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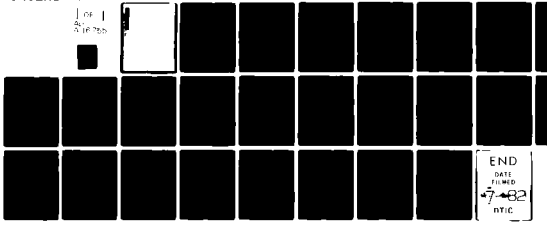

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Is there a need for concern over this loss in leadership to our ability to respond to future national defense requirements? Many believe there is. The purpose of this essay is intended to address the trends in world helicopter sales; the preceptions held by potential buyers; the market growth through the end of the 1980's, and finally the more significant disincentives which maybe placing the U.S. industry in less than a fully competitive position.

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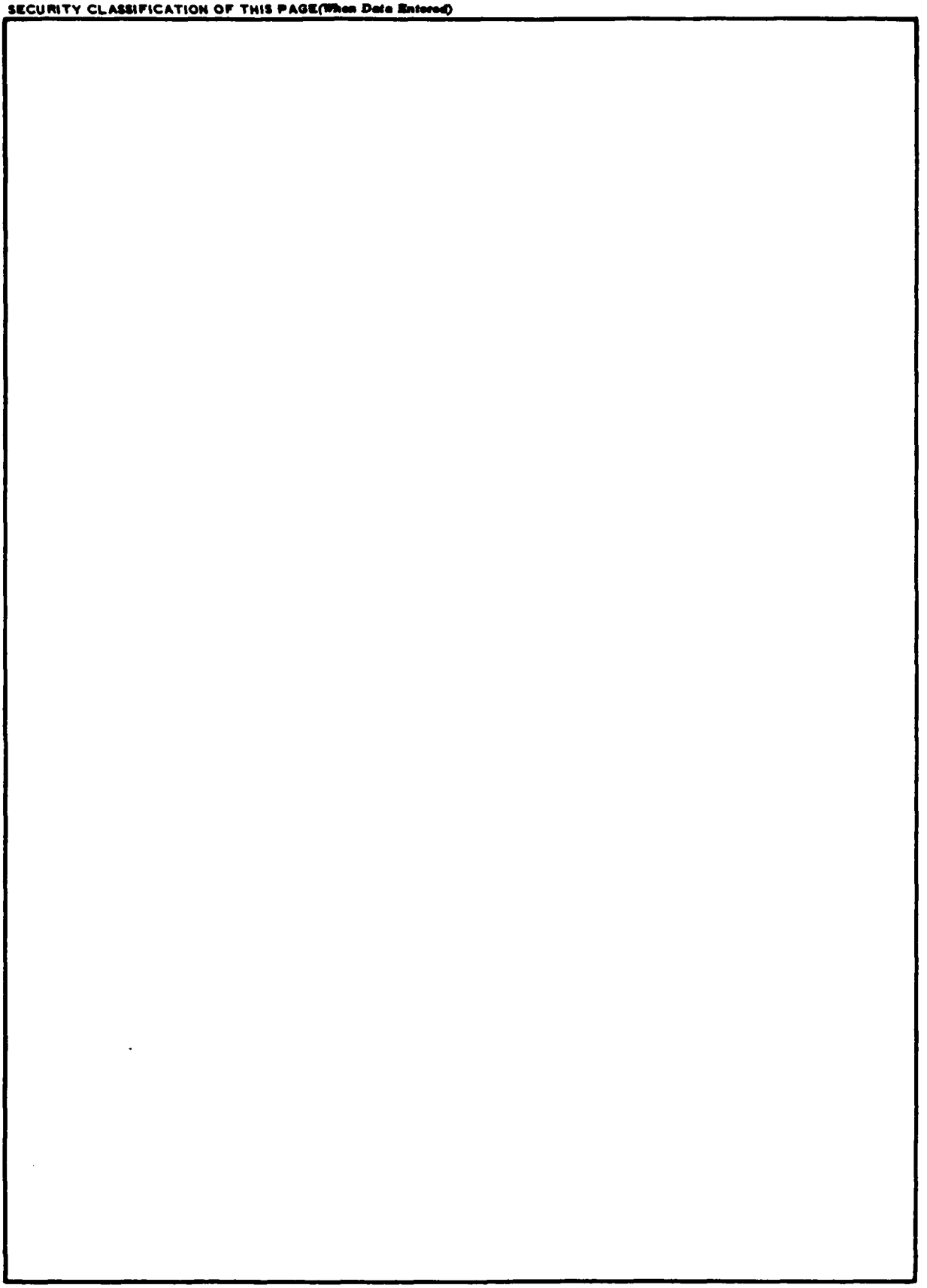


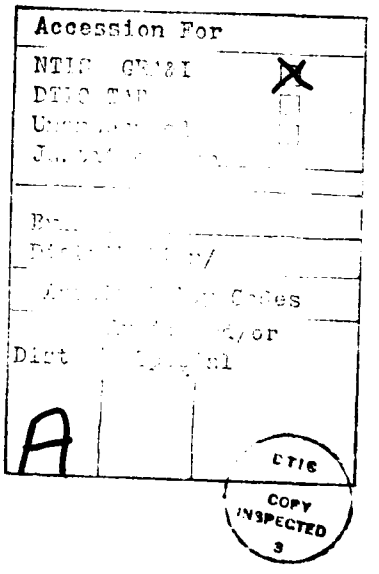
US ARMY WAR COLLEGE

INDIVIDUAL RESEARCH BASED ESSAY

FOREIGN (TURBINE POWERED) HELICOPTER PRODUCTION; A THREAT TO THE UNITED STATES PRODUCTION BASE

BY

LTC(P) JAMES E. GAUZE, TC



28 APRIL 1982

CHAPTER I

BACKGROUND

Remember the old World War II newreels? B-24 Liberators rolling off the assembly lines at the Ford Motor Company's Willow Run plant near Detroit; Sherman tanks lashed to endless, snaking lines of railroad flatcars bound for East Coast ports; throbbing munitions plants; bustling shipyards. America seemed to have little difficulty transforming itself into the world's "great arsenal of democracy" during those years. By 1945, we had produced a staggering quantity of war materiel including 310,000 aircraft; 88,000 tanks; 71,000 ships; 900,000 trucks and motorized weapons carriers; and 12.5 million rifles and carbines. (12:1)

There seemed little that the United States could not accomplish. It seemed inconcievable that other nations might be able to compete with us for foreign markets, much less for markets within the continental limits of the U.S. In retrospect, we can see that those were unnatural conditions in unnatural times. Our own enlightened efforts to help rebuild the economies of Europe and Japan as bulwarks against communism ensured that America's economic might would be challenged. (17:1)

We have witnessed major competitive changes overseas since the end of World War II. Competitors who could previously survive only in their protected home markets, now effectively complete with the U.S., around the world. (10:2:4)

The Wall Street Journal, recently announced that for the first time Japan, not the U.S., was the world leader in automobile production. This was just another example of our loss in leadership and superior production ability of one major industry after another to non-United States manufacturers. Cameras, computers, televisions, automobiles and most recently, a loss of over 15% of the world helicopter market.(10:4)

This most recent loss is particulary significant, in that, aerospace has become the single most important sector in the U.S. trade balance in recent years. The aerospace positive balance of exports minus imports has increased from 1970 through 1980, surpassing the next most successful machinery sector, by over 30%. (10:4)

This apparently strong surface performance has masked serious potential problems. U.S. aerospace growth has occurred exclusively in aviation sales, initially in transport aircraft and most recently in turbine-powered helicopters. From 1975 to 1979 the U.S. built and sold over two-thirds of all turbine-powered fixed and rotary-wing aircraft in service throughout the world. But, over the past several years, 1977 to 1981, U.S. manufacturers have lost more thatn 20% of the total market to foreign competitors.

Is there a need for concern over this loss in leadership to our ability to respond to future national defense requirements? Many believe there is. The purpose of this essay is intended to address the trends in world helicopter sales; the preceptions held by potential buyers; the market growth through the end of the 1980s, and finally the more significant disincentives which maybe placing the U.S. industry in less than a fully competitive position.

CHAPTER II

THE TRENDS

France, Great Britian, Italy, Japan and to a lessor degree, West Germany, have the potential to become major players in the world helicopter market. Additionally, but not of current concern, the Soviet Bloc countries could represent a serious challenge in the future should they choose to enter the market. Jacques-Anre Larpent, President of the equipment group of the French Aerospaliate industry, recently remarked, "The Soviets will first have to meet the aviation standards applied in the Western aerospace community to enter the commercial market, but should they decide to do so, it would do the French and other free world aerospace industry a great deal of harm, when given the way they run their factories. Their prices would be based entirely upon the market situation and not on the actual production costs and the free world would suffer."(2:395)

Larpent was speaking mainly to the danger presented to the French aerospace industry but his remarks present clear warning to the remainder of the free world and particularly the U.S. who currently has the most to lose.

In this respect, the threat of the Soviets to the French industry is very similiar to that which the French represent to the U.S. Many foreign governments are felt to have nationalistic goals, not a profit

or loss orientation, like their U.S. counterparts. They are known to have a vital need to offset their large oil import bills with exports. France, for example, relies on export orders for more than half of their total aerospace sales. The most extreme example of the French sensitivity to export sales is found in their helicopter sector, where exports increased to 95%, in 1980 alone. Our aerospace industry and government should be seriously concerned with the French performance, should they follow the example in helicopter exports, they set with the export of the MIRAGE III fighter planes during the last decade. Many will remember, that twenty-two years ago, no one would have dreamed possible the success the MIRAGE III has achieved in sales to countries who previously were the exclusive preserve of the United States. (2:402)

The main focus of the U.S. manufacturers then should be on whether the French government backed, Aerospatiale Industries, can capture a major portion of the helicopter market as they have in the combat aircraft market.

During the last decade the Helicopter Division of Aerosatiale, has engaged in an extensive program of modernizing its range of helicopters in order to offer civil and military operators a wider choice of advanced technology aircraft; which are perceived to be noticeably better than their predecessors in terms of performance and cost-efficiency.

French industrial leaders claim that 1981 will be a transitional year for them, highlighted by certification of several new models. Aerospatiale is currently increasing helicopter production, with peak out-put planned for 1982 when their new third-generation machines start appearing on the market. With their new models they plan to follow-up the 26% of the world market they presently enjoy with the capture of at

least 30% by 1985. (2:403)

In summary, the U.S. helicopter industry only ten years ago, the world leader in production and sales, is now seriously threatened by foreign manufacturers. Should the French alone reach their planned goal of capturing 30% of the world helicopter market by 1985 and continue a like growth in the next five years, the U.S. aerospace industry will certainly be in serious danger of following our automobile, steel, and computer industries into a second class role.

CHAPTER III

PRECEPTIONS

Many people within the U.S. and foreign helicopter communities think that Aerospatiale and other foreign manufacturers provide a machine that has far better performance and higher technology than the U.S. models. An actual analysis of their belief, however, indicates that this superiority is more psychological than technological. What Aerospatiale seems to have more than anything else is as image of superiority. (16:14)

Buyer selection is usually made either by the passenger, who is often the owner or company executive, or the pilot. The owner-passenger is interested in comfort, looks, low noise, prestige of ownership and performance, while the pilot is mostly interested in performance and safety. For both of these groups Aerospatiale models have a definate image of superiority over U.S. models.

Historically, French designs have used a very high power-to-weight ratio, usually in the area of seven pounds of helicopter weight to each engine horsepower. In contrast, early U.S. models used about ten pounds of weight for each horsepower. This relative abundance of power gave pilots a much wider safety margin and the French helicopters gained favor among American and foreign pilots. In recent years U.S. manufacturers have been able to nearly eliminate this gap, but still many

people continue to believe that French helicopters are much more powerful than U.S. models. (18:163)

Aerospatiale has been said to be proving the Madison Avenue marketing concept that, "Its often not what you have that matters, its what the customer thinks you have that matters." In any case, much of the market thinks Aerospatiale is the world leader in technology and performance, and thats what really has to be overcome by the U.S. manufacturers.

To underline the seriousness of the foreign challenge, one only has to be aware of the recent purchase by the United States Coast Guard of 90 Aerospatiale, AS 366N helicopters, delivered during November 1981. When a United States government agency, such as the Department of Transportation, feels compelled to go offshore to purchase mission aircraft, then the battle for U.S. supremacy is in serious danger of being lost. (15:284)

CHAPTER IV

HELICOPTER MARKET GROWTH-THE DECADE OF THE 80's

Continued emphasis on energy resource development and heightened political tensions presage substantial growth in international civil and military markets during this decade. Strong competition among U.S. and foreign rotary-wing manufacturers will lead development of technology toward more efficient and more maintainable helicopters. Product lines are expected to broaden as the market grows for larger rotary-wing aircraft in the 40 to 60 passenger class and a high-low mix of military helicopters. (15:295)

Detroit Diesel Allison division of General Motors, noted that in 1980 of a total of 21,600 light turbine-powered helicopters, under 11,500 pounds gross weight, only 36% were designated commercial compared with 64% described as military. These figures take on added meaning when compared to Allison's latest forecast which predicts there will be 52% commercial and 48% military from a total 31,000 helicopters in service by 1985. (14:4)

Even though impressive, the projected industry growth, unfortunately, is not restricted to U.S. firms alone. To the contrary, U.S. dominance in the helicopter market is by all indications, clearly on the decline. It has been forecasted that in five years the North American share of the world market will drop from 55% to 48%, with Europes share

increasing to 25%. Although individually insignificant, other world-wide manufacturers are also forecasted to increase their share of the market, which is expected to even further decrease the U.S. share. Asia/Pacific manufacturers are forecasted to increase to 14%, Latin/South America to 7% and the Middle East/Africa staying at 6%.

This foreign incursion into the U.S. market was recently reinforced by a Aerospace Industries Association of America, (AIA) report whose statistics revealed that foreign civil helicopter imports into the U.S. jumped from $22 million in 1979 to a substantial $52 million in 1980. (14:4)

On the brighter side, Robert R. Lynn, senior vice president-research and engineering, Bell Helicopter Textron is quoted to have said, "the U.S. industry's growth rate, now running about 8%, compounded annually, will reach about 12.5% in the next few years and maintain that level through the end of the century." He projects that this growth rate will be spurred over the next two decades by new uses for rotary-wing aircraft that have not yet been conceived, made possible by technological developments. (15:281) Mr. Lynn's statement obviously infers that the increase demand will allow sufficient room for continued U.S. growth, in spite of the growing foreign competition. (15:281)

Others in the industry disagree with Mr. Lynn's optimistic projections, particularly in area of advancing technology. They are concerned that decreased government funding, particularly in the areas of export financing and research and development, will seriously slow development and application of new technology for U.S. firms. There is concern throughout the industry that foreign governments will see this as an opportunity to increase financial support of their helicopter industries, to catch up and probably overtake the U.S., and significantly

increase their penetration of world civil and military helicopter markets.

If foreign manufacturers do in fact capture a large portion of the U.S. and world helicopter market, the question must be answered as to how will the U.S. manufacturers stand in the market place by 1985 and beyond? Although, all indications point to the helicopter population more than doubling in the next ten years, certain statistics indicate that this increase will not be sufficient to make room for foreign competition without adversely affecting the U.S. production base.

CHAPTER V

DISINCENTIVES CAUSING LOSSES IN U.S. HELICOPTER PRODUCTION

Helicopters are expensive to purchase; have high direct operating costs; require considerable investment in research and development for adaptation to new purposes and are currently produced by a relatively young, underfinanced industry; that most agree has yet to even come close to reaching its full potential. While other nations heavily subsidize and support their helicopter industries, the U.S. government seems to go out of the way to place as many disincentives in the path of success as possible. Currently the most significant include; a tremendous number of export restraints; inadequate export financing; high certification costs; inadequate government support in research and development funding, in relation to that provided by foreign governments to their industries; shortage of helicopter unique landing facilities; unusually strict noise standards, applied to all helicopters manufactured regardless of their intended area of operation, and failure to accommodate the demand for pilot and mechanics requirements.

A. Export Restraints

In many cases one or another U.S. policy has hindered, delayed, or prevented a sale of U.S. products to foreign customers. The effect is to encourage or compel potential customers to consider competitive foreign aircraft and to promote sales that our competitors are only to

eager to accommodate. The consequence is that our foreign competitors not only have the immediate sale, but also have established a toehold for future sales. In aircraft sales the loss of the first order has serious long-range ramifications. Operators generally standardize on their initial choice of aircraft for operating cost reasons. The benefits of fleet commonality, which include such things as repair parts requirements and crew training, make it difficult to later justify a change of model types. Therefore, operators tend to continue to purchase aircraft types already in their inventory. Loss of the initial sale often means loss of the entire market for repair parts and follow-on equipment for at least 15 to 20 years. (12:5,6)

Any sale of present generation U.S. helicopters that is delayed or not made enhances the launching of new competitive replacements from other than U.S. sources. By increasing the potential market for a different model helicopter, we facilitate our competitors accumulation of the critical order mass needed to launch new programs and, inadvertently underwrite the establishment of our own competition.

Recent experience with delays and uncertainties regarding the issuance of export licenses has caused some export customers to insist that the U.S. manufacturer, not they, bear the burdern of obtaining the export license. When this happens the U.S. manufacturer often incur substantial holding and storage costs while waiting for the bureaucracy to authorize the export.

There are, however, positive efforts being made to soften export disincentivies, such as the recent review of our Foreign Corrupt Practices Act, which will not eliminate its intent, but will hopefully clarify its meaning. Additionally there is expected to be a better

interpretation of our antitrust laws, which as presently written prevent U.S. companies in, similar business, from banding together in export sales. There are also indications that new revisions will be legislated in current tax regulations that presently make it prohibitive to maintain U.S. expatriates in foreign countries. Finally, as "icing on the cake," new laws are being considered to establish an emergency fund of up to one billion dollars to strike at those specific countries that do not agree to stop predatory financing practices and to provide better export incentives for U.S. exporters. (22:18,19)

B. Export Financing

According to many in the U.S. exporting community, the Export-Import Bank of the United States (Exim Bank) has become an unreliable and undependable source of financing in helping sell our exports abroad.

By Congressiona Mandate:

> The Exim Bank is to aid in the financing and to facilitate exports, to foster expansion of exports-therby contributing to the promotion and maintenance of high levels of employment-and to the increased development of the productive resources of the United States,

further the bank is:

> Directed to provide guarantees, insurance, and credit at rates and on terms and other conditions which are competitive with the government-supported rates and terms and other conditions for the financing of exports from the principal countries whose exporters compete with United States exporters. (15:367)

In the past financing has not been the primary reason for a customer in an importing country to buy from one country versus another. Price, quality, delivery, dependability and follow-on service has previously prevailed in the decision making process.

However, financing has recently been elevated to the dominant role and in many cases has become the sole justification in selection of the country source for goods and services trading in the export marketplace.

The Organization for Economic Cooperation and Development (OECD) member nations originally organized to eliminate subsidies and to raise interest rates on officially supported financing of exports to a level nearer the long-term money market rates in each country; with some reasonable "cap" or maximum, so no one country would unduly suffer at a time when its long-term rates happened to be unusually high.

Recently member nations, other than the United States, have begun offering a blend of very concessionary financing or outright grants to their export customers in an attempt to win more exports away from other OECD nations. France, and more recently Japan, and on occasion Great Britian, have been routinely following this practice during the last few years. (15:367)

Typically, OECD nations are offering 85% coverage on export financing after a 15% cash payment, and interest rates of 7.75% to developing countries, 8.5% to intermediates and 8.75% to fully developed or rich countries. Additionally, some exporting countries are even offering to finance large percentages, particularly in aircraft sales, just to gain a toehold to assist them in subsequent sales. When they are successful, the U.S. manufacturer finds himself no longer the firm with an established customer base, but the odd-man out, now having to regain sales against entrenched competition.(15:367)

On the otherhand, the United States, through its Exim Bank, has for the last few years provided only about 47% (average) officially supported financing in aircraft cases and 65% in non-aircraft cases, with respective interest rates of 9.25% and 8.75% for the two categories,

irrespective of the customer nations ability to pay. This practice has served to make the U.S. only marginally competitive in the export financing area, both from the standpoint of interest rates as well as coverage. Add to the situation, the recent recovery of the U.S. dollar against other major currencies, you find our manufacturers competing in a very tough market, regardless of product quality. (15:368)

The U.S. manufacturer's only real source of financing, the Exim Bank, has been the point of considerable adverse discussion. Unfortunately, the discussion doesn't focus on the real competition the U.S. faces in the export market, what other countries are doing, or overdoing, to protect their export positions, or on the many export disincentives U.S. government policies have imposed on our manufacturers attempting to sell abroad. Instead, it seems to be carried on by those who seem bent on criticism of anything successful, and when examined, who's credentials do not indicate any serious expertise in the export field.

In fact, the Exim Bank is not a taxpayer-supported organization and has made a profit in each and every year of its 47-year existance. It has had very few loan writeoffs or defaults, and most importantly, it is the only medium a U.S. exporter can look to for help when officially supported financing by other nations becomes an issue for sales of equipment or services. (15:368)

Critics of Exim Bank are especially fond in saying the Bank finances too many airplanes and too few big U.S. corporations take advantage of its funds for "big-ticket"sales.[1] None of the critics mention the thousands of subcontractors and suppliers that receive major fallout from the export sale of fixed and rotory-wing aircraft. For example,

Boeing Company, a major exporter, alone employes 1,306 major and 2,247 small and minority business firms in 44 states, with sales to Boeing of more that six billion dollars just during 1979. (11:15)

The Reagan Administration is trying to cut back the direct loan and guarantee authority of the Exim Bank while stressing the control of the money supply. If they are successful and it results in a combination of fewer dollars available for export financing and higher interest rates, from the tight money situation, it will definately favor the lower risk government backed industries of other nations. (15:37)

It must be understood that the commercial helicopter market has and will probably always be a high-risk, extremely competative business. The nature of the product requires heavy front-end investment in research and development, extensive production facilities, and the financial resources to maintain production and administrative requirements over a number of years until a particular aircraft enters service in sufficient numbers to recover costs. Because of the multibillion-dollar investment requirement to launch a new program, large unit sales are required to make the program economically viable. A private-enterprise firm (non-government supported) must achieve a positive return on investment to remain in business. In the case of helicopter manufacturer's, this requires a customer base of almost global dimensions.

For many years the world commercial helicopter market was a U.S. preserve, with American products technologically superior to foreign equipment. Now the situation has changed dramatically. U.S. manufacturers are starting to encounter tough competition, particularly from Aerospatiale, which is moving aggressively to improve its worldwide market position. Aerospatiale, and their several highly competitive rotorcraft, is solidly backed by the French government. Because of the

subsidy practice of this government, Aerospatiale is not faced with generating a profit to remain in business. In fact there is little indication that the company is even currently making a profit.

To summarize, U.S. manufacturers are facing international public corporations who's ability to finance the research, development, testing and production cannot be met by U.S. private industry without strong Exim Bank support. Failure to continue and possibly increase Exim Bank support will likely ensure loss of the U.S. industry's position of world leadership and probable loss of approximately 40,000 jobs for every one billion dollars in lost exports.

C. Certification Costs

The U.S., is the world leader in the certification process for new aircraft. This closely regulated process insures safety and reliability in the product and is designed to promote consumer confidence. It has become an increasingly expensive proposition, however, that must be amortized in the sales price of the aircraft. Foreign helicopter manufacturers generally face less stringent certification requirements for aircraft intended for sale other than in the United States and thus experience a reduced development and sales price. (18:166)

Their current competitive advantage may eventually be reduced as world consumers demand stricter certification standards, but a large portion of the U.S. share of the market maybe permanently lost prior to this eventuality.

Due to the extensive operator investment costs[2] in any particular brand of helicopter, a market once lost is extremely difficult to regain.

D. Research and Development

The U.S. helicopter industry is going through a dynamic technical growth period, with the third generation of helicopters currently in production and fourth generation already "off the drawing board" and in the air.

Historically, the military established design and performance criteria for both the military and civil versions of helicopters produced in the United States. Consequently the military absorbed the nonrecurring development costs as part of the contract price. In today's climate, the U.S. civil user is establishing criteria not appropriate to military need, but is so far unwilling or unable to absorb the nonrecurring costs. Unfortunately, these costs are expected to escalate as new civil criteria are established. It is feared that U.S. manufacturers will be hard pressed to fund the extensive research and development costs and remain in a profitable position. (18:165)

Government assistance will be required, in the form of tax incentives for new technology development and in accelerated government sponsored research and development programs, which are applicable to the civil sector. Lack of such assistance, or the absence of major military procurements involving new design useful to the civil sector will serve to decrease development of competitive advanced technology. If this situation is allowed to proceed unchecked, it could result in our civil helicopter industries loss of competitiveness in the world market and resultant decrease in manufacturing base. Should this occur, the Defense Department may in the future be forced into buying technology as well a helicopters from foreign sources in order to equip the force.

E. Noise Standards

The Noise Control Act of 1972, established a Congressional mandate "to promote an environment for all Americans free from noise that jeopardizes their health and welfare." To that end, the Federal Aviation Administration (FAA) was assigned the responsibility for control of aircraft noise. The FAA helicopter noise policy, as orginally proposed, would have had a profound negative effect on the industries growth. The policy would have significantly added to the already high development costs of helicopters currently being developed for certification, as well as all future non-military rotorcraft under consideration for design and production. Since some 60% of U.S. production is destined for overseas markets, where U.S. noise restrictive measures are not required, foreign competitors would gain a sizeable advantage in the world market from their ability to produce and sell, non-noise limited, lower cost machines. (18:163)

The FAA noise policy implementation schedule, was based upon fixed-wing precedence with little consideration of the helicopter industries lower contribution to noise pollution, or that the fixed-wing industries financial base was 17 times greater. (19:20)

The helicopter industry launched a, so far, successful lobby calling for an Economic Reasonableness and Technological Practicability (ERTP) evaluation. When the FAA recognized the relatively small noise benefit which might result from imposition of the proposed regulation and that it would be far outweighted by the potential costs, they suspended the notice of implementation.

The industry, however, was forewarned in the last sentence of the suspension notice. The last line reads, "this action neither precludes the FAA from considering similar proposals in the future nor commits it

to any further or future courses of action on this subject matter." (22:18,19) In other words, if the industry can show the FAA they are taking appropriate and necessary steps to accurately quantify and reduce noise, new proposal to set standards may not be forthcoming.

This appears to be a typical situation where bureaucratic regulations applied to closely associated industries are grossly unfair to one and in this case results in inappropriate disincentives to the growth of a key defense industry.

The helicopters great versatility allows it to be operated over a wide range of areas, Only a few of its uses include operations where noise is of particular concern. If enforced, presently proposed regulations would require all U.S. produced rotorcraft to meet U.S. noise standards for heavily populated, noise sensitive areas,, while only a small portion of the production would actually operate in those areas.

Several solutions to the problem are under consideration by the industry and the federal government. The most appropriate appears to be the withdrawl of all standards and let the international market forces provide the incentive for quieter designs. The rotorcraft, by nature operates in a rather limited radius from its home base. Because of this, is operators are more susceptable to local opinions than fixed-wing operators. Therefore, rotorcraft operators are more likely to employ machines which meet the local standards in order to maintain harmonious relations, than a fixed-wing operator who's home base may be hundreds or thousands of miles distance. (22:21)

F. Helicopter Facilities

The most unique feature of a helicopter is its lack in need for a long runway. This leads to an obvious market for downtown-to-downtown

or downtown-to-airport passenger movement. Except for certain foreign countries, this market is virtually untapped. The primary reasons for underdevelopment of the U.S. market include: lack of government support in design and approval of downtown heliports, failure to establish adequate all weather air traffic control procedures specifically for helicopters and heliports, and the high direct operating costs.

Government support, both at the local and national level, combined with adequate funding, are needed for planning and construction of adequate public use heliport facilities. U.S. entrepreneurs have previously attempted scheduled helicopter operations, but without government subsidy similar to that received by fixed-wing carriers during their formative years, have failed due to marginal profitability.

The federal governments failure in this respect was recently alluded to by Donald R. Segner[3] during an address to a chapter of the American Helicopter Society. He recognized, that except in a few areas, urban heliport development still remains a disappointment and that regularly scheduled commuter helicopter operations are lacking. Mr. Segner did not promise any specific help to the helicopter industry, but he did reveal that a program is underway to review rotorcraft regulations to update the rules based upon the unique requirements and capabilities of helicopters. (19:20-30)

Assuming the Administration is serious and Mr. Segner's comments are not just so much rhetoric, the industry must continue pressure for rules which apply to the unique characteristics of the helicopter and are not, as in the past, warmed over fixed-wing rules which unfairly restrict the rotorcraft.

G. Pilot and Mechanic Training

The demand for pilots and mechanics will increase dramatically by 1990. Private training for pilots is very expensive and normally includes a requirement for a fixed-wing rating prior to gaining a rotorcraft qualification. Following the incurrance of this very substantial expense, the new helicopter pilots often find themselves almost prohibited from using their new qualification since insurance rates for pilots with less than 1000 hours of first pilot time render them almost unemployable. As demand for trained personnel increases and the number of militarily trained veterans decrease, new sources for employable pilots must be located. Government subsidy and assistance maybe required to keep this essential industry supplied with qualified pilots. (18:164)

Training and qualification of helicopter mechanics is of equal importance and is forecast to be of similar or greater shortage. Current government licensing requirements do not require separate rotorcraft qualification. Requiring mechanic licenses to reflect separate helicopter might well serve to improve mechanic quality and provide incentives for schools to provide adequate primary helicopter training.

In summary, to supply the forecasted demand, obstacles to employment of the new pilot must be removed and procedures to identify and uniquely qualify rotorcraft mechanics must be devised.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

When answering the orginal question, of whether foreign (turbine powered) helicopter production will threaten the U.S. production base, it is probably safe to say that currently it is not, but it is very likely to be in the reasonably near future. It will be, unless steps are taken that will encourage our aerospace industries return to, and retention of, a competitive position in the world market.

Elements of our free enterprise system, which were orginally devised to protect our home industries from each other, currently seem to be working toward the advantage of foreign competitors. We have placed in the path of the aerospace industry many critical disincentives which must be reevaluated to determine their fairness in the world market environment.

Most nations, other than the U.S., are supporting vigorous research and development programs which are growing annually in funding and scope. The U.S., on the other hand, appears to be concentrating on programs to transfer this critical requirement to the commercial producers for funding. For example, while the level of government supported effort for civil oriented research and development remained relatively static in the U.S., during the last decade, France experienced a growth rate of almost 13%, Japan 25% and the Federal Republic of Germany

almost 40%. (23:7) Further adverse influence on future balance of trade is found in competitor nations concentration on civil sector economic motivations, while the U.S. concentrates government funding support on a broad spectrum including; defense, nuclear, and space research.

In the area of civil financing, a lack of knowledge of its purpose on the part of many critics, is serving to reduce the Exim Banks creditability among our key law-makers. As recently as mid-1981, the Bank was holding back on a large number of applications for direct credit or guarantee support because of a lack of sufficient budget authority, a clear position by the Congress or the Administration as to what the Exim Bank is expected to do, or what funds it will have to work with. These delays have serious impact upon the immediate and future economy relative to jobs lost per million dollars in lost exports.

Of equal criticality are the many government decreed regulartory restraints to exports. At todays prime interest rate, export delays awaiting government authority, can cost several thousand dollars a day. For example, a single 727 passenger aircraft can cost as high as $9,000 per day in extra interest, depending upon its financed value.

The U.S. aircraft certification process has, in the opinion of many observers, also outgrown it orginal intent and is contributing substantially to cost growth. Our original process was credited with production of the safest most reliable aircraft produced in the world. While the certification process concentrated on safety and reliability it also contributed to the industries growth and profitabilty. Recently, however, government regulations have had riders attached, not specifically related to safety and reliability, which have served to substantially increase the total aircraft cost. The noise reduction requirements,

applied to all rotorcraft produced in the U.S. regardless of their intended area of use, is a perfect example of certification requirements allowed to run wild.

The final areas where a minimum of government support would substantially aid the rotorcraft industries growth and world competitive position, include: aid to local governments in the development of certified helicopter landing facilities, development of air-traffic-control procedures to provide all-weather helicopter facility operations, and increased assistance in the area of pilot and mechanic training and certification.

In summary, U.S. government restraits placed upon the rotorcraft industry, during the decade of the 80's, should not seriously impact upon the immediate ability of the U.S. to respond to the demands of mobilization.[4] Industry forecasted non-military growth will be of sufficient magnitude to generate an industrial base large enough to accommodate reasonable defense requirements.

Although, the intent of this paper was limited to the decade of the 80's, I feel it important to warn the reader of the strong possibility that this assessment will probably not hold true after the turn of the century. Should corrective measures not be taken to remove many of our present disincentives, the U.S. is in definate danger of loosing the world leadership position. This in itself may not result in an inability to respond to mobilization requirements, but should this industry follow other U.S. industries already lost, we could find ourselves dependent upon imports to satisfy our demands. In this event, we would lose much of our self sufficiency to satisfy mobilization needs.

B. Recommendations

As stated earlier the rotorcraft industry is a relatively infant industry faced with market challenges unknown to mature industries. In spite of its infant nature it is, however, one of the most promising growth industries on the American scene. In order to maintain its worldwide strength and its substantial contribution to the balance of trade position of the United States, positive support by our government is indicated. The following recommendations are not intended to be all inclusive, however, they are considered to be of primary importance.

First, increased U.S. government support is needed to offset high commercial research and development costs. Helicopter users will not tolerate less than aggressive application of affordable technology to current and future aircraft. The U.S. industries apparent inability to "go it alone" will drive customers to our competitors who are receiving support from their governments.

Secondly, adequately fund the Exim Bank so that U.S. exporters can meet competition before they have to compete with an entrenched adversary. A strong U.S. export finance organization is key to future success or failure in dealing with the recalcitrant OECD member who has failed to restrain himself in flagrant subsidy of their exports in an effort to win an unwarranted share of the world export market.

Next, structure of an effective aerospace trade policy eliminating the largely self-imposed export restraints will be required.

Also, continued efforts to liberalize existing tax provisions on overseas earned income, antiboycott statutes, antitrust issues and the resumption of international negotiations on export credits must be pursued.

Finally, suspension of the Noise Control Act of 1972 as it pertains to rotorcraft to allow the market establishment of its own standards. Encouragement in the construction of all-weather heliports, through public grants to cities and municipalities is required. Devotion of the necessary assets to expand present air-traffic control procedures to include continuous all-weather rotorcraft passenger operations to down-town centers is indicated. Specify rotorcraft mechanic's certification as an individual qualification not associated with a previous requirement for fixed-wing qualification is needed. Increased government aid for pilot and mechanic training schools who specialize in rotorcraft skills must be developed, followed by a concentration of these efforts in a manner which will reduce high insurance costs for pilots and develop career creditability for mechanics specializing in rotorcraft.

ENDNOTES

1. Seven U.S. firms-Boeing, Westinghouse, McDonnell Douglas, Combustion Engineering, Lockheed, Wester Electric (AT&T), and General Electric-participated in 65% of the Fiscal 1980 direct loan authorizations for a total of $5.8 Billion of U.S. Exports.

2. Investment Costs: Pilot and Mechanic Training, Unique Ground Support Equipment, Investment in Repair Parts Stockage and so-forth.

3. Donald R. Segner, Associate Administrator for Policy and International Aviation, Federal Aviation Administration, Washington D.C.

4. This postulation is based upon industry forecasts, which give the U.S. at least half of a world commercial market which should grow by about 40% through 1990.

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