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General Aviation Trends in the European Market Memorandum Report

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Memorandum Report

THE GENERAL AVIATION TRENDS
IN THE EUROPEAN MARKET

Prepared for
HIS HIGHNESS THE AGA KHAN

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ECONOMICS RESEARCH ASSOCIATES

LOS ANGELES - WASHINGTON, D. C.

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Section I

INTRODUCTION

As western Europe coalesces into the common market, significant new economic growth is projected. A portion of this future growth involves general aviation. Historically, Europe has lagged behind the United States in almost every aspect of private aviation, but this is rapidly changing as greater disposable income, more leisure time, the implementation of more scientific methods to agriculture, and the emergence of a new generation of management for domestic and internationally based business firms develops. All the aforementioned are factors which could make the private aviation industry one of the most dynamic and fastest growing sectors of the European economy.

Recognizing the potential of this industry, His Highness The Aga Khan requested that Economics Research Associates perform a memorandum report and forecast of trends for private aviation potentials in Europe over the next decade. Accordingly, this report reviews the past history of European aviation, current and future economic trends in the common market area as these pertain to the growth of private aviation, advantages and disadvantages involved in noncommercial flying, and future trends in private aviation.

Data have been gathered from such sources as aviation publications, interviews with persons connected with private aviation, and market studies and projections of commercial organizations. This study was conducted by John H. E. Rombouts under the direct supervision of William S. Lund, Executive Vice President of Economics Research Associates, and under the administrative direction of Harrison A. Price, President of Economics Research Associates.

Section II

SUMMARY AND CONCLUSIONS

The outlook for general aviation over the next decade in Europe is bright and promising. Historically, Europe has been primarily land-oriented in both transportation and travel. However, emergence of a growing economic base as measured by GNP, industrial production, rising wages, and consumer price stability are slowly transforming Europe into an environment desirous and capable of utilizing aircraft transportation.

The common market has also lessened trade barriers, and of necessity caused European industry to compete in a worldwide market. Increased competition has, in turn, produced a decentralization of management and a need for rapid communication and transportation. The increased affluence of the European community has and will continue to provide an impetus for growth, particularly in the private aviation sector of the economy. New technology is also introducing many time and labor-saving methods into agriculture. In fact, the use of aircraft for agriculture could possibly be the fastest growing sector of the aviation economy in Europe.

General aviation in Europe is projected to grow rapidly over the next decade. Based on past performance, compound growth rates of between 10 and 20 percent should be possible over the next five to ten years. In 1962, there were 8,413 general aviation aircraft registered in Europe. This increased to 11,278 in 1965 and 13,747 in 1967. Estimates for 1968 indicate that there will be 15,176 general aviation aircraft and 24,886 are projected for 1973 (for details, see Table 2). But, growth is not without problems and barriers. They include the problems of training, new facilities, licensing, government regulations, and the general acceptance of and willingness to utilize aviation on the part of the European public. The future will bring a new generation of aircraft including the cheaper and slower piston/turboprop aircraft and supersonic jets--as dictated by the changing environment.

In evaluating the impact of the expanding private aviation industry on resort developments such as Costa Smeralda, the paramount consideration is economic justification. If the use of private aircraft can be justified from a business point of view and written off as a current

business or personal operation, traveling to resort areas can be justified with very little problem mainly because the user is dealing only with the incremental cost of flying and does not have to bear the total cost for amortizing the plane. Granted that this is, in large degree, a rationalization, it nevertheless is used by many American owners of private aircraft who tend to make great use of this means of travel for nonbusiness purposes. This has been particularly true in the United States, and, as European industry and commerce continue to expand and be more profitable, there is little reason why it should not also be true there.

As indicated earlier, the number of business and private aircraft registered in Europe is projected to increase from approximately 13,750 in 1967 to nearly 25,000 in 1973 for an increase of 11,250. This is certainly a substantial percentage increase within this market. How much visitation Costa Smeralda could anticipate from this source of business is highly speculative. However, if the new airport at Olbia is highly publicized as one of the many facilities and amenities offered at the resort, it may be possible to attract an increasing number of private aircraft during the spring, summer, and fall months. Costa Smeralda certainly is within easy commuting distance of most points in Europe so that 3-day weekends would be possible. And, people who own or fly in business or private aircraft represent the more affluent segment of the economy. Thus, this market source appears to be worthy of exploitation as part of future advertising programs.

In an effort to evaluate the potential number of visitors that Costa Smeralda might attract annually among persons flying privately owned aircraft from the Continent, an analysis was made of the tourism generated to the Bahamas from the mainland of the United States via this mode of transportation. The number of privately registered aircraft in Europe is projected to reach nearly 18,500 in 1970, increasing to about 25,000 in 1973. Given both the shorter tourist season of Costa Smeralda and the greater geographic extent of the European market (compared with the eastern coast states of the United States), it is considered realistic to assume that a well advertised and promoted airport at Olbia could effectuate a penetration rate of the general aviation market of 2 to 3 percent by 1970, increasing perhaps to 5 percent by 1973. By way of contrast, the Bahamas attracts an annual market penetration rate equivalent to approximately 10 percent of the privately owned aircraft registered in the eastern and southern coastal areas of the United States. On the basis of the aforementioned market penetration rate, Costa Smeralda might be able to attract between 370 and 455 private aircraft

landings from the Continent in 1970. This number would increase to 1,245 in 1973 if a 5 percent market penetration rate were achieved. If the market penetration rates are translated into total visitors to Costa Smeralda, visitation could range between 1,850 and 2,275 in 1970, increasing to 6,225 by 1973.

It has been observed that the Bahamas have attracted private aircraft visitation through a continuing program of promotion. While there apparently has been no specific promotional drive toward private aircraft owners, general promotional materials have stressed the fact that good airport facilities are available for private aircraft--not only for refueling purposes, but for minor maintenance as well. Thus, if Costa Smeralda is to look for market support from the private aircraft market on the Continent, promotional literature should indicate both the type of aircraft facilities available and the services offered at Olbia.

Section III

THE WESTERN EUROPEAN ECONOMY

Prior to any forecast of the private aviation market, a brief review and assessment of the European economy is helpful. The economic data discussed in this section have been almost totally derived from the report, Development Potential at Costa Smeralda, Sardinia, Italy, prepared for His Highness The Aga Khan by Economics Research Associates in August 1968 (for details, please refer to the aforementioned report).

A brief review of several key economic indexes shown in Figure 1 illustrates the substantial economic growth in Western Europe during the past seven years. Two particularly important factors include :

1. the rapid increase in the industrial production index.
2. the general increase in disposable income as measured by the difference between the wage and the consumer price indexes.

The former relates to business/executive aviation while the latter correlates with private recreational aviation.

This economic growth is forecast to continue into the future, providing the base from which general aviation will derive its own growth potential. Although population will not grow rapidly (its growth is projected at somewhat less than 1 percent per year), the increased affluence attributable to both the business and private sectors of the economy will more than compensate, providing the necessary impetus for large expenditures in aviation over the next decade.

During recent years, in terms of interregional European transportation, there has been increased air travel and decreased sea travel. In terms of absolute magnitude, air transportation has been historically utilized less than other forms of transportation, but has experienced the greatest growth since 1960. This growth has resulted from greater interest in aviation, increased utilization of air travel by tourists, the emergence of an expanding business community, and greater use of aviation for agricultural purposes.

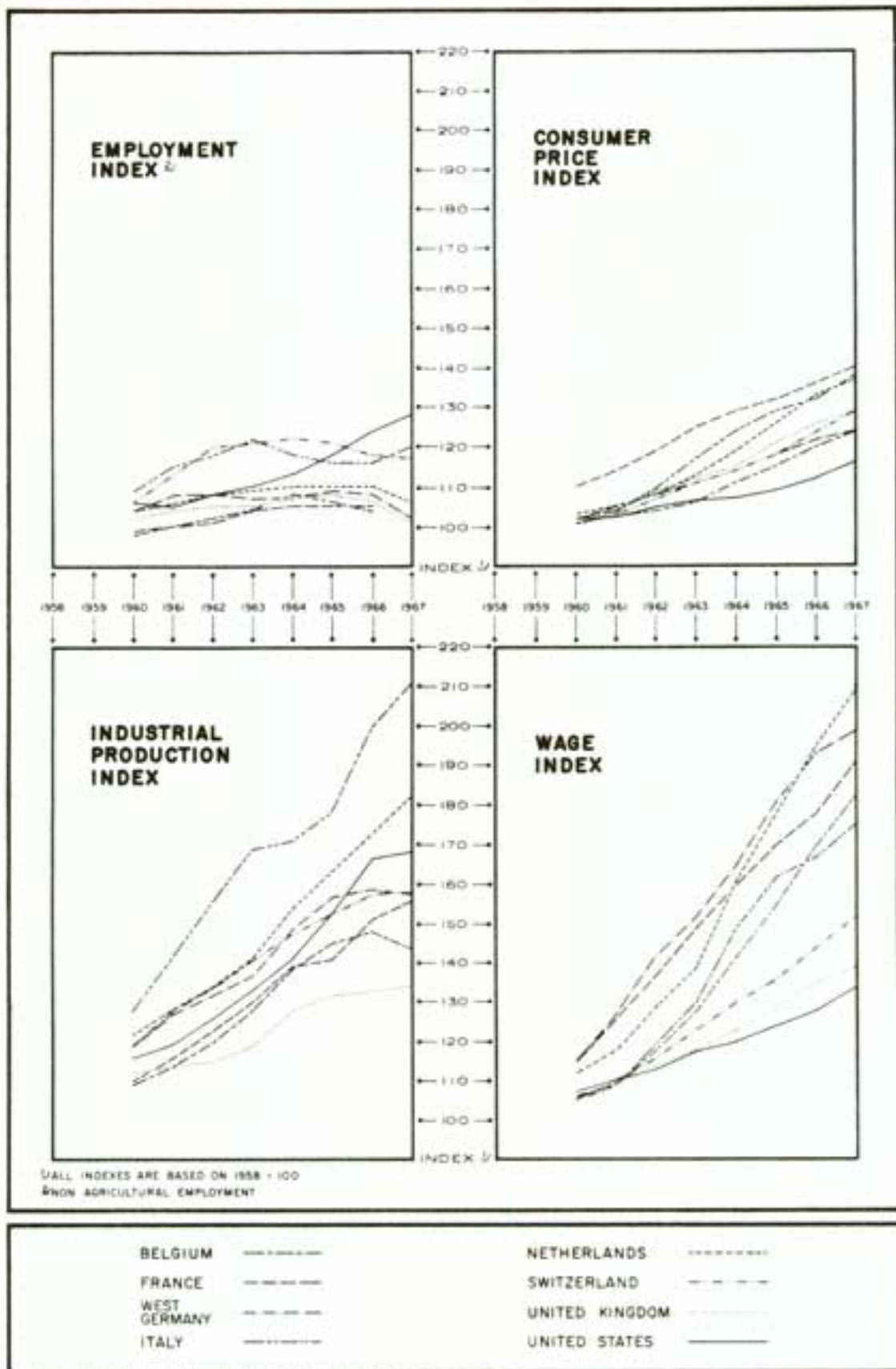


Figure 1

KEY ECONOMIC INDEXES FOR VARIOUS EUROPEAN COUNTRIES AND THE UNITED STATES, 1960-1967

Projected aircraft registrations over the next decade show a promising future for general aviation in Europe. Compounded growth in the private aviation sector over the past five years has been in excess of 10 percent annually and forecasts of future growth proportionally to the increasingly affluent European economy. A reasonable compounded growth rate of 15 percent is forecast for general European aviation over the next decade. This growth could be even substantially higher for selected segments.

Section IV

GENERAL AVIATION

In today's environment, an increasing amount of economic and social life depends upon air travel. The economic growth of countries and higher standards of living have enabled the public to spend larger amounts for air-related activities. Increased vacations, shorter work weeks, and the availability of travel equipment allowing long distances to be covered at high speeds have all contributed to an "aviation economy." For the most part, the development of general aviation in Europe has lagged approximately 10 to 20 years behind that in the United States. While this is a good indication that the European market must expand, it also is an indication that the environment has tended to inhibit rather than stimulate the widespread use of private aircraft. However, since World War II, the general aviation market in Europe has become a business of more than \$50 million annually, and appears assured of continued growth during the next 5 to 10 years.

There are, however, a number of major economic and operational factors that may affect this rate of growth. First, much of Europe's future growth in general aviation will depend on the continued prosperity of heavy industry since it is the greatest potential aviation user. An additional major factor will be the degree to which aircraft suppliers and pilots convince governments, companies, and individuals that private and corporate aircraft can play a vital role in stimulating Europe's economy. Another possible obstacle concerns operating costs which are higher in Europe because of the import duties and turnover taxes assessed on all aircraft. Landing and navigation fees are charged at almost every airport on the continent, and aviation fuels are also heavily taxed.

A major complaint of European pilots is that while governments give wholehearted support to national airlines with subsidies and other benefits, there is no attention to the requirements of private aircraft operators. Additionally, there is no standardization in licensing and, in some cases, in operational regulations between countries. In routine operations, several national borders can be crossed daily, even on short flights. But, the process of checking through immigration and customs authorities sometimes takes more time than the actual flight. Thus, the European pilot who flies from one country to another has to cope with frustrating amounts of paper work and administrative delays. European

air traffic regulations also severely restrict VFR flying so the private pilot is forced to file an IFR flight plan if he plans to take a trip of any length. In addition, VFR night flights are prohibited in most European countries.

Another problem is getting service on the ground. This is one of the greatest obstacles since there are few fixed base operators who furnish the type of transient services needed at most airports. Rarely is there anyone to help handle the aircraft on the ground, and most airports do not have general aviation terminals or parking ramps near commercial terminals for transient passenger use. Additionally, since there are few fixed base operators offering fuel service, private pilots frequently must deal directly with fuel companies.

On the positive side, there is a general feeling that Europe's economic boom will continue and that the common market will stimulate new intra-European commerce. With the lowering or removal of many tariff barriers, nationally protected cartels will be forced into open competition with companies of other nations, and general aviation officials are predicting that corporate aircraft will play an important role in this new competitive era.

Airline service in Europe, in comparison to that in the United States, has many gaps which general aviation officials believe can be filled by privately operated aircraft. Presently, good rail service makes up for the lack of efficient and complete airline service, at least on short trips, but general aviation proponents think the increasing pressure on the European businessman will make him more time conscious, forcing him to depend more heavily on corporate aircraft. Additionally, the European transportation situation is believed to represent an excellent potential market for "commuter" airline operations. In fact, many aircraft suppliers have attempted to promote this idea to national airlines, but so far have had little success. However, they report that there is a developing widespread public interest for the commuter type concept in the central and northern European countries.

Another factor involves size. The general European aviation market and industry is so small compared to that of the U.S. that it must of necessity grow. For example, there appears to be a growing market in Europe for medium twin turboprops. Presently, the majority of basic customers for this type of aircraft are military establishments

which need small twin-engine aircraft of 10 to 12 passenger capacity for liaison, support, and training operations. Many obsolete aircraft, including the C-47/DC-3, are currently being used for these operations and there is increasing opportunity for aircraft which can efficiently replace them. This, coupled with the normal pattern of graduation to higher performance aircraft, is present today in Europe much as it was a few years ago in the United States. Also as air traffic regulations are relaxed and better services become available for private aircraft, individuals, and firms operating these smaller type aircraft will be thinking in terms of light or medium twins for all-weather flying over the mountainous terrain they face in Europe. This aspect should provide a large segment of future growth for general aviation in Europe.

EXECUTIVE AIRCRAFT

As European business firms become geographically dispersed, activities and management responsibilities become decentralized. This requires better communication and more rapid transportation to enable management to coordinate its activities more effectively. A high percentage of these new travel requirements can best be fulfilled by privately operated aircraft, especially since adequate common carrier transportation often is not available or does not provide the service required by management.

Executive aircraft in the United States already is well established. However, in Europe, although rapid future growth is probable, the potential for private business airplanes is just being recognized. New designs which have improved the utility, attractiveness, and comfort of business aircraft should encourage their acceptance into the changing European environment.

Besides use by executives, company planes may also be used by technical, service, and sales personnel. Aircraft also can provide a means for delivery of critical merchandise and repair parts for equipment in the field, and, on occasion, companies may even operate regularly scheduled passenger and cargo service between plants.

Another factor which promotes the use of business aircraft is the often considerable total time required for commercial air travel. This includes such factors as travel to and from airports, baggage handling, and transfers, etc. In Europe, the lack of frequent flights

may also add to a loss of time. As a result, the growth of air travel has been greatest for relatively long trips since there is a substantial elimination or control over many of the aforementioned delays. As a result, not only are business aircraft faster by the very fact that they are specialized, but because they often can use airports nearer to the origin or destination than can commercial airlines.

Concern over the safety of flying has been and continues to be a major factor in the degree of public acceptance. Air travel has been greatly improved and is now safer than either automobile or taxi service, but slightly more hazardous than travel by train or bus. Safety factors are seriously considered by users of business aircraft. Interviews with several flight personnel conducted by Economics Research Associates during this study revealed that safety considerations were very important in the selection of new equipment. Additionally, many companies utilizing corporate aircraft have travel policies which are designed to prevent the loss of key executive personnel in a single air accident.

Other problems, which while affecting commercial air travel will also involve business air travel, are those of manpower and air space. Difficulties foreseen in the future recruitment of pilots already are present in the recruitment of mechanics. And, business jets entering the traffic patterns of commercial jets at major airports, while presently a problem in the U.S., may become a serious future problem in Europe.

In business aircraft operations, the initial cost of the aircraft, the operating cost per mile, and total annual operating cost all are important. Cost per passenger mile is from two to four times that of normal airline fares and the high turnover tax rates imposed by many European governments, coupled with generally high corporate taxation rates, make the use of business aircraft proportionately more expensive in Europe than in the United States.

Many European companies check the operating experience of newer model aircraft closely, usually purchasing only after about 50 of a particular model are in service and have proven to be good. The use of jets as a means of private business travel in Europe is minimal, however, primarily because of both the high initial cost and the high cost of operation.

As has been pointed out, the European business community, contrary to that in the U.S., does not greatly value or utilize executive aircraft. Several factors are responsible. One is geography. Europe is a fairly compact area and the centers of business and industry still are concentrated in the large population areas. Rail service between these centers is generally good, and commercial airline service, although frequently overcrowded or delayed, is available. Also, European business is conducted on a slower, more formal basis than is true in the United States. The European recognizes the value of face-to-face negotiation, but only after extensive exchange of formal correspondence. The value of the executive jet is thus lost in this climate. And, Europeans fail to recognize the economic potential of general aviation. Both those who could profit directly and local and national governments are unaware of the economic benefits that general aviation could produce. Despite these factors, however, there is optimism that the business aviation industry will continue to steadily grow in Europe. Aircraft dealers, aviation organizations, and charter operators are trying to change current attitudes, and they know that it is necessary to sell aviation before selling aircraft. Certainly, it will take time for substantial changes to be effected, but progress is being made.

LEASING AND CHARTERING

For those business concerns occasionally requiring aircraft, leasing or charter arrangements can be more satisfactory and economical than ownership. Leasing averts the heavy capital outlay necessary for the purchase of aircraft, and the entire amount spent in a year under a leasing arrangement can be deducted as a business expense.

From a private conversation with Mr. Christy of Executive Jet Aviation in Columbus, Ohio, on September 23, 1968, Economics Research Associates determined the following factors concerning the leasing and chartering of aircraft in Europe.

1. Executive Jet Aviation has three Lear jets operating in Europe. These jets must operate a minimum of 100 hours per month to achieve an adequate rate of return on investment. A corporation would necessarily have to operate a comparable aircraft at least 500 to 600 hours per year to match Executive Jet Aviation's lease/charter rates.

2. Executive Jet carries an average of 2.6 passengers per trip on a 6-passenger aircraft costing approximately \$600,000 without avionics.
3. The company handles almost no freight because, according to Mr. Christy, the geographical situation does not encourage extensive intra-European freight business.

European air taxi and charter operations are only beginning at the present time, but should grow rapidly as the demand for private flights increases. A potential field would include a leasing/sales company to provide aircraft to European businessmen on a trial/lease basis, following with sales and service. Such an operation could provide air evacuation and medical work, and accommodate United States charter customers, support missions around the Grand Prix racing circuit as well as movie operations in Europe.

AGRICULTURE

New markets for agricultural aircraft are developing rapidly in Europe. In Belgium alone there are more than 500,000 acres of sugar beet fields which must be sprayed at least twice a year. Spain, Yugoslavia, Finland, and West Germany, because of their increasing agriculture, also are becoming good agricultural aircraft markets, with growth presently projected at 20 percent a year in agricultural aviation. In Finland, where the primary industry is based almost entirely on wood products, aerial spraying can fertilize new forest areas and control tree pests and diseases quite effectively. Finland will eventually probably become one of the biggest agricultural aircraft markets in Europe.

Other areas of the world including Australia, India, Indonesia, the Philippines, South America, and even the United States also are large potential markets for agricultural aircraft as a potential European export item.

FLIGHT INSTRUCTION AND REGULATIONS

There is a critical shortage of training schools in Europe where private pilots can get instrument license or a periodic proficiency training. Training schools operated by the continent's national airlines usually train only their own pilots, and many executive aircraft distributors and fleet operators send their pilots to the United States for training.

Strict flight regulations also hamper development of private flying. However, current efforts of several manufacturers to promote private flying by easing some of the regulations appear to be making headway. For example, because the bulk of Cessna Aircraft's single-engine sales have been made in Belgium, the company maintains two flight schools there. And, both Belgium and England have eased flight regulations in an effort to promote private aviation. Piper Aircraft has opened several facilities throughout Europe to provide a complete range of general aviation facilities. They offer flight instruction, aircraft sales, installations of radio and other equipment, and provide maintenance and hangar facilities.

European pilots believe that a strong international organization is needed to press for standardized licensing and rating regulations. Some progress is being made in that direction by such organizations as the European Civil Aviation Conference, which also is attempting to secure standardized radio equipment regulations and the initiation of air worthiness certificates.

AIR CLUBS

Air clubs, once a major market for light aircraft in Europe, seem to be on the decline. Some blame rising aircraft prices and operating costs while others say the European clubs generally have failed to modernize their aircraft fleets and have failed to stimulate the interest of prospective pilots. The Aero Club pilot in Europe is severely restricted in his operations and rising costs have made recreational flying expensive. Pilots who wish to use small aircraft for practical business purposes are in most cases forced to move up into the more complex executive operation which usually requires a commercial license.

RECREATIONAL USE

Other areas of European aviation use include skydiving and gliding. The former has just begun to achieve popularity while the latter has long been a popular recreational activity in Europe. Both should benefit in the future from the rising standard of living which has been projected for Europe over the next decade.

About two percent of the light plane buyers want an aircraft with acrobatic capabilities. The potential market for this type of aircraft is small and will probably remain relatively static. Today's sales and production are geared to a mass market operation, promoting aircraft with easy handling and the potential for practical, rather than amusement, utilization. A main cause of the retardation of air travel so apparent in Europe is the fact that, prior to the impact of American air travel developments, light planes were regarded as toys rather than tools. In fact, the insistence throughout Europe on acrobatic and sport flying probably has slowed the acceptance of general aviation as a serious and indispensable transport medium.

Section V

GENERAL AVIATION AND FUTURE TRENDS IN AVIATION DESIGN

PROJECTIONS

Recent general aviation growth in Europe has been projected from two different statistics--exports from the U.S. of general aviation aircraft and registration of aircraft in Europe. The two sources correlate remarkably well with each other. Table 1 shows U.S. exports of light transport and general aviation aircraft to various parts of the world from 1963 through 1966. These data are shown graphically in Figure 2. As shown, the export of U.S. aircraft to Europe has risen from 420 in 1963 to 865 in 1966 for a compound growth rate of approximately 19.8 percent per year.

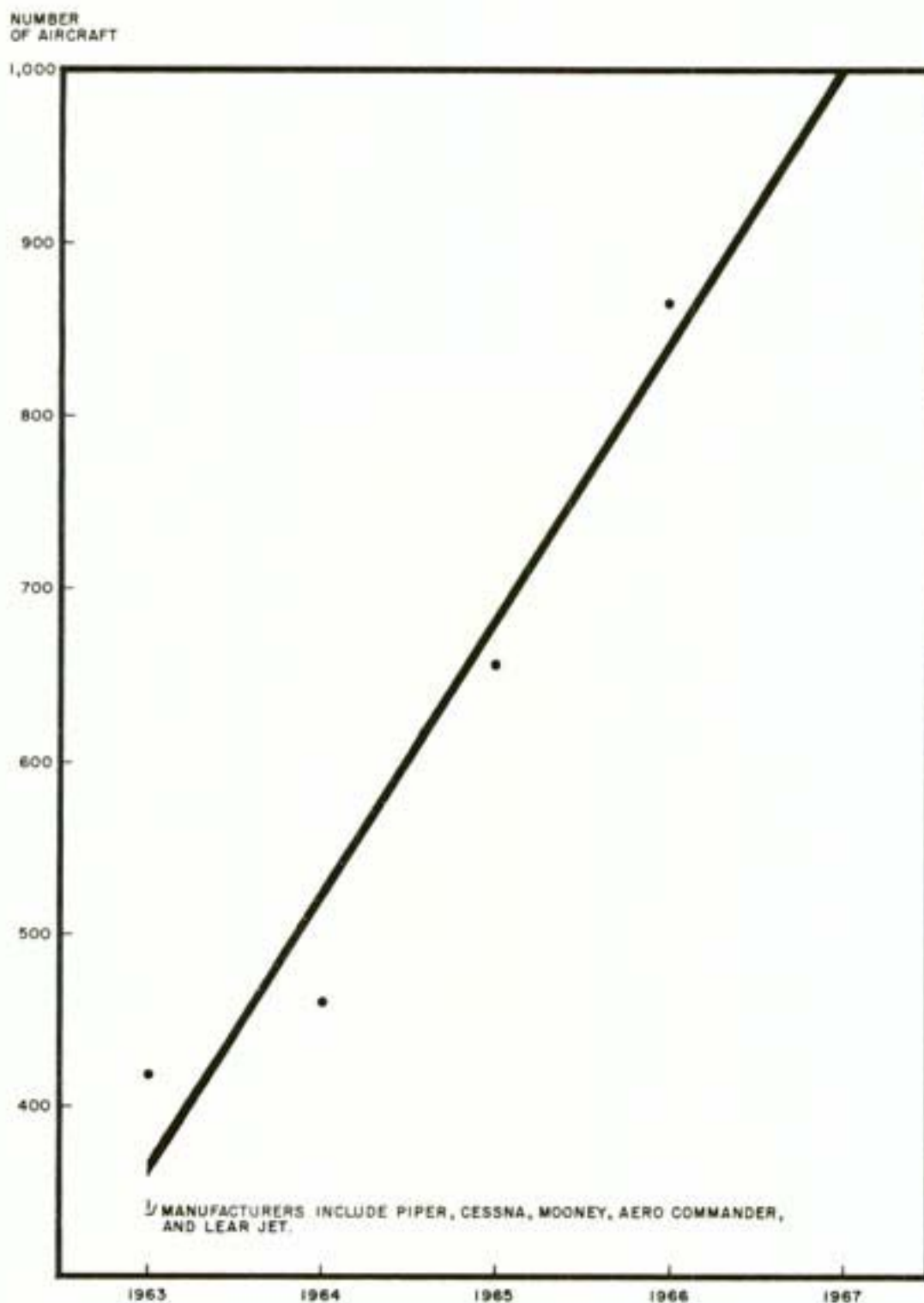
Verification of this growth (although not the rate) is shown by the increased number of general aviation aircraft registered in various European countries including Austria, Belgium, Czechoslovakia, Denmark, Finland, France, West Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and Yugoslavia. The number of aircraft registered in Europe in 1967 was 13,747 compared with 8,413 registered in 1962. This is a growth rate of approximately 10.4 percent a year. A total registration of almost 25,000 aircraft is projected for 1973. Table 2 and Figure 3 summarize both the historical and projected aircraft registration in Europe for the period 1962 through 1973.

In the opinion of Economics Research Associates, general aviation in Europe may be expected to increase by between 10 to 20 percent (as measured by the number of aircraft registrations) per year over the next decade. General aviation-related activities can also be reasonably expected to increase at or near this same rate. And, certain selected sectors of the general aviation economy may even experience a higher rate of growth in the future.

Table 1

EXPORT OF LIGHT TRANSPORT AND GENERAL AVIATION AIRCRAFT
OF SELECTED UNITED STATES MANUFACTURERS
(By Destinations)

<u>Destination</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>
Europe	420	461	655	865
Africa	178	239	311	294
Asia	79	78	77	85
Oceania	188	232	365	356
Canada	145	189	239	408
Latin America	509	547	595	892
Not distributed by area	<u>60</u>	<u>29</u>	<u>83</u>	<u>3</u>
Total	1,579	1,775	2,325	2,903



SOURCE: ECONOMICS RESEARCH ASSOCIATES

Figure 2

PAST AND PROJECTED EXPORT OF LIGHT TRANSPORT AND
GENERAL AVIATION AIRCRAFT TO EUROPE BY SELECTED
UNITED STATE MANUFACTURERS^{1/}

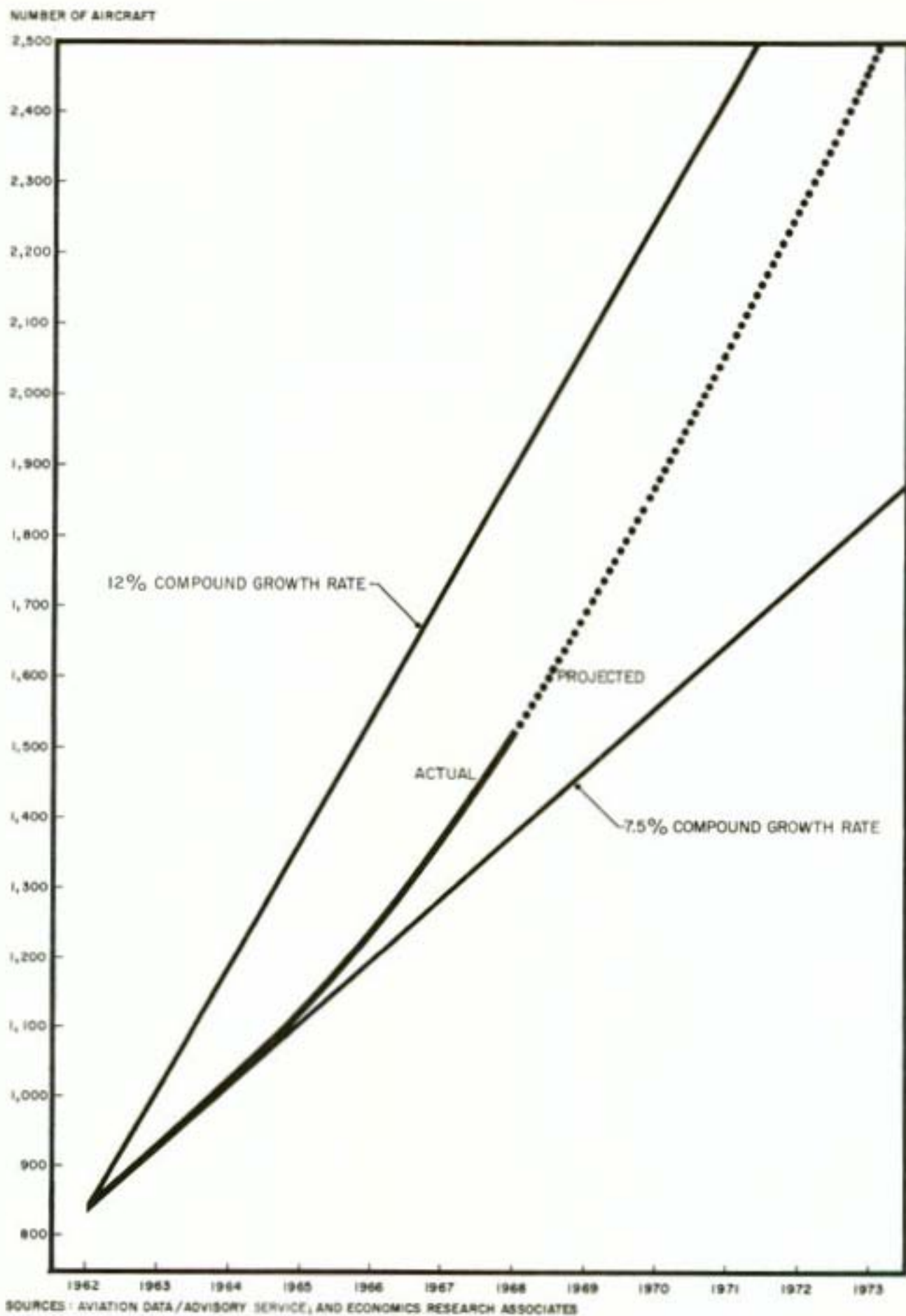


Figure 3

PAST AND PROJECTED GENERAL AVIATION REGISTRATIONS
IN EUROPE, 1962-1973

Table 2

PAST AND PROJECTED GENERAL AVIATION
 AIRCRAFT REGISTRATIONS ^{1/}
 IN EUROPE ^{2/}
 (1962-1973)

<u>Year</u>	<u>Number of Aircraft</u>
1962	8,413
1963	9,942
1964	10,320
1965	11,278
1966	12,452
1967	13,747
1968 ^E	15,176
1969 ^P	16,754
1970 ^P	18,496
1971 ^P	20,419
1972 ^P	22,542
1973 ^P	24,886

Note:

E= Estimated.

P= Projected.

^{1/} Registrations are taken on December 31 of each year.

^{2/} Countries included are Austria, Belgium, Czechoslovakia, Denmark, Finland, France, West Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and Yugoslavia.

Sources: Aviation Data/Advisory Service and Economics Research Associates.

Design trends in executive jet aircraft in the 1970's will tend toward smaller, slower, and cheaper planes with the following characteristics:

1. A balanced field requirement of 3,000 to 4,000 feet designed to replace the medium piston and turboprop twin aircraft currently in use.
2. Seating capacity of six to eight, including the crew.
3. Maximum altitude capability of at least 30,000 feet as dictated by pressurization requirements.
4. Turbofan engines with high bypass ratios to improve takeoff performance.
5. Cruise speeds of less than 500 miles per hour with ranges of 1,000 to 1,200 miles. Range is not so critical, since most aircraft are operated over relatively short distances.
6. Prices of not more than \$500,000 (which would include some basic avionics).

Emphasis is on the development of aircraft which provide more equipment or which cost significantly less than those presently in use. Thus, development is being channeled in two directions: (1) toward small, low cost jet aircraft primarily competitive in both economy and performance with turboprop aircraft, or (2) toward high performance aircraft including supersonic versions. Low cost aircraft are almost certain to be developed first since their engines are presently in advanced development. They are both pressurized and powered by reciprocating engines, providing the same passenger comfort and performance as the small turboprops at less cost.

Supersonic aircraft are likely to be developed much later and, in fact, may only appear if present difficulties such as the sonic boom can be overcome. Enough potential exists for this type of aircraft that many of the larger manufacturers will consider production. However, development is probably at least five to seven years off and production more than a decade away.

Section VI

IMPACT OF GENERAL AVIATION ON TOURISM

Because of Costa Smeralda's proximity to the European Continent, the question has been raised as to the degree of potential support the resort could anticipate from persons on the Continent who own private aircraft. Since no reliable statistics concerning the importance of general aviation to resort development are available within Europe, a study was made of the Bahamas to determine the impact of general aviation on tourist business there. Comparison of total annual tourist volume to the Bahamas with that portion arriving by private or general aviation resulted in certain conclusions as to the relative importance of this market.

Private aircraft landings in the Bahamas have become significant only in the recent years since gambling was sanctioned on Grand Bahama. During 1967, a total of 915,000 persons visited the Bahamas. Of this total, 623,000 arrived by commercial aircraft, 266,000 by private and commercial boat, and 26,000, or 3 percent, by private aircraft. Information obtained from airport managers at Grand Bahama, Nassau and Andros indicates that private aircraft arriving from the United States mainland typically contained four to six passengers, including the pilot. Assuming an average of five persons per private aircraft, the 26,000 visitors arriving by this means generated 5,200 landings at the three main airports of the Bahamas.

Nearly all private aircraft arriving in the Bahamas were registered in the eastern and southern portions of the United States. Of more than 155,000 privately owned and operated aircraft registered in the United States, a total of 53,100 were registered in the eastern and southern coastal states at year-end 1967. Thus, an equivalent of approximately 10 percent of the privately owned aircraft on the eastern seaboard made one trip to the Bahamas during 1967.

It should be noted that an active aircraft charter business exists between Miami, Florida, and the Bahamas. Data are not available to indicate on an annualized basis the number of trips made by these privately chartered aircraft to the Bahamas. However, unofficial estimates are that perhaps 40 to 45 percent of all private aircraft landings in the Bahamas are attributable to individuals and small companies providing private charter service.

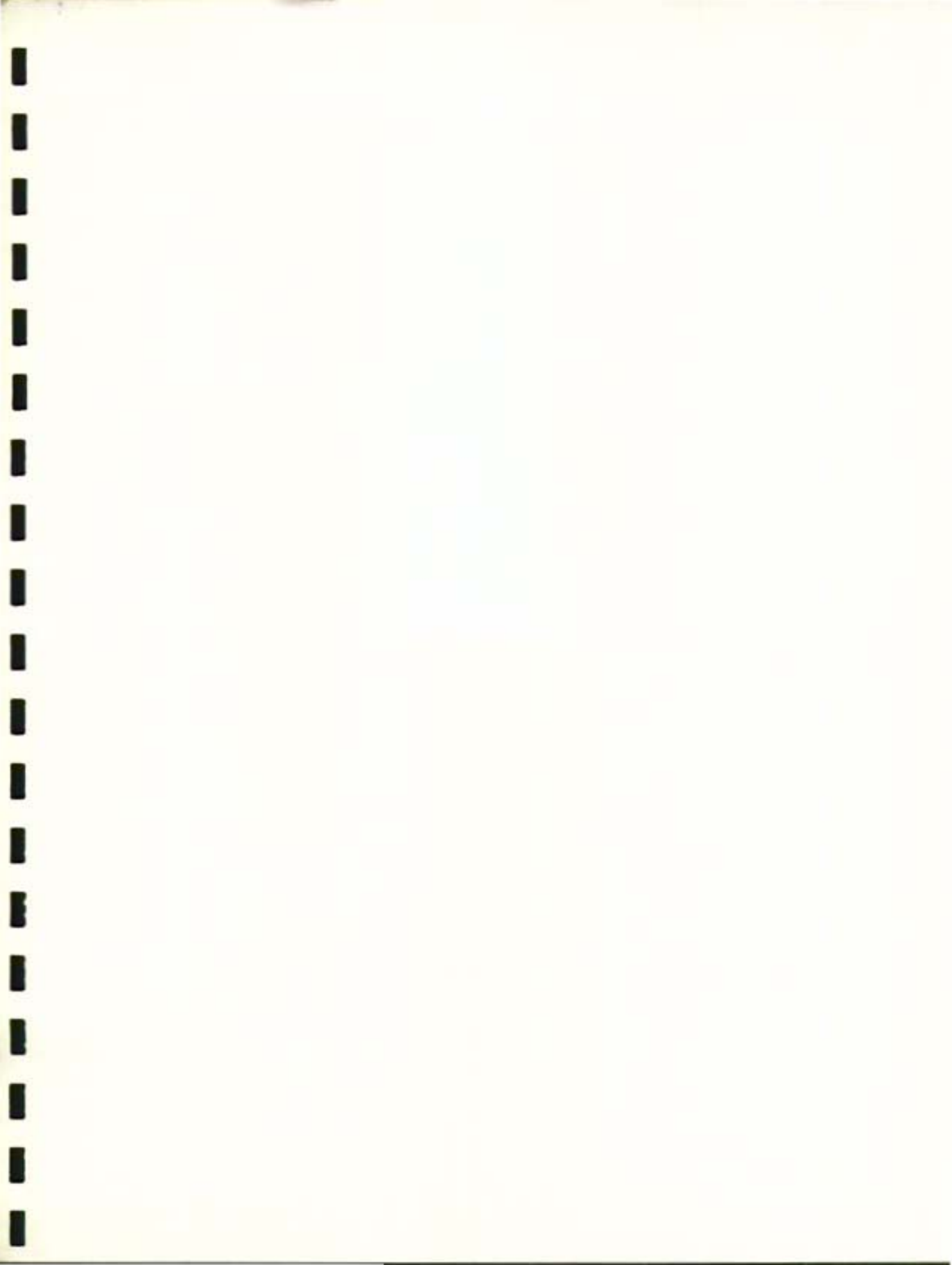
In evaluating the potential market support that the Costa Smeralda might anticipate from persons utilizing private aircraft, a hypothetical analogy can be drawn between the Bahamas and Costa Smeralda. In 1967, there were 13,747 privately owned aircraft in Europe (see Table 2 for countries included). While the geographic boundary of the European market is somewhat greater in terms of travel time than that area along the eastern seaboard of the United States, for purposes of this analysis it has been assumed that the flying time from Costa Smeralda to various countries on the Continent is comparable to that between the United States mainland and the Bahamas.

Assuming then that Costa Smeralda in 1967 had been able to obtain a 10 percent market penetration of the privately owned aircraft market in Europe, it could have anticipated the arrival of 1,375 aircraft. Assuming also that the average number of persons per aircraft had been comparable to the same statistic for the Bahamas, a total of 6,875 visitors would have arrived at Costa Smeralda in 1967. This estimate of potential visitation should probably be considered an outside limit since it must be remembered that no restrictions are placed on private aircraft flying between the United States and the Bahamas. The same situation, however, does not hold for countries in Europe which are included in the statistics of privately owned aircraft. Also, the Bahamas today enjoy a year-round tourist season. By way of contrast, Costa Smeralda has only a five-month tourist season.

As previously indicated, the projected number of privately registered aircraft in Europe is anticipated to reach nearly 18,500 in 1970 and 25,000 in 1973. Given both the shorter tourist season of Costa Smeralda and the greater geographic extent of the European market (compared to the eastern coast states of the United States), it probably is more realistic to assume that a well advertised and promoted airport at Olbia could effectuate a penetration rate of the general aviation market of 2 to 3 percent in 1970, increasing perhaps to 5 percent by 1973. On this basis, Costa Smeralda might be able to attract between 370 and 455 private aircraft landings from the Continent in 1970. This would increase to 1,245 in 1973 if a 5 percent market penetration were achieved. If the aforesaid market penetration rates are translated into total visitors arriving by private aircraft, the number of visitors that can be anticipated at Costa Smeralda could range between 1,850 and 2,275 in 1970, increasing to 6,225 by 1973.

As a final note, the Bahamas have attracted private aircraft through a continuing program of promotion. While there has been no specific promotional drive toward private aircraft owners, general

promotional materials have stressed the fact that good airport facilities are available for private aircraft--not only for refueling purposes, but for minor maintenance as well. Thus, if Costa Smeralda is to look for market support from the private aircraft market on the Continent, its promotional literature should indicate both the type of airport facilities available and the services offered.



E.R.A.

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HARRISON A. PRICE
President

July 11, 1969

His Highness the Aga Khan
1 Rue des Ursins
Paris IVème France

Your Highness:

Enclosed are two tables indicating the number and percentage distribution of civilian registered one-and two-engine aircraft in western European nations. These data, covering the period 1962-1967, should provide your sales and promotion office with the information necessary to undertake any advertising campaign in these countries.

As can be seen in the tables, in 1967 France possessed the greatest number of civilian registered aircraft, accounting for approximately 38.2 percent of the European total; Germany followed with approximately 19 percent, and the United Kingdom experienced just under 10 percent of the total. As indicated in our previous report, the total number of registered aircraft in all of the countries was, in fact, quite small, and the cost of directing an advertising program at this segment of the market could be quite expensive on a per-unit basis of potential exposure. Again, E. R. A. believes that placing emphasis on the availability of adequate airport facilities in Olbia (in the overall promotional campaign for the Costa Smeralda) would be quite an effective means of attracting this limited segment of the overall tourist market.

We regret the delay in forwarding this information to you; collecting data from each of the countries on an annualized basis was a little more difficult than had been anticipated. In a number of cases, the response to our inquiries was quite slow.

We trust that your summer season at Costa Smeralda is far in excess of 1968, and that the real estate sales program continues to show

marked improvement. We look forward to hearing from you in the near future, and are at your disposal for further elaboration of the enclosed data.

Respectfully submitted,

William S. Lund
Executive Vice President

WSL:hlo

Enclosures

CC: Dr. Peter Hengel

Table 1

CIVIL REGISTERED AIRCRAFT
(Excluding Commercial Air Transport Aircraft
and Rotary-Wing Aircraft)
1962-1967^{1/}

Country	1962			1964			1966			1967		
	2-Engine	1-Engine	Total	2-Engine	1-Engine	Total	2-Engine	1-Engine	Total	2-Engine	1-Engine	Total
Norway	1	76	77	--	112	112	4	151	155	6	165	171
Sweden	18	349	367	27	429	456	32	494	526	32	532	564
Finland	2	44	46	2	49	51	3	56	59	3	60	63
Denmark	<u>1</u>	<u>140</u>	<u>141</u>	<u>1</u>	<u>178</u>	<u>179</u>	<u>4</u>	<u>258</u>	<u>262</u>	<u>8</u>	<u>328</u>	<u>336</u>
Subtotal	22	609	631	30	768	798	43	959	1,002	49	1,085	1,134
United Kingdom	145	642	787	146	630	776	159	848	1,007	193	931	1,124
Ireland	<u>2</u>	<u>30</u>	<u>32</u>	<u>1</u>	<u>24</u>	<u>25</u>	<u>2</u>	<u>26</u>	<u>28</u>	<u>2</u>	<u>36</u>	<u>38</u>
Subtotal	147	672	819	147	654	801	161	874	1,035	195	967	1,162
Belgium	19	224	242	24	219	243	21	293	314	19	311	330
Luxembourg	--	11	11	--	13	13	--	19	19	--	18	18
Germany (DBR)	90	1,218	1,308	135	1,433	1,568	213	1,872	2,085	203	2,072	2,275
France	102	3,364	3,466	142	3,794	3,936	216	4,106	4,322	208	4,404	4,612
Netherlands	22	71	93	30	144	174	39	187	226	42	204	246
Switzerland	35	311	346	58	399	457	75	483	558	81	516	597
Italy	<u>47</u>	<u>916</u>	<u>963</u>	<u>58</u>	<u>932</u>	<u>990</u>	<u>55</u>	<u>914</u>	<u>969</u>	<u>103</u>	<u>842</u>	<u>945</u>
Subtotal	315	6,115	6,429	447	6,934	7,381	619	7,874	8,493	656	8,367	9,023
Portugal	3	74	77	16	210	226	25	281	306	32	281	313
Spain	<u>26</u>	<u>184</u>	<u>210</u>	<u>17</u>	<u>222</u>	<u>239</u>	<u>18</u>	<u>317</u>	<u>335</u>	<u>22</u>	<u>410</u>	<u>432</u>
Subtotal	29	258	287	33	432	465	43	598	641	54	691	745
Total	513	7,654	8,167	657	8,788	9,445	866	10,305	11,171	954	11,110	12,064

^{1/} As of December 31st for each year.

Sources: International Civil Aviation Organization, Civil Aircraft on Register (Digest of Statistics), 1962-1967 and Economics Research Associates.

Table 2

PERCENTAGE DISTRIBUTION OF CIVIL REGISTERED AIRCRAFT
BY COUNTRY FOR WESTERN EUROPE
(Excluding Commercial Air Transport Aircraft and Rotary-Wing Aircraft)
1962-1967^{1/}

Country	1962			1964			1966			1967		
	2-Engine	1-Engine	Combined	2-Engine	1-Engine	Combined	2-Engine	1-Engine	Combined	2-Engine	1-Engine	Combined
Norway	0.2%	1.0%	0.9%	0	1.3%	1.2%	0.5%	1.5%	1.4%	0.6%	1.5%	1.4%
Sweden	3.5	4.6	4.5	4.1%	4.9	4.8	3.7	4.8	4.7	3.4	4.8	4.7
Finland	0.4	0.6	0.6	0.3	0.6	0.5	0.3	0.5	0.5	0.3	0.5	0.5
Denmark	<u>0.2</u>	<u>1.8</u>	<u>1.7</u>	<u>0.2</u>	<u>2.0</u>	<u>1.9</u>	<u>0.5</u>	<u>2.5</u>	<u>2.3</u>	<u>0.8</u>	<u>3.0</u>	<u>2.8</u>
Subtotal	4.3%	8.0%	7.7%	4.6%	8.8%	8.4%	5.0%	9.3%	8.9%	5.1%	9.8%	9.4%
United Kingdom	28.3%	8.4%	9.6%	22.2%	7.2%	8.2%	18.4%	8.2%	9.0%	20.2%	8.4%	9.3%
Ireland	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>	<u>0.2</u>	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.3</u>	<u>0.3</u>
Subtotal	28.7%	8.8%	10.0%	22.4%	7.5%	8.5%	18.6%	8.5%	9.3%	20.4%	8.7%	9.6%
Belgium	3.7%	2.9%	3.0%	3.7%	2.5%	2.6%	2.4%	2.8%	2.8%	2.0%	2.8%	2.7%
Luxembourg	0	0.1	0.1	0	0.1	0.1	0	0.2	0.2	0	0.2	0.1
Germany (DBR)	17.5	15.9	16.0	20.5	16.3	16.6	24.6	18.2	18.7	21.3	18.7	18.9
France	19.9	44.0	42.5	21.6	43.2	41.7	24.9	39.8	38.7	21.8	39.6	38.2
Netherlands	4.3	0.9	1.1	4.6	1.6	1.8	4.5	1.8	2.0	4.4	1.8	2.0
Switzerland	6.8	4.1	4.2	8.8	4.5	4.8	8.7	4.7	5.0	8.5	4.6	5.0
Italy	<u>9.2</u>	<u>12.0</u>	<u>11.8</u>	<u>8.8</u>	<u>10.6</u>	<u>10.5</u>	<u>6.4</u>	<u>8.9</u>	<u>8.7</u>	<u>10.8</u>	<u>7.6</u>	<u>7.8</u>
Subtotal	61.4%	79.9%	78.7%	68.0%	78.8%	78.1%	71.5%	76.4%	76.1%	68.8%	75.3%	74.7%
Portugal	0.6%	1.0%	0.9%	2.4%	2.4%	2.4%	2.9%	2.7%	2.7%	3.4%	2.5%	2.6%
Spain	<u>5.1</u>	<u>2.4</u>	<u>2.6</u>	<u>2.6</u>	<u>2.5</u>	<u>2.5</u>	<u>2.1</u>	<u>3.1</u>	<u>3.0</u>	<u>2.3</u>	<u>3.7</u>	<u>3.6</u>
Subtotal	5.7%	3.4%	3.5%	5.0%	4.9%	4.9%	5.0%	5.8%	5.7%	5.7%	6.2%	6.2%
Total ^{2/}	100.1%	100.1%	100.0%	100.0%	100.0%	100.0%	100.1%	100.0%	100.0%	100.0%	100.0%	100.0%

^{1/} As of December 31 for each year.

^{2/} Totals may not equal 100.0 percent due to independent rounding.

Sources: International Civil Aviation Organization, *Civil Aircraft on Register* (Digest of Statistics), 1962-1967; and Economics Research Associates.