



THE DANISH SEAHAWKS

In 2012, the decision was made for Denmark to replace its maritime helicopters with new Sikorsky MH-60R Seahawk helicopters as an replacement for the Lynx.

NORTHERN LIGHTNING

Between August the 20th and 31st, the Northern Lightning 2018-2 exercise took place at Volk Field, Wisconsin.

LEBANESE AIR FORCE

Jeroen van Veenendaal takes a look into this rising air force, and reports from Lebanon.

THE ARCTIC TRANSPORTERS

The 109th Airlift Wing supports research activities in both Polar Regions, two of the most inhospitable areas on the planet.

The last issue of 2018 is here, and it gives you a unique insight in how the 109th Airlift Wing operates in the Arctic, and we're looking into the new Danish MH-60R Seahawk helicopters.

We hope you like the magazine - enjoy!

THE MAGAZINE

ARGONAUTS TRANSFER TO LIGHTNINGS

The U.S. Navy's first operational squadron just received its interim safe-for-flight operations certification, needing only to independently conduct its carrier qualification to receive the full certification.

04

'WARHAWKS' JOIN AMPLE STRIKE 2018

From the 3rd to the 14th of September 2018, international exercise Ample Strike 2018 was held in the Czech Republic. Rick Versteeg reports about the 'Warhawks' joining in.

12

THE ARCTIC TRANSPORTERS

The 109th Airlift Wing supports research activities of the National Science Foundation in both Polar Regions, two of the most inhospitable areas on the planet.

20

U.S. ARMY APACHES IN EUROPE

Darren Willmin looks into the deployment of the US Army's 1st Air Cavalry Brigade (1ACB) to the European theater.

36

NORTHERN LIGHTNING 2018-2

Between August the 20th and 31st, the Northern Lightning 2018-2 exercise took place at Volk Field, Wisconsin. Ivan Voukadinov reports from the exercise.

48

THE DANISH SEAHAWKS

In 2012, the decision was made for Denmark to replace its maritime helicopters with new Sikorsky MH-60R Seahawk helicopters as an replacement for the Lynx. FLYMAG takes a look at the new type.

58

LEBANESE AIR FORCE, A RISING AIR FORCE

The Lebanese Air Force was established in 1949, six years after gaining independence from France. Jeroen van Veenendaal takes a look into this rising air force.

74



ARGONAUTS TRANSFER TO LIGHTNINGS

TEXT & PHOTOS - PATRICK ROEGIES

The U.S. Navy's first operational squadron just received its interim safe-for-flight operations certification, needing only to independently conduct its carrier qualification to receive the full certification.



An US Navy F-35C from VFA-147.
Photo by Patrick Roegies

Low level flying

The U.S. Navy's first operational squadron just received its interim safe-for-flight operations certification, needing only to independently conduct its carrier qualification to receive the full certification. In preparation for the transition to the F-35C Lightning II, the U.S. Navy re-activated Strike Fighter Squadron (VFA) 125 "Rough Raiders" as the Fleet Replacement Squadron (FRS) for the platform in January of 2017. One of the roles of the FRS is to help with the introduction of a new aircraft type/model/series to the Fleet. These squadrons are assigned responsibility for the conversion of the operational squadrons to the new platform. The VFA-147 "Argonauts" was carefully selected as the first operational squadron to make the conversion from the F/A-18E Super Hornet to the F-35C.

The Argonauts have a long history with the Hornet and Super Hornet. They received their initial F/A-18C Hornets on 20 July 1989 and performed their conversion to that platform using the assets of the Rough Raiders. At the time, VFA-125 was the current FRS for the Hornet. The Argonauts received its first LOT XII "Night Attack" Hornets in December 1989. After a deployment to the Persian Gulf in March 1991 in support of Operation DESERT STORM, VFA-147 became the Navy's first operational F/A-18 squadron to employ the Navigational Forward Looking Infra-Red pods (NAV FLIR) and night-vision goggles (NVG). In June 1995 they completed the transition to new LOT XVI/XVII F/A-18C aircraft with the APG-73 radar and Enhanced Performance Engines. In May 1998 the squadron traded their Lot XVI Hornets for Lot XI Hornets received from VFA-195. The squadron began conversion to the F/A-18E Super Hornet in October 2007 and successfully completed their transition in February 2008.

Operating the F/A-18E Super Hornet, the squadron completed a number of deployments at a very high rate. During their 2010 pre-deployment workup cycle, the squadron was awarded the 2009 Pacific Arleigh Burke Fleet Trophy for their enormous strides in battle efficiency since their transition to the F/A-18E Super Hornet. In 2013 the Argonaut maintenance team won the Golden Wrench Award and the Lt. J.G. Bruce Carrier Maintenance Award for the first part of cruise for their outstanding maintenance department and the ability to be the go-to squadron in Carrier Air Wing 11.





*This F-35C from VFA-147 takes a break from the sun.
Photo by Patrick Roegies*



Going to Africa

VFA-147 recently completed their deployment with CVW-11 embarked on USS Nimitz (CVN 68) and returned to their home base at Naval Air Station Lemoore (NASL) in December 2017 after a six-month deployment operating the F/A-18E Super Hornet.

Almost immediately after returning home, the Argonauts started the conversion process from the F/A-18E Super Hornet to the F-35C Lightning II. Although some level of training took place at Eglin Air Force Base (AFB), most of the training of the maintainers and pilots took place at NAS Lemoore.

VFA-147 personnel worked with VFA-125 to complete the required qualifications and syllabus events to gain hands-on experience with the aircraft. Additionally, maintaining this new platform requires more space and as a result a new hangar was remodelled and appointed to the F-35C. Compared to the existing F/A-18 hangars, the new hangar is larger and provides sufficient space for the necessary maintenance operations. Currently, additional hangars are scheduled for construction for future, additional F-35C squadrons.

A mixture of F-35Cs from VFA-101 "Grim Reapers," VFA-125 and eventually VFA-147, all assigned to Commander, Joint Strike Fighter Wing (CJSFW), were used to facilitate the training and certification of the U.S. Navy's first operational F-35C squadron.

VFA-147 received its first aircraft on the books in early October 2018. Since the F-35C does not have a two-seat trainer variant, the basic training principles were provided by the use of the full-mission simulator. For training purposes, several simulators are implemented at NAS Lemoore with additional simulator assets scheduled for delivery as the program grows at the installation. AT Chief Joseph Walter of VFA-125 stated "The simulator is very accurate and resembles real-time situations in very high detail."

New equipment

After almost three months of simulator training, on the 18th April 2018 VFA-147 carried out its first flight on the F-35C.

On the 19th October 2018, Commander Joint Strike Fighter Wing issued the Argonauts its interim safe-for-flight operations certification status. The interim safe for flight operation certification is the final step for the squadron's conversion from F/A-18E Super Hornet to the F-35C Lightning II and is one of the crucial steps for the U.S. Navy's F-35C program to obtain Initial Operating Capability (IOC) early 2019.

The finalisation of the safe-for-flight operations certification process ensures that the squadron has sufficient qualified personnel to implement safety and maintenance programs in support of fleet operations. Once the squadron has independently completed carrier operations they will receive the full safe for flight operations certification.

IOC will be declared once the full capability of the U.S. Navy's F-35C program has been demonstrated and all remaining criteria have been met. Once the IOC has been acquired, the following steps will be toward the successful integration of the aircraft into the Fleet. This is scheduled to begin in February 2019, preparing for the first actual deployment of the Argonauts in 2021 embarked on USS Carl Vinson (CVN 70).

The ambitious plans of the U.S. Navy comprise additional squadrons to be equipped with the F-35C to operate alongside the F/A-18E/F Super Hornets in the state-of-the-art future Naval Strike Fighter Wing. Although the next squadrons to start the conversion to the F-35C have not yet been selected, construction plans for the new hangar locations at NAS Lemoore have started. The Joint Strike Fighter Wing's main focus will be expanding the F-35C capabilities within the U.S. Navy and managing the conversion of all selected squadrons to the new fifth-generation fighter.

'WARHAWKS' JOIN AMPLE STRIKE 2018

TEXT - RICK VERSTEEG
PHOTOS - RICK VERSTEEG & HANS DROST

From the 3rd to the 14th of September 2018, international exercise Ample Strike 2018 was held in the Czech Republic. Rick Versteeg reports about the 'Warhawks' joining in.



*All ready for the next mission of the day at Ample Strike
Photo by the authors*

'Warhawks' F-16s join Ample Strike

From the 3rd to the 14th of September 2018, international exercise Ample Strike 2018 was held in the Czech Republic. This annually recurring exercise is geared toward honing the skills of Joint Terminal Attack Controller (JTAC) teams in various types of combat situations, such as Close Air Support in built-up areas. Furthermore, as exercise director Colonel Zdeněk Gabriel states, "An integral part is also the development of the capabilities of our Army units to provide host country support for foreign units operating in the Czech Republic".

As many as 1,200 military personnel from 19 NATO member- and partnership countries participated in the exercise. Six F-16s from the Arizona Air National Guard's 195th Fighter Squadron 'Warhawks' joined the action.

JTACs

A significant part of the exercise participants were members of JTAC teams. More than 20 teams were on the ground to train their skills, all day and into the night with different platforms including artillery. The task of JTACs is to direct combat aircraft engaged in close air support and other offensive air operations from a forward position on the ground. During Ample Strike, JTACs were in the field at a number of training ranges in the Czech Republic calling in airstrikes from fighter aircraft flying above.

Objectives to defend

Main objectives to defend were Čáslav Airbase, Náměšť nad Oslavou Airbase and Pardubice Airport. Aircraft used for the training included Czech L-159 ALCA, JAS 39 Gripen, Mi-24/35 and Mi-171; German PC-9, Learjet and Tornado jets; Hungarian JAS 39 and Slovenian PC-9 planes, as well as two Lithuanian L-39Z Albatrosses.

Original plans called for the Polish Air Force to send four Su-22 Fitters to Náměšť AB, however, their participation had to be cancelled due to technical reasons of a flight safety nature.





The ground crew are handling the F-16 after a mission at Ample Strike
Photos by the authors

U.S. participation

The United States Air Force sent six F-16C/Ds to Náměšť Airbase. Additionally, a B-52H and a KC-135R Stratotanker took part in AMSE18. The BUFF operated out of RAF Fairford, UK, whereas the KC-135R flew tanker support missions from Pardubice.

Náměšť Airbase is known as the 22nd Helicopter Base Sedlec, and is located in Víckenice near Náměšť nad Oslavou in the Vysočina Region of the Czech Republic. The six Vipers belonged to the Arizona Air National Guard's 195th Fighter Squadron, aka Warhawks. Late August, they found their way to Náměšť AB. Even though the Arizona ANG's 195th FS is a Formal Training Unit whose main task is to qualify new pilots in the F-16C, they still get to participate in live flying exercises - all in order to keep their Instructor Pilots combat ready.

Exercise first: Enstrom 480 B-G

An exercise first was the short participation of the ACR's newest helicopter, the Enstrom 480 B-G with serial number 0459. Operated by the Centrum Leteckého Výcviku (CLV - Flight Training Center) at Pardubice AB, it flew in formation with a Mi-24 to test communications systems over the military training area in Boletice.

"The Enstrom helicopter has tested its radio systems and coordination with other aircraft, in particular the Mi-24 helicopter. It was, of course, only training and testing the capabilities of this machine, on which the training of future military helicopter pilots will be carried out", according to a pilot of the 221st Helicopter Squadron.

The Enstrom 480 B-G replaces the aging Mil Mi-2 series of helicopters as the CLV's basic rotary wing training aircraft. At the time of writing this, only one Mi-2T Hoplite remains in service (snr 0711), but it's days are numbered as well.



THE ARCTIC TRANSPORTERS

TEXT & PHOTOS - ROGIER WESTERHUIS

The 109th Airlift Wing supports research activities of the National Science Foundation in both Polar Regions, two of the most inhospitable areas on the planet. FLYMAG travelled to Greenland to learn more about this unit's unique challenges and mission.



A LC-130J from the 109th Airlift Wing in the environment it's built for, the arctic.
Photo by Rogier Westerhuis

The arctic transporters

The 139th Airlift Squadron, part of the 109th Airlift Wing of the New York Air National Guard, is probably the only flying unit that operates at both far ends of the world. The Wing supports research activities of the National Science Foundation in both Polar Regions, two of the most inhospitable areas on the planet. FLYMAG travelled to Greenland to learn more about this unit's unique challenges and mission.

Created in 1948 as a Fighter Squadron, the 109th flew the F-47 'Thunderbolt'. It flew fighters until 1960, which saw the introduction of the Boeing C-97 'Stratofreighter' and shift to a global transport role. The unit became the 109th Air Transport Group and in October 1995 the 109th Airlift Wing (AW.) In April 1971, the unit received its first Lockheed C-130A 'Hercules', which it still operates today (albeit a different version.) The Wing is based at Stratton Air National Guard Base, Schenectady in the State of New York.

Distant Early Warning

Constructed in the mid-1950s, the Distant Early Warning (DEW) Line was designed to detect Russian bombers during an attack through the Arctic. Its line of radar sites stretched from Iceland through Greenland, Canada, and Alaska. Two of the four DEW sites in Greenland, DYE-2 and DYE-3, were located high on the ice sheet and only accessible by air.

Originally the task of delivering personnel and goods was assigned to the 17th Tactical Airlift Squadron, 'Firebirds', based in Alaska, but in 1975 the responsibility was transferred to the 109th AW including the unit's eleven C-130s. Five were equipped with skis and designated C-130D. Eventually, new satellite technology and the end of the Cold War led to the closure of Greenland's DEW sites and the last flight to DYE-3 in December 1989 marked the end of the DEW line mission.

In 1984, the ageing C-130As and Ds were replaced by eight new C-130Hs, four of which were equipped with skis and designated LC-130 'Skibirds.' Today the Wing has twelve C-130s, ten 'Skibirds' (of which four are owned by the National Science Foundation (NSF)), and two standard C-130Hs, locally referred to as the 'Wheelbirds.'

A new priority

When the DEW line mission ended, the Wing lost its main tasking and instead began to support the NSF, a role that expanded dramatically in the 1990s and today, though technically part of the US Department of Defense, the Wing's main task revolves around the NSF. The NSF funds operations in both the Antarctic and Greenland. Training and flights that have a military purpose are not paid for by the NSF and covered by the Wing's own budget.

Supporting science in Greenland

From April to September, the 109th AW operates in Greenland on two-week rotations during which the Wing deploys three or four LC-130Hs and approximately 80 airmen to Kangerlussuaq Airport previously known as Sondrestrom Air Base.

The 109th operates off the southern platform and runs its operations out of the old fire station. The facilities are basic but sufficient. From here, the 109th AW supports two science research camps. The first, Summit Camp, is located at 10,500-ft on an ice sheet 420 miles north-east of Kangerlussuaq

The second, EastGRIP Camp, is located 560 miles north-east from Kangerlussuaq and home to the East Greenland Ice-core Project. Here, researchers collect ice cores by drilling into the ice.

The 109th AW transports fuel, personnel, equipment, and provisions to both. Fuel is either carried in 55-gallon drums or pumped out of the aircraft's fuel tanks into storage tanks by civil contractors. The Wing also transports parts of the ice core from EastGRIP to the US, a delicate undertaking as changes of the ice core temperature could damage the sample.

During this summer's operations in Greenland the Wing flew 238 missions (146 of those were training flights at Raven Camp), transported 1.6 million pounds cargo, 67,915 gallons of fuel and 780 passengers.



Camp Raven

The 109th AW crew mostly trains at Camp Raven. The camp, with its single skiway and a cross open snow landing area, is located at 7,000 ft above sea level right next to the abandoned DYE-2 radar site 100 miles east of Kangerlussuaq. Day-to-day management is the responsibility of a married American couple from Ohio. Living in isolation all summer, they make sure that the skiway is maintained for flight operations and communicate weather and snow conditions to the crews of incoming aircraft and Flight Operations at Kangerlussuaq.

Maintaining the skiway is a laborious task and it can take over 12 hours to complete. The skiway has to be cleared of snow drift and be made as smooth as possible, a job that's become a bit easier with the recent arrival of a new PistenBully snow groomer. Although the camp is run by the NSF, it's used by the 109th AW for currency training and to train new crews in polar operations and flying with skis. The camp is also the location for the 109th AW's annual survival course, Kool School.

Kool School

The extreme environment at the Polar Region makes any aircraft incident potentially deadly. With help from survival instructors from Eielson Air Force Base in Alaska, the 109th Aircrew Flight Equipment branch part of the 109th Operations Support Squadron created the Barren Land Arctic Survival School, known as 'Kool School'.

In the early days, only air crew went through Kool School, but now any personnel that could find themselves stranded in this type of environment are offered the course. The syllabus includes two days in a classroom followed by two nights and three days out on the ice sheet. Students learn how to build snow shelters and stay warm as well as signalling methods, the use of survival equipment, and the physical and psychological factors of surviving in a freezing environment.

Every flight in the Polar Region carries individual extreme cold weather survival bags with equipment for all its crew and passengers. The student roster of this year's Kool School included the 109th AW's new commander, Col Michele L. Kilgore, who took command in October 2017.





Operation 'Deep Freeze'

Operation 'Deep Freeze' is the general term for logistical support provided by the US military to the US Antarctic Program which is managed by the NSF.

Initially, support to NSF operations in the Antarctic was provided by the US Navy's Antarctic Development Squadron Six (VXE-6.) In 1988 the US Navy asked the Air National Guard for support when some of its ski-equipped C-130s had to go through depot-level maintenance, which left VXE-6 short on capacity. The 109th AW sent aircraft and staff to work alongside VXE-6.

In 1996, the 109th AW completely took over from the US Navy, a transition that started in October and took three years to complete. The LC-130s from VXE-6 were transferred to the 109th AW, which became the only operator of the type in the world. Consolidating polar flight operations gave the US military an opportunity to keep its capability of quick and reliable air access to the Polar Regions.

Operation 'Deep Freeze' normally starts with the 109th AW's arrival at McMurdo Station on the southern tip of Ross Island in October and lasts until February. Most of its flights are in support of Amundsen-Scott South Pole Station, one of the NSF's three year-round research stations. During the '17/'18 season, the Wing completed 120 missions, flew an estimated 2,300 researchers and support staff, carried around 135,000 gallons of fuel and 2.7 million pounds of cargo to research stations around the continent.

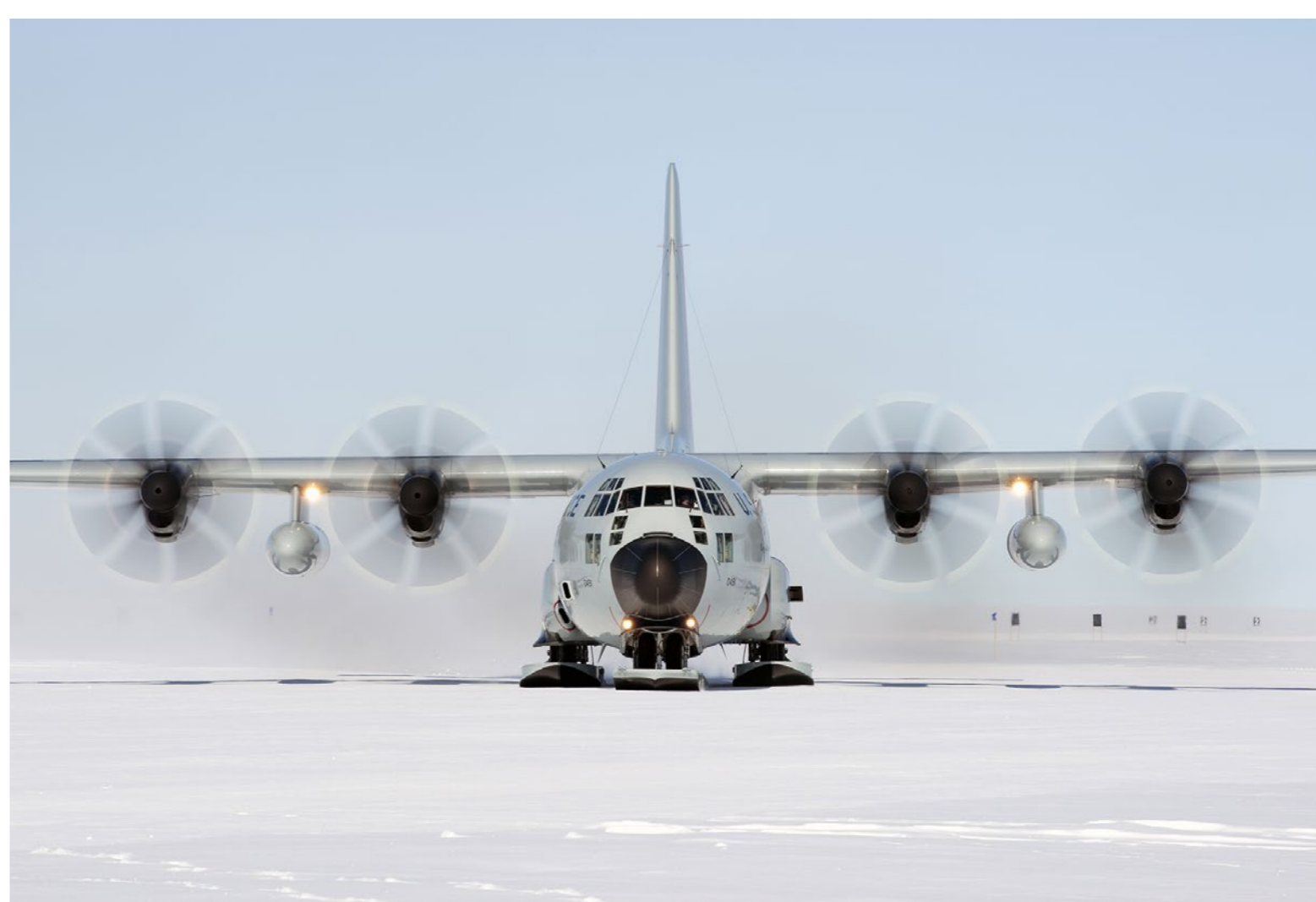
"Herbies"

With over 7,500 hours mostly on C-130s, Lt Col Tom Esposito offers this insight: *"Flying in Antarctica is more challenging because the weather is even more unpredictable [than the Arctic] and meteorologists have fewer tools [at their disposal] to produce a reliable forecast. If the weather suddenly changes we have limited options to divert. So we are constantly considering our options."*

The area around McMurdo is prone to sudden blizzards, locally known as 'Herbies', which might prevent a safe landing on the skiway.

Lt Col Esposito continues: *"Not far from McMurdo we have the whiteout area, an area of a few square miles that is surveyed yearly to make sure it is suitable for us to land on. The area gives us a safe option to land in a situation of zero forward visibility and with zero ceiling."*

A whiteout landing is extremely unnerving because, unlike in the commercial world where the autopilot would manage the landing, we fly it totally by hand. The role of the navigator is essential as our aim is to land with zero drift. Although we do train whiteout landings in simulators, thankfully the actual need to do it is extremely rare."





The take-off

Flying off snow and ice is a lot more challenging than flying off other hard surfaces and a successful take-off is certainly not guaranteed. Lt Col Esposito explains: *“Although the ski landing does require practice, it is relatively easy. The take-off is challenging. Snow conditions are never the same and change with a change in temperature, its freshness, its moisture content and even the angle of the sun can impact the snow. In ski-missions there are no standards!”*

Though the bottom of the skis are covered in Teflon to minimize friction, their large surface area still causes a lot of resistance, which greatly deteriorates the take-off performance. Because aircraft operating on skis require a longer take-off run than those on wheels, the length of a skiway can exceed 17,000 feet, a lot more than a C-130 needs on a conventional runway.

Depending on the snow conditions, this length is sometimes still not enough and if the aircraft hasn't taken off 2,000 ft before the end of the runway, the take-off is aborted.

A take-off attempt is called a slide. Lt. Col. Esposito: *“We have to try different techniques to take-off. Sometimes we set 50% flaps, sometimes 100% and sometimes we change the flap setting during the take-off. The objective is to get the nose-ski in the air quickly and assuming the remaining skiway is long enough a take-off is almost guaranteed.”*

“The centre of gravity is important, and we prefer to have it towards the rear of the aircraft,” adds 1st Lt Emmanuel Terrazas, another LC-130H pilot.

Lt Col Esposito continues: *“Weight is another consideration. More fuel gives us more endurance, but the extra weight makes it harder to take-off. We sometimes use ATO (assisted take-off) bottles which gives us a boost [in thrust] equivalent to having a 5th engine for approximately 15 seconds. This is often enough to lift the nose-ski off the snow.”*

Ski combat off-load

Snow conditions aren't the crews' only concern. When operating on snow, a cross-wind more than 15 knots will cause the aircraft to drift too much on approach and if the wind exceeds 35 knots it could push the aircraft off course on the ground. So these are the limits.

Also, the skis can freeze onto the snow as friction causes snow to melt which refreezes. To avoid this, the crew lift the skis when the aircraft is stationary. If the aircraft does get stuck, engine power alone might not be enough to move the aircraft and some old-fashioned digging by hand could be the only option. If the risk of the aircraft getting stuck is high, the crew uses a 'ski combat off-load' where the cargo pallets are pushed off the ramp whilst the aircraft is taxiing. The aircraft doesn't come to a complete stop.

To avoid other issues related to the freezing temperatures, the engines are not shut down when the aircraft is on the ground and personnel have to deal with the prop wash. The wind chill behind the turning props can drop the temperature to as low as -60°C!

Crew coordination

Landing a 'Skibird' in poor weather conditions requires great crew coordination; every crew member in the cockpit plays an essential role. The initial approach is directed by the navigator. Bamboo flag poles that mark the skiway have radar reflecting material, which the on-board radar detects and the navigator uses to fly a non-precision airborne radar approach (ARA.) Flags form an extended centreline up to two miles from both ends of the runway.

The navigator will guide the flying pilot, constantly giving information on distance and drift. Once the navigator has guided the aircraft onto the final approach path, the co-pilot will search for the flags that form the centreline. The moment the co-pilot sees the flags and can visually guide the pilot, he'll say “co-pilot has approach” and take over the responsibility for directing the pilot from the navigator. He will then continue to give the pilot simple instructions and guide him towards the runway.

Flying in a ping-pong ball

The final approach path is relatively flat with only a 1.5° glideslope, which allows more time to make corrections. The flying pilot will continue to fly by constantly monitoring the instruments. He/She will not look outside to avoid disorientation. The co-pilot will call “continue descent” when he has identified at least three pairs of flags. The next and final step is for the pilot to switch his/her focus from instruments to the skiway. He/she will confirm “pilot has the skiway” and land the aircraft.

When the pilot shifts his/her attention from inside the cockpit to the outside, the co-pilot continues to monitor the instruments. Throughout the whole approach, the navigator will continue to pass on information about height and drift whilst the flight engineer closely monitors the systems. Approach minima are a 300-ft cloud base and 1 mile forward visibility.

During the weather briefing the crew also get a surface and horizon definition. The surface definition tells the crew whether they will be able to see the texture of the snow at the final stages of their approach, which gives them a height reference.

The horizon definition, which gives them an idea about how easy it is to see the horizon, gives a reference to the aircraft’s attitude. The definitions are ranked from good to nil. When both are nil the crew have no visual references as the white sky totally blends in with the snow below, creating one white mass. The crew refers to it as flying in a ping-pong ball.

Celestial navigation

Navigating in the Polar Regions is challenging. The ‘Skibirds’ are equipped with a Self-Contained-Navigation-System (SCNS.) This is a combination of GPS, Doppler radar and an inertial navigation system (INS.) There are fewer navigation aids, GPS is less reliable and the effects of variation and the convergence of longitude lines both greatly affect the reliability of a standard compass.

Crews use different navigation methods to overcome some of these challenges. Long-time navigator Lt Col Ron Ankabrandt explains: *“Magnetic variation has a significant impact on our ability to navigate accurately in the Arctic. The magnetic north is currently somewhere on Ellesmere Island [in northern Canada], 500 miles south of the true north. Instead of using a standard compass, we use a grid system once we fly higher than 72° [latitude] north or 60° [latitude] south.”*

The grid system is based on a grid that has been overlaid on a navigational chart typically oriented parallel to a specified meridian of longitude. Lt Col Ankabrandt continues: *“In order to fly the grid, you need to be grid qualified and our unit is probably the last unit in the world that maintains this qualification.”*

Navigators flying with the 139th AS are also qualified in celestial navigation and the use of an old-fashioned sextant, an instrument that measures the angular distance between two objects and so helps to determine a position. Though the navigator role is disappearing with technological advances, the 109th AW is likely to keep the role due to the complexities of navigating in the Polar Regions.





Maintenance

During each two-week rotation in Greenland an average of 40 technicians support flight operations. There are no maintenance hangars for these technicians to work in.

MSgt Michael Hill of the 109th Aircraft Maintenance Squadron explains: *"We have some of the hardest maintenance jobs in the Air Force. All our work is done outside in temperatures that often drop well below freezing. We use heat ducts to get some warmth, but our biggest safety concern is the time that someone is exposed to the weather. Hypothermia is a real risk so we have different work/rest cycles. Work takes longer to complete. A two-hour job at home could take two days here in the Arctic, especially if we're asked to address an issue out on the ice. We've had to do engine changes in Antarctica with temperatures as low as -34°C. It's like working on top of a giant ice cube! We work in Greenland for a few months, then a few months later we are in Antarctica. We constantly chase the cold and not everyone can handle that."*

Flying in the Polar Regions is harder on the airframe too. MSgt Hill continues: *"Our aircraft fly more than most other units. Snow operations are hard on the landing gear. The skis add an additional 5,000 lbs of weight and the terrain we fly on is rough, especially when we fly off the open snow. The landing gear requires a lot of attention and the condition of the skis' Teflon coated base has to be checked after each mission."*

NP2000 modular propeller upgrade

The 109th AW is currently in the process of upgrading its ten LC-130H 'Skibirds' with the NP2000 modular propeller system. The propeller consists of eight composite blades that can be replaced individually for easier maintenance. Not only are they easier to transport, the system is also more reliable. Perhaps the biggest advantage and one of the reasons why the 109th AW is the first unit to use this system operationally on its C-130s (the US Navy already uses this on its E-2 Hawkeyes and C-2 Greyhounds), is the fact that it delivers more thrust.

Strategic benefit

Lt Col Esposito explains: *"The extra thrust produced by the new propellers is a real benefit during take-off. Without the support of ATO bottles it's sometimes almost impossible for us to get off the ground. Recently a 'Skibird' still equipped with the old propeller made 21 slides. That's a combined take-off distance of 60 miles before it finally managed to take-off. With the new propeller this wouldn't have happened."*

The new propeller replaces the need for ATO bottles. As part of the upgrade these aircraft are also equipped with a new Electronic Propeller Control system (EPSC) and an in-flight propeller balancing system (IPBS), which together provide improved safety, reduced maintenance downtime and increased reliability. By the end of 2018 all ten 'Skibirds' should have been modified.

Although it predominantly supports the NSF, the 109th AW keeps a military tasking too. It regularly flies into Thule Air Force Base, the USAF's northernmost base on the northwest side of Greenland, as well as occasional missions into Canadian Forces Station Alert, in the Canadian Arctic Archipelago. Additionally, the Wing supports NORAD and was recently involved with the set-up of a skiway on the open ice as part of exercise 'Polar Reach'. It further supported operations in the Middle East and Asia, and has provided relief flights after hurricane Irma struck the Caribbean in September 2017.

Climate change will have a big impact on the Arctic and is increasing the regions' strategic importance. Countries bordering the Arctic are increasing their influence in the area and are expanding their military capabilities. Although the need for ski-equipped transport aircraft almost disappeared when parts of the DEW-line were decommissioned, the USAF made the strategic decision to keep its capability to operate in the Polar Regions. Although for the last thirty years it mainly benefitted science, in the near future having this capability could well become a real strategic benefit. Whatever the future holds, the 109th Airlift Wing is used to a cold challenge, something it handles very well indeed.

The author wishes to thank MSgt Catharine Schmidt, Sgt Benjamin German, Sgt Jamie Spaulding and everyone else from the 109th Airlift Wing who contributed to this article.

U.S. ARMY APACHES IN EUROPE

TEXT & PHOTOS - DARREN WILLMIN

Darren Willmin looks into the deployment of the US Army's 1st Air Cavalry Brigade (1ACB) to the European theater.



Hot refuelling complete, the AH-64E of 1-227th AVN readies for departure at JMRC, Hohenfels. Photo by Darren Willmin

U.S. Army Apaches in Europe

Numerous things have changed since the Russian occupation of Crimea in Ukraine, in addition to the Russian involvement in the Syrian Civil War. As a result of these factors, NATO had to change their stance on bolstering security on the borders of at-risk member nations in the region with help from more capable key members.

The US Army's 1st Air Cavalry Brigade (1ACB) first arrived at the port of Zeebrugge, Belgium, in November 2017 where they relieved the 10th Combat Aviation Brigade based at Fort Drum, New York. This was after their own nine-month rotation in Europe as part of the continuing deterrence mission. The Brigade headquarters, together with the majority of helicopters and personnel, will primarily be operating out of Illersheim, Germany.

1ACB's primary mission is participating in Atlantic Resolve, a continued U.S. commitment to collective security through a series of actions designed to reassure NATO allies and partners of America's dedication to enduring peace and stability in the region considering the Russian intervention in Ukraine.

Once off-loaded from the ships in Zeebrugge, the helicopters transferred to Chièvres airbase in Belgium as a staging point before transiting onwards to their operational locations, including Powidz Air Base, Poland where four Apaches were destined to reside and Illersheim where the remainder of 1-227 Aviation Regiment will operate.

With the preparation for Atlantic Resolve, AH-64E Apache helicopters from 1ACB deployed to Stork Barracks (Illersheim) Germany as their main operating base, but as and when needed, they transit to other locations as training and exercises dictate. The 615th Aviation Support Battalion (615th ASB), "Cold Steel," provides logistics and maintenance support for the 1st Air Cavalry Brigade and the 1st Cavalry Division. The maintenance facility for 615th ASB is at Illersheim but deploy to designated Areas of Operations to conduct support operations for the Brigade.

The first deployment of the 'E'

The 1-227th AVN REG is an attack helicopter battalion, a sub-unit of the 1st Air Cavalry Brigade is an AH-64E Apache battalion based at Fort Hood, Texas in the United States of America.

A typical Army attack aviation battalion consists of 24 aircraft organized into three battalions of eight airframes. This being the first time the "E" model has deployed to Europe and whilst here, will conduct a vast array of training.

1st Attack Reconnaissance Battalion, 227th Aviation Regiment (1-227th AVN (ARB)) "First Attack"

- **Attack Reconnaissance Company Alpha (A/1-227th AVN (AR))**
AH-64E "Avengers"
- **Attack Reconnaissance Company Bravo (B/1-227th AVN (AR))**
AH-64E "Reapers"
- **Attack Reconnaissance Company Charlie (C/1-227th AVN (AR))**
AH-64E "Vampires"

With the preparation for Atlantic Resolve, 1-227 AVN REG, 1ACB forward deployed to Storck Barracks (Illersheim) Germany before moving onto other locations including Grafenwoehr and Hohenfels.





Gunnery Training in Europe

Grafenwoehr Training Area in Germany is the U.S Army's largest permanent training facility in Europe, supporting NATO and partner nations' live firing requirements. 1ACB at various stages deploy six Apaches to this location for live fire gunnery training. CW4 Salvador Chavez, Apache Pilot for 1-227th AVN explained, "Every training program including gunnery must be carefully planned, assessed and accomplished".

He continued to highlight, "The typical mission and flying time can run from 1 hour up to 9 hours in the cockpit depending on the mission status". Marking the temporary duty (TDY) location a gathering of tents, refuelling vehicles, and storage containers line the woods near the Apaches landing pads.

A temporary tower overlooks the entire range and the unit's base of operations. From the tower, AH-64E qualified pilots will observe the sortie for accuracy.

CPT Tyler Federwisch, Apache Pilot for 1-227th AVN REG describes how the gunnery tables and flying modes work out while at the range. "Each Apache team will fly three or four gunnery tables which are used for pre-qualification training and commander's evaluation for newly assigned aircrew members. Each unit will use these tables to evaluate the instructors or conduct refresher training for qualified aircrew. These tables will be assessed by a senior instructor with the table or 'training lane' becoming more challenging as the gunnery exercise progresses".

The Apache attack helicopter has four modes of fire gunnery operations and will engage the targets in these modes.

1. **Hover fire** – if specified on a gunnery task, the crew will conduct the task from a stationary hover.
2. **Moving fire** – an engagement from a moving helicopter in any direction.
3. **Running fire** – an engagement from a moving helicopter. Both direct and indirect fire can be distributed during running fire.
4. **Diving fire** – an uninterrupted fire engagement from a helicopter that is in a diving flight profile.

The weapons of the Apache

With good tactical methods the Apache attack helicopter has three formats of engagement which include suppression, neutralisation, and destruction. Training suppression on live-fire gunnery ranges provides limited training value. The amount of ammunition required to suppress a target is not precise, additionally, all weapons mounted on the Apache have the capability to suppress targets.

Neutralisation training is for crews to engage targets and make the areas of attack safe from any threats, this will allow units to set-up an assembly area complete with tents and vehicles in the range impact area while allowing crews to engage the area with rockets. When a crew completes the task, the master gunner inspects the target area and counts impacts.

To simulate vehicles sometimes silhouettes on the range will be placed and used as central aim points. Destruction puts a target out of action permanently with direct hits using high-explosive munitions. Precision guided missiles are used against hard targets during destruction training missions on the range. While other weapons may be used for destruction, mission planning will normally focus on Hellfire missile.

"Depending on the type of training mission the Apache's initial point of attack could range from 8 to 10 kilometres from the target, this would depend on the weapon systems being used at that time" a factor highlighted by CW4 Chavez.

CW4 Chavez mentions "The 70mm Hydra 70 rocket is a 'family' of varying rockets with one type better known as the flechette warhead detonates 150 meters before the predetermined range set by the rocket management system. After detonation of the warhead, the flechettes are deployed and create a flechette cloud that becomes a cylinder after 150 meters".

Whilst describing the use of Hellfires, he detailed, "The Hellfire Missile effective range is 8,000 metres. With an onboard laser designator, crews can engage targets at ranges up to the maximum effective range. Ideally, aircrews should engage enemy helicopters indirectly with the Hellfire. The target can be designated by ground lasers. This capability allows aircrews to fire the missile from concealed positions behind concealed terrain".

Forward Arming and Refuelling Points

SPC Cedric Bell from the 615ASB explained the FARP (Forward Arming and Refuelling Point) procedure. *“The FARP is an essential method for providing aircraft with fuel and ammunitions in the battlefield. Each FARP must provide aircraft limited maintenance and medical support if required. It must be able to house enough fuel for a company of attack helicopters. The sole purpose of the FARP is to help the aircraft reduce their turnaround times while out in the combat zone. The Apache takes approximate 5-7 minutes to refuel with a further 20 minutes to re-arm the aircraft”.*

There are two forms of refuelling methods, aircraft can use either hot or cold refuelling but hot is preferred because this is quicker. The term hot refuelling is when the aircraft engines are still operating, while cold is when the aircraft is completely shut down. The hot refuelling procedure is deemed more dangerous because hot refuelling FARPs consist of more things moving, the crew will contact the FARP control when approximately 10 to 15 minutes away, the aircraft enters the FARP via a predetermined routing procedure, land in the pre-staging of disarming, then taxi to the designated refuelling point. Once refuelling is complete the reverse will be staged, or the aircraft will depart and land at its desired landing area before shutting down.

Typically, the FARP would incorporate at least six teams with up to 11 group members operating up to four refuelling points. There would be one non-commissioned officer, one pump operator, a nozzle and refueler point operator at each point. Normally one crew member from the aircraft rescue and firefighting (ARFF) unit will support the FARP, additionally more personnel will join depending on the size of the FARP.

The Ordnance Crew consists of four trained personnel and is typically required during arming and disarming or loading and unloading. Depending on the mission scale will determine the number of personnel required. Based on the mission and availability of personnel, this would determine if these crews would be required to attend within the FARP facility. The need for security forces is also dependant of the mission status and if required, they would provide security for all the personnel and equipment while at the FARP.

JMRC - Hohenfels

Hohenfels Training Area, Germany, known as the Joint Multinational Readiness Centre (JMRC) is one of seven falling under the leadership of the US Army. Eight Apaches were housed here as part of the Allied Spirit VIII exercise, as explained CW4 Chavez; *“During the exercise the AH-64E Apache Helicopter from 1-227th Aviation Regiment will train with US and Polish Joint Tactical Air Controllers (JTACs) of the 12th Mechanized Brigade, this training helps improve NATO and key accomplice interoperability, build readiness and strengthen relationships”.*

Poland’s 12th Mechanized Brigade was chosen to take control and lead the exercise. The Allied Spirit exercise rotates who leads the exercise each year, so all participating countries gain experience of working together in and for a multinational effort. Czech airmen from 221st Helicopter Squadron, based at the 22nd Helicopter Base at Namest nad Oslavou, combined efforts with 1ACB and are fulfilling the aviation role together although no flying assets were present from the Czechs, the airmen were heavily involved in the planning and coordinating of missions. Allied Spirit VIII provides aviation assets for all the ground forces, those assets include air-to-ground fire support with AH-64E Apache helicopters.

The Apache “E” Model

The Apache AH-64 “E” model is capable of transporting a larger amount of ammunition and fuel, reaching altitudes upwards of 6,000 feet and operating in temperatures of 95 degrees or above. The innovation built into the “Echo” variant gives the helicopter all the technological advantages of its predecessor, the AH-64D, with more power makes it manoeuvrable and successful in missions.

The AH-64E Apache is also 20 knots faster than the previous model capable of reaching speeds in excess of 164 knots. These upgraded features were something CW4 Chavez was keen to emphasise, *“The additional power and capability that the aircraft brings actually changes the face of the battlefield, they can close, sustain and undertake contact activities with the enemy at a much faster rate than earlier models”.*





Fully digitized

In total, the US Army intends to purchase nearly 700 AH-64E Apache Guardians by 2025. The Apache "E" Models Max load of rockets is "76" with zero missiles, 16 Hellfire missiles can be carried with zero rockets, and 1,200 rounds of 30mm ammunition rounds. The AH-64E is highly manoeuvrable, destructive and can destroy armour, personnel and material targets in obscured battlefield conditions at ranges up to 8km.

CW4 Chavez explains: "The AH-64E Apache continues to be the foundation of the Army's attack helicopter fleet, the AH-64E is currently fully digitized with the latest technologies including a new improved drive system, composite rotor blades and level 4 manned-unmanned teaming (MUMT). With level 4 MUMT, Apache pilots now have control of the flight path and payloads of an unmanned aircraft system such as the MQ-1C Gray Eagle Unmanned Aircraft System (UAS).

With the US Army Apache E model, crews are now able to sit on the ground and control UAVs to scout operational areas" as explained CPT Federwisch "The Apache 'E' model already has demonstrated its MUM-T in operational situations but the new updated "MUM-TX" will expand the Apaches capabilities even further. The MUM-TX will expand this and allow Apaches to 'possess' any US unmanned asset on the battlefield and control it"

Further praising the MUM-T capabilities, CPT Federwisch states: "Before the AH-64 Apaches even deploys out of the Forward Arming Refuelling Point, or FARP, they can bring up the UAS (drone) feed, look through the sensors and see the target they are going to attack up to 50 or 60 miles away".

CW4 Chavez describes the different forms of engagement achievable with the Apache, "The Apache applies one of three methods of engagement to destroy enemy forces, Continuous attack ensures at least one aircraft continues in the battle at all times while the other may be at the FARP being refuelled or re-armed or returning back to the battlefield. This method allows sustained firing on the enemy."

Careful organised and planned

CW4 Chavez continues: "Phased attack initially sees one aircraft begin the battle then quickly phases in the second aircraft from a different battle point, the third aircraft is phased in when one of the other two require fuel or to be re-armed. Hasty attack is a form of attack in which upon contact with the enemy is not prepared and a unit decides to conduct an attack with limited planning and coordination and with fast preparation and execution to use the enemy's weakness.

Deliberate attack is conducted against the enemy that has been organised and planned carefully with full coordination with other battle units. The attack would be based on reconnaissance, intelligence and analysis of various courses of action to be taken".

Weaponry & Avionics Systems

The Apache AH-64E has a vast array of flight weaponry and armour systems making the Apache an exceptional piece of technology. "The Apache can carry a combination of armaments depending on particular missions" stated CW4 Chavez. The Apache is armed with a 30mm Hughes automatic chain gun which is capable of firing 625 rounds per minute which sits between the main undercarriage, under the aircraft forward fuselage.

It additionally utilizes a blend of AGM-114 Hellfire missile in its four weapon stations (mounted in stub-wing arches) and Hydra 70 rocket units. Both utilized for air-to-surface assaults. The Apache can be equipped with air-to-air missiles (Stinger, AIM-9 Sidewinders, Mistral and Sidearm), a tested and briefed capability that has never made it to production models.

The Apache also features a Target Acquisition Designation Sight (TADS) and Pilot Night Vision Sensors (PNVS), which enables the crew to navigate and conduct precise attacks in day, night and adverse weather conditions. The Apache is equipped with an electronic warfare suite consisting of a radar warning system, radar frequency interferometer electronic support target acquisition system, infra-red countermeasures, radar jammer and chaff dispensers.

Tactical Engagement System

Gleue, Apache Pilot for 1-227th AVN REG explained, "During Allied Spirit all armoured vehicles and personnel would operate the Multiple Integrated Laser Engagement system (MILES). The framework is principally utilized by military around the globe for training purposes.

It utilizes lasers and clear cartridges to re-enact a real front-line battlefield environment in training exercises. For the Apache attack helicopter, it will be integrated with the Aviation Tactical Engagement Simulation System (AV TESS)

The AV TESS is an advanced training system developed for the CH-47/UH-60 and AH-64 aircraft to support force-on-force and force-on-target live training at the Combat Training Centres, home stations, ranges and deployed locations.

The AV TESS tracks the CH-47/UH-60 and AH-64 using an automated network, repeaters and ground stations. AV TESS displays live training events in real time and enables instructors to capture live training exercises for after action debriefing."

Gleue continues: "AV TESS simulates aircrafts awareness, location and the ability to be acquired by weaponry to be shot and or shot down during a weapons engagement.

The Modular Smart Onboard Data Interface Module (SMODIM) coordinates with both aircraft and vehicles on the ground which gives an aggregate Force-on-Force weapons system. It supplies re-created engagements and ongoing execution and performance records.

The SMODIM processes data from its ground server and the data from the appropriate weapons impact, it then utilizes the probability of hit to decide whether the objective was hit or missed. It, at that point, transfers this data to the objective progressively, and input is sent specifically to the aircraft."

European operations

Speaking further about the system in relation to 1-227 deployment to Hohenfels, LT Gleue "The AV TESS system was fitted to every aircraft deployed to Europe on their arrival to Illesheim taking a day to fit on each, the system will be removed before they return to the states".

The 1st Air Cavalry Brigade will continue operational exercises in Europe training alongside NATO nations until summer 2018. At that point, their deployment come to an end and a new brigade will be rotated to Germany. As summarised by CW4 Chavez: "The positives we will gain from this deployment in Europe is primarily training. Europe is preparing nearby such a considerable number of different countries and increasing profitable aptitudes it reinforces our associations with our NATO partners".



NORTHERN LIGHTNING 2018-2

TEXT - IVAN VOUKADINOV
PHOTOS - IVAN VOUKADINOV & WISCONSIN ANG JOE OLIVA

Between August the 20th and 31st, the Northern Lightning 2018-2 exercise took place at Volk Field, Wisconsin. Ivan Voukadinov reports from the exercise.



*A F-22 Raptor from 1st FW at Langley AFB is ready for the next mission.
Photo by Ivan Voukadinov*

Northern Lightning 2018-2

Between August the 20th and 31st, the Northern Lightning 2018-2 exercise took place at Volk Field, Wisconsin. Northern Lightning is one of seven Air National Guard joint accredited exercises held at a Combat Readiness Training Center (CRTC). According to Col. Chad Milne, Wisconsin Air National Guard director of operations, the two-week long exercise will “increase military readiness by providing participating units a tactical level, joint training environment emphasizing user-defined objectives.”

The exercise focuses on Opposed Air Interdiction against a highly integrated air defense system composed of relevant surface-to-air and air-to-air threats in a contested/degraded operationally-limited (CDO) environment. Emphasis is placed on joint integration of 4th and 5th generation assets from the Air National Guard, Air Force, Army, Navy and Marines. Aircraft were tasked to execute multiple missions including Offensive Counter Air (OCA), Suppression/Destruction of Enemy Air Defense (SEAD/DEAD), and Close Air Support (CAS).

The annual exercise is hosted by the Volk Field CRTC, in conjunction with the 128th Air Control Squadron (ACS), 128th Air Refueling Wing (ARW), 115th Fighter Wing, Fort McCoy, and the adjoining Hardwood Range which provide realistic and challenging training scenarios unparalleled in the Air National Guard. Volk Field's CRTC encompasses an Electronic Warfare range comprised of integrated stationary and mobile threat emitters capable of replicating enemy air defense systems. Hardwood range offers a full spectrum of target sets that support live, laser, GPS-guided munitions, moving strafe, and Synthetic Aperture Radar (SAR) targets.

The training environment offers exceptional training for Joint Tactical Air Controllers (JTAC) and pilots in rural, urban, uncontested and high threat environments including integration of Joint Fires Observers (JFO) from Fort McCoy. An organic Air Control Squadron provides Command and Control for airspace users facilitating air combat training. The airspace and ranges surrounding Volk Field CRTC are fully instrumented, providing real-time scenario based training utilizing live-virtual construct (LVC), and enhanced debrief capabilities. The available airspace is more than 30,000 cubic miles, up to 50,000 feet high.





The participants

This year's edition of Northern Lightning was the biggest edition to date and planning for the exercise started almost a year beforehand. Although Northern Lightning was an annual exercise until now, for the future Volk Field is planning to host two per year.

Earlier, in May 2018, Volk Field hosted Northern Lightning 2018-1, which was a small scale exercise to prepare for the much bigger event in August. Altogether in Northern Lightning 2018-2, a total of about 75 aircraft participated, supported by around 1600 personnel from all branches (Air Force, National Guard, Navy, and Marines).

The following units and squadrons participated with aircraft:

- **VMFA-122 - MCAS Yuma**
8 x F-35B
- **VMFA-311 - MCAS Yuma**
8 x AV-8B
- **VFA-105 / VFA-83 / VFA-32 / VFA-131 - NAS Oceana**
12 x F/A-18E
- **VAQ-130 - NAS Whidbey Island**
4 x EA-18G
- **1st FW - Langley AFB**
4 x F-22
- **40th TES - Eglin AFB**
5 x F-15C & 3 x F-15E
- **85th TES - Eglin AFB**
6 x F-16C
- **Air Force Reserve Command Test Center (AATC) - Tucson**
6 x F-16C
- **115th FW - Madison**
6 x F-16C
- **71st FTS - Langley AFB**
5 x T-38A
- **Draken**
5 x L-159
- **128th ARW - Milwaukee**
2 x KC-135
- **Tanker - Omega Contract Air Refueling**
1 x DC-10

Split between airfields

Most of the participants flew from Volk Field, although there were exceptions. One of them was the 1st Fighter Wing's F-22s. Every day, four aircraft took off from Langley air force base, and flew to Wisconsin, refuelling along the way from 128th ARW KC-135s. After refuelling, they would join the morning "fight" and land at Volk Field for lunch. The same would be done in reverse for the afternoon wave, as the F-22s would take off, fight, and refuel on the way home to Langley.

This added extra elements to the already complicated mission the Raptor pilots had, as refuelling and the possibility of changing scenarios added more unknowns to their mission. Maintainers however, were available on location at Volk Field in case maintenance was needed before sending the jets back to Langley.

The 115th FW and AATC F-16s also didn't fly out of Volk Field, choosing to operate from nearby Dane County Truax Field airport in Madison, Wisconsin where the 115th FW is based. The refueling mission was primarily supported by 128th ARW KC-135s operating from their home base at Milwaukee General Mitchell International Airport. In addition, an Omega DC-10 tanker operated from Rockford airport during the first week of the exercise.

As is typical with such large exercises, launches took place twice a day with 50+ aircraft taking off for each launch and splitting up into "red" and "blue" forces. Throughout the two weeks, this equaled to about 1,000 sorties and 1,500 flying hours. The T-38s and L-159s participated as adversary or "red" aircraft throughout the exercise. The F-22s on the other hand were flying as the "blue" force.





Taken turns

The remaining aircraft took different sides on different days. Major John Hudock, flying the AV-8B Harrier with VMA-311, elaborates: “We take turns. We call it ‘attacks’. Everybody has to get their training. Since I’ve been out here I’ve been mostly red air. We’ll read up on enemy threats and try to simulate those threats and try to be the “bad guys”. You learn a lot from doing what you’re doing but you also learn a lot trying to be the bad guy. T-38s are red air all the time.

F-35s were red air for a couple of days. Northern Lightning gives us an opportunity to integrate our newer systems with our older systems and figure out how we’d fight and what our capability would be. We specialize in attack. We are out here mostly being a strike package.”

The focus on integration of the 5th generation aircraft, the F-22 and F-35 leads to some interesting results. Again, Maj. Hudock explains the role of these two aircraft in the exercise: “What they (F-35s) are doing is learning how to integrate so they can take care of us and protect us. They haven’t let me or any of my teammates die. And when I was doing red air I’ve had to turn around so many times to “re-gen” myself, go back and just get shot down again.

I don’t know the exact numbers but red air is having a hard time. It’s been about learning more what they can do and their capabilities where I’m more of a “lookout” kind of guy and old school. I’ve been doing this for 19 years and these new guys have all these fancy new things. I’ve walked away with more appreciation of what the F-22 and F-35 can do.”

The amount of 5th generation aircraft in the air at any one time was not more than 8, with 4 of each - F-22 and F-35. However, that seemed to be enough to tilt the scales towards the side they were on. There were cases where F-22s and F-35s were on opposing sides as well, although the results of this were not disclosed.

To become one of the biggest

Capt. Shawn Schiess, an F-22 pilot, talks about the overall results the Raptors were achieving: “We were getting kill ratios similar to Red Flag which was about 30:1. The 5th gen stealth application is really useful. Our bread and butter is air-to-air, killing somebody before they even know you’re there. But if we do wind up in a close combat arena, I don’t know of any aircraft we can’t match up against. We’re always flying Blue Air here. I’ve seen F-15/16 as Red, also T-38, Harrier, etc.. Flying the Raptor, you tend to be outnumbered. The good thing about this exercise is that you have a certain amount of blue air, but you’ve got more red air so it saturates the airspace and gives you a tactical problem to solve.”

Coordinating the whole airspace is a challenge in itself, with different platforms having different ways to communicate with each other and relay tactical data. In fact, some of the Harriers were not even equipped with Link 16, which meant the pilots had to rely on more old school methods to maintain situational awareness. However, the extensive briefings before each launch meant that everyone knew when and where they needed to be, which was crucial from a safety point of view.

Another interesting aspect is the fact that test squadrons are also participating, as the presence of the AATC, 40th TES and 85th TES signifies. In 2017, F-35s from the 31st TES participated. This indicates that Northern Lightning is a good opportunity where the latest technology tested by these squadrons can be proven.

Given the success of Northern Lightning, it is on track to become one of the biggest and most demanding exercises by units from all military branches, rivaling even long established and popular exercises such as Red Flag. As David May, commander of Volk Field ANGB summarizes: “The training is critical to make sure the United States is able to meet warfighting needs now and into the future and exercises like Northern Lightning provide a unique opportunity for members of all military branches to build relationships and prove interoperability, decision making and planning and working together in such a way that affects our total force to be prepared for any challenges that come along in the future.”



THE DANISH SEAHAWKS

TEXT - SØREN NIELSEN
PHOTOS - SØREN NIELSEN & DANIEL LASSEN

In 2012, the decision was made for Denmark to replace its maritime helicopters with new Sikorsky MH-60R Seahawk helicopters as an replacement for the Lynx. FLYMAG takes a look at the new type.



*A shooter is ready at the sidedoor of this MH-60R
Photo by Søren Nielsen*

The right choice for Denmark

In 2012, the decision was made for Denmark to replace its maritime helicopters by purchasing 9 new Sikorsky MH-60R Seahawk helicopters from the US Navy, as the aging Westland Lynx helicopters were due for replacement after more than 30 years of active service. The Seahawk was picked over the remaining two competitors in the Lynx replacement competition: the AW159 Wildcat and the AS565 MB Panther.

One of the requirements for the replacement helicopters was that they needed to be well-proven and off-the-shelf products if the Royal Danish Air Force (RDAF) were to adopt them. The multi-mission helicopter MH-60R Seahawk, also known as 'Romeo,' perfectly fits this requirement.

The Romeos originate from the well-known UH-60 Black Hawk, originally used in the US Army, dating back to the late 70s. The progression of the 'Hawk'-series helicopter never stopped, and it was soon developed to cover other areas than just what the army needed. Further helicopters in the series included the Pave Hawk for Special Operations, the Jayhawk for the Coast Guard, and the Seahawk for the Navy.

Even though the Seahawk dates back to the early 80s, the Romeo-version is not an old helicopter; the development of the Seahawk didn't stop with the introduction of the first Seahawk, the SH-60B 'Bravo'. The Seahawk, like the other 'Hawk'-helicopters, has continued to develop. The development of the Romeo started in the late 90s, and first saw its introduction in the autumn of 2005, and are still being continuously improved.

The Romeo, combined the best features from the 'Bravo' and 'Foxtrot' Seahawk versions, and was built on top of those two platforms. A big sensor package was also added, as well as the addition of a full glass cockpit, which facilitates the use of several digital monitors, instead of the complex array of dials and gauges that are in the 'Bravo' and 'Foxtrot' versions.

A standard Romeo

There are further additions to the Romeo that add to its ease of use. The standard off-the-shelf Romeo sensors package includes the Raytheon AN/AAS-44C(V) forward-looking infrared (FLIR), the 360 degrees AN/APS-153(V) Multi-Mode Radar with Automatic Radar Periscope Detection and Discrimination, as well as Military Off-The-Shelf (MOTS) based mission and flight management computers, and the Lockheed Martin AN/ALQ-210 Electronic Support Measures (ESM) system for passive detection, location and identification.

The offensive and defensive capabilities have also been improved on the Romeo, as it is able to carry either a 7.62mm or .50 caliber machine gun, and is also equipped with AGM-114 Hellfire missiles and Mk.54 air-launched torpedoes. Although Denmark doesn't currently facilitate the use of the AGM-114 nor the Mk.54, this is still an option in the future, as the helicopters are equipped with these off-the-shelf.





A big upgrade

The Danish Romeos are as close to being standard, off-the-shelf products as possible, with only minor modifications made, like vital communication and survival equipment, which are not part of the standard package. Some of these additions are Instrument Landing System (ILS), HF antenna and life raft additions.

As RDAF MH-60R pilot KOR of 723 squadron explains: *“The MH-60R is an off-the-shelf product bought as a foreign military sale, only with minor modifications, for instance the deck lock, needed to lock on to the deck of the Danish navy vessels after landing. Another one being the ILS - instrument landing system, enabling instrument approaches. Furthermore, there is added wire cutters, should we hit a wire.*

Another modification is the ELRP (Emergency Life Raft Pod), which is a 6-man raft packed in a pod on the side of the helicopter. If we ditch in the water, it'll automatically deploy. This increases our chance of survival in the water as an extra safety measure besides each of us having our own dinghy attached to our life vest. The Danish model is also fitted with an extra window in port side, next to the sensor operator so he has a better view, but also works as an extra emergency exit. The final modification is the HF antenna and radio.”

Although minor modifications have been made on the Danish Romeo, it's still considered an off-the-shelf product following the Romeo roadmap, which means that it gets the same upgrades as the US Navy and other Romeo users get

As KOR adds; *“One of the other good things with off-the-shelf products is that we are following the US Navy update programs, so the three latest helicopters we received got fitted with moving map and other software updates, and the rest will be fitted with that, as well. That's a part of the foreign military sale, that we keep following the US updates.”*

New equipment

The upgrade from the Lynx to the Seahawk didn't just add new sensors and weapon systems to the Danish maritime helicopter capabilities. The range and capacity of the new platform also exceeds the old platforms capabilities. Compared to the Lynx, the entire Romeo-package is a major upgrade

As KOR highlights: *“The sensors are a great improvement. The Lynx had a forward-looking radar. Now, we have 360 degrees with lot longer range. We also have a capability called ISAR (Inverse Synthetic Aperture Radar) - basically the radar provides us with a 2 dimensional picture, so we have a general idea of what we're looking at from distances far beyond the FLIR's range. We are able to see if it's a warship, a cargo ship, small sailboat, a fisherman, etc. So that, again, saves a lot of time and energy. With the Lynx, we needed to fly all the way out to have the FLIR on the target to identify it. Now, we can sort out a lot of targets at good range.”*

It's not just on upgrade for the helicopter, but the entire ship has added new capabilities and added range. KOR continues; *“The Seahawk is a big asset with all its sensors, including a great radar and FLIR, ESM (Electronic Support Measures) for surface search, and together with self-defense systems. We have a helicopter that's able to operate through the entire span of operations, ranging from peacetime tasks such as transporting passengers and cargo, conducting SAR, but also engaging smaller targets and participating in full scale surface warfare and special forces operations.*

Primarily, we are an organic part of the ship and function as the eyes and ears in the sky, widening the range of the ship and thereby improving it's situational awareness. We have doubled the range and endurance, and have a higher cruising air speed compared to the Lynx. We can lift more cargo, both internally and externally. We can lift 6,000 pounds in the sling hook. There is not tremendous room in the cabin; we can seat 5 passengers, however we can still carry a lot of unseated troops due to the large power surplus. I know of one instance where we lifted 8 frogmen.”





*The .50 cal is ready to take out some targets in the dark.
Photo by Søren Nielsen*

Replacing the Lynx

The communication features have also been upgraded, as the Romeo is part of the LINK16 network, which makes it possible for crew to share and receive images of the battlefield. The LINK16 and the glass cockpit give the helicopter, as well as the ship, a big advantage.

As KOR explains: "Furthermore, we're hooked up to the NATO network LINK16, so we can get shared images of the battlefield, and we [have] the ESM (Electronic Support Measures), and the radar as graphic pictures, which makes it a lot easier for us to improve the situational awareness in the cockpit and on the ship. With the Lynx, the challenge was to gather inputs. The challenge with all the sensors is that we get so many inputs, so it requires training to sort out the information so we can pass on what's relevant to the ship – however the LINK16 is a great tool in this regard."

Going from one platform to another usually means that the crew needs to adapt in different ways, and adaptation to the Romeo was no different. With all the new sensors and capabilities, many possibilities were added, but this also meant that there were also initial challenges to the flight, since adaptation and new type ratings were needed. The new platform has changed the crew concept from the Lynx, and 723 squadron has now adapted to how the Romeo are operated.

KOR adds: "The Seahawk is very easy to fly, it's all the systems that are heavy to operate. That's also why the crew concept has been changed. Prior, we always had a technician in the cabin, who helped in monitoring the flight instruments and conducting checks. We still have a technician in the cabin on non-tactical flights, but when we fly the tactical missions, we have a sensor operator instead, and he has a copy of the cockpit console in the cabin.

He will typically operate the radar and sometimes the FLIR, and then the left seater in the cockpit, who is the TACCO (TACTical COordinator), is both helping the pilot to navigate and manage the radio frequencies, but he's also operating the FLIR, and has comms (communication) with the ships. The pilot is responsible for the safety of the flight, whereas the TACCO is mission commander and responsible for the tactical part of the mission.

A new crew concept

KOR continues: "The crew concept has changed, not only due to the new sensors and consoles, but also due to the different interior. In the Lynx the technician could crawl up and sit between the front seats and assist the crew at the controls. Now the crew member in the cabin is physically isolated from the cockpit but on the other hand he has all the same sensor inputs as the front seaters. All this has led to a new concept of crew resource management."

Another advantage of the Seahawk, compared to the other competitors, is that all new Danish pilots go through Alabama for the helicopter training, where they first fly the UH-72 Lakota and then UH-60M Black Hawk, which has a very similar platform, flying-wise, to the MH-60R; this makes the transition to the Romeo easier. The Danish Romeo crew have all been to Jacksonville, Florida for a 6-month training course with the US Navy, where the conversion to the Seahawk took place. With the Seahawk, the RDAF and US Navy now have a common platform, which adds to the already good relationship between RDAF and the US Navy.





*A MH-60R Seahawk high above the ice and snow of the lands of the arctic
Photo by Daniel Lassen*



The flights of 723 squadron

The 723 squadron has divided its operations into two flights: the November-flight and the India-flight. The November-flight is responsible for national operations in Denmark, around Greenland, Faroe Islands and sometimes around Iceland. The India-flight is aimed to handle international operations, and lets the RDAF be on alert, should it be necessary to take part in urgent operations.

As KOR explains: *“The squadron is divided into two flights. The November flight, which is flying up in the Northern Atlantic and is taking all the national operations. Besides Denmark, then it’s the Greenland area and the Faroe Islands, and sometimes we also work around Iceland. The primary task of the November flight is, together with the inspection ships of the Danish Navy, to uphold supremacy in those areas, which can be very remote. When we are there, Search and Rescue is also a very big task for the November flight, with such remote areas having fishermen and hunters tending to get lost or [having] trouble at sea or inland, and often there is no one to help besides us. It’s really huge distances.”*

It’s not just military operations that the flight covers; they also help out the communities in the remote areas, and assist where possible. KOR continues: *“Another task for the November flight is helping out the police in those areas, if they need to get out to small villages in remote areas. We’re also putting out depots for the Sirius Dog Sled Patrol, and help with the fishery inspection, to make sure that overfishing is not taking place. Besides that, then just everything that comes in between: helping our ship with passengers [and] cargo, if they need spare parts, ice reconnaissance (to make sure that the sea ways of smaller straits are clear of ice) to make sure that the ships can pass, and such tasks are some things we handle.”*

Compared to the November flight, the India flight is more focused on military operations and readiness. The kind of operations span across many types, from fighting piracy to extraction of persons, weapons etc., to being the eyes and ears in the sky for the ship.

National and international

KOR explains: *“We have the India flight that is handling international operations, which would be anything that’s necessary. Right now, we’re participating in the SNMG1, Standing NATO Maritime Group One, sailing around in international waters and participating in different exercises. We’re are on high readiness, so we’re ready to react if something happens where we’re needed.”*

Prior to this, we have, as an example, been participating in Ocean Shield in the Gulf of Aden, where the primary task was counter piracy operations (protecting ships against pirate attacks). We have also been a part of the extraction of chemical weapons from Syria. It’s a wide range of tasks we cover, from helping out civil societies on a small scale, to counter piracy, up to full-scale warfare, detecting submarines and clearing up the surface image for the ship.”

The crew management and crew layout are different in the two flights, as the missions are not the same on both flights. The November is more humanitarian-oriented, whereas the India does have the capability to conduct full-scale warfighting.

As KOR illustrates: *“The India and November flights are built up differently, both in regards to the crew and what we bring. In the November flight, we have a pilot flying, the first technician in the left seat, and a second technician in the cabin, and typically also a doctor with us, so we can hoist him down if we need to rescue people... We do not carry any kind of weapons, we do not have all of the ESM, and we don’t fly with any counter measures.”*

We also do medevacs (medical evacuations), but it’s not like we have a full hospital onboard like the Merlin [SAR helicopter of the RDAF], but the doctor would still have equipment and would still be able to secure and stabilize the patient. There is not a lot of extra room in the cabin, but he will get the job done. We do not conduct SAR in Denmark, but if, for some reason, the entire Merlin fleet were to be grounded, or something we would, of course, be ready and able to help.”

Two became three

KOR continues: *“Where in the international operations, we have the pilot right seat, the TACCO in the left seat, the sensor operator, and, depending on the operations, we could have a gun fitted in the door with a gunner onboard with us. In those operations, the survival equipment of the personnel would also include self-protection, if we were in the need to land somewhere that potentially could be unsafe. The helicopters would also be equipped with counter measures, like chaffs and flares for self-protection against missiles, and we would be equipped for ESM.”*

The Romeo-platform helps out, as the cabin layout of the helicopter is quite modular, and necessary equipment can be mounted with ease to meet the needed scenario; as KOR adds; *“It’s really easy to fit [the helicopter], and configure to the different scenarios.”*

The crew are trained to be on a specific flight, so they are as capable as possible for the individual flights, since the crew need to be specialists in the flight they do. Most of the crew are able to go from one flight to another without much extra training though, as they have initially been trained on both flights.

KOR explains: *“We, as a crew, are... divided into the different flights [right now]. But, as [I am] new into these maritime operations, I’m switching around until I get enough flying hours, so I can be deployed without having a more experienced pilot with me to sign me off. I’m chasing hours, as we need at least 160 hours flying from the ship in order to be sent to a deployment on our own. It takes some time to get fully qualified, but it’s a good thing because you want to make sure that you’re able to handle the helicopter and land on the ship in all situations and types of weather.”*

Operational and beyond

The RDAF have now received all nine Seahawks, with the arrival of first three at their new home, Helicopter Wing Karup, in the spring of 2016, and the final three delivered in summer of 2018.

The period that the Lynx and the Seahawk flew together in RDAF was very limited, again proving that the Romeo was a good fit for the Danish maritime operations. There was only a small window of overlapping operations before the Romeo took full charge, and the Lynx bid farewell, as it was retired from operational use.

The well-proven platform of the Romeo made it easy for the crew of 723 squadron to cover the operations from the Lynx to the Romeo on a one-to-one basis, and improving it even more. KOR explains: *“It’s [such a] well-proven platform; we have had it for two years now, and it’s already been deployed and has already taken over 1:1 from the Lynx, and we’re also starting to improve on what we can do beyond the capabilities of the Lynx.”*

The look and feeling you get when you’re among the crew of the 723 squadron is that the right choice that was made, as they have gained not only an improved platform, but an off-the-shelf working success; KOR also concludes: *“It’s really a great success.”*

The author would like to thank Helicopter Wing Karup, 723 squadron, 724 squadron and especially KOR of 723 sqn, and Ian Rix of the Public Affairs for making this article possible.



LEBANESE AIR FORCE

TEXT - JEROEN VAN VEENENDAAL
PHOTOS - JEROEN VAN VEENENDAAL, RALPH BLOK & ROELOF-JAN GORT

The Lebanese Air Force (LAF) (Arabic: Al Quwwat al-Jawwiya al-Lubnaniyya) was established in 1949, six years after gaining independence from France. Jeroen van Veenendaal takes a look into this rising air force.

*A trio of Embraer EMB 314 Super Tucano's of the Lebanese Air Force.
Photo by Ralph Blok*

Lebanese Air Force, a rising air force

The Lebanese Air Force (LAF) (Arabic: Al Quwwat al-Jawwiya al-Lubnaniyya) was established in 1949, six years after gaining independence from France. Soon after its establishment, a number of aircraft were donated by the British, French, and Italian governments.

Having flown the Hawker Hunter and Mirage IIIEL fighter jets, the LAF was missing a fighter capability when the Hunters and Mirages were grounded and the Mirages were sold. The Hunters are still airworthy and maintained, but are no longer in active use. For a long time the air force had to rely solely on a helicopter force. But in recent years three Cessna AC 208s Combat Caravans were acquired for reconnaissance and attack, and in June of 2018 the country received six Embraer EMB 314 Super Tucano's.

The small, but potent air force has had its fair share of struggles but is now rising in numbers as well as professionalism.

We spoke to Brigadier General Ziad Haykal, who climbed the ladder all the way from helicopter pilot to Lebanese Air Force Commander. He starts by telling the recent history, in order to emphasize the growth of the LAF.

War at Nahr al-Bared

"In 2007 we were involved in a big battle with Fatah al-Islam, an Islamist militant organization in a Palestinian camp in the north of Lebanon which was called Nahr al-Bared."

The Air Force was flying mostly medical and casualty evacuation as well as performing aerial photography missions. The need arose to design a platform able to deliver the 500 pound Mk82 and 1,000 pound Mk83 bombs with an acceptable accuracy. *"The dimension of the camp was not that large but at the same time we were surrounding them with friendly forces. So the big challenge was not to hit any friendly forces by throwing these hundreds of pounds of bombs. Being resourceful, we modified the UH-1H's in our inventory, which basically are made for transport, into bombers."*

War with Daesh - ISIS

This step proved very important because it was the main reason for terminating the battle with the Fatah al-Islam terrorist group who were often hiding in fortified positions. Since then the Lebanese Armed Forces started to plan for air capability since they realized the importance of air power in these situations.

The LAF submitted a plan to the United States in order to obtain an aerial platform to be able to provide Close Air Support. In 2009 they received the first of three armed C-208 Combat Caravans, able to carry two AGM-114 Hellfire missiles.

Lebanon knew that the war in Syria would affect them somehow, and the armed forces started to get ready in case the conflict would come to the Lebanese side of the border. General Haykal: *"The war with Daesh (IS) and the Al-Nusra terrorists started in Lebanon in 2013 on the northern and northeastern border of Lebanon."*

"The capability of the Combat Caravan came right on time, but we were also able to use the SA/IAR 330 Puma and the SA342 Gazelle to fill the need for aerial support."

With reconnaissance by newly acquired Raven UAV platforms the LAF knew exactly where ammunition storage was on each position, what kind of weapons it contained, how much personnel there was in each position, and the access routes the terrorists were using.







Dawn of the Outskirts

The General recalls how it went: “We did hit several targets accurately and we obliged them to change their techniques and positions. First, we were able to reinforce the army position and then we changed to an attack position. We started to bomb Daesh positions deep inside the area where they had control.

In the final operation, called Dawn of the Outskirts (Arabic: Fajr Al Jouroud) we bombed all the defense targets for a week and we actually almost cleaned the entire ground for the army Lebanese special forces so they were able to enter the area. We finished the battle in a matter of one week.”

Super Tucano acquisition

During this battle, the request for a weapon platform was already sent to the United States. “The request process usually takes up some time.” the general explains. “A letter of request composed by the Lebanese Ministry of Defence contains specifications that the Lebanese Air Force needs, like the type of tasks we want to perform, whether is it fixed wing or rotary wing, what kind of weapons we’d like to carry, the airspeed, the length of the runway we have. The US authorities will then study these specifications and will assign a platform accordingly.”

For the Lebanese Air Force, it became the A-29 Super Tucano. They are part of a support package from the US government to aid the fight against the terrorists.

“These aircraft were manufactured for Lebanon in Brazil and were armed by the Sierra Nevada corporation in the United States. This is the first type of aircraft which was able to fire the Advanced Precision Kill Weapon System (APKWS). This APKWS is a design conversion of the Hydra 70 unguided rockets, but with a laser guidance kit to turn them into precision-guided munitions. The APKWS can also be launched on jet aircraft like the F-16 and from the Apache helicopters too nowadays.”



Close Air Support aircraft

The turboprop platform is perfect to protect Lebanon. It fills the need for both reconnaissance and precision bombing capabilities.

To the untrained eye, the A-29 can seem unimpressive compared to a fighter jet that is four times faster. But that is not the case.

General Zaykal: *"It is very convenient for anti-terrorist missions. They have the same weapons on board as the fast fighter jets, and have the same effectiveness and accuracy, but cost significantly less per flight hour."*

To make a comparison, a Boeing F-15E Strike Eagle costs around \$27,000 per flight hour, the A-29 Super Tucano costs between \$4,000 and \$5,000 per flight hour and does the same job.

The United States itself is looking to procure light-attack planes that can execute combat missions in the Middle East at a cheaper price. Right now it is a competition between the A-29 Super Tucano and the AT-6 Wolverine. One of these aircraft is going to replace the fourth- and fifth-generation fighters the US currently deploys in the Middle East in their mission against terrorists.

The General adds: *"These aircraft are not meant to have an air superiority role. The main mission for the Tucano's is to provide Close Air Support (CAS) to the Army."*

The Lebanese Tucano pilots received flight training at Moody Air Force Base in Georgia in the United States. They are said to be outstanding pilots, and routinely finish at the top of their classes.

The first two Super Tucano's arrived in October 2017 and the last four in May 2018. *"Within the request that we sent, one of the items that we insisted on was to have a minimum capability to operate and maintain the aircraft once they arrived in Lebanon."* the general says.

The Combat Caravan

The General continued: *"The first day they arrived in Lebanon they had a minimum capability to perform missions against Daesh. Any new platform in the inventory will require a certain period of time to be well implemented in the system. To give you an example, the Super Tucano is not working by itself in any battle, they will be working in cooperation with other platforms like the Combat Caravan, the Puma or the Gazelle."*

So to implement the new platform you have to create certain procedures. There is no other air force that uses a Super Tucano and the Combat Caravan together, so background procedures did not exist. The Combat Caravan is able to laser designate targets for the Hellfire missiles and is also capable to support designating targets for the Super Tucano.

Our pilots trained to have two Super Tucanos working together at all times one designating for another. A Combat Caravan is able to designate targets for two Super Tucano's from a longer distance. You have to create certain procedures to operate all these platforms together. These standard operating procedure (SOP's) have been executed and now we are in an evaluation period."

Puma warfare capabilities

When the war started in Syria in 2013 the LAF initiated a study to install two ADEN 30mm cannons and two Matra SNEB 68mm rocket pods from the decommissioned Hawker Hunters on the SA/IAR 330 Puma.

General Haykal was working in Hamat as an intelligence officer when it was developed. He has an appropriate proverb: *"Necessity is the mother of invention."* The testing process took 13 months and started with ground tests before moving on to air testing.

The general added: *"It is not only the testing, but you are also putting a Hunter weapon on a Puma, it is entirely different. Installing the 30mm gun, rockets, and bomb controls within the Puma electrical system with an Alouette III visor is not an easy challenge. The 30mm gun has its own data information and requirements The rockets at the same time have their own procedures and the bombing also has their own performance."*







The Puma is still going strong

The General continued: *“These are three very different weapon systems to install. All the ballistics, trajectories and deviations had to be calculated correctly. Besides all this, you have to put procedures for the maintainers to safely perform their task. The system itself was meant to be removed from the aircraft and be fitted in another aircraft in a matter of just a few hours to be able to use another aircraft in case of a malfunction. We do have incredible teamwork.”*

The arrival of the Super Tucano will not make the Puma obsolete. Its main role will change back to transport, but the capability to carry rockets will remain. The General clarifies: *“According to the threat, according to the mission, according to the type of target you are going to hit, you will be using whatever is a convenient platform or weapon you have. If we are going to bomb 1300 kilos of ordinance at the same time, we don’t have any platform that can carry this load except the Puma.”*

This is not the only innovation by the LAF, the general informs about another groundbreaking example: *“In 2015 we received the M712 Copperhead rounds, a 155 mm caliber cannon-launched guided projectile. These Copperhead rounds also work with laser designators, once the laser signal is detected, the onboard guidance system will maneuver the projectile to the target. We were limited in using these rounds from the ground because we have a long frontline and a deep area with rough terrain, and it was hard to send in personnel with laser designators in a threat area with a tactical disadvantage.*

We had the laser designator capability of the Cessna and the issue was if they were compatible with the Copperhead rounds. After explaining the process, risks, and the percentage of success, the Lebanese Army Commander decided to start the trial. It was a big success. The amount of explosives on a Hellfire missile is limited when compared to a 155mm Copperhead shell. During an anti-terrorism mission against Daesh, a pilot was decorated for being able to hit 18 different targets withing one flying hour. This is a payload no existing fighter plane can carry”

Artillery innovations

Targets as far as ten kilometers away from the artillery were hit accurately. Although this technique was already invented in the early 80s, it was never used on the battlefield because of its requirements and limitations at the time.

This caught the attention of the US, and a US Air Force general from Central Command came over to Lebanon to witness this new invention. The United States is now reconsidering their procedures regarding the usage of the M172 Copperhead and the ability to designate them from the air. The General is visibly proud when talking about these inventions: *“We forced ourselves to be an important player in the war against terrorism and in the important task of defending our country. We studied, tried and executed all these inventions locally”*

Future

The Lebanese Air Force is still on it’s way up. The General includes us in the plans for the future: *“We will request an additional six Super Tucano aircraft. In 2021, we are expecting to receive six McDonnell Douglas MD-530G multi-role light helicopter. This version will also be able to fire laser-guided rockets. Five years from now we hope to have 12 Super Tucano’s and 12 MD-530G’s.*

Our priority is to increase the Close Air Support capability. The MD 530 basically is requested because they are going to replace the Gazelle at a certain time, maybe in 10 years. The Puma’s main role will change back to transport helicopter because we need the transport capability in the Air Force. We are planning to upgrade all the existing UH-1 Hueys to UH-1H-II Super Huey. We are already in the process of getting the AB-212 operational again after more than 25 years grounded.

All the new platforms will be a support from the US government, we are trying to negotiate and convince the US authorities that this is the minimum that the Lebanese Air Force needs. We need to continue the border security and stand strong in our fight against terrorist groups.”



THE NEXT ISSUE OF FLYMAG MAGAZINE

The next issue of FLYMAG will be published in March of 2019.

We're amongst others going to take a look at the MiG-29s of the Polish Air Force, and going behind the scenes of the A-10 competition; "Hawgsmove" and taking a look at the 2018 edition.



WANT TO CONTRIBUTE?

The editorial of FLYMAG is always open to receive content, if you want to contribute. Send your material to info@flymag.dk to get in touch with us.

When you send pictures, remember to have them in 3:2 or 2:3 ratio, or we might end cropping them, or not using them. It's of great importance that you have taken the pictures your self, and that we receive them in a high resolution, without watermarks.

Visit FLYMAG: www.flymag.dk / www.facebook.com/flymag.dk / info@flymag.dk

FLY MAG

SCANDINAVIAN
AVIATION MAGAZINE