LIGHT GENERAL AVIATION

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Overview

The light segment[1] of the U.S. general aviation industry is mature or declining. At the end of 1992, the Federal Aviation Administration (FAA) estimated the size of the U.S. fixed-wing, piston-powered fleet to be 162,000 active[2] airplanes, down 7 percent from 1991 fleet of 175,000 airplanes (Figure 51). FAA also estimated that the U.S. piston-powered fleet flew 21.3 million hours in 1992, down 12 percent from the 24.1 million hours flown in 1982 (Figure 52).

Shipments of new piston-powered airplanes have declined dramatically in recent years. In 1978, the industry shipped 17,032 new factory-built piston-powered airplanes. (Nearly 20 percent of these were exported). In 1993, the industry shipped only 555 new piston-powered airplanes, a decline of over 95 percent, a record low. Over 30 percent of these airplanes were exported. (See also Appendix D for the perspective of an aircraft engine manufacturer.)

Consensus Forecasts

The panel developed a consensus forecast for the light general aviation fleet and the pilot population over the period 1994-1999. Because reform of product liability laws applying to general aviation could greatly influence these forecasts, two scenarios were used.

	No P.L. Reform	P.L. Reform
Growth in Aircraft Fleet:	-2.5%	-1.0%
Growth in Pilot Population:	-1.5%	+0.5%

Chief factors in this forecast are the average age of a piston-powered airplane (27 years) and the decline in business use of piston airplanes. It was also believed that, because the existing fleet of piston airplanes is so large, the significant, positive impact of product liability reform in the size of the fleet would be felt more in the longer term than in the short term. Small changes in the overall growth rate equated to large numbers of new airplanes entering the fleet.

Pilot Perceptions of the Future of General Aviation

Over the past few years, the Aircraft Owners and Pilots Association (AOPA) has conducted a number of statisti-
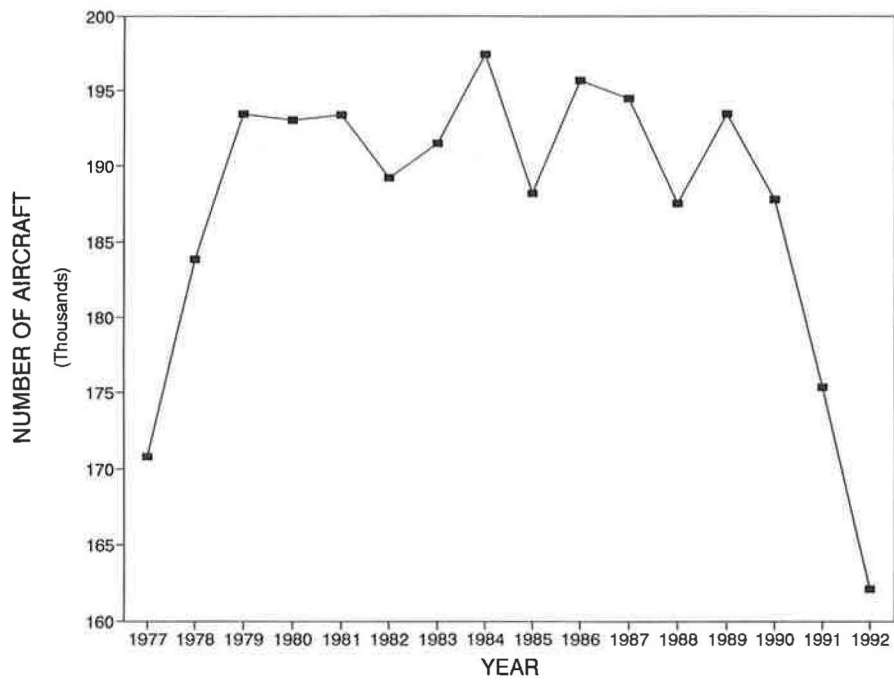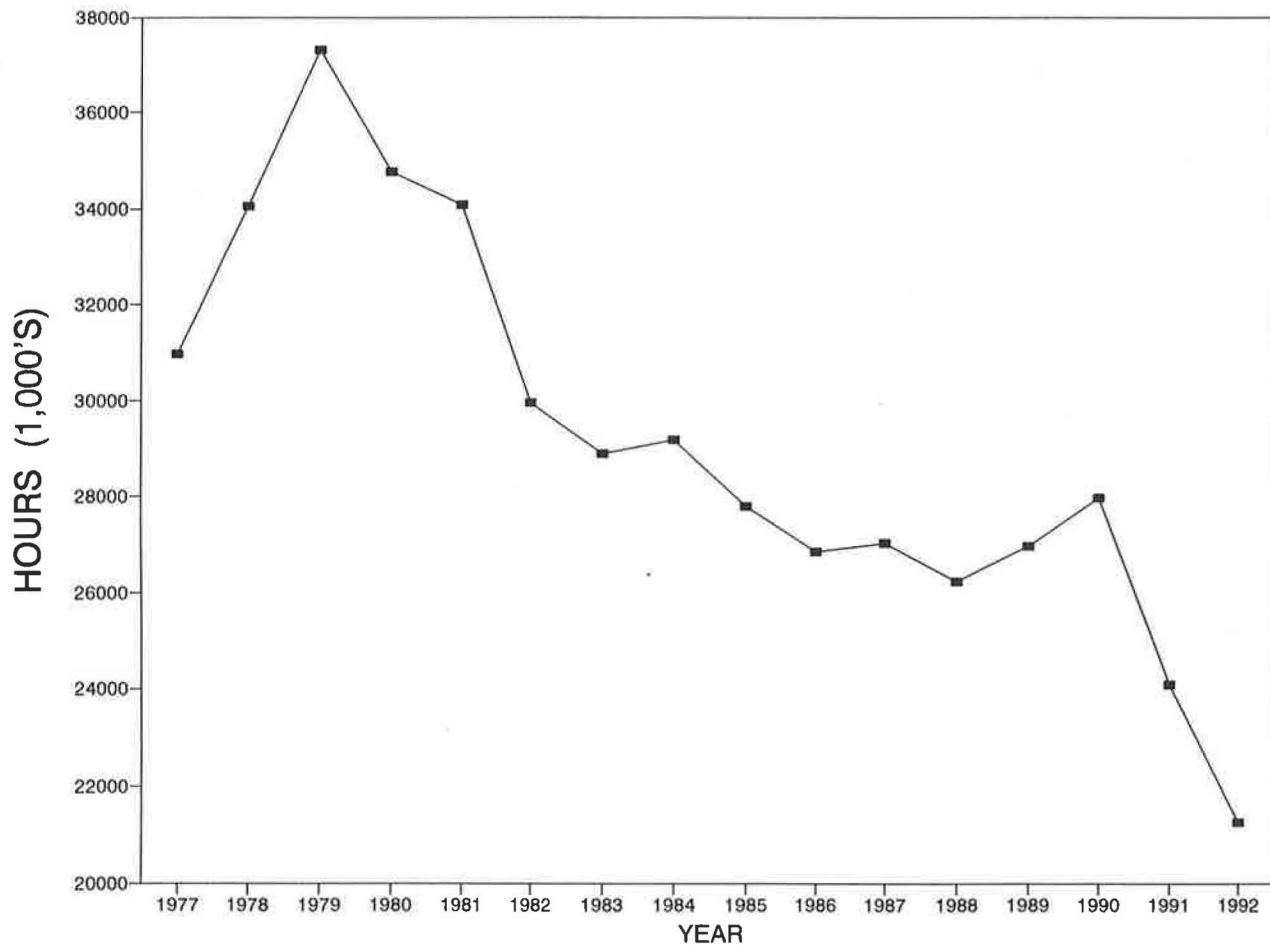
FIGURE 51 Active piston-engine aircraft fleet.

FIGURE 52 Piston-engine airplane hours flown.

cally valid membership surveys designed to collect information about how AOPA members view both the current aviation environment and the future of general aviation. However, a word of caution is in order. The results presented are based on the perceptions of AOPA members, not necessarily the perceptions of the total pilot population. References to "pilots" and "AOPA members" are somewhat interchangeable. However, the data actually represents AOPA member opinions, not the opinions of all pilots.

AOPA represents around 40 percent of the total pilot population. It is conjectured that the opinions collected from AOPA members would be similar to those of the pilots in general, if this population had actually been surveyed. However, if a bias does exist in the AOPA sample, it is toward the more serious and committed general aviation pilot. Most of the results presented are very definitive and opinionated, suggesting that the distribution of responses might be somewhat more diverse if the total pilot population were surveyed.

Current Issues Facing General Aviation

In survey after survey, it is apparent that the biggest problem facing the industry today -- from a pilot's (AOPA member's) perspective -- is aircraft product liability reform. 50 percent of the pilot members listed this as the major problem, followed by 25 percent who feel the "high cost of flying" is the biggest problem, and 9 percent who feel that "excessive government regulation in aviation" is the biggest problem.

- Nine out of 10 member pilots believe that new aircraft manufacturing is dying off primarily because of high product liability costs.
- 87 percent of member pilots think that product liability is the major reason prices for new aircraft are as high as they are.
- 93 percent of pilots would be willing to give up their legal right to sue an aircraft manufacturer for production or design defects in aircraft more than 20 years old, in order to reduce the industry's product liability burden and stimulate the aircraft manufacturing industry.
- Two-thirds of pilot members think that if aircraft product liability legislation were passed by Congress and signed into law by the President, additional new general aviation aircraft would become available to the flying public within a relatively short period of time at a reasonable cost.
- An overwhelming majority of pilots (92 percent) think that Congress should pass a 20-year statute of repose for general aviation aircraft to alleviate the aircraft product liability problem in this country.

Almost eight out of 10 member pilots think that the general aviation industry in this country is in serious trouble and that general aviation needs an economic stimulus at this time to promote the industry. A like percentage of pilots feels that FAA is primarily hindering, rather than fostering the growth of general aviation.

- 90 percent feel that FAA is not doing enough to promote general aviation in this country.
- 81 percent of member pilots do not think that the Federal Government is doing enough, both financially and politically, to stimulate airports to build more runways to help reduce congestion.

70 percent of member pilots report that governmental regulations and requirements have noticeably reduced the amount of flying they have done over the past year. On the other hand, two-thirds of respondents think that FAA has become less confrontational over the past year and more willing to work with pilots concerning individual regulatory compliance and enforcement problems, procedures, and issues.

- Two of three member pilots feel that there is too much positive control airspace (e.g., TCAs, ARSAs, etc.) in this country at this time.
- Three of four 4 pilots think that noise, rather than air quality, is the biggest environmental concern facing general aviation today.

Almost three quarters (72 percent) would seriously consider purchasing a relatively well-known homebuilt design completely put together by a kitplane manufacturer if they were in the market to purchase a new aircraft, as long as the price and performance of the aircraft were comparable to well known production aircraft.

The Government Role

90 percent of the respondents do not think that general aviation is better off now under the Clinton Administration than it was under the Bush Administration. Only 18 percent of pilots think that the Clinton Administration is a friend of general aviation. Only 17 percent of member pilots think that Congress is a friend of general aviation. Respondents' opinions of government agencies are more favorable. 43 percent of

pilots think that FAA is a friend of general aviation. Three of four think that their state aviation agency is a friend of general aviation.

Aviation Taxes

80 percent of pilots are not willing to pay moderately higher aviation taxes to further improve the aviation system in this country. They think the current aviation taxes are already too high. A majority of pilots feel that the Federal Government should cut services, rather than raise taxes, to reduce the federal deficit. 93 percent feel that aviation taxes should not be raised to help reduce the federal deficit and that general aviation will be hurt more than it will be helped if general aviation taxes are increased to help fund programs designed to stimulate the industry.

Three of four pilots would not be willing to pay moderately to significantly higher aviation fuel prices to fly general aviation aircraft in order to lessen the environmental impact of burning aviation fuel.

More than two-thirds would be willing to pay a modest increase of 1 or 2 cents per gallon in higher state taxes on aviation fuel if they knew the money would be used to improve general aviation airports in their state.

General Aviation Airports and Landing Facilities

Two-thirds of the members surveyed think that their local community views their home airport as an asset. On the other side of the coin, one-third think that their local community considers their home airport a liability. A majority of pilots thinks that the Federal Government, rather than municipalities, should have the ultimate authority to decide or resolve aviation noise problems. 40 percent of aviators feel that their home airport is threatened because of inadequate zoning and encroaching development. 75 percent of member pilots do not think that a peak- hour landing fee is an appropriate way to reduce congestion at busy hub airports.

General Aviation Safety

Only 4 percent of pilots think that the general aviation aircraft they currently fly could be mechanically or structurally safer with more extensive government regulations. 94 percent of member pilots think that current government aircraft inspection requirements are adequate to ensure the safety of general aviation aircraft

-- even older general aviation aircraft. 80 percent of pilots do not think airworthiness inspections need to be increased as general aviation aircraft get older. Three quarters of member pilots think that FAA is already doing enough to ensure that general aviation is safe.

Aviation Weather Briefings

Slightly over three quarters of member pilots normally get their aviation weather briefings from a Flight Service Station (FSS). 19 percent of the member pilots normally get their weather briefings from DUAT, while 5 percent get them from some other source.

77 percent of pilots think that it is either "very important" (40 percent) or "somewhat important" (37 percent) that FAA continue funding the DUAT weather briefing program.

Three of five members would object to being charged a fee to use DUAT to obtain a weather briefing. 9 of 10 would object to being charged a fee to for an FSS weather briefing.

The Future of General Aviation

A majority of member pilots -- 56 percent -- would describe themselves as generally "pessimistic" about the future of general aviation; 44 percent of pilots would describe themselves as generally "optimistic" about the future of general aviation.

63 percent of the member pilots think that it is either "very likely" (24 percent) or "somewhat likely" (39 percent) that people will still be able to pilot general aviation aircraft for business or pleasure 25 years from now. Just over one quarter think that it is "somewhat unlikely" that people will be able to fly general aviation aircraft 25 years from now, while 9 percent think that it is "very unlikely."

One of three pilots who own an aircraft not currently equipped with LORAN C plan to install LORAN C within the next 2 years. Three of five pilot members who own an aircraft not currently equipped with GPS satellite navigation equipment plan to install GPS in their aircraft within the next five years.

What Pilots Want for the Future

What should be made of all this information? What can government and industry do with these results? What do pilots think should be done in the future? According

to the survey results, this is what pilots would like to see happen.

Solve the product liability problem. While this is easier said than done, pilots feel that it is the most important problem facing the industry today. Without a solution, or at least some relief, many feel their ability to fly will be in jeopardy.

FAA should promote the industry to a much greater extent than it does at this time. Also, FAA should not overregulate the industry to make it risk-free -- that would be counterproductive.

FAA should continue to be less confrontational and more willing to work with general aviation interests as partners, rather than adversaries.

The government should do what it can to stimulate the industry by reducing or eliminating unneeded regulations and requirements, cutting unnecessary government spending, and reducing burdensome taxes that do more damage than good. Aviation taxes should not be increased. The industry is in poor shape and cannot afford it. In fact, the Federal Government should look for ways to reduce the tax burden on general aviation by cutting government spending, rather than raising taxes to fund new or larger programs.

Give the Federal Government, rather than local agencies, ultimate authority to resolve aviation noise problems.

Government and industry should better promote the value of airports to local communities.

General aviation, as it is now structured, is basically safe. Additional regulations or requirements designed to improve the safety of general aviation will have only marginal impact and might not be worth the investment. Current regulations designed to ensure that general aviation aircraft are safe are more than adequate. Do not increase safety regulations or requirements in this arena.

Do not charge a user fee to obtain aviation weather services.

Continue to fund DUAT.

The Future Supply and Demand for Pilots and Aviation Maintenance Technicians[3]

The U.S. air transportation industry employs approximately 135,000 pilots and 143,000 aviation maintenance technicians (AMTs). These individuals are employed by airlines, air taxis, flight schools, repair stations, and corporate flight departments. Employment opportunities fluctuate in this cyclical industry because of the vagaries of the economy and the attendant demand for air transportation. A recently completed study,

"Pilots and Aviation Maintenance Technicians for the Twenty-First Century: An Assessment of Availability and Quality" addresses this issue. This study is the product of an advisory committee, the Pilot and Aviation Maintenance Technician Blue Ribbon Panel (the Panel), sponsored by the U.S. Department of Transportation.

In the latter part of the 1980s, the airlines began heavy hiring of pilots and AMTs. Congress became concerned that this hiring trend was depleting the supply of military aviation personnel and that this drain of military aviation personnel would affect the overall supply of trained personnel available to meet future transportation needs. The Panel was created in response to these concerns.

The Panel organized a series of public hearings and conducted background research to investigate occupational demand, current training methods, emerging training techniques, the capacity of pilot and AMT training schools, hiring standards, and the impact of technology and air transportation trends. The Panel also investigated the quality of basic academic and aviation training, military personnel availability, and industry-government cooperation. Industry and Federal Aviation Administration (FAA) forecasts were then used to project personnel requirements and supply.

The current demand for trained and experienced professional pilots is approximately 10,000 per year. This demand will increase to approximately 15,000 annually by 2004. (Table 8) Similarly, the current annual demand for AMTs is 12,000, and is expected to rise to 16,000 by 2004. (Table 9) Significant changes in the national economy will markedly affect these projections.

The Panel concluded that there will be an adequate supply of pilots and AMTs who meet minimum federal certification requirements for the air transportation industry for the foreseeable future. However, it is unlikely that enough of these personnel will have the skills and experience to provide industry with sufficient numbers of well-qualified personnel. Although basic certification requirements are adequate, the more sophisticated aircraft and missions require specialized training. The key to increasing the supply of well-qualified personnel is to create an industry-government coalition that will define needs, develop standards, and create oversight for training and qualifying pilots and AMTs.

Understanding the Flight Training Market

Over the past 15 years the light aircraft segment of the general aviation industry has been in decline. The

TABLE 8 PROJECTED PILOT DEMAND

YEAR	MAJOR AIR CARRIERS			COMMUTER AIR CARRIERS			OTHER PROFESSIONAL		TOTAL PILOTS	TOTAL NEW-HIRES
	Aircraft(1)	Pilots(2)	New-Hire Pilots(3)	Aircraft(1)	Pilots(4)	New-Hire Pilots(5)	Pilots	New-Hire Pilots(6)		
1988	3,671	50,476		1,684	13,472		62,830		126,778	
1989	3,870	53,212	3,480	1,782	14,256	2,922	61,266	4,563	128,734	10,965
1990	4,017	55,233	2,927	1,819	14,552	2,479	65,722	11,028	135,507	16,434
1991	4,252	57,529	3,297	1,896	15,168	2,891	63,625	4,266	136,322	10,453
1992	4,206	55,981	(322)	1,960	15,680	2,864	62,860	5,521	134,521	8,063
1993	4,265	55,828	1,226	2,018	16,144	2,886	63,360	6,836	135,332	10,948
1994	4,311	55,482	1,222	2,066	16,528	2,863	63,995	7,035	136,005	11,120
1995	4,387	55,495	1,600	2,116	16,928	2,939	64,753	7,233	137,176	11,773
1996	4,496	55,885	2,123	2,152	17,216	2,870	66,056	7,909	139,157	12,902
1997	4,553	55,592	1,489	2,171	17,368	2,757	66,964	7,604	139,924	11,851
1998	4,690	56,233	2,628	2,195	17,560	2,826	67,917	7,745	141,710	13,198
1999	4,843	57,002	2,997	2,225	17,800	2,910	69,002	7,985	143,804	13,892
2000	5,016	57,934	3,215	2,255	18,040	2,946	69,987	7,984	145,961	14,145
2001	5,180	59,828	4,052	2,287	18,296	3,000	70,922	8,027	149,046	15,079
2002	5,381	62,150	4,430	2,323	18,584	3,076	71,971	8,246	152,705	15,751
2003	5,566	64,287	3,895	2,359	18,872	3,119	73,070	8,406	156,229	15,420
2004	5,747	66,377	3,641	2,381	19,048	3,033	73,969	8,296	159,394	14,970
1993–2004 TOTALS			32,519			35,226		93,306		161,050

Historical: 1988–1992
Projected: 1993–2004

(1) Obtained from 1993 FAA Aviation Forecast Data.
(2) The number of pilots for the major air carriers is equal to the number of aircraft multiplied by the size of the crew (steadily decreasing from 2.5 in 1990 to 2.1 in 2000) and the number of crews per aircraft(5.5).
(3) The number of new-hire pilots is equal to the growth over the previous year plus attrition (.5 percent) and retirements (obtained from ALPA data) for the year.
(4) The number of pilots for the commuter air carriers is equal to the crew size (2) multiplied by the number of crews per aircraft (4).
(5) The number of new-hire pilots is equal to the growth over the previous year plus attrition (15 percent) for the year.
(6) The number of new-hire pilots is equal to the growth over the previous year plus attrition (10 percent) for the year.

** Note: New-hires for the major air carriers include transfers from the commuter air carriers, other professional pilot positions, and the military.

TABLE 9   PROJECTED AMT DEMAND

YEAR	MAJOR AIR CARRIERS			COMMUTER AIR CARRIERS			GENERAL AVIATION			OTHER		TOTAL	TOTAL NEW HIRE
	Aircraft(1)	AMTs(2)	New Hire AMTs(3)	Aircraft(1)	AMTs(4)	New Hire AMTs(5)	Aircraft(1)	AMTs(6)	New Hire AMTs(7)	AMTs(8)	New Hire AMTs(9)	TOTAL	
1988	3,671	51,394	6,350	1,684	6,736	994	202,000	30,300	2,625	43,000	3,870	131,430	13,838
1989	3,870	54,180	5,495	1,782	7,128	1,105	195,500	29,325	1,958	43,860	3,930	134,493	12,488
1990	4,017	56,238	4,870	1,819	7,276	876	204,400	30,660	4,401	44,737	4,009	138,911	14,155
1991	4,252	59,528	6,266	1,896	7,584	1,066	197,400	29,610	1,911	45,631	4,088	142,353	13,332
1992	4,206	58,884	2,300	1,960	7,840	1,040	198,400	29,760	3,126	46,543	4,170	143,027	10,636
1993	4,265	59,710	3,812	2,018	8,072	1,039	198,700	29,805	3,026	47,473	4,253	145,060	12,129
1994	4,311	60,354	3,662	2,066	8,264	1,018	199,700	29,955	3,146	48,422	4,339	146,995	12,164
1995	4,387	61,418	4,135	2,116	8,464	1,046	200,800	30,120	3,177	49,390	4,425	149,392	12,784
1996	4,496	62,944	4,673	2,152	8,608	1,005	202,400	30,360	3,276	50,377	4,513	152,289	13,467
1997	4,553	63,742	3,985	2,171	8,684	944	203,600	30,540	3,234	51,384	4,604	154,350	12,767
1998	4,690	65,660	5,201	2,195	8,780	974	205,000	30,750	3,285	52,411	4,696	157,601	14,156
1999	4,843	67,802	5,532	2,225	8,900	1,010	206,400	30,960	3,306	53,459	4,790	161,121	14,638
2000	5,016	70,224	5,933	2,255	9,020	1,022	207,600	31,140	3,294	54,528	4,886	164,912	15,135
2001	5,180	72,520	5,922	2,287	9,148	1,043	208,900	31,335	3,329	55,618	4,983	168,621	15,277
2002	5,381	75,334	6,581	2,323	9,292	1,073	210,100	31,515	3,332	56,730	5,083	172,871	16,069
2003	5,566	77,924	6,486	2,359	9,436	1,088	211,200	31,680	3,333	57,864	5,184	176,904	16,091
2004	5,747	80,458	6,557	2,381	9,524	1,040	212,300	31,845	3,350	59,021	5,288	180,848	16,235
1993–2004 TOTALS			62,479			12,303			39,086		57,045		170,913

Historical: 1988 – 1992
Projected: 1993 – 2004

(1) Obtained from 1993 FAA Aviation Forecast data.
(2) The number of AMTs for the major air carriers is equal to the the number of aircraft multiplied by the number of technicians per aircraft (14).
(3) The number of new—hire AMTs is equal to the growth over the previous year plus attrition (5 percent) per year.
(4) The number of AMTs for the commuter air carriers is equal to the number of aircraft multiplied by the number of technicians per aircraft (4).
(5) The number of new—hire AMTs is equal to the growth over the previous year plus attrition (10 percent) per year.
(6) The number of AMTs for general aviation is equal to the number of aircraft multiplied by the number of technicians per aircraft (.15).
(7) The number of new—hire AMTs is equal to the growth over the previous year plus attrition (10 percent) per year.
(8) This includes federal technicians and technicians employed by manufacturers and repair stations. (Assumes 2 percent growth rate.)
(9) The number of new—hire AMTs is equal to the growth over the previous year plus attrition (7 percent) per year.

downturn in aircraft deliveries and general aviation support services goes far beyond the cyclical influences seen from the 1940's to the 1970's. Fundamentally, the industry has changed. Of the many economic, social, political and regulatory influences, one stands out as having the most significant impact on the flight training industry: the decision by aircraft manufacturers to abandon the single-engine piston market due to litigation on product liability litigation and low gross profit margins in comparison with turboprop and jet engines.

This decision abruptly changed the way that providers of flight training providers were accustomed to doing business. The most obvious was the loss of revenue from aircraft sales, but there were other consequences as well. Aircraft manufacturers no longer supported flight training and aircraft sales with national marketing, promotion and employee training. Aircraft sales personnel, who had traditionally been the "shepherd" for the new business person or student pilot, was no longer a part of the organization

As a result,the burden now fell on the Certificated Flight Instructor (CFI) to be teacher, marketer, and salesperson—a role that CFIs were not prepared to undertake. Proactive marketing became almost non-existent by the mid to late 1980s. Most nonaviation career customers who did learn to fly "walked in off the street".

The industry continues to have a marketing and sales problem. Not only have providers of flight training not embraced the marketing role, they have not kept pace with the sophistication and demands of the most prized customer, the business person and other nonaviation professionals. Unfortunately, other competitive industries have attracted the business person's attention and discretionary dollars.

However, there are effective marketing approaches that are suited to the realities of the GA marketplace. The industry is very well suited for the use and implementation of direct marketing approaches. What follows is an outline of some basic direct marketing tactics that are well suited to the light general aviation industry.

● Targeting: Focus on your most desirable customers. The first step is understanding the demographic and psychographic profile of the most favored customer. General aviation appeals to only a small percentage of the total population. Approaches that use mass media techniques will be ineffective, and they are expensive. FBOs have a well defined, specific type of customer. With advances in information technologies, the industry can now afford to reach this type of customer. If an advertising and promotional campaign were undertaken today, the aircraft manufacturer would not follow past approaches, direct marketing would be used instead

● Consultive Selling: Once the most desirable customer has been profiled and identified, a sales presentation can incorporate both the logical and emotional motives for buying. Front line employees, although currently the weak link, have the education to understand this type of "consultive" sale. Further, they are better educated than most employees in competitor industries. Also, in a presentation an employee can communicate his or her own honest enthusiasm for the industry.

● Customer Service: Once the customer's interest is understood, FBOs can offer special or tailored services that meet the targeted customer's needs and expectations. General aviation products have always had a high service content. The industry does not have to convince its employees that is offers service. Services can be custom tailored without adding additional cost. However, FBO's do tend to have a rather myopic view of flight training offerings.

● Developing Long-Term Customer Relationships: With the use of computer database technology, FBOs can develop a cost-effective, personalized, on-going dialogue and relationship that does not depend on one individual. Also, information recorded on one good customer helps with the next. Traditionally the industry has encouraged a culture that values the on-going relationship with a customer. Attitudes do not have to change. Computer-based tools will allow employees to implement cost effective methods and build a base of knowledge.

Implementation will require an investment in front-line people. Industry must teach employees about the needs and expectations of the most favored customer. Interpersonal skills must be enhanced and made part of employee training. A new way of thinking must be instilled. Not every course offering has to be keyed to FAA regulation. Current programs must be repackaged so they are easier to buy. Further, flight training courses and services must be customized to customer needs and expectations.

The industry is facing a major challenge. Environmental concerns that have had a negative impact on general aviation are not going away. Moreover, the industry has fallen short in understanding the needs and expectations of the most valuable customers. Direct marketing offers a cost-effective approach and fits well with the industry's strength, culture, and tradition. The problem is a marketing problem, and it requires a marketing solution.

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FBO'S, The Foundation of Light General Aviation

The FBO industry grew in number from less than 2,000 at the end of World War II to over 10,000 by end of the 1970s. Because of a variety of factors, such as exposure to environmental liability, cost of skilled labor, and overcapacity, the industry has evolved to a point where the ability of an individual FBO to remain a viable financial entity is predicated almost entirely upon fuel sales (primarily retail fuel sales). The FBO Resource Group projects that, if current trends continue, there will be approximately 2,000 economically viable FBOs by the end of the century. FBOs are the foundation of light aviation and are viewed by some as the leading indicator for the recovery of the industry.

After World War II many FBOs added flight training as a profit center. Some of this was carried over from contract flight training for the military during the war. It may be here, at this grass-roots level, that the stirrings of a rebirth of the industry will occur. However, before this can occur, major fundamental infrastructure changes need to take place in other segments of the general aviation industry.

As the number of FBOs diminish, the customer service level at many airports declines. Many third-tier regional and local municipal airports, some with limited air carrier service and some without any type of commercial airline service, are losing their FBOs because it is no longer possible to make a profit while offering the level of service expected by general aviation. Every community with an airport wants to be able to welcome a Fortune 500 company's business jet with appropriate service and facilities. How is that service going to be provided or paid for in the future?

A part of the solution, is developing partnerships between FBOs and the public-use airport owners and operators to create the most cost-effective and operationally supportive structure possible to support the community's general aviation requirements. This will assist in increasing the survival rate of the FBOs and preserve the crucial service capabilities necessary to foster growth in light general aviation.

FAA'S Plans To Stimulate Light General Aviation

General aviation faces many challenges in the 1990s. The main challenges are in the areas of safety, certification processes and services, product innovation and competitiveness, airspace access and capacity, and affordability. The FAA Flight Standards Service believes there are opportunities to address these problems creatively, in partnership with the general aviation community, to foster and promote safety and growth.

The *General Aviation Action Plan* was developed as a framework for accomplishing this and is now being implemented by the Flight Standards Service and key elements of the general aviation community.

FAA's plans to stimulate light general aviation will focus on:

● Safety: to protect recent gains and aim for a new threshold;
● FAA services: to provide the general aviation community with responsive, customer-driven certification, air traffic, and other services;
● Product innovation and competitiveness: to ensure the technological advancement of general aviation;
● System access and capacity: to maximize general aviation's ability to operate in the National Airspace System; and
● Affordability: to promote economic and efficient general aviation operations, expand participation, and stimulate industry growth.

The strength and diversity of general aviation depends largely on how available it is to the public and how affordable it is to the user. Through simplified certification standards for aircraft and airmen, joint industry-FAA ventures such as the accident prevention program, and timely rulemaking initiatives, wider interest and participation in general aviation can be stimulated.

Using Econometrics To Estimate General Aviation Relationships

Econometric models have been developed to estimate aircraft operations at general aviation airports. Other relationships such as demand for aircraft or cost models for product can be estimated using the same approach. This type of analysis is important for general aviation airport and aircraft management, planning, marketing and financing. Some methods of analysis are analogy, forecasting, and causal models. This section focuses on a causal model. While it is more difficult to use and gather data for such a model, it is more accurate and gives more information than alternative methods.

The causal model describes aircraft operations with a number of explanatory variables. These include 1) distance in miles to nearest airport, 2) average income in the county, 3) runway length, 4) presence of a tower, 5) presence of a military base, 6) presence of avionics service, 7) presence of flight interaction, 8) presence of charter flight services, and 9) presence of aircraft repair service.

The model was tested using a cross-section of 83 general aviation airports in the State of Georgia in 1991.

The results were quite good and gave a good fit, with 65 percent of the variation in the dependent variable explained by the independent variables. The most powerful explanatory variable in quantitative terms was income, although the statistical significance of this variable was not substantial. By far the variable with the greatest statistical significance was runway length followed closely by the presence of a control tower. The only insignificant variables were the presence of a military base and a flight training school. The model can be used to predict aircraft operations for regional and statewide planning.

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[1] Light general aviation, for the purposes of this workshop, was defined as all piston-powered airplanes (single and multi engine). Although piston-powered helicopters are a significant part of the U.S. fleet, they are discussed in a separate section of this Circular.

[2] An active aircraft is defined by the FAA as one that flew at least one hour during the survey year.

[3] Presentation to the panel by John J. Sheehan, Phaneuf Associates, Incorporated.