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POLICY OF THE ITALIAN ARMY IN THE HELICOPTER FIELD FOR THE NINETIES

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ABSTRACT

I. The rôle of the airmobility in a modern Army

The airmobility is a key factor for:

- to solve the problem "quality-quantity" within an Army conditioned by financial problems;
- to face an aggressive enemy numerically superior with a high capacity of manoeuvre also in the third dimension;
- to cooperate validly, in peace time, in case of natural disasters and in daily rescue operations in very difficult environment.

2. Essential functions and means to realize the airmobility

a. The airmobility gives the ground commanders the tools to satisfy - integrating and, in particular circumstances, replacing the conventional means - the exigencies regarding:

- command, control and liaison;
- information;
- fire;
- tactical and logistic mobility.

b. Means for air mobility:

- fixed-wing and rotary wing:
  - at the present time and based on actual experience, the helicopter is the mean of choice,
  - supplementary rôles of fixed-wing;
- other possible constructive formulae:
  - vertical take-off and landing aircraft;
  - convertoplanes.

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3. Present situation of the Italian Army and orientations for the future

a. Existing aircraft for the different functions:

- command, control; liaison and information: light airplanes, reconnaissance helicopter, liaison helicopters;
- fire: armed helicopters;
- tactical and logistic mobility: multirole and medium transport helicopters.

b. Orientations for the future:

- modernization and rivitalization;
- acquisition of new means, at medium-long term, to eliminate existing deficiencies (anti-tank fire, reconnaissance);
- renewal of flight lines.

4. Basic criteria of materials policy in the helicopter sector

a. Rationalization; reduction of the helicopter types; aircraft families.

b. Utilization of advanced technologies to achieve:

- employment and operational safety;
- reduction of the operational cost (fuel consumption, maintenance);
- ease of employment.

c. Use of flight and operational employment simulators and other training devices for preparing operational and technical personnel.

d. International cooperation:

- importance of cooperation for economic and military purposes, to make actual the principles of rationalization, standardization and interoperability of armaments within the Atlantic Alliance;
- possible sectors of actuation;
  - reconnaissance helicopters,
  - attack helicopters,
  - transport helicopters;

- necessity to overcome the individual interest in a wider vision of European interest regarding the industrial and the military fields.

5. The most important helicopter programme of the Italian Army: the anti-tank helicopter A-I29

a. Genesis of the programme:
   - examen of the operational exigency;
   - hypothesis of solution.

b. Essential aspects of the project:
   - weight limits;
   - necessity to adopt advanced technologies;
   - balance between "new" and well experienced components;
   - platform of certain validity up to 2000 year and beyond.

c. Main characteristics and performances.

d. Programme status.

e. Possible derivatives.

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I. Foreword

1. Once again I have the honour to address this high level Forum to explain the trends and concepts which govern the Materials's Policy of the Italian Army in the rotary wing sector, with a special reference to the last decade of this century.

2. In former years my address had focused on some aspects of the position of the Italian Army General Staff in this field, and has mainly covered the following topics;

- Military Requirements viewed as guidelines for future developments in the rotary wing sector;
- international collaboration, with special emphasis on European collaboration efforts;
- Military Requirements again, as viewed against some attempts by the Industry to resist programmes that are specifically military and which would hamper the expansion of the rotary wing material toward the Civil market.

3. I am offered hereby the opportunity to revert to these subjects and to integrate them so as to reflect the position of the Italian Army, in light of the new indications confirming and defining the requirements of the ground Forces in respect of airmobility, technological advance and of the trend lines which emerge from the helicopter and equipment sector.

My address will therefor touch upon the following topics:

- the airmobility role in a modern Army;
- essential functions of airmobility and ways to implement them;
- present situation of the Italian Army and future trends;
- basic criteria governing the materials policy in the rotary wing sector for the nineties;
- the most important short term programme of the Italian Army: the A I29 anti-tank helicopter.

II. The Airmobility Role in a Modern Army

1. Though this concept has gained general acceptance, I wish nonetheless to stress once again the importance of the role of the helicopter in any modern Army, intended as a necessary and not otherwise replaceable vehicle to expand the capabilities of the military ground instrument also in the third dimension.

From the now rather remote experiences in South East Asia to the very recent ones gained during the Falklands conflict, the helicopter has proved a necessary complement to any operation by providing support for any command and control action, thus contributing to intelligence data gathering and joining as well, either individually or in conjunction with other weapon systems, in fire actions, thereby constituting the basic vector in operations featuring high mobility.

2. It may be said that all this is not new and that it has already been acquired. Yet, as a matter of fact, aside from any verification and confirmation as necessary to justify the implementation of expensive flight lines and the launching of burdensome strengthening and renovation programmes, it is still possibile to draw from the present situation and from near future projections, new indications concerning the airmobility requirements of a modern Army.

Experience, "war games" and the results from dedicated operational researches are demonstrating that the ground operations in the year 2000 will feature a high mobility, be they conceived either in conventional terms or in a nuclear environment.

3. From a comparative examination of the aircraft potential between NATO and Warsaw Pact Countries it is possible to realize that until a recent past, the principle difference consisted in the fact that in the West airmobility was an integral factor of the ground Forces.

In the East one could not speak of airmobility in the true sense of the word but instead, of a complementary yet formidable possibility, provided by the air Forces to the ground Forces.

This possibility which nonetheless constituted a

high threat has turned today into a higher operational capa city, following the alleged adoption and deployment of advanced operational criteria by the Warsaw Pact Forces, espe cially as regards the HIND attack helicopters.

From this situation evidently arises the need for the West not to lose and to secure again what maybe appeared to be the most important corrective factor of the ascertain ed unbalance in conventional forces to the disadvantage of the West.

4. This in effect is an aspect, which maybe is not yet sufficiently appreciated,of the possibilities offered by the rotary wing aircraft to the ground Forces. Airmobility requirements are not to be viewed only in terms of possibility of adaptation to the dynamics of ground fighting but for some Armies these requirements assist in solving a problem with too many unknown, in respect of the ever increasing costs incurred to maintain an acceptable and cred ible military apparatus.

I am referring to the problem of the search for a satisfactory line of compromise between volume and quality, namely between the deployment of a Force numerically capable to counter any possible threat and the acquisition of means which have a high operational efficiency but are very expensive.

In those instances where budget restrictions will not permit the implementation of a comprehensive and high quali ty military apparatus, which with its operational potential be physically present in all segments of the prospective threat, it will be possible to deploy an adequate airmobile capability utilizing selected stand-by units stationed in strategic areas, thus overcoming the limitations posed by the terrain to the mobility of surface vehicles, resorting to the readiness of intervention provided by the helicopter.

5. Eventually there is another element prompting the growth of the airmobile factor in a modern Army.

This aspect is not linked to wartime military opera tions and in the procurement of aircraft it improves the cost-effectiveness ratio of programmes which are financial ly much burdensome.

This aspect has been extensively experienced in Italy through the possibility of intervention at the time of extensive natural disasters with the only means capable of ensuring a prompt rescue action: the helicopter.

Thanks to the intervention capabilities demonstrated in areas struck by earthquake and floods, in woods fire fighting operations in Summer and in the course of daily rescue flights in the mountains, the Italian Army Light Aviation has gained the highest recognitions from top military and civil Authorities, along with the possibility to upgrade its operational potential with the use of funds allocated to the Armed Forces, in respect of the procurement of new helicopters and specific equipment to fulfill civil protection duties.

III. Essential Functions of Airmobility and Ways to Implement Them

1. As is widely known, airmobility of the ground Forces is intended as the envelope of possibilities offered by aircraft, by the helicopter in particular, to Unit Commanders to fulfill their requirements of command, control and liaison, intelligence and fire support, tactical and logistic mobility.

Usually the aircraft support is viewed as an integration of conventional means and only under particular situations, as a substitute for said means.

As a matter of fact, the dynamics of a modern battlefield renders it difficult to regard as complementary and integrating a function which looks instead specific and typical of actions which escape the provisions of any strict schematism, especially on the defensive under the pressure of hostile action.

2. Some perplexities and reservations exist as to the capability of the helicopter to operate and survive on the modern battlefield, also taking into account that the most advanced and effective counter-measures are currently being developed and implemented against this aircraft, following the emergence of the "helicopter-threat".

Anti-aircraft systems with specific anti-helicopter operation requirements are being defined; combat helicopters are being armed with weapon systems capable of providing a "helicopter-killer" capability and the most appropriate air fighting techniques between helicopters are being studied.

This problem should actually be examined more in depth before we can say that really effective anti-helicopter measures exist. Of course once the helicopter has been launched on the battlefield it shall have to exploit to the max. possible degree its peculiar flight performance and it shall be adequately equipped with systems which provide maximum protection and enable it to operate from a safe stand off distance relative to the threat.

3. In any case, in light of the current situation and mean-term prospects, it seems quite unlikely that the ground Forces will renounce the use of the present high level of airmobile capability, nor it seems that other different means are emerging to provide such a capability.

Our look however must be projected well into the future to try to find out whether solutions exist which are more effective that the present ones. The principle question we are immediately confronted with, is whether the classical helicopter configuration, even if of advanced design, will retain its validity by about the turn of this century or whether different design solutions will prove more respondent.

4. To try to attempt an answer we must reconsider the role of the helicopter versus groung fighting and establish whether we require a support other than the present one, with due consideration given to the helicopter inherent limitations, even if modern technology has consistently contributed to their reduction.

The least brilliant helicopter performance as a whole, is certainly speed. To try to achieve high speed values as close as possible to the limits of the design formula, heavy penalties must be paid which no military opertor is prepared to accept. In view of the above the military requirements confronted with rather moderate speed values, place the emphasis on other characteristics considered more interesting, such as hovering capability, acceleration, maneouverability, which are compatible with the design phylosophy of the conventional rotary wing aircraft.

But should the operational picture change and a higher speed maybe in combination with a higher range become a primary requirement, it would then be necessary to consider different solutions which would substantially deviate from

the classical configuration of the helicopter.

5. Being that of the ground Forces the reference operational environment, I believe that resorting to VTOL aircraft must be discarded a priori.

In order to attain speed levels considerably higher than the present ones, the only solution possible is to consider alternate configurations. I am referring in particular to the most promising configurations now under development such as tilt rotors and counterrotating rigid rotors.

These solutions are attractive of course, but they do not certainly represent a step forward, towards the design simplification of a machine which relative to fixed wing aircraft is already characterized by a remarkable engineering complexity. Moreover in contrast with the current trend towards a reduction in procurement costs and maintenance expenses, the aforesaid solution would certainly result in a steep climb of the respective curves.

6. I personally regard high speed as a performance feature which is certainly valid to enhance the operational flexibility of the helicopter and to reduce the time of intervention.

But on the battlefield - and hereby I am not referring only to attack helicopters - are prevailing features and performance which permit to perform tactical flight, this is to say a type of flight which taking advantage of the cover offered by the terrain, actually constitutes the winning factor in helicopter deployment.

If speed is used in fighting it would imply severe coordination problems with the aerotactical Forces, since the Army aircraft would become "true" aviation means under every aspect, instead of remaining "ground vehicles" capable of moving without touching the ground.

In conclusion, though it may seem convenient to examine the possible advantages provided by different design formulae in respect of means primarily destined to logistic support - for example in replacement of the current medium transport helicopters - I am nonetheless convinced that the classical helicopter configuration will remain valid to fulfill the requirements inherented to the forward area of the

battlefield, namely: exploration, tactical transport and front line logistic support.

IV. Present Situation of the Italian Army and Future Trends

1. The Italian Army's Flight Line is currently in a position to fulfill the basic requirements of airmobility by means of a variety of aircraft types produced by the domestic industry. These are well known machines which have been extensively experimented not only in peacetime but also under actual operational conditions.

2. The Italian Army Light Aviation avail themselves of AB 206 Jet Ranger, A 109 helicopters and SM 1019 light aircraft to perform command, control, liaison and intelligence gathering functions.

I wish to stress that A 109 helicopters, though not in great numbers, have proven valuable for the study and technical/operational verification of anti-tank missiles installed on a helicopter which is in a class similar to the future anti-tank helicopter's, on which I will focus hereinafter.

The A 109 providing valuable information about the features required of a future multirole anti-tank helicopter, capable of fulfilling a wide range of tasks and having a more favourable cost-effectiveness ration than current light helicopters.

3. Tactical and logistic mobility is provided by:

- AB 204, AB 205 and by the more recent AB 212 multirole helicopters,
- CH 47C medium transport helicopters.

Under the present situation, the multirole helicopters also provide fire support, for they are equipped with a rocket system.

4. For the near term future, the Italian Army General Staff will pursue an articulated policy which on one hand is finalized to retain the validity of the current Flight Lines, so that the available financial resources can be devoted to the implementation of the development programme and procurement of the anti-tank helicopter.

On long term prospects the renovation effort by the

Italian Army General Staff is finalized to acquire:

- light helicopters which for the time being can be defined as "multirole", and which are capable to fulfill command and control, liaison, reconnaissance, fire control and light transport duties,
- tactical transport helicopters, particularly tailored to provide extensive support to tactical and logistic mobility in advanced areas of the battlefield.

We shall revert again later on to these trendlines when we shall talk about the prospects of the helicopter sector in relation to international collaborations, both military and industrial.

V. Basic Criteria Governing the Materials Policy of the Italian Army in the Helicopter Sector

1. The complete picture about the actual capabilities of the helicopter in support of ground operations has not been determined instantly, but was the result of lengthy studies, analyses and verification process, which have been implemented through operational research methods and actual operational experience.

This at least partially explains the proliferation of Flight Lines, pending the definition of a global requirement picture and thence the impossibility to achieve fully rational solutions.

2. This aspect on birth and implementation of the rotary wing lines for the Armies - herin recalled not in critical terms but as unavoidable consequence of the progressive definition of the possibilities provided by the helicopter - must not be repeated in future programmes dedicated to the renovation of the Flight Lines.

Financial and functional reasons will impose to reduce to the lowest possible number the type of aircraft, whereby the criterion of the family of helicopters derived from a single basic design and diversified configurations to cover the various roles, will be accepted.

Therefore, excepting the medium transport helicopter, which is scheduled for replacement beyond the year 2000, we can anticipate that in the 90ies the Italian Army Aviation will be relying on:

- a family sourced from the anti-tank helicopter basic de-

sign, with derivatives such as the reconnaissance and support helicopter and the light multirole helicopter;
- the tactical transport helicopter, it too featuring a multirole capability in order to provide the possibility of changing the basic configuration to suit a variety of roles.

3. The Military Requirements that will be defined for each type of aircraft and associated operational equipment shall form the basis for future renovation programmes.

In the past, the processing of such documents has essentially covered the performance required of the machine or system, leaving the door open to the possible engineering solutions that the Industry would propose. Today it is no longer so, nor it could be.

First of all an open and fair collaboration is favoured between operator and manufacturer, in order that through an exchange of information and a phased refinement process of the Requirement and of the relevant preliminary development design, the best foundations may be set ab initio for the achievement of satisfactory results.

And moreover, on the basis of the indications derived from the industrial sector as regards the technological progress, the Military Requirement shall also call for the incorporation of the latest technology into the design, with a view to achieve:

- safety of operation as a common factor to all military and civil operators, in terms of flight safety and airworthiness;
- operational sefety from a military viewpoint, in terms of active and passive protection as an integrated concept, covering both the operational aspect of the aircraft in itself and of the necessary ancillary equipment;
- reduction in operational costs, as regards fuel consumption and maintenance interventions. In particular, for this latter aspect is required a drastic redution in periodic inspections, a simplification of the check procedures and that no retirement life limit or intervals are assigned to any component item.
- ease of operation to enable the pilots to concentrate on the performance of the mission, with a minimum of workload devoted to piloting.

4. Well, in confirmation of what I have stated in a former occasion, the Military Requirements do not constitute at all a restraint to the expansion of the helicopter on the civil market.

Instead, the opposite is true, namely if we exclude particular aspects which may be implemented through the installation of specific equipment, we can say that our requirements may speed up the progress of the rotary wing aircraft towards optimized configurations, both in terms of cost effectiveness and operational safety, for any operator.

5. I would like to hint briefly at one aspect of the Materials Policy pursued by the Italian Army General Staff, which though not original, has nonetheless become in recent times, a primary issue.

I as referring to the resolute trend towards didactic aids based on the simulation concept, with a view to achieve:

- the highest possible training level;
- enhanced operation safety;
- reduction in operation costs for the Armed Force in respect of training;
- phasing down of the problems deriving from the shortage in training facilities.

This trend is present in all operational segments of the Army and is being pursued in particular by the Army Light Aviation.

Recently a series of advanced-type simulators for the AB 205 helicopter have been put into service. These simulators are also provided with visual reproduction provisions of the exterior environment.

Similar programmes will follow in respect of the CH-47 and anti-tank helicopter. With reference to this latter, which will be a complete flight and operational training simulator, a specific contractual commitment exists by the Company charged with the development of the aircraft, to provide proposals covering the implementation of a complete system of didactic aids along with the aforesaid simulator.

6. Another aspect of the Materials Policy is the declared availability to launch development programmes on the basis of international collaborations, in relation to the procurement of new material.

I think unnecessary to stress the importance of the military and industrial collaboration within Europe and between

Europe and overseas NATO Partners.

Also giving the due consideration to the difficulties which are emerging in overcoming the industrial interests of the individual Countries, it will be necessary, in a broader outlook of the military requirement, to pursue a more coherent, more rational and more coordinated armament policy in order to achieve an acceptable level of material standardization in the frame of the Alliance, for this constitutes an essential factor of operational efficiency and rational utilization of the financial resources.

7. As regards the rotary wing sector, work has been going on for several years now, within NATO and Europe in the frame of the so called Helicopter Quadripartite, with a view to promote collaboration programmes. The Helicopter Quadripartite covers Government-level and Industry-level design and production efforts by the four European Countries which have a specific and extensive capability in the rotary wing sector: France, Italy, Great Britain and the Federal Republic of Germany.

Among the possibilities that have been emerging for some time now, in respect of joint collaborations on the basis of common requirements - I am hereby referring in particular to the anti-tank/attack helicopter and to the tactical transport or light helicopter - only this latter seems to be heading towards concrete prospects.

In fact, recent NATO and European studies, have demonstrated that it would be appropriate to undertake the necessary actions to develop a helicopter in the 7-8 ton class, capable of fulfilling the requirements typical of the European ground operators in respect of the tactical and light transport duties, as well as the requirements of some Navies for a helicopter capable to operate from the ship-deck of the NATO frigates of the 90ies.

This convergence of interest and requirements constitutes a favourable occasion not to be missed, in order to launch and implement a large respite programme covering the development of an advanced-concept aircraft, which in ten years time, will most likely form the backbone of the European helicopter fleets of the 90ies.

The Italian Army, within the frame of its possibilities and competence, is working toward this aim, the importance of

which must not be underestimated.

VI. The Most Important Helicopter Programme of the Italian Army: The A-I29 Anti-tank Helicopter

I. The subject of this Conference is the materials policy pursued by the Italian Army in the rotary wing sector for the 90ies.

Considering the short term yet not impending perspective, what I have been presenting could have been limited to a listing of intentions and trends, not supported by facts.

Actually it is not so, since for the Italian Army the 90ies are beginning a little in advance, thanks to an ambitious programme launched over ten years ago and which starting with the caution dictated by the engineering possibilities of that time, has now evolved to the level of the most advanced technological and operational concepts and the validity of which is expected to extend up to the end of this century and beyond.

2. The Italian Army General Staff, along with others, has foreseen much in advance the huge possibilities provided by aerial platforms in anti-tank warfare.

However after some preliminary experiences, while other Countries were acquiring a certain degree of operational capability with the utilization of already existing helicopters and first generation wire guided missiles, the Italian Army was looking at such solutions with some perplexity, for they did not appear capable of being deployed on the battlefield with fairly good success and survivability prospects.

The "specialized" machine was therefore regarded as the most logical solution, provided that an optimum combination would be achieved between performance, active/passive protections and a stand off weapon system of proven efficiency.

However, at the time the trend in the United States, which was the leading Country in this sector, called for heavy and largely sophisticated machines, the cost of which seemed incompatible with the financial resources of the Country, at least as far as the procurement of these weapon systems in the required number was concerned.

3. This prompted the birth of the light anti-tank and re-

connaissance helicopter concept, intended as an aerial platform which adequately equipped with weapon systems and sensors, would fill the requirement for an operational group of proven validity: the attack/anti-tank helicopter and its derivative, the reconnaissance and support helicopter.

After over ten years from this initial proposition, high-level confirmations are now emerging proving its validity.

The Military confidential nature of this issue do not allow me to be more specific, I can say however that these confirmations have emerged from recent operational research studies and trends in the U.S. Army, in the frame of the so called LHX programme which will form the subject of a separate conference at this Convention.

4. I wish to revert to the A-I29, to recall that originally, with a view to reach a rapid and economical solution, was examined the possibility of deriving the light anti-tank and reconnaissance helicopter from the A-I29, which had just entered prodution.

In respect of the above, I can say that the Italian Army has bought a few of these aircraft for use as experimental platforms for the verification of the operational concept which forms the basis for the development of the A-I29 helicopter. This verification and confirmation have now been proven in over I30 TOW missile firings and participation in quite a number of drilling manoeuvres in conjunction with other ground units.

However following the progressive acquisition of evaluation elements on how to configure the hypothetical battlefield of a future conflict, it turned out that in the A-I09 weight class, it would not be possible to combine performance with protection as required of a specialized combat helicopter, nor to guarantee an adequate growth potential in view of future requirements.

In this connection, in a constant and harmonious work of modification and updating of the basic Requirement and of the design, developed in close collaboration among the Army General Staff, the Aeronautical Constructions Diretorate (responsible for the technical/administrative side) and the Agusta Company, a weapon system configuration has been defined which, still within a much contained weight range, yet appears a reasonable and viable trade off between operational and economical requirements and is capable to fulfill the demanded

operational role in the frame of the ground combat scenario of the last decade of this Century.

5. The A-I29 project has a particular feature determined by the weight limit of 3700 kg. imposed by the General Staff, after repeated and thorough analyses of the requirements which would otherwise have required higher weight figures if the original assumptions had been adopted. I wish to stress that this weight limit refers to the operational configuration of the aircraft following the completion of its development and at the time that it will be introduced into service. The General Staff however have requested an appropriate growth potential with a view in the future to adapt the aircraft to the changing situation, via the installation of more complex and heavier operational equipment.

I wish hereby to stress that the greatest potential of the helicopter will not only depend upon the design margins that will be confirmed and possibly expanded by operational experience, but it will also depend upon the technological development of the board installations and systems, which shall ensure better performance and operational capabilities with reduced weight.

I am merely referring for instance to what may be reasonably expected from as of now not yet available advanced technology engines and to the adoption of an integrated measures and counter-measures system as regards protection and electronic warfare.

6. In any case the A-I29 project has from the outset largely adopted today's advanced technology, with a view not to exceed the weight limits and above all, to achieve the operational, functional and cost-effective objectives pursued by the General Staff.

I wish hereby to mention the adoption of the integrated computerized control management system of all the aircraft functions, the so called MULTIPLEX BUS SUSTEM, which after some maybe biased perplexities now appears the logical response to the requirements of a really modern machine capable of departing with benefit from conventional schemes.

And even more, the use of composite or plastic materials, the simplification of the static and dynamic structures and the rationalization emerging from the design lines, have all contributed to the development of an aircraft which as a weapon

system, will constitute a safe balance between technological innovations (which will ensure the validity of the vector for still a long time to come) and proven and reliable operational equipment, which will ensure from the outset a high operational dispatch.

I am referring in particular to the TOW weapon system which has certainly not exhausted its technical/operational cycle.

In light of the above, the Italian Army are confident they will be able to rely until well into the year 2000 and beyond, upon a machine capable of adaptation to the changing requirements, since from the conceptual viewpoint this machine is in a position to incorporate the results of the technological evolution in the equipment and armament sector.

7. The A-I29 project has been extensively illustrated by the specialized Press. A complete mock-up of the helicopter was on display at the latest most important International Exhibitions, such as Le Bourget and Farnborough.

I will only recall that the A-I29, with a load of 8 TOW missiles, or 52 advanced rockets, or combination of these two weapon systems, is capable of an endurance of 2h and 30min. according to a mission profile consisting of protracted tactical flight phases, of holding OGE hovering up to 2500 metres at ISA 20°C temperature, of speeds in excess of 250 km/h, of rapid accelerations/decelerations and of high maneouverability. These are aspects which are pending confirmation through experience.

What is most important is that the A I29 will have to confirm to be a combat helicopter:
- capable of flying the mission;
- featuring low detectability and difficult to hit;
- if hit, capable to absorb the resulting damage and thus ensure high survivability of the crew;
- easy to operate and maintain;
- low cost of its vital cycle.

8. In a former occasion I have been referring to the A I29 programme as of a programme which was at an advanced stage of definition. That project has now become a reality.

In fact the first flight of the A I29 prototype is scheduled in a very near future, by year's end.

The first decisive step for the Italian Army to acquire a significant airmobile capability in anti-tank warfare, will be constituted by the deployment in service of this helicopter, some three years after the first flight.

This time seems adequate and credible, for following an extensive and careful design activity, the test and rigging phase of the weapon system shall be implemented in close collaboration between Defence and Industry.

To this end, the support that will be provided by the Air Force through their advanced Flight Experimentation Division will prove useful to the Army, in a move of fraternal and cordial Interforce collaboration.

9. Following the deployment in service of the A I29 helicopter in its basic anti-tank configuration, the possibility will then be assessed of developing derivative versions. To this end, feasibility studies are in progress aimed at deriving a reconnaissance and support helicopter, destined to become a complementary element of an operational team, which though integrated will be tasked with information, support and protection funtions separate from the specific primary anti-tank role.

Though precise indications have not yet been issued, the possibility and cost effectiveness of implementing the "helicopter family" concept, starting from the A I29, will be assessed in due time, whereby a light multirole helicopter will be developed.

VII. Conclusions

As I said at the beginning, the purpose of this address has been to summarize, integrate and update the position of the Italian Army General Staff, with reference to the materials policy pursued with a view to strengthen and renovate the helicopter fleet in the 90ies.

Quite concisely, the Italian Army fully endorses the validity of the helicopter as a machine essential to provide an otherwise non achievable tridimensional capability and firmly believe that the classical helicopter will be the most appropriate means to fulfill the operational requirements of the ground Forces in the foremost area of the battlefield. Though retaining its basic conventional configuration, the helicopter will nonethless benefit from the overall technological progress and become an increasingly safer and reliable machine, featuring a low operational

cost and capable to perform the assigned mission with the highest possible safety margin.

To this end, the military requirements that will be defined in respect of each programme, besides establishing the essential and unrenounceable operational requirements, shall also reflect precise indications for the Industry to exert all possible efforts at technological level in order to find adequate responses which depart from conventional schemes, this with a view to secure to the helicopter the actual progress it has lacked in the first years of its operational existence, as instead was the case in other aeronautical segments.

Eventually there is another aspect of the Materials Policy that I would like to recall and that's the trend toward a military and industrial collaboration, as a basic element for the rationalization and standardization of the armament systems and for a faster technological progress.