission in great evening light



He explained, "The Commander AIRCOM gave us a clear instruction for this edition: as realistic as possible. Hence, this second edition of Ramstein Flag was held at multiple airbases in multiple countries. Communication lines are therefore essential for proper mission planning, briefing, and debriefing." Secure video links were used to accomplish this, and to good effect, according to Van Kampen. He continued, "We don't have the numbers and the means anymore that we used to have. That luxury is gone. Next to that, we have switched from 'wars of choice' like in Afghanistan and Iraq to 'wars of necessity': only one and a half hours flying from here, a war is going on. We have to be able to defend our own territory."

Where air forces are indeed smaller than they used to be, NATO has recently grown with the membership of Finland in 2023 and, even more recently, Sweden, which joined last year. Both countries have participated in large exercises at Leeuwarden before, but for Sweden, this was the very first exercise they joined as a NATO member. Former display pilot Patrik Lange of F7 Wing, based at Såtenäs, flies the JAS-39C Gripen. "Our main target is to continue our NATO integration process, with large focus on planning, executing, and debriefing large-scale air operations. Furthermore, we can gain experience in being part of a larger force and flying in unfamiliar airspace with other pilots who do not speak Swedish. Also, deployment in another country in Europe offers a lot of good experiences,

especially for our younger pilots." A nice bonus for the Swedish detachment was the change from the harsh Swedish winter to the pleasant spring conditions in central Europe.

Fond as the military world is of acronyms, RAFL25 focused on enhancing capabilities in Counter Anti-Access/Area Denial (C-A2/AD), Integrated Air and Missile Defence (IAMD), Agile Combat Employment (ACE), and information sharing among participating Allies. Scenarios were based on earlier exercises, but unsurprisingly, lessons from the recent war in Ukraine were also taken into account. In total, just over 1,800 sorties were flown by more than 90 aircraft. Not only did the different air forces operate alongside each other in the air, but crossservicing was also conducted on the ground, adding to the realistic level of the exercise. Finally, missiles based on land and sea were involved as well, to assist in air defence.

An exercise like Ramstein Flag can never replace reality, but it is the best way to prepare both experienced pilots and young wingmen for a large-scale (air) war. General James Hecker, Commander of NATO Allied Air Command, described it fittingly, "We are here practising today to ensure that if we need to gain air superiority, we have the capability to do it." Based on the results of the exercise, this is surely the case, confirming NATO is prepared to respond decisively to any challenge, in any location, at any time.







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CC-150 POLARIS

Photographs courtesy of the Royal Canadian Air Force

During Exercise Ramstein Flag 2025, flying operations at Leeuwarden AB in the northern part of the Netherlands attracted many spectators. Dozens of jet aircraft taking off and landing every day was a spectacular sight for locals and aviation enthusiasts alike. However, the casual observer wouldn't have noticed that aircraft other than fighter jets also played a very important role in the exercise. A Royal Canadian Air Force (RCAF) Airbus CC-150 Polaris tanker aircraft was one of those.





personnel from 8 Wing, 437 Transport Squadron at Trenton, and Air Battle Managers (ABMS) from 22 Wing at CFB North Bay. Intelligence personnel and other support trades such as logisticians were also deployed.

The CC-150 Polaris carried out aerial refuelling missions throughout the exercise. Major Woods said, "We supported every mission where our capabilities were required, in total offloading over 650,000 pounds of fuel to allied aircraft. The Polaris uses a drogue refueller, which is compatible with specific aircraft. During the exercise, we refuelled Hungarian and Swedish Gripens, Finnish and Spanish F/A-18 Hornets, French Rafales, and German and British Eurofighters."

As is common in military aviation, extensive briefings were held before and after every mission. While preparing for this, each crew member had his or her own responsibilities:

- Aircraft Commander (AC), responsible for the overall execution and safety of the mission;
- Flight Refuelling Specialist (FRS), responsible for the air-toair refuelling portion of the mission;
- First Officer (FO), responsible for flight-specific details such as weather, NOTAMS, airport conditions, etc.;
- Loadmaster (LM), responsible for the safe loading of fuel and also cargo and passengers, if applicable.

Prior to engine start, the crew met, with each member briefing their portion of the mission plan. This provided a detailed overview of the entire mission and allowed for the opportunity to confirm any details with respect to how the mission would be executed. Once the mission had been completed, the crew met again to discuss the overall execution of the mission and raise any points (positive or negative) that were recognized during mission execution.

For the duration of the exercise, a large tanker task force was formed by several NATO nations. Alongside 437 Squadron's CC-150, this consisted of NATO's own Multinational MRTT Unit (MMU) A330s based at Eindhoven, a Turkish KC-135 temporarily operating from RAF Fairford in the United Kingdom, plus British, French, Italian and USAF tankers flying from their respective home bases. The size of the tanker task force underlined the importance of the ability to refuel in flight during large-scale operational missions. This importance is emphasized by the fact that the two Canadian CC-150s that have been converted to tanker aircraft will, in the near future, be replaced by no fewer than nine CC-330 Huskies, an Airbus A330-based Multi-Role Tanker Transport (MRTT) jet. But before that happens, Major Woods promised, Europe should be able to see the CC-150 at least once more during an international exercise. He concluded, "Ramstein Flag 2025 was a great experience for all RCAF members involved. The exercise advanced training opportunities in mission planning, execution and operational procedures, and thus contributed toward ensuring seamless integration and interoperability with our NATO allies and partners for the future."





Swedish and French participants during refuelling operations alongside the Canadian CC-150 Polaris



During the Second World War, 437 Squadron was formed in the United Kingdom as part of the RCAF. Their first operational mission, flying Dakotas, was towing gliders and hauling cargo as part of Operation Market Garden over Arnhem, the Netherlands. The casualties they suffered are buried at Groesbeek Canadian War Cemetery, the Commonwealth War Graves Commission cemetery containing the largest number of Canadian war dead in the Netherlands. Canadian airmen of multiple squadrons rest in 141 of the graves. Two of them were shot down in 1942 but not discovered until 20 years later.

During their stay at Eindhoven AB, the RCAF visited the Groesbeek cemetery. The visit was a deeply emotional experience for all involved, and it provided an opportunity to honour and reflect on the sacrifices made by Canadian and Allied forces during the conflict.

On Monday, April 14 and Tuesday, April 15, 2025, COAP Wings (Centre of Aviation Photography) organized a two-day photo shoot at RAF Odiham, where photographers had the unique opportunity

Royal Air Force's heavy-lift helicopter, the Boeing Chinook, including the HC5, HC6, and HC6A variants, as well as

station transitioned to a focus on rotary-wing aircraft, becoming 18 Squadron and No. 27 Squadron, all operating the Boeing Chinook and forming part of the RAF's Support Helicopter Force. The Chinook Display Team is also based at RAF Odiham, and the station is home to the headquarters of the photo shoot was also part of the 100th anniversary of RAF military and civilian personnel.





who ensured that the event ran smoothly and was very professionally organized. No. 27 Squadron of the Royal Air Force was formed on 5 November 1915 and currently operates the Boeing Chinook. In the past, this squadron and its Chinook helicopters conducted numerous important missions abroad, such as Operation Telic in Iraq, and Operations Jacana and Herrick in Afghanistan. Before undertaking duties with the heavy-lift Chinook helicopters, the pilots of No. 27 Squadron also flew the Douglas Dakota, English Electric Canberra, Avro Vulcan, and Panavia Tornado aircraft, among others.

On the first day of the photo event, photographers had the opportunity to photograph the mighty Boeing Chinook helicopters at sunset and in the evening as they conducted ground runs and several exercises. In addition, an



AgustaWestland Apache attack helicopter of the British Army Air Corps also visited RAF Odiham, and we were given plenty of time to photograph both the Chinook and the Apache from all possible angles.

During the second day, photographers attended a fire drill in the morning, where the fire department demonstrated how to extinguish a Chinook. At a special training area, RAF Odiham has a full-size metal frame of a Chinook helicopter that can be set on fire so that military firefighting teams can learn how to tackle such fires. This was followed by a visit to the military working dog section of RAF Odiham. Afterwards, the group of photographers was taken to a separate area of the air base where a Chinook helicopter performed touch-and-go exercises on a slope, followed by a sling load exercise with a container



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and a cannon. This was all carried out by a Boeing Chinook HC.6 with registration ZH900. In the afternoon, we were taken by bus to the Bramley Training Area, where Chinook helicopter ZH900 conducted numerous exercises. Bramley Training Area, spanning approximately 900 acres, is a British Army training camp located south of the village of Bramley, Hampshire, and is used regularly by recruits. In this vast training area, a Boeing Chinook HC6 helicopter from RAF Odiham conducted numerous landings and also picked up recruits who were at the end of their basic training. During these exercises at the Bramley Training Area, we got a close-up look at how the impressive Chinook helicopter was set down at small landing sites, in which communication between the pilots and the flight engineer or loadmaster is essential.

This two-day photo shoot was fantastically organized from start to finish, resulting in unique photos and unforgettable moments. So we would like to sincerely thank RAF Odiham, Flt Lt Andy Donovan, the pilots and crews of No. 27 Squadron, and COAP Wings for this wonderful event!

Peter Chick MD-M

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Remembering the Pioneers VIRGINIUS CLARK

Pioneer aerodynamicist Virginius Evans Clark was born on 27 February 1886, in the American state of Pennsylvania. He studied at the US Naval Academy and then served as a sailor with the United States' 'Great White Fleet', which consisted of sixteen battleships which were sailed around the world from 1907 to 1909. Clark was later assigned to the US Signal Corps' Aeronautical Division and in 1914, he began studying aeronautical engineering at Massachusetts Institute of Technology (MIT). Three years later, Clark began conducting research for NACA (National Advisory Committee for Aeronautics), the forerunner of NASA (National Aeronautics and Space Administration), whilst also founding US military's Aeronautical Systems Centre. Clark designed two experimental fighter aircraft, before being sent to France to serve in a commission to acquire aircraft for use in World War I.

In 1922, Clark developed the 'Clark Y' aerofoil profile, which was the result of substantial mathematical research to design the ideal cross-sectional shape of a wing. Early aircraft designers found that the 'Clark Y' aerofoil worked well for their designs.



As a result, the 'Clark Y' aerofoil was incorporated into dozens of aircraft designs. Examples include the Aeronca Chief, Lockheed Vega, Ryan NYP 'Spirit of St. Louis', various Wacos, as well as the futuristic Northrop Tacit Blue. Interestingly, an inverted 'Clark Y' was also used to provide downforce for racing cars, such as the Plymouth Superbird.

Clark also developed the 'Clark YH' aerofoil, which was similar to the 'Clark Y', but included a reflexed trailing edge. Examples of the 'Clark YH' can be seen with the Hawker Hurricane, Ilyushin Il-2 Shturmovik, Miles Magister, Nanchang CJ-6 and various World War II era Yakovlev fighters.

During the 1920s and '30s, Clark worked for the Dayton-Wright Company, Consolidated and later Fairchild. He was responsible for the

design of the Fairchild 100 utility aircraft, the General Aviation GA-43 airliner and the Fairchild F-46 light aircraft. Clark was later employed by Hughes Aircraft, where his construction methods were used to help construct the massive Spruce Goose transport aircraft. Virginius Clark died on 30 January 1948 at the age of 61. 😵



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