

TWELFTH EUROPEAN ROTORCRAFT FORUM

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EUROPEAN HELICOPTERS FOR NATO THEATER

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# EUROPEAN HELICOPTERS FOR NATO THEATER

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## A B S T R A C T

1. Airmobility of the Ground Forces is the capability of performing by air essential tactical and logistic activities which could not be otherwise performed using conventional surface vehicles.  
Airmobility demonstrated to be an unrenounceable factor of the Ground Forces operational effectiveness in the envisaged future battle-field, particularly in the situation determined by NATO Ground Forces numerical inferiority and taking in account the huge airmobile potential of the WP forces.
2. Employment of the helicopters by NATO Ground Forces.  
Difference in the implementation of the airmobility concept between the US and European ground forces:
  - the US Army has an inherent and effective airmobile capability
  - the European Armies have only a limited airmobile support.The helicopters employed by NATO forces.
3. Employment of the helicopters by Warsaw Pact Forces.  
Huge airmobile potential both for transport and fire support.  
Expected near terms improvements. The anti-helicopter role.  
Technical aspects of the russian helicopters.
4. Guide-lines for meeting the future NATO European requirements.  
The airmobility functions and the corresponding helicopter types.  
Basic criteria: RATIONALIZATION, STANDARDIZATION, INTEROPERABILITY. Transatlantic cooperation.  
US and European programs and orientations.  
European programs suitable for cooperation: A.129, EH.101, NH.90  
Possible evolution of the requirements towards new rotary-wing configurations: the convertiplane.

## 1. PREMISE

I am the Italian Army retired Colonel Valente. I spent 30 years of my military life serving into the Army Aviation as a pilot and as responsible of the R&D activities in this sector. I am now Industry Consultant in support of strategic marketing and planning Division of the AGUSTA Company.

I am not speaking here as a representative of this Industry but as a soldier deeply convinced of the importance of the airmobility for calling the attention of the European NATO opinion leaders on this aspect of the ground forces operational capability that, in my opinion, has not yet reached the necessary level within the European NATO Armies.

The airmobility concept is generally accepted. But concepts are nothing without the means for translating them into the reality.

Taking this in mind and moving from the unacceptable difference between the airmobility level between the European NATO partners and the US and the WP forces, I wish to present you my considerations on the following points:

- o HELICOPTERS: Key factor for the airmobility of ground forces
- o Employment concepts by NATO and WP forces
- o Guide lines for satisfying future European NATO exigencies
- o Perspectives for the nineties

## 2. AIRMOBILITY

Airmobility of ground forces is not a complementary aspect of their operational effectiveness but, in the envisaged scenario of a possible future European conflict, it is one of the main corrective factors for balancing the ascertained enemy superiority.

I am not exposing new concepts.

Few months ago I was waiting for a train in a small station of the British Railways. My attention was attracted by some old copies of the famous British Aeronautical Magazine "The Aeroplane".

Scanning a November 51 issue I found a picture and a short description of an heliborne operation performed by the US Marine Corps in Korea.

As a comment to the new, the Magazine reported that, following the Korean experience, the US Army would have spent more half billion dollars on helicopters to equip each division with this craft.

Revising the concepts for ground operations both from tactical and logistic point of view, US Army officials expressed the opinion that the use of helicopters would have affected important changes in the nature of ground warfare.

Consequently and coherently the US Army worked for introducing the new concept into the reality and after the confirming experience of the Viet-Nam war, acquired a very high level of airmobility, that is the capability to move and combat in the third dimension performing essential activities which could not be otherwise performed using surface conventional means.

Let me very shortly remember that airmobility is the possibility of ground forces, directly employing own aircraft, to develop by air the following functions:

- o command and control
- o liaison
- o observation and reconnaissance
- o tactical and logistic transport
- o fire support

These functions are not complementary possibilities but they represent the solution for reacting against an aggressor credited by strenght superority, also overcoming terrain and time-limitations in a new application of the classic battle principles:

- o manoeuver
  - o mass
  - o surprise

The potential adversary of the NATO not only outnumberes the NATO forces but now he enjoys also a high airmobile capability that amplifies his already worrying superiority.

If we try to image the possible scenario of the future European battle-field, we realize that against the enemy superiority and in the uncertainty about the point of application of the main efforts, the defensive forces should only be ready to react immediately concentrating the power where necessary.

This can be done only by airmobile units both directly delivering fire, especially anti-tank fire, and for moving and deploying ground reserves.

But that it is not enough.

Airmobile reactivity is also necessary and essential as a countermeasure against the capability of the enemy to perform airmobile operations on the flanks, in the intervals, on the rear of the defensive forces for facilitate the progression of his main attacks.

Again, the enemy superiority allows him to continuously aliment the front-attack: therefore it is essential to cut at the roots the enemy feeding lines employing both air force aircraft and airmobile ground forces.

Another aspect of the airmobility is a new one connected to the need of countering the enemy airmobility.

In fact, as an essential factor of the ground forces effectiveness, the helicopter became a threat factor to be considered for adequate counter-measures.

Studies have demonstrated that the helicopter is the best helicopter counter-measure if compared with the most advanced anti-aircraft systems and conventional airplanes.

Finally we must not forget the logistics that is a vital factor for supporting defensive and offensive operations.

In the envisaged scenario of a future battle-field, enormous difficulties would hamper the logistic support:

- o road and rail network submitted by enemy air force attacks
- o congestion caused by refugees
- o direct attacks against logistic centers
- o dispersion of the units to be supplied

I do not think necessary to debate how airmobility could represent in many circumstances the only solution.

I would like to stress another aspect of the airmobility potential. The inferiority of the NATO forces, mainly on the European side, is also a consequence of economical, political, human problems which do not allow the Governments to set-up the desirable defensive strenght for countering the threat. Quality could balance quantity. But high specialized units with the best equipment without the gift of ubiquity would be not enough.

Airmobility could be the multiplier factor.

Before closing this part of my presentation, I'll explain why I do not speak about helicopters employed by the other Services.

For NAVY and AIR FORCE the rotary wing is also important but in these Services it performs complementary yet not negligible functions, while for Army it is an essential means for sustaining its role on the modern battle-field.

### 3. HELICOPTER EMPLOYMENT BY NATO GROUND FORCES

If we agree on the importance of airmobility as an essential and not complementary factor of the NATO ground forces effectiveness, let's see how the concept is implemented within the NATO countries.

I took the following figures from an article recently appeared on the British Army Review:

o Total number of helicopters of U.S. Army and the four largest armies in Western Europe:

- U.S.A.	10.862 helicopters
- France	989
- Germany	778
- Italy	431
- U.K.	400

o In terms of proportion between men and helicopters we have:

- U.S.A.	13.9 helicopters for 1000 men
- France	3.2
- Germany	2.9
- U.K.	2.7
- Italy	1.7

Numbers do not need explanation.

With this uncomparable difference between the U.S. and the Europe ground forces it is a non-sense to speak of a common airmobility concept.

From one side there is the real possibility to think in airmobile terms. From the other side there is more or less the only possibility to complement some actions of the ground forces, with I don't know how many concrete perspectives of obtaining decisive results.

Compromises very seldom pay!

Although moving from a general acknowledgement on the helicopter utility, there is a wide range of solutions within the NATO forces.

The first difference is between the US and the European NATO forces:

- o the US Army has an inherent and essential airmobile capability
- o the other European forces can rely only on limited airmobile support

Other differences arise from the European Allies, where the German Army is oriented to concentrate its airmobile potential on antitank and mass helitransport roles, for countering enemy's breakthrough into the defensive lines.

The others seem be willing to have available all the airmobility functions although in a balanced general inadequacy.

In some field exercises performed by the Armies of European countries, thanks to the concentration of more or less all the available aircraft, we observe similar aspects to those obtained by the US Army.

But in the reality the airmobility remains a pure abstraction.

The limits of the military budgets offer a rationale for explaining the low helicopter number.

But, not entering into the financial problems, I think that within the present budget limits, higher consideration should be given to the airmobility problems examining if, with a different proportion between some conventional ground units and helicopter units, it could be obtained better, higher, more adequate operational effectiveness.

As an example, war games, operational researches, field exercises could demonstrate the validity of the hypothetical solution of replacing a certain number of tank battalions by smaller and more effective antitank helicopter squadrons.

Luckily some positive indications there exist: in fact recently the Chief of Staff of the Italian Army expressed his intention to transform the existing structures in something lighter and more agile, favouring the mobility. We hope that it will be a good example of a wider application of the airmobility concept.

I realize that in any case there would be not possible to reach the same levels than the U.S., but the overall situation could and should improve.

I must recognize that there is also a certain psychological resistance by the Ground Commanders of abandoning traditional and conventional means and procedures in favour of the helicopters which today do not offer full guarantee of performing their mission by night and in adverse weather conditions.

But this is a transitory situation because the technological progress demonstrates day by day that the possibility exists to meet the most stringent requirements expressed by the military helicopter users.

In any case we must admit that there is a dramatic difference between the US and European NATO Ground Forces in terms of airmobility:

- o the US Army has a real and integrated airmobility that makes it compatible with the type of operations envisaged for a future battle-field
- o the European Armies have a very limited airmobile capability that, with some differences among them, could be considered in general only the starting point towards the minimum acceptable level.

#### 4. THE EMPLOYMENT OF HELICOPTERS BY WP FORCES

I could spend only one word for describing and explaining the airmobile potential of the WP forces: MASS.

In the periods after World War II, when the tension arose between West and East, apart the nuclear option, the airmobility was one of the factors able of compensating the ground forces unbalacement. This was in reality a capability of the US Army only, the back bone of the Western defense.

Of course the Russian Armed forces had helicopters in a remarkable number. But their employment was practically limited to the logistics without a real impact on the operational concepts.

However the Western lesson was rapidly learned and in few years the great availability of helicopters by the WP forces became an added factor to their superiority. Concept of employment are different than in NATO environment, because the WP airmobility reveal itself essentially as an huge helitransport and heavy attack capability able to revolutionize the old image of the Soviet Army as a slow yet formidable road roller: the roller now is faster while airmobile tentacles can perform vertical encirclements all over the battle-field.

The attack helicopters, which have hybrid configuration, operate now like close support airplanes, hence their Russian denomination as STURMOVICK.

But very soon true attack helicopters will operate according to the NATO concepts and will play a very important and worrying anti-helicopter role.

Untill a recent past the presumed low technological level of the Russian helicopters was one of the reasons for not crediting the WP Force of a determining airmobile potential.

In the reality the Russian helicopters show a different approach to the operational effectiveness.

Maybe there is less concern for sophisticated technological solutions but they have other very attractive military characteristics in terms of performance, all weather capability, robustness, technical simplicity. Take note that most of the Russian helicopters are faster than the correspondent Western ones!

In conclusion we must admit and take in the due consideration that the WP forces can rely upon reliable airmobile capability, giving them the possibility to extend to the third dimension their offensive manoeuver concept.



## 5. GUIDE LINES FOR SATISFYING THE FUTURE EUROPEAN NATO EXIGENCIES

Having described the airmobility as an essential means for the Ground Forces operational effectiveness, and having evidenced the unacceptable difference between the US and the European Forces, we should question ourselves if the near-middle terms perspectives show symptoms of a changing attitude of the NATO European partners to modify and how the present situation. For the three basic airmobility functions, that is:

- o general light airmobile support
- o tactical-logistic transport
- o fire support

there are today in service 17 different types of rotary-wing aircraft.

After years of work developed by NATO Military Agency for standardization there is today still a lack of common helicopter denominations.

However, if we make a distinction according to the size, there are:

- o light helicopters, from 1.2 to 2.5 tons employed for reconnaissance, liaison, observation, command and control and also in antitank roles
- o light-medium helicopters from 4 to 8 tons for general utility or tactical transport, also used for fire support and antitank fire
- o attack helicopters, presently employed only by the US Army
- o medium transport helicopters both for logistic and massive transport mission, employed not by all NATO partners
- o heavy lift transport helicopters used only by the US Army.

Differences in types and numerical availability of helicopters evidently do not allow the adoption of identical operational concepts and procedures.

For trying to determine possible guide-lines for a quality improvement of the situation in the next decade (when the obsolescence of the present machines would be almost a general aspect), we should a little better understand the roles of the different categories of helicopters.

Light helicopters: these aircraft should meet the Commander's requirements for the basic airmobile support in terms of command and control, liaison, light utility transport, observation, reconnaissance, protection and specialized antitank and antihelicopter fire support.

Against the present situation of various and unadequate aircraft, it seems possible to satisfy these requirements by a family of relatively light helicopters in different versions.

Light-Tactical transport helicopters: they are employed for performing low-scale airmobile operations such as seizure of important points, the deployment of small specialized units and their recovery in the most dynamic actions. They can also provide forward logistic support and fire support, acting more as flying platforms for indirect fire weapons than as attack helicopters. They can be used also as platform for Electronic Warfare Systems.

Medium helicopters : until now they have credited mainly for a logistic support capability. Today, considering the increased need for massive troop transport capability, their role should be emphasized also for an improved tactical airmobility. In peace time they appear suitable for preparing quick intervention forces to be employed in emergency situations.

Attack helicopters : I consider these aircraft as specialized machines outside of the categories I have described before, although in some cases they could be derived from existing helicopters (as was the case of the Cobra) or developed within the "family concept" together with different versions.

An official distinction does not exist.

On the Western side only two helicopters are in service: the already mentioned Cobra as a medium-attack helicopter and the AH-64 APACHE as an heavy attack helicopter.

Orientations have been expressed for a new formula of light combat helicopters for specialized duties such as antitank, reconnaissance, protection, anti-helicopter.

In a modern military alliance the integrated operational capability is a MUST. For obtaining that the key factor is the standardization of concepts, terminology, procedures, technical norms and equipments. In the present situation, when the differences between US and European NATO Ground Forces in the airmobility sector do not allow to proceed in a coordinated way, the European partners should at least apply for themselves the motto of :

RATIONALIZATION, STANDARDIZATION, INTEROPERABILITY.

If we were in an other Alliance where the individual freedom of the partners is not respected, the standardization problems would be automatically solved by order of the Big Brother to adopt the equipment he likes.

Luckily this is not our case and, together with the defense problems, we have the right to develop our technical-industrial capabilities in order to take care also of the economical interests of the Nations.

But at least an European coordination of the European helicopter programs is necessary both for the military and economic interests.

We can not ask the United States to modify their programs.

We could question if the U.S. demonstrated in the past enough good willing for making easier a standardization process opening a true two-way street between the Atlantic coasts!

On the other hand in the helicopter sector the European partners cannot get proud for the lost opportunities!

But it is not time for lamenting.

If we assume that the second half of the nineties is the period in which the renewal and reinforcement programs should be at least in the implementation phase, the present time offers may be the last chance for trying to rationalize the European activities in this vital sector.

As a reference I would mention the most recent and near terms programs of the U.S. Army:

- o Light utility support: in the nineties a family of light aircraft - developed within the so-called LHX program - will provide the means for meeting the basic airmobility requirements and particularly:

- light utility helicopters for replacing the existing observation helicopters and part of the present utility helicopters
- scout-antitank helicopters, for acquiring a real and effective reconnaissance and combat support capability together with an higher antitank effectiveness. The COBRAs should be replaced by these aircraft.

- o Tactical transport: the UH-60 helicopters are entering service replacing part of the old glorious Hueys. The BLACK HAWK is an advanced aircraft developed according to very stringent requirements of the U.S. Army.

- o Heavy attack helicopters: the AH-64 APACHE will tremendously increase and improve the overall offensive and counteroffensive capability of the ground forces. It is already in service in increasing quantity towards the defined level.

- o Heavy lift helicopters: the Army suspended this program years ago but now it seems that it will be taken again for reaching the capability of moving

very heavy cargoes like the Russians can do now.

- o Convertiplanes : options have been expressed to acquire a certain number of V22-OSPREY tilt-rotor aircraft which is being developed under U.S. Marine Corps and Air Force requirements. This craft should provide air transport capabilities when speed and range are necessary.

What is going in the European NATO environment?

Nothing should be easier than cooperate into the helicopter sector taking into account the commonality of exigencies, the good harmonisation level of the requirements, the compatibility of replacement and procurement schedules, the existence of NATO and European organizations.

There is even an ad-hoc organization of the main helicopter producing Countries, the Quadrilateral Helicopter Cooperation, where under the committment of the National Armament Directors, all the political, military and industrial aspects can be examined.

In parallel also the Industries of the same Countries have signed agreements in the aim to establish an useful collaboration.

But which perspectives there are of arriving to true European programs?

For answering this question we should review what is going now in terms of expressed requirements, orientations, plans and already in progress programs.

A general agreement exists on the need of a relatively light helicopter family for meeting the requirements we have described under the light general support concept.

But in spite of this positive premise, a common willing about how to satisfy the common requirements does not yet exist and there are signs that dispersion of the resources and lack of standardized solutions will occur.

In the full adherence to the requirement for a light general support helicopter family, the Italian Army General Staff launched a program for developing and acquiring three aircraft to be employed in the antitank, scout and light utility transport roles.

At present time, the first version of the family, the A 129 MONGOOSE antitank helicopter, is in an advanced phase and the prototypes are already intensively flying in view of the envisaged in service date late 1987.

The A 129 is characterized by advanced technologies and although fully satisfactory in the present version, thanks to its inherent growth potential offers the possibility of further developments.

The program is completely open to the cooperation with NATO partners and in fact some encouraging contacts and initial agreements allow of hoping its enlargement to

other countries for meeting present and future requirements.

But evidently this is not enough considering that some other European Countries are working to launch a similar program not taking in account what already exists in spite of the Declaration of Principles that is the base for the European Cooperation in the helicopter sector!

Apparently the situation is better as regards the tactical transport requirements.

In fact five Countries joined for an ambitious program named NH-90 that should give way to the development of an almost 8 ton helicopter able to play a naval role in the antisubmarine warfare (as a complement of the NATO frigates of the nineties), and a tactical transport role as a replacement role of the existing old generation helicopters in service in some European Armed Forces.

The program is still at very early phase.

Now perspectives and premises are good. But should the European helicopter industry situation change as a consequence of recent facts, it could be possible drastic changes of the program production output and also the program itself could be cancelled.

Again also in this vital part of the airmobility nothing is sure and different solutions could be adopted disregarding all the standardization and interoperability concepts.

#### Medium Transport Requirements

Italy, U.K., Germany and Spain are currently employing medium transport helicopters. France has not in inventory helicopters of this category.

Only the German Army has a significant number of these aircraft on which the capability of performing massive airmobile Tactical Transport relies. For the other countries they could only play a limited complementary role unless they are concentrated for a single helitransport mission.

No plans or programs have been announced both for replacing the existing aircraft or for increasing the potential of the medium transport helicopter lines but only a general orientation has been expressed by the Italian Army. I personally presume that on the European battle-field the main airmobility requirements would be the antitank/antihelicopter capability and the massive transport capability. The other roles including the tactical transport would not be secondary or negligible but they would complement the priority missions of the airmobility I have indicated before.

The quick reaction to the enemy attacks, especially if a breakthrough becomes possible, could be realized employing attack helicopters and moving rapidly and in

mass the reserve units, while small specialized units would seize the vital points to allow the landing of other units or deploy antitank ground teams.

In this scenario it appears evident the increased importance of medium transport helicopters whose ratio with tactical transport helicopters should be modified in order to have an increased and more effective helitransport capability.

Some orientations in this sense do exist.

But no programs or plans have been yet announced although the perspective of the middle-terms availability of an aircraft suitable for this role is under the users' eyes!

I am referring to the EH-101 program, that is a governmental program financed by the Italian and British Governments for replacing the naval helicopters SH-3D and SEA-KING of the two countries. By the initiative of the AGUSTA and WESTLAND responsible for the project, other versions of the EH-101 have been designed within the helicopter family concept and an utility transport version will be developed having as a reference the only existing document containing valid data about the military characteristics of a medium transport helicopter. I am referring to the FINABEL Agreement 10.A.12 approved years ago by six European NATO countries. It is to be hoped that the due consideration will be given by the responsible authorities to this program that could significantly improve the overall airmobility and the operational effectiveness of the European Armed Forces.

I have not mentioned the heavy attack helicopters : this is a subject that would require much time for being properly examined and discussed.

No European Countries have expressed requirements for such an aircraft while helicopters of this category are in service both in the U.S. and WP forces.

I realize the tremendous involvement of financial resources for developing a helicopter of this type: the Advanced Attack Helicopter Program of the U.S. Army is an example.

To justify the present attitude of the European Countries I could say that light attack/antitank helicopters are essentially defensive armament systems while heavy attack helicopters better comply with an offensive or counteroffensive concept.

However, should exigencies arise for a heavy attack helicopter, possible rational solutions in terms of standardization could be offered or by the extended adoption of the U.S. helicopter or by the enlargement of the NH-90 program examining the possibility to develop a derived version according to the helicopter family concept.

But in the guide-lines for making the military capability of the European NATO countries more adequate

to the exigencies of a modern battle-field, we cannot neglect the possible evolution of the present airmobility concept by force confined within the inherent limitations of the helicopters.

Looking at long term possible requirements, we could anticipate that changes of some airmobility parameters could occur which are out of the physical limits of conventional rotary-wing aircraft : I mean high speed and long range.

On the other hand, the typical flight characteristics of the helicopters will remain in any case, particularly hovering, vertical take-off and landing, flying nap-of-the-earth.

Consequently performance and flight characteristics of both fixed-wing and rotary-wing aircraft shall combine for having the full range of necessary capabilities.

These capabilities would be utilized both for extended helitransport requirements particularly in the air-to-air role, having been demonstrated that against the enemy helicopter threat only an advanced-concept rotary-wing aircraft would succeed.

All that could open the way to the introduction into service of convertoplanes by the end of the Century.

Again, the U.S. are well forward in this sector both by the initiative of the Industries and Armed Forces requirements.

Will Europe wait and see also in this sector?

## 6. CONCLUSION

I have expressed my views under an European point of view: that does not mean that I do not see possibilities of cooperation between Europe and U.S. in the helicopter sector.

The contrary is true. But I think that on each side of the Atlantic more good willing should be demonstrated for harmonizing the individual interests with those of the NATO ALLIANCE.

However, having in mind the scope of this Forum, I tried to demonstrate and stress:

- the vital importance of the airmobility of the ground forces on the European military scenario;
- the unacceptable difference between the airmobility levels of the U.S. and those of the European NATO partners;
- that there is very little time for a rational, coordinated, integrated European planning for

obtaining by the second half of the nineties a significant improvements of the present situation in terms of operational effectiveness and at least European standardization;

- that programs already exist suitable for an enlargement on European base which could avoid dispersion of resources to be dedicated to other armament sectors: the A.129 and EH.101 families which - together with the NH-90 program - could practically meet all future European exigencies;
- finally the necessity that the European Ground Forces Commanders would revise the operational concepts in order to give the airmobility the due acknowledgement and consequently and coherently to upgrade the present European helicopter fleets.