

# 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 an industry study,<sup>1</sup> general aviation made the following contributions to the U.S. economy in 2000:

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

### REVIEW OF 2003/2004

It has been 10 years since the passage of the General Aviation Revitalization Act of 1994 (GARA) and all indications are that the Act has accomplished 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 approximately 100,000 jobs in the industry. The success of GARA can be measured by the resurgence in the demand for general aviation products and services since its passage.

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<sup>1</sup> *The National Economic Impact of Civil Aviation, July 2002, DRI-WEFA, A Global Insight Company*

## AIRCRAFT SHIPMENTS AND BILLINGS

The 2001 to 2003 time period was a difficult one for general aviation. The 2001 economic recession and generally weak recovery, combined with rising prices for aviation fuels, sharply reduced the demand for the general aviation products and services--in particular, the high end market for business/corporate jets. In addition, some the adverse affects from the events of September 11<sup>th</sup> also continue to impact the industry, including the restriction of general aviation aircraft at Washington National Airport.

However, the market for general aviation products and services staged a relatively strong recovery in 2004, stimulated by strong U.S. economic activity as well as by accelerated depreciation allowances for the operators of new aircraft. Promise of future growth is evidenced by the general aviation industry's development, production, and introduction of new products and services. Dollars spent on research and development are advancing avionics and computer technology. These advances not only improve general aviation safety, but also 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 its "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.

General aviation's recent performance has been encouraging, with a number of statistics pointing in a positive direction. 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.

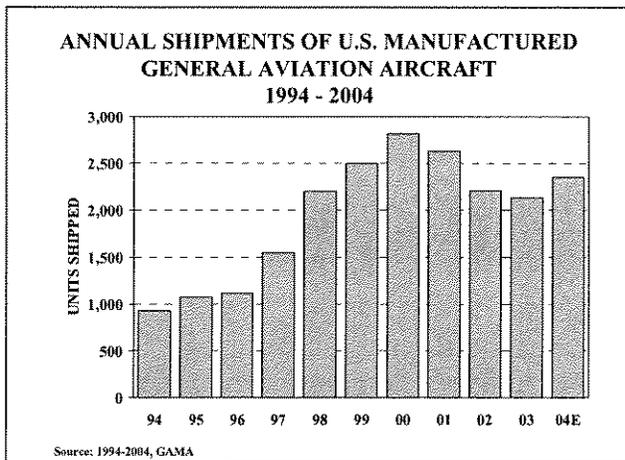
In releasing its third quarter 2004 *General Aviation Airplane Shipment Report*, Ron Swanda, interim president of the General Aviation Manufacturers Association (GAMA), stated that "Recovery of the U.S. economy and accelerated depreciation enacted by Congress for operators of new airplanes stimulated every segment of our industry. But the growing, worldwide attraction of using general aviation airplanes for safe and efficient air travel is a fundamental growth factor that should not be overlooked."

Congress responded to the success of accelerated depreciation by extending the placed-in-service date for aircraft until December 31, 2005.

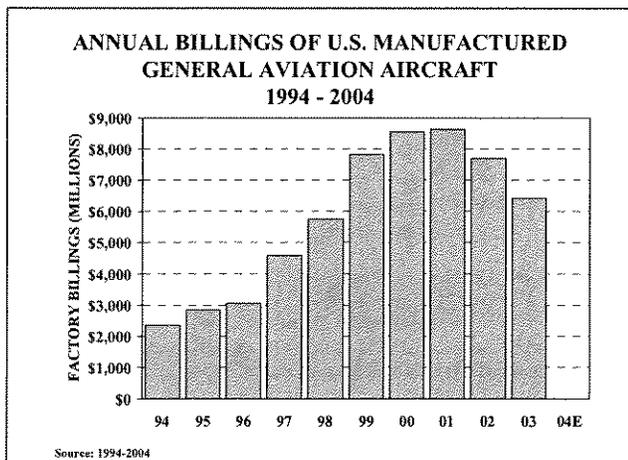
According to GAMA preliminary statistics, shipments of general aviation aircraft reversed its 3-year decline in 2004. General aviation shipments by U.S. manufacturers totaled 1,758 units during calendar year 2004, an increase of 10.2 percent over the same period in 2003. Shipments increased for each of the three aircraft categories: turboprops, from 163 to 194 (up 19.0 percent); business jets, from 384 to 403 (up 4.9 percent); and pistons, from 1,590 to 1,758 (up 10.6 percent). 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. In addition, the introduction of new light sport aircraft could further stimulate this market in future years. New aircraft models are also stimulating interest in the high-end business jet market. Certainly, the introduction of the new micro jet in 2005/2006 will spur this sector.

Sales of general aviation aircraft manufactured outside the United States also turned positive in 2004. Foreign manufacturers delivered a total of 609 aircraft during 2004, an increase of 10.3 percent over the same period in 2003.

## PILOT POPULATION



In its year-end review and forecast<sup>2</sup>, the Aerospace Industries Association (AIA) estimates that general aviation (excluding rotorcraft) aircraft shipments will total 2,230 for the year 2004, an increase of 4.7 percent over 2003 shipments. In addition, AIA estimates that the value of these aircraft will total \$6.2 billion, an increase of 1.2 percent over 2003—the first increase since 2000.



At the end of 2004, the pilot population totaled 618,633, a decline of almost 6,400 (1.0 percent) from 2003. The three strictly general aviation groupings (student, private, and commercial) totaled 446,496 (down 1.3 percent) and accounted for 72.2 percent of all certificated pilots.

The number of active student pilots totaled 87,910 in 2004, an increase of 0.7 percent over 2003—the second consecutive yearly increase in this pilot category. The general aviation industry continues to promote a number of ongoing initiatives aimed at increasing the number of student pilots since they are viewed 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 235,994 (down 2.1 percent) in 2004 while the number of commercial pilots totaled 122,592 (down 1.1 percent). The number of airline transport pilots (142,160) declined 0.9 percent in 2004, the second consecutive decline in this pilot category.

The number of helicopter pilots (those holding helicopter certificates only) increased 8.5 percent in 2004 to 8,586. The number of glider only and recreational pilots totaled 21,100 (up 0.2 percent) and 291 (down 6.1 percent), respectively, in 2004.

The number of instrument-rated pilots (313,645) decreased 0.6 percent in 2004. Instrument-rated pilots currently account for 59.1 percent of total active pilots (excluding student and recreational pilots), up from 58.7 percent in 2003.

<sup>2</sup> 2004 Year-End Review and 2005 Forecast—An Analysis, December 2004, Aerospace Industries Association (AIA)

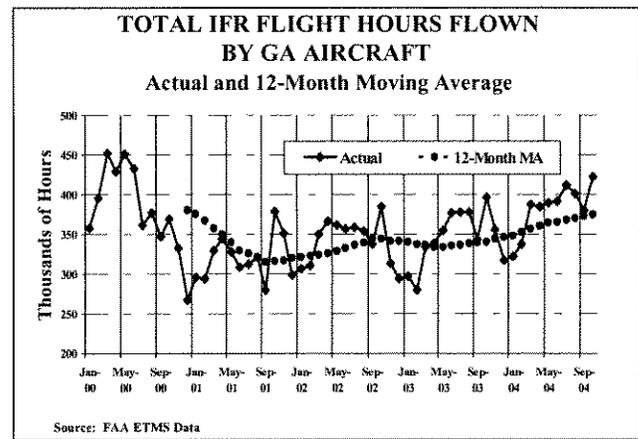
## ACTIVITY AT FAA AIR TRAFFIC FACILITIES

General aviation activity at FAA air traffic facilities was generally mixed in 2004. Total activity at combined FAA and contract towered airports declined 1.6 percent in fiscal year 2004, with itinerant operations down 1.2 percent and local operations down 2.1 percent. Although general aviation operations at FAA towers declined 3.7 percent in 2004, operations at contract towers were up 2.1 percent.

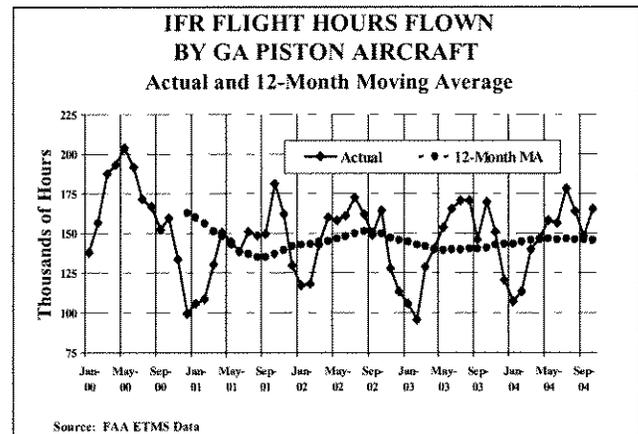
General aviation instrument flight rule (IFR) activity was generally positive in 2004. While total general aviation instrument operations at FAA and contract towered airports were basically flat (down 0.2 percent) in 2004, the number of general aviation aircraft handled at FAA en route centers grew by 4.4 percent, the largest recorded increase since 1998.

FAA's Enhanced Traffic Management Systems Counts (ETMSC) data also appears to confirm the turnaround among general aviation's more sophisticated aircraft. ETMSC data is compiled from IFR flight plans and, as such, does not cover a large portion of general aviation activity, in particular local operations at non-towered airports. However, since most business flyers do file flight plans, the data is particularly relevant to flying performed by business/corporate aircraft, i.e., turboprops and jets.

ETMSC data reported a 1.4 percent decline in total general aviation flights but a 1.4 percent increase in flight hours in 2003. In 2004, flights and hours were up 3.3 and 9.0 percent, respectively. Based on this data, general aviation IFR flights are within 0.9 percent of its pre-September 11<sup>th</sup> activity levels; hours flown within 0.1 percent.



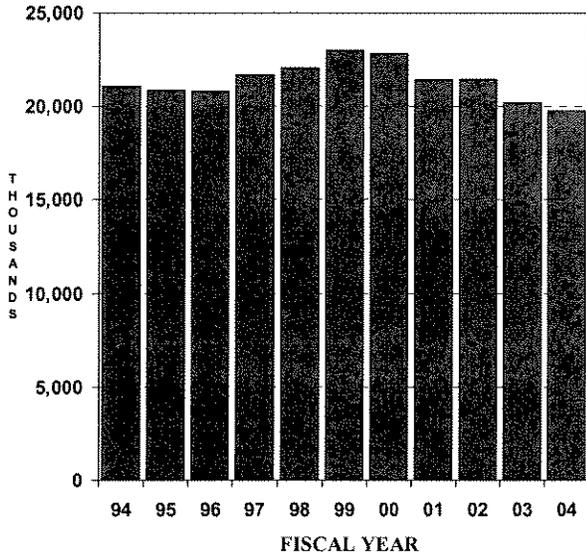
Piston aircraft IFR flights (40.4 percent of total IFR flights) declined in both 2003 (down 4.1 percent) and 2004 (down 3.8 percent). IFR hours flown by piston aircraft declined 1.7 percent in 2003 but was up 0.8 percent in 2004, totaling 1.7 million. In 2004, piston IFR flights and hours were still 8.4 and 11.4 percent, respectively, below pre-September 11<sup>th</sup> activity levels.



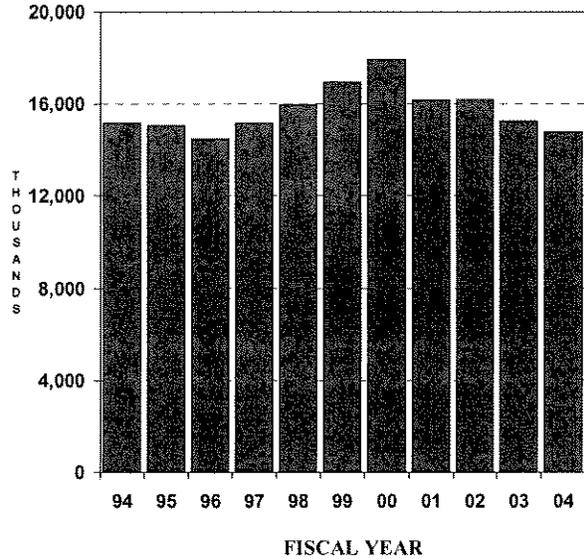
Combined IFR flights flown by turboprops and turbojets were basically flat in 2003 but increased by 5.8 percent in 2004, totaling 2.2 million. Combined flight hours were up 2.8 and 12.5 percent, respectively, over the same time period, totaling 2.6 million in 2004. Turbine IFR flight hours were up 2.8 percent in 2003 and 26.0 percent in 2004. Jet IFR hours were up 3.8 and 14.6 percent, respectively, over the same time period. In 2004, turboprop hours were 9.5 percent above its pre-September 11<sup>th</sup> levels; turbojets 1.5 percent below the level flown in 2000.

# GENERAL AVIATION ACTIVITY AT FAA AIR TRAFFIC FACILITIES

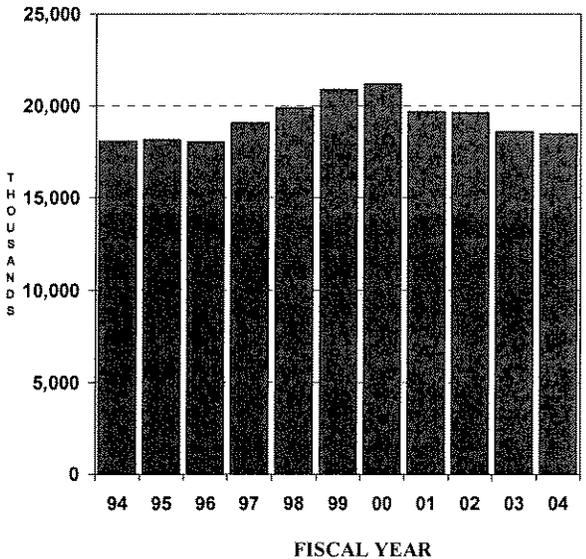
**ITINERANT AIRCRAFT OPERATIONS  
(FAA AND CONTRACT TOWERS)**



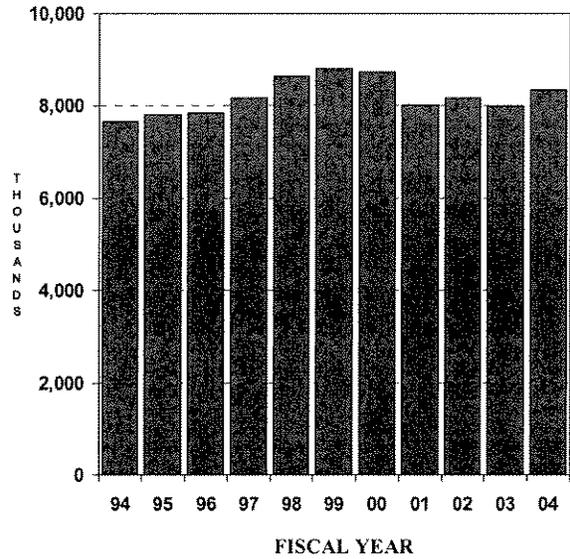
**LOCAL AIRCRAFT OPERATIONS  
(FAA AND CONTRACT TOWERS)**

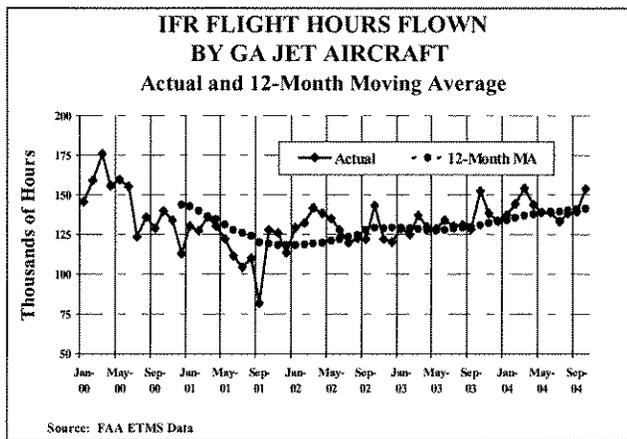


**INSTRUMENT OPERATIONS  
(FAA AND CONTRACT TOWERS)**



**IFR AIRCRAFT HANDLED AT FAA AIR  
ROUTE TRAFFIC CONTROL CENTERS**





In fiscal year 2004, operations at the top ten general aviation airports totaled 3.1 million, a decline of 6.0 percent from 2003. These 10 airports, as ranked by total general aviation operations, accounted for 8.9 percent of general aviation activity at the 489 combined FAA/contract towers. Of the top 10 airports, two each are in Arizona, California, and Florida while Colorado, Oklahoma, North Dakota, and Texas each have one. Only one of the top 10 airports (Long Beach—up 1.3 percent) experienced an increase in operations in 2004.

The 10 fastest growing general aviation airports, as ranked by the percentage increase over fiscal year 2003, grew from a combined total of 295,161 general aviation operations in 2003 to 411,026 in 2004, an increase of 39.3 percent. The three airports with the largest percentage increase in 2004 were Green Bay/Austin Straubel International (WI), Jacksonville/Cecil Field (FL), and Lihue Airport (HI).

Jacksonville/Cecil Field (second in 2003), Lake Charles/Chennault (fourth in 2003), and Kalispell Airport (fifth in 2003), are ranked among the fastest growing airports for the 2<sup>nd</sup> year in a row.

TABLE V-1<sup>2</sup>

**FASTEST GROWING GENERAL AVIATION AIRPORTS  
RANKED BY PERCENT CHANGE IN OPERATIONS  
FISCAL YEAR 2004**

Fac. Id.	City/Airport	2004	2003	% Ch. 03-04
GRB	Green Bay/ Straubel Intl.	68,476	44,504	53.9
VQQ	Jacksonville/Cecil Field	40,187	27,151	48.0
LIH	Lihue	24,126	16,697	44.5
LAW	Lawton Municipal	11,613	8,189	41.8
BOS	Boston/Logan Intl.	27,529	19,568	40.7
CWF	Lake Charles/Chennault	34,566	24,838	39.2
LYH	Lynchburg Regional	47,849	35,145	36.1
FCA	Kalispell	45,224	34,219	32.2
EWB	New Bedford Regional	78,818	59,800	31.8
BDL	Windsor Locks/Bradley Int'l	32,638	25,050	30.4

## 2003 GENERAL AVIATION AND AIR TAXI ACTIVITY SURVEY

Only preliminary results of the 2003 General Aviation and Air Taxi Activity Survey (GA Survey)<sup>3</sup> are available for discussion in this year's forecast document. Although the preliminary results are subject to change, they will be used as the base year for projecting future demand for general aviation.

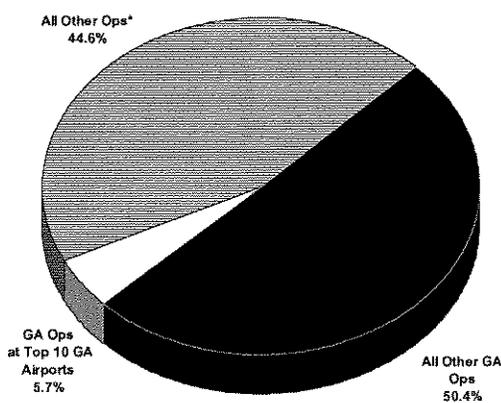
<sup>2</sup> Note: Eight fast growing airports were not included in the top 10 list. Four were excluded because they were not a towered airport in 2003--Denton Airport (TX), Kalaeloa Airport (HI), Hilton Head Airport (SC), and Golden Triangle Regional (MS). Four other airports were excluded because general aviation operations in 2004 were under 5,000.

<sup>3</sup> The preliminary results are of January 10, 2005 and are subject to revision. Surveyed aircraft owners still had 3 weeks remaining to respond to the 2003 Survey.

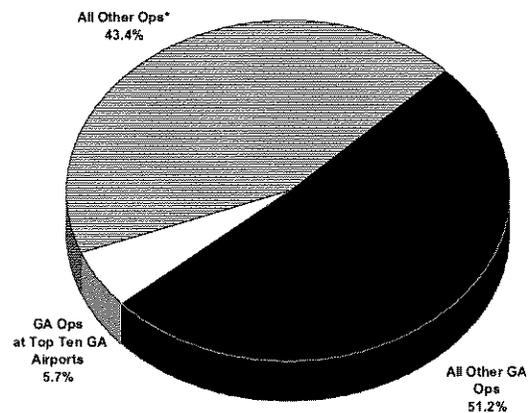
# LARGEST GENERAL AVIATION AIRPORTS RANKED BY FY 2004 AIRCRAFT OPERATIONS

<u>Facility ID</u>	<u>City/Airport</u>	<u>2004</u>	<u>2003</u>
VNY	Van Nuys	438,304	457,691
DVT	Phoenix-Deer Valley Municipal	353,694	377,915
SFB	Orlando/Sanford	347,843	370,523
LGB	Long Beach/Daugherty Field	307,232	303,238
DAB	Daytona Beach International	300,087	325,636
APA	Denver/Centennial	299,664	325,529
PRC	Prescott/E A Love Field	293,154	298,399
RVS	Tulsa/Riverside	286,533	325,056
FFZ	Mesa/Falcon Field	260,741	272,312
GFK	Grand Forks International	253,037	277,048
<b>Operations -- Top 10 GA Airports</b>		<b>3,140,289</b>	<b>3,337,647</b>
<b>Total GA Operations</b>		<b>34,938,200</b>	<b>35,524,020</b>

## PERCENT OF AIRCRAFT OPERATIONS BY TYPE OF AIRCRAFT OPERATION



2004



2003

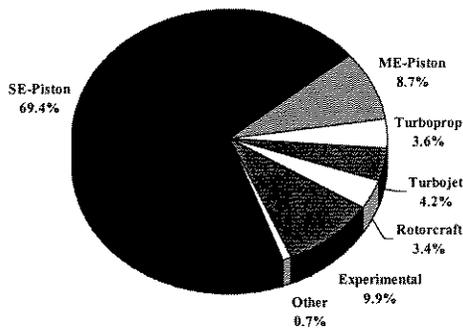
\*Includes air carrier, air taxi/commuter, and military operations.

## ACTIVE AIRCRAFT

There were an estimated 210,600 active general aviation aircraft in 2003, a decrease of 0.3 percent from 2002. This marks the fourth consecutive year of declining estimated fleet size.

Single-engine piston aircraft (143,916) continued to dominate the fleet in 2003, accounting for 68.3 percent of the total active fleet. The next largest groups are experimental aircraft (20,603, 9.8 percent) and multi-engine piston (17,723, 8.4 percent). Turbojets, turboprops, and rotorcraft make up relatively small shares of the active fleet, accounting for 3.9, 3.4, and 3.2 percent, respectively.

**ACTIVE GENERAL AVIATION AIRCRAFT  
PERCENT BY AIRCRAFT TYPE IN 2003**



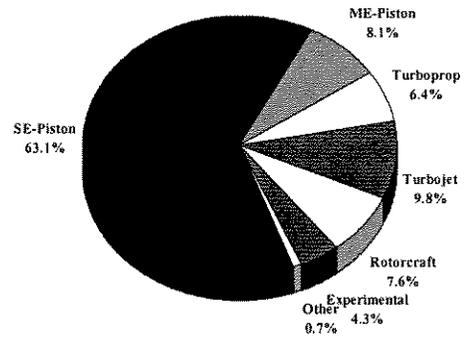
## HOURS FLOWN

General aviation aircraft flew a total of 27.0 million hours in 2003. This was virtually the same amount as in the previous two years. It is 9.7 percent below the estimated total hours flown in 2000.

Single-engine piston aircraft flew 16.5 million hours in 2003 a total that has remained virtually constant over the last 3 years. Rotorcraft flew a total of 2.2 million hours, up 16.8 percent over 2002. The combined flight hours of three aircraft categories—turboprops, turbojets, and

rotorcraft-- account for 24.7 percent of total hours flown, but only 10.5 percent of the active fleet. This disproportionate share is due to higher utilization rates among these aircraft types.

**ACTIVE GENERAL AVIATION AIRCRAFT  
PERCENT HOURS FLOWN 2003**



## 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 19,816 civil and joint use airports/heliports/seaplane bases in operation in the United States, with 5,281 available for public use. Of these 513 airports were classified as commercial service (also used by general aviation). This leaves a total of 19,303 airports/heliports (97.4 percent) used almost exclusively by general aviation aircraft, with 4,768 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 United States.

In 2003, there were over 218,181 active civil aircraft in the United States. This includes an estimated 214,311 active general aviation aircraft (over 96.6 percent of the active fleet),

**TABLE V-2**

**GENERAL AVIATION ACTIVE AIRCRAFT  
BY AIRCRAFT TYPE  
(In Thousands)**

<b>AIRCRAFT TYPE</b>	<b>2003</b>	<b>2002</b>	<b>2001</b>	<b>2000</b>	<b>1999</b>	<b>1998</b>
<b>Fixed Wing - Total</b>	<b>177.0</b>	<b>176.3</b>	<b>177.8</b>	<b>183.3</b>	<b>184.7</b>	<b>176.7</b>
<b>Piston -- Total</b>	<b>161.6</b>	<b>161.1</b>	<b>163.1</b>	<b>170.5</b>	<b>171.9</b>	<b>164.0</b>
One Engine	143.9	143.5	145.1	149.4	150.9	145.1
Two Engine	17.7	17.5	16.8	21.0	20.9	18.9
Other Piston	0.0	0.1	0.1	0.1	0.1	0.0
<b>Turboprop -- Total</b>	<b>7.2</b>	<b>6.8</b>	<b>6.7</b>	<b>5.8</b>	<b>5.7</b>	<b>6.5</b>
Single Engine	1.8	1.1	0.9	0.7	1.0	0.9
Two Engine	5.4	5.7	5.6	5.0	4.6	5.5
Other Turboprop	0.0	0.0	0.0	0.0	0.0	0.1
<b>Turbojet -- Total</b>	<b>9.2</b>	<b>8.4</b>	<b>7.9</b>	<b>7.0</b>	<b>7.1</b>	<b>6.2</b>
Two Engine	8.6	7.7	6.9	6.2	6.4	5.6
Other Turbojet	0.6	0.7	1.0	0.8	0.7	0.6
<b>Rotorcraft -- Total</b>	<b>6.8</b>	<b>6.6</b>	<b>6.5</b>	<b>7.2</b>	<b>7.4</b>	<b>7.3</b>
Piston	2.2	2.4	2.3	2.7	2.6	2.6
Turbine	4.6	4.3	4.3	4.5	4.9	4.8
Single Engine	3.7	3.6	3.4	3.8	4.0	4.0
Multi-engine	0.9	0.6	0.9	0.7	0.9	0.8
<b>Other -- Total</b>	<b>6.2</b>	<b>6.4</b>	<b>6.7</b>	<b>6.7</b>	<b>6.8</b>	<b>5.0</b>
<b>Experimental -- Total</b>	<b>20.6</b>	<b>21.9</b>	<b>20.3</b>	<b>20.4</b>	<b>20.5</b>	<b>16.3</b>
<b>Total All Aircraft</b>	<b>210.6</b>	<b>211.2</b>	<b>211.4</b>	<b>217.5</b>	<b>219.5</b>	<b>205.7</b>

SOURCE: 1998-2003 General Aviation Activity and Avionics Surveys

N/A = Not applicable

Columns may not add to totals due to rounding and estimation procedures.

**TABLE V-3**

**TOTAL GENERAL AVIATION HOURS FLOWN  
BY AIRCRAFT TYPE  
(In Thousands)**

<b>AIRCRAFT TYPE</b>	<b>2003</b>	<b>2002</b>	<b>2001</b>	<b>2000</b>	<b>1999</b>	<b>1998</b>
<b>Fixed Wing - Total</b>	<b>23,287</b>	<b>23,486</b>	<b>23,620</b>	<b>26,127</b>	<b>27,046</b>	<b>24,392</b>
<b>Piston -- Total</b>	<b>18,791</b>	<b>18,891</b>	<b>19,194</b>	<b>21,493</b>	<b>22,529</b>	<b>20,402</b>
One Engine	16,483	16,325	16,549	18,089	18,983	16,823
Two Engine	2,304	2,548	2,634	3,385	3,531	3,367
Other Piston	4	18	10	18	14	11
<b>Turboprop -- Total</b>	<b>1,787</b>	<b>1,850</b>	<b>1,773</b>	<b>1,986</b>	<b>1,797</b>	<b>1,765</b>
Single Engine	510	419	299	277	368	289
Two Engine	1,277	1,427	1,457	1,703	1,424	1,459
Other Turboprop	0	4	17	7	4	17
<b>Turbojet -- Total</b>	<b>2,709</b>	<b>2,745</b>	<b>2,654</b>	<b>2,648</b>	<b>2,721</b>	<b>2,226</b>
Two Engine	2,510	2,551	2,368	2,324	2,435	1,995
Other Turbojet	199	194	286	324	286	231
<b>Rotorcraft -- Total</b>	<b>2,192</b>	<b>1,876</b>	<b>1,953</b>	<b>2,191</b>	<b>2,630</b>	<b>2,342</b>
Piston	477	454	474	530	552	430
Turbine	1,715	1,422	1,479	1,661	2,077	1,912
Single Engine	1,304	1,113	1,156	1,326	1,656	1,415
Multi-engine	411	310	322	335	422	497
<b>Other -- Total</b>	<b>275</b>	<b>333</b>	<b>287</b>	<b>362</b>	<b>309</b>	<b>295</b>
<b>Experimental -- Total</b>	<b>1,296</b>	<b>1,345</b>	<b>1,157</b>	<b>1,280</b>	<b>1,246</b>	<b>1,071</b>
<b>Total All Aircraft</b>	<b>27,050</b>	<b>27,040</b>	<b>27,017</b>	<b>29,960</b>	<b>31,231</b>	<b>28,100</b>

SOURCE: 1998-2003 General Aviation Activity and Avionics Surveys

N/A = Not applicable

Columns may not add to totals due to rounding and estimation procedures.

5,016 large passenger and cargo jet aircraft, and 2,565 regional/commuter aircraft (including regional jets, turboprops, and pistons).

Of the 618,633 active certificated pilots at the end of 2004, private pilots accounted for 38.1 percent of the total. In addition, it is estimated that general aviation itinerant and local operations totaled 86.7 million in fiscal year 2004, 71.9 percent of the total 120.6 million operations at towered and non-towered U.S. airports.<sup>4</sup>

## REALISM IN THE INDUSTRY

August of 2004 marked the 10th year since the passage of the General Aviation Revitalization Act (GARA). Despite the recent downturn, general aviation shipments and billings have each more than doubled 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. The 2001 economic recession, combined with the lingering effects of the events of September 11<sup>th</sup> resulted in the loss of some jobs in general aviation manufacturing. However, GAMA reports that employment at member companies was up 6.3 percent in 2004. There are signs of improvement on the horizon, although some sectors will likely benefit more than others.

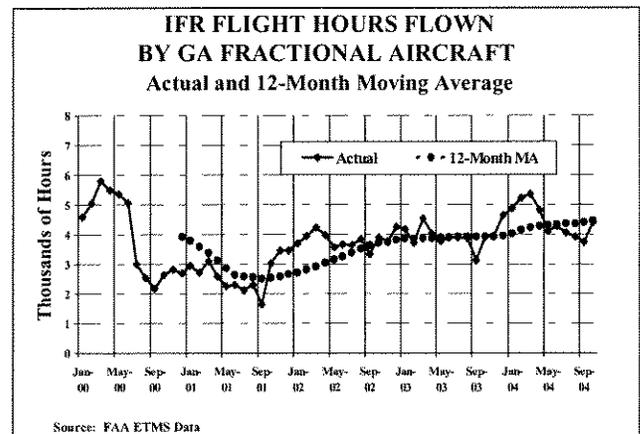
Whether GARA, which brought product liability reform to the industry, and the introduction of new aircraft models will be enough to see the industry through uncertain times is difficult to predict at this time.

Optimism is fostered by the continued entry of new commercial manufacturers into the general aviation aircraft market, and the fact that some

kit builders are becoming production companies at the entry level.

Since their start in the 1980s, fractional ownership providers have steadily increased their customer base. According to data from Aviation Data Service Inc. (AvData), there were 4,765 individuals and companies (up 5.5 percent) in the U.S. that owned a fractional share of an airplane at the end of 2004. GAMA member companies report that approximately 14.0 percent of their total business jet deliveries went to fractional companies in 2004. The number of airplanes in fractional programs was up 5.4 percent in 2004 and up 65.6 percent since 2000. Despite these increases it is believed that only a small percentage of this market has been developed.

According to ETMSC data, fractional aircraft operated 39,262 flights (up 5.5 percent), flew 54,502 hours (up 14.6 percent), and provided service to 1,413 airports in 2004. The top five U.S. airports served by fractional aircraft in 2004 were Teterboro (NJ), Palm Beach International (FL), Westchester County (NY), Washington Dulles (VA), and Omaha Eppley Field (NE).



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

<sup>4</sup> 2004 Terminal Are Forecast (January 2005)

find the minimum startup costs and easier exiting options of great benefit.

AvData also estimates that at the end of 2004, there were 15,050 corporate operators (up 5.5 percent) in the world utilizing a fleet of 23,013 aircraft. Of these, the U.S. accounted for almost three-quarters of corporate operators (11,070) and over 65.0 percent of the corporate fleet (15,704).

The business aviation community was initially concerned that the success of fractional ownership programs would result in the closing of corporate flight departments. These concerns have not come to fruition. Fractional ownership providers generally find its business base to be first-time users of corporate aircraft services, users that traditionally utilize commercial air transportation services. Once introduced to the benefits of corporate flying, some users of fractional programs find 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 important step for general aviation, Congress recently extended the placed-in-service date for the accelerated depreciation (from 30 to 50 percent) for new general aviation aircraft until December 31, 2005. This has the potential to spur many people/businesses to purchase more expensive aircraft sooner than they might have planned. GAMA estimates that that bonus depreciation has stimulated sales by nearly 30 percent.

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 70 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 promoting aviation safety.

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). It is believed that the SATS can satisfy 21<sup>st</sup> century transportation demand by relieving pressure on existing ground and air systems, and by creating access to more communities in less time. The SATS Project at NASA's Langley Research Center produces data to support FAA decisions regarding operational use of National Airspace (NAS) capabilities. Collaboration between the FAA, NASA, and industry participants requires dedicated resources to support the development of technologies and their integration within the NAS.

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 introduction of Light Sport Aircraft (LSA) is expected to increase the number of pilots and interest in flying. The Experimental Aircraft Association (EAA) has worked with the FAA and others to introduce this new element. The Sport Pilot and Light Sport Aircraft Rule was implemented in September 2004. The sport pilot certificate enables pilots to operate light-sport aircraft with either a valid third class medical or a current and valid U.S. driver's license. Any FAA certificated pilot who holds either of these credentials may exercise sport pilot privileges under their current pilot certificate, providing that they (1) have a current flight review, (2) are qualified in the specific category and class (hold the ratings on their recreational certificate, or higher), (3) meet the currency requirements of three take-offs and landings if carrying a passenger, and (4) meet the cross country training requirements of 61.101c, if a recreational pilot.

An existing aircraft type called an "LSA" retains its original airworthiness certificate, but also meets the general definitions of the Code of Federal Regulations, Section 1.1. These definitions establish, among other things, maximum aircraft weights and airspeeds. In 2005, the FAA is preparing to issue the first certificates for the following:

- Sport Pilots;
- Sport Pilot Instructors;
- Factory-built light-sport aircraft (Special Light-Sport Aircraft or S-LSA);
- Existing and kit-built light-sport aircraft (Experimental Light-Sport Aircraft or E-LSA)
- Light-Sport Aircraft Repairmen (maintenance and inspection) ratings; and
- Ratings for Private Pilots who have additional training in weight-shift aircraft or power parachutes.

Also on the horizon are Unmanned or Uninhabited Aerial Vehicles (UAVs). Remotely operated and autonomous aircraft could provide, among other things, the following services: a communication network; monitoring natural disasters; patrolling U.S. borders; and providing commercial operations. However, before these services can be implemented, policies and certifications for incorporating them into the NAS must be completed. UAVs currently fly in military or restricted airspace, or on a case-by-case basis to utilize NAS. Routine access would require providing a process by which UAVs could be certified and through which a flight plan like those for piloted aircraft could be filed. A team of NASA, government, and industry partners is working to develop recommendations to assist the FAA in developing guidelines for certifying UAVs. The long-term goal is to recommend policies, procedures, and functional requirements that will ensure that High-Altitude, Long-Endurance (HALE) UAVs can operate as safely as other routine users of NAS.

FAA Administrator Marion Blakey continues to promote safety improvements in general aviation through the "Safer Skies" program. This program was begun in 1998, with the goal of achieving significant reductions in fatal accidents by 2007. Together with industry, the FAA has used 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 has embarked on a major effort to improve the quality, collection, and analysis of aviation data.

The GA JSC concentrates its efforts in the following areas: Controlled Flight into Terrain; Weather; Pilot Decision Making; Loss of Control; Survivability; and Runway Incursions.

## Manufacturer and Industry Programs/Initiatives

The first micro jets, also called very light jets (VLJ) are scheduled to be on the market in late 2005. A combination of new jet engine technologies, sophisticated avionics equipment and entrepreneurs has provided the impetus for this new aircraft market. Several manufacturers have announced that they have received thousands of down payments for these aircraft that are expected to be priced from a low of around \$1 million to a high of almost \$3 million. At least two of the micro jet manufacturers have plans to utilize these planes, which generally hold 4 to 6 passengers, as on-demand air taxis. NASA believes micro jets could inspire more travelers to consider them as alternatives to commercial aviation, especially for routes of 500 miles or less. However, there are differing views as to the potential size of this market.

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 the costs associated with operating a separate flight department. During this time, fractional ownership providers have operated under Federal Aviation Regulation (FAR) Part 91, which governs general aviation. In 2002, 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 to review current Federal Aviation Regulations regarding fractional ownership activity and to draft a proposal that would require fractional ownership aircraft to operate under subpart K of Part 91. That requirement was instituted in October 2004.

Over the past several years, the general aviation industry has launched a series of programs and

initiatives whose main goal is 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." Over the years, these programs have been or are being superceded by new initiatives. For example, at the NBAA's 57<sup>th</sup> Annual Meeting and Convention in October 2004, NBAA and GAMA announced the development of several new cooperative programs, including a follow-on to the "No Plane, No Gain" advocacy program.

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

Security continues to be of primary concern to the general aviation industry. The general aviation community has worked with the Transportation Security Administration (TSA) to develop a set of guidelines that are designed to ensure security while giving general aviation the freedom to operate effectively.

## GENERAL AVIATION FORECASTS

The general aviation forecasts discussed in the following paragraphs are based on a set of economic assumptions that includes a strong growth in 2005 and 2006, with moderate sustained growth thereafter. The modest recovery in the demand for general aviation products and services over the past year provides the foundation upon which the industry hopes to build on for the future. It is generally believed that general aviation activity lags U.S.

economy activity by approximately one year and, as such, is expected to achieve only low to moderate growth in 2004 and 2005. However, the demand for general aviation products and services is expected to return to growth patterns more indicative of U.S. economic activity beginning in 2006.

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.

In addition, the forecast assumes that the fractional ownership and on-demand air taxi markets 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 forecast period for the two activity measures (active fleet and hours flown) extends from 2004 through 2016, and references to average annual growth rates for the forecast period include 13 years. Airmen forecasts are based on actual data for 2004, 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 expansion and corporate profitability, the introduction of new products, and the prices of the new aircraft offered for sale.

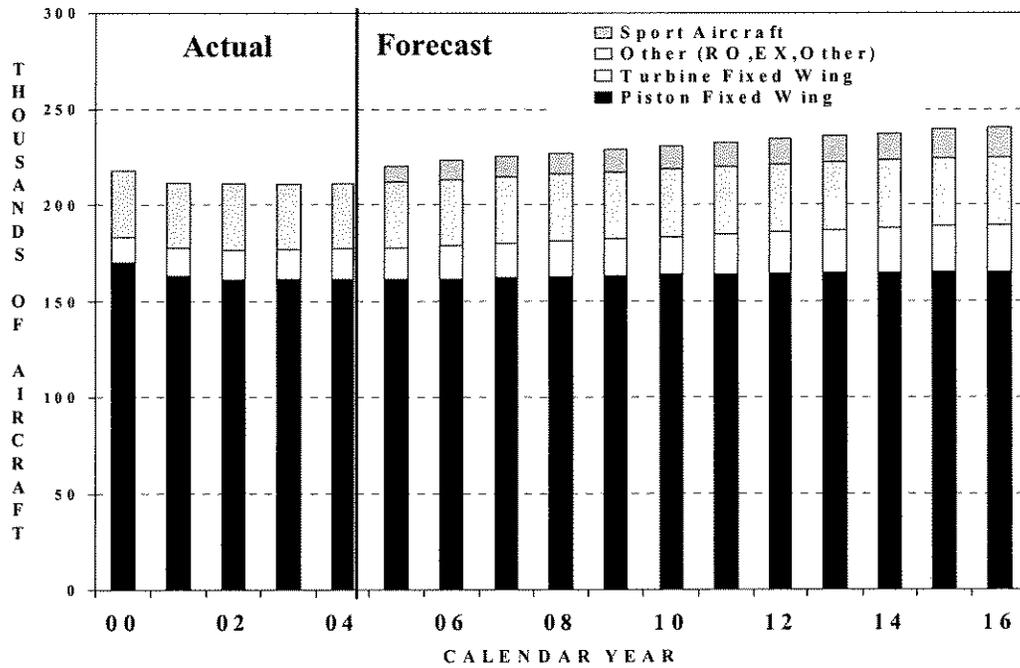
The active general aviation aircraft fleet is expected to increase at an average annual rate of 1.1 percent over forecast period, increasing from 210,600 in 2003 to 240,070 in 2016. However, this growth includes the addition of a new aircraft category--light sport aircraft--that is expected to enter the active fleet in 2005 and to account for 15,410 aircraft in 2016.

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. However, the introduction of micro jets and sport aircraft could alter this dynamic. The number of single-engine piston active aircraft is projected to maintain a 0.2 percent average annual growth from 143,916 active aircraft in 2003 to 148,000 in 2016. The number of active multi-engine piston aircraft is expected to decline by 0.2 percent per year over the forecast period, totaling 17,235 in 2016.

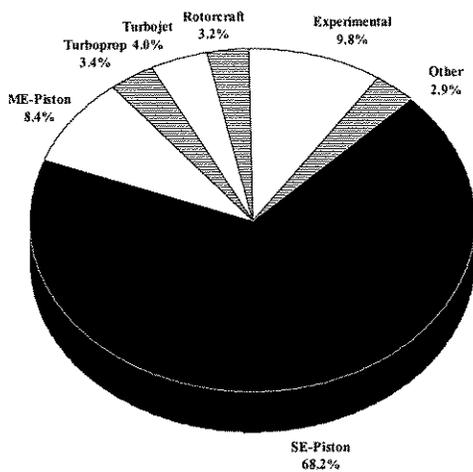
The turbine-powered fleet is expected to increase at an average annual rate of 3.7 percent over the forecast period. The number of turboprop aircraft is expected to increase from 7,201 in 2003 to 8,400 in 2016. This represents an average annual growth rate of 1.2 percent over the forecast period. These 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 5.4 percent annually, from 8,153 in

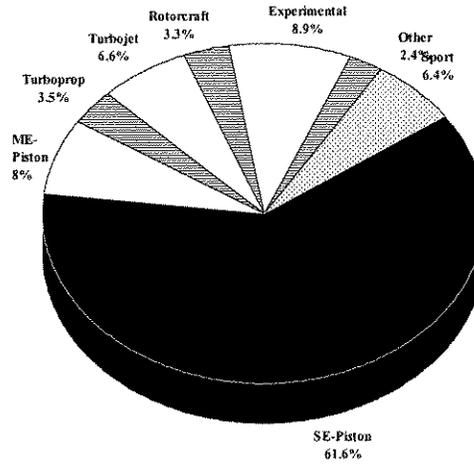
# ACTIVE GENERAL AVIATION AIRCRAFT



## PERCENT BY AIRCRAFT TYPE



2003



2016

2003 to 15,900 in 2016. Several factors are responsible for the market for business jets. These include strong growth in both the U.S. and global economy; the success and continued growth in the fractional ownership market; the continued introduction of new product offerings; and a continuation of the shift from commercial air travel to corporate/business air travel by business travelers and corporations. In addition, the forecast assumes that new micro jets will begin to enter the fleet in 2006 and grow to a total of 4,500 aircraft by 2016. These aircraft are expected to stimulate the market for on-demand air taxis.

The rotorcraft fleet is forecast to grow 1.2 percent annually over the forecast period, from 6,791 in 2003 to 7,915 in 2016. The piston and turbine rotorcraft fleet are each projected to grow at an annual rate of 1.2 percent. A detailed discussion of the rotorcraft forecasts is presented in Chapter VI.

The number of experimental aircraft is projected to increase from 20,603 in 2003 to 21,380 in 2010, and remains at this level throughout the remainder of the forecast period. The lack of growth after 2010 is largely due to the introduction of new sport aircraft models that are expected to dilute the market for experimental aircraft kits and blur the distinction between the two aircraft categories. Gliders and lighter-than-air aircraft are forecast to decrease 0.5 percent annually, from 6,213 in 2003 to 5,830 in 2016.

## 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. 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 the ones that occurred in 1990-1991 and 2001 can also impact utilization. The decline in the utilization rates 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 11<sup>th</sup> events were thought to also contribute to the decline in utilization in 2001.

Utilization rates appear to have stabilized since 2001, and have increased from 128.0 in 2002 to 128.4 hours per aircraft in 2003. The strong growth projected in the U.S. economy in 2005 and 2006 should lead to continued increases in 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.

The utilization rate for single engine piston aircraft was an estimated 114.5 hours per aircraft in 2003. Starting at this base and excluding light sport aircraft, utilization rates for single-engine piston aircraft are projected to increase to 116.7 hours by 2016, an increase of 0.1 percent annually.

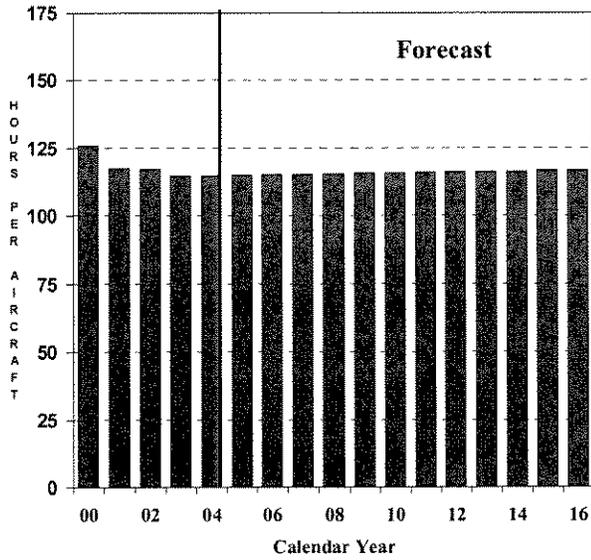
The relatively small increase forecast for single-engine piston utilization rates results from the fact that utilization rates tend to be lower for older aircraft. With less than 2,000 new aircraft projected to enter the fleet annually, the single-piston fleet will “age” and, utilization rates should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

In 2003, multi-engine piston aircraft utilization rates are estimated to be approximately 130.2 hours per aircraft. The utilization of multi-engine piston aircraft is forecast to decrease to 128.8 hours in 2016. This is an annual average decrease of 0.1 percent.

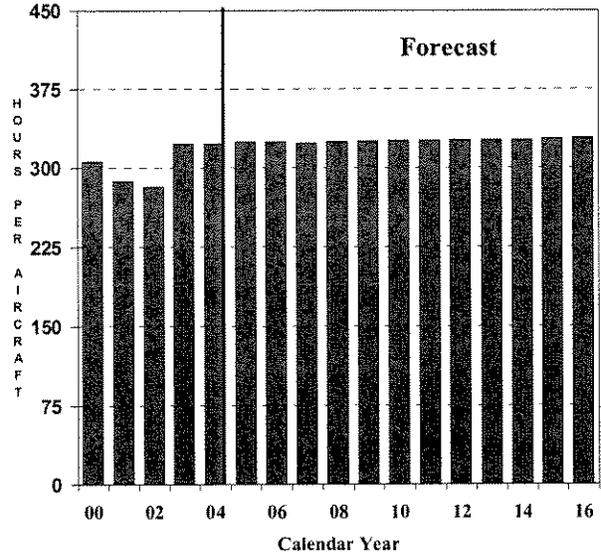
The utilization rate for turboprops declined 8.2 percent (to 248.2 hours) in 2003. While turboprop utilization is expected to increase to 256.0 hours by 2016, this is well below the average 344.7 hours flown per aircraft in 2000. Turbojet utilization was up 0.1 percent in 2003

# GENERAL AVIATION AIRCRAFT UTILIZATION: AVERAGE HOURS PER AIRCRAFT

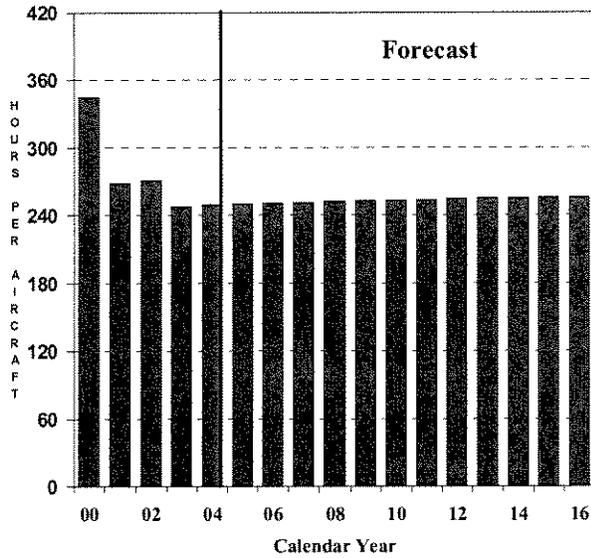
PISTON FIXED WING



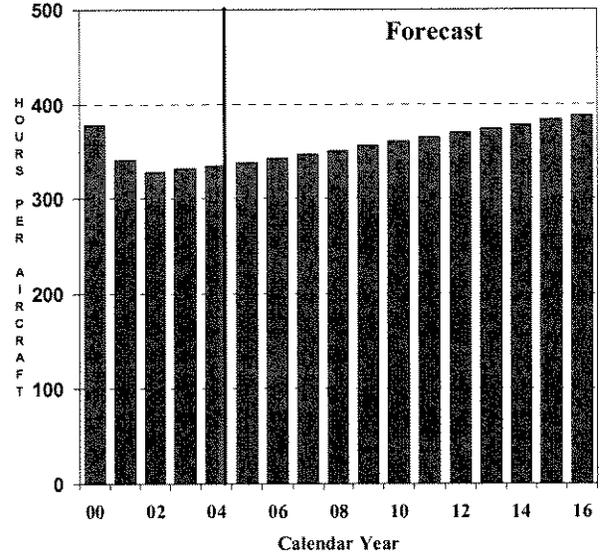
ROTORCRAFT



TURBOPROP



TURBOJET



and is projected to increase at an average annual rate of 1.2 percent over the 13-year forecast period, from 332.3 hours in 2003 to 387.6 hours in 2016. The increase in utilization rates for turbojets is largely attributable to the increased number of aircraft being operated by fractional ownership providers.

The rotorcraft utilization rate was up 14.4 percent in 2003—piston and turbine average hours up 12.2 and 12.9 percent, respectively. Rotorcraft utilization is expected to increase at an average annual rate of 0.1 percent annually, reaching 328.5 hours in 2006. Utilization rates for experimental aircraft are forecast to increase slightly over the 13-year forecast period.

## HOURS FLOWN

General aviation hours flown are forecast to increase by 1.6 percent annually over forecast period—from 27.1 million in 2003 to 32.8 million in 2016. Single-engine piston aircraft hours are forecast to increase 0.4 percent annually from 16.5 million in 2003 to 17.3 million in 2016. Multi-engine piston aircraft hours are forecast to decline 0.3 percent annually, from 2.3 million in 2003 to 2.2 million in 2016.

Turboprop hours are expected to increase 1.4 percent annually over the forecast period, from 1.8 million to 2.2 million hours. Turbojet hours are expected to increase from 2.7 million in 2003 to 6.2 million in 2016, an average annual increase of 6.7 percent. Although the introduction of micro jets accounts for some part of this increase, it is the expected continued strong growth among higher utilization fractional ownership aircraft that accounts for the majority of the increase.

Rotorcraft hours are forecast to increase approximately 1.3 percent annually over the forecast period, from 2.2 million in 2003 to 2.6 million in 2016. Experimental aircraft hours are expected to increase at an annual rate of 0.4 percent, from 1.3 million in 2003 to 1.4 million in 2016. The sport aircraft category is expected to total 785,000 hours in 2016.

## PILOT POPULATION

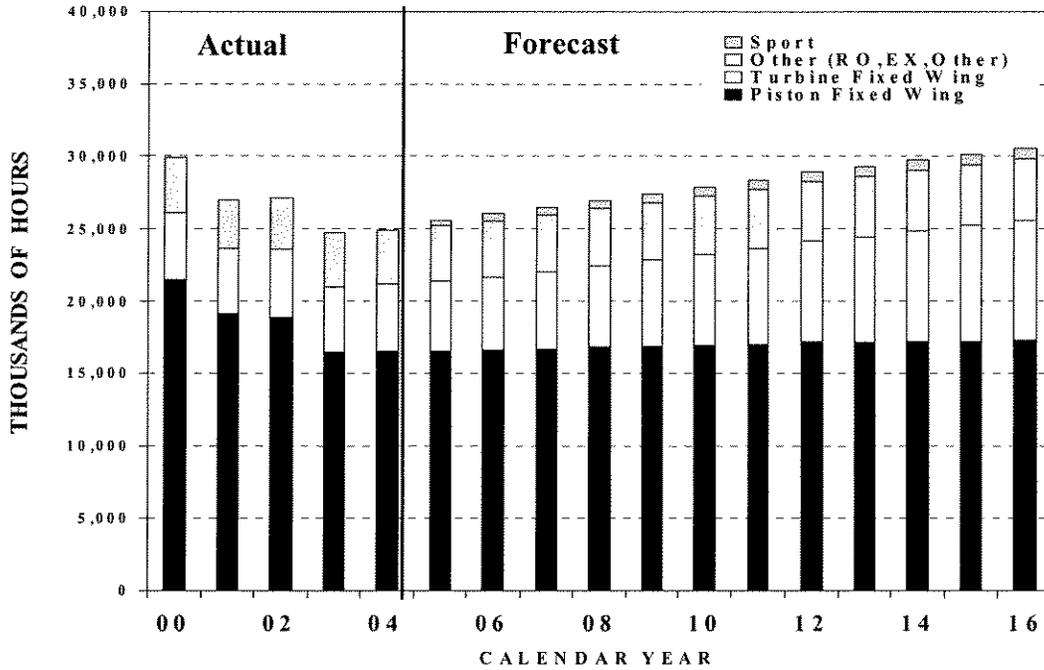
The total pilot population is projected to increase from an estimated 618,633 in 2004 to 750,260 by 2016, an annual increase of 1.6 percent over the forecast period. Annual growth rates for the major general aviation pilots categories are: student pilots, up 1.8 percent annually; private pilots, up 1.2 percent annually; and commercial pilots, up 1.7 percent annually.

The student pilot population increased 0.7 percent in 2004. This important pilot category is forecast to reach a total of 108,800 in 2016. The new category of sport aircraft makes it more economical to learn to fly, thereby attracting more student pilots.

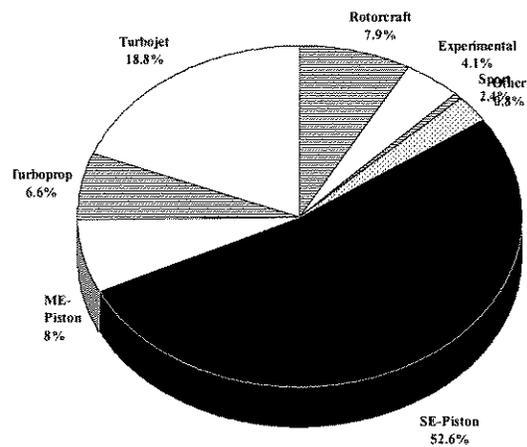
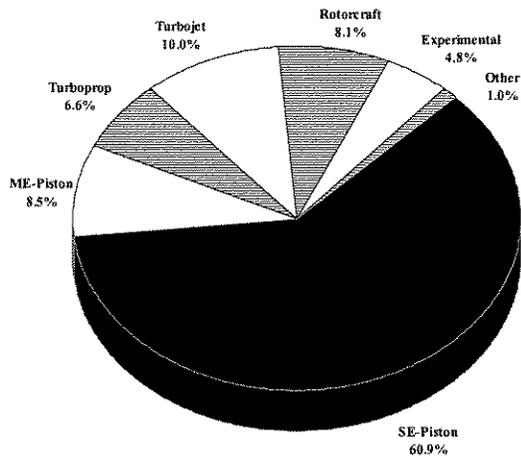
Growth rates for the other pilot categories over the forecast period are: airline transport pilots, up 1.7 percent; recreational, up 1.6 percent; rotorcraft only, up 1.2 percent; and glider only, up 0.2 percent annually.

The number of instrument rated pilots is forecast to increase from 313,545 in 2004 to 379,200 in 2016. Excluding students, recreational, and sport pilots, 60.3 percent of all pilots are expected to be instrument rated in 2016, up from 59.1 percent in 2004.

# ACTIVE GENERAL AVIATION AND AIR TAXI HOURS FLOWN

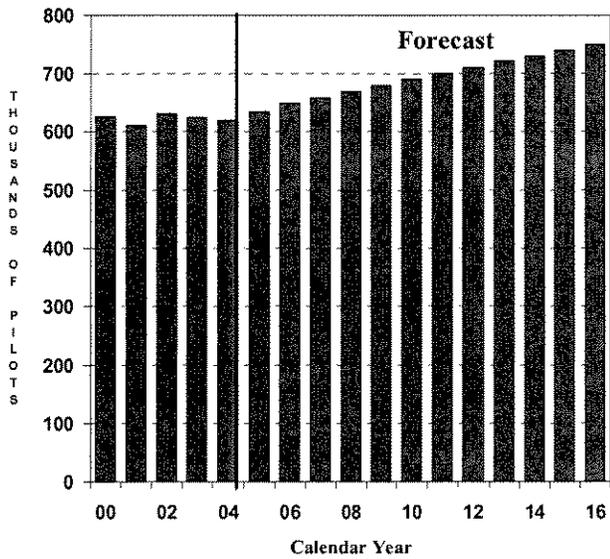


## PERCENT BY AIRCRAFT TYPE

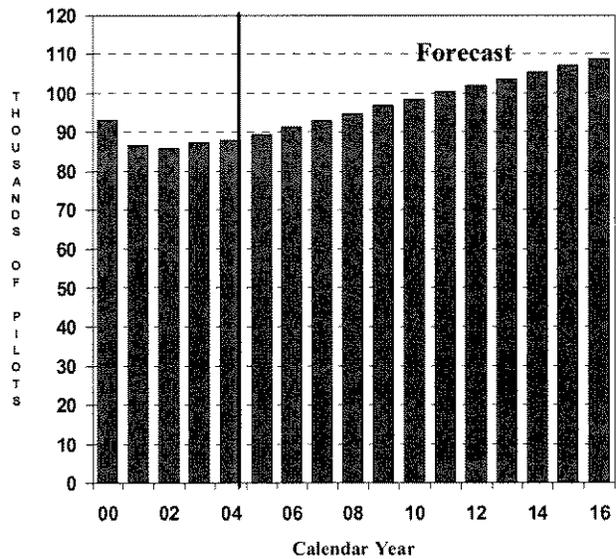


# ACTIVE PILOT TRENDS AND FORECASTS

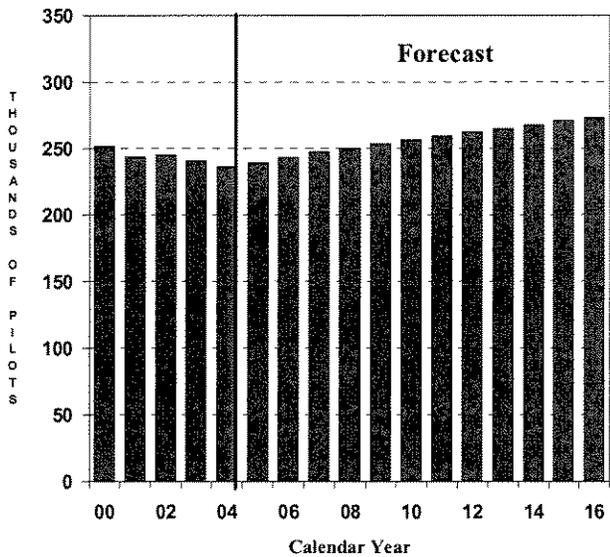
**TOTAL**



**STUDENT**



**PRIVATE**



**COMMERCIAL**

