PAPER Nr.: 2

PART I:
THE ROLE OF THE HELICOPTERS WITHIN THE DUTCH AIRMOBILE BRIGADE

BY
LTCOL H. SCHEFFER
ARMY STAFF
THE HAGUE, NETHERLANDS

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PART II:
HELICOPTER PROJECTS FOR THE ROYAL NETHERLANDS AIR FORCE

BY
COL A.W. HENNI
AIR STAFF
THE HAGUE, NETHERLANDS

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PART I:
THE ROLE OF THE HELICOPTERS WITHIN THE DUTCH AIRMOBILE BRIGADE

Ltcol H. Scheffer
MOD NL Army Staff
Directorate of Operations
Projectoffice of Airmobile Ops

1. INTRODUCTION

1.1. The collapse of the Iron Curtain, the disintegration of the Warsaw Pact and the dissolution of the Soviet Union marked the end of the Cold War. As a result, all Western nations, including the Netherlands, were able to reduce their defence effort. For the Royal Netherlands Army (RNLA), however, this reduction was also accompanied by a large-scale reorganisation. After all, the RNLA was a 'regular and conscript' army. Partly as a result of the desire to increase the number of volunteers for deployment during peace operations, and due to the constant pressure on the defence budget, the Dutch government decided to abolish the obligation to enlist and turn the RNLA into a smaller, all-volunteer force. The consequences of this decision for the RNLA are that the obligation to enlist will be completely abolished from 1 January 1998 onward and that the organisation must by then consist entirely of regular personnel. We are currently in the middle of this reorganisation process in which conscript units are being disbanded on the one hand and volunteer units are simultaneously being created on the other.

1.2. This reorganisation also takes into account a shift in emphasis in the tasks of the RNLA. Increased attention has been focused on participation in UN operations in the context of peacekeeping, peace-enforcement and humanitarian aid, as well as on the 'old' tasks in the context of a large-scale conflict. The reduction in the organisation, in combination with this change in emphasis in tasks, forced us to develop a new, and fundamentally different, organisational structure. An important starting point for this new structure was that the reduction in quantity was to be compensated as much as possible by high quality; in other words: "less but better". Furthermore, flexibility and mobility became important foundations for the new organisational structure.

1.3. Based on the changes in tasks and perspectives, the new organisational structure of the RNLA incorporates a light brigade and an airmobile brigade, in addition to three mechanised brigades. The airmobile brigade is a completely new phenomenon in the RNLA which had to be developed from scratch. Furthermore, the formation of the airmobile brigade had to take place under considerable pressure of time because it was to be the first unit to be composed entirely of regular personnel. The formation of this brigade was therefore treated as a "spearhead project" within the defence organisation.

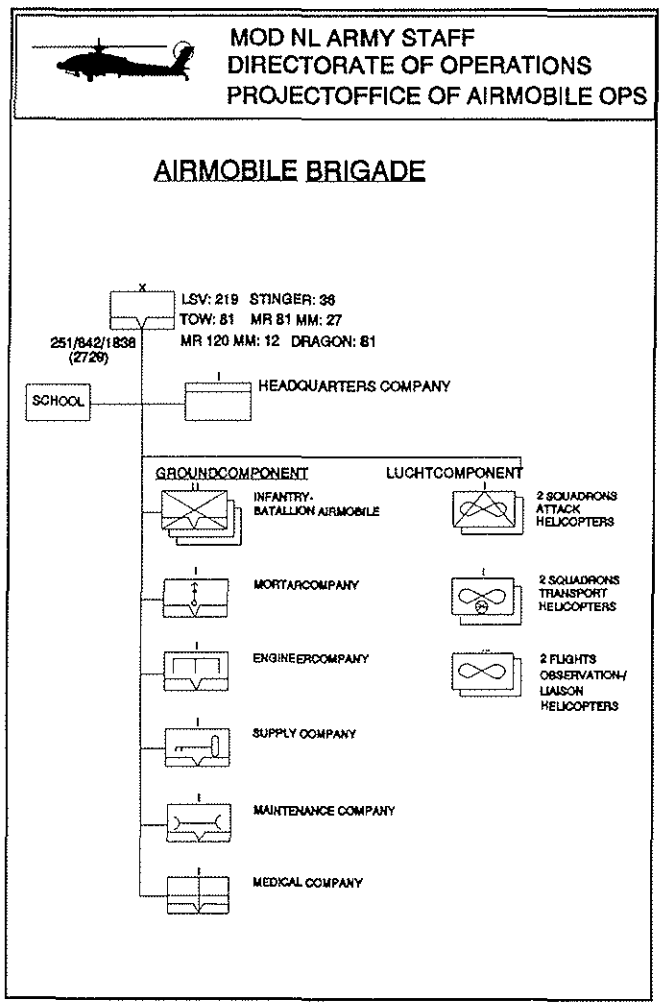
1.4. As I said earlier, the airmobile brigade had to be created from scratch. First of all, an operational concept had to be developed on the basis of the tasks. Based on this concept, the organisation could be created and the need for assets, especially helicopters, could be determined. Needless to say, we observed our NATO partners carefully during this process, especially those within the MND, because it quickly became clear that the airmobile brigade

would operate in this context. Nevertheless, the concept which was finally adopted for this brigade deviates from those of the other countries operating within the MND on a number of points and is instead similar to the concept of the American Air Assault Brigade.

2. COMPOSITION OF THE BRIEFING

2.1. The role of helicopters and the relationship between helicopters and ground-based units are of particular importance for this forum. In this context, I will discuss the organisation of the Airmobile Brigade and how the brigade has been incorporated in the GE/NL Corps and the Multinational Division. Next, I will discuss three deployment options which are based on the operational concepts of the MND and the Airmobile Brigade.
The helicopters' tasks can be derived from these deployment options. In this context, I will discuss the transport helicopter and the armed helicopter separately. As regards the armed helicopter, I will discuss the configuration desired by the Netherlands in greater detail.
As you may know, the Netherlands is currently in the middle of the procurement process regarding armed helicopters. Finally, I will conclude my briefing with a short overview of the current status of the formation of the brigade and the procurement of the helicopters.

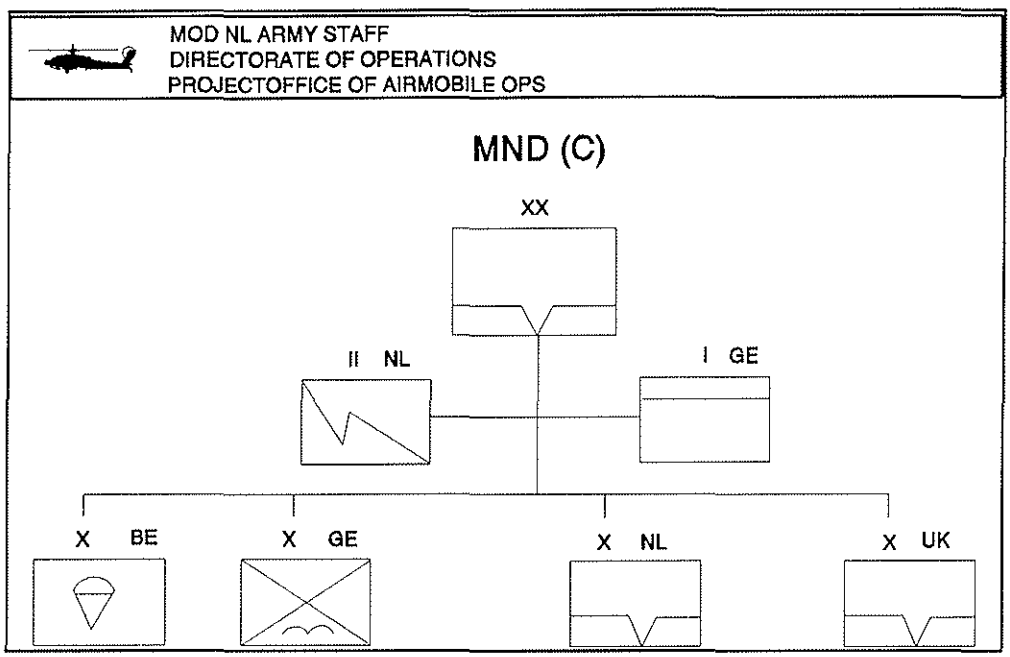
3. ORGANISATIONAL CHARTS



slide 1

3.1. The slide (slide 1) shows the brigade's units. Apart from the school battalion, the brigade consists of three operational battalions, a mortar company equipped with 120 mm mortars, an engineer company and three logistic companies.
The tanks and heavy artillery which are normally assigned to a brigade are missing from this organisation. These manoeuvre assets have been replaced by the armed helicopter in the Dutch concept.

3.2. The Netherlands does not have any "army aviation". This means that the air units are assigned to the Helicopter Group of the Royal Netherlands Air Force. In fact, the army's helicopters are flown by the air force. The next speaker will discuss this issue in greater detail.



slide 2

The next slide (slide 2) shows the organisation of the MND (Central), including, apart from the Dutch brigade, a German, British and Belgian brigade. Although attempts have been made to achieve the most extensive standardisation possible in the areas of concept, structure of the organisation and assets, considerable differences exist between the four countries in each of these three areas. This can theoretically be explained by the fact that the units originate from the old Cold War organisation, with the exception of the Dutch brigade. The units will develop further in the near future, however.

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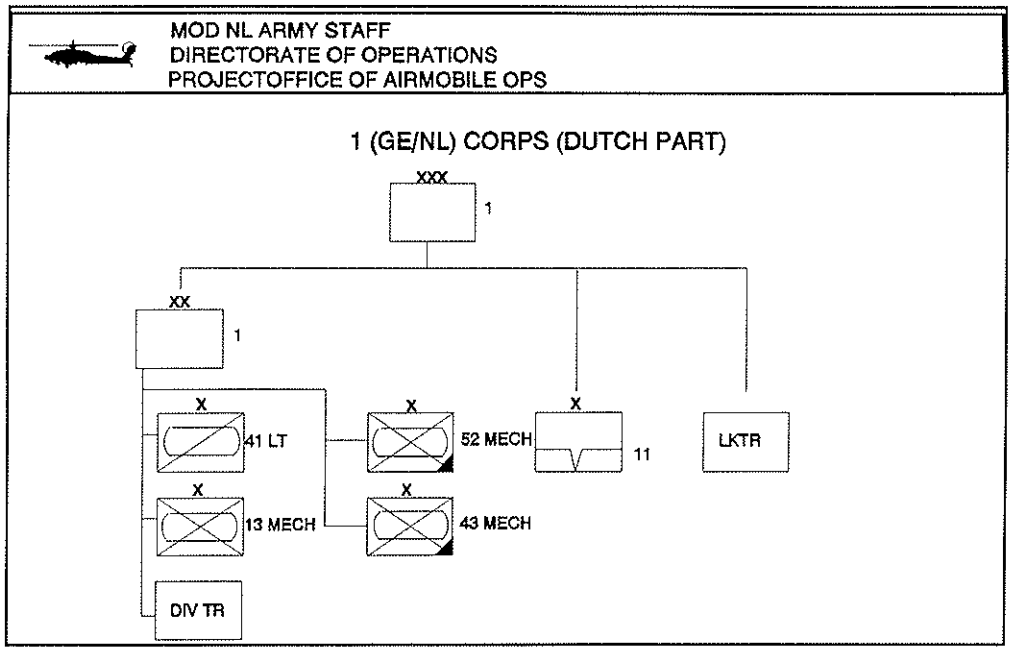

slide 3

The last organisational chart I wish to show you is that of the GE/NL Corps (slide 3). When the brigade is not deployed in the context of the MND, it falls under the command of this Corps.
This concludes the organisational charts. I would now like to discuss the deployment options.

4. DEPLOYMENT OPTIONS

4.1. The first deployment option I wish to discuss is the deployment of the brigade at the maximum possible distance of 230 km. This deployment option will be exercised on friendly territory or in a type of "no-man's-land"; in any case, not in an area completely occupied by the enemy. In other words, enemy elements may be present in the area. The brigade and Helicopters Group are, in principle, moved from the peacetime location to an assembly area in the vicinity of the area of operations. Once in the assembly area, the brigade will prepare itself for the action to be undertaken and will then be deployed at a given time. First, the so-called operational part of a battalion will be flown in over a maximum distance of 230 km. The operational part of a battalion is the part which, directly after being flown in, can deploy sufficient fighting power to fight the battle independently for long periods. Incidentally, the operational part of a battalion can be composed differently for each operation. The number of transport helicopters procured is based on the need to be able to move the operational part of a battalion over this distance in a single transportation. The operational part of the brigade is flown in in approximately five waves.

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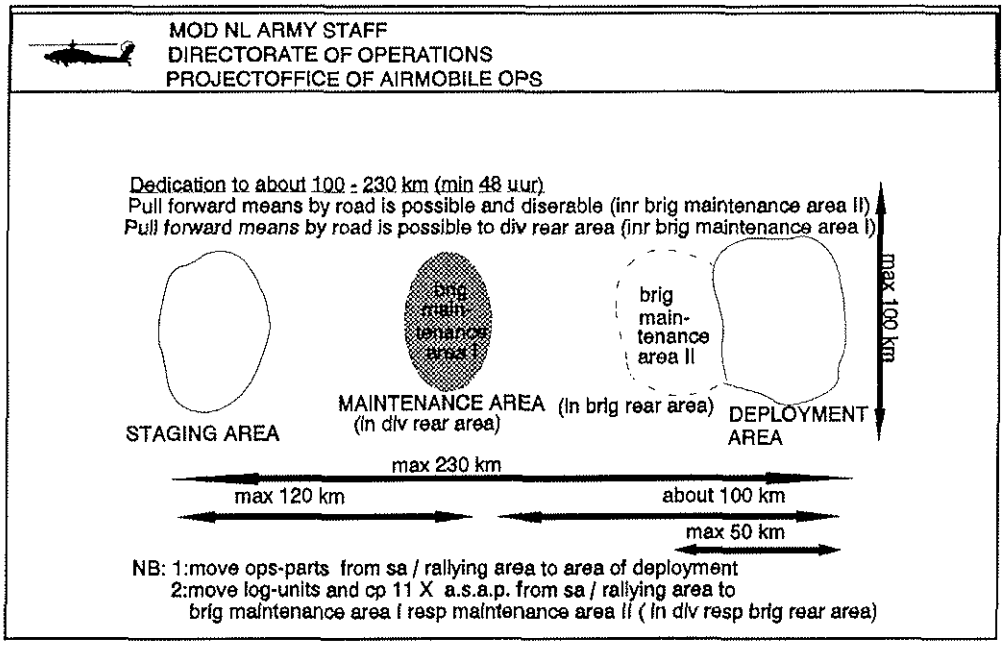
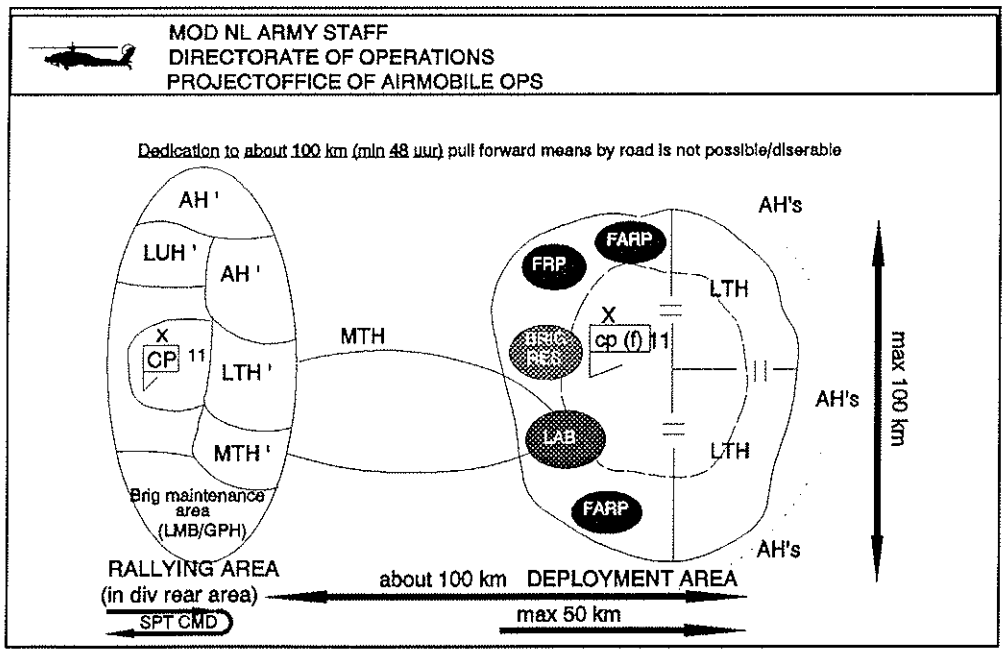


slide 4

The current slide (slide 4) shows the dimensions of the operational area, which may be as large as a brigade operational area of 50 by 100 km. The slide also shows the brigade service area which will either be established at a distance of approximately 100 km from the deployment area or brought up in its entirety to a position adjacent to the operational area. It is not possible to provide sufficient logistic support for the brigade at a distance of 230 km for long periods with the assets available.

4.2. This deployment option will therefore frequently be set aside in favour of the following option, in which the brigade is located in the operational area and logistic support is provided from an area located at a distance of approximately 100 km from the area of operations. In principle, this option will be preferable if bringing up supplies to the operational area by road is either impossible or undesirable. In other words, in this option the brigade is entirely "airmobile": both deployment and logistic support and maintenance of the brigade take place by air transport.

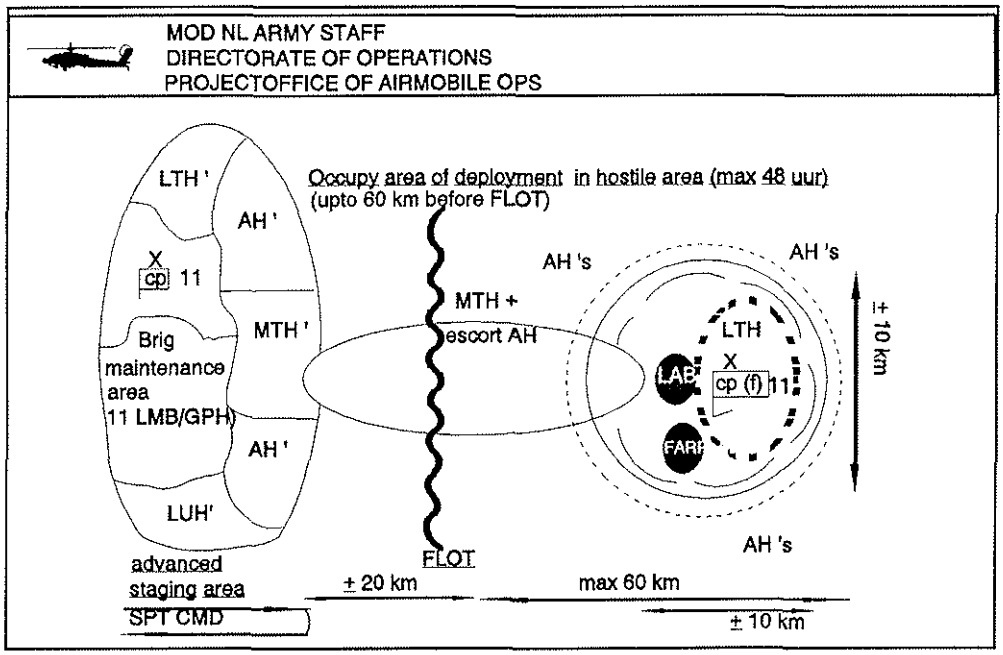
.....(slide 5).....



slide 5

The current slide shows how the various units are assigned to a location in the assembly area from which the brigade also receives logistic support. You can see how the area of operations is divided into battalion sectors, in which a number of important elements and logistic installations have also been included.
I will now discuss these elements in general terms. First of all, the command post. During this type of deployment, the brigade will use two command posts: the "main command post" in the assembly area and the "forward command post" in the operational area. The forward command post directs the actual operation and the main command post essentially carries out all the other activities, such as monitoring and providing maintenance for the operation, maintaining communications with adjacent and higher-level units, and preparing the next operation. Furthermore, you can see Forward Arming and Refuelling Points for the armed helicopters and Forward Refuelling Points for the light transport helicopters depicted in the deployment area. Finally, you can see the brigade reserve which will usually include armed helicopters.
Although I will return to this subject later in my briefing, I would now like to discuss the deployment of the transport helicopters. After the brigade has been flown in, it is supported from the brigade service area by means of the medium transport helicopters, the Chinooks. Within the operational area, the units are supported by light transport helicopters, the Cougars. This means that supplies must be transferred in the operational area, which takes place at the Logistic Assault Base (LAB), indicated on the diagram. The LAB is therefore an important link in the logistic chain and has other logistic tasks apart from transfer of goods. These will not, however, be discussed in this briefing. Finally, the slide shows the armed helicopters which carry out combat tasks in the deployment area. Multiple variations are possible in the deployment option outlined above, such as bringing up the service area adjacent to the area of operations or the situation in which maintenance and supply from the service area take place largely by road. In both cases the need for medium transport helicopters is considerably reduced.

The final deployment option is the so-called cross-FLOT operation (Forward Line of Own Troops). This option does not differ greatly from the previous option in terms of structure.



slide 6

The major difference is essentially the size of the operational area and the maximum distance between the FLOT and the deployment area. Because the brigade, or part of the brigade, is deployed in an area which is under the complete control of the enemy, only a small area can be captured. As this operation must lead to a linkup within 48 hours, the maximum distance between the deployment area and the FLOT may not exceed 60 km. Incidentally, this option is the most difficult to carry out, and can in effect only be performed in an integrated operation of the MND in cooperation with other ground units.

5. HELICOPTER TASKS

5.1. Now that you have gained some insight into the possible ways in which the airmobile brigade can be deployed, I will provide further details on the role of the helicopters, starting with the transport helicopter.
First of all, you should realise that, apart from the light strike vehicles, the combat units have no means of mobility other than, of course, walking. I thus wish to emphasise that the helicopter is the only means of transportation by which the mobility of the brigade's combat units can be achieved. The Netherlands has chosen a concept in which two types of helicopter are used for transportation: a medium and a light helicopter. This concept is based on the fact that the use of larger medium helicopters in the operational area renders these helicopters vulnerable. Furthermore, the loading capacity, as related to the loads to be transported in the deployment area, is frequently used inefficiently. As a result, lighter, less vulnerable helicopters are provided for use in the operational area. The helicopters' task is obvious: transport everything that needs to be transported. This means the tactical movement of units, logistic support of units and medevac.
As I said earlier, the size of the helicopter fleet is based on the requirement for the ability

to move the operational part of a battalion over a distance of 230 km in a single transportation. The optimal mix of light and medium helicopters has been determined by means of an operations research study conducted by the National Aerospace Laboratory (NLR) and the Netherlands Organization for Applied Scientific Research (TNO). The number of helicopters required was determined on the basis of various defined operational parts of a battalion and the capacity of the helicopters which were being considered at the time. The research was simplified somewhat because the decision had already been made with regard to the medium helicopter: the "D" version Chinook. In the end, 13 Chinook CH 47 D and 17 Cougar Mk 2 helicopters were procured.

6. ARMED HELICOPTERS

6.1. The tasks of the armed helicopters are directly related to the brigade's operations. Generally speaking, these tasks can be divided as follows.

Securing the operational area. Before units are flown in, the operational area and the approach must be reconnoitred and, if necessary, secured. This support continues until the operational part of the battalion is combat ready, approximately six hours from the moment the battalion has landed.

Escorting the air transport fleet. While the brigade is subsequently being flown in in several waves, the air fleet needs to be protected from potential enemy air and ground attacks. After all, the transport helicopters have no capacity for self-defence in terms of weapon systems. This escort duty will have to be carried out during the entire operation because the flow of logistic air transport to and from the deployment area must, of course, be protected.

Fire support/manoeuvre support. While the brigade is carrying out the assigned operation in the operational area, the armed helicopter must provide the required fire support and manoeuvre support. As I said earlier in this briefing, the brigade does not have tanks or artillery at its disposal, apart from the 120 mm mortars. These tasks must therefore be taken on by the armed helicopter.

Armed reconnaissance. The battalions have the capacity for reconnaissance in the form of reconnaissance groups equipped with light strike vehicles. Their capabilities are limited, however. The armed helicopter is therefore one of the most important assets for gathering information and, during such activities, eliminating enemy targets immediately as needed.

In other words, an extensive and demanding set of tasks. In translating this set of tasks into the actual helicopter, it quickly became clear that the lifting capacity, in relation to the required flight performance (230 km each way in a certain pattern), was a limiting factor. As a result, it was difficult to assign all the tasks to a single airframe. Due to the capabilities of the helicopters available on the market, a request was therefore made for offers of one airframe with two configurations. This means that, by rapidly changing the configuration (within 20 minutes), the same airframe must be capable of carrying out missions with different tasks. The number of helicopters, their characteristics, the types of mission, etc., eventually determine the optimal mix of helicopters to be deployed.
The following two configurations have been defined: a mission as scout escort helicopter (SEH) and a mission as fire support helicopter. The diagram shows the required weapon systems as stated by the Netherlands in the Request for Proposal for each configuration.

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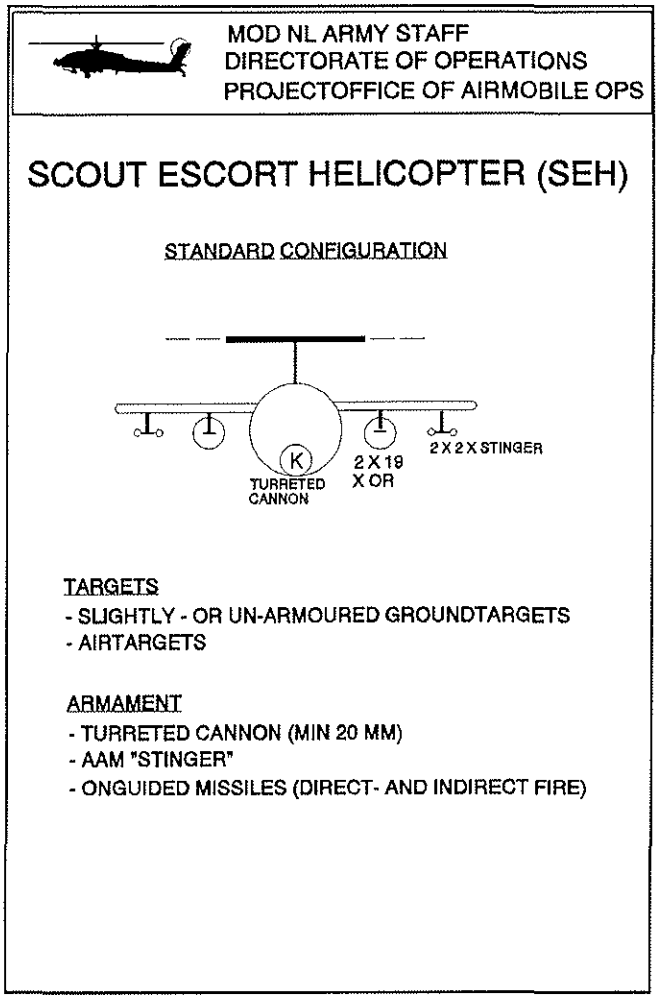

slide 7

The SEH version (slide 7).
In order to carry out the air defence task, the helicopter must be equipped with four air-to-air missiles.
In order to combat ground targets, the helicopter must be equipped with a turreted gun, possibly guided by a helmet-mounted sight.
In order to combat area targets at greater range, the helicopter must be equipped with (un-guided) rockets.

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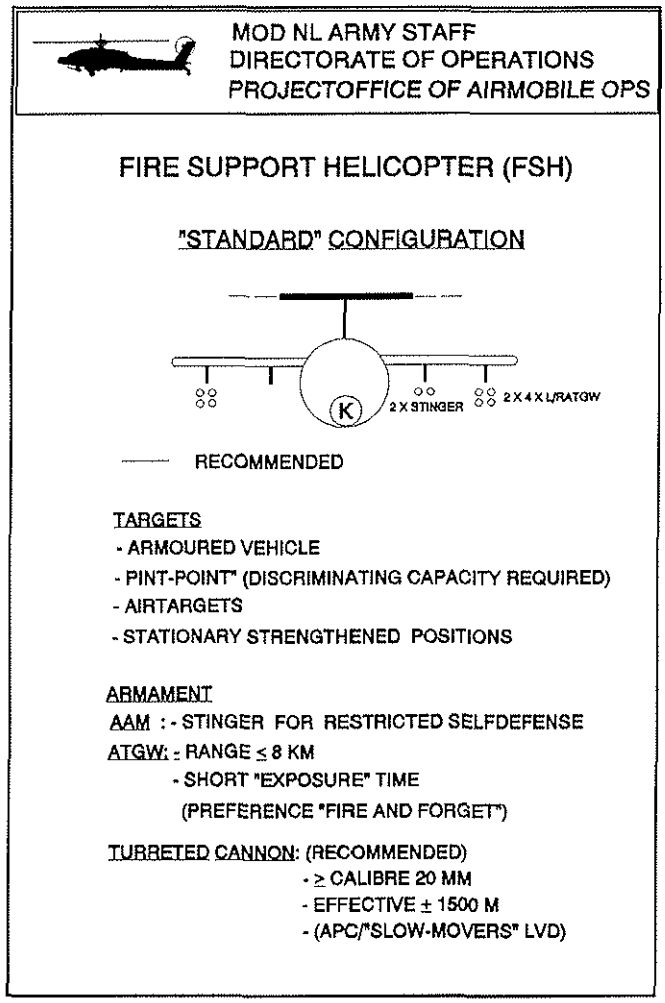

slide 8

The FSH version (slide 8).
This version must be capable of eliminating armoured, pinpoint, air defence and hardened targets. To this end, the helicopter must be capable of carrying a minimum of eight air-to-ground missiles with a maximum range of eight kilometres. Furthermore, in the interests of self-defence, the helicopter must be equipped with two air-to-air missiles. A gun is desirable but not a requirement. Without discussing the details of the Request for Proposal, it should be obvious that the helicopter must have all-weather capabilities and must be able to operate round the clock. After all, the brigade must be able to rely on the required support at any moment.

7. CONCLUSION

7.1. This concludes my discussion of the tasks and configurations of the helicopters. As I said in my introduction, I will conclude with an overview of the current status of the formation of the brigade. The recruitment of regular service personnel for the brigade is proceeding successfully. According to the current schedule, the brigade will be completely ready for operational deployment by the middle of next year. As you may have heard, the battalions which are already operationally deployable have not been idle. One battalion was deployed in the former Yugoslavia during the first half of this year and was relieved by a second battalion of the brigade in July. According to the schedule, this battalion will be

relieved by the brigade's third battalion at the beginning of next year.
As regards the procurement of helicopters, I would inform you that the contracts for the procurement of the transport helicopters have been concluded. These helicopters will be phased in from the middle of next year.

As regards the armed helicopters, we are currently in the procurement phase. As you may know, we are negotiating with four manufacturers: McDonnel for the Apache, Bell for the Super Cobra, Agusta for the A-129 Mk 9 and Eurocopter for the Tiger.
Through this briefing, I have tried, on the basis of the possible deployment options for the airmobile brigade, to provide insight into the demand for, and the tasks and requirements of, the various helicopters. I hope that, through this topical example, I have contributed to the discussion of current and future developments at this Twentieth Rotorcraft Forum.

The next speaker will discuss the air component of the airmobile brigade in further detail. Thank you for your attention.

PART II:
HELICOPTER PROJECTS FOR THE ROYAL NETHERLANDS AIRFORCE

Col A.W. Henni
MOD NL Airstaff
Directorate of Operations
Chief Helicopter Division

1. As my predecessor already pointed out, the RNLAF is now confronted with the acquisition, introduction and operation of the helicopter part of an air assault brigade. So far this airforce was mainly geared for fighter and SAM operations and light transport. Helicopter operations were aimed at the Light Utility Helicopter (LUH).

2. In this LUH task, during the last decades, already signs of emancipation in this sofar subdued task were eminent: Some years ago battlefield observation, reconnaissance and artillery guidance (in peacetime aditional tasks like transportation of VIPs, Press and passengers) used to be the mainstay of the existance of the light aircraft wing or helicopter group.
Emerging mainly from within this group, it was made clear that other tasks, with a more operational background could be performed, taking practical and of course operational limitations into consideration.

3. Thus the Helicopter Group of the Royal Netherlands Air Force started, without knowing its future, to get interested in helicopter operations in a military environment.

4. Still, the Group did not have the means, but some pioneers started to think about contour and NOE and, I, being a fighter pilot with some close friends in the helo business, started to do some experiments in Air-to-Air.
It is astonishing how a helicopterpilot, once he knows where you are, can keep you of his 12° clock.

It was comforting that a helicopter did not have any weapons to substantiate this form of agility.

5. Now the Helicopter Group of the RNLAF is on the brim of becoming a very well equipped ingredient of the 11th (NL) Air Assault Brigade.
Contracts have been signed for 13 Chinooks - first one expected in the Netherlands middle of 1995 - and 17 Cougars Mk II, starting to arrive beginning 1996.
The struggle to acquire armed helicopters, making the Air Assault Brigade a credible instrument of force within NATO or European or national politics, is in process.
Without armed helicopters a hardly armed and rather harmless Air Mobile Brigade remains.

6. In the following part of this lecture, I will touch on some of the operational deliberations in the acquisition process of the helicopters, followed by the plans for their introduction.
I will then turn to the future organisation of the Helicopter Group.

7. In the quantification of the amound of transport helicopters, the leading operational requirement was that the helicopters had to be able to transport in one round trip, the operational part of a battallion over a distance of at least 230 KM.
Another starting point was the assumption that Chinook Medium Transport Helicopters could be

taken over from the Canadian Armed Forces and refurbished and modernised by Boeing.
With significant assistance of the National Aerospace Laboratory (NLR) and the Laboratory for Applied Technological Research (TNO).

8. Several mixes of Chinooks and Light Transport Helicopters were defined and composed to total cost.
On the military side of the process, military aspects of the competing helicopters were composed.
In the case of the Chinook, this mainly boiled down to cockpit configuration and the choice of engines between 712 and 714. As far as configuration is concerned, the choice was made for the CH-47D with Glass Cockpit.

9. The choice of engine took some more discussion.
The 714 was more expensive and delivered more shaft horsepower than the gearbox could handle and was thus considered an overkill compared to the 712.
On the other side however, it was argued that the 714 would prove its advantage in hot and high circumstances, where it could provide longer the full power that the gear box can handle; a handy thing in Out-of-Area operations.
Also during normal operations the 714 would rarely be used at maximum rated power, thus reducing wear of the engine.
The latter two arguments won.

10. In the case of the Light Transport Helicopter the final candidates were the Black Hawk and the Cougar Mk II.
The Black Hawk being a military design, low profile, air transportable and with more available shaft horsepower.
The Cougar Mk II being from civilian origine, modern design and more spacious, but with less power available.

11. It amazed me that in the rotary wing world Specific Horse Power normally mainly was translated into the capability to lift weight, where I was used to translate power (in the case of fighters Specific Excess Power) into the ability to change the aircrafts vector without loosing energy, or in other words: into manouevrability.

12. Especially since helicopters in tactical military circumstances hardly can use potential or kinetic energy as a source for manoeuvring, the availability of power for this, deserves more attention.

13. At the end the political decision was made to acquire the Cougar Mk II; a helicopter very well capable to fulfil its mission.

14. At the moment the negotiating process on acquisition of an armed helicopter is still going on. Participants are Apache, Cobra-W, Mangusta and Tigre in alphabetical order.

15. Obviously I cannot go into details, but for the sake of this forum, next to the availability of surplus power for tactical manoeuvrability, I would like to dwell a little on the peculiarities of a helicopter, related to the use of a machinegun or cannon in armed helicopters.

16. The main issue with a gun is aiming it properly.
Of course, this requires an aiming solution, taking into consideration own movement, target movement and range, processed by a fire control computer.
In a fighter, energy (potential, kinetic or P_2) is used to aim the gun and thus the entire airframe at the target.

17. In the dynamics of a helicopter, this is a different ballgame. In the hover the helicopter can yaw a fixed gun 360°, but it cannot pitch it to adjust for range other than by changing hover altitude, which is tactically unsound.
A turreted gun bypasses this disadvantage and also makes it possible to fire sidewards in forward flight, thus enhancing reactiontime on threats considerably.

18. As a resumé, I, as a military adviser, will pursue in the armed helicopters project the things that I found crucial in the fighter business: agility in power, sensors and weapons.
These items, next to training, make you a winner instead of a looser and make your mission credible instead of a political symbol.

19. With the introduction of the new helicopters, the Royal Netherlands Air Force is confronted with a total absence of experience within its own personnel in new tasks and types.
To gain experience, the RNLAF aimed at sending out instructors to experienced units abroad.
20. With regard to transport helicopters, 3 instructor pilots and 3 flight engineers/loadmasters, after conversion to the Chinook and instructor upgrading, are at the moment working as instructors with the US Army Aviation School, Fort Rucker/USA.
They will return to the Netherlands to take care of the tactical training for the first batch of Chinook pilots, that received conversion with Boeing A/C.
For the Cougar a similar traject is sought with the Aviation Légère de l'Armée de Terre (France) and the Swiss Air Force.

21. With regard to armed helicopters, there are still no specific plans for sending out personnel.

22. A handicap is that the Dutch Air Force is the first military user of the Cougar Mk II, so that experience has to be gained at Cougar Mk I and Puma.
The organisation of the Helicopter Group will be lean, but mean.

23. The Group will in peacetime be based at two airfields, Gilze-Rijen AB (one light utility helicopter squadron and two armed helicoptersquadrons) and Soesterberg AB (two transporthelicopter squadrons). Supporting squadrons will be based on both locations.
The chain of command consists of two levels: the Group Commander and the Squadron Commanders.
The flying squadrons will be highly self supporting with add-on modules from the supporting squadrons.

Ladies and Gentlemen,
This concludes my presentation and I hope that with all the changes ahead of us, you do wish me luck.

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