CHAPTER V

GENERAL AVIATION

The term "general aviation" is used to describe a diverse range of aviation activities and includes all segments of the aviation industry except commercial air carriers (including commuter/ regional airlines) and military. Its activities include training of new pilots and pilots interested in additional ratings or certification, sightseeing, movement of large heavy loads by helicopter, flying for personal or business/corporate reasons, and emergency medical services. Its aircraft range from the one-seat single-engine piston aircraft to the long-range corporate jet, and also include gliders and amateur-built aircraft.

General aviation is an important part of both the aviation industry and our national economy. It provides on-the-spot efficient and direct aviation services to many medium and small sized communities that commercial aviation cannot or will not provide. In addition, the production and sale of general aviation aircraft, avionics, and other equipment, along with the provision of support services such as maintenance and repair, flight schools, fixed base operators, finance, and insurance, make the general aviation industry an important contributor to our nation's economy.

According to a study[1] published in 2002, general aviation made the following contributions to the U.S. economy in 2000:

- General aviation directly generated $13.7 billion in GDP and 178,000 jobs.
- General aviation's total impact (including indirect and induced impact) is $40.7 million in GDP (0.4 percent of total GDP) and 511,000 jobs.

REVIEW OF 2002/2003

It has been 9 years since the passage of the General Aviation Revitalization Act of 1994 (GARA) and all indications are that the Act is accomplishing its purpose. The industry, hurt by rising product liability costs, had gone from producing a high of almost 18,000 aircraft in 1978 down to only 928 aircraft in 1994. The decline in production had also resulted in the loss of 100,000 jobs in the industry. The success of GARA can be measured by resurgence in the demand of general aviation products and services witnessed since its passage.

However, the last 3 years have proved to be difficult ones for general aviation. The steep rise in the price of aviation fuels and the general weakness of the U.S. economic recovery have combined to reduce the demand for the general aviation products and services, in particular, the high end business jets. In addition, some the

[1] *The National Economic Impact of Civil Aviation, July 2002, DRI-WEFA, A Global Insight Company*

adverse affects of the events of September 11th also continue to impact the industry, most notably, the restriction of general aviation aircraft at Washington National Airport.

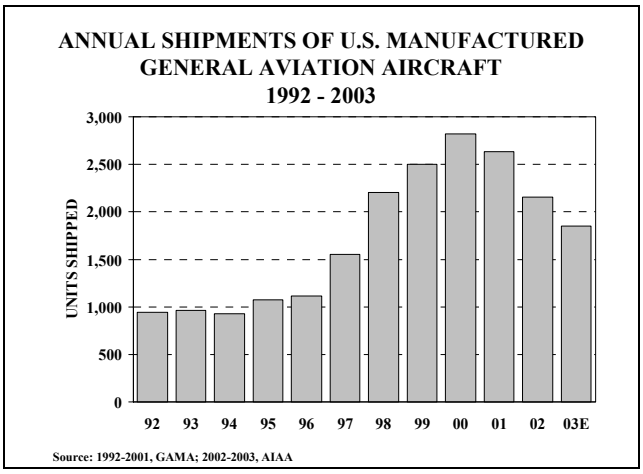
However, promise in the future is evidenced by the general aviation industry's development, production, and introduction of new general aviation products and services. Much of the improved demand for general aviation products prior to September 11th was for aircraft at the higher priced end of the general aviation fleet--turbine powered aircraft--and is due, in large part, to the rapid growth experienced by fractional ownership companies. Dollars spent on research and development is advancing avionics and computer technology. These advances are not only expected to improve general aviation safety, but are intended to make it easier to learn how to fly. Of course, without pilots to fly the planes there would be no industry. To stimulate growth in the pilot population, the industry is heavily promoting flying with "learn to fly" programs. Industry programs also assist teachers in bringing aviation into the classroom with the hope of encouraging students to pursue careers in aviation.

What follows is a review of the industry's performance during 2002 and 2003. This period began with indicators moving in a negative direction, owing in large part to the 2001 U.S. economic recession and slow recovery thereafter, as well as from the lingering effects of the events of September 11th. However, general aviation's performance has not been entirely negative, there are some segments of the industry and/or statistics that still point to positive results. The hope is that those segments experiencing positive results will create a foundation on which the entire general aviation industry can plan and build on for the foreseeable future.

AIRCRAFT SHIPMENTS AND BILLINGS

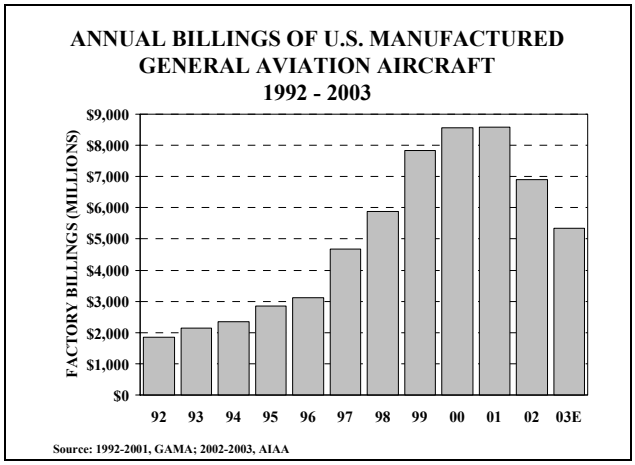
According to statistics released by the General Aviation Manufacturers Association (GAMA) shipments of general aviation aircraft are declining for a third consecutive year in 2003**.** General aviation shipments by U.S. manufacturers totaled 1,395 units during the first 3 quarters of the year, a decrease of 8.7 percent over the same period in 2002**.** Shipments declined for two of the three aircraft categories: turboprops, from 118 to 103 (down 12.7 percent) and business jets, from 379 to 259 (down 31.7 percent). Shipments of piston aircraft remained level--1,031 in 2002 and 1,033 (up 0.2%) in 2003. The resilience of the piston aircraft market provides some hope that new aircraft models are generating interest in the low end of the market for general aviation aircraft.

Sales of general aviation aircraft manufactured outside the United States did not fare much better in 2003. Foreign manufacturers delivered a total of 207 aircraft during the first 9 months of the year, a decline of 13.4 percent over the same period in 2002.



According to GAMA reports, billings for U.S. manufactured general aviation aircraft totaled $4.23 billion for the first 9 months of 2003, a decline of 21.6 percent from the corresponding 2002 figure. Foreign manufacturer's billings totaled $2.2 billion during the same period, a decline of 29.2 percent from 2002.

In its year-end review and forecast[2], the Aerospace Industries Association (AIA) estimates that general aviation aircraft shipments will total 1,853 for the full year 2003, a decline of 15.9 percent from 2002 shipments. In addition, AIA estimates that the value of these aircraft will total $5.4 billion, a decline of 27.2 percent from 2002. If this prediction holds, this will mark the third consecutive yearly decline in billings.



A number of new product offerings could stimulate the market in future years. Among these is the advent of light sport aircraft.

PILOT POPULATION

At the end of 2003, the pilot population totaled 625,011, a decline of almost 8,000 (down 1.2 percent) from 2002. The three strictly general aviation groupings (Student, Private, Commercial) totaled 452,331 (down 1.1 percent) and accounted for 72.4 percent of all certificated pilots.

The number of active student pilots for 2003 is 87,296, an increase of 1.5 percent over 2002 and the first recorded increase in this pilot category since 1999.[3] The general aviation industry continues to promote a number of on-going initiatives aimed at increasing the number of student pilots since they are seen as the future of general aviation. The industry's efforts to sustain and increase the market for its products and services will, in large part, depend on how successful its programs are in attracting new pilots. An increase in student pilots may not only be generated by those seeking private pilot certificates for personal enjoyment, but also for those seeking careers in aviation.

The number of private pilots totaled 241,045 (down 1.7 percent) in 2003 while the number of commercial pilots totaled 123,990 (down 1.5 percent). The number of airline transport pilots (143,504) declined 0.8 percent in 2003, the first recorded decline in this pilot category in 46 years.

The number of helicopter pilots (those holding helicopter certificates only) increased 1.9 percent in 2003 to 7,916. The number of glider (only) pilots and recreational pilots totaled 20,950 and 310, respectively, in 2003.

The number of instrument-rated pilots (315,413) decreased 0.6 percent in 2003. Instrument-rated pilots are currently 58.7 percent of total active pilots (excluding student and recreational pilots), up from 58.1 percent in 2002.

ACTIVITY AT FAA AIR TRAFFIC FACILITIES

General aviation activity at combined FAA and contract towered airports declined by 5.3 percent in fiscal year 2003. This decline was fairly evenly distributed between itinerant and local operations. General aviation operations at FAA towers eclined 6.3 percent, while operations at contract towers decreased 4.3 percent.

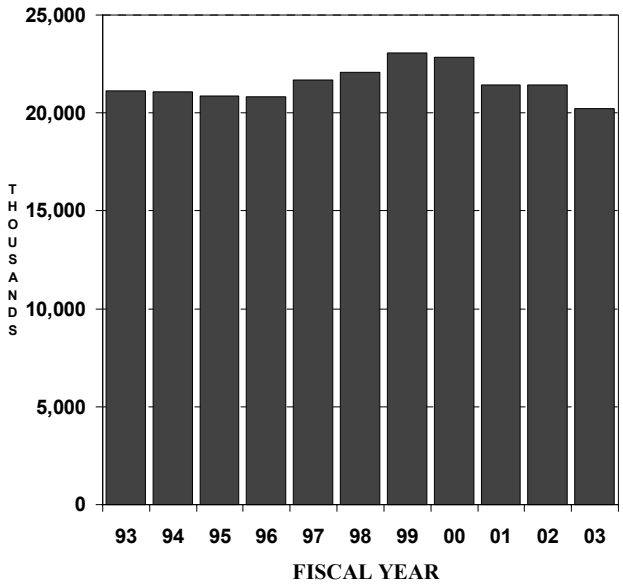
In fiscal year 2003, operations at the top 10 general aviation airports totaled 3.3 million, a

[2] 2003 Year-End Review and 2004 Forecast, December 2003, Aerospace Industries Association of America

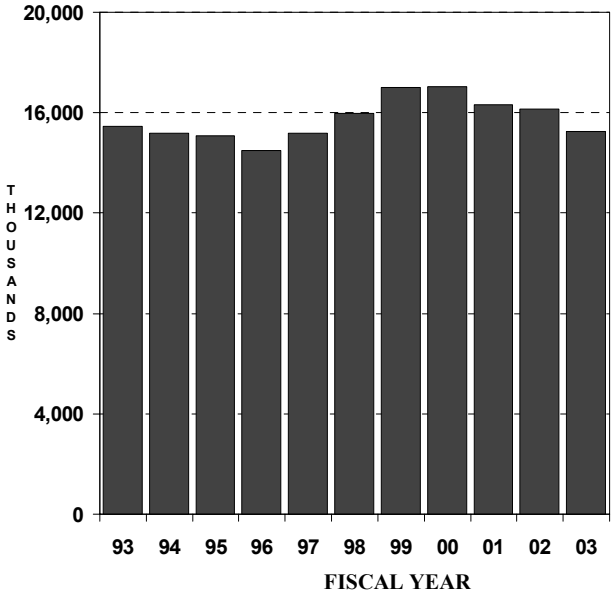
[3] Student Pilot numbers for the years 1999-2001 represent estimates discussed and approved by the Light General Aviation Panel at the 12th FAA/TRB International Workshop on Future Aviation Activities (September 2002).

GENERAL AVIATION ACTIVITY

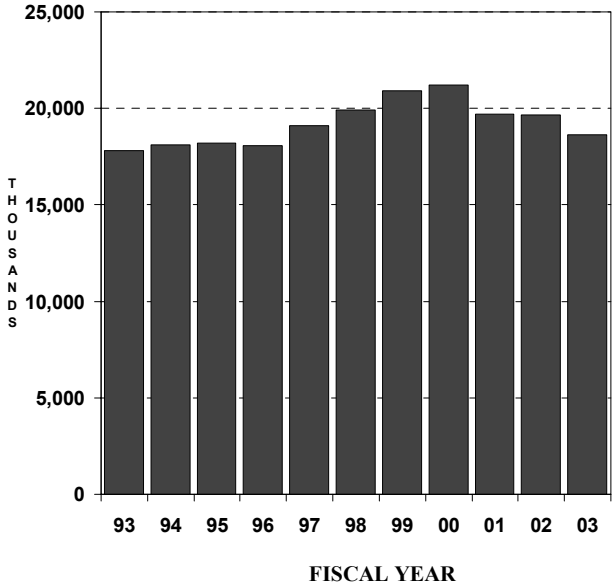
ITINERANT AIRCRAFT OPERATIONS (FAA AND CONTRACT TOWERS)



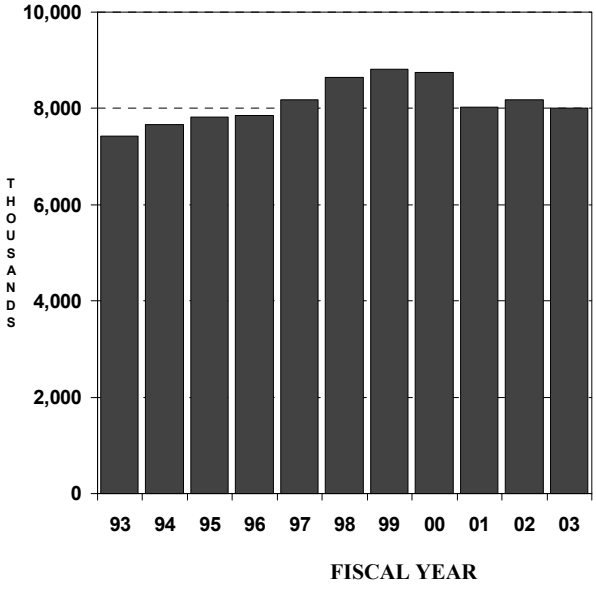
LOCAL AIRCRAFT OPERATIONS (FAA AND CONTRACT TOWERS)



INSTRUMENT OPERATIONS (FAA AND CONTRACT TOWERS)



IFR AIRCRAFT HANDLED AT FAA AIR ROUTE TRAFFIC CONTROL CENTERS



decline of 4.9 percent from 2002. These 10 airports, as ranked by total general aviation operations, accounted for 9.4 percent of general aviation activity at the 484 combined FAA/contract towers, and 5.2 percent of total aircraft activity at FAA towered airports. Of the top 10 airports, three are in Arizona, two are in California, two are in Florida, and Colorado, Oklahoma and North Dakota each have one. Only two of the top 10 airports experienced an increase in operations in 2003.

The 10 fastest growing general aviation airports, as ranked by the percentage increase over fiscal year 2002, grew from a combined total of 211,941 general aviation operations in 2002 to 374,238 in 2003, an increase of 76.6 percent. The three airports with the largest percentage increase in 2003 were Victorville in California, (up 158.4 percent), Jacksonville/Cecil Field in Florida (up 149.4 percent), and Stillwater Municipal in Oklahoma (up 138.8 percent).

TABLE V-1

FASTEST GROWING GENERAL AVIATION AIRPORTS RANKED BY % CHANGE IN OPERATIONS FISCAL YEAR 2002-2003

Fac. Id.	City/Airport	2003	2002	% Ch. 02-03
VCV	Victorvillle	40,772	15,781	158.4
VQC	Jacksonville/Cecil Field	27,151	10,886	149.4
SWO	Stillwater Municipal	58,614	24542	138.8
CWF	Lake Charles/Chennault	24,838	10,548	135.5
FCA	Kalispell	34,219	19,514	75.4
CNW	Waco James Connally	48,609	31,839	52.7
IDA	Idaho Falls/Fanning Field	34,459	23,820	42.3
OXC	Waterbury-Oxford	54,352	38,199	30.3
ENA	Kenai Municipal	32,968	23,685	39.2
STX	Christiansted (St. Croix)	18,256	13,127	39.1

None of the fastest growing airports made the list of top 100 general aviation airports as ranked by operations. The highest ranking was Stillwater Municipal at 222nd.

General aviation instrument operations at combined FAA and contract tower airports totaled 19.7 million (down 5.2 percent), the third consecutive year of declining activity. Prior to 2001, general aviation instrument operations had recorded increased activity levels in 6 of 7 years, with activity gains totaling 19.2 percent over the period.

The number of general aviation aircraft handled at en route centers (8.0 million) was down 2.2 percent in 2002. Despite the overall decline in recorded en route activity, there are some positive indicators for general aviation. Oceanic departures and over flights were up 10.9 and 5.7 percent, respectively, in 2003. These statistics lend some credibility to those in the industry that contend that international business travelers are increasingly turning from commercial aircraft to business/corporate jets for security reasons.

2002 GENERAL AVIATION AND AIR TAXI ACTIVITY SURVEY

The historical general aviation active fleet and hours flown discussed in this and Chapter VI (Helicopters) are derived from the General Aviation and Air Taxi Activity (and Avionics) Survey (hereafter referred to as the GA Survey). This survey is conducted annually by the FAA's Office of Aviation Policy and Plans, Statistics and Forecast Branch. The fleet data are estimated using a stratified sample from the FAA's Aircraft Registry. The results of the 2002 survey for active fleet and hours flown, by aircraft type for the period 1997 to 2002, are detailed in Tables V-2 and V-3 which appear later in this chapter.

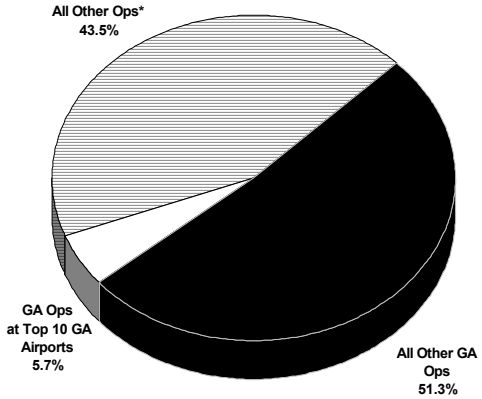
The 2002 survey results for active general aviation aircraft, collected during 2002, are reported as of December 31, 2002. The 2002 survey results for hours flown, collected during 2002, are reported as calendar year (CY) 2002.

As in any sample survey, variability could be caused by traditional sampling error and by nonsampling errors. With small groups (such as rotorcraft, turbojets, etc.), the estimates are

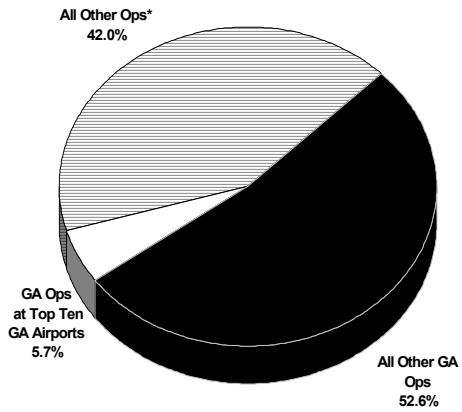
LARGEST GENERAL AVIATION AIRPORTS RANKED BY FY 2003 AIRCRAFT OPERATIONS

Facility ID	City/Airport	2003	2002
VNY	Van Nuys	457,691	482,960
DVT	Phoenix-Deer Valley Municipal	377,915	390,287
SFB	Orlando/Sanford	370,523	372,144
DAB	Daytona Beach International	329,636	349,210
APA	Denver/Centennial	325,529	381,256
PRC	Prescott/E A Love Field	307,484	334,053
LGB	Long Beach/Daugherty Field	303,238	328,952
RVS	Tulsa/Riverside	298,399	323,551
GFK	Grand Forks International	277,348	270,596
FFZ	Mesa/Falcon Field	272,312	259,091
	Operations -- Top 10 GA Airports	3,320,075	3,492,100
	Total GA Operations	35,475,337	37,653,133

PERCENT OF AIRCRAFT OPERATIONS BY TYPE OF AIRCRAFT OPERATIONS



2003



2002

*Includes air carrier, air taxi/commuter, and military operations.

heavily influenced not only by the number of respondents, but also by who responds. For example, if a large operator with high utilization rates for a particular aircraft type responds to the survey in one year but not the next, the effect would be to reduce the activity estimates for that particular aircraft type. This would happen even if that operator had no change in activity for that particular year.

To improve the response rate, the survey is accompanied by a letter with the logos of eight general aviation associations indicating that they value the results and endorse the survey. The survey packet also states that that the "responses are completely confidential and will be used for statistical tabulation only." This is thought to have improved the quality of the responses, i.e., respondents were more likely to report their true activity rather than reporting that the aircraft did not fly during the past year. The usable response rate has remained above 50 percent although in recent years the number of postmaster returns, due to incorrect addresses in the Aircraft Registry, has reduced the response rate. However, a separate project has been undertaken to reduce the number of postmaster returns.

Several changes have been made to the survey over the years and these changes have resulted in some discontinuities in the historical series. For a description and discussion of changes to the surveys conducted prior to 2001, please refer to previous year's forecast publications.

It has also been necessary to revise the estimates for hours flown for the years 1999 to 2001 to correct for data processing errors. These adjustments are reflected in Table V-3 and the forecasts contained in Table 32 (Chapter X).

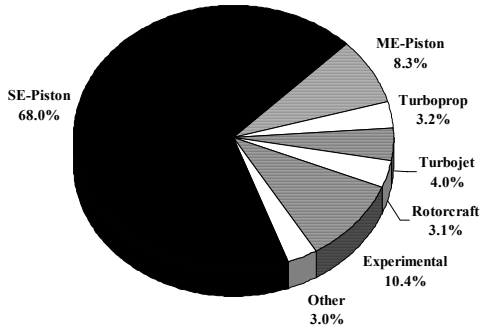
Since one of the most critical uses of the GA Survey results is in the estimation of General aviation aircraft utilization--annual hours flown per aircraft--the 2000-01 GA Survey samples were allocated so as to improve the precision of the hours flown estimates, i.e., to minimize the variability in the estimates of hours flown.

ACTIVE AIRCRAFT

Based on the results of the 2002 GA Survey, there are an estimated 211,244 active general aviation aircraft[4], a decrease of 203 active aircraft compared to 2001. The 2002 estimate represents the third consecutive year of recorded decline following 5 consecutive years of growth. However, the 2002 figure is still 9.8 percent higher than the 1997 figure of 192,414 active aircraft.

Single-engine piston aircraft continue to dominate the fleet in 2002, accounting for 67.9 percent of the total active fleet. The next largest groups are experimental aircraft (10.4 percent) and multi-engine piston (8.3 percent). Turbojets, turboprops and rotorcraft make up relatively small shares of the active fleet, accounting for 4.0, 3.2, and 3.1 percent, respectively.

ACTIVE GENERAL AVIATION AIRCRAFT PERCENT BY AIRCRAFT TYPE IN 2000



The 2002 GA Survey results for individual aircraft categories are as follows:

- The number of active fixed-wing piston aircraft totaled 161,087, down 1.4 percent;
  - single-engine pistons decreased from 145,034 to 143,503, down 1.1 percent; and
  - multi-engine pistons decreased from 18,281 to 17,584, down 3.8 percent.

[4] An active aircraft is an aircraft flown at least one hour during the survey calendar year – i.e., one hour in 2002.

- The number of active fixed-wing turbine aircraft totaled 15,196, up 5.7 percent;
  - turboprops increased from 6,596 to 6,841, up 3.7 percent; and
  - turbojets increased from 7,787 to 8,355, up 7.3 percent.

- The active rotorcraft fleet totaled 6,648, down 2.0 percent;
  - turbine-powered rotorcraft decreased from 4,491 to 4,297, down 4.3 percent; and
  - piston-powered rotorcraft increased from 2,292 to 2,351, up 2.6 percent.

- Active experimental aircraft totaled 21,936, up 7.4 percent;
  - Amateur-builts increased from 16,736 to 18,168, up 7.9 percent,
  - exhibition aircraft increased from 2,052 to 2,190, up 6.3 percent, and
  - other experimental aircraft decreased from 1,633 to 1,578, down 3.5 percent.

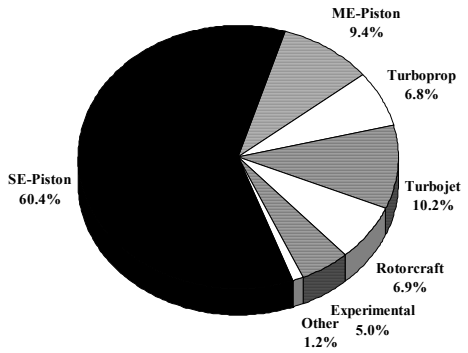
- The "other aircraft" category decreased from 6,545 to 6,377, down 2.6 percent;
  - gliders increased from 1,904 to 1,951, up 2.4 percent, and
  - lighter-than-air aircraft decreased from 4,641 to 4,426, down 4.9 percent.

HOURS FLOWN

Based on the results of the 2002 GA Survey, the hours flown by general aviation aircraft totaled 27.3 million, basically flat compared to the adjusted flight hours for 2001.

The combined flight hours of three aircraft categories—turboprops, turbojets, and rotorcraft--account for nearly 23.9 percent of total hours flown, but only 10.3 percent of the active fleet. This disproportionate share is largely due to higher utilization rates among these aircraft types.

ACTIVE GENERAL AVIATION AIRCRAFT PERCENT HOURS FLOWN 2002



The 2002 Survey results for the individual aircraft categories are as follows:

- Hours flown by fixed-wing piston aircraft (70.0 percent of total hours flown) totaled 18.9 million, a decrease of 1.6 percent;
  - single-engine piston hours (16.3 million) were down 1.4 percent, and
  - multi-engine piston hours (2.6 million) decreased by 3.0 percent.

- Hours flown by fixed-wing turbine aircraft totaled 4.6 million hours, an increase of 3.8 percent;
  - hours flown by turboprops were up 4.3 percent, and
  - hours flown by turbojets were up 3.4 percent.

- Rotorcraft hours flown (1.9 million) were down 3.9 percent from 2001;
  - turbine-powered rotorcraft flew 1.4 million hours (down 3.9 percent), and
  - piston-powered rotorcraft flew 0.5 million hours (down 4.2 percent).

- The number hours flown by experimental aircraft (1.3 million) increased by 16.2 percent in 2002.

ACTUAL USE OF AIRCRAFT

In recent years, a number of new use categories have been added to the Survey, and have resulted in some discontinuities in the historical use series. A public use category was added to the Survey in 1996. The 1999 Survey added a new use category—Air Medical Services—and eliminated the catchall "Other" category.

Personal (11.0 million hours) and instructional flying (4.2 million) were the two largest uses of general aviation activity in 2002, accounting for 56.2 percent of all hours flown by actual use.

Business (3.3 million) and corporate (3.3 million) flying were the third and fourth largest uses for general aviation in 2002, accounting for 23.9 percent of total hours flown.

Hours flown by other use categories in 2002 include: aerial observation (1.4 million); air taxi (1.4 million); and aerial application (1.2 million). External load, other work, sightseeing and air tours accounted for a combined 2.8 percent of total hours while the recently added Air Medical Services category (441,000 hours) accounted for 1.6 percent of general aviation activity.

GENERAL AVIATION AS AN INDUSTRY

General aviation continues to be a vital part of aviation in the United States. At year-end 2003, there were 19,576 civil and joint use airports/heliports/seaplane bases in operation, with 5, 286 available for public use. Of these 510 airports were classified as commercial service (also used by general aviation). This leaves a total of 19, 066 airports/heliport (97.4 percent) used almost exclusively by general aviation aircraft, with 4,776 available for public use.

In addition, general aviation accounts for the largest number of civil aircraft in the United States and accounts for the majority of operations handled by towered and non-towered U.S. airports, as well as for the majority of certificated pilots in the U.S.

In 2002, there were over 218,915 active civil aircraft in the United States. This includes 211,244 active general aviation aircraft (over 96.5 percent of the active fleet), nearly 5,175 large passenger and cargo jet aircraft, and over 2,496 regional/commuter aircraft (including regional jets).

Of the 625,011 active certificated pilots at the end of 2003, private pilots accounted for 38.6 percent of the total. In addition, it is estimated that general aviation itinerant and local operations totaled 88.8 million in fiscal year 2002, 72.6 percent of the total 122.3 million operations at towered and nontowered U.S. airports.[5]

REALISM IN THE INDUSTRY

August of 2003 marked the 9th year since the passage of the General Aviation Revitalization Act (GARA). Despite the recent downturn, general aviation shipments have more than doubled while billings have more than tripled during this period. The General Aviation Manufacturers Association (GAMA) estimates that more than 25,000 manufacturing jobs had been created in the general aviation industry as a result of GARA. However, the 2001 economic recession, combined with the lingering effects of the events of September 11th, resulted in the loss of some jobs in general aviation manufacturing.

The strength of general aviation's recovery and the positive outlook throughout the industry has been seriously challenged by the U.S. economic recession and relatively weak recovery. Whether GARA, which brought product liability reform to the industry, and the introduction of new aircraft models will be enough to see the industry through these uncertain times is difficult to predict at this time.

[5] FAA Terminal Area Forecasts

TABLE V-2

GENERAL AVIATION ACTIVE AIRCRAFT BY AIRCRAFT TYPE

(In Thousands)

AIRCRAFT TYPE	2002	2001	2000	1999	1998	1997
Fixed Wing - Total	**176.3**	**177.7**	**183.3**	**184.7**	**175.2**	**166.8**
Piston -- Total	**161.1**	**163.3**	**170.5**	**171.9**	**163.0**	**156.1**
One Engine	143.5	145.0	149.4	150.9	144.2	140.0
Two Engine	17.5	18.2	21.0	20.9	18.7	15.9
Other Piston	0.1	0.1	0.1	0.1	0.1	0.1
Turboprop -- Total	**6.8**	**6.6**	**5.8**	**5.7**	**6.2**	**5.6**
Single Engine	1.1	1.0	0.7	1.0	1.0	0.7
Two Engine	5.7	5.6	5.0	4.6	5.1	4.9
Other Turboprop	0.0	0.0	0.0	0.0	0.1	0.0
Turbojet -- Total	**8.4**	**7.8**	**7.0**	**7.1**	**6.1**	**5.2**
Two Engine	7.7	7.0	6.2	6.4	5.5	4.6
Other Turbojet	0.7	0.8	0.8	0.7	0.6	0.5
Rotorcraft -- Total	**6.6**	**6.8**	**7.2**	**7.4**	**7.4**	**6.8**
Piston	2.4	2.3	2.7	2.6	2.5	2.3
Turbine	4.3	4.5	4.5	4.9	4.9	4.5
Single Engine	3.6	3.6	3.8	4.0	4.0	3.8
Multi-engine	0.6	0.8	0.7	0.8	0.8	0.8
Other -- Total	**6.4**	**6.5**	**6.7**	**6.8**	**5.6**	**4.1**
Experimental -- Total	**21.9**	**20.4**	**20.4**	**20.5**	**16.5**	**14.7**
Total All Aircraft	**211.2**	**211.4**	**217.5**	**219.4**	**204.7**	**192.4**

SOURCE: 1996 - 2001 General Aviation Activity and Avionics Surveys.

1/ Estimates have been revised to reflect changes in edit and estimation procedures,

TABLE V-3

TOTAL GENERAL AVIATION HOURS FLOWN BY AIRCRAFT TYPE

(In Thousands)

AIRCRAFT TYPE	2002	2001*	2000	1999	1998	1997
Fixed Wing - Total	**23,486**	**23,620**	**26,986**	**27,444**	**24,392**	**24,111**
Piston -- Total	**18,891**	**19,194**	**22,199**	**22,895**	**20,402**	**20,743**
One Engine	16,325	16,549	18,798	19,325	16,823	18,345
Two Engine	2,548	2,634	3,372	3,551	3,567	2,380
Other Piston	18	10	28	18	11	19
Turboprop -- Total	**1,850**	**1,913**	**2,031**	**1,811**	**1,765**	**1,655**
Single Engine	419	299	278	357	289	321
Two Engine	1,427	1,457	1,727	1,450	1,459	1,326
Other Turboprop	37	17	26	4	17	9
Turbojet -- Total	**2,745**	**2,654**	**2,755**	**2,738**	**2,226**	**1,713**
Two Engine	2,551	2,368	2,338	2,435	1,995	1,557
Other Turbojet	194	286	417	303	231	155
Rotorcraft -- Total	**1,876**	**1,953**	**2,308**	**2,744**	**2,342**	**2,084**
Piston	454	474	531	556	430	344
Turbine	1,422	1,479	1,777	2,188	1,912	1,740
Single Engine	1,113	1,156	1,424	1,744	1,415	1,311
Multi-engine	310	323	353	443	497	429
Other -- Total	**333**	**287**	**374**	**318**	**295**	**192**
Experimental -- Total	**1,345**	**1,157**	**1,307**	**1,247**	**1,071**	**1,327**
Total All Aircraft	**27,040**	**27,017**	**30,975**	**31,754**	**28,100**	**27,713**

SOURCE: 1996 - 2001 General Aviation Activity and Avionics Surveys.

Optimism is fostered by the continued entry of commercial manufacturers into the general aviation aircraft market, and the fact that some kit builders are becoming production companies at the entry level. In addition, despite soft business jet demand, Cessna has sold more than 100 Sovereigns in the midsize cabin segment.[6]

Since their start in the 1980s, fractional ownership providers have steadily increased their customer base. According to data from Aviation Data Service (ADS), at the end of 2003 there were 4,331 shares involved in fractional ownership of more than 767 aircraft. Despite this growth (4.9 percent increase over 2002 and 41.3 increase over 2000) it is believed only a small percentage of this market has been developed. Based on ADS estimates, the corporate fleet numbers 14,800 and includes almost 9,500 flight departments. ADS statistics indicate that the corporate aircraft fleet and number of business flight departments grew at annual rates of 5.6 and 4.6 percent, respectively, between 1993 and 2003.

Fractional ownership providers offer the customer a more efficient use of time by providing faster point-to-point travel and the ability to conduct business while in transit. In addition, shareholders of fractional ownerships find the minimum startup concerns and easier exiting options of great benefit.

The business aviation community was initially concerned that the success of fractional ownership programs would result in a shut down of corporate flight departments. These concerns have not come to fruition. Fractional ownership providers generally find their business base to be first-time users of corporate aircraft services, users that traditionally utilized commercial air transportation services. Once introduced to the benefits of corporate flying, some users of fractional programs have found it more cost beneficial to start their own flight departments, instead of incurring the costs of a larger share in a fractional ownership program. As such, the fractional ownership community may be partially responsible for the increase in traditional flight departments since 1993.

In a potentially extremely important step for general aviation, the President signed into law a comprehensive tax bill that would boost the bonus depreciation to 50 percent from 30 percent for property acquired and delivered after May 5, 2003 but before January 1, 2005. This may well spur people/businesses to purchase aircraft sooner than they might have and more expensive aircraft than they might have planned.

The number of amateur-built experimental aircraft in the general aviation fleet has increased consistently for more than a quarter of a century, from 2,100 in 1970 to over 30,000 today. It is estimated that approximately 60 percent of these are active aircraft.

The popularity of the amateur-built aircraft results from several factors, including affordability and performance. Amateur-built experimental aircraft represent a test-bed for new technologies that will eventually be introduced in the development and manufacture of the next generation of light general aviation production aircraft. The success of the kit aircraft market demonstrates that demand still exists for affordable aircraft.

FAA/Government Programs/Initiatives

The partnership between the FAA and the general aviation community is a continuous joint effort aimed at fostering industry improvements and aviation safety.

FAA Administrator Marion Blakey has indicated that the agency will continue to support safety improvements in general aviation. To this end, a safety program called "Safer Skies" has been

[6] Aviation Week & Space Technology, January 20, 2003, page 42

established and continues. Together with industry, the FAA will use the latest technology to analyze U.S. and global data to find the root causes of accidents so as to determine the best actions for breaking the chain of events that lead to accidents. For general aviation, this means the FAA will embark on major data improvements, including quality, collection, and analysis.

As part of the "Safer Skies" effort, the General Aviation Joint Steering Committee (GA JSC) chartered a joint government/industry group called the General Aviation Data Improvement Team (GADIT). The GADIT was established to develop strategies to "increase detail about factors that have contributed to or caused general aviation accidents and incidents;" to "improve the quality and timeliness of estimates of general aviation activity;" and to "suggest alternative and innovative ways to measure the effectiveness of Safer Skies interventions for general aviation." The GADIT has been organized to address four areas: activity data, accident data, incident data, and metrics.

The accident data task team has produced an interim paper on "GADIT Accident Data Needs," an analysis of data needs arranged into high, medium, and low categories. Items may be added to the list as necessary. This is the first stage in the accident data activity. The next step is to develop solutions for evaluating and gathering/collecting accident data.

The FAA, the National Aeronautics and Space Administration (NASA), industry, and other government agencies and universities, are working together to improve the safety and efficiency in our transportation system. To this end, NASA and FAA have implemented the Small Aircraft Transportation System (SATS). The National General Aviation Roadmap is a 25-year strategy for developing SATS. It is believed that the SATS can satisfy 21st century transportation demand by relieving pressure on existing ground and air systems, and by creating access to more communities in less time.

One of the goals of FAA's Safer Skies initiative is to improve weather and other flight information. The Flight Information Service (FIS) program plans to put real time weather information in the cockpit. The industry program "Highway in the Sky" project has a goal of putting 21st Century instrumentation into the cockpit--including GPS position and weather displays. Affordable computers will provide an "intuitive pictorial of situational awareness," allowing display a "highway" to a preprogrammed destination.

The FAA is also committed to improving navigation through satellite-based systems such as the Global Positioning System (GPS) for airport precision approach. Most IFR aircraft are expected to have GPS/WAAS (Wide Area Augmentation System) by 2005. The expected increase in the number of general aviation aircraft equipped with GPS/WAAS and other avionics and communications gear such as Automatic Dependent Surveillance–Broadcast (ADS-B) and 8.33 kHz (radio) channel spacing should be evidenced in avionics tables included in the GA Survey over the next few years.

The expected introduction of Light Sport Aircraft (LSA) is expected to increase the number of aviation pilots and interest in flying. The rule is currently undergoing review at the Office of Management and Budget. If the rule encounters no impediments, the first LSAs may be expected in 2004.

Manufacturer and Industry Programs/Initiatives

The fractional ownership industry was started just over 15 years ago and since that time has provided corporate flying services to companies that could not otherwise justify year the costs associated with operating a separate flight department. During this time, fractional owner-ship providers have operated under Federal Aviation Regulation (FAR) Part 91, which governs general aviation. The FAA established a formal rulemaking committee, consisting of

members from aircraft manufacturers, corporate flight departments, charter operators, fractional owner providers and their customers, and business aircraft management companies. The committee reviewed current Federal Aviation Regulations regarding fractional ownership activity and drafted a proposal that would require fractional ownership aircraft to operate under subpart K of Part 91.

It was submitted to the FAA and analyzed to assess the economic impact of the proposed rule. The notice of proposed rulemaking was issued during the middle of 2001. The FAA is in the process of developing the final rule and planning for its implementation.

Over the past several years, the general aviation industry has launched a series of programs and initiatives whose main goals are to promote and assure future growth within the industry. These include the "No Plane, No Gain" program sponsored jointly by GAMA and the NBAA; "Project Pilot" sponsored by the Aircraft Owners and Pilots Association (AOPA); the "Flying Start" program sponsored by EAA; and "BE A PILOT."

"No Plane, No Gain" is an advocacy program created in 1992 by GAMA and NBAA to promote acceptance and increased use of business aviation. The program promotes business aviation as a cost-effective tool for increasing the efficiency, productivity, and profitability of companies.

AOPA's "Project Pilot" promotes the training of new pilots in order to increase and maintain the size of the pilot population. AOPA believes students that have mentors offering advice and help as training progresses are more likely to complete their training than students who don't have mentors.

The "BE A PILOT" program is jointly sponsored and supported by more than 100 industry organizations. The program, which started in 1996, has a multi-faceted approach: (1) create an influx of new pilots; (2) generate flight training leads; (3) encourage improvement in flight school marketing; and (4) secure additional funding to expand the effort. "BE A PILOT" started issuing "introductory flight certificates" to interested respondents in May 1997. Most probably, the program will have to expand to address public concerns about flight training and aviation security.

The program has been supported by general aviation manufacturers and other aviation businesses and organizations. In the latter part of 2001, the "BE A PILOT" moved the program to higher level of activity and effort by hiring a full-time president and chief executive.

Industry organizations have developed programs and outreach efforts to attract young people through the Internet to peak their interest in the world of aviation. The NBAA sponsors "AvKids," a program designed to educate elementary school students about the benefits of business aviation to the community, and career opportunities available to them in business aviation. GAMA offers publications, awards, and scholarships to bring education into the nation's classrooms.

GENERAL AVIATION FORECASTS

The general aviation forecasts discussed in the following paragraphs are based on a set of economic assumptions that includes a strong recovery starting during the latter half of 2003 and continuing through 2005, with moderate sustained growth thereafter. The decline in general aviation activity that started in late 2001 and continued through 2003 is due to a combination of a relatively weak economic recovery in 2002 and early 2003, as well as to the lingering effects of the events of September 11th, including restrictions on general aviation aircraft operations at Washington National Airport.

General aviation activity is expected to continue to experience slow growth in 2004, then return to more normal growth patterns beginning in 2005 as the U.S. economy reaches the peak of its recovery.

The forecast also assumes that the regulatory environment affecting general aviation will not change dramatically. Specifically, it is assumed that noise and emissions requirements on business turbine aircraft will remain within the bounds prescribed by current rules and regulations. The forecast also assumes that general aviation activity will not be subject to new user-fees or limited access to airports and airspace.

Finally, the forecast assumes that the fractional ownership market will continue to expand and bring new operators and shareholders into business aviation. The fractional ownership community is not expected to be inhibited by certification and regulatory requirements associated with the adoption of the new fractional ownership rule—Part 91, Subpart K.

To the extent that industry and government programs/initiatives are successful in expanding the market for general aviation products and services, the forecasts for the general aviation fleet, hours flown, and pilots can be achieved or possibly exceeded.

The current forecasts for the general aviation active fleet, hours flown, and fuel consumption use the data obtained from the 2002 survey as the base year**.** Therefore, the forecast period for the three activity measures extends from 2002 through 2015, and references to average annual growth rates for the forecast period include 13 years. Airmen forecasts are based on actual data for 2003, and references to average annual growth rates for the forecast period include 12 years.

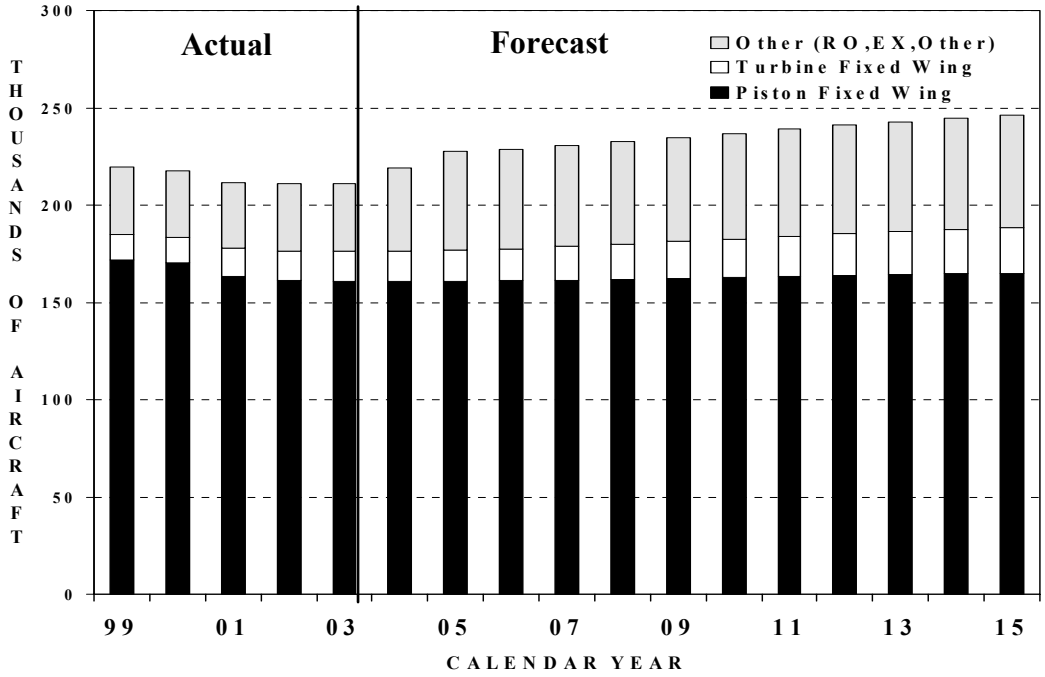
ACTIVE FLEET

In any year, the size of the U.S. fleet is assumed to be the result of new production, the fleet carried over from the previous year, and attrition of existing aircraft during the current year. Attrition occurs from net exports, retirements, and write-offs. New production depends on economic growth and corporate profitability, the introduction of new products, and the prices of the new aircraft offered for sale.

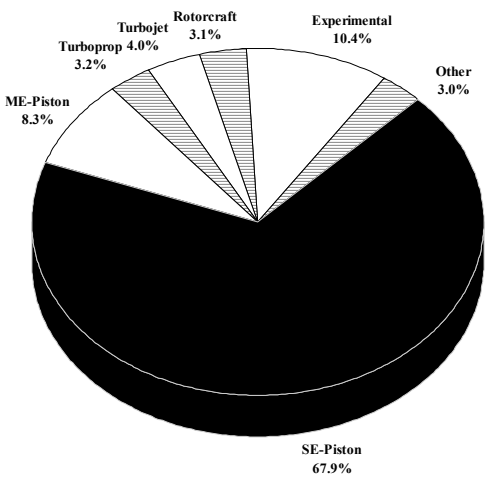
The active general aviation aircraft fleet is expected to increase at an average annual rate of 1.2 percent over the 13-year forecast period, increasing from 211,244 in 2002 to 246,415 in 2015. However, this growth includes the addition of a new aircraft category--light sport aircraft—that is expected to enter the active fleet in 2004 and to account for 20,915 aircraft in 2015. This includes approximately 15,500 existing ultralights not currently included in the FAA's aircraft registry count. In addition, it is assumed that of approximately 330-500 newly manufactured light sport aircraft will enter the actively fleet annually beginning in 2006. Excluding these aircraft, growth averages only 0.5 percent over the 13 years.

There appear to be two separate general aviation economies: turbojet aircraft follow one market pattern; while piston, turboprop, rotorcraft, and experimental aircraft follow a separate “growth” pattern. The number of single-engine piston active aircraft is projected to decrease from 143,503 in 2002 to 143,350 in 2003, maintain this level in 2004, and then begin a period of slow recovery, reaching 148,450 in 2015. This represents average annual growth rate of 0.3 percent over the 13-year period. These forecasts assume that the single-engine piston fleet grows by approximately 380 aircraft annually, counting new production and attrition of approximately 1,500 aircraft per year. The number of active multi-engine piston aircraft fleet is expected to decline by 0.5 percent per year over the forecast period, from 17,584 in 2002 to 16,490 in 2015.

ACTIVE GENERAL AVIATION AIRCRAFT



PERCENT BY AIRCRAFT TYPE



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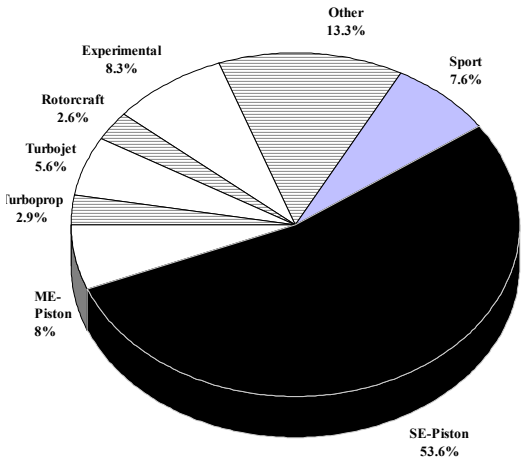


2015

The turbine-powered fleet is expected to increase at an average annual rate of 3.5 percent over the 13-year forecast period. The number of turboprop aircraft is expected to increase from 6,841 in 2002 to 8,120 in 2015. This represents an average annual growth rate of 1.3 percent over the 13-year forecast period. These forecasts assume that the turboprop fleet grows by approximately 100 aircraft per year, counting new production and attrition.

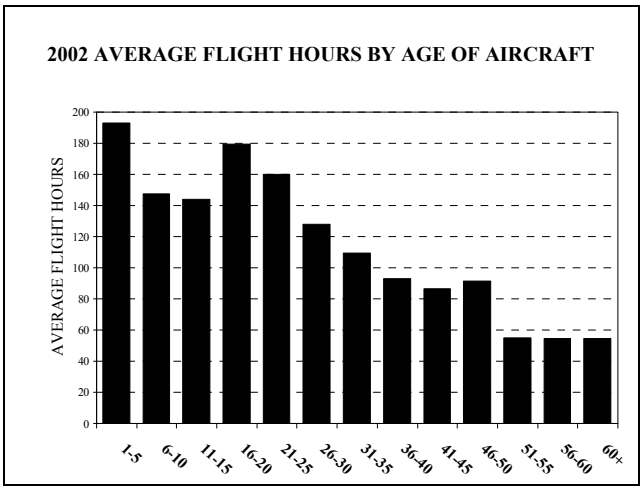
Turbojet aircraft are forecast to increase on average by 4.9 percent annually, from 8,355 in 2002 to 15,510 in 2015. Several factors are responsible for the market for business jets. These include a strong recovery in both the U.S. and global economy; the success and continued growth in the fractional ownership market, new product offerings; and some shift from commercial air travel to corporate/business air travel by business travelers and corporations. In addition, the forecast assumes that Eclipse, or similar type aircraft will enter the active fleet in 2006 and reach a total of 4,600 aircraft by 2015.

The rotorcraft fleet is forecast to grow only 0.6 percent annually over the 13-year forecast period, from 6,648 in 2002 to 7,210 in 2015. The turbine fleet is projected to grow at an annual rate of 0.4 percent, while the smaller piston fleet size is expected to grow at an annual rate of 1.1 percent. A detailed discussion of rotorcraft forecasts is presented in Chapter VI.

The number of experimental aircraft is projected to increase from 21,936 in 2002 to 23,100 in 2015, an average annual growth rate of a little more than 0.4 percent. Gliders and lighter-than-air aircraft are forecast to increase approximately 0.3 percent annually, growing from 6,377 in 2002 to 6,620 in 2015.

AIRCRAFT UTILIZATION

It is assumed that the aging of the general aviation fleet is one of the main determinants of declining utilization of general aviation aircraft. Based on results from the 2002 GA survey, the average age of aircraft in the active general aviation fleet is estimated to be approximately 28 years, with piston aircraft accounting for the majority of the aging fleet. Data from the 2002 GA Survey shows that aircraft utilization peaks at 193.1 hours for aircraft between one and 5 years old. Aircraft average utilization declines substantially after an aircraft reaches 25 years of age.

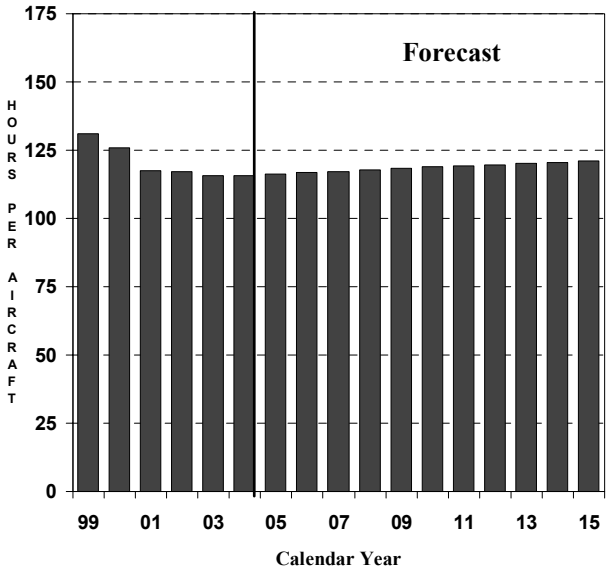


While part of the decline in utilization can be attributed to the aging of the general aviation fleet, U.S. economic slowdowns and/or recessions, such as those which occurred in 1990-91 and 2001 can also impact utilization. The declines in the utilization rates experienced in 2000 (down 3.2 percent) and 2001 (down 7.2 percent) were due, in part, to higher fuel prices and the 2001 U.S. economic recession. However, the restrictions placed on general aviation flying in the aftermath of the September 11th events contributed heavily to the decline in utilization in 2001.

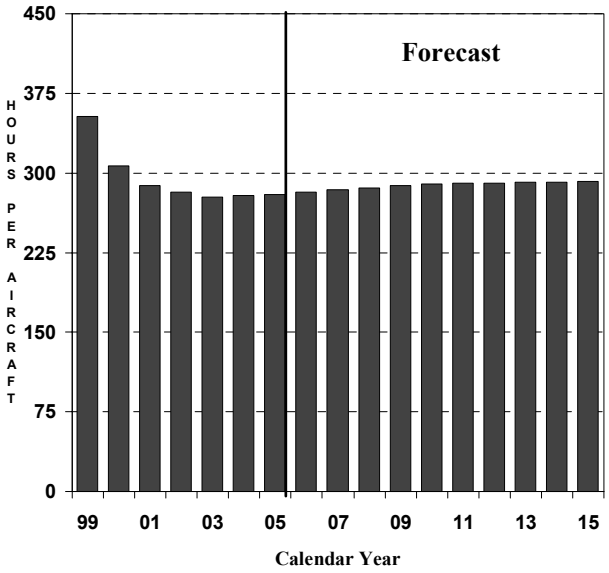
The strong recovery in the U.S. economy in 2004 and 2005 should lead to increased utilization rates for most categories of general aviation aircraft. In addition, new ownership strategies, and other approaches to make flying more desirable and affordable should also be positive forces on utilization rates during the forecast period. For 2002, the utilization rate for single engine piston aircraft is estimated to be approximately 113.8 hours per aircraft. Starting at this base and

GENERAL AVIATION AIRCRAFT UTILIZATION: AVERAGE HOURS PER AIRCRAFT

PISTON FIXED WING



ROTORCRAFT



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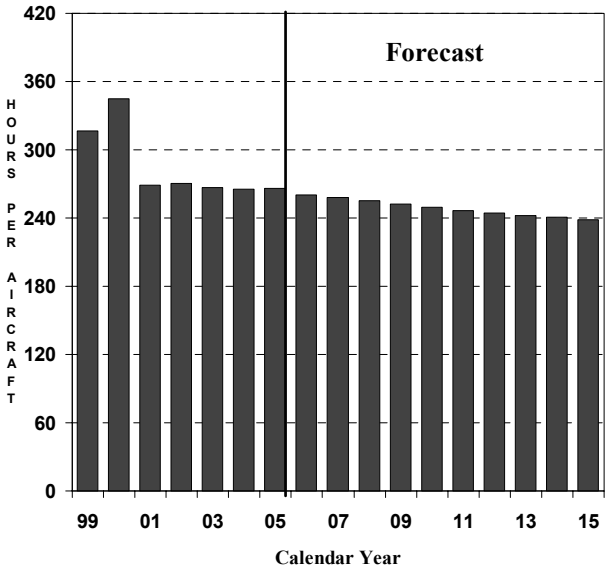

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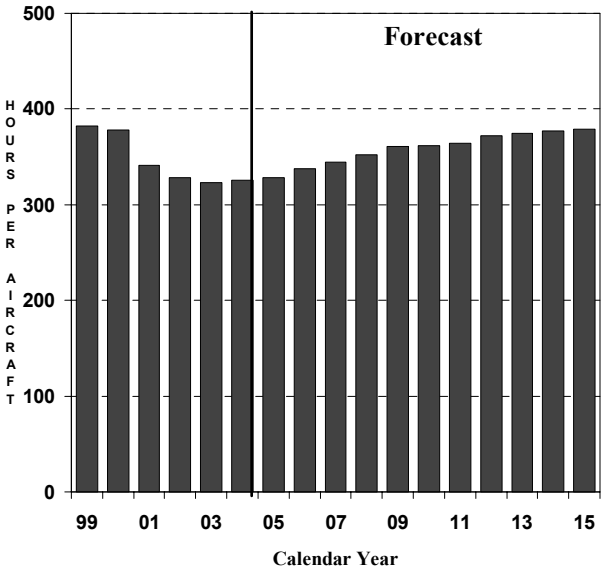


excluding light sport aircraft, utilization rates for single-engine piston aircraft are projected to increase to 118.2 hours by 2015, an increase of 0.3 percent annually.

The relatively small increase forecast for single-engine piston utilization rates results from the fact that utilization rates tend to be lower for older aircraft. With less than 2,000 new aircraft projected to enter the fleet annually, the single-piston fleet will "age" and, utilization rates should increase only marginally, if at all.

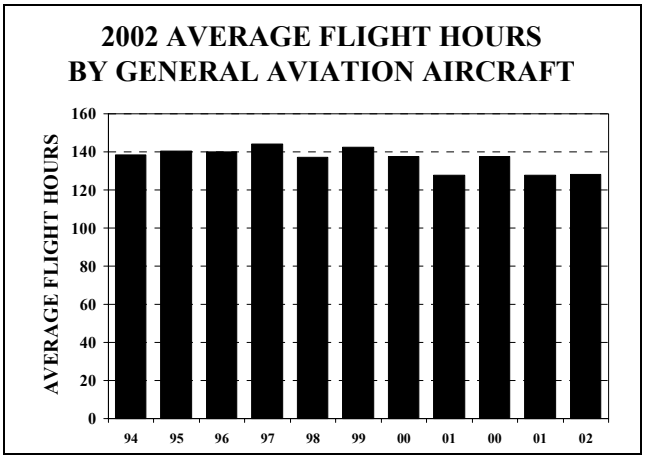
In 2002, multi-engine piston aircraft utilization rates are estimated to be approximately 145.9 hours per aircraft. The utilization of multi-engine piston aircraft is forecast to increase to 146.8 hours in 2015.

The utilization rate for turboprops increased 0.6 percent in 2002; however, utilization is expected to decline by 1.0 percent annually over the 12-year forecast period, falling to 238.3 hours in 2015. Turbojet utilization declined 3.6 percent in 2002 and is projected to decline an additional 1.7 percent in 2003. Thereafter, turbojet utilization is projected to grow at an average annual rate of 1.3 percent over the remainder of the forecast period, from 322.9 hours in 2003 to 379.1 hours in 2015. The increase in utilization rates for turbojets is largely attributable to the increased number of aircraft being operated by fractional ownership providers.

Rotorcraft utilization rates are expected to decrease from 282.1 hours in 2002 to 277.4 hours in 2003. Thereafter, utilization increases at an average annual rate of 0.4 percent, reaching 292.0 hours in 2015. Utilization rates for experimental aircraft are basically flat over the 13-year forecast period, declining in 2003 and 2004, and then increasing gradually over the remainder of the forecast period.

HOURS FLOWN

General aviation hours flown are forecast to increase by 1.5 percent annually over the 13-year forecast period--from 27.0 million in 2002 to 32.7 million in 2015. Excluding light sport aircraft, growth in hours is expected to average 1.2 percent over the 13 years. Single-engine piston aircraft hours are forecast to increase 0.6 percent annually from 16.3 million in 2002 to 17.5 million in 2015. Multi-engine piston aircraft hours are forecast to decline 0.4 percent annually, from 2.6 million in 2002 to 2.4 million in 2015.



Turboprop hours are expected to remain relatively stable at approximately 1.9 million over the 13-year forecast period. Turbojet hours are expected to increase from 2.7 million in 2002 to 5.9 million in 2015, an average annual increase of 6.0 percent. Rotorcraft hours are forecast to increase approximately 0.9 percent annually over the forecast period, from 1.9 million in 2002 to 2.1 million in 2015. Experimental aircraft hours increase at an annual rate of 0.6 percent over the 13-year forecast period, reaching 1.5 million hours in 2015. The new light sport aircraft category is expected to total 315,000 hours in 2015.

PILOT POPULATION

The total pilot population is projected to increase from an estimated 625,011 in 2003 to 777,730 by 2015, an annual increase of 1.6 percent over the 12-year forecast period. However, this growth

includes the certification of 16,100 new sport pilots in 2004 and 2005, with the category growing to a total of 20,800 by 2015. Excluding sport pilots, the number of pilots grows at an average annual rate of 1.4 percent over the 12 years.

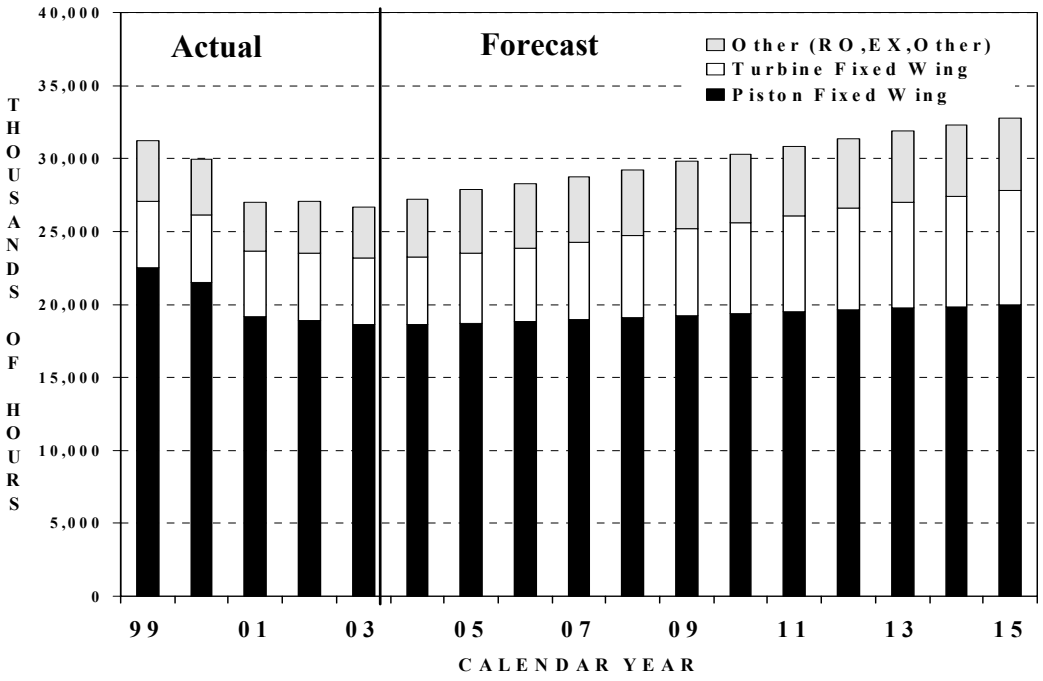
Annual growth rates for the major general aviation pilot categories are: student pilots, up 1.8 percent annually; private pilots, up 1.0 percent annually; and commercial pilots, up 1.6 percent annually.

The student pilot population increased 1.5 percent in 2003. This important pilot category is forecast to increase at an annual rate of 1.9 percent (almost 1,800 students annually) over the 12-year forecast period, reaching a total of 108,430 in 2015. The new category of sport aircraft makes it more economical to learn to fly, thereby attracting more student pilots.

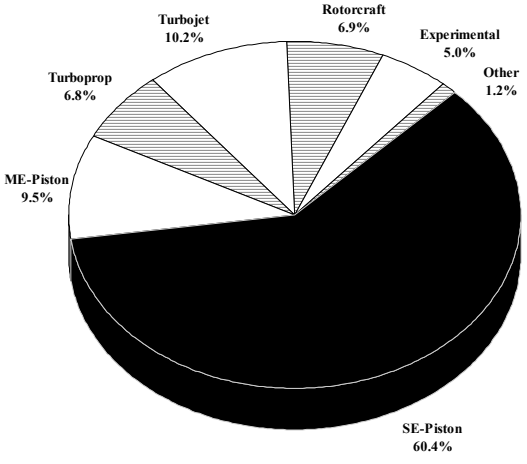
Growth rates for the other pilot categories over the forecast period are: airline transport pilots, up 1.6 percent; recreational, up 0.8 percent; rotorcraft only, up 1.0 percent; and glider only, up 0.2 percent.

The number of instrument rated pilots is expected to increase from 315,413 in 2003 to 385,500 in 2015, a 1.7 percent average annual rate of growth. In 2003, 58.7 percent of active pilots (excluding student, recreational, and sport pilots) are instrument rated. By 2015, the percentage of instrument rated pilots is projected to increase to 61.6 percent. This is largely the result of increased numbers of pilots holding commercial or airline transport ratings.

ACTIVE GENERAL AVIATION AND AIR TAXI HOURS FLOWN



PERCENT BY AIRCRAFT TYPE



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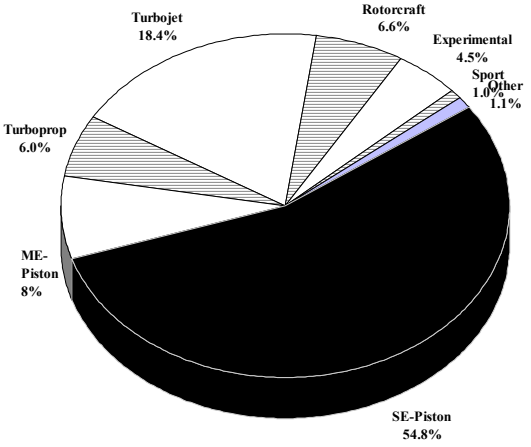
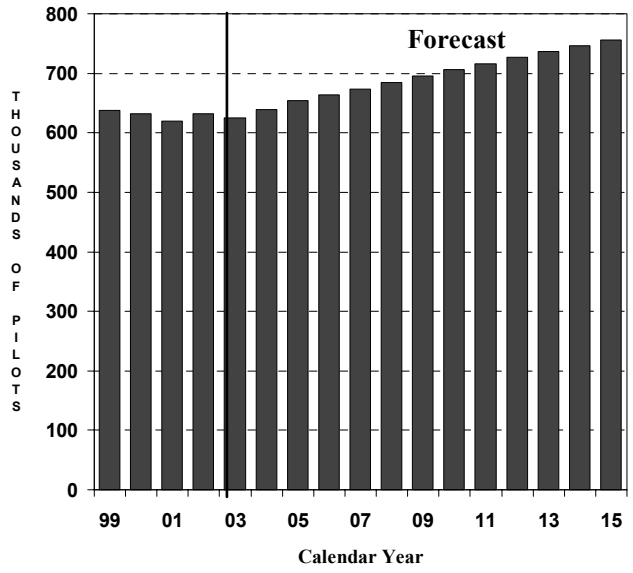


2015

ACTIVE PILOT TRENDS AND FORECASTS

TOTAL



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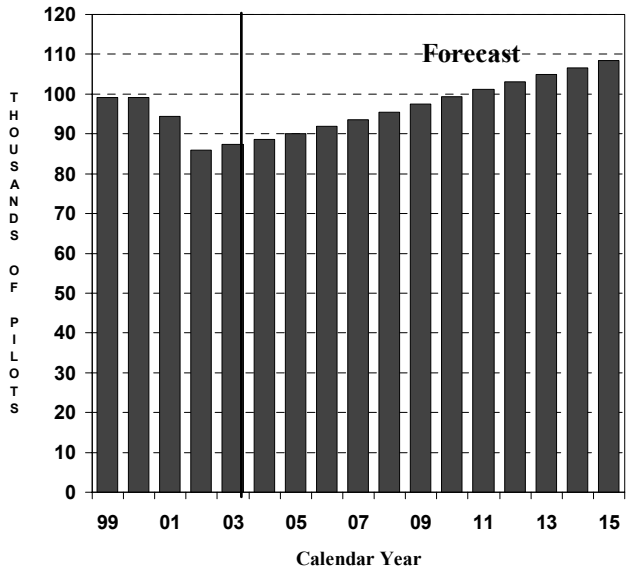

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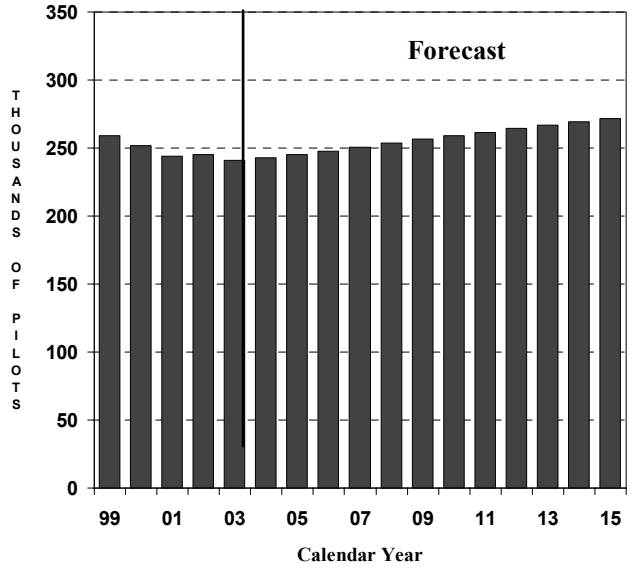

COMMERCIAL