

REVITALIZING THE
PISTON-POWERED
AIRCRAFT
INDUSTRY

B L U E P R I N T f o r W O R K I N G

Final Report of the
**General Aviation
Manufacturers Association**
Piston Engine Aircraft
Revitalization Committee
March 26, 1996





Dear Industry Colleague:

It is with great pleasure that I present this final report on behalf of the Piston-Engine Aircraft Revitalization Committee (PEARC). The findings of this committee, outlined on the following pages, contain the research, analysis and recommendations we have developed over the last year. Our objective in publishing this report is to encourage you to become involved by joining others in taking steps to revitalize our industry.

We have the unique opportunity—right now—to drive growth in the piston-powered aircraft industry. The key to this growth is straightforward: increase the number of general aviation pilots. This includes retaining the pilots we already have and bringing back those who have dropped out. It also includes adding new student pilots.

As pointed out in this report, the number of new student pilots hit an all-time low of 66,000 in 1994. Although final data is not yet available, the number of new student pilots in 1995 will probably not fare much better. If we are to realize the full potential of our industry, we simply cannot allow this "status quo" trend to continue.

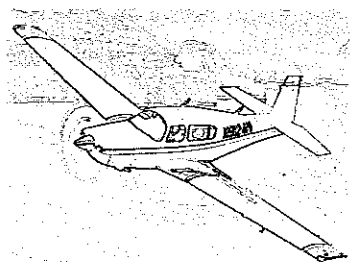
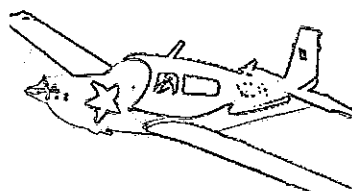
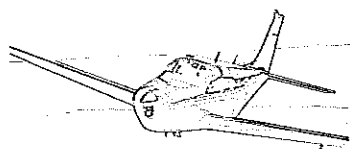
Research undertaken by PEARC indicates, however, that there is a significant unmet demand for learning to fly. The study identified more than one million people who are very interested in learning to fly and who have the resources to do so.

This opportunity for growth, therefore, depends not so much on developing interest, but on getting effective marketing messages to these likely prospects in a cost-effective manner and ensuring they enter into a learn-to-fly "infrastructure" that responds to their needs and holds their interest.

No individual can do it alone. No single organization can take on this task alone. The entire industry stands to benefit from a well-coordinated, unified approach. I know I can count on you for that support. We're all counting on you.

Sincerely,

*Greg Summe
Chairman, Piston Engine Aircraft Revitalization Committee
President, AlliedSignal Engines*



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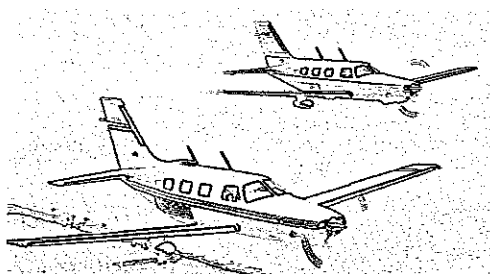
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* Workgroup leaders





*To revitalize the piston-powered
aircraft industry, let's attract and train
100,000 new pilots annually
by the year 2000*



PEARC-Recommended Six-Point Revitalization Effort

1. Dramatically increase student pilot starts
2. Highlight and build awareness for the value of general aviation
3. Improve flight training effectiveness
4. Continue to enhance and promote safety
5. Improve the perceived and actual value of new aircraft
6. Make positive legislative and regulatory change

This "Blueprint for Growth" report is a comprehensive summary of the findings of the General Aviation Manufacturers Association (GAMA)-sponsored Piston-Engine Aircraft Revitalization Committee (PEARC), formed in late 1994 to determine how to increase sales of piston-engine airplanes.

The PEARC team is comprised of senior managers and directors from 15 GAMA member companies as well as representatives from the Aircraft Electronics Association (AEA), Aircraft Owners & Pilots Association (AOPA), Experimental Aircraft Association (EAA), National Business Aircraft Association (NBAA), National Air Transportation Association (NATA), FLIGHT TRAINING Magazine, FLYING Magazine, Embry-Riddle Aeronautical University, Wichita State University, National Aeronautics & Space Administration (NASA) and the Federal Aviation Administration (FAA).

Working diligently for nearly 12 months, PEARC conducted new research and developed new thinking that has the potential to dramatically impact the future of our industry.

PEARC studied all of the market factors that have caused the 16-year slump in new aircraft sales—and has recommended six key initiatives that will effectively revitalize our industry—by attracting more pilots and equipping them with faster, safer and more cost-effective airplanes.



EXECUTIVE SUMMARY

Dramatically Increase Student Pilot Starts

While all six solutions are critical for long-term revitalization, the most important is dramatically increasing student pilot starts. After 16 years of decline, market conditions now are ripe for attracting a new generation of student pilots. Why? Because:

- ▲ *One million or more qualified student pilot prospects*
- ▲ *Growing economy*
- ▲ *General aviation tort reform*
- ▲ *Developing new avionics technology*
- ▲ *Continuing new engine and airframe technology*
- ▲ *Improving certification regulations*
- ▲ *Demand for kit built and certified aircraft is growing*

With these factors indicating renewed demand for aircraft, flight training and support services, it's time to re-build our marketplace, beginning with student pilot starts.

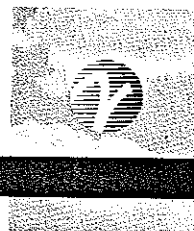
Where are these new student pilots going to come from? Extensive research conducted by PEARC has identified a large number of likely prospects:

- ▲ *1.2 million likely prospects say they'd like to learn to fly*
- ▲ *People list "enjoyment" as a primary reason to learn to fly*
- ▲ *Most think flying is more expensive, time consuming and dangerous than it actually is*
- ▲ *General aviation is misunderstood by the press and targeted prospects*
- ▲ *Information is difficult to find concerning flight schools and what flying is*

As part of its research effort, PEARC examined why interested prospects don't begin flight training. Highlights of the findings include the following points:

- A new study conducted in October 1995 showed that more than one million Americans would like to learn to fly—and have the necessary resources—but lack information that would help them find a flight school.
- A 1993 Gallup poll survey showed an astounding 66 percent of all men and 34 percent of all women in the U.S. have expressed an interest in learning to fly at some point in their lives.
- PEARC's research shows that today, over one million people in the U.S. are qualified and very interested in learning to fly. Another 2.4 million are somewhat interested.





EXECUTIVE SUMMARY

- The survey determined that 18 percent of the women respondents would be "very likely" to begin flight training while 15 percent of the men said the same—although more men were "somewhat likely" to learn than were women (31 percent vs. 24 percent).
- Why are men and women interested in learning to fly? PEARC research shows that nearly 66 percent of the motivation to become a pilot is for "enjoyment" with 23 percent listing personal travel and 10 percent for business.
- After screening interviews with nearly 8,000 households and conducting in-depth interviews with nearly 600 people who represented qualified prospects, PEARC's researchers determined there is tremendous student pilot market potential—if we know where to look and how to "tailor" our marketing messages.

How is the general aviation industry going to attract and retain the interest of this large population of potential new student pilots?

PEARC recommends that every general aviation manufacturer, service provider and organization should pool their resources to **plan, fund and support a highly targeted learn-to-fly program**—and support efforts to improve the value, safety and cost effectiveness of piston-engine aircraft.

Highlight and Build Awareness for the Value of General Aviation

Part of tailoring key marketing messages includes building awareness for flying as part of a fulfilling lifestyle and/or a rewarding career.

- **We will need to develop a lifestyle-oriented message** that is backed with convincing evidence that flying is both safe and practical.
- **Learn-to-fly messages will need to dispel misconceptions** about the cost and time needed for flight training.

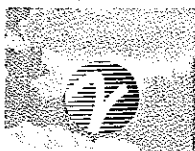
With motivated, qualified prospects who think learning to fly would be enjoyable—but worry about cost and time constraints—market education is a key part of convincing prospects they have the time and money to learn to fly.

If we band together effectively, we can afford to bring our general aviation message to a new generation of entrepreneur-pilots, future airline pilots and avocational flyers. It will require a collective effort, but an effort that will benefit everyone.

Promote the value of general aviation to the public and Congress.

Particular emphasis should be given to the unique and vital nature of general aviation transportation for small and large communities. Of interest to all audiences is the positive impact of general aviation operations on local economic activity and employment.





EXECUTIVE SUMMARY

Clearly, the key driver is the need to attract and engage new student pilots, but PEARC also made several other recommendations to respond to the needs of these new pilots and to hold their interest, including:

Improve Flight Training Effectiveness

Regulatory changes in several basic areas would encourage and simplify pilot training while making it more efficient and relevant to contemporary technology.

Enhance and Promote Safety

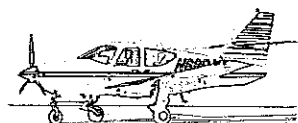
Pilot error is the number one safety problem facing general aviation. Most accidents result from poor pilot decisions based on inadequate or incomplete training. Therefore, the industry must do a better job in packaging and distributing FAA research on how to improve pilot decision-making training and to publicize and promote the effectiveness of existing FAA safety seminar programs. No less vital is the need to reduce maintenance errors by updating initial maintenance technician training to reflect today's technology, to provide more recurrent training for technicians, and to promote recognition and appreciation of the technician's professional status.

Improve the Perceived and Actual Value of New Aircraft

New aircraft sales success will depend to some degree on closing the perceived price/performance gap between new aircraft and used or experimental/homebuilt aircraft. Ways to do this include publicizing the value of the aircraft certification process in terms of quality and safety, and more rapidly adopting improved technology to make perceived value tangible and obvious.

Make Positive Legislative and Regulatory Change

Take steps to insure that needed legislative and regulatory changes are adopted by continuing access to airports and airways; ensuring enactment of an adequately funded Airport Improvement Program (AIP) which addresses general aviation needs; halting the adoption of onerous new taxes and user fees; and implementing Investment Tax Credits (ITC) and realistic depreciation schedules.





PERSPECTIVES ON THE PISTON-ENGINE AIRCRAFT INDUSTRY

Overbuilding Boom Lead to the '80s Bust

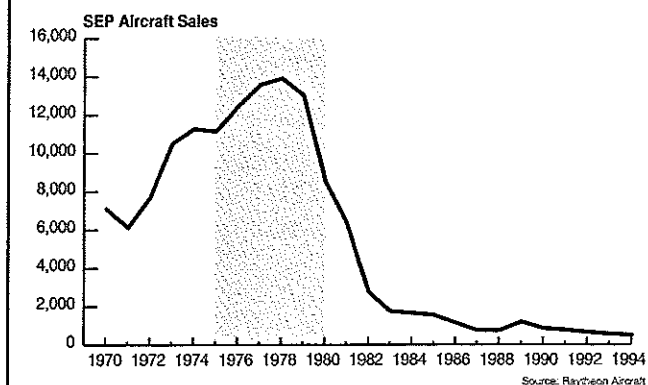
- ▲ Sales declined from 14,000 to 600 in nine years
- ▲ Liability lawsuits multiplied
- ▲ Prices for aircraft and components rose quickly

The industry reached artificially high levels from 1975-1980 when viewed in historic perspective →see Figure 1. In 1978, sales reached an all-time peak, but the unique environment prevailing at the time precluded a good comparison with the industry norm. From this peak, sales fell precipitously.

By 1978, aircraft distribution channels had become overloaded →see Figure 2, and a record number of aircraft awaited buyers. Over the next eight years, the average number of active pilots per aircraft in the general aviation fleet reached an all-time low. Inevitably (and aggravated by external factors), retail sales of new, single-engine piston aircraft declined from 14,000 in 1978 and had virtually ceased by 1994, when only about 450 were produced.

Today, a significant opportunity for growth exists in the piston-powered industry, following 16 years of depressed sales and over-all activity in general aviation. After 1980, the piston-powered aircraft segment of the industry suffered a rapid, steep decline influenced by a number of factors.

Figure 1: RETAIL SALES PEAKED 1975-1980



This 95 percent decline over 16 years was not merely a result of oversupply. That period saw an explosion in unwarranted product liability lawsuits. As a result, product liability costs of manufacturers skyrocketed, severely impacting product prices.

Simply put, a high percentage of existing and potential pilots were priced out of the piston aircraft market. Product liability was a major reason, but by no means the only factor.

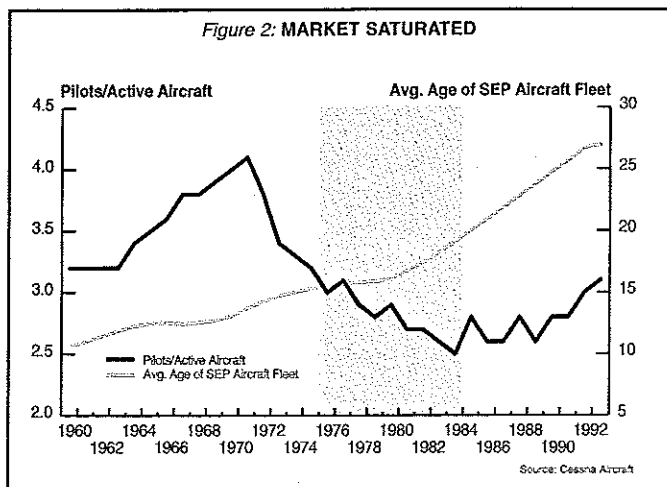
The Environment in 1978

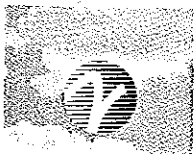
- ▲ Promotion was at an all-time high in 1978
- ▲ New trainers and "move-up" models were being introduced regularly
- ▲ Lease backs, Investment Tax Credits and airline deregulation stimulated sales

It's helpful to contrast the 1994 market environment with conditions in 1978. In that year, several new training aircraft models—such as the Cessna 152, the Piper Tomahawk, and the Beech Skipper had been introduced.

The industry had extensive promotional programs underway, and the economic climate

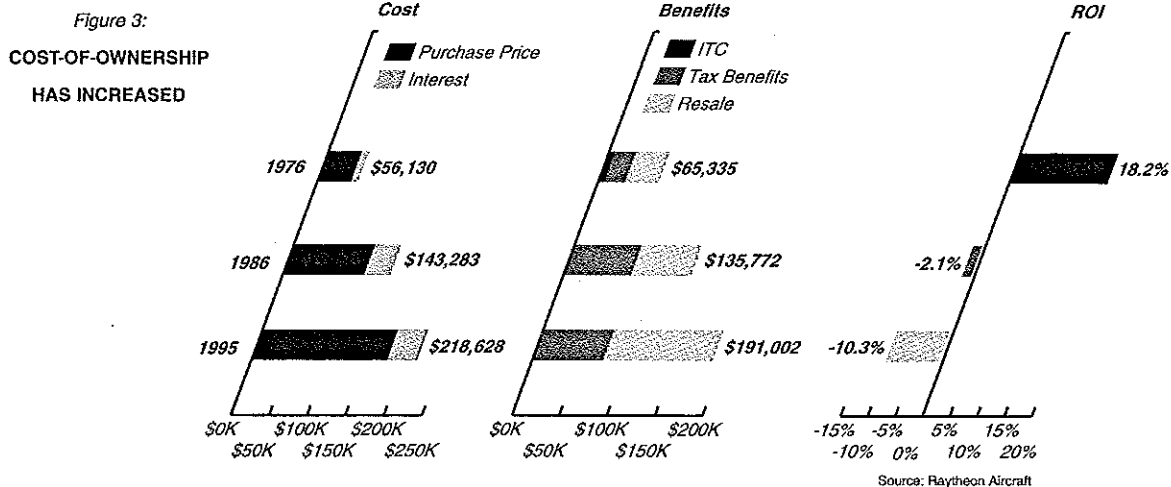
Figure 2: MARKET SATURATED





was favorable. High inflation rates made aircraft values likely to increase over time, spurring purchases of new equipment. Moreover, the ITC then in place encouraged aircraft acquisitions.

However, primary demand then decreased as cost-of-ownership increased. → *Figure 3* dramatically illustrates how return on investment fell from 18.2 percent in 1976 to a *minus* 10.3 percent in 1995, despite increased used aircraft values in the absence of available new planes.

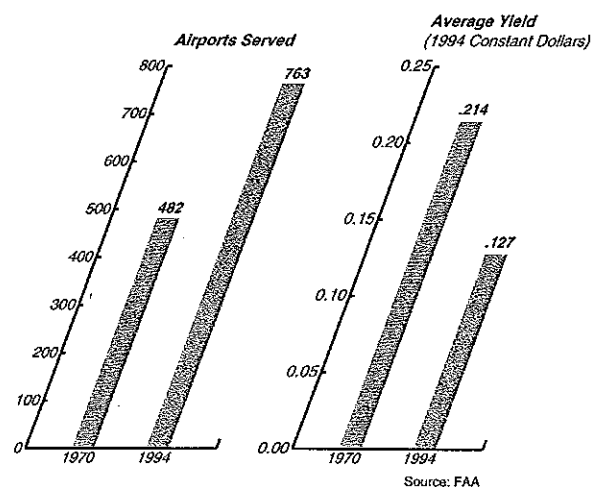


Pilot careers had become more competitive due to a plentiful supply of both experienced and entry level commercial pilots; and less attractive with declining salaries and increased minimum qualification standards for new hires. This, plus fewer prospective pilots eligible for GI Bill education funding, sharply curtailed flight training activity.

Meanwhile, airline service has improved → see *Figure 4*, with airports served increasing from 482 to 763 and fares decreasing in the post-deregulation environment. However, keen competition has resulted in airline average yield falling from 21.4 cents to 12.7 cents by 1994.

Along with the increased cost of general aviation flying, competition for discretionary income has also increased → see *Figure 5*. As more recreational activities have become available and affordable, flight hours per pilot have declined.

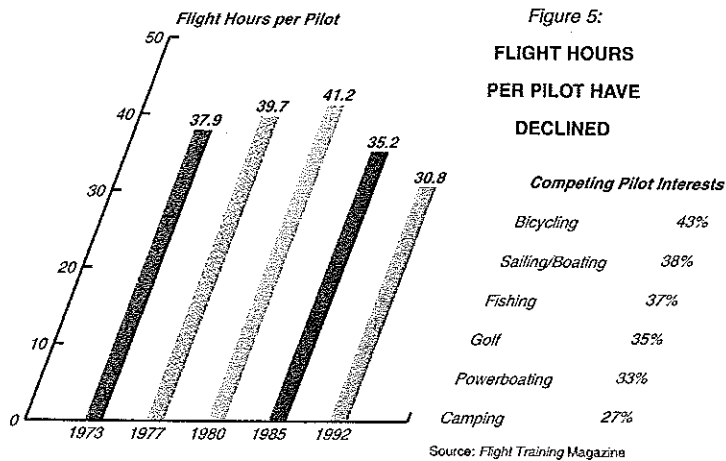
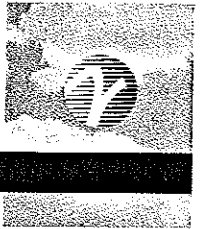
Figure 4:
IMPROVED
AIRLINE
SERVICE



Longer Replacement Cycles

- ▲ Older airplanes are still excellent values
- ▲ Retained value of used airplanes is increasing
- ▲ Avionics breakthroughs keep used airplanes "current"





Factors other than the obvious lack of new aircraft have lengthened replacement cycles. These include the favorable-price-to-performance ratio of used aircraft →see Figure 6, the increased retained value of used aircraft →see Figure 7, and a product of the scarcity as well as high prices of new aircraft.

Today a five-year-old aircraft retains 70 percent of its original value, compared to only 55 percent in 1982. Also, avionics innovations—particularly GPS receiver/computers—available for retrofit have made keeping older aircraft even more attractive.

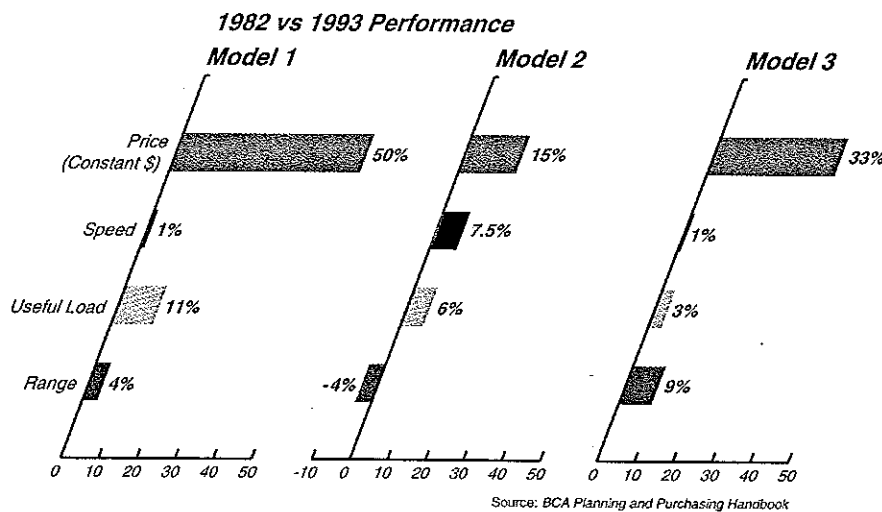
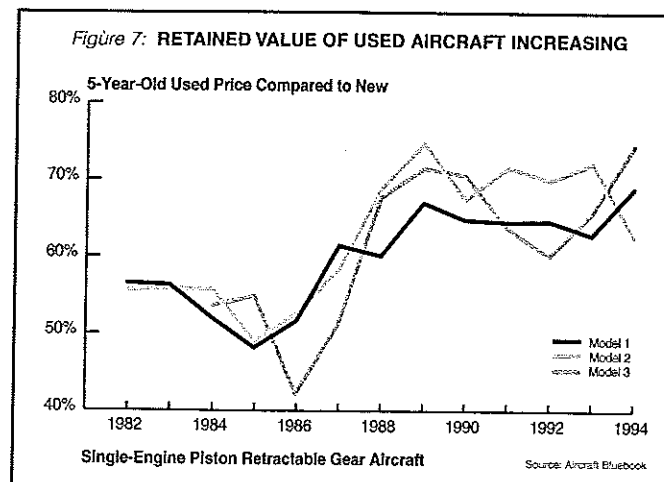


Figure 6:
PRICE/PERFORMANCE HAS DECLINED





This severe slump has, at last, bottomed-out and conditions are ripe for recovery. Not surprisingly, after more than a decade in which hardly a trickle of new aircraft were manufactured, latent demand has built to critical mass, as shown in an October 1995 market survey → see Figure 8.

All Systems "Go" for Launch

- ▲ 1.2 million "Baby Boomers" would like to learn to fly
- ▲ Personal enjoyment is a huge motivation for learning to fly
- ▲ Most prospects are pleasantly surprised about the true cost, time and safety issues
- ▲ Aircraft kit sales have grown steadily

Also, a broad resurgence of interest in learning to fly is evident. Surveys indicate a potential market of 1.2 million people "very likely" to learn to fly and having the money to do so. An even larger group are considered "somewhat likely."

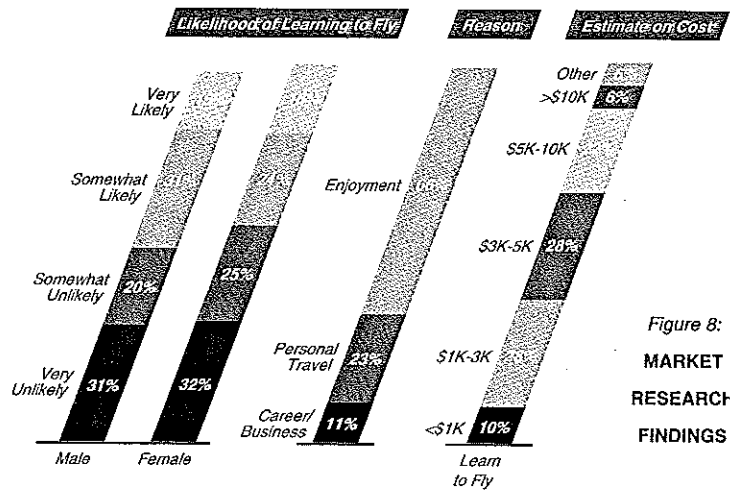


Figure 8:
MARKET
RESEARCH
FINDINGS

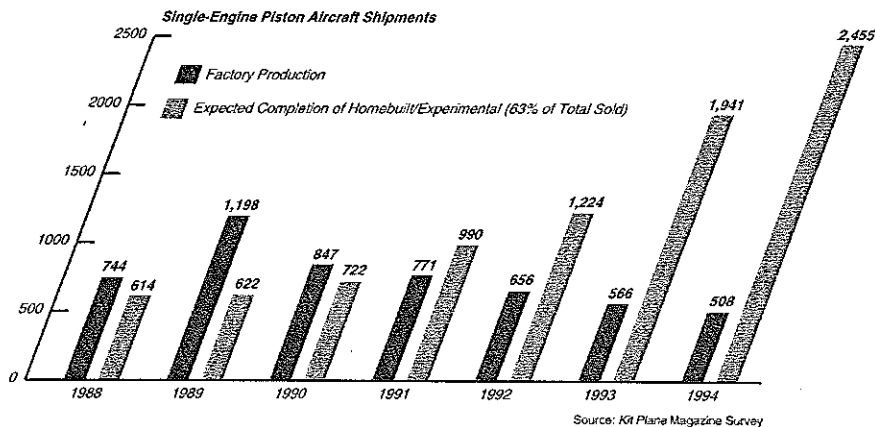


Figure 9:

APPEARS TO BE
STRONG LATENT
DEMAND

People who truly want to fly are willing to go to great lengths. Driven by high prices for production-certificated aircraft, experimental/kit aircraft sales have been growing → see Figure 9. Even though the average kit aircraft requires over one man-year of skilled effort, kit completions have tripled since 1990.

Today, four kits are shipped for every certificated aircraft delivered. In fact, several popular kit-built designs are about to be offered as production-certificated factory-built aircraft.



Breaking Through Barriers to Growth

- ▲ 18-year statute of repose reduces liability exposure for airframe manufacturers
- ▲ Nearly 4,000 new general aviation manufacturing jobs to be created in 1996 alone
- ▲ Optimism fuels investment

Signing Ceremony of the General Aviation Revitalization Act on August 17, 1994 by President Clinton.

Present were (left to right) Monte Mitchell, president of the Aircraft Electronics Association; Arthur Wegner, chairman and CEO of Raytheon Aircraft Co.; Patricia Lehman, secretary-treasurer of the International Association of Machinists District Lodge 70 in Wichita, Kansas; George Hooper, Grand Lodge representative of the International Association of Machinists in Dallas, Texas; Congressman Dan Glickman (D-KS), House sponsor; Vice-President Al Gore; Russell Meyer Jr., chairman and CEO of Cessna Aircraft Co.; Governor Gerald Baliles, former head of the National Airline Commission; Senator Nancy Kassebaum (R-KS), Senate sponsor; Congressman Jim Hansen (R-UT), House sponsor; Edward Stimpson, president of the General Aviation Manufacturers Association; Phil Boyer, president of the Aircraft Owners and Pilots Association; FAA Administrator David Hinson; Mortimer Downey, Deputy Secretary of Transportation; Linda Daschle, FAA Deputy Administrator; Glenn Parr, general counsel for Piper Aircraft Corp.; and Frank Hunger, Assistant Attorney General (Civil Div.).



Following passage of the General Aviation Revitalization Act of 1994, widespread optimism has fueled a renaissance throughout the industry. President Clinton's signing of the measure cut off much of the product liability "tail" which had dragged piston-engine aircraft production to a standstill.

By imposing an 18-year statute of repose, it effectively shielded airframe builders and suppliers from liability for tens of thousands of older aircraft.

Freed of this burden, major manufacturers immediately began moving ahead. Cessna is building a new production facility in Kansas which will turn out 2,000 piston-powered airplanes annually. The firm's 1997 piston-engine aircraft production will be nearly four times the entire industry output of such aircraft in 1994.

Passage of the statute of repose was a major factor in Piper's emergence from bankruptcy, while Mooney and others began increasing production as well. Largely due to passage of the Act, over 4,000 new jobs will be created in the piston aircraft industry in 1996 alone.

The General Aviation Revitalization Act represented the first national tort reform legislation ever to become law. More remains to be done to fully lift the costly burden of unwarranted product liability suits.

With continuing support from general aviation consumer groups and industry organizations who were so vital in passage of the General Aviation Revitalization Act, prospects for growth appear excellent.





Technology has Improved Perceived "Value" of New Aircraft

- ▲ *Aircraft fleet average age is now 28 years*
- ▲ *AGATE research and development seeks new technologies*
- ▲ *Certification regulations must lower, not increase costs*

Although manufacturers are resuming production of existing popular designs, they are incorporating upgraded airframe, engine and avionics technology. The result is overall improvement of the perceived "value" of new aircraft—offsetting higher purchase prices in the eyes of prospective buyers.

Today's piston-engine aircraft fleet has an average airframe age of 28 years. And, one-fourth of the fleet is over 35-years-old.

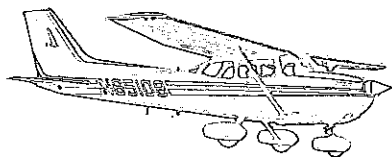
Renewed R&D—and improved certification regulations—to replace this outdated technology base has already brought advanced systems—like electronic ignitions—to market, and more, such as the NASA-sponsored Advanced General Aviation Transportation Experiment (AGATE), is well under way.

The wide-ranging AGATE program involves a joint research consortium with broad manufacturer participation and cost-sharing. Its primary goals are to improve small piston-engine aircraft cockpit displays and integration, icing prevention and avoidance, engine controls, manufacturing methods and pilot training methodologies.

Revitalization: More than New Airplanes

With a coordinated action plan, industry can capitalize on the revitalization opportunities presented by pent-up market demand and new technology. As a result, the Piston-Engine Aircraft Revitalization Committee recommends efforts to:

1. *Increase the number of student pilots*
2. *Highlight the value of general aviation*
3. *Improve training effectiveness*
4. *Continue enhancing and promoting safety*
5. *Improve the perceived value of new aircraft*
6. *Make positive legislative and regulatory changes*





THE PRIMARY DRIVER FOR INDUSTRY GROWTH: Increasing the Number of Pilots

The Benefits of Increasing the Number of Pilots are Many

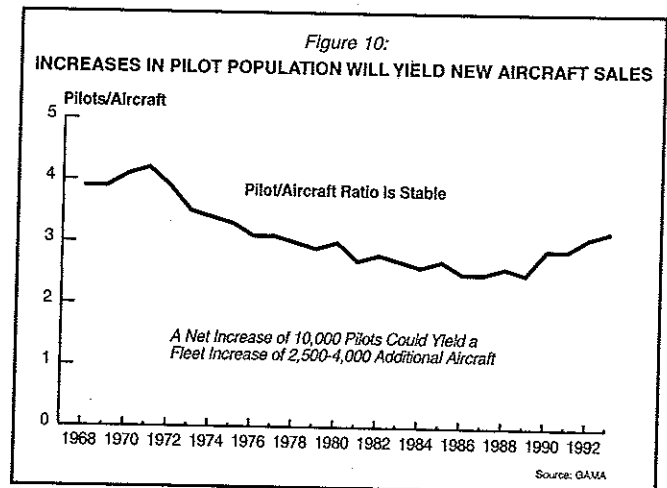
Increased Sales of Aircraft and Components

- ▲ Pilots per plane ratio is stable, about 3:1
- ▲ 10,000 new pilots equals 2,500 to 4,000 new planes
- ▲ 1,200,000 qualified student pilot prospects in the U.S.

The average pilot per plane ratio in the U.S. piston-engine aircraft fleet has remained stable and is presently about three pilots per airplane → see Figure 10.

Because each 10,000 new pilots added to our present base would yield enough demand to build from 2,500 to 4,000 new airplanes, it's clear that the only way to significantly build demand for our products and services is to add a new generation of aviation customers—and keep them satisfied for years to come.

This learn-to-fly program should be focused only on the most promising student pilot prospects and tailored to fit their specific reasons for learning to fly.



Airlines Can Rely on General Aviation-Trained Pilots

U.S. airlines are increasingly relying on general aviation as the source of career pilots. In fact, 80 percent of new pilots hired by U.S. carriers in 1995 originated from general aviation, not from the military—a significant change from previous practices.

European and other foreign airlines must train most of their pilots *ab initio*. This is an expensive training process which is even more costly in Europe—and in much of the rest of the world—than in the U.S. where good weather and a wide choice of training facilities prevail. Foreign airlines, notably Lufthansa and several Asian carriers, have been sending their trainees to the U.S. for years. U.S. airlines are able to avoid these additional training costs by hiring from a pool of skilled general aviation pilots, something not available in Europe where general aviation is minimal.

Increased Sales at FBOs

The fixed-base operator (FBO) is the cornerstone of general aviation where most training, aircraft sales, maintenance, hangaring and tie down, and rentals take place. More pilots means more business and a healthy FBO base for the industry.

It all starts with students - Increasing the number of student starts is the key to growing the number of pilots. Equally obvious is that without changes in the present situation, the pilot population will dwindle.

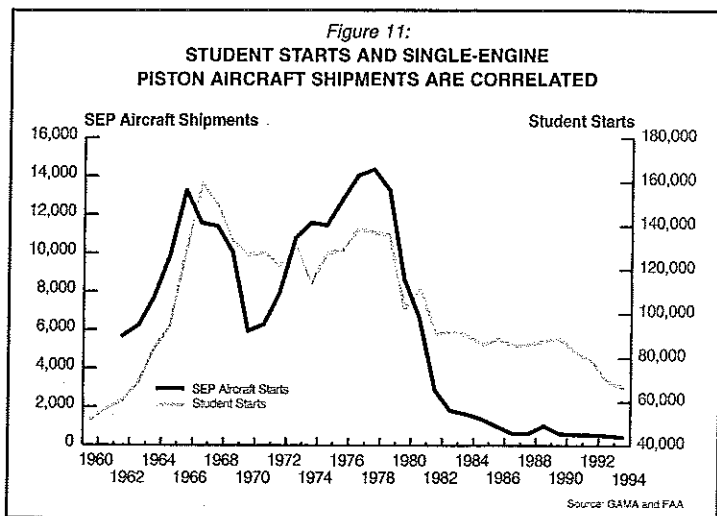


The Goal: 100,000 New Pilots Yearly

▲ Train and retain 100,000 student pilots annually by the Year 2000

▲ Return active pilot population to 800,000 and continue growth

Student pilot starts hit an all-time low of 66,000 in 1994 → see Figure 11. This figure correlates directly to single-engine aircraft shipments. In contrast, student pilot starts averaged nearly 130,000 per year in the mid-1970's.



We had 800,000 active pilots and over 200,000 active airplanes in the fleet in 1980.

With no changes, the total pilot population could drop from today's 650,000 to 530,000 by the year 2000 → see Figure 12. An effective learn-to-fly program, however, could expand active pilot numbers to nearly 700,000 by that year.

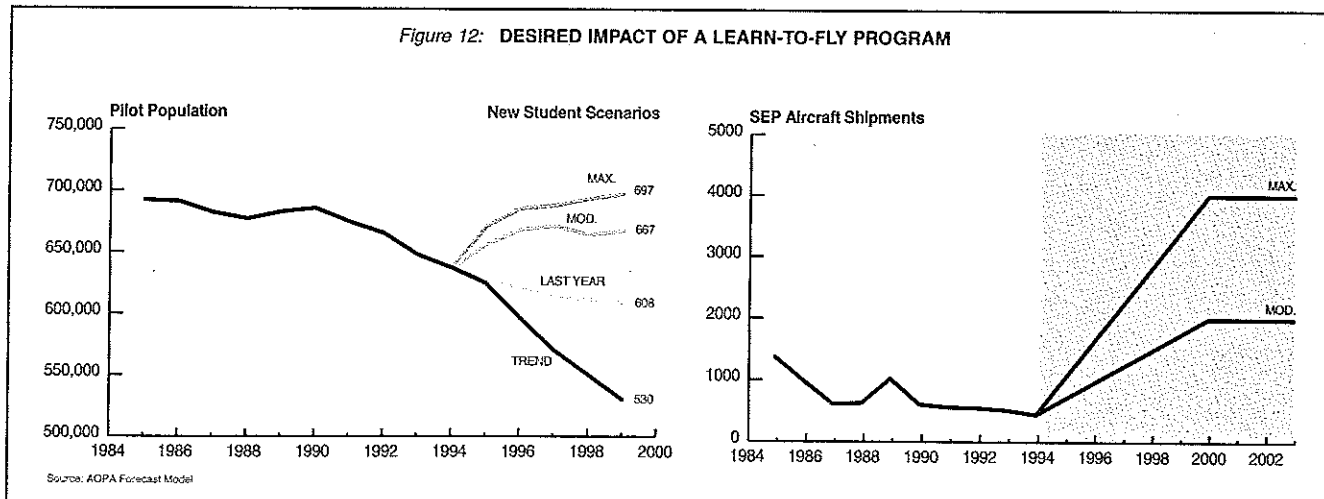
It is a hard reality that a minimum of 100,000 new student pilots per year is required to sustain a stable pilot population, to rebuild our pilot base to a

healthy, growing number, and to create demand for a new fleet of piston-powered airplanes at the same time.

To do that, we need to begin a targeted learn-to-fly promotional program that will help flight schools reach an additional 40,000 to 50,000 student pilots annually—and retain them for the long term.

Also important is the need to retain private pilots—who have been disappearing at the rate of nearly 23 percent annually.

Figure 12: DESIRED IMPACT OF A LEARN-TO-FLY PROGRAM





Recent Efforts are Good Starts

- ▲ *AOPA and EAA efforts are volunteer-oriented*
- ▲ *Impact is positive but narrowly focused*
- ▲ *NATA's test marketing has concluded*

Although admirable, the industry's current learn-to-fly promotional efforts are not having sufficient impact to reverse the decline in the pilot population. NATA's test-marketing of a national learn-to-fly program has concluded and no broad national learn-to-fly program exists today.

The commitment and cost is simply too large for one organization. It requires a unified "theme" that will create synergy among individual efforts to recruit and retain student pilots.

Current programs like the AOPA's Project Pilot, which encourages members to become mentors for prospective pilots—and the EAA Young Eagles program aimed at the 8-12 age group, are focused on the efforts of volunteer members of AOPA and EAA.

Needed: a National Learn-to-Fly Program

A tightly focused effort targeting highly qualified segments of the population will undoubtedly be the most effective vehicle for widening the pilot base.

Recent research (see appendix) done for the PEARC has identified the demographics of potential student pilots having these essential characteristics:

- They can afford to fly**
- They are motivated to learn**
- They have the time to devote to it**

Demographics of the "Very Interested"

- ▲ *Near metropolitan areas*
- ▲ *Many are self-employed*
- ▲ *Those ages 25 to 65 wish to fly for "enjoyment"*
- ▲ *Those under age 25 seek aviation careers*
- ▲ *26 percent are women*
- ▲ *Most prospects earn over \$50,000 per year (household income)*

These prospects are sophisticated consumers who will expect a high degree of customer service and convenience from the moment they call or visit an FBO or flight school. They're used to big ticket purchases and expect sophisticated, informative marketing presentations.



Within the two groups, only 26 percent earn less than \$50,000 a year. The relatively large number of women (26 percent) who are qualified prospects compares to a much smaller percentage of women in the active pilot population—just 7 percent. That means women are a strong prospect sub-group.

Self-employed people have a particularly high interest level, both because of their incomes and the fact that they tend to be more open to new challenges and experiences.

The psychographics of the "most interest" group bears this out. A large percentage want to learn to fly for the "adventure" and "romance" associated with this activity. Their reading preferences tend toward specialty magazines covering "adventure" activities such as motorcycling and SCUBA diving.

These prospects own homes and businesses, computers, cars and golf clubs. They will also demand high-quality in all aspects of their flight training and eventual aircraft ownership. They won't be easy to "close" because they're better shoppers, information seekers and evaluators than ever before.

Changing Inaccurate Prospect Perceptions

- ▲ *Most prospects thought learning to fly cost much more than it actually does*
- ▲ *Most are not aware of basic private pilot license requirements and time needed for training*

A measure of how poorly general aviation is understood among the general population is that, when asked how they perceive the cost and time of learning to fly, 34 percent of the "very interested" thought it cost over \$5,000 to earn a private pilot license.

"Hot Buttons" for Prospective Pilots

It is apparent that these people will respond to marketing themes which awaken them to new possibilities in their lives, such as:

- "Live the dream, learn to fly"*
- "Takeoff on the adventure of a lifetime"*
- "You've always wanted to...just do it!"*
- "Your ticket to adventure"*
- "Fun weekends for family and friends"*
- "Easier and cheaper than you think" and*
- "Mentors available"*



Keys to a Successful Learn-to-Fly Program

A national learn-to-fly program is feasible only if it has broad industry support and is synergistic with existing programs. Obvious participants are those who will be the major beneficiaries of a learn-to-fly program, including (but not necessarily limited to) airframe, avionics and component manufacturers, fuel companies, FBOs and training schools, aviation publishers, aviation associations and other aviation marketers.

These beneficiaries must clearly perceive the true benefits, both short and long-term, of buying into this program. Even more important than the immediate prospect of increased sales must be the realization that long term industry health and growth—indeed, its very survival—depend upon the program's continuing success. For that to happen it will require that:

The Cost Per New Student Pilot is Low

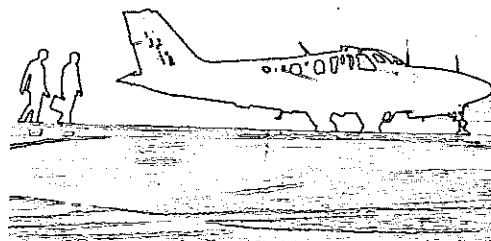
Only the most likely candidates should be targeted, using lower-cost promotion vehicles such as direct mail and, whenever possible, keeping administrative and overhead costs down by using existing association staff.

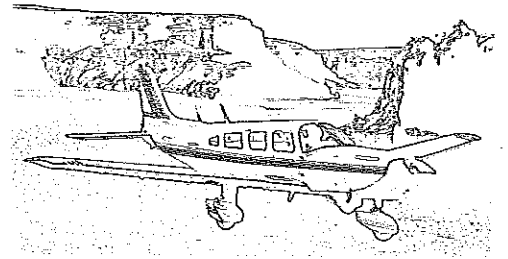
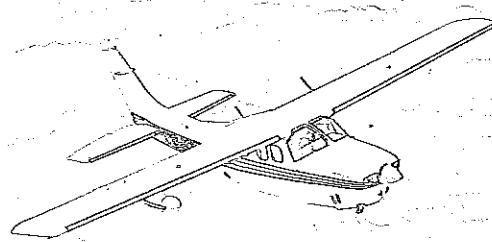
The Program is Focused and Well Managed

- ▲ *Measurable objectives (FAA-provided student pilot licenses issued)*
- ▲ *100,000 new students annually*

Results must be measurable. The basic goals parameter—student start numbers—is available quickly from the FAA, and we have good historic time-lines with which to determine a valid "howgozit."

A reasonable and attainable goal, given the identified potential market, is 100,000 new students annually. This can and will be met by a program having clear accountability and leadership. Participants will direct the program, which will be implemented by a staff to be specifically tasked and seconded.







OTHER KEY DRIVERS OF GROWTH

While a comprehensive, integrated Learn-To-Fly program is pivotal, there are several other keys to growth of the piston-engine aircraft market.

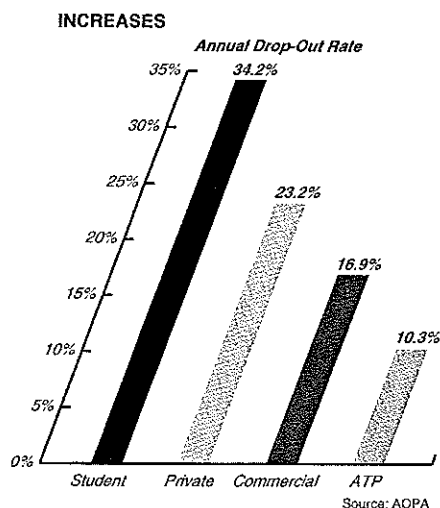
Promoting the Value of General Aviation to the Public and Congress

- ▲ General aviation is a community resource as important as roads and rails
- ▲ Every pilot begins with general aviation
- ▲ Economic prosperity can be found near busy airports

General aviation has a story to tell in every community. Life-saving air ambulances, package express services, business charters, flying entrepreneurs and unique flying vacations can make for good feature and business news.

Particular emphasis should be given to the vital, unique nature of general aviation transportation for small and large communities. Of interest to all audiences is the positive impact of general aviation operations on local economic activity and employment levels. A historical analogy to the development and prosperity of 19th Century communities with rail service, compared to those without it, might be appropriate.

Figure 13:
PILOT DROP-OUT
RATES DECLINE AS
CERTIFICATION LEVEL
INCREASES



Improving Training Effectiveness

Regulatory changes in four basic areas would encourage and simplify pilot training while making it more efficient and relevant to contemporary technology:

Rewrite FAR Parts 61, 141 and 143. FAA has received comments as part of the NPRM process and a coordinated program to this end will be spearheaded by AOPA, NATA and GAMA's Safety Committee.

Revise pilot certification requirements → see Figure 13. These would include self-certification for recreational pilot medicals (if successful, extended to private pilots); reduced minimum time required to begin training for the instrument rating; issuance of a "frozen" air transport pilot (ATP) certificate after a pilot has completed all required training and the ATP checkride, but withhold the privileges of the certificate until the applicant has attained the minimum flight experience.

Simplify flight school certification. Schools would be allowed to obtain one certification applicable to several locations with oversight by a single FAA Flight Standards District Office, and to increase the use of designated flight examiners.



Promote and encourage new training technologies. This could include increased credit for some computer-based training, especially instrument training, and integrating training technology with cockpit technology. For the latter, flight simulation could be done in an actual cockpit, with flight review and critique after an actual flight using flight data recordings.

Selling the Product from the Bottom-Up

- ▲ *Dramatic improvements in FBO/Flight School marketing and sales training is needed*
- ▲ *CFI incentives needed to boost "closing" effectiveness*
- ▲ *Lead handling and customer service improvement needed*

It will be necessary to improve marketing of flight instruction/FBO services and adopt a new customer focus consistent with proven mass marketing "point of sale" techniques. This means that the learn-to-fly promotion is handled in a consistent manner where prospects arrive and receive valuable data and counseling from motivated, trained, certificated flight instructor (CFI) "closers."

Just as salesmen in other fields are motivated by incentives, the CFI must be similarly encouraged. The instructor is the "storefront" for student pilots. But this "salesperson" typically receives little formal training in marketing or customer relations. FBOs could provide increased compensation and recognition to CFIs who make major contributions to "sales."

Prospect and lead follow-up is essential to any sales operation, but surveys show little FBO follow-up of leads on prospective flight students. And when there is follow-up, it is often not effective.

A structured program to provide marketing training for FBOs and CFIs is essential. It would logically consist of seminars reinforced by collateral materials such as manuals and brochures—or become part of every flight school's CFI curriculum.

Continuing to Enhance and Promote Safety

- ▲ *Help promote FAA safety training*
- ▲ *Promote A&P training and recognition*
- ▲ *Promote general aviation's safety record*

Pilot error is the number one safety problem facing general aviation. Most accidents result from poor pilot decisions based on inadequate or incomplete training. Therefore, the industry must better package and distribute FAA research on how to improve pilot decision-making training, and to publicize and promote the effectiveness of existing FAA safety seminar programs.



No less vital is the need to reduce maintenance error by updating initial maintenance technician training to reflect today's technology, to provide more recurrent training for technicians, and to promote recognition and appreciation of the aviation maintenance technicians (AMT) professional status.

Promoting general aviation's strong safety record and correcting misperceptions are fundamental to the success of revitalization.

Improving the Perceived Value of New Aircraft

- ▲ *Performance and safety improvements are needed*
- ▲ *Innovation and certification rules must become mutually inclusive*
- ▲ *The cost of regulation must not exceed benefits*

New aircraft sales success will depend to some degree on closing the perceived price/performance gap between new aircraft and used or experimental/homebuilt aircraft. Ways to do this include publicizing the value of the aircraft certification process in terms of quality and safety, and more rapidly adopting improved technology to make perceived value tangible and obvious.

Simplified FAA regulations and aircraft certification processes can and should be adopted to lower barriers to innovation and reduce costs. The FAA must be encouraged to provide more uniform interpretations of FAR Part 23 (aircraft certification) and to remove regulations where no clear safety issue exists or where regulatory costs exceed benefits. FAA could also delegate more of its certification responsibilities without compromising safety.

Making Other Positive Legislative and Regulatory Changes

- ▲ *Continued access to airports and airways*
- ▲ *Implementing an Airport Improvement Program (AIP) which address general aviation needs*
- ▲ *Onerous new taxes and user fees must not be adopted*
- ▲ *Investment tax credits are needed*

Ensuring continued general aviation access to the airport/airway system.

Means to accomplish this goal would include an adequately funded FAA and Congressional support for a general fund contribution to a strong air transportation system.

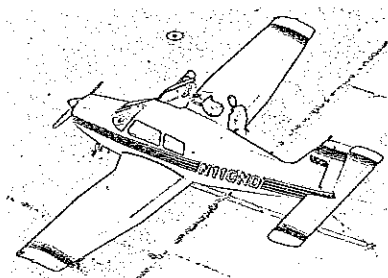
A key to this needed support is a nationally-funded Airport Improvement Program targeting key general aviation airports that provide access to metropolitan areas as well as those providing small communities access to the air transportation system.

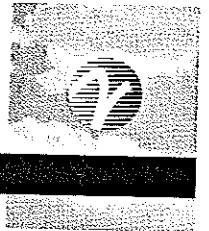
Senate debate continues over equitable aviation taxation without a financial penalty on general aviation's use of the air traffic control (ATC) system. Closely tied to this discussion is the development of a future ATC system to accommodate general aviation without undue cost.



Providing tax and other purchase incentives for general aviation aircraft. The industry must articulate to both legislators and media the importance of restoring targeted Investment Tax Credits for general aviation aircraft used for income producing purposes.

We must also press for aircraft depreciation schedules which fully recognize the ongoing capital investment required to operate an aircraft.





There is a significant opportunity for growth in the piston-powered aircraft industry. After a number of years of industry decline, conditions exist now for an industry recovery.

Thanks to legislation which imposed an 18-year statute of repose on general aviation aircraft manufacturer's liability, widespread optimism is building in the market. Evidence of this optimism is found in many companies which are experiencing increases in production and creating and filling thousands of new jobs.

Although manufacturers are resuming production of existing popular designs, they are incorporating upgraded airframe, engine and avionics technology. The result is overall improvement in the perceived "value" of new aircraft — offsetting higher purchase prices in the eyes of prospective buyers.

With a coordinated and unified action plan, the piston-engine aircraft industry can capitalize on this revitalization opportunity. To that end, PEARC recommends a six-point "blueprint for growth":

- ▲ **Increase the number of student pilots**
- ▲ **Highlight the value of general aviation**
- ▲ **Improve training effectiveness**
- ▲ **Continue to enhance and promote safety**
- ▲ **Improve the perceived value of new aircraft**
- ▲ **Make positive legislative and regulatory changes**

The key driver to achieving sustained growth is increasing the number of pilots. Industry growth depends on the size of the pilot population and increasing the number of student starts is critical to growing the number of pilots. Without changes, the pilot population will dwindle, and could drop dramatically over the next five years.

The PEARC final report concludes that a national learn-to-fly program is the most effective vehicle for stimulating more student starts. A large pool of likely candidates who are very interested in learning to fly has been identified. These prospects have the resources, desire and time to learn. Highly targeted and cost effective marketing messages can be put into place to reach these prospects and compel them to learn to fly.



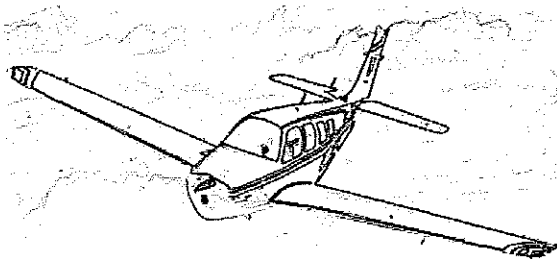
While the learn-to-fly program is a vital element of industry growth, there are several other key drivers. Promoting the value of general aviation to the public and to Congress is essential, as is the need to improve training effectiveness. Of equal importance is the need to improve CFI and FBO marketing and customer focus while continuing to enhance and promote safety. There is a need to close the perceived price/performance gap between new aircraft and used or experimental/home-built aircraft.

In addition, it is necessary to make other positive legislative and regulatory changes to ensure continued general aviation access to the airport/airway system and to provide tax and other purchase incentives for general aviation aircraft.

To reverse the decline of student pilot starts, modernize our aging aircraft fleet and bring improved safety and efficiency to general aviation, all general aviation manufacturers, organizations and consumers must support a unified re-positioning effort.

For industry leadership, the "call to action" for revitalizing the piston-engine aircraft industry is summarized below:

- ▲ *Unified themes and goals must be supported by the entire industry*
- ▲ *Learn-to-fly programs need to begin immediately to take advantage of growth opportunities*
- ▲ *Tailored marketing messages to qualified prospects are needed*
- ▲ *Industry image, safety and efficiency must be improved*



"Survey of Potential Pilots"

Market Research

By Frederick/Schneiders, Inc.
October, 1995

Sponsored by the
Aircraft Electronics Association
Aircraft Owners and Pilots Association
General Aviation Manufacturers Association
National Aeronautics and Space Administration (AGATE)
Sporty's Academy

Sample:

- 7,843 calls
- Between age 25 and 60
- 560 "targets" interviewed

Method:

Telephone

Interview Dates:

September 21 through
October 6, 1995

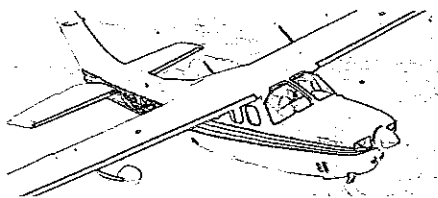
Margin of Sampling Error:

Targets

- Total: $\pm 4\%$
- Men: $\pm 5\%$
- Women: $\pm 8\%$

Survey Highlights

- ① Among the surveyed population between age 25 and 60, 10.5% say they are "very interested" in learning to fly, including 7.1% of the men and 3.7% of the women.
- ① This projects to roughly 1.2 million individuals, including 900,000 men and 300,000 women.
- ① 57% of the targets are between age 25 and 40.
- ① Nearly half say they will likely start flight training within five years.
- ① One-quarter say they will likely buy an airplane within five years of obtaining a license.
- ① Two-thirds say that their main interest in flying is "pure enjoyment;" one-quarter say "personal travel" is most important.
- ① Half say that "lack of time" is the main reason they have not taken up flying; one-third say it is the "lack of money." Men are more likely to cite the "lack of time;" women cite time and money factors equally.
- ① One-third overestimate how long it takes to get a license. More than one-third overestimate the cost of flight training. Seven-in-ten overestimate the hourly cost of renting an airplane.
- ① Traveling at twice the speed of driving, taking weekend adventures, and entertaining family and friends are among the most persuasive recruitment messages with these targets. Being able to get a license in six months, find a mentor, and rent an airplane for \$50 an hour are also very persuasive recruitment messages.
- ① These targets are particularly likely to see themselves as independent, adventurous, take-charge, and competent. They also consider themselves busier than their cohorts.
- ① Bicycling, fishing, boating, and golf are among the activities most popular among these targets. Skydiving, ballooning, and hang gliding are among the least popular activities.
- ① Besides general interest magazines, these targets are particularly likely to read magazines about science and technology, outdoor activities, and automobiles.



COMPARISON OF TARGETS AND NON-TARGETS (By Gender)

	TOTAL		MALE		FEMALE	
	NON	TARGET	NON	TARGET	NON	TARGET
Gender						
Male	51	74	100	100	-	-
Female	49	26	-	-	100	100
Age						
25-29	12	20	13	21	11	16
30-39	32	37	32	38	32	33
40-49	32	27	31	25	33	31
50-60	23	16	22	15	23	18
Income						
< 50	35	39	32	37	37	44
50-75	26	26	27	27	24	23
75-100	12	13	14	15	10	10
100+	8	9	10	10	7	11
Marital Status						
Married	71	62	71	63	71	58
Divorced/Widowed	13	16	11	14	16	21
Single	15	22	18	23	12	21
Children	56	52	52	50	59	55
Self-Employed	21	27	25	29	16	22

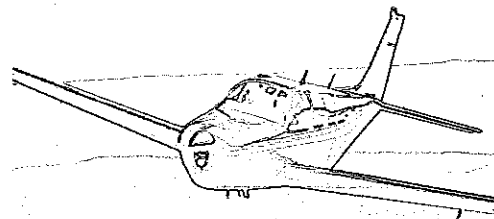
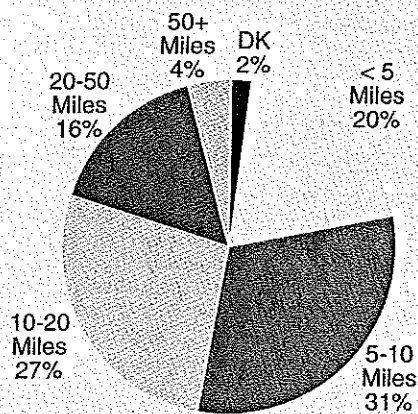
IMPORTANCE OF ROMANTIC AND PRACTICAL ASPECTS OF FLYING
(% Saying "Very Important")

	ROMANTIC	PRACTICAL
TOTAL	49	40
Gender		
Male	49	37
Female	47	49
Age		
25-29	50	32
30-39	49	44
40-49	45	41
50-60	51	38
Income		
< \$50,000	51	35
\$50K-\$75K	58	38
\$75K-\$100K	37	52
\$100K+	35	47
Married		
Yes	47	42
No	52	37
Self-Employed	51	43

MORE LIKELY TO BUY OR RENT?

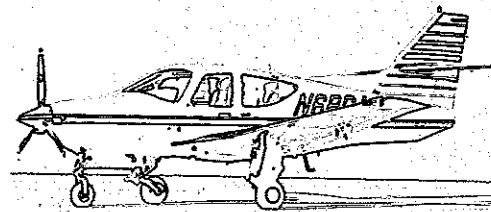
	BUY	RENT
TOTAL	27	67
Gender		
Male	29	66
Female	19	71
Age		
25-29	33	63
30-39	26	65
40-49	26	68
50-60	22	76
Income		
< \$50,000	24	69
\$50K-\$75K	25	72
\$75K-\$100K	26	66
\$100K+	45	50
Self-Employed	37	57
Likely Student	30	65

PROXIMITY OF NEAREST FLIGHT TRAINING



TIME AND COST ESTIMATES

	TOTAL	Gender		Likely Student
		Male	Female	
Training Time				
< 6 months	29	30	27	31
6-12 months	35	36	31	35
1-2 years	23	22	25	21
2+ years	8	6	12	7
Training Cost				
< \$1,000	10	10	9	8
\$1,000-\$3,000	28	28	27	32
\$3,000-\$5,000	28	28	28	30
\$5,000+	28	29	28	27
Hourly Rental				
< \$50	21	24	12	24
\$50-\$100	30	30	28	32
\$100-\$200	23	24	20	22
\$200+	17	12	28	14
Used Airplane				
< \$10,000	13	13	14	13
\$10K-\$30K	41	44	33	43
\$30K-\$60K	16	15	16	15
\$60K+	18	19	13	19



FACTORS THAT WOULD MAKE TARGETS MUCH MORE INTERESTED IN LEARNING TO FLY

	TOTAL	Gender		Likely Student
		Male	Female	
Fly at twice speed of driving	44	43	45	48
Weekend adventures	43	41	50	46
License in 6 months	42	41	44	46
Mentors available	42	41	44	47
Entertain family/friends	42	41	45	47
Rent for \$50/hour	41	37	52	39
Recreation license for less	34	34	34	37
Make friends	32	30	36	37
Safer than biking	32	31	35	34
Airplane clubs	32	33	31	36
High self-esteem	29	28	32	30
Career	23	24	21	24
Learning cost \$3,500	21	20	26	26
Used plane cost \$30K	18	18	16	21

LIKELIHOOD OF BEGINNING FLIGHT TRAINING IN NEXT FIVE YEARS

	TOTAL	VERY
TOTAL	45	16
Region		
Northeast	34	13
Midwest	43	20
South	42	13
West	62	19
Gender		
Male	46	15
Female	42	18
Age		
25-29	48	17
30-39	48	17
40-49	45	16
50-60	34	12
Income		
< \$50,000	38	11
\$50K-\$75K	45	18
\$75K-\$100K	55	17
\$100K+	49	19
Married		
Yes	42	16
No	52	17
Self-Employed	53	18

FIRST INTEREST IN FLYING

	TOTAL	Gender		Likely
		Male	Female	Student
Child	40	43	34	42
Teenage	34	35	32	32
Adult	25	22	34	26

WHO FIRST INTERESTED YOU IN FLYING?

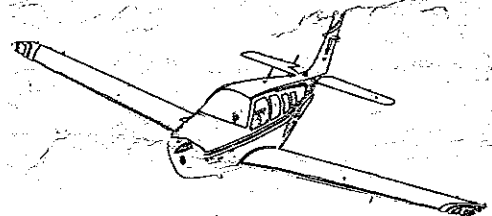
	<u>Gender</u>			Likely
	TOTAL	Male	Female	Student
Friend	26	26	28	28
Relative	20	18	27	21
Other	37	39	30	34

VOLUNTEERED REASON FOR WANTING TO LEARN TO FLY

	TOTAL	Gender		Likely
		Male	Female	Student
Main Reason				
Fun	35	33	40	32
Always Wanted to	25	26	22	28
Adventure	12	11	15	11
Transportation	5	4	6	5
Career	3	3	2	3

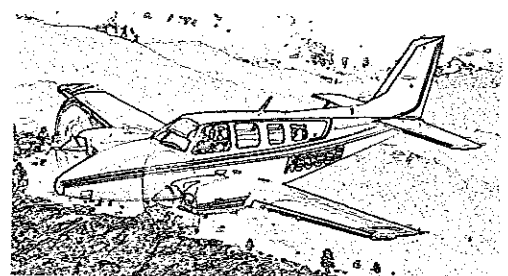
CHARACTERISTICS THAT TARGETS SAY APPLY TO THEM

	TOTAL	Gender		Likely Student
		Male	Female	
Independent	71	71	71	77
Busy	68	70	63	69
Adventurous	67	69	63	73
Take-Charge	66	69	60	70
Competent	64	66	59	69
Family-Oriented	58	58	59	58
Happy	57	57	56	59
Secure	56	59	45	60
Technical	55	60	41	62
Risk-Taker	53	54	52	59
Successful	50	54	40	52
Bored	16	15	17	17



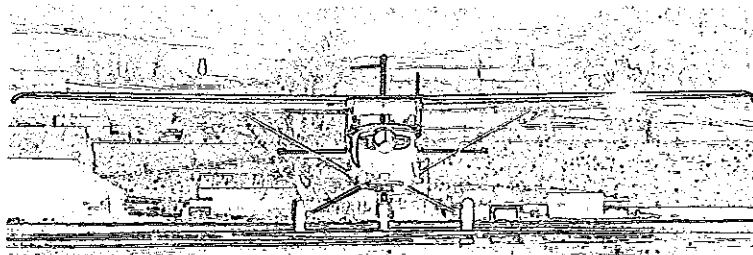
TARGET'S PARTICIPATION IN OTHER ACTIVITIES

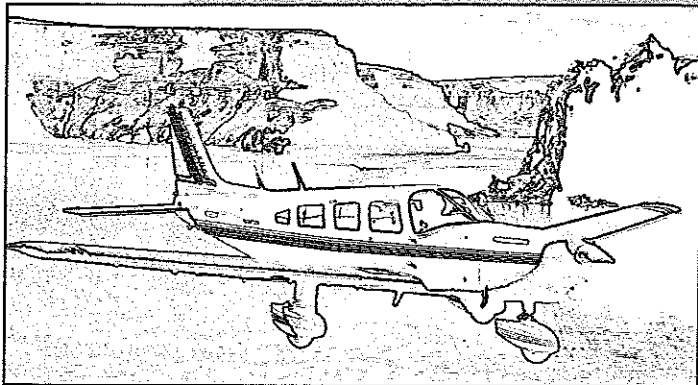
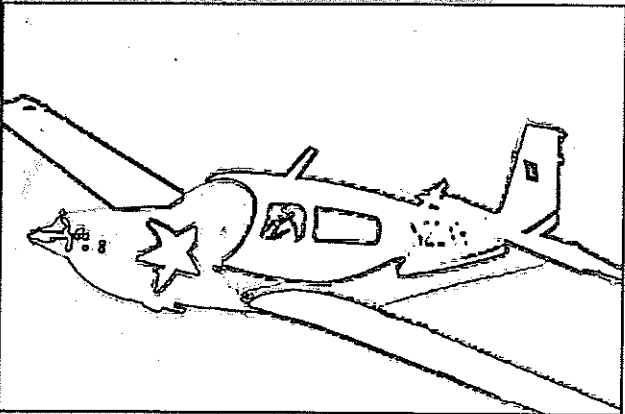
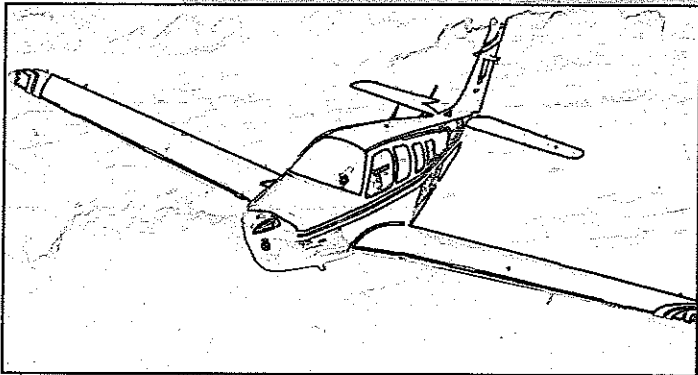
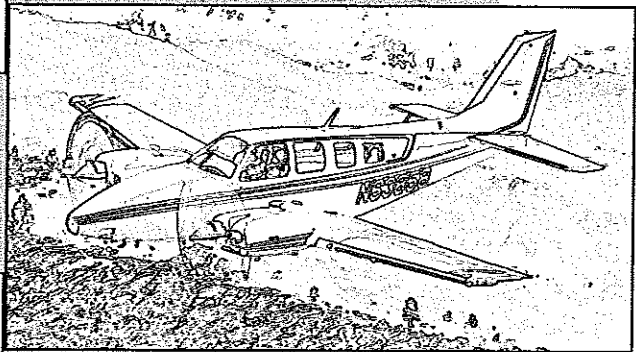
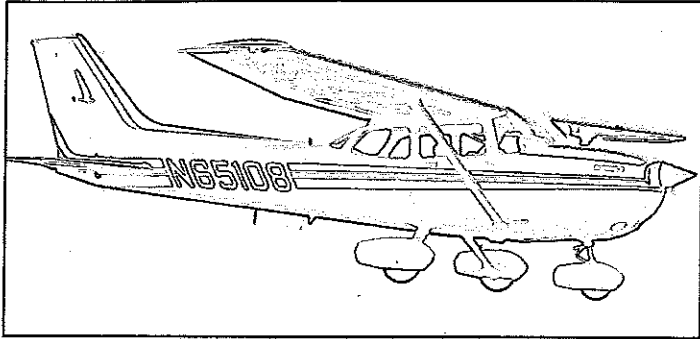
	TOTAL	Gender		Likely Student
		Male	Female	
Independent				
Bicycling	64	62	70	68
Fishing	59	64	46	61
Boating	55	56	51	64
Golf	40	45	26	44
Backpacking	39	39	37	46
Water-skiing	35	38	27	41
Tennis	31	31	32	32
Motorcycling	29	32	19	32
Scuba Diving	29	23	18	29
Mountain Climbing	21	21	20	24
RV Touring	19	18	19	22
Auto Racing	18	19	14	17
Skydiving	9	8	9	12
Ballooning	5	4	8	7
Hang Gliding	4	4	4	5



Summary Analysis

- ⑦ These results are encouraging. There is a high level of interest among this population.
- ⑦ We don't know from this survey whether there is a comparable level of interest at other income levels. The universe of targets could be much larger than 1.2 million.
- ⑦ Women present a real opportunity for expanding the universe of pilots.
- ⑦ The barriers to men and women are different. Men are likely to have more money and less time to learn to fly; women have more time but less money. Both are likely to overestimate the time commitment and cost of flying.
- ⑦ While these targets are primarily interested in the romantic aspects of flying, many also recognize the practical advantages of holding a pilot's license.
- ⑦ A recruitment campaign should be targeted to those interested in scientific/technical and outdoor activities.
- ⑦ Among other factors, the message should stress the ease of learning to fly and the adventure/fun that it can provide the pilot as well as family and friends.
- ⑦ The appeal should be directed toward independent, adventurous, take-charge, competent individuals.





Dear Industry Supporter:

The piston-powered aircraft segment of general aviation has long been the foundation of our entire industry. But for more than 16 years, this segment was in decline. Then, when the General Aviation Revitalization Act was signed into law in August, 1994, a unique opportunity for growth was presented. Almost overnight, this legislation, which imposed an 18-year statute of repose on general aviation aircraft manufacturer's liability, positively changed the outlook for the piston-powered aircraft industry. And thus, a new era had begun.

The GAMA Board of directors realized that without a comprehensive revitalization plan, however, the full opportunities of this new era might not be realized. We must understand the industry's history and how it has changed, learn from this history, and construct a rational, coordinated plan for the future—our future. To undertake this task, GAMA formed the Piston-Engine Aircraft Revitalization Committee (PEARC), chaired by Greg Summe, president of AlliedSignal Engines, and a member of the GAMA Board.

To assist Mr. Summe, GAMA companies dedicated some of their leading experts in marketing, design and manufacture of piston-powered airplanes. Then, GAMA invited the participation of other industry groups and organizations who also had experience and interest in this revitalization effort. Their support and participation was invaluable.

Over a period of 12 months, this broad-based group of experts dedicated hundreds of hours to the effort now presented in this final PEARC report. It is the most comprehensive examination of the piston-engine aircraft industry ever undertaken. It is an essential blueprint for revitalization. But it is not a plan for any single organization or company—it is a plan for an industry. Your industry. Without a broad, coordinated effort in a task of this magnitude, the industry will never reach its full potential.

Our challenge now is to implement this blueprint for growth. With our industry and government partners, GAMA stands ready.

Sincerely,



Horst Bergmann

**Chairman, General Aviation Manufacturers Association
Chairman, President & CEO, Jeppesen**





GAMA

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Manufacturers Association***

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