

VIII. GENERAL AVIATION AIRCRAFT

General aviation aircraft activity information was obtained using the General Aviation/Air Taxi Activity (and Avionics) Survey, which is mailed to the owners of a sample of registered general aviation aircraft. The sample is a scientifically designed random sample which represents all general aviation and air taxi aircraft registered in the United States. The survey collects data relative to flight hours, airframe hours and, in alternate years, the avionics equipment on board the aircraft. In addition, the survey collects information about the number of hours flown under instrument flight rules, the number of landings, and the state where the aircraft is based.

Because the estimates are derived from a sample--not the total population of aircraft--a certain amount of sampling error is introduced. The user must consider this error along with the estimate itself when making an inference or drawing any conclusions about the aircraft population. Although the exact value of the sample error is unknown, a quantity known as the standard deviation is used to approximate it. Using the standard deviation, one can develop an interval within which the true population estimate will lie with a known probability. The probability that the true value will lie within the interval depends on the width of the interval, i.e., the estimate plus or minus 1, 2, or 3 times the standard deviation. The table below shows selected interval widths and their corresponding confidence.

Width of Interval	Approximate Confidence that Interval Includes True Population Value
1 standard deviation	68%
2 standard deviations	95%
3 standard deviations	99%

For example if the estimate for total flight hours for a particular aircraft type were 40,000 and the percent standard deviation was 3%, then the 95% confidence interval would be:

$$40,000 \pm (2 \times 0.03 \times 40,000)$$

$$40,000 \pm 2,400$$

$$(42,400; 37,600).$$

One can then assume that there is a 95% probability that the true population value of the total flight hours for this aircraft type lies between 42,000 and 37,600 hours.

More detailed estimates and a more detailed discussion of the survey and its methodology are available in the *General Aviation/Air Taxi Activity and Avionics Report*

DEFINITIONS

Active Aircraft--All legally registered civil aircraft which flew one or more hours.

Air Carrier-- An aircraft with a seating capacity of more than 30 seats or a maximum payload capacity of more than 7,500 pounds carrying passengers or cargo for hire or compensation.

Aircraft Type--A term used in this publication in grouping aircraft by basic configuration: fixed wing, rotorcraft, glider, dirigible, and balloon.

Experimental Aircraft--An aircraft which does not have a type design or does not meet other certification standards. The "experimental" designation is one of several "Special Airworthiness Certificates" which allows the aircraft to operate in US airspace. None may be used for commercial purposes. For this survey experimental aircraft are divided into three groups:

Amateur Built--An aircraft, built by one or more persons who undertake the effort for the purpose of recreation and education.

Exhibition--A unique (one-of-a-kind) aircraft, a replica, a foreign or US military surplus aircraft which may be used for exhibition purposes--movie and television productions, or sanctioned, organized events where the unique or unusual characteristics of the aircraft can be displayed.

Other--Includes experimental aircraft that are not amateur or exhibition. This includes aircraft involved in research and development, crew training, market surveys, air racing, those used to show compliance with regulations, and the like.

General Aviation--That portion of civil aviation which encompasses all facets of aviation except air carriers.

Use Categories--The eleven use categories are defined below:

Aerial Application--Agriculture, health, forestry, cloud seeding, firefighting, insect control.

Aerial Observation--Aerial mapping/photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory.

Air Taxi--Carrying passengers or cargo for hire or compensation using small aircraft (30 seats or less) under 14 CFR 135, excluding commuter air carrier.

Air Tours--Commercial sight seeing conducted under 14 CFR 135.

Business Transportation--Individual use of an aircraft for business transportation.

Commuter Air Carrier-- Carrying passengers for hire or compensation using small aircraft (30 seats or less) under 14 CFR 135 performing at least five scheduled round trips per week or carries cargo/mail.

Executive/Corporate Transportation--Company flying with a professional crew.

Instructional--Flying under the supervision of a flight instructor (excludes proficiency flying).

Other--Experimentation, R&D, testing, government demonstrations, air shows, air racing.

Other Work Use--Construction work (not 14 CFR 135), helicopter hoist, parachuting, aerial advertising, towing gliders.

Personal/Recreation--Flying for personal reasons (excludes business transportation).

Public Use--Federal, state or local government owned or leased aircraft used for the purpose of fulfilling a government function.

Sight Seeing--Commercial sight seeing conducted under 14 CFR 91.

These definitions only apply to this chapter.