

RNLAF NH90...



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...halfway through delivery

N-175 and N-258; two NH90s captured in a single frame at MVK De Kooy. Brand new N-258 just arrived after a two-day delivery flight from Italy, whilst N-175 is already in use since 2010. All photos by the author on 28 August 2013, unless mentioned.

It is a sunny Wednesday afternoon, 28 August 2013, at Marinevliegkamp De Kooy when Neptune17 is approaching the Naval Air Station. Along with this call sign comes N-258, the tenth NH90-NFH helicopter destined to join 860sq. The helicopter is about to complete its two day delivery flight from Venice-Tessera, Italy, with a night stop in southern France. Since the very first delivery of the Royal Netherlands Air Force NH90 on 17 May 2010, little over three years went by to reach the halfway down marker in the delivery programme of the twenty helicopters ordered. We take this opportunity to take a closer look at the programme as a lot has happened in the past three years and even more is expected to happen in the coming years.

In the beginning

When the NH90 program started to take shape in 1992 the Nato Helicopter Management Organisation-Agency / NAHEMO/A group was founded. Main objective of NAHEMO/A was a joint venture between France, Germany, Italy and The Netherlands. These four nations became leading nations on development of the NH90. This gives users straight input of gathering capabilities/requirement to the performances. As other countries started to order the NH90 the Agency was renamed to Organisation. To sustain benefits from large scale spare parts management/purchasing NAHEMO/A created the NATO Supply Agency/NSPA. This agency collects all nations orders for spare parts, joins them when possible to get the best price and deliver the parts to the NHI partner. This choice was made on political level and seemed favourable in the beginning. On the other hand the local nations aviation industry where gathered in Nato Helicopter Industry/NHI, so rivals like Eurocopter France, Eurocopter Germany, Agusta Westland and Fokker joined forces in the building process.

This has never been done before on this scale and is likely to never happen again. Given our order of 20 helicopters we gained 5% work share on all helicopters being built so for instance every tail boom, nose and main landing gear and tail rotor gear box is made in The Netherlands. Fokker is also acting as partner on behalf of NHI for The Netherlands and Belgium.

After the delivery of N-110 in May 2010 and completion of the

flight trials of N-088 between October and December 2010, the delivery schedule was to receive one helicopter each three months. However, problems on the production line of NHI/Agusta Westland in Italy, a lack of spare parts, training and overall support from NHI, caused a fair share of delays on the Dutch NH90s. The Dutch Ministry of Defence also took some attempts to change the initial contract through their NEHAMO/A position. These changes resulted in very expensive changes to their contract and all where ceased in the end. Due to the multi nation collaboration a single leading nation never raised leaving a grey zone for all production lines. All this resulted in the delivery of downgraded helicopters to the RNLAF. Waiting for a better solution would lead to further delays, so the first step to introduce the NH90 into active service with the RNLAF was to provide training flying hours for airmen. Known as MOC (Meaningful Operational Capable) both 7sq and 860sq airmen were able to gain experience and start training on the NH90, given the fact that most on-board systems were not up to full capacity and some of the sensor stations where dually installed to train and support trainees and instructors at the same time.

NFH versus NFH

With the initial order for twenty NFHs, the Dutch MoD wanted to change eight NFHs for TTHs instead. Evaluations showed that the TTH would not match the expectations, but it also became clear that a change on the initial order could end in a financial struggle, so plans for a redesigned TTH were launched. Basically, this means that the TNFH models would be downgraded NFHs that can be used in conditions that do not require a fully equipped NFH. The most visible changes that could be seen on the outside are the lack of an ISAR sea scan radar underneath the nose, no arrestor/deck grabbing hook and no optional Forward Looking Infra-Red/FLIR camera. Unfortunately the TNFH version has also been abandoned as idea as this contract change would also end in a multi-million disaster for the Dutch tax payers so our Dutch MoD went back to the storyboard and came to their final solution.

At the NHI/Agusta Westland production line all twenty Dutch NH90s will be build and delivered as NFH version. Our Dutch MoD has approved the dividing of these twenty helicopters

between De Kooy/EHKD with 12 helicopters for naval and ship borne operations and Gilze-Rijen/EHGR with 8 helicopters for transport duties. As not all twenty NH90-NFHs will be operationally used at the same time, the choice was made to start an equipment pool and buy thirteen ISAR sea scan radars (twelve complete and one spare), sufficient sensor operating stations (as up to two stations can be installed into a single helicopter) and sufficient FLIR-cameras. These forward looking infra-red cameras are equal to the ones used on the CH-47F Chinook, so within the fleet of the Defence Helicopter Command (DHC) they can be swapped. Even the hoist-unit is a detachable item and for every mission the helicopter will be converted to the required condition. For the transport version twelve transport kits are shortlisted for purchase, eight for daily use and four stand-by kits in case additional airframes need to be reconverted. These will also receive the ISAR sea scan radar however these have not been ordered yet.

This versatility in use of equipment distinguishes the RNLA from other armed forces. The NFH (NATO Frigate Helicopter) is equipped to dedicate use as a ship borne helicopter for the Royal Netherlands Navy and they will be deployed on-board frigates, Fleet Replenishment Ships (HNLMS Amsterdam A-836) and LPD/Landing Platform Docks (HNLMS Rotterdam L-800/ Johan de Witt L-801). They take part in deployments and training exercises, searching and inspecting vessels and other ships, assisting with rescue missions and submarine hunting with use of the HELRAS DS-100 helicopter long range active sonar. They can also carry two torpedoes and one M3M .50 calibre machine gun installed (like the AS532U2 and CH-47D/F) for offensive raids against small targets.

During normal missions the NH90 has a crew of three; a single pilot, a "Tacco" or Tactical Coordinator (navigator) who plans/keeps track of the mission during the flight and also acts as non-flying co-pilot, a sensor operator who operates the sensor station and follows the orders from the 'Tacco' during the mission, or a loadmaster who keeps track of the back of the helicopter and is able to operate the hoist.

During anti-piracy missions and counter drugs missions a rescue operator is added to the crew. The rescue operator is a marine who will operate the 'sniper' rifle. He is also used as an extra lookout for the crew. Thanks to the Link11 data-bus a single helicopter is able to act as a command and control platform as all the sensor information and radar footage can be sent to shore, air or a commanding vessel. Within the Air Force Link16 is used, which can handle multiple information sources. Link11 handles only two way data traffic, without the interactive sharing options.

In case of a vessel hijack or a narcotics interception the helicopter sends all the necessary information to its home station/commanding vessel in order for the mission commanders to follow their moves and take decisions on further actions including sharing their reports with others if needed. Given the huge increase of available information from all sensors, radars and on-board systems, an NH90 is like having your laptop along with you where the Lynx was like having a typewriter. This gives enormous possibilities to integrate the operations into the digital age as we know it today. On the downside, this electronic expansion requires more attention to maintenance and situation awareness as the amount of information can be overwhelming. For the pilot the 'black cockpit'-method was integrated, like seen on the civilian airliners like Boeing/Airbus and the 'Tacco' has tight instructions for the mission.

The helicopters endurance is also in favour of the NH90, 1,000 km (621 miles) for the NFH version and 800 km (497 miles) for the TTH, almost twice that of the Lynx. The NH90 can stay airborne for a longer period, fly further, and cruise around with an average speed of 130 knots (approx. 240km/h).

For the NFH, training of aircrews will be the main objective at the start. Next to many hours in a simulator nothing beats the real flying. As the size of the NH90 is much larger and heavier than the Lynx many capabilities are equal once you get the chance to get to know the helicopter, its characteristics and most important, getting to know the pitfalls. One of the tricks our Dutch pilots will come across is the limited



The final MOC version was N-228, seen here resting inside the SAR hangar at MVK De Kooy. Clearly visible is the full colour 860 squadron badge just behind the cockpit window and the hoist unit attached.



Ending its ferry flight from Hyeres via Dijon, N-258 arrives at MVK De Kooy and is taxiing to her spot. The cable cutter is also clearly seen.

view outside as the glare shield is larger compared to normal and the entry/exit door in the front brings a structural reinforcement around the side window obstructing the view on 45 degrees. A good view is most important when trying to land on a vessel and especially during Night Vision Goggles/NVG operations. No.7sq at MVK De Kooy will use the helicopters to train the 860sq crews who will be deployed on board. Later on they will also train 300sq crews as the NFH will also be used for transporting soldiers, marines and special forces when up to fourteen seats can be installed in the cabin. Just like the AS532U2 Cougar and the CH-47D/F Chinook 'fast roping' will be another qualification that can be trained more frequently. Reinforcements to the floor are being evaluated as long term troop transport has not been done yet with any of the global NH90 operators. Trial and error gives a lot of information and will involve future developments as the NH90 was designed some time ago and continues to be upgraded with the latest modifications. These information is gathered in the NEHAMO group and shared with NHI to explore the options for improving the NH90.

Retrofit MOC to FOC

As you can see in the serial overview, the first seven Dutch NH90 deliveries are MOC configurations (Meaningful Operational Capability). These NH90s will have to be upgraded at some point in the future as they do not have the specifications the original tender required. With N-277 already in the test and acceptance programme, the fourth FOC-model is nearing delivery in December 2013, continuing with N-316 in Q1 2014 and so on. It is up to Agusta Westland which airframe is selected for delivery as our contract has no mentioning about a specific order. N-088/NNLN01 was the first NH90 to arrive in The Netherlands and is currently listed to be the final delivery as this frame is also used in additional testing programs.

So in Q2-2016 all NH90s should be delivered to the Koninklijke Luchtmacht/RNLAF according the initial order. Then it is up to NHI/Agusta Westland to complete the challenge to get the "early birds", the seven MOC-models into the promised FOC configuration. As this impact will be huge on their production line, Agusta Westland have selected their modification centre at Frosinone as their upgrade/overhaul location.

The upgrade from MOC to FOC actually means a complete rebuild, strip down back to basic ground level as for example all electronic wiring needs to be redone, making new cable lanes and creating space for future upgrades. If this would not be done, certification of new upgrades can be obstructed, delayed or even ground the helicopter. As this is a non-negotiable item, it means that these seven helicopters will be away for a certain period. Official time frames have not been released yet for these upgrades, but twelve months seems to be the minimum amount of time needed to complete all these tasks. Next to the rebuilding the flight test programme needs to be completed again. As this retrofit is the responsibility of NHI/Agusta Westland more negotiations can be expected as this retrofit schedule means a structural downgraded operational fleet for a minimum seven year timeline.

At this moment it remains unclear how the introduction of the transport version of NH90-NFH will take shape, as obviously the naval side of the Defence Helicopter Commando/DHC will claim priority for receiving and use of every available NH90 while on the other end, the Air Force/Army will claim they want to get familiar with the helicopter as the service life of the AS532U2 Cougar has a certain deadline and every introduction of a new type costs more time than expected. It is up to the MoD to make the final decision on this chapter.

Deployments

After all aforementioned training was completed by late

2012, the Ministry of Defence announced the first operational deployment of the NH90 on board HNLMS De Ruyter (F-804) during Operation Atalanta. From 20 January 2013 until 8 June 2013, the MoD explored the capabilities of the NH90 (N-227) under tropical conditions, as well as durability of the sensors on small and hard to detect boats used by Somalian pirates to attack/hijack merchant vessels in the Arabian Sea. In total 232 flying hours were logged by the Boord Vliegtuig Ploeg 1 (BVP1, on-board crew 1) and the sensors proved to be a very helpful asset.

The crew also assisted in at least one successful ending of a seized Dhow (a local fishing vessel) and the arrest of nine possible pirates. This does not seem much for the time spend over there. However, next to the large amount of military hardware deployed in the area and armed security personnel on board the merchant vessels it became much harder for the local pirates to start their attacks. Besides this, the NH90 was also used for exploring and tracking/observing local coastal activities and the gathering of information on hotspots that could be cleared on the ground. Getting one step ahead of the enemy and show of force does pay off and resulted in a noticeable decrease of attempts to start hijackings. N-227 was aptly decorated with nine markings on the cabin door for the nine arrests and a large decal to mark the successful deployment. These markings can still be seen today.

The second deployment in 2013 went to "The West", like the former Marine deployments with the P-3 Orion and Fokker 27/60 MPA. These operated from Curacao-Hato in need to protect and observe the seas around the islands of the Dutch Caribbean. After the formation of the Dutch Caribbean Coast Guard the tasks of the Orions were taken over by two civilian leased Dash 8 surveillance aircraft in September 2007. Also the Westland Lynx was a familiar sight around the islands for quite some time. As a gap stop measure, a Belgian Navy Alouette 3 was used on-board Dutch naval vessels patrolling the Caribbean waters as a ship borne helicopter. Now it is up to the NH90 to show her skills.

The second NH90 in Full Operational Capable (FOC) configuration (serial N-233), was selected to become the first Caribbean explorer. The NH90 sailed off with HNLMS Amsterdam (A-836) leaving the port of Den Helder on 11 August 2013. It arrived in Willemstad, Curacao on 26 August 2013. During its four month deployment, the NH90 was used to monitor illegal smuggling of narcotics, inspection of fisheries and SAR where needed. Before the arrival in Curacao, a separate mission was already completed. As being part of the Maritime Analysis and Operations Centre Narcotics (MAOC-N) in Lisbon/Portugal the crew of

N-233 was asked to explore and track/map the so-called "Highway 10", a well-known narcotics route between South America and West Africa, which can be found on the 10th northern parallel.

As not sufficient NH90s may be available in 2014 to cover the Caribbean waters, an AS532U2 Cougar is scheduled to be deployed to Hato

for the next deployment. Unfortunately, this helicopter lacks the capabilities which is mostly required over Caribbean waters and what makes the NH90 such a versatile platform. For this reason the Dutch MoD also negotiates with the United States Coast Guard about the possibility of deploying one of their MH-65C Dauphin helicopters. These helicopters are fully equipped for the anti-narcotics missions and ship born ready. They would make a better contribution to the deployment than the Cougar.

The future

As you would expected with a new helicopter entering service, certain problems can be overcome with a small modification. If executed with proper resources any operator can apply minor modifications to their NH90 without a complete recertification. Due to our participation on Atalanta the RNLAf, MoD and Dutch NHI aviation partners have successfully introduced small (sniper) rifles, Ballistic Protection of the helicopter and specifically the main entry door area, reinforced seats and strengthened floors, temporary MedEvac configuration. Most recently the NH90 also completed her trials for the use of flare/chaff countermeasures and M3M .50 machine gun operations for an improved self-defence through fire power. Extending validation of flight operations from all Royal Netherlands Navy vessels to ensure NH90 operations can be performed from every capable vessel. The Ocean Patrol Vessel/OPV, like HNLMS Friesland (P-842) is listed for qualification early 2014 to receive the NH90 for their deployment and sea trials.

Future trials that remain open/yet to be determined on the agenda are: full MedEvac, Anti-Submarine Warfare/ASW including sonar. In 2014 the SAR Operational Test & Evaluation trial will be completed.

The Dutch politicians have made strong budget cuts in the Defence department over the last ten years it takes time to unveil all the scars they have left behind. After the withdrawal of the Lynx helicopter the collaboration between the Air Force and Navy became even more evident. Despite being operated by 860sq, the overall command comes from the Defensie Helikopter Commando. The amount of frigates/ naval vessels have decreased over the years and with the annual 17 September just behind us, the Ministry of Defence paper "Vision on 2014 and beyond" has told all units what they can expect for the years to come. For instance, with the initiated withdrawal of the Leeuwarden based SAR unit 303sq as per 31 December 2013, this means all daytime SAR-flights would be out in the open. As the NH90 is not yet ready for a full 24/7 SAR deployment the MoD has extended the AB412 operations with another year, allowing the NH90 more time to get ready for their SAR duties. The night time SAR are currently operated by Noordzee Helikopters Vlaanderen (NHV) with two of their AS365N3 Dauphins from the Maasvlakte, west of Rotterdam. The offshore industry has their own contracts with Bristow Helicopters for a 24/7



VSQ-7 Badge 'Never to catch'



VSQ-860 Badge 'Repellent I Strike'

standby using S-61N Sea King as this helicopter is capable to evacuate large(r) groups of personnel from an oil rig. In case of distress the NH90 will participate in rescue and support whenever possible/required, without any question.

Despite the changing conditions, everybody involved is determined to make the best of it. Crews keep training to be fully ready and current on their tasks and duties. NAHEMO and NHI work hard to keep up the valuable chain of maintenance, support and improvement. The Minister of Defence, Jeanine Hennis-Plasschaert, is working hard to keep the Armed Forces together with as little budget cuts as the members of Parliament allow her. This dance will continue, as our political intentions and ambitions change frequently. The amount of NH90s active in our Dutch skies will increase as currently a maximum of three NH90s (in The Netherlands) can fly on a daily basis with another one deployed at sea.

Deployments are also concluded so all phases move forward. Looking to the overall success of the first deployment with N-227, our RNLAf where the first to send a NH90-NFH on a mission. It was a gamble however it paid off and our Dutch success has been acknowledged by NHI and NAHEMO partners. Starting this year the Dutch NH90 could be seen more often on domestic and foreign air shows as an exhibit

display. This year two deployments were listed, next year we will face three deployments. As our Belgian neighbours also started to receive their NH90s, collaboration will intensify, continuing the path entered a few years ago. In the meantime mechanics and technicians are also working to restore N-102, N-110 and N-164 back to airworthy conditions as they were stripped for parts to keep the rest of the helicopters in a flyable condition. One of these three airframes will be sent to Italy later this year to start the retrofit pending the negotiations with NHI. So far N-110 seems to be the first to enter the retrofit program, leaving in December for Italy. Another challenge that lays ahead for the DHC is to get a general accepted nickname for the helicopter. So far the struggle continues between the Air Force and the Navy with the first strike won by the Air Force as can be seen on N-233 during her deployment in "The West".

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Serial list

| Serial/Code: | Type: | Construction nr: | AMI serial: | Status | Unit: | Delivery date: | Remarks: |
|--------------|----------|------------------|-------------|--------|-------------|----------------|------------------------------|
| N-088/088 | NH90-NFH | 1088/NNLN01 | CSX81697 | o/o | NHI Tessera | | TDY oct-dec10 |
| N-102/102 | NH90-NFH | 1102/NNLN02 | CSX81720 | rst | 860sq | 30nov11 | MOC-version |
| N-110/110 | NH90-NFH | 1110/NNLN03 | CSX81721 | std | 860sq | 17may10 | MOC-version |
| N-164/164 | NH90-NFH | 1164/NNLN04 | CSX81727 | rst | 860sq | 24jul10 | MOC-version |
| N-175/175 | NH90-NFH | 1175/NNLN05 | CSX81728 | act | 860sq | 9dec10 | MOC-version |
| N-195/195 | NH90-NFH | 1196/NNLN06 | CSX81729 | act | 860sq | 25mar11 | MOC-version |
| N-227/227 | NH90-NFH | 1227/NNLN07 | CSX81730 | act | 860sq | 29mar12 | TDY mar-jun11 MOC-version |
| N-228/228 | NH90-NFH | 1228/NNLN08 | CSX81731 | act | 860sq | 16jul12 | MOC-version |
| N-233/233 | NH90-NFH | 1233/NNLN09 | CSX81732 | act | 860sq | 27jun13 | FOC-version, HNLMS Amsterdam |
| N-234/234 | NH90-NFH | 1234/NNLN10 | CSX81808 | act | 860sq | 30jan13 | 1st FOC-version |
| N-258/258 | NH90-NFH | 1258/NNLN11 | CSX81809 | act | 860sq | 28aug13 | FOC-version |
| N-277/277 | NH90-NFH | 1277/NNLN12 | CSX | act | NHI Tessera | | dec13, FOC-version |
| N-316/316 | NH90-NFH | 1316/NNLN13 | CSX | o/o | NHI Tessera | | |
| N-317/317 | NH90-NFH | 1317/NNLN14 | CSX | o/o | NHI Tessera | | |
| N-318/318 | NH90-NFH | 1318/NNLN15 | CSX | o/o | NHI Tessera | | |
| N-319/319 | NH90-NFH | 1319/NNLN16 | CSX | o/o | NHI Tessera | | |
| N-324/324 | NH90-NFH | 1324/NNLN17 | CSX | o/o | NHI Tessera | | |
| N-325/325 | NH90-NFH | 1325/NNLN18 | CSX | o/o | NHI Tessera | | |
| N-326/326 | NH90-NFH | 1326/NNLN19 | CSX | o/o | NHI Tessera | | |
| N-327/327 | NH90-NFH | 1327/NNLN20 | CSX | o/o | NHI Tessera | | |



N-233 is the first Fully Operational Capable NH90 deployed to the Caribbean/The West area. Photographed at the apron of Curacao-Hato, you can clearly see the gorilla markings of BVP2. (31 August 2013, Wim Sonneveld)