

FAA-79-16
REPORT NO. FAA-MS-79-5

REFERENCE ONLY

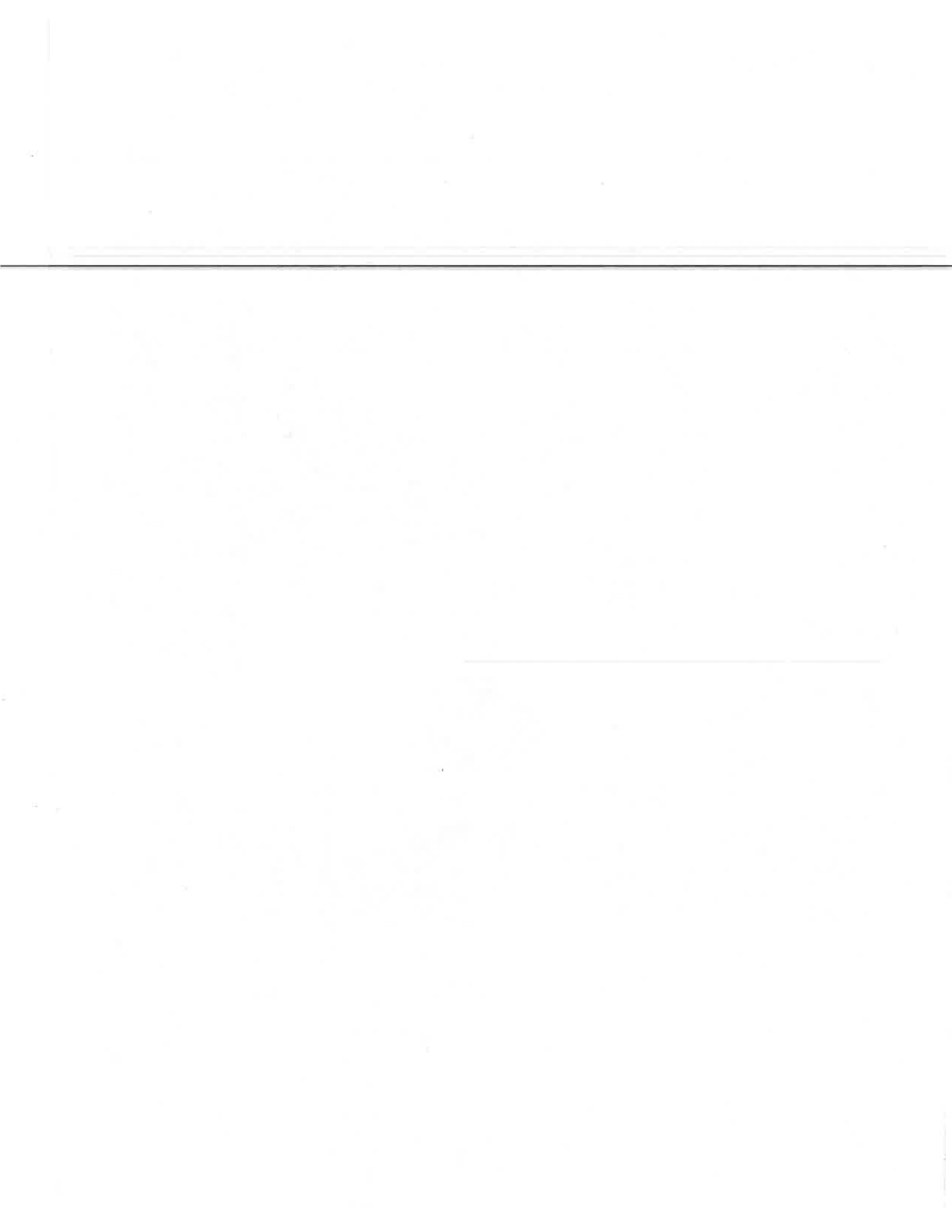
1977 GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY



APRIL 1979
ANNUAL SUMMARY REPORT

Prepared by
Research and Special Programs Administration
Transportation Systems Center
Transportation Information Division
Statistical Information Reporting Branch
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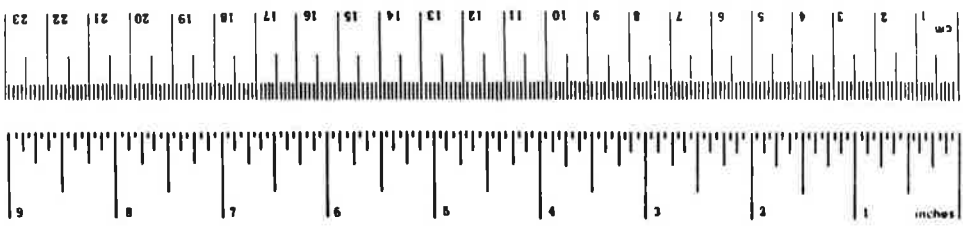
Prepared for
U.S. DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Office of Management Systems
Washington DC 20590



1. Report No. FAA-MS-79-5		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle 1977 GENERAL AVIATION ACTIVITY AND AVIONICS SURVEY				5. Report Date April 1979	
				6. Performing Organization Code DTS/231	
				8. Performing Organization Report No. DOT-TSC-FAA-79-16	
7. Author(s) Judith C. Schwenk				10. Work Unit No. (TRAIS) FA943/R9116	
9. Performing Organization Name and Address Transportation Systems Center Transportation Information Division Statistical Design and Analysis Branch Kendall Square, Cambridge, MA 02142				11. Contract or Grant No.	
				13. Type of Report and Period Covered Annual Report CY 1977	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Federal Aviation Administration Office of Management Systems Washington DC 20590				14. Sponsoring Agency Code AMS/230	
				15. Supplementary Notes	
16. Abstract <p>This report presents the results and a description of the 1977 General Aviation Activity and Avionics Survey. The survey was conducted during early 1978 by the FAA to obtain information on the activity and avionics of the United States registered general aviation aircraft fleet, the dominant component of civil aviation in the U.S. The survey was based on a statistically selected sample of about 14.4 percent of the general aviation fleet and obtained a response rate of 80 percent.</p> <p>Survey results revealed that during 1977 an estimated 35.8 million hours of flying time were logged by the 184,294 active general aviation aircraft in the U.S. fleet, yielding a mean annual flight time per aircraft of 194.2 hours. The active aircraft represented almost 87 percent of the registered general aviation fleet.</p>					
17. Key Words Aircraft, Aircraft Activity, Aircraft Use, Avionics, Fuel Consumption, General Aviation, Hours Flown			18. Distribution Statement DOCUMENT IS AVAILABLE TO THE PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 152	22. Price

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures			Approximate Conversions from Metric Measures			
Symbol	When You Know	Multiply by	To Find	Symbol	When You Know	
LENGTH						
in	inches	2.5	Centimeters	cm	millimeters	0.04
ft	feet	30	Centimeters	cm	inches	0.4
yd	yards	0.9	Meters	m	feet	3.3
mi	miles	1.6	Kilometers	km	yards	1.1
					miles	0.6
AREA						
in ²	square inches	6.5	square centimeters	cm ²	square centimeters	0.16
ft ²	square feet	0.09	square meters	m ²	square meters	1.2
yd ²	square yards	0.8	square meters	m ²	square yards	1.2
mi ²	square miles	2.6	square kilometers	km ²	square kilometers	0.4
	acres	0.4	Hectares	ha	hectares (10,000 m ²)	2.5
MASS (weight)						
oz	ounces	28	grams	g	grams	0.036
lb	pounds (2000 lb)	0.45	Kilograms	kg	kilograms	2.2
		0.5	Tonnes	t	tonnes (1000 kg)	1.1
					ounces	0.036
					pounds	2.2
					short tons	1.1
VOLUME						
teaspoon	teaspoons	5	milliliters	ml	milliliters	0.03
tablespoon	tablespoons	15	milliliters	ml	liters	2.1
fluid ounce	fluid ounces	30	milliliters	ml	liters	1.06
cup	cups	0.24	liters	l	liters	0.26
pt	pints	0.47	liters	l	cubic meters	36
qt	quarts	0.95	liters	l	cubic meters	1.3
gal	gallons	3.8	liters	l		
ft ³	cubic feet	0.03	cubic meters	m ³		
yd ³	cubic yards	0.76	cubic meters	m ³		
TEMPERATURE (exact)						
F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	C	Celsius temperature	9/5 (then add 32)
					Fahrenheit temperature	F

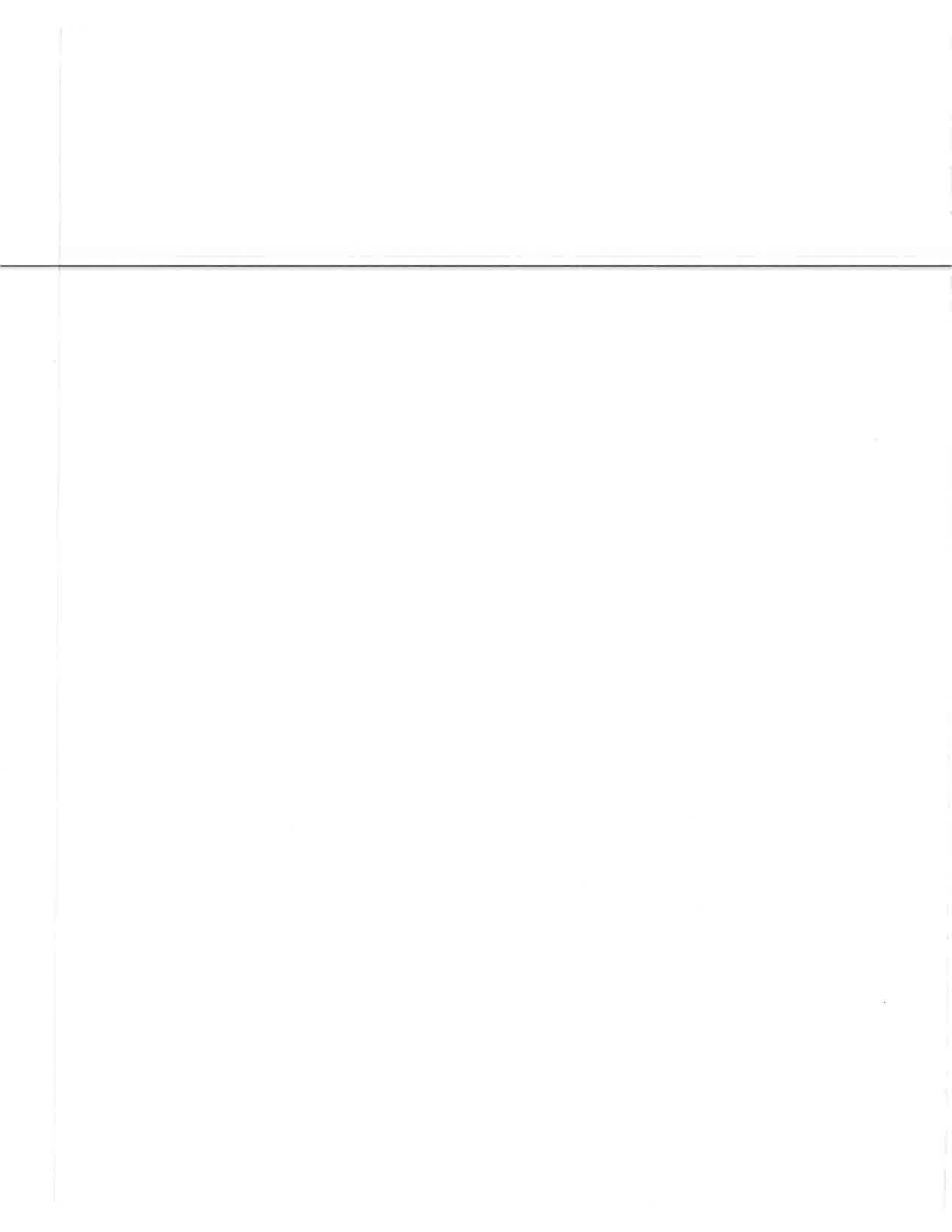


PREFACE

This report presents the 1977 General Aviation Activity and Avionics Survey results compiled at the Transportation Systems Center (TSC) under Project Plan Agreement FA-943 sponsored by the Federal Aviation Administration (FAA), Office of Management Systems, Information and Statistics Division. The survey is the continuation of an FAA data collection program to gain information on the activities and avionics equipment of the general aviation aircraft fleet. The results represent the cumulative effort of several agencies within the Department of Transportation. TSC developed the survey method, sample design and computer system for sample selection, data editing and estimation of results. They also ran the system during survey production. Within the FAA, the Information and Statistics Division sponsored and coordinated the activities associated with the survey, the Data Systems Management Division was responsible for printing names, addresses and aircraft information on the questionnaires, and the Mike Monroney Aeronautical Center provided data tapes, conducted the telephone follow-up survey, and transferred the survey responses to machine readable forms.

The author would like to acknowledge contributions to this report by several FAA and TSC personnel: Carolyn Edwards and Nicholas Soldo, AMS-230, guided the project as sponsors and reviewed the report text; Neil Meltzer, DTS-233, provided assistance in coordinating the report editing, typing, artwork and printing. Thomas Cramer of Kentron International Limited designed and programmed the entire computer system for the survey. He was assisted on several of the final report programs by James Guarente and Fred Doten, also of Kentron.

Distribution: ZMS-348C.FAS-1, FAT-0, FFS-1,2,3,5,7,8, FIA-0
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EXECUTIVE SUMMARY

This report presents the results of the first General Aviation Activity and Avionics Survey, conducted in 1978 by the Federal Aviation Administration to obtain information on the activities and avionics of the 1977 general aviation aircraft fleet, the major component of civil aviation in the United States. The FAA selected a statistically designed sample of about 14.4 percent of the registered general aviation fleet to participate in the survey. The sampled aircraft represented all states and FAA regions, and all of the major manufacturer - model groups of aircraft. The survey was conducted through a mailed questionnaire, with a telephone follow-up survey of a sample of non-respondents, yielding in total a response rate of 80 percent.

Some important survey findings appear below:

- o An estimated 35.8 million hours of flying time were logged by the 184,294 active general aviation aircraft in the U.S. fleet during 1977. These aircraft had a mean annual flight time per aircraft of 194.2 hours and represented almost 87 percent of the registered general aviation fleet.
- o Turboprop and turbojet aircraft were the most heavily used aircraft in the fleet, each averaging over 500 hours per aircraft for the year. In contrast, single engine piston powered aircraft averaged fewer than 175 hours per aircraft in 1977.
- o The most common primary use of a general aviation aircraft was personal for an estimated 48 percent of the active fleet, followed by business for 22 percent of the fleet, and instructional for 9 percent of the fleet.
- o The most populous region in terms of based aircraft was the Great Lakes Region, housing an estimated 18 percent of all registered general aviation aircraft; the most populous state was California, housing 13 percent of the registered aircraft.

- o Over 80 percent of the general aviation aircraft have two-way VHF communications equipment; over 50 percent are equipped with 4096-code transponders; almost 50 percent have at least one component of an instrument landing system; and over 75 percent have some form of navigation equipment.

- o An estimated 35 percent of the active general aviation fleet flew by instrument flight rules (IFR) at some time during 1977.
- o An estimated 6.1 percent of the general aviation fleet was on long-term lease during 1977.

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1. INTRODUCTION

1.1 GENERAL

1.1.1 Purpose of Survey

The purpose of the General Aviation Activity and Avionics Survey is to provide the Federal Aviation Administration (FAA) with information on the activity and avionics of the general aviation fleet. Figure 1.1 underscores the importance of general aviation to the United States civil air fleet. During calendar year 1977 general aviation composed almost 99 percent of the U.S. civil air fleet¹, accounted for over 84 percent of civil operations at FAA towered airports², and logged over 84 percent of the total hours flown by the U.S. civil air fleet.³ The information obtained from the survey enables the FAA to monitor the general aviation fleet so that it can, among other activities, anticipate and meet demand for National Airspace System facilities and services, assess the impact of regulatory changes on the general aviation fleet, and implement measures to assure the safe operation in the airspace of all aircraft.

¹Census of U.S. Civil Aircraft, Calendar Year 1977, U.S. Department of Transportation, Federal Aviation Administration, (Washington, DC, 1979), p. 4.

²FAA Air Traffic Activity, Calendar Year 1977, U.S. Department of Transportation, Federal Aviation Administration, (Washington, DC, 1978), p. 2.

Note: General aviation as used in this report combines both general aviation and air taxi from the source above.

³Air Carrier: Census of U.S. Civil Aircraft Calendar Year 1977, U.S. Department of Transportation, Federal Aviation Administration, (Washington, DC, 1979), p. 30. General Aviation: Table 2-1.

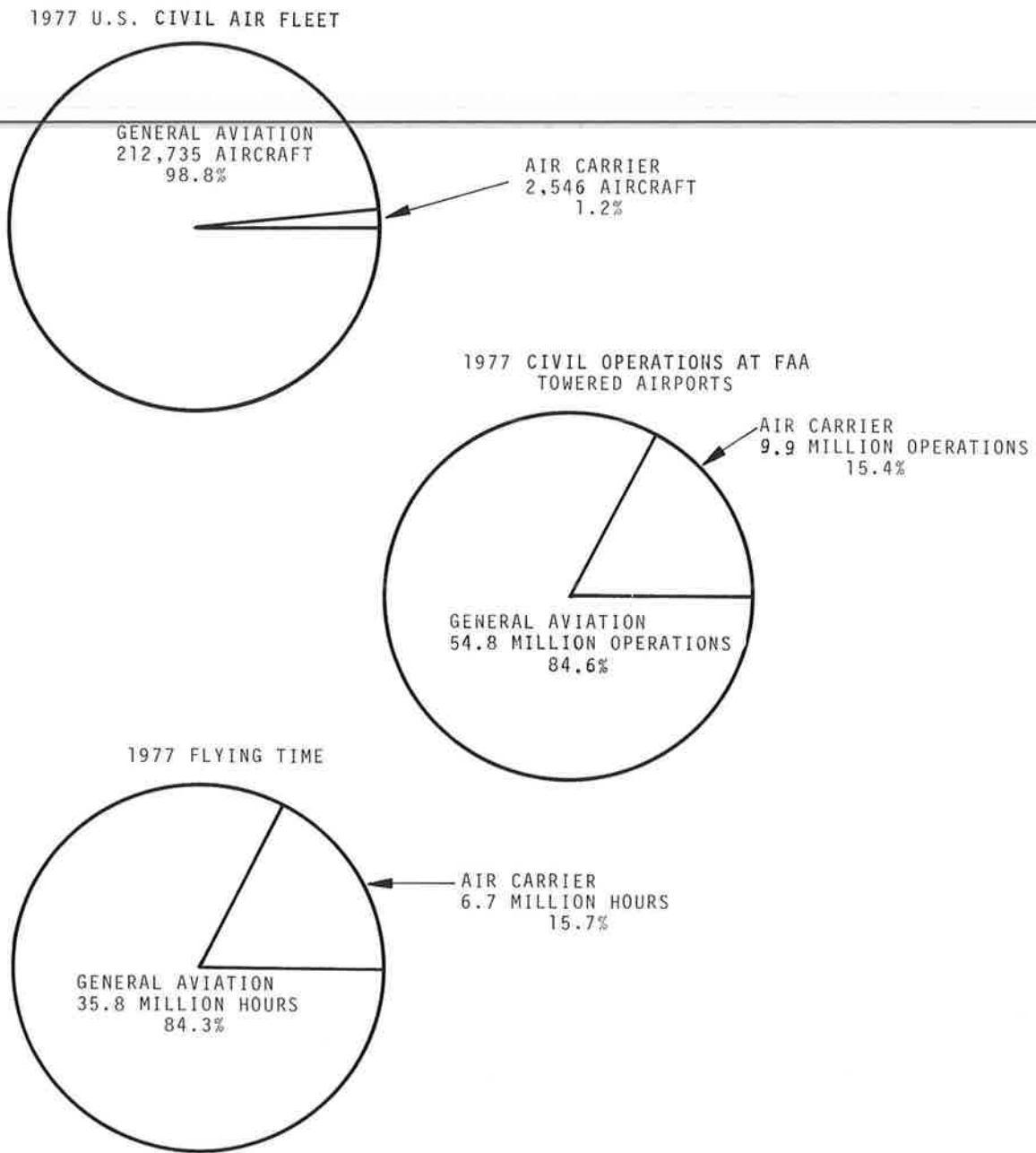


FIGURE 1.1 A CONTRAST OF GENERAL AVIATION AND AIR CARRIER ACTIVITY

1.1.2 Background

Prior to the current survey, the FAA used the Aircraft Registration Eligibility, Identification and Activity Report, AC Form 8050-73 in its data collection program on general aviation activity and avionics. The form, sent annually to all owners of civil aircraft in the U.S., served two purposes: (1) Part 1 was the mandatory aircraft registration renewal form; (2) Part 2 was voluntary and applied to general aviation aircraft only, asking questions on the owner-discretionary characteristics of the aircraft such as flight hours, avionics equipment, base location, and use. In 1978, the FAA replaced AC Form 8050-73 with a new system: Part 1 was replaced by a triennial registration program; Part 2 was replaced by the General Aviation Activity and Avionics Survey, FAA Form 1800-54. (See Appendix A3.) The survey was to be conducted annually based on a statistically selected sample of general aviation aircraft, requesting the same type of information as Part 2 of AC Form 8050-73. The first General Aviation Activity and Avionics Survey took place in 1978, collecting the 1977 data from which the statistics in this report were derived. Benefits resulting from the new method of data collection included quicker processing of the results, improved data quality, and a considerable savings in time and money to both the public and the Federal Government. Specifically, the public reporting burden was reduced by an estimated 13,000 hours annually, and the cost savings to the public and Government were estimated to be one million dollars annually.

1.2 SURVEY COVERAGE

1.2.1 Aircraft

The General Aviation Activity and Avionics Survey covers, through a stratified probability sample, all general aviation aircraft registered in the United States. The term "general aviation", as used for this survey, is defined as all aircraft in the U.S. civil air fleet except those operated under Federal Aviation Regulations Parts 121 and 127. These two parts cover the

operations of fixed wing aircraft and rotorcraft, respectively, that 1) have been issued a certificate of public convenience and necessity by the Civil Aeronautics Board authorizing the performance of scheduled air transportation over specified routes and a limited amount of non-scheduled operations, and 2) are used by large aircraft commercial operators. General aviation thus includes aircraft operated under:

- Part 91: General operating and flight rules.
- Part 123: Certification and operations: air travel clubs using large airplanes.
- Part 133: Rotorcraft external load operations.
- Part 135: Air taxi operators and commercial operators of small aircraft.
- Part 137: Agricultural aircraft operations.

General aviation offers such varied services as air taxi, air cargo, industrial, agricultural, business, personal, instructional, research, patrol and sport flying. General aviation aircraft range in complexity from simple gliders and balloons to four engine turbojets.

Certain aircraft meeting the general aviation criteria have been excluded from the survey. This group consists of aircraft registered to dealers, aircraft in the process of being sold or with registration pending, and aircraft for which not enough information was available to categorize them properly for sampling purposes.

1.2.2 Geographic

The sample survey covers general aviation aircraft registered with the United States Aircraft Registry as of December 31, 1977. Over 99 percent of these aircraft are registered to owners living in the 50 states and Washington, D.C., with about 0.3 percent (543 aircraft) registered in Puerto Rico and other U.S. territories,

and 0.2 percent (374 aircraft) registered to owners living in foreign countries.¹

1.2.3 Content

Appendix A3 contains a copy of the survey questionnaire, FAA Form 1800-54. The questionnaire requests the owner to provide information on the sampled aircraft's characteristics and uses for various time periods:

- 1) Hours by use, IFR hours, fuel consumption, and leasing information for entire calendar year 1977,
- 2) Airframe hour reading and state of aircraft base as of December 31, 1977, and
- 3) Avionics equipment currently on board.

1.3 SAMPLE DESIGN

1.3.1 Sample Frame and Size

The Aircraft Registration Master File, maintained by the FAA Mike Monroney Aeronautical Center in Oklahoma City, provided the sample frame, the list of aircraft from which the sample was selected, for the survey. This file is the official record of registered civil aircraft in the U.S., containing one record per aircraft. It accurately represents the current civil air fleet, being updated continuously for new registrations, changes in ownership, etc.

All aircraft identified as general aviation in the file according to the definition in Section 1.2.1 comprise the sample frame with the following exceptions:

- 1) Aircraft registered to dealers.
- 2) Aircraft with "Sale Reported" or "Registration Pending" appearing in the record instead of the owner's name.
- 3) Aircraft with a known inaccurate owner's address.

¹Source: FAA Aircraft Registration Master File as of December 31, 1977.

- 4) Aircraft with missing state of registration, aircraft make-model-series code, or aircraft type information.

For calendar year 1977, the sample frame consisted of 212,598 general aviation aircraft records from which 30,643 records were sampled, yielding a 14.4 percent sample. Table 1-1 and Figure 1.2 show the distribution of the sample compared to that of the population by aircraft type. Table 1-2 and Figure 1.3 show similar distributions by FAA region. (See Appendix B for the FAA regional map.) These displays clearly demonstrate the disproportionality of the sample to the population, an intended result of the sample design to gain efficiency and to control errors.

1.3.2 Description of Sample Design

The sample design employed was a stratified, systematic design from a random start. The sample was selected from a two-way stratified frame matrix. The two stratification criteria were:

- 1) State or territory of aircraft registration.
- 2) A variable called make-model index constructed from the thirteen aircraft types and the 300+ aircraft manufacturer/model groups of 20 or more general aviation aircraft.

The 54 levels of the state criterion and the 337 levels of the make-model index yielded a matrix of 54 by 337, or 18,198 cells (strata) among which the frame was divided for sampling.

The FAA's primary requirement was for estimates of mean annual flight hours per aircraft, necessitating optimal determination of sample sizes based on flight hour variation within the cells, and not on cell size. Hence, the sample was not proportional to cell size, and a sampling fraction was determined for each cell with a non-zero population. Sampling was then performed systematically from a random start within individual cells.

Initially, each aircraft in the sample was given a weight which was the inverse of its cell's sampling fraction, and which corresponded to the number of aircraft in the sample frame represented by that aircraft. When all responses to the survey were

TABLE 1-1. SAMPLE AND POPULATION DISTRIBUTIONS BY AIRCRAFT TYPE

<u>Type</u>	<u>Population</u>	<u>Sample Size</u>	<u>Sample as % of Population</u>
Fixed Wing			
Piston			
1 Engine, 1-3 seats	74,455	13,709	18.4
1 Engine, 4 + seats	98,191	8,150	8.3
2 Engines, 1-6 seats	15,690	2,118	13.5
2 Engines, 7 + seats	7,161	1,654	23.1
Other Piston	353	235	66.6
Turboprop			
2 Engines, 1-12 seats	2,295	345	15.0
2 Engines, 13 + seats	581	110	18.9
Other turboprop	98	85	86.7
Turbojet			
2 Engines	1,995	499	25.0
Other	499	310	62.1
Rotorcraft			
Piston	4,652	1,486	31.9
Turbine	2,193	438	20.0
Other	4,435	1,504	33.9
TOTAL	212,598	30,643	14.4

TABLE 1-2. SAMPLE AND POPULATION DISTRIBUTIONS BY REGION OF REGISTERED AIRCRAFT

<u>Region</u>	<u>Approximate Population</u>	<u>Sample Size</u>	<u>Sample as % of Population</u>
Alaska	5,865	756	12.9
Central	15,650	2,457	15.7
Eastern	22,536	4,430	19.7
European (Foreign)	373	171	45.8
Great Lakes	38,272	3,818	10.0
New England	7,594	3,263	43.0
Northwestern	13,960	1,774	12.7
Pacific	539	342	63.5
Rocky Mountain	12,066	2,907	24.1
Southern	33,748	5,241	15.5
Southwestern	28,548	3,147	11.0
Western	33,447	2,337	7.0
TOTAL	212,598	30,643	14.4

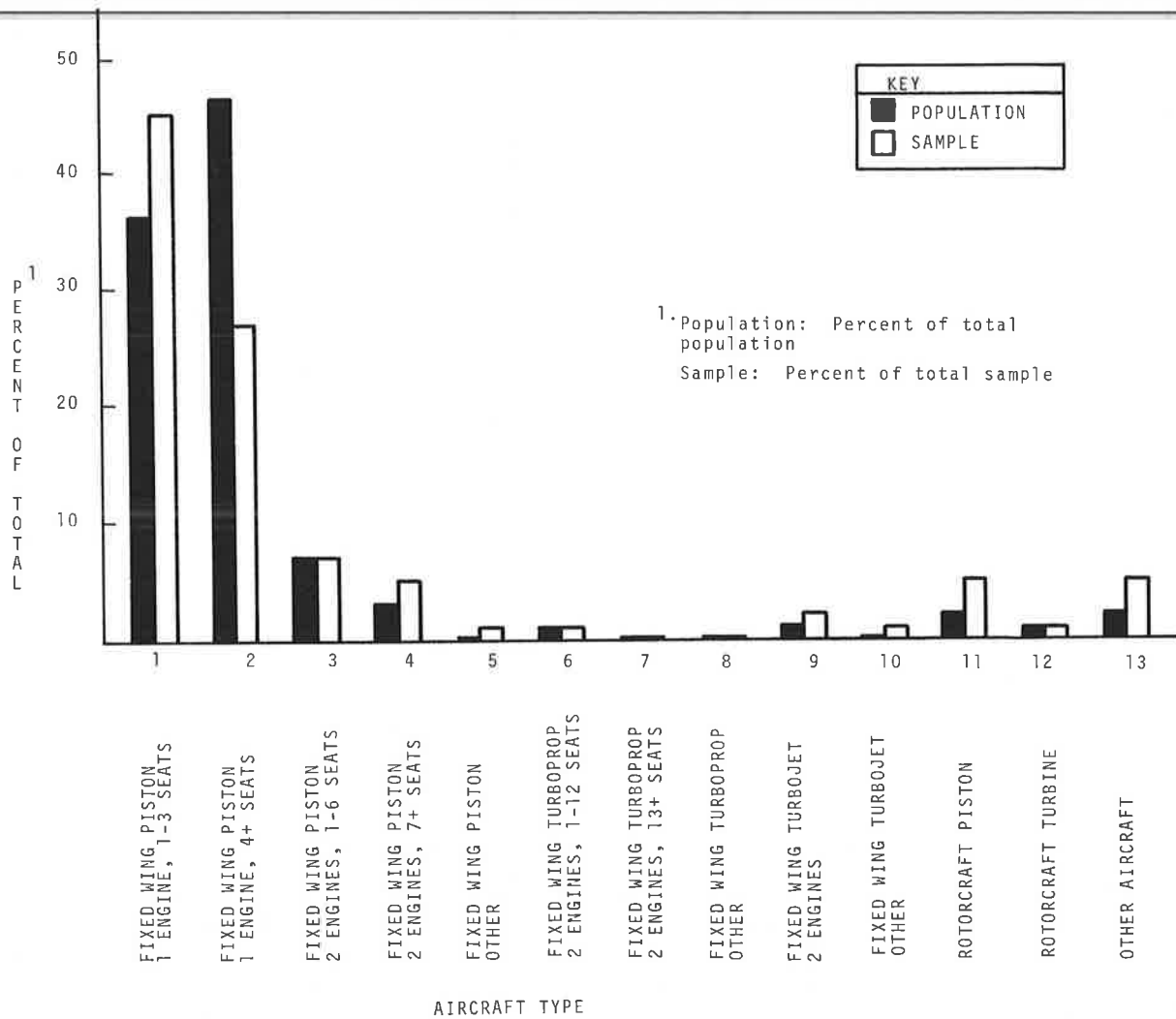


FIGURE 1.2 COMPARISON OF POPULATION AND SAMPLE DISTRIBUTIONS BY AIRCRAFT TYPE

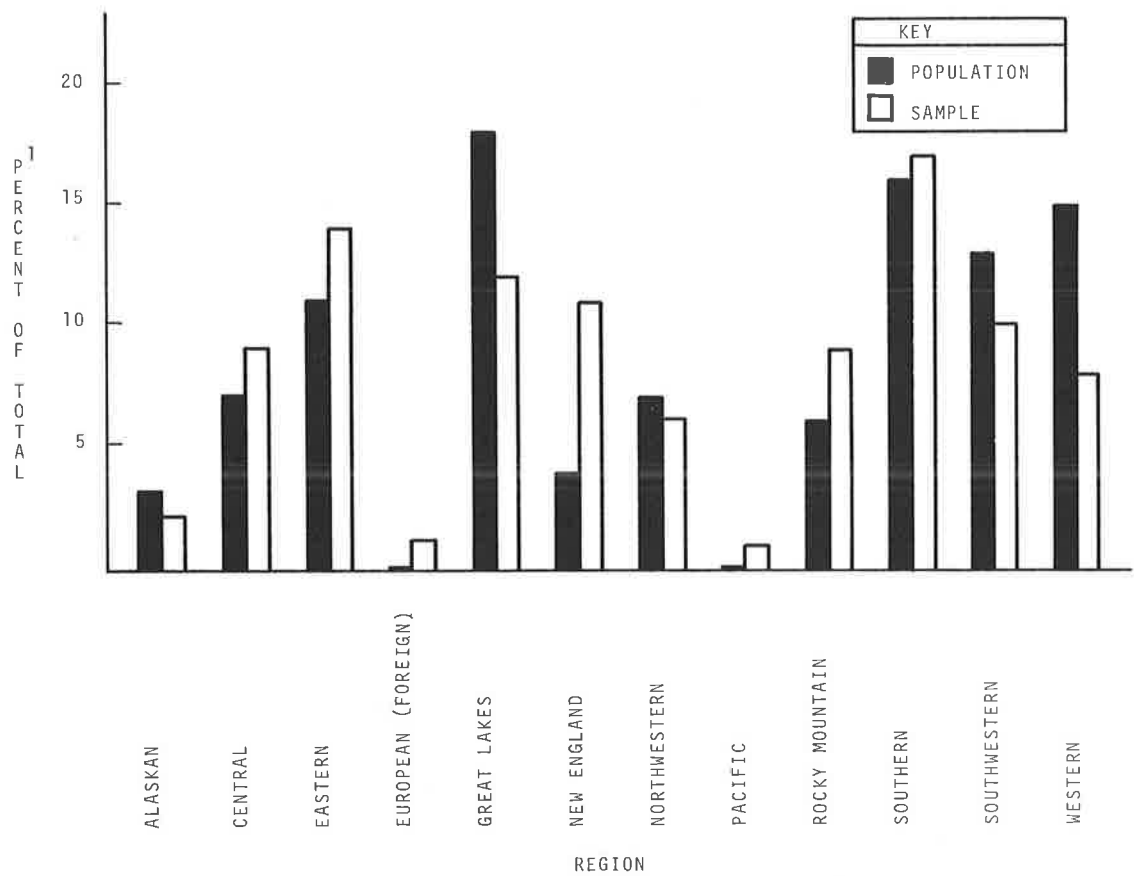


FIGURE 1.3 COMPARISON OF POPULATION AND SAMPLE DISTRIBUTIONS BY REGION OF REGISTERED AIRCRAFT

tallied, each weight was adjusted in two ways: one, according to the response rate for the aircraft's make-model index, and the other according to the response rate for the aircraft's state of registration, counting an aircraft for which no survey questions were answered as a non-respondent and an aircraft for which at least one question was answered as a respondent. The make-model index adjustment is described below; the state adjustment is analogous.

- 1) Non-respondents' weights were changed to zero.
- 2) The weights of all responding aircraft in make-model indices where there were fewer than five telephone follow-up contacts were adjusted uniformly by dividing the initial weight by the response rate.
- 3) In make-model indices where there were five or more telephone follow-up contacts, the weights of the mail respondents remained unchanged, and the weights of the telephone respondents were increased by dividing their initial weights by the proportion of non-respondents contacted by telephone.

This method of weight adjustment has several attributes. It actually incorporates the response rates into the final weights and simplifies estimation procedures. In addition, 3) above removes non-response bias from the affected make-model indices and states of registration by weighting the telephone sample of mail non-respondents to adjust for the remaining non-respondents. When calculating final estimates, the state weights are used for all state and regional estimates, the make-model index weights for all other estimates.

1.3.3 Error

Errors associated with estimates derived from sample survey results fall into two categories: sampling and non-sampling errors.¹ Sampling errors occur because the estimates are based on

¹Standards for Discussion and Presentation of Errors in Data, U.S. Department of Commerce, Bureau of the Census, (Washington, DC., 1974), pp. 11-14.

a sample — not the entire population. Non-sampling errors arise from a number of sources such as non-response, inability or unwillingness of respondents to provide correct information, differences in interpretation of questions, mistakes in recording or coding the data obtained, and others. The following sections discuss the two types of errors.

1.3.3.1 Sampling Error - In a designed survey, the sampling error associated with an estimate is generally unknown, but a measurable quantity known as the standard error is often used as a guide to the magnitude of sampling error. The standard error measures the variation which would occur among the estimates from all possible samples from the same population. It thus measures the precision with which an estimate approximates the average result of all possible samples or the result of a survey in which all elements of the population were sampled.

Through sample design techniques, the statistician can control the sizes of standard errors on a few key variables, known as design variables, in the survey. In the General Aviation Activity and Avionics Survey, the design variables were the mean annual hours flown per aircraft by aircraft type, by aircraft manufacturer-model group, and by state of aircraft registration. The sample was designed to produce standard errors on these variables at levels specified by the FAA. No controls were placed on the standard errors of the non-design variables.

Thus, every estimate resulting from a sample survey, whether it be for a design or non-design variable, has sampling error associated with it. The user of survey results must consider this error along with the point estimate itself when making inferences or drawing conclusions about the sample population. A large standard error relative to an estimate indicates lack of precision and, inversely, a small standard error indicates precision. To facilitate the comparison of estimates and their errors, the tables in Section 2 of this publication display standard errors for all estimated quantities. In addition, the percent standard error often appears, which is the standard error divided by the corresponding estimate. The paragraphs below explain the

proper interpretation and use of the errors.

An estimate and its standard error make it possible to construct an interval estimate with prescribed confidence that the interval will include the average value of the estimate from all possible samples of the population. Table 1-3 below shows selected interval widths and their corresponding confidence.

TABLE 1-3. CONFIDENCE OF INTERVAL ESTIMATES

WIDTH OF INTERVAL	APPROXIMATE CONFIDENCE THAT INTERVAL INCLUDES AVERAGE VALUE
1 Standard error	68%
2 Standard errors	95%
3 Standard errors	99%

As an example, from Table 2-1 a 95 percent confidence interval for the number of active rotorcraft with piston engines would be $2658 \pm 2(176)$ or (2306,3010). One would say that the number of active rotorcraft with piston engines lies somewhere between 2306 and 3010 with 95 percent confidence.

1.3.3.2 Non-Sampling Error - Non-sampling error can be reduced through survey design, although the amount of reduction is difficult, if not impossible, to quantify in any given design. Nevertheless, through controlled experiments, various techniques have been identified which limit non-sampling error. Several of these techniques were incorporated into the design of the general aviation survey and are itemized below:

- o The second mailing and telephone survey of a sample of non-respondents were conducted in addition to the original mailing to improve the response rate, since a low response rate is a major cause of non-sampling error. 80 percent of those aircraft sampled responded to at least one ques-

tion of the survey; this compares favorably with the expected response rate of 80 percent used in determining the overall sample size initially. Tables 1-4 and 1-5 show the response rates broken down by FAA region and aircraft type, respectively. The lowest response rate for any region was 50 percent for the European (Foreign) Region due to mail delivery and telephone contact difficulties. The Pacific Region rate was low at 65 percent for similar reasons. These two regions, however, represented less than 0.5 percent of the active U.S. general aviation fleet. Other Turboprop had the lowest response rate at 60 percent of any of the aircraft types, but these aircraft represented less than 0.1 percent of the fleet.

- o The telephone sample of mail non-respondents also helped to minimize bias in results caused by differences in attributes between respondents and non-respondents.
- o The survey questionnaire was designed and tested to minimize misinterpretation of questions by the aircraft owners.
- o To assure the owners of the confidentiality of their responses, the questionnaire cover letter informed them that the intended use of the responses was for "producing summary statistics and not to disclose individual operations nor to make corrections to your aircraft records."¹
- o Comprehensive editing procedures insured the accuracy of the data transcription to machine readable form and the internal consistency of responses.
- o The most accurate source of information on the general aviation fleet, the FAA Aircraft Master File, was used as the sampling frame.

¹See Appendix A1.

TABLE 1-4. RESPONSE RATES BY REGION

Region	Response Rate (%)	Region	Response Rate (%)
Alaskan	71	Pacific	65
Central	81	Rocky Mountain	80
Eastern	82	Southern	79
European (Foreign)	50	Southwestern	78
Great Lakes	83	Western	78
New England	84		
Northwestern	80	TOTAL	80

TABLE 1-5. RESPONSE RATES BY AIRCRAFT TYPE

Aircraft Type	Response Rate (%)	Aircraft Type	Response Rate (%)
Fixed Wing		Turbojet	
Piston		2 Eng.	82
1 eng. 1-3 seats	82	Other	70
1 eng. 4 + seats	80		
2 eng. 1-6 seats	76		
2 eng. 7 + seats	72		
Other	72		
Turboprop		Rotorcraft	
2 eng. 1-12 seats	80	Piston	80
2 eng. 13 + seats	86	Turbine	82
Other	60	Other	81
		TOTAL	80

1.4 SURVEY METHOD

The main method of collecting data for this survey was the mail questionnaire, sent to the owners of the sampled aircraft in two mailings. The first mailing on February 15, 1978, covered all 30,643 aircraft in the sample and had a response rate of 65 percent. This was about 82 percent of the total responses to the survey. The second mailing conducted on March 29, 1978, included only those aircraft in the sample that had not yet responded. The second mailing had a response rate of 35 percent which accounted for 15 percent of the total responses to the survey. The combined response rate for the two mailings was 78 percent of the sample.

A telephone follow-up survey was conducted during May and early June using the same questions appearing in the mail survey. A sample of the mail non-respondents was selected for the telephone survey weighing most heavily those states and make-model groups in the sampling strata that had the lowest mail response rates. Of a total telephone sample of 2289 aircraft, only 741, or 32 percent, responses could be obtained due to difficulty in obtaining telephone numbers, finding owners at home, and obtaining cooperation of owners over the telephone. Nevertheless, the 741 telephone responses contributed the remaining three percent of the responses and increased the overall response rate of the survey to 80 percent. (See Table 1-6.)

1.5 SUMMARY OF SURVEY RESULTS

1.5.1 National Scene

Results of the General Aviation Activity and Avionics Survey at the national level revealed that during 1977 an estimated 35.8 million hours of flying time were logged by the 184,294 active general aviation aircraft in the U.S. fleet, yielding a mean annual flight time per aircraft of 194.2 hours. These active aircraft comprised almost 87 percent of the registered general aviation fleet. The statistics for 1977 showed a 5.5 percent increase in flying hours, a 3.6 percent increase in the number of

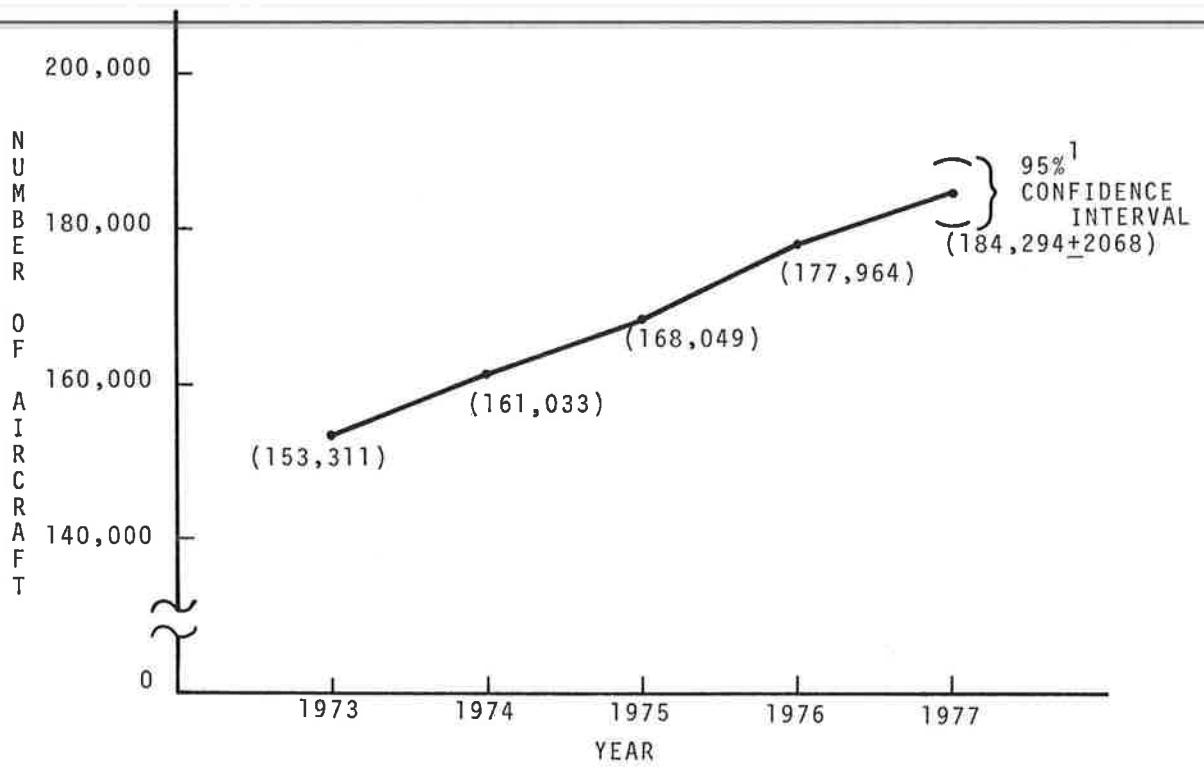
TABLE 1-6 SUMMARY OF RESPONSE INFORMATION BY SURVEY PHASE

SURVEY PHASE	SAMPLE SIZE (S)	NUMBER OF RESPONSES (R)	RESPONSE RATE (R/S x100%)	PORTION OF TOTAL RESPONSE [(R/TOTAL R)X100%]
FIRST MAILING	30,643	20,008	65%	82%
SECOND MAILING	10,641	3,749	35%	15%
COMBINED MAILINGS	30,643	23,751	78%	97%
TELEPHONE SURVEY	2,289	741	32%	3%
TOTAL	30,643	24,498	80%	100%

active aircraft in the general aviation fleet, and a 1.9 percent increase in mean hours per aircraft over the comparable figures for 1976. Longer term trends for these variables are found in Figures 1.4, 1.5 and 1.6. From 1973 to 1977 both the active fleet and the total hours flown exhibited growth trends which increased at approximately the same rates, but mean hours per aircraft showed more year-to-year variation. As the quotient of total hours divided by active fleet size, mean hours are sensitive to small differences between the growth rates of total hours and fleet size. Consequently, mean hours dip from about 195 hours per aircraft in 1973 and 1974 to about 191 hours per aircraft in 1975 and 1976, then climb to a level of about 194 hours per aircraft in 1977.

1.5.2 Results by Aircraft Type

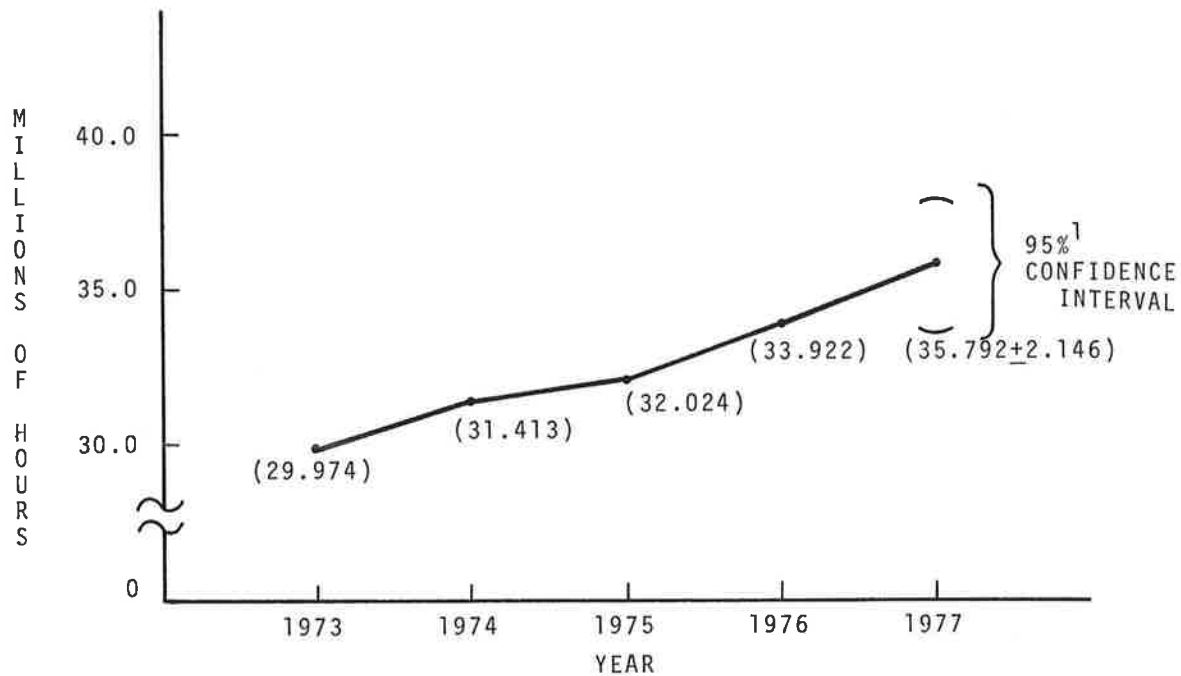
Although both the total flight time and the active aircraft count for the general aviation fleet grew at about the same annual rate (4.5 percent and 4.7 percent, respectively) from 1973 through 1977, significant deviations from these mean fleet rates occurred among the individual aircraft types. The following two tables illustrate this point. Tables 1-7 and 1-8 contain the five-year trends in growth for total hours flown and active aircraft, respectively. The last column in both tables is the compound annual growth rate for the aircraft type from 1973 to 1977. In Table 1-7, the fastest growth of any type in terms of total hours flown occurred to the turbine-powered rotorcraft with an average annual growth rate of 25.04 percent. They were followed by twin engine turbojets at 15.06 percent and twin engine turboprops with 1-12 seats at 11.75 percent. In contrast, single engine piston airplanes with 1-3 seats, piston-powered rotorcraft, and "other" turboprops experienced a decline in usage during the period. In general, it was the larger, more sophisticated aircraft in the general aviation fleet that grew faster than the other components of the fleet. Similar results are shown in Table 1-8 for the active aircraft counts.



1. The estimate plus or minus 2 standard errors forms a 95% confidence interval for the true value. See Section 1.3.3.1.

Source: Table 1-8

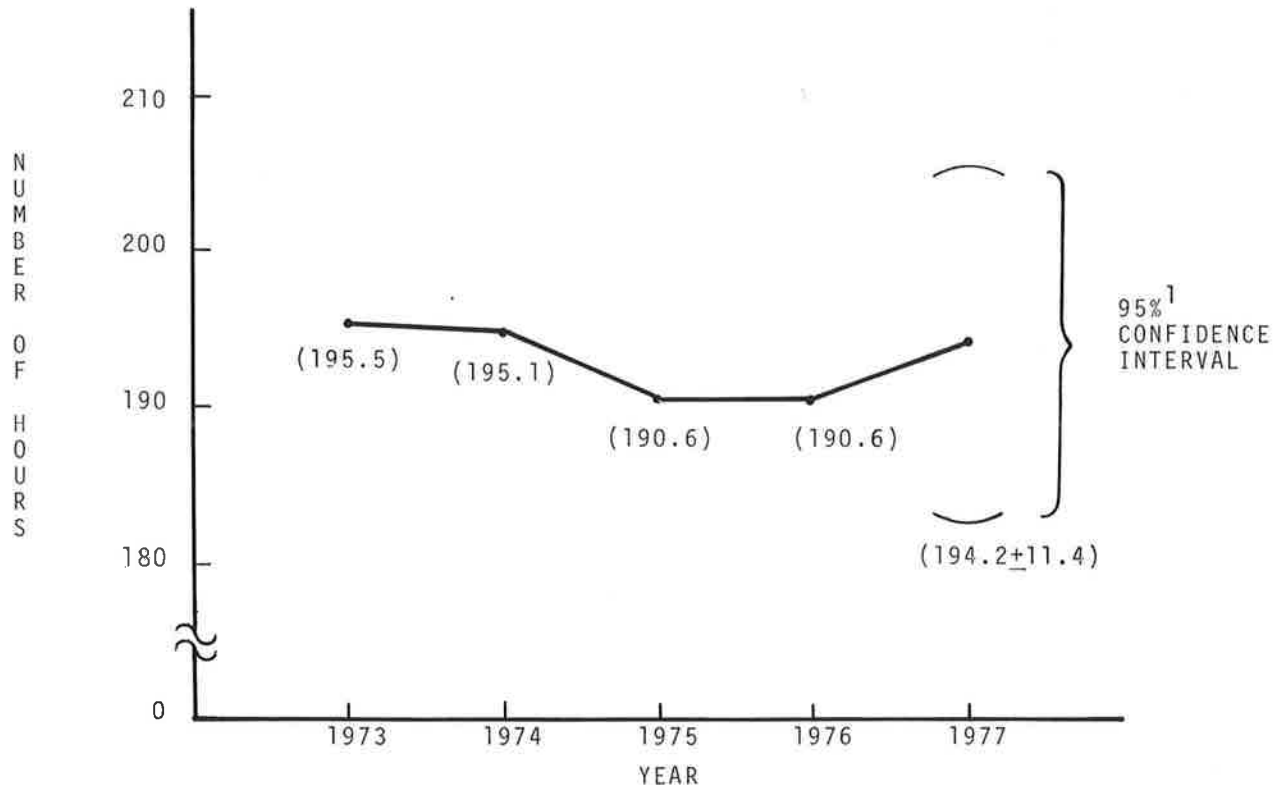
FIGURE 1.4 GENERAL AVIATION ACTIVE FLEET SIZE 1973-1977



1. The estimate plus or minus 2 standard errors forms a 95% confidence interval for the true value. See Section 1.3.3.1.

Source: Table 1-7

FIGURE 1.5 GENERAL AVIATION TOTAL FLYING TIME
1973-1977



1. The estimate plus or minus 2 standard errors forms a 95% confidence interval for the true value. See Section 1.3.3.1.

FIGURE 1.6 MEAN ANNUAL FLYING TIME PER GENERAL AVIATION AIRCRAFT 1973-1977

TABLE 1-7. GROWTH OF GENERAL AVIATION TOTAL HOURS FLOWN BY AIRCRAFT TYPE
1973 - 1977
(THOUSANDS OF HOURS)

AIRCRAFT TYPE	<u>1973¹</u>	<u>1974¹</u>	<u>1975¹</u>	<u>1976¹</u>	<u>1977</u> (Standard Error)	COMPOUND ANNUAL GROWTH RATE IN %
FIXED WING						
1-engine piston 1-3 seats	9,722	9,436	9,447	9,640	8,973 (629)	-1.98
1-engine piston 4 + seats	12,025	12,994	13,467	14,688	15,944 (824)	7.51
2-engine piston 1-6 seats	3,243	3,367	3,374	3,220	3,630 (202)	2.86
2-engine piston 7 + seats	1,724	1,868	1,793	2,081	2,322 (102)	7.73
Other piston	84	95	84	84	96 (5)	3.39
2-engine turboprop 1-12 seats	572	663	787	785	892 (37)	11.75
2-engine turboprop 13 + seats	508	540	484	521	625 (60)	5.32

TABLE 1-7. GROWTH OF GENERAL AVIATION TOTAL HOURS FLOWN BY AIRCRAFT TYPE (CONTINUED)
 1973 - 1977
 (THOUSANDS OF HOURS)

AIRCRAFT TYPE	<u>1973¹</u>	<u>1974¹</u>	<u>1975¹</u>	<u>1976¹</u>	<u>1977</u> (Standard Error)	COMPOUND ANNUAL GROWTH RATE IN %
Other turboprop	37	42	36	20	32 (5)	-3.56
2-engine turbojet	595	690	755	844	1,043 (49)	15.06
Other turbojet	89	63	71	67	122 (11)	8.20
ROTORCRAFT						
Piston	654	729	686	753	609 (90)	-1.77
Turbine	515	697	796	950	1,259 (93)	25.04
OTHER	207	227	244	270	245 (16)	4.30
TOTAL AIRCRAFT	29,974	31,413	32,024	33,922	35,792 (1,073)	4.53

1. FAA revised data as of December, 1978.

TABLE 1-8. GROWTH OF ACTIVE GENERAL AVIATION FLEET BY AIRCRAFT TYPE
1973 - 1977

<u>AIRCRAFT TYPE</u>	<u>1973¹</u>	<u>1974¹</u>	<u>1975¹</u>	<u>1976¹</u>	<u>1977</u> (Standard Error)	<u>COMPOUND ANNUAL GROWTH RATE IN %</u>
<u>FIXED WING</u>						
1-engine piston 1-3 seats	51,218	52,682	54,059	56,547	57,340 (851)	2.86
1-engine piston 4 + seats	74,856	78,830	82,580	88,205	91,960 (529)	5.28
2-engine piston 1-6 seats	13,454	14,182	14,663	14,617	15,074 (141)	2.88
2-engine piston 7 + seats	5,048	5,371	5,456	6,494	6,226 (86)	5.38
Other piston	190	190	178	196	182 (11)	-1.07
2-engine turboprop 1-12 seats	1,268	1,465	1,928	1,889	2,276 (15)	15.75
2-engine turboprop 13 + seats	509	555	512	507	549 (13)	1.91

TABLE 1-8. GROWTH OF ACTIVE GENERAL AVIATION FLEET BY AIRCRAFT TYPE (CONTINUED)
1973 - 1977

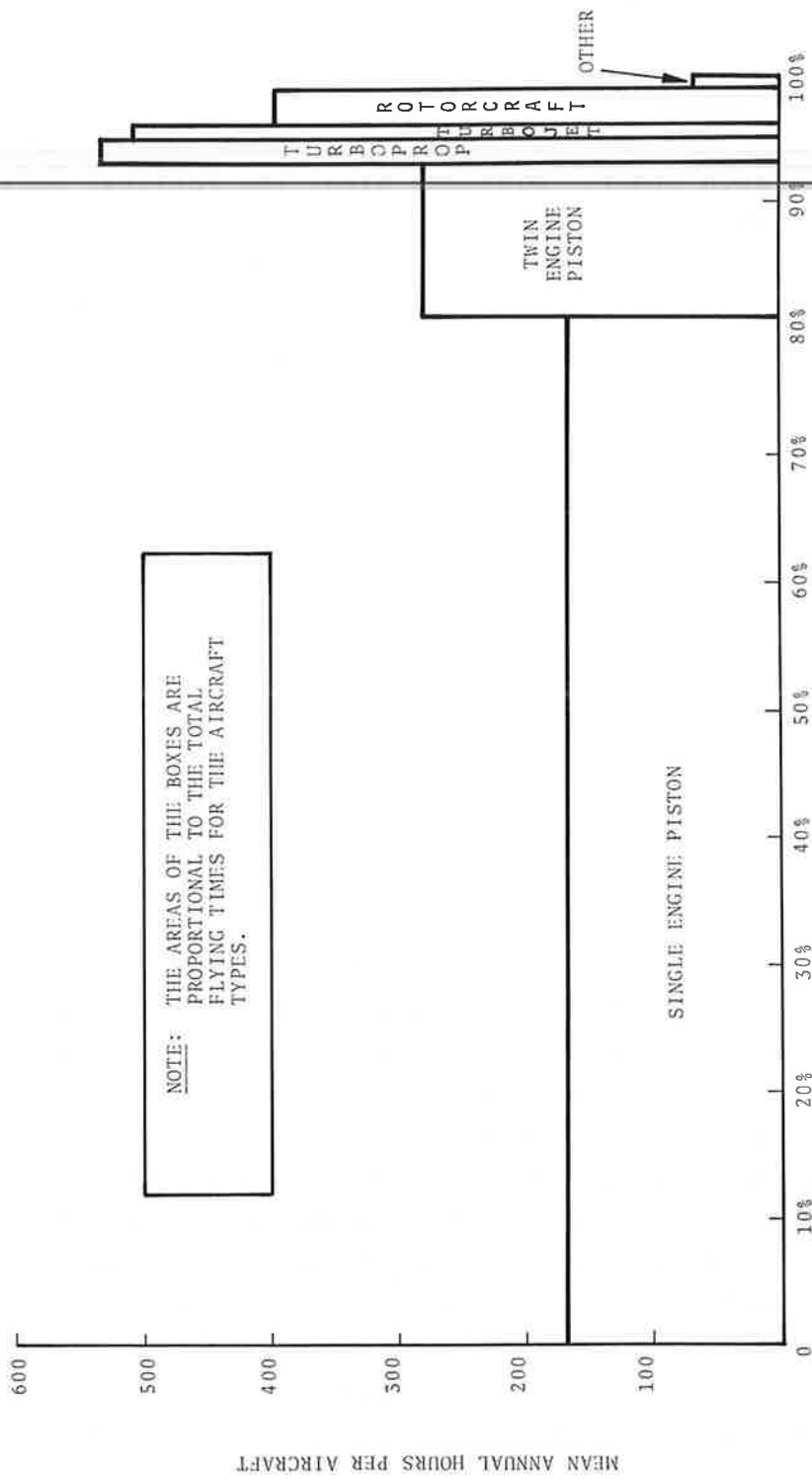
AIRCRAFT TYPE	<u>1973</u> ¹	<u>1974</u> ¹	<u>1975</u> ¹	<u>1976</u> ¹	<u>1977</u> (Standard Error)	COMPOUND ANNUAL GROWTH RATE IN %
Other turboprop	72	75	64	57	64 (4)	-2.90
2-engine turbojet	1,196	1,385	1,547	1,692	1,959 (19)	13.13
Other turbojet	184	176	196	189	318 (10)	14.66
ROTORCRAFT						
Piston	2,122	2,315	2,498	2,701	2,658 (176)	5.79
Turbine	993	1,282	1,556	1,724	2,067 (27)	20.12
OTHER	2,201	2,525	2,812	3,146	3,616 (69)	13.21
TOTAL AIRCRAFT	153,311	161,033	168,049	177,964	184,294 (1,034)	4.71

1. FAA revised data as of December, 1978.

There was a great deal of variation in numbers and activity among the major general aviation aircraft types in terms of three activity measures resulting from the survey: total hours flown, number of active aircraft, and mean hours flown. Figure 1.7 highlights the variation, as well as the relationship of these three measures to each other. Distance along the vertical axis indicates mean flight hours per aircraft; distance along the horizontal axis indicates the relative portion of the active fleet belonging to each aircraft type; and the area within each box is proportional to the total flying time for the aircraft type. Thus, it is evident that in terms of sheer numbers, single engine piston aircraft dominated the active fleet and contributed the largest portion of total flying time, yet had one of the lowest mean flight times per aircraft. In contrast, the turboprops and turbojet aircraft had a low representation in the active fleet and contributed a relatively high proportion of flight time resulting in the greatest mean flight hours of any of the major aircraft types.

1.5.3 Results by Primary Use

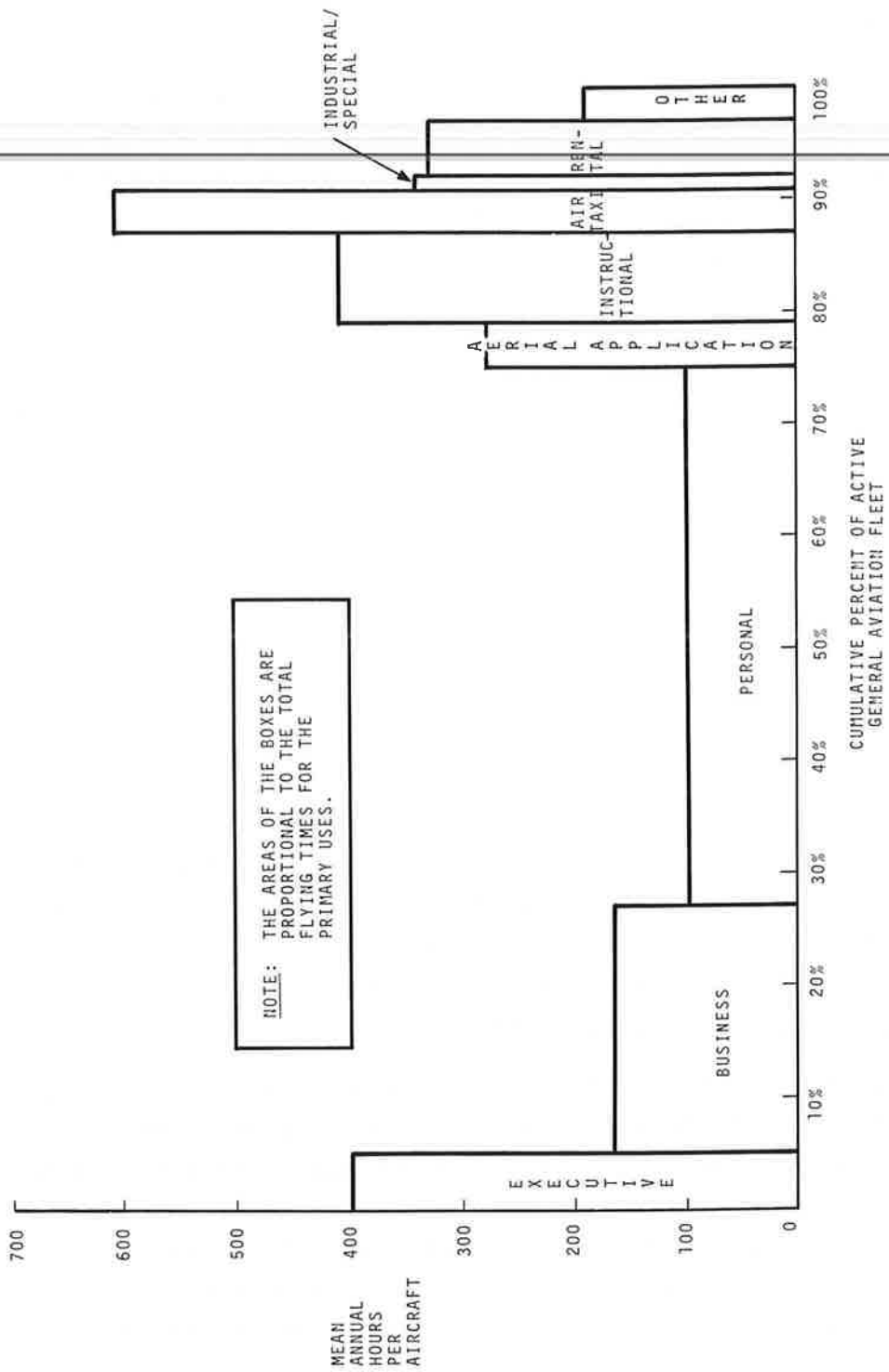
Like aircraft types, primary uses were differentiated by their activity characteristics, as shown in Figure 1.8. Distance along the vertical axis indicates mean hours per aircraft; distance along the horizontal axis indicates the relative portion of the active fleet engaged in each primary use; and the area within each box is proportional to the total flying time for each primary use. Air taxi, and instructional- and executive-use aircraft were characterized by heavy individual aircraft usage with mean hours per aircraft of 604.0, 405.6 and 397.1, respectively. Personal and business uses were the most common for aircraft in the general aviation fleet, representing 48 and 22 percent of the active fleet, respectively. Due either to their high representation in the fleet or their high individual usage, personal, business, and instructional-use aircraft accounted together for over 60 percent of the total hours flown by the general aviation fleet.



CUMULATIVE PERCENT OF ACTIVE GENERAL AVIATION FLEET

Source: Table 2-1

FIGURE 1.7. 1977 GENERAL AVIATION ACTIVITY MEASURES BY AIRCRAFT TYPE



Source: Tables 2-4 and 2-9

FIGURE 1.8 1977 GENERAL AVIATION ACTIVITY MEASURES BY PRIMARY USE

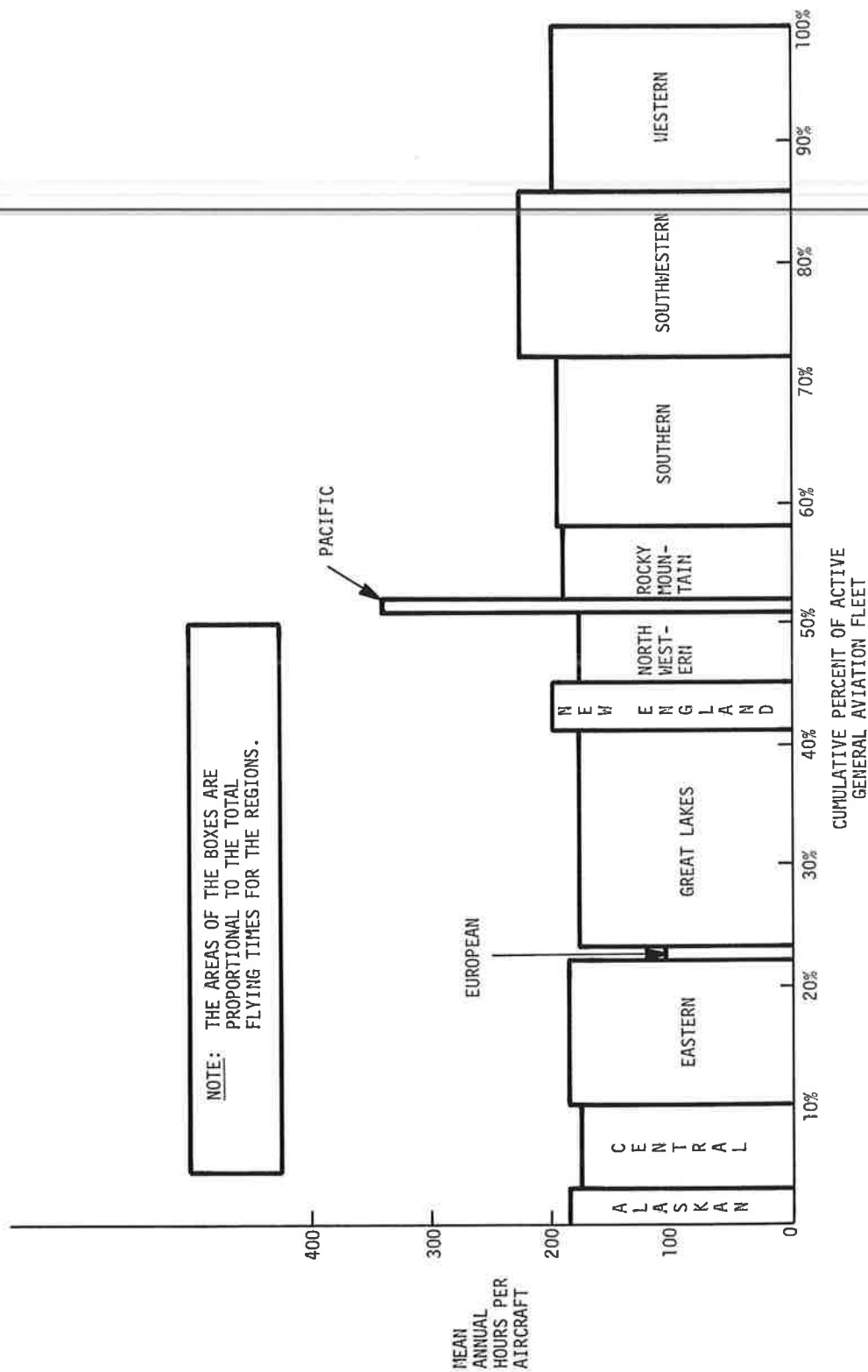
1.5.4 Results by FAA Region

Based on preliminary results for several of the regions (Eastern, Great Lakes, Southern, Southwestern, and Western) and final results for the rest, mean aircraft usage did not differ significantly from region to region with the exception of the Pacific and European (Foreign) regions, according to Figure 1.9. In the Figure, distance along the vertical axis indicates mean annual hours per aircraft; distance along the horizontal axis indicates the relative portion of the active fleet based in each region; and the area within each box is proportional to the total flying time occurring in each region. It can be seen that the Great Lakes Region accounted for more active aircraft and more total flight time than any of the other regions. The smallest region in continental United States was New England, with only four percent of the active aircraft and about four percent of the fleet's flight time.

1.5.5 Other Results

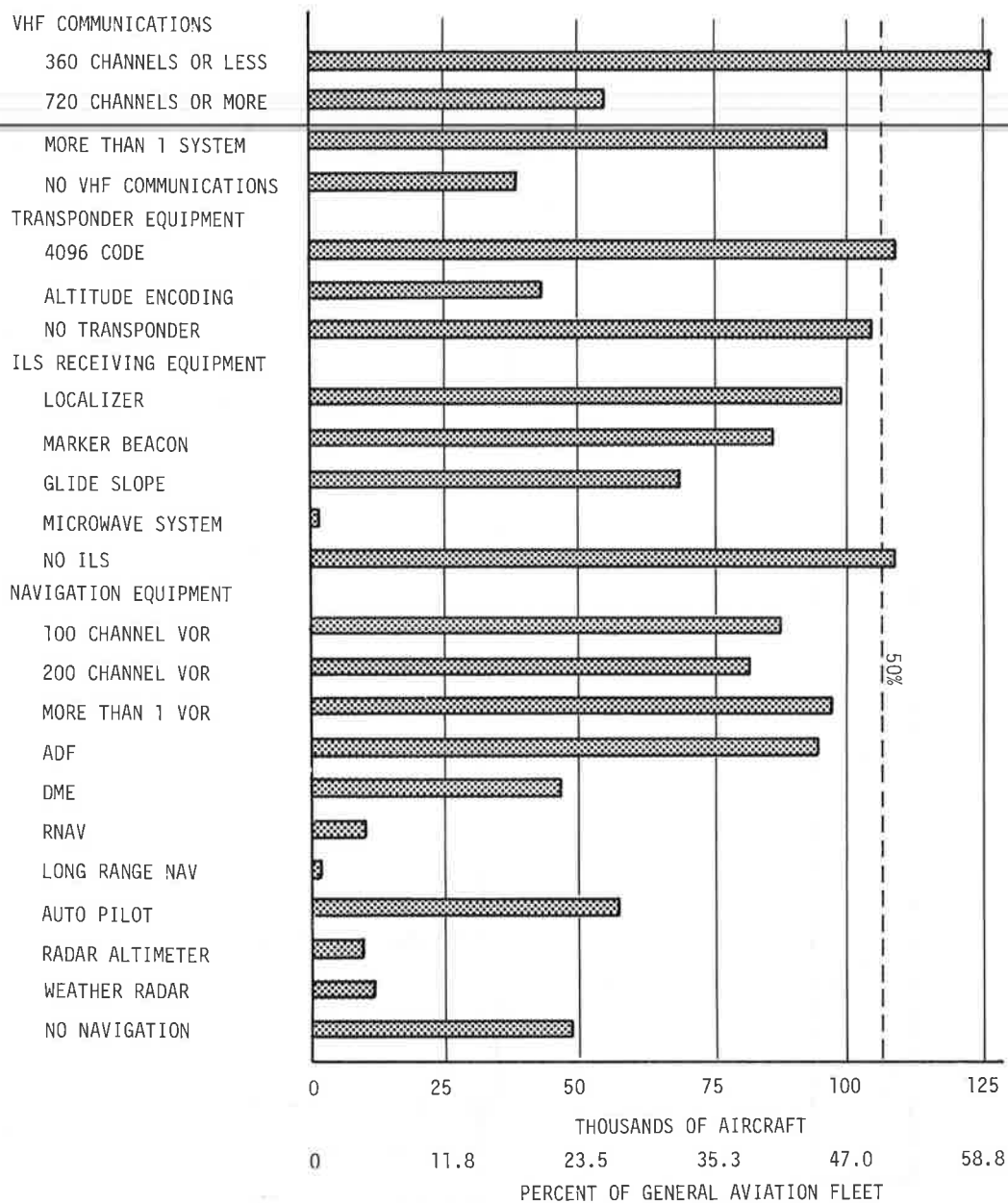
The extent to which general aviation aircraft are furnished with on-board avionics equipment was a principal finding of the survey. A summary appears in Figure 1.10. Over 80 percent of the aircraft have two-way VHF communications, over 50 percent are equipped with 4096-code transponders, almost 50 percent have at least one component of an instrument landing system, and over 75 percent have some form of navigation equipment. More detailed breakdowns of avionics by aircraft type, state, region and primary use are provided in Tables 2-12 through 2-15.

Figure 1.11 shows the portion of active aircraft of each type which engaged in IFR (instrument flight rules) flight during 1977 and further, the portions that flew IFR with and without transponder equipment. It can be seen that almost all active turboprops and turbojets flew IFR at some time during 1977 and were equipped with transponders, while a much lower proportion of the active single engine piston aircraft and rotorcraft in the fleet flew IFR during the year.



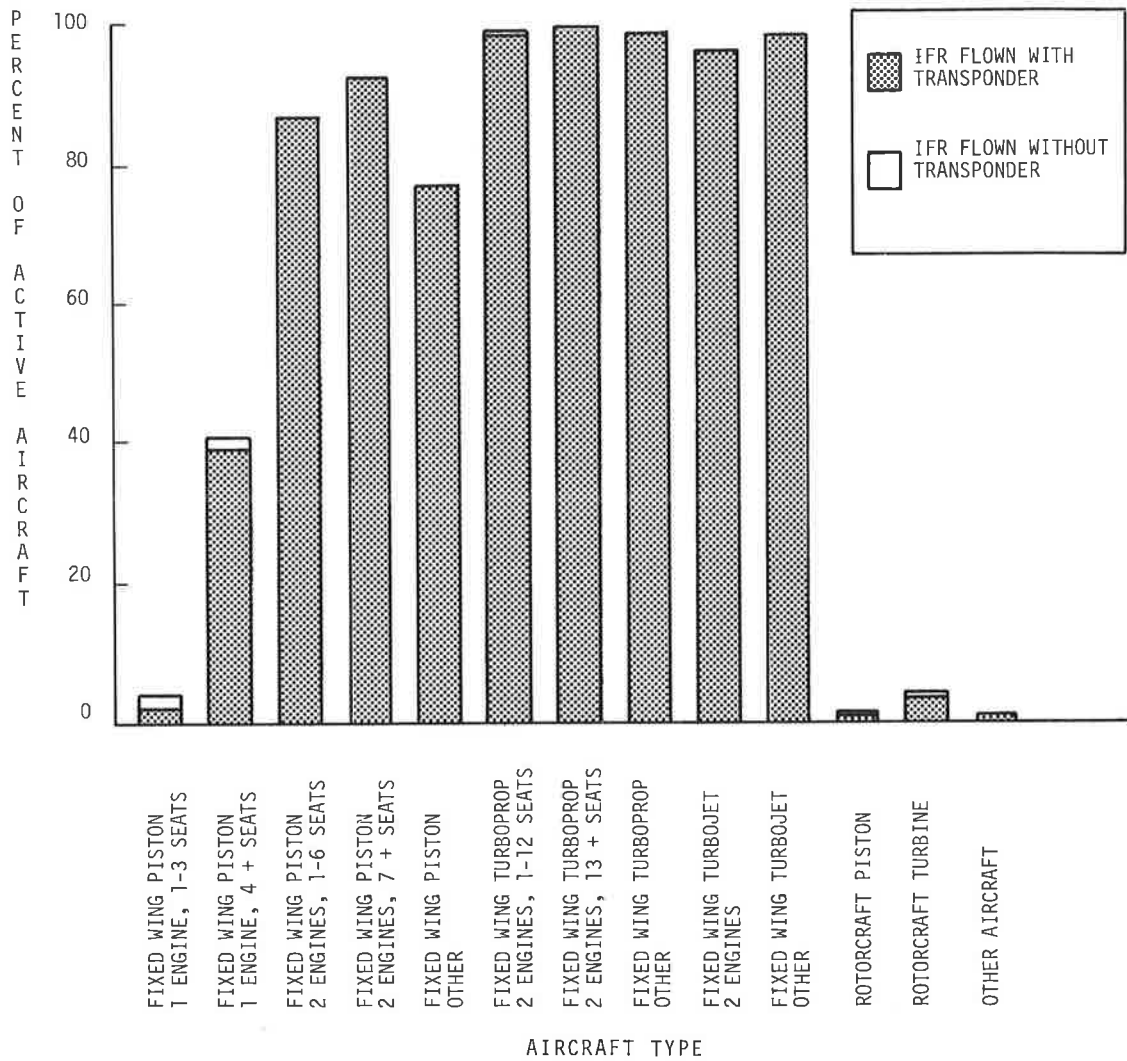
Source: Table 2-3.

FIGURE 1.9 1977 GENERAL AVIATION ACTIVITY MEASURES BY FAA REGION



SOURCE: TABLE 2-13

FIGURE 1.10. AVIONICS EQUIPMENT IN THE GENERAL AVIATION AIRCRAFT FLEET



Source: Table 2-10

FIGURE 1.11. GENERAL AVIATION ACTIVE AIRCRAFT IFR FLOWN AND TRANSPONDER EQUIPPED



2. TABLES OF RESULTS

TABLE 2-1. GENERAL AVIATION TOTAL HOURS FLOWN BY TYPE OF AIRCRAFT - CY 1977 (1 of 2)

AIRCRAFT TYPE	POPULATION SIZE	ESTIMATE OF NUMBER OF ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
FIXED WING PISTON									
1 ENG 1-3 SEATS	74455	57340	851	8972836	629041	7.0	156.3	10.4	6.7
1 ENG 4+ SEATS	98191	91960	529	15943601	823947	5.2	172.8	8.9	5.1
TOTAL 1 ENG	172646	149300	1002	24916438	1036620	4.2	166.5	6.8	4.1
2 ENG 1-6 SEATS	15690	15074	141	3630265	202296	5.6	241.2	13.3	5.5
2 ENG 7+ SEATS	7161	6226	86	2321563	102281	4.4	374.9	15.1	4.0
TOTAL 2 ENG	22851	21301	165	5951828	226683	3.8	280.4	10.4	3.7
OTHER PISTON	353	182	11	96473	4932	5.1	528.8	21.3	4.0
TOTAL PISTON	195850	170783	1015	30964739	1061127	3.4	181.3	6.1	3.3
TURBOPROP									
2 ENG 1-12 SEATS	2295	2276	15	892496	37423	4.2	392.8	15.8	4.0
2 ENG 13+ SEATS	581	549	13	624865	59706	9.6	1137.5	106.7	9.4
TOTAL 2 ENG	2876	2825	20	1517361	79465	4.6	534.5	24.0	4.5
OTHER TURBOPROP	98	64	4	31823	4537	14.3	481.9	8.5	1.8
TOTAL TURBOPROP	2974	2890	20	1549184	70611	4.6	533.4	23.5	4.4
TURBOJET									
2 ENG	1995	1959	19	1043204	49148	4.7	527.7	22.4	4.2
OTHER	499	318	10	122024	11300	9.3	385.0	42.2	11.0
TOTAL TURBOJET	2494	2277	22	1165228	50430	4.3	509.0	20.2	4.0
TOTAL FIXED WING	201318	175951	1016	33679153	1064669	3.2	191.3	5.9	3.1
ROTORCRAFT PISTON	4652	2658	176	608603	89711	14.7	230.5	29.6	12.9

TABLE 2-1. GENERAL AVIATION TOTAL HOURS FLOWN BY TYPE OF AIRCRAFT - CY 1977 (2 of 2)

AIRCRAFT TYPE	POPULATION SIZE	ESTIMATE OF NUMBER ACTIVE	STANDARD ERROR	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
TURBINE	2193	2067	27	1259041	92959	7.4	608.3	44.1	7.2
TOTAL ROTOCRAFT	6845	4726	179	1867644	129188	6.9	396.3	25.5	6.4
OTHER	4435	3616	69	244761	16401	6.7	67.8	4.2	6.2
TOTAL AIRCRAFT	212598	184294	1034	35791558	1072604	3.0	194.2	5.7	2.9

TABLE 2-2. GENERAL AVIATION TOTAL HOURS FLOWN BY STATE OF BASED AIRCRAFT-CY 1977 (1 of 3)

STATE	ESTIMATE OF ACTIVE POPULATION	STANDARD ERROR	ESTIMATE OF TOTAL HOURS	STANDARD ERROR
ALABAMA	2385	580	523865	229861
ALASKA	5130	359	932732	113487
ARIZONA	3700	647	741084	194560
ARKANSAS	2597	507	621672	159139
CALIFORNIA	23344 ^P	1035	4533405 ^P	339112
COLORADO	3497	583	617047	144880
CONNECTICUT	1444	398	375130	153219
DELAWARE	608	230	109293	64764
DC	119	51	50517	25961
FLORIDA	9246 ^P	639	1795573 ^P	187485
GEORGIA	3750	636	574622	110198
HAWAII	541	255	181747	91742
IDaho	2080	495	501317	240910
ILLINOIS	7716 ^P	768	1607243 ^P	378800
INDIANA	4183 ^P	651	812339 ^P	148887
IOWA	3524	635	472541	113432
KANSAS	3894	692	671314	170851
KENTUCKY	1385	404	247723	76825
LOUISIANA	3350	510	1163837	200511
MAINE	1050	343	164180	66798
MARYLAND	2464	539	419747	126667

P : PRELIMINARY RESULT

TABLE 2-2. GENERAL AVIATION TOTAL HOURS FLOWN BY STATE OF BASED AIRCRAFT-CY 1977 (2 of 3)

STATE	ESTIMATE OF ACTIVE POPULATION	STANDARD ERROR	ESTIMATE OF TOTAL HOURS	STANDARD ERROR
MASSACHUSETTS	2463	546	459976	125958
MICHIGAN	6818	940	1196906	351956
MINNESOTA	4122	696	509355	125118
MISSISSIPPI	1895	442	419162	102543
MISSOURI	3905	707	754059	303999
MONTANA	2230	428	393403	103144
NEBRASKA	2341	442	482332	151116
NEVADA	1491	389	302396	108992
NEW HAMPSHIRE	993	332	160495	77450
NEW JERSEY	4060	730	832227	217083
NEW MEXICO	1747	364	198750	45214
NEW YORK	6092 ^P	488	1183066 ^P	123896 ^P
NORTH CAROLINA	3717	673	591035	127379
NORTH DAKOTA	1508	385	265966	126023
OHIO	6978	879	1173998	262204
OKLAHOMA	3827	643	665880	136873
OREGON	4284	669	828608	246975
PENNSYLVANIA	5310	832	949011	266345
RHODE ISLAND	299	183	65003	47668
SOUTH CAROLINA	1485	421	293062	86618
SOUTH DAKOTA	1298	361	244039	90460
TENNESSEE	2607	563	561352	157747
TEXAS	14355 ^P	776	3107857 ^P	413230
UTAH	1406	423	300863	103092
VERMONT	386	204	74223	43132
VIRGINIA	2296	523	384459	107931

P : PRELIMINARY RESULT

TABLE 2-2. GENERAL AVIATION TOTAL HOURS FLOWN BY STATE OF BASED AIRCRAFT-CY 1977 (3 of 3)

STATE	ESTIMATE OF ACTIVE POPULATION	STANDARD ERROR	ESTIMATE OF TOTAL HOURS	STANDARD ERROR
WASHINGTON	4995	560	652964	145927
WEST VIRGINIA	965	324	144994	49537
WISCONSIN	3519	636	561544	168999
WYOMING	1176	306	266814	96539
PUEBLO RICO	404	219	132824	49443
OTHER U.S. TERRITORIES	137	113	58411	55173
FOREIGN	234	150	40157	32471
TOTAL	184294	1034	3579158	1072604

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

TABLE 2-3. GENERAL AVIATION TOTAL HOURS FLOWN BY REGION OF BASED AIRCRAFT-CY 1977

REGION	ESTIMATE OF ACTIVE POPULATION	STANDARD ERROR	ESTIMATE OF TOTAL HOURS	STANDARD ERROR
ALASKAN	5130	359	932732	113487
CENTRAL	13666	1206	2392770	411828
EASTERN	21940 ^P	1406	4088512 ^P	397561
EUREPEAN	101	70	10518	9033
GREAT LAKES	33337 ^P	1697	5907324 ^P	718466
NEW ENGLAND	6633	856	1316283	213245
NORTHWESTERN	11372	986	2012303	420259
PACIFIC	573	259	191064	91863
ROCKY MOUNTAIN	11118	1005	2122172	255437
SOUTHWEST	27085 ^P	1490	5238293 ^P	392903
SOUTHWESTERN	25880 ^P	1234	5839998 ^P	599470
WESTERN	28536 ^P	1256	5659694 ^P	495594
TOTAL	184294	1034	35791558	1072604

NOTE : COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES

P : PRELIMINARY RESULT

TABLE 2-4. GENERAL AVIATION TOTAL HOURS FLOWN BY AIRCRAFT TYPE AND PRIMARY USE - CY 1977
(1 of 3)

AIRCRAFT TYPE	TOTAL	EXECUTIVE	BUSINESS	PERSONAL	AERIAL APPL	INSTRUC-TIONAL	AIR TAXI	INDUS-TRIAL	RENTAL	OTHER
FIXED WING										
PISTON										
1 ENG 1-3 SEATS										
EST.TOT.HOURS	8972836	28676	442365	2590606	1785739	3255164	12553	76461	503180	304729
% STD. ERROR	7.0	92.0	64.1	7.0	6.8	19.4	86.4	27.6	34.5	25.9
1 ENG 4+ SEATS										
EST.TOT.HOURS	15943601	408120	4244432	5213623	17105	2707890	1032252	182549	1963162	137260
% STD. ERROR	5.2	36.6	10.7	6.7	53.2	20.4	20.7	40.2	23.2	24.6
TOTAL 1 ENG	24916438	436426	4686882	7811563	1802225	5965167	1044376	258898	2468896	350709
EST.TOT.HOURS		34.5	11.4	5.0	6.8	14.1	20.3	27.0	19.6	20.4
% STD. ERROR	4.2									
2 ENG 1-6 SEATS										
EST.TOT.HOURS	3630265	662960	1386012	425990	13877	217349	744033	7208	99315	69419
% STD. ERROR	5.6	14.8	11.3	14.7	56.4	33.4	19.8	109.6	42.7	31.6
2 ENG 7+ SEATS										
EST.TOT.HOURS	2321563	749561	406953	54354	32661	21816	910707	16125	60832	69925
% STD. ERROR	4.4	11.5	11.7	22.0	33.8	43.7	10.3	36.6	31.5	21.3
TOTAL 2 ENG	5951828	1413259	1793041	480389	46699	239101	1654938	23292	160186	139335
EST.TOT.HOURS		9.4	9.2	13.2	35.0	30.0	11.4	39.8	28.8	19.3
% STD. ERROR	3.8									
OTHER PISTON										
EST.TOT.HOURS	96473	460	2453	32	8103	0	68556	0	15059	916
% STD. ERROR	5.1	89.7	36.3	43.4	17.2	0.0	7.2	0.0	25.7	40.5
TOTAL PISTON	30964739	1849398	6484257	8292140	1855904	6202866	2767812	282268	2644155	492070
EST.TOT.HOURS		10.7	8.8	4.8	6.6	13.5	10.4	24.9	18.4	16.4
% STD. ERROR	3.4									
TURBOJERC										
2 ENG 1-12 SEATS										
EST.TOT.HOURS	892496	688872	94318	5866	0	7159	79421	0	6514	1976
% STD. ERROR	4.2	6.1	18.8	61.1	0.0	78.3	27.9	0.0	76.7	69.3

TABLE 2-4. GENERAL AVIATION TOTAL HOURS FLOWN BY AIRCRAFT TYPE AND PRIMARY USE - CY 1977
(2 of 3)

AIRCRAFT TYPE	TOTAL	EXECUTIVE	BUSINESS	PERSONAL	AERIAL APPL	INSTRUC-TIONAL	AIR TAXI	INDUS-TRIAL	RENTAL	OTHER
2 ENG 13+ SEATS										
EST. TOT. HOURS	624865	102370	12061	659	0	0	387723	1747	71573	9581
% STD. ERROR	9.6	20.3	70.6	58.7	0.0	0.0	15.3	154.6	67.3	70.7
TOTAL 2 ENG										
EST. TOT. HOURS	1517361	800989	106380	6145	0	7159	451958	1747	77975	11326
% STD. ERROR	4.6	5.9	18.5	54.6	0.0	78.3	15.7	154.6	53.2	53.1
OTHER TURBOCRCP										
EST. TOT. HOURS	31823	3055	5877	0	0	91	1898	0	14259	6033
% STD. ERROR	14.3	32.8	37.7	0.0	0.0	62.7	0.0	0.0	31.0	19.8
TOTAL TURBOCRCP										
EST. TOT. HOURS	1549184	804048	112371	6145	0	7222	453730	1747	92979	17326
% STD. ERROR	4.6	5.9	18.0	54.6	0.0	70.0	15.6	154.6	40.3	37.4
TURBOJET										
2 ENG										
EST. TOT. HOURS	1043204	661165	33292	1838	2263	55326	213883	3661	0	53477
% STD. ERROR	4.7	5.8	30.3	63.9	69.7	50.4	18.8	56.4	0.0	45.8
OTHER										
EST. TOT. HOURS	122024	50793	19727	163	0	3864	8137	0	14745	19357
% STD. ERROR	9.3	21.2	35.6	47.8	0.0	89.9	30.0	0.0	19.4	32.3
TOTAL TURBOJET										
EST. TOT. HOURS	1165228	711950	53019	2000	2263	59530	222002	3661	14745	73467
% STD. ERROR	4.3	5.6	22.7	45.6	69.7	46.8	18.0	56.4	15.4	27.4
TOTAL FIXED WING										
EST. TOT. HOURS	33679153	3367276	6650506	8300328	1858171	6269739	3430334	287680	2751781	579057
% STD. ERROR	3.2	6.4	8.6	4.8	6.6	13.4	9.2	24.3	18.1	15.1
PROPPELLER										
PISTON										
EST. TOT. HOURS	608603	7869	99647	23212	174670	36768	38093	71882	2705	150114
% STD. ERROR	14.7	86.1	34.6	20.9	37.2	44.8	56.9	41.7	185.2	34.4
TURBINE										
EST. TOT. HOURS	1259041	112435	58306	779	27075	171555	658611	93509	8786	124937
% STD. ERROR	7.4	35.8	47.8	111.1	24.7	52.3	17.6	43.5	74.6	30.0

TABLE 2-4. GENERAL AVIATION TOTAL HOURS FLOWN BY AIRCRAFT TYPE AND PRIMARY USE - CY 1977
(3 of 3)

AIRCRAFT TYPE	TOTAL	EXECUTIVE	BUSINESS	PERSONAL	AERIAL APPL	INSTRUC-TIONAL	AIR TAXI	INDUS-TRIAL	RENTAL	OTHER
TOTAL AIRCRAFT EST. TOT. HOURS & SID. DEFCH	1807644 6.9	120263 53.4	157814 28.3	23986 20.6	201385 33.2	207682 34.4	697539 16.9	165092 30.1	11487 66.6	275050 23.2
OTHER EST. TOT. HOURS & SID. DEFCH	244761 6.7	202 101.0	11656 17.4	130150 6.8	0 0.0	51076 16.8	105 125.7	13 108.6	30198 24.2	21105 48.1
TOTAL AIRCRAFT EST. TOT. HOURS & SID. DEFCH	35791558 3.0	3487388 4.5	6821792 7.2	8453116 3.9	2057547 6.0	6529100 7.8	4130267 4.4	453399 9.6	2792799 9.8	879118 10.6

NOTE : ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (1 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
OTHER 01	7880	220032	37976	17.3	44.7	7.0	15.7
CHEF 02	1236	87206	10693	12.3	130.9	11.4	8.7
CHEF 03	301	22585	1848	8.2	143.7	9.5	6.6
CHEF 04	175	26035	2922	11.2	315.8	28.3	9.0
OTHER 05	66	6181	1865	30.2	202.2	34.6	17.1
OTHER 06	346	161155	14233	8.8	465.8	41.1	8.8
OTHER 07	100	58948	16718	28.4	673.1	174.7	26.0
OTHER 08	44	9301	2152	23.1	305.3	65.9	21.6
CHEF 09	201	75209	9707	12.9	382.0	48.4	12.7
CHEF 10	144	5123	1625	31.7	81.9	23.6	28.8
CHEF 11	1376	41963	5660	13.5	100.5	11.7	11.6
OTHER 12	180	62766	8547	13.6	450.6	55.2	12.2
OTHER 13	1550	60421	10297	17.0	53.1	8.8	16.5
AEROCES316	50	25558	3799	14.9	511.2	76.0	14.9
AEROCES341	55	22493	2487	11.1	409.0	45.2	11.1
AIRPTSA	290	31831	3889	12.2	149.0	14.6	9.8
AIRSPC18	24	411	115	27.8	36.4	8.8	24.1
AIRSPCAT300	81	26687	4120	15.4	329.5	50.9	15.4
AMD PIC10	30	39964	5578	14.0	499.5	69.7	14.0
AMD PIC20	187	182683	28033	15.3	976.9	149.9	15.3
RECICST1	91	2894	657	22.7	74.2	15.2	20.6

NOTE: See following page for coding.

NOTE: Other XX refers to all general aviation aircraft belonging to manufacturer/model groups of fewer than 20 aircraft in size for aircraft XX where XX stands for

- 01 Fixed wing piston, 1 engine, 1-3 seats.
- 02 Fixed wing piston, 1 engine, 4+ seats.
- 03 Fixed wing piston, 2 engines, 1-6 seats.
- 04 Fixed wing piston, 2 engines, 7+ seats.
- 05 Fixed wing piston, other.
- 06 Fixed wing turboprop, 2 engines, 1-12 seats.
- 07 Fixed wing turboprop, 2 engines, 13+ seats.
- 08 Fixed wing turboprop, other.
- 09 Fixed wing turbojet, 2 engines.
- 10 Fixed wing turbojet, other.
- 11 Rotorcraft, piston.
- 12 Rotorcraft, turbine.
- 13 Other aircraft.

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (2 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
ARCTICS1B1	23	230	61	26.6	28.3	5.9	20.7
ARONCA15	206	10749	1333	12.4	73.3	8.2	11.2
ARONCA58	162	2888	867	30.0	36.1	9.1	25.2
ARONCA65	139	3960	1066	26.9	60.3	12.2	20.3
ARONCAC3	49	466	126	27.1	22.5	2.0	8.7
AYRES S2	789	235796	23761	10.1	322.6	31.9	9.9
BAC 111	29	13222	943	7.1	456.0	32.5	7.1
BALWKSIREFY	225	9889	1084	11.0	46.5	4.6	10.0
BEAGLEB206	27	2814	951	33.8	173.7	33.3	19.2
BEECH 100	173	72260	8138	11.3	417.7	47.0	11.3
BEECH 17	191	4995	1463	29.3	62.2	10.1	16.3
BEECH 18	1148	404425	43306	10.7	468.0	43.5	9.3
BEECH 200	207	76811	12551	16.3	393.6	57.8	14.7
BEECH 23	2453	553563	106504	19.2	244.3	44.9	18.4
BEECH 33	1464	263905	25756	9.8	181.3	17.7	9.8
BEECH 35	6809	947211	90180	9.5	148.6	13.3	9.0
BEECH 36	857	171141	24617	14.4	199.7	28.7	14.4
BEECH 45	321	41360	4048	9.8	147.3	13.7	9.3
BEECH 50	366	60179	5096	8.5	174.1	14.3	8.2
BEECH 55	1966	421505	40327	9.6	214.9	20.5	9.5
BEECH 56	66	9167	1874	20.4	138.9	28.4	20.4

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (3 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
BEECH 58	714	245142	25868	10.6	343.3	36.2	10.6
BEECH 60	294	69428	18490	26.6	236.1	62.9	26.6
BEECH 65	179	73990	19842	26.8	413.4	110.9	26.8
BEECH 80	241	50531	5241	10.4	240.3	20.3	8.4
BEECH 90	474	188020	20362	10.8	398.4	42.8	10.7
BEECH 95	492	83322	10699	12.8	172.1	21.9	12.7
BEECH 99	108	185969	33323	17.9	1771.0	284.5	16.1
BELL 204	99	6885	368	5.3	98.9	4.9	5.0
BELL 205	61	33767	4312	12.8	553.6	70.7	12.8
BELL 206	1093	833759	90037	10.8	767.9	81.6	10.6
BELL 212	83	86792	10771	12.4	1045.7	129.8	12.4
BELL 47	1535	257227	81078	31.5	241.8	66.7	27.6
ELANCA11	949	32917	3030	9.2	54.9	4.4	8.0
ELANCA1413	296	7682	2383	31.0	60.6	17.4	28.6
ELANCA1419	300	20510	1976	9.6	79.6	7.0	8.8
ELANCA17	937	138766	14536	10.5	149.4	15.4	10.3
ELANCA7	5751	406546	34073	8.4	87.1	6.8	7.9
ELANCA8	424	43356	5804	13.4	102.3	13.7	13.4
EMORN BN2	69	78335	16708	21.3	1183.1	217.4	18.4
BOEING707	19	9685	3433	35.4	679.7	216.5	31.9
BOEING720	20	7720	1541	20.0	471.8	82.7	17.5

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (4 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
BOEING727	58	31619	7452	23.6	636.9	133.1	20.9
BOEING75	2026	132459	21679	16.4	152.9	21.3	13.9
BOEINGB17	22	1223	687	56.2	77.9	34.5	44.3
BOLKMS105	57	40875	4244	10.4	716.5	74.4	10.4
BWSTRELEET2	31	407	81	19.8	44.4	5.7	12.8
BWSTRELEET7	22	546	81	14.9	67.3	7.9	11.8
CAMRCNMODEIC	38	1788	412	23.0	47.0	10.8	23.0
CESSNA120	926	34075	7127	20.9	47.5	8.7	18.4
CESSNA140	2516	123720	11594	9.4	61.2	5.2	8.5
CESSNA150	16525	3625528	581162	16.0	238.6	36.7	15.4
CESSNA170	2588	187999	25498	13.6	77.9	10.3	13.3
CESSNA172	19631	3098416	605814	19.6	159.0	31.0	19.5
CESSNA175	1430	91517	9370	10.2	72.6	7.0	9.6
CESSNA177	2852	687278	159515	23.2	241.2	56.0	23.2
CESSNA180	2505	377096	42422	11.2	161.8	17.6	10.9
CESSNA182	10916	1620364	233162	14.4	153.0	21.8	14.2
CESSNA185	1115	265032	36830	13.9	240.7	32.9	13.6
CESSNA188	1659	583073	98457	16.9	384.6	60.1	15.6
CESSNA190	88	5138	315	6.1	74.9	4.0	5.4
CESSNA195	502	22401	3806	17.0	76.2	6.2	8.1
CESSNA205	263	36362	4777	13.1	144.9	18.4	12.7

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (5 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
CESSNA206	2122	484790	85430	17.6	231.6	40.5	17.5
CESSNA207	159	98045	16715	17.0	616.6	105.1	17.0
CESSNA210	3971	877810	183918	21.0	226.6	46.9	20.7
CESSNA305	243	32577	5844	17.9	182.3	27.1	14.9
CESSNA310	2997	669163	78986	11.8	226.8	26.4	11.6
CESSNA320	370	79870	9987	12.5	222.4	25.5	11.5
CESSNA336	102	11296	1530	13.5	122.6	16.0	13.1
CESSNA337	1182	255682	49645	19.4	219.0	42.2	19.3
CESSNA340	468	105609	16734	15.8	225.7	35.8	15.8
CESSNA401	254	78689	9229	11.7	312.0	36.2	11.6
CESSNA402	447	215773	34030	15.8	514.0	78.4	15.3
CESSNA404	44	11378	1972	17.3	267.8	45.9	17.1
CESSNA411	202	47431	7770	16.4	234.8	38.5	16.4
CESSNA414	355	204449	48951	23.9	608.5	139.0	22.8
CESSNA421	912	296328	30633	10.3	324.9	33.6	10.3
CESSNA500	226	148670	18942	12.7	657.8	83.8	12.7
CESSNA50	81	1736	730	42.0	57.4	20.9	36.4
CESSNAUC94	35	692	127	18.4	68.7	8.4	12.3
CCMWFH185	23	290	73	25.2	43.0	5.2	12.2
CCNAEREA4	209	22281	4778	21.4	107.7	23.0	21.3
CURTISC46	44	11673	2584	22.1	355.9	71.8	20.2

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (6 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
CURTISJE	21	102	38	37.5	24.3	6.2	25.5
CURTISOBIN	34	192	83	43.2	33.9	9.1	26.9
CURTISTEVIE	174	5250	1511	28.8	92.1	22.2	24.1
CVAC 22	26	4535	1160	25.6	348.9	62.8	18.0
CVAC 240	53	2738	882	32.2	80.6	24.1	29.8
CVAC 340	21	3956	994	25.1	293.0	55.7	19.0
CVAC 440	31	3454	1259	36.4	167.4	51.3	30.5
CVAC BT13	100	1545	159	10.3	35.7	2.8	7.7
DAET G	25	498	65	13.1	65.4	6.3	9.5
DHAV DHC2	335	38156	7866	20.6	185.1	35.5	19.2
DHAV DHC3	24	6384	585	9.2	297.3	25.1	8.4
DHAV DHC6	117	216663	42968	19.8	1851.8	367.3	19.8
DHAVXXDH82	94	1929	166	8.6	37.4	2.5	6.8
DOUG R26	39	732	115	15.7	46.1	4.1	9.0
DOUG DC3	554	145202	36837	25.4	430.4	87.6	20.4
DOUG DC4	70	3392	1013	29.9	150.1	39.8	26.5
DOUG DC6	102	16406	2900	17.7	314.0	43.3	13.8
DOUG DC7	50	2060	366	17.8	113.3	13.1	11.6
DOUG DC8	42	11184	2363	21.1	421.2	79.9	19.0
DOUG DC9	110	52910	23098	43.7	481.0	210.0	43.7
ENSTRMP28	306	46372	7612	16.4	173.4	27.0	15.6

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (7 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
FLEET 16B	26	724	148	20.4	42.3	7.2	17.0
FRCHLD24	306	3456	972	28.1	37.3	4.9	13.0
FRCHDC119	22	1272	676	53.1	173.5	34.7	20.0
FRCHLDF27	41	17095	2336	13.7	467.1	54.9	11.8
FRCHLDFH1100	88	22190	5019	22.6	359.1	61.4	17.1
FRCHLDM62	216	5859	845	14.4	58.5	6.8	11.7
GLASFI201	33	2412	289	12.0	76.6	8.4	11.0
GLASFIH301	127	9972	1527	15.3	85.5	11.6	13.6
GRLKST1	122	9810	1893	19.3	114.3	19.2	16.8
GRUMANG21	59	25308	6652	26.3	580.7	123.1	21.2
GRUMANG44	93	15911	3238	20.4	220.9	38.8	17.6
GRUMANG73	25	15469	2275	14.7	618.6	91.0	14.7
GRUMANEEM	35	719	154	21.4	54.8	8.5	15.4
GRUMAVAA1	1182	270557	49740	18.4	230.5	42.3	18.4
GRUMAVAA5	1277	320777	48132	15.0	251.6	37.8	15.0
GRUMAVG1159	161	63188	8411	13.3	392.5	52.2	13.3
GRUMAVG159	143	72157	15772	21.9	504.6	110.3	21.9
GRUMAVG164	1320	444017	48446	10.9	384.4	35.5	9.2
HELIO H295	75	19290	3991	20.7	309.1	59.1	19.1
HELIO H391	24	1797	248	13.8	113.7	13.1	11.5
HILLEFH12	632	65220	20653	31.7	168.2	48.6	28.9

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (8 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
HNIYPGHP137	23	5592	2440	43.6	358.4	144.5	40.3
HUGHES269	568	191837	30812	16.1	434.2	61.4	14.1
HUGHES369	321	51979	15935	17.3	296.9	49.8	16.8
HAKSLYDH104	42	6035	2811	46.6	364.5	143.7	39.4
HAKSLYDH114	43	67212	3288	4.9	1563.1	76.5	4.9
HAKSLYDH125	161	67957	13216	19.4	428.5	82.1	19.2
HYNES B2	139	10889	2895	26.6	113.4	28.7	25.3
INTFCP200	101	10498	1053	10.0	123.5	9.4	7.6
ISRAEL1121	117	34479	7395	21.4	357.2	57.5	16.1
ISRAEL1123	23	6399	829	13.0	278.2	36.0	13.0
ISRAEL1124	26	11374	933	8.2	437.5	35.9	8.2
JBMSTRDGA15	79	1470	246	16.7	67.5	8.7	12.8
LAKFN10	47	471	113	24.0	49.7	6.8	13.7
LEAR 23	67	46256	4398	9.5	690.4	65.6	9.5
LEAR 24	165	96162	14782	15.4	611.3	81.8	13.4
LEAR 25	149	69328	3504	5.1	465.3	23.5	5.1
LEAR 35	96	42934	4601	10.7	447.2	47.9	10.7
LET L13	170	12183	2545	20.9	80.1	15.7	19.6
LKHEED12A	23	1374	193	14.1	84.6	9.8	11.6
LKHEED1329	130	51725	6960	13.5	401.0	54.0	13.5
LKHEED18	89	7021	2689	38.3	137.3	47.4	34.5

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (9 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
IKHEED188	20	16820	3808	22.6	841.0	190.4	22.6
IKHEEDPV1	45	2266	1034	45.6	113.7	13.8	12.2
IKHEEDT33	57	158	50	31.5	41.5	7.6	18.4
LUSCCMB	2276	92074	10124	11.0	62.9	5.9	9.4
MARTIN404	40	7141	738	10.3	263.5	22.4	8.5
MAJIE M4	273	24408	1936	7.9	93.1	7.1	7.6
MAJIE M5	267	30992	4098	13.2	119.6	15.5	13.0
MCCULHJ2	37	442	116	26.2	33.0	5.3	16.2
MCLISHPUNKE	131	2855	188	6.6	39.2	2.1	5.3
MEYEFSONW	50	1056	85	8.0	36.3	2.3	6.4
MNCOUF90	72	767	155	20.2	34.2	4.8	13.9
MNHITEM18	149	2509	692	23.8	39.8	5.7	14.3
MCOHEYM20	4590	698511	82162	11.8	153.6	17.9	11.7
MOONEYM22	21	1676	484	28.9	109.7	27.4	24.9
MORISY2150	35	1875	229	12.2	67.3	5.6	8.3
MRCHEIS205	48	3218	446	13.9	74.6	9.1	12.2
MTSBSIMJ2	340	100347	14214	14.2	295.1	41.8	14.2
MULTIFCD16	49	3773	1089	28.9	106.4	27.8	26.1
NAMER B25	47	2004	613	30.6	113.1	29.1	25.7
NAMER F51	141	1705	713	41.8	37.0	9.6	25.9
NAMER NA260	51	2036	400	19.6	51.1	7.6	14.9

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (10 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
NAMEP T6	400	16124	3167	19.6	57.9	11.2	19.3
NAVAL N3N	161	14945	1328	8.9	242.0	17.0	7.0
NAVIONNAVICN	1278	92534	10067	10.9	81.8	8.6	10.5
NCRNSI65	53	1609	487	30.3	49.1	13.3	27.0
PICARDAK6	157	5834	1474	25.3	40.4	9.8	24.3
PILATSB4	24	1823	371	20.3	76.0	15.4	20.3
PIPER J2	67	1321	237	18.0	47.2	6.2	13.0
PIPER J3	4202	199685	22221	11.1	84.3	8.6	10.2
PIPER J4	240	4142	319	7.7	43.0	2.4	5.5
PIPER J5	348	9380	1591	17.0	50.9	7.2	14.2
PIPER PA12	1361	56355	7286	12.9	65.2	6.8	10.5
PIPER PA14	109	8340	1095	13.1	92.4	9.7	10.5
PIPER PA15	197	5759	550	9.6	54.6	4.4	8.1
PIPER PA16	394	14709	1186	8.1	59.2	3.9	6.5
PIPER PA17	120	3150	847	26.9	53.8	11.9	22.1
PIPER PA18	3113	336689	44331	13.2	137.8	16.8	12.2
PIPER PA20	486	25491	2507	9.8	82.8	6.1	7.3
PIPER PA22	5206	269199	26347	9.8	67.0	5.7	8.6
PIPER PA23	3586	913038	160760	17.6	266.8	46.1	17.3
PIPER PA24	3377	494600	41876	8.5	153.9	12.5	8.1
PIPER PA25	1757	324837	35553	10.9	220.1	20.4	9.3

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (11 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
PIPER PA28	18274	4083198	411690	10.1	224.0	22.6	10.1
PIPER PA30	1313	258969	24989	9.6	200.7	19.0	9.4
PIPER PA31	1265	499845	39304	7.9	396.7	31.6	8.0
PIPER PA31T	109	48796	9332	19.1	447.7	85.6	19.1
PIPER PA32	2763	755016	138934	18.4	273.7	50.3	18.4
PIPER PA34	853	233393	25396	10.9	284.8	29.5	10.4
PIPER PA36	282	46915	13487	28.7	200.2	52.0	26.0
PITTS S1	139	15310	2287	14.9	117.3	16.7	14.2
PRATT PPG1	22	192	27	14.0	20.7	2.0	9.8
RAVEN RA6	119	5476	688	12.6	50.1	5.3	10.6
RAVEN S50	105	2486	545	21.9	26.7	5.7	21.3
RAVEN S55	200	9397	1438	15.3	50.5	7.4	14.7
RKWE1112	500	118061	11530	9.8	246.3	23.6	9.6
RKWE11500	346	89442	12770	14.3	264.6	37.3	14.1
RKWE11520	66	6304	332	5.3	101.9	5.0	4.9
RKWE11560	135	23055	2484	10.8	170.8	18.4	10.8
RKWE11680	406	84408	10308	12.2	232.9	25.3	10.9
RKWE11680TP	133	36043	6571	18.2	271.0	49.4	18.2
RKWE11690TP	158	56982	5728	10.1	360.8	36.3	10.1
RKWE11NA265	198	92473	6184	6.7	467.0	31.2	6.7
RYAN ST3	166	3678	598	16.3	37.8	4.5	11.9

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (12 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
RYAN SA	32	507	75	14.7	42.8	4.7	10.9
SCHLEPERS15	29	2210	368	16.7	76.2	12.7	16.7
SCHLEPERS	23	1413	117	8.3	65.1	5.1	7.8
SCHLEPERS16	79	3912	1149	29.4	53.3	15.6	29.3
SCHLEPERS17	704	30122	4240	14.1	52.9	6.5	12.4
SCHLEPERS18	561	75733	11201	14.8	158.8	22.3	14.1
SCHLEPERS19	22	310	47	15.0	44.7	3.8	8.4
SCHLEPERS20	31	1649	624	37.8	53.2	20.1	37.8
SESCO I	39	706	128	18.1	22.7	3.5	15.5
SKESKYS55	85	4378	1559	35.6	255.1	74.0	29.0
SKESKYS58	23	1267	507	40.0	254.0	0.0	0.0
SLINDSTOJ	362	38220	6498	17.0	116.3	19.1	16.4
SMITH 690	338	136853	45386	33.2	419.7	136.1	32.4
SMITH SA31P	33	20576	2640	12.8	623.5	80.0	12.8
SOCATAMS894	41	3333	408	12.3	89.3	9.8	11.0
SPHEHCIRUS	109	5613	1497	26.7	62.1	14.3	23.0
STNSCNTC	178	4250	881	20.7	46.9	7.3	15.5
SINSON15	134	1852	428	23.1	44.1	5.4	12.2
SINSON59	27	630	234	37.0	66.7	22.4	33.6
SINSONV77	104	1592	209	13.1	47.6	5.3	11.2
STOLANFC3	246	2816	1005	35.7	24.9	7.4	29.9

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (13 of 14)

MANUFACTURER/MODEL GFCJE	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
SUPAC LA	135	1838	213	11.6	48.6	4.8	10.0
SUPAC V	26	164	68	41.4	33.0	4.6	14.0
SWENGSRA226	117	94748	8954	9.4	731.3	66.7	9.1
SWRAGNSA26	99	51978	5574	10.7	525.0	56.3	10.7
TCRAFKD	265	8295	567	6.8	70.4	4.4	6.3
TCRAF19	92	7858	883	11.2	85.4	9.6	11.2
ICRAFTA	30	143	68	47.4	45.0	0.0	0.0
ICRAFIBC	1854	55848	8324	14.9	52.9	7.3	13.8
TCRAFTEF	41	1616	297	18.4	74.1	11.2	15.1
TCRAFIBL	232	5493	841	15.3	60.8	7.1	11.7
TEMCC 11A	34	1123	143	12.7	54.1	4.3	8.0
THUNDRAX7	21	750	146	19.5	35.7	7.0	19.5
TEYTEK65	325	7127	1476	20.7	47.6	7.0	14.8
TEYTEKK	32	279	69	24.9	26.8	4.3	16.2
UNIVACG1	682	37775	7472	19.8	80.2	14.6	18.2
UNIVAF108	2214	66401	6962	10.5	48.3	4.1	8.4
UNIVAF415	2532	81615	11234	13.8	42.0	5.1	12.1
VICKER745	26	3204	1207	37.7	328.2	59.0	18.0
WACO ASO	28	743	138	18.5	79.6	12.7	15.9
WACO GXE	34	213	43	20.4	26.9	4.6	17.0
WACO R	31	42	26	62.8	9.3	2.7	29.1

TABLE 2-5. GENERAL AVIATION ANNUAL HOURS BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP - CY 1977 (14 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF TOTAL HOURS	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF MEAN HOURS	STANDARD ERROR	PERCENT STANDARD ERROR
WACO UPF7	154	2939	785	26.7	38.9	9.3	24.0
WACO YK	40	798	150	18.8	68.3	10.1	14.8
WHEELY201	62	15082	3841	25.5	243.3	62.0	25.5
TOTAL	21258	35791558	1072604	3.0	194.2	5.7	2.93

TABLE 2-6. GENERAL AVIATION ACTIVE AIRCRAFT BY TYPE OF AIRCRAFT - CY 1977 (1 of 2)

AIRCRAFT TYPE	POPULATION SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
FIXED WING						
PISTON						
1 ENG 1-3 SEATS	74455	57340	851	1.5	77.0	1.1
1 ENG 4+ SEATS	98191	91960	529	0.6	93.7	0.5
TOTAL 1 ENG	172646	149300	1002	0.7	86.5	0.6
2 ENG 1-6 SEATS	15690	15074	141	0.9	96.1	0.9
2 ENG 7+ SEATS	7161	6226	86	1.4	86.9	1.2
TOTAL 2 ENG	22851	21301	165	0.8	93.2	0.7
OTHER PISTON	353	182	11	6.4	51.6	3.3
TOTAL PISTON	195850	170783	1015	0.6	87.2	0.5
TURBOPROP						
2 ENG 1-12 SEATS	2295	2276	15	0.7	99.2	0.7
2 ENG 13+ SEATS	581	549	13	2.5	94.6	2.3
TOTAL 2 ENG	2876	2825	20	0.7	98.3	0.7
OTHER TURBOPROP	98	64	4	6.4	65.5	4.2
TOTAL TURBOPROP	2974	2890	20	0.7	97.2	0.7
TURBOJET						
2 ENG	1955	1959	19	1.0	98.2	1.0
OTHER	499	318	10	3.4	63.8	2.2
TOTAL TURBOJET	2494	2277	22	1.0	91.3	0.9
TOTAL FIXED WING	201318	175951	1016	0.6	87.4	0.5
ROTORCRAFT						
PISTON	4652	2658	176	6.7	57.1	3.8

TABLE 2-6. GENERAL AVIATION ACTIVE AIRCRAFT BY TYPE OF AIRCRAFT - CY 1977 (2 of 2)

AIRCRAFT TYPE	POPULATION SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
TURBINE	2193	2067	27	1.3	94.3	1.3
TOTAL ROTOCRAFT	6845	4726	179	3.8	69.0	2.6
OTHER	4435	3616	69	1.9	81.5	1.6
TOTAL AIRCRAFT	21298	184294	1034	0.6	86.7	0.5

TABLE 2-7. GENERAL AVIATION ACTIVE AIRCRAFT BY STATE OF BASED AIRCRAFT-CY 1977 (1 of 3)

STATE	ESTIMATE OF POPULATION	STANDARD ERROR	ESTIMATE OF ACTIVE POPULATION	STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
ALABAMA	2773	603	2385	580	86.0	28.1
ALASKA	5870	378	5130	359	87.4	8.3
ARIZONA	4577	694	3700	647	80.8	18.7
ARKANSAS	2900	518	2597	507	89.5	23.7
CALIFORNIA	27732	1105	23344 ^P	1035	84.2 ^F	4.7
COLORADO	3894	594	3497	583	89.8	20.3
CONNECTICUT	1715	408	1444	398	84.2	30.7
DELAWARE	763	244	608	230	79.7	39.5
DC	169	67	119	51	70.4	41.1
FLORIDA	10328	677	9246 ^P	639	89.5 ^F	7.9
GEORGIA	4213	646	3750	636	89.0	20.4
HAWAII	621	262	541	255	87.2	55.2
IDAHO	2370	504	2080	495	87.8	28.0
ILLINOIS	7904	792	7716 ^P	768	97.6 ^F	13.0
INDIANA	4338	673	4183 ^P	651	96.4 ^P	19.8
IOWA	3873	643	3524	635	91.0	22.3
KANSAS	4658	708	3894	692	83.6	19.6
KENTUCKY	1536	413	1385	404	90.2	35.8
LOUISIANA	3716	522	3350	510	90.2	18.7
MAINE	1218	353	1050	343	86.2	37.7
MARYLAND	2843	571	2464	539	86.7	25.8

P : PRELIMINARY RESULT

TABLE 2-7. GENERAL AVIATION ACTIVE AIRCRAFT BY STATE OF BASED AIRCRAFT-CY 1977 (2 of 3)

STATE	ESTIMATE OF POPULATION	STANDARD ERROR	ESTIMATE OF ACTIVE POPULATION	STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
MASSACHUSETTS	2874	569	2463	546	87.5	26.3
MICHIGAN	7681	956	6818	940	88.8	16.5
MINNESOTA	5132	729	4122	696	80.3	17.7
MISSISSIPPI	2219	455	1895	442	85.4	26.6
MISSOURI	4577	726	3905	707	85.3	20.6
MONTANA	2428	438	2230	428	91.8	24.2
NEBRASKA	2654	482	2341	442	88.2	23.1
NEVADA	1732	400	1491	389	86.1	30.0
NEW HAMPSHIRE	1175	344	993	332	84.5	37.6
NEW JERSEY	4522	740	4060	730	89.8	21.8
NEW MEXICO	1932	372	1747	364	90.4	25.7
NEW YORK	6495	539	6092 ^P	488	93.8 ^P	9.6
NORTH CAROLINA	4236	687	3717	673	87.8	21.3
NORTH DAKOTA	1671	392	1508	385	90.2	31.3
OHIO	8267	925	6978	879	84.4	14.2
OKLAHOMA	4547	668	3827	643	84.2	18.8
OREGON	5161	691	4284	669	83.0	17.1
PENNSYLVANIA	6282	850	5310	832	84.5	17.5
RHODE ISLAND	338	191	299	183	88.6	73.7
SOUTH CAROLINA	1742	434	1485	421	85.2	32.2
SOUTH DAKOTA	1429	366	1298	361	90.8	34.4
TENNESSEE	2971	578	2607	563	87.8	25.5
TEXAS	15713	871	14355 ^P	776	91.4 ^P	6.5
UTAH	1537	435	1406	423	91.5	37.8
VERMONT	444	209	386	204	86.9	61.6
VIRGINIA	2789	558	2296	523	82.3	25.0

P : PRELIMINARY RESULT

TABLE 2-7. GENERAL AVIATION ACTIVE AIRCRAFT BY STATE OF BASED AIRCRAFT-CY 1977 (3 of 3)

STATE	ESTIMATE OF POPULATION	STANDARD ERROR	ESTIMATE OF ACTIVE POPULATION	STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
WASHINGTON	6384	591	4995	560	78.2	11.4
WEST VIRGINIA	1095	341	965	324	88.2	40.4
WISCONSIN	4395	681	3519	636	80.1	19.1
WYOMING	1299	312	1176	306	90.5	32.1
PUEBRO RICO	464	233	404	219	87.2	64.4
OTHER U.S. TERRITORIES	158	115	137	113	86.6	95.5
FOREIGN	310	161	234	150	75.7	62.6
TOTAL	212598		184294	1034	86.7	0.5

NOTE : COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

TABLE 2-8. GENERAL AVIATION ACTIVE AIRCRAFT BY REGION OF BASED AIRCRAFT - CY 1977

REGION	ESTIMATE OF POPULATION	STANDARD ERROR	ESTIMATE OF ACTIVE POPULATION	STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
ALASKAN	5870	378	5130	359	87.4	8.3
CENTRAL	15763	1240	13666	1206	86.7	10.3
EASTERN	24983	1461	21940 ^P	1406	87.8 ^P	7.4
EUROPEAN	158	83	101	70	64.0	55.6
GEAR LAKES	37720	1750	33337 ^P	1697	88.4 ^P	6.0
NEW ENGLAND	7703	884	6633	856	86.1	14.9
NORTHWESTERN	13932	1020	11372	986	81.6	9.3
PACIFIC	666	267	573	259	86.1	52.0
ROCKY MOUNTAIN	12261	1025	11118	1005	90.7	11.2
SOUTHERN	30714	1531	27085 ^P	1490	88.2 ^P	6.4
SOUTHWESTERN	28813	1310	25880 ^P	1234	89.8 ^P	5.7
WESTERN	34043	1326	28536 ^P	1256	83.8 ^P	4.7
TOTAL	212588		184294	1034	86.7	0.5

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES

P: PRELIMINARY RESULT

TABLE 2-9. GENERAL AVIATION AIRCRAFT BY TYPE OF AIRCRAFT AND PRIMARY USE - CY 1977
(1 of 4)

	TOTAL ACTIVE				ACTIVE USERS					OTHER	INACTIVE	
	EXEC- UTIVE	BUSI- NESS	PERSNL APPL	AERIAL APPL	INSTR	AIR TAII	INDUS- TRIAL	REN- TAL				
FIXED WING PISTON												
1 ENG 1-3 SEATS												
EST. NO. ACT.	85	3882	34221	6032	8166	63	350	2077	1949	17626		
STD. ERROR	D	C	A	A	B	D	C	D	C	A		
EST % ACT.	77.0											
1 ENG 4+ SEATS												
EST. NO. ACT.	1074	27650	47515	121	6377	1945	520	5654	980	6351		
STD. ERROR	C	A	A	D	B	B	D	B	C	A		
EST % ACT.	93.7											
TOTAL 1 ENG												
EST. NO. ACT.	1159	31533	81737	6154	14543	2009	870	7731	2929	23977		
STD. ERROR	C	A	A	A	B	B	C	B	B	A		
EST % ACT.	86.5											
2 ENG 1-6 SEATS												
EST. NO. ACT.	1914	6961	2971	131	678	1715	22	309	307	636		
STD. ERROR	B	A	B	D	D	B	D	D	D	C		
EST % ACT.	96.1											

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*****
* STANDARD ERROR *****
* CODE *
* GREATER LESS THAN *
* THAN OR *
* EQUAL TO *
* 0 % 10 % *
* 10 % 20 % *
* 20 % 30 % *
* 30 % *
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TABLE 2-9. GENERAL AVIATION AIRCRAFT BY TYPE OF AIRCRAFT AND PRIMARY USE - CY 1977
(2 of 4)

	TOTAL ACTIVE		ACTIVE USERS							OTHER	INACTIVE		
	EST. NO. ACT.	STD. ERROR	EXEC- UTIVE	BUSI- NESS	PERSNL	AERIAL APPL	INSTR	AIR TAXI	INDUS- TRIAL			REN- TAL	
2 ENG 7+ SEATS													
EST. NO. ACT.	6226		1941	1625	406	104	90	1449	62	199	329	951	A
STD. ERROR	86		A	A	B	D	D	A	D	D	C	A	
EST % ACT.	86.9												
TOTAL 2 ENG													
EST. NO. ACT.	21301		3856	8587	3378	235	768	3165	85	509	677	1588	B
STD. ERROR	165		A	A	B	D	C	B	D	C	B	B	
EST % ACT.	93.2												
OTHER PISTON													
EST. NO. ACT.	182		1	8	3	66	0	47	0	32	17	174	A
STD. ERROR	11		D	D	D	B	A	A	A	C	C	A	
EST % ACT.	51.6												
TOTAL PISTON													
EST. NO. ACT.	170783		5017	40129	85118	6456	15312	5222	955	8273	3624	25739	A
STD. ERROR	1015		A	A	A	A	B	A	C	B	B	A	
EST % ACT.	87.2												
TURBOPROP													
2 ENG 1-12 SEATS													
EST. NO. ACT.	2276		1631	367	34	0	13	179	0	12	36	18	D
STD. ERROR	15		A	B	D	A	D	C	A	D	D	D	
EST % ACT.	99.2												
2 ENG 13+ SEATS													
EST. NO. ACT.	549		182	43	4	0	0	251	4	34	27	33	D
STD. ERROR	13		B	D	D	A	A	B	D	D	D	D	
EST % ACT.	94.6												

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*****
* STANDARD ERROR * CODE *
* ----- *
* GREATER * LESS THAN *
* THAN * OR *
* * EQUAL TO *
* * *
* 0 % * 10 % * A *
* 10 % * 20 % * B *
* 20 % * 30 % * C *
* 30 % * * D *
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TABLE 2-9. GENERAL AVIATION AIRCRAFT BY TYPE OF AIRCRAFT AND PRIMARY USE - CY 1977

	TOTAL ACTIVE			ACTIVE USERS						OTHER	INACTIVE
	EST. NO. STD. ERROR EST % ACT.	EXEC- UTIVE	BUSI- NESS	PERSNL	AERIAL APPL	INSTR	AIR TAXI	INDUS- TRIAL	REN- TAL		
TOTAL 2 ENG	2825	1814	411	38	0	13	431	4	47	63	52
EST. NO.	20	A	B	D	A	D	B	D	D	D	D
STD. ERROR	98.3										
EST % ACT.											
OTHER TURBOPROP	64	9	8	0	0	1	3	0	16	25	31
EST. NO.	4	C	C	A	A	D	A	A	C	B	B
STD. ERROR	65.5										
EST % ACT.											
TOTAL TURBOPROP	2890	1824	419	38	0	15	434	4	63	88	84
EST. NO.	20	A	B	D	A	D	B	D	D	D	C
STD. ERROR	97.2										
EST % ACT.											
TURBOJET	1959	1477	99	10	6	62	208	18	0	75	35
EST. NO.	19	A	C	D	D	D	B	D	A	D	D
STD. ERROR	98.2										
EST % ACT.											
OTHER	318	111	74	5	0	5	9	0	29	66	195
EST. NO.	10	B	C	D	A	D	C	A	B	C	A
STD. ERROR	63.8										
EST % ACT.											
TOTAL TURBOJET	2277	1589	174	15	6	68	217	18	29	142	231
EST. NO.	22	A	C	D	D	D	B	D	B	C	A
STD. ERROR	91.3										
EST % ACT.											

```

*****
* STANDARD ERROR CODE
* GREATER LESS THAN
* THAN OR
* EQUAL TO
* 0% 10% A
* 10% 20% B
* 20% 30% C
* 30% D
*****

```

TABLE 2-9. GENERAL AVIATION AIRCRAFT BY TYPE OF AIRCRAFT AND PRIMARY USE - CY 1977
(4 of 4)

			ACTIVE USERS							OTHER		INACTIVE
TOTAL ACTIVE			EXEC- UTIVE	BUSI- NESS	PERSONL	AERIAL APPL	INSTR	AIR TAXI	INDUS- TRIAL	REN- TAL		
TOTAL FIXED WING			EST. NO.	8432	40723	85172	6462	15396	5874	978	3854	26055
STD. ERROR			%	A	A	A	A	B	A	C	B	A
EST % ACT.												
ROTCRAFT			EST. NO.	53	353	539	869	139	86	195	382	2025
PISTON			STD. ERROR	D	D	B	C	D	D	D	C	A
EST % ACT.												
TURBINE			EST. NO.	290	135	10	59	170	875	166	332	127
STD. ERROR			%	D	D	D	C	D	B	D	C	C
EST % ACT.												
TOTAL ROTOCRAFT			EST. NO.	344	489	550	929	310	961	361	715	2152
STD. ERROR			%	D	C	B	B	D	B	C	C	A
EST % ACT.												
OTHER			EST. NO.	5	183	2569	0	389	2	1	229	831
STD. ERROR			%	D	B	A	A	B	D	D	B	A
EST % ACT.												
TOTAL AIRCRAFT			EST. NO.	8782	41396	88292	7392	16096	6838	1342	4799	8619
STD. ERROR			%	450	1902	2416	303	1690	502	239	535	1310
EST % ACT.												

```

*****
* STANDARD ERROR * CODE *
* ----- *
* GREATER * LESS THAN *
* THAN * OR *
* ----- *
* 0 % * 10 % * A *
* 10 % * 20 % * B *
* 20 % * 30 % * C *
* 30 % * * D *
*****

```

NOTE : ROW AND COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

TABLE 2-10. GENERAL AVIATION ACTIVE AIRCRAFT IFR FLOWN AND TRANSPONDER EQUIPPED - CY 1977
(1 of 2)

AIRCRAFT TYPE	ESTIMATED NUMBER OF A/C FLOWN IFR	PERCENT STANDARD ERROR	ESTIMATED PERCENT OF ACTIVE A/C FLOWN IFR	ESTIMATED NUMBER OF A/C FLOWN IFR WITH TRANSPONDER	PERCENT STANDARD ERROR	ESTIMATED PERCENT OF IFR WITH TRANSPONDER
FIXED WING						
PISTON						
1 ENG 1-3 SEATS	2324	C	4.1	1219	C	52.5
1 ENG 4+ SEATS	37714	A	41.0	36696	A	97.3
TOTAL 1 ENG	40038	A	26.8	37915	A	94.7
2 ENG 1-6 SEATS	13143	A	87.2	13143	A	100.0
2 ENG 7+ SEATS	5751	A	92.4	5751	A	100.0
TOTAL 2 ENG	18894	A	88.7	18894	A	100.0
OTHER PISTON	141	A	77.4	141	B	100.0
TOTAL PISTON	59074	A	34.6	56960	A	96.4
TURBOPROP						
2 ENG 1-12 SEATS	2259	A	99.3	2254	A	99.8
2 ENG 13+ SEATS	550	A	100.0	550	A	100.0
TOTAL 2 ENG	2809	A	99.4	2807	A	99.9
OTHER TURBOPROP	63	B	99.3	63	B	100.0

```

*****
* STANDARD ERROR *****
* CODE -----
* GREATER LESS THAN
* THAN OR
* EQUAL TO
* -----
* 0 % 10 %
* 10 % 20 %
* 20 % 30 %
* 30 %
*****

```


TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP
CY 1977 (1 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
OTHER 01	7880	4920	351	7.1	62.4	4.5
OTHER 02	1236	666	58	8.6	53.9	4.7
OTHER 03	301	157	8	4.8	52.2	2.5
OTHER 04	175	82	6	6.8	47.1	3.2
OTHER 05	66	31	8	24.9	46.3	11.5
OTHER 06	346	346	0	0.0	100.0	0.0
OTHER 07	100	88	10	11.4	87.6	10.0
OTHER 08	44	30	3	8.4	69.2	5.8
OTHER 09	201	197	5	2.5	98.0	2.4
OTHER 10	144	63	8	13.3	43.4	5.8
OTHER 11	1376	417	28	6.8	30.3	2.1
OTHER 12	180	139	8	6.0	77.4	4.6
OTHER 13	1550	1138	46	4.1	73.4	3.0
AEROSPA316	50	50	0	0.0	100.0	0.0
AEROSPA341	55	55	0	0.0	100.0	0.0
AIRPFSF	290	214	15	7.0	73.7	5.1
AIRSPC18	24	11	2	13.9	47.1	6.5
AIRPFA200	81	81	0	0.0	100.0	0.0
AMD FALC10	80	80	0	0.0	100.0	0.0
AMD FALC20	187	187	0	0.0	100.0	0.0
ARCTICS1A	91	39	4	9.7	42.9	4.1

NOTE: See following page for coding.

NOTE: Other XX refers to all general aviation aircraft belonging to manufacturer/model groups of fewer than 20 aircraft in size for aircraft XX where XX stands for

- 01 Fixed wing piston, 1 engine, 1-3 seats.
- 02 Fixed wing piston, 1 engine, 4+ seats.
- 03 Fixed wing piston, 2 engines, 1-6 seats.
- 04 Fixed wing piston, 2 engines, 7+ seats.
- 05 Fixed wing piston, other.
- 06 Fixed wing turboprop, 2 engines, 1-12 seats.
- 07 Fixed wing turboprop, 2 engines, 13+ seats.
- 08 Fixed wing turboprop, other.
- 09 Fixed wing turbojet, 2 engines.
- 10 Fixed wing turbojet, other.
- 11 Rotorcraft, piston.
- 12 Rotorcraft, turbine.
- 13 Other aircraft.

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (2 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
ARCTICS1B1	23	8	1	16.8	35.3	5.9
ARONCA15	206	147	8	5.3	71.2	3.8
ARONCA5R	162	80	13	16.3	49.4	8.1
ARONCA65	139	66	12	17.7	47.3	8.4
ARONCAC3	49	21	5	25.6	42.4	10.9
AYRES S2	789	731	14	2.0	92.6	1.8
PAC 111	29	29	0	0.0	100.0	0.0
PALMSFIREPY	225	213	10	4.7	94.5	4.4
BEAGLEB206	27	16	5	27.8	60.0	16.7
BEECH 100	173	173	0	0.0	100.0	0.0
BEECH 17	191	80	20	24.3	42.0	10.2
BEECH 18	1148	866	46	5.3	75.4	4.0
BEECH 200	207	195	14	7.1	94.3	6.7
BEECH 23	2453	2266	129	5.7	92.4	5.3
BEECH 33	1464	1455	4	0.3	99.4	0.3
BEECH 35	6809	6375	204	3.2	93.6	3.0
BEECH 36	857	857	0	0.0	100.0	0.0
BEECH 45	321	281	9	3.2	87.5	2.8
BEECH 50	366	346	7	2.1	94.5	2.0
BEECH 55	1966	1961	13	0.7	99.7	0.7
BEECH 56	66	66	0	0.0	100.0	0.0

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (3 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
BEECH 58	714	714	0	0.0	100.0	0.0
BEECH 60	294	294	0	0.0	100.0	0.0
BEECH 65	179	179	0	0.0	100.0	0.0
BEECH 80	241	210	13	6.0	87.2	5.3
BEECH 90	474	472	6	1.3	99.6	1.3
BEECH 95	492	484	9	1.9	98.4	1.9
BEECH 99	108	105	8	7.9	97.2	7.7
BELL 204	99	70	1	1.9	70.3	1.4
BELL 205	61	61	0	0.0	100.0	0.0
BELL 206	1093	1086	21	1.9	99.3	1.9
BELL 212	83	83	0	0.0	100.0	0.0
BELL 47	1535	1064	163	15.3	69.3	10.6
ELANCA11	949	599	27	4.6	63.2	2.9
ELANCA1413	296	127	15	11.9	42.8	5.1
ELANCA1419	300	259	11	4.2	86.2	3.6
ELANCA17	937	929	17	1.8	99.1	1.8
ELANCA7	5751	4627	148	3.2	80.5	2.6
ELANCA8	424	424	0	0.0	100.0	0.0
BOEH BN2	69	66	7	10.8	96.0	10.4
BOEING707	19	14	2	15.5	75.0	11.6
BOEING720	20	16	2	9.5	81.8	7.8

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (4 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
BOEING727	58	50	5	10.9	85.6	9.3
BCEING75	2026	866	75	8.6	42.7	3.7
BOEINGB17	22	16	5	34.7	71.4	24.7
BOLKMS105	57	57	0	0.0	100.0	0.0
ERWSTPFEETZ	31	9	1	15.2	29.6	4.5
ERWSTPFEET7	22	8	1	9.1	36.8	3.3
CANRCNMDELIC	38	38	0	0.0	100.0	0.0
CESSNA120	926	717	72	10.0	77.5	7.8
CESSNA140	2516	2021	82	4.0	80.3	3.2
CESSNA150	16525	15193	684	4.5	91.9	4.1
CESSNA170	2588	2413	67	2.8	93.2	2.6
CESSNA172	19631	19482	255	1.3	99.2	1.3
CESSNA175	1430	1261	45	3.6	88.2	3.2
CESSNA177	2852	2850	17	0.6	99.9	0.6
CESSNA180	2505	2330	64	2.8	93.0	2.6
CESSNA182	10916	10576	246	2.3	96.9	2.3
CESSNA185	1115	1101	29	2.6	98.7	2.6
CESSNA188	1659	1516	97	6.4	91.4	5.8
CESSNA190	88	69	2	3.0	77.9	2.3
CESSNA195	502	294	44	14.9	58.5	8.7
CESSNA205	263	251	9	3.5	95.4	3.3

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (5 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
CESSNA206	2122	2093	46	2.2	98.6	2.2
CESSNA207	159	159	0	0.0	100.0	0.0
CESSNA210	3971	3873	131	3.4	97.5	3.3
CESSNA305	243	179	18	10.0	73.5	7.4
CESSNA310	2997	2950	56	1.9	98.4	1.9
CESSNA320	370	359	18	5.0	97.1	4.9
CESSNA336	102	92	3	3.5	90.3	3.2
CESSNA337	1182	1168	26	2.2	98.8	2.2
CESSNA340	468	468	0	0.0	100.0	0.0
CESSNA401	254	252	4	1.7	99.3	1.7
CESSNA402	447	420	17	4.0	93.9	3.7
CESSNA404	44	42	1	2.6	96.5	2.5
CESSNA411	202	202	0	0.0	100.0	0.0
CESSNA414	355	336	24	7.2	94.6	6.8
CESSNA421	912	912	0	0.0	100.0	0.0
CESSNA500	226	226	0	0.0	100.0	0.0
CESSNA150	81	30	6	21.0	37.3	7.8
CESSNAUC94	35	10	1	13.7	28.8	3.9
CONQUEST185	23	7	1	22.1	29.3	5.5
CCNAEB1A4	209	207	5	2.4	99.0	2.4
CUPERTISC46	44	33	3	9.1	74.5	6.8

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (6 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
CURTISJF	21	4	1	27.6	20.0	5.5
CURTISEGBIN	34	6	2	33.7	16.6	5.5
CURTISTRVAIF	174	57	9	15.2	32.7	5.0
CVAC 22	26	13	2	18.2	50.0	9.1
CVAC 240	53	34	4	12.1	64.1	7.8
CVAC 340	21	14	2	16.4	64.3	10.5
CVAC 440	31	21	4	19.7	66.6	13.1
CVAC B113	100	43	3	6.8	43.2	2.9
DAPC G	25	8	1	8.9	30.4	2.7
DHAV DHC2	335	206	16	8.0	61.6	4.9
DHAV DHC3	24	21	1	3.6	89.5	3.2
DHAV DHC6	117	117	0	0.0	100.0	0.0
DHAVXDR82	94	52	3	5.3	54.9	2.9
DOUG A26	39	16	2	12.9	40.7	5.2
DOUG DC3	554	337	51	15.1	60.9	9.2
DOUG DC4	70	23	3	13.7	32.3	4.4
DOUG DC6	102	52	6	11.1	51.2	5.7
DOUG DC7	50	18	2	13.4	36.4	4.9
DOUG DC8	42	27	2	9.3	63.2	5.9
DOUG DC9	110	110	0	0.0	100.0	0.0
ENSTEMF28	306	267	15	5.5	87.4	4.8

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (7 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
FLEET 168	26	17	2	11.3	65.9	7.4
FRCHLD24	306	93	23	24.6	30.3	7.5
FRCHLDC119	22	7	4	49.2	33.3	16.4
FRCHLDF27	41	37	3	7.1	89.3	6.3
FRCHLDFH1100	88	62	9	14.8	70.2	10.4
FRCHLDM62	216	100	8	8.5	46.4	3.9
GLASPL201	33	32	2	4.8	95.5	4.6
GLASFH301	127	117	8	7.0	91.8	6.4
GRTLS2T1	122	86	8	9.5	70.3	6.7
GRUANG21	59	44	7	15.5	73.9	11.5
GEUMNG44	93	72	7	10.3	77.4	7.9
GRUENG73	25	25	0	0.0	100.0	0.0
GEOMANE8N	35	13	2	14.8	37.5	5.5
GRUAVAA1	1182	1174	16	1.4	99.3	1.4
GEUAVAA5	1277	1277	0	0.0	100.0	0.0
GEUAVG1159	161	161	0	0.0	100.0	0.0
GEUAVG159	143	143	0	0.0	100.0	0.0
GEUAVG164	1320	1155	67	5.8	87.5	5.1
HELIO H295	75	62	5	7.9	83.2	6.5
HELIO H391	24	16	1	7.6	65.9	5.0
HILLEUH12	632	388	50	13.0	61.4	8.0

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (8 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
BNLYFGHP137	23	16	3	16.7	67.8	11.3
HUGHES269	568	442	34	7.6	77.8	5.9
HUGHES365	331	310	13	4.3	96.5	4.2
HWKSLYDH104	42	17	4	24.8	39.4	9.8
HWKSLYDH114	43	43	0	0.0	100.0	0.0
HWKSLYDH125	161	159	5	3.4	98.5	3.3
HYRES B2	139	96	8	8.1	69.0	5.6
INTRCF200	101	85	5	6.1	84.2	5.2
ISRAELI121	117	97	14	14.2	82.5	11.7
ISRAELI123	23	23	0	0.0	100.0	0.0
ISRAELI124	26	26	0	0.0	100.0	0.0
JBMSTFD8A15	79	22	2	10.7	27.6	3.0
LAIKEN10	47	9	2	19.7	20.2	4.0
LEAF 23	67	67	0	0.0	100.0	0.0
LEAF 24	165	157	12	7.6	95.3	7.2
LEAF 25	149	149	0	0.0	100.0	0.0
LEAR 35	96	96	0	0.0	100.0	0.0
LET L13	170	152	11	7.3	89.4	6.6
IKHEED12A	23	16	1	8.0	70.6	5.6
IKHEED1329	130	129	0	0.0	99.2	0.0
IKHEED1R	89	51	8	16.6	57.5	9.5

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (9 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
LKHEED188	20	20	0	0.0	100.0	0.0
LKHEEDPV1	45	20	9	44.0	44.3	19.5
LKHEEDT33	57	4	1	25.6	6.7	1.7
IUSCCM8	2276	1464	84	5.8	64.3	3.7
MARTIN4J4	40	27	2	5.9	67.7	4.0
MAULE M4	273	262	6	2.1	96.0	2.0
MAULE M5	267	259	7	2.6	97.0	2.5
MCCUIBJ2	37	13	3	20.7	36.1	7.5
MCLISHFUNKB	131	73	3	4.0	55.6	2.2
MEYEF50FW	50	29	1	4.8	58.1	2.8
MKCCUP90	72	22	3	14.6	31.1	4.5
MNHITEM18	149	73	14	19.0	49.1	9.3
MOONEYM20	4590	4546	70	1.5	99.0	1.5
MOONEYM22	21	15	2	14.5	72.7	10.6
MORISY2150	35	28	2	8.9	79.5	7.1
MRCHTIS205	48	43	3	6.5	89.9	5.9
MISBSIM02	340	340	0	0.0	100.0	0.0
MULTIFCD16	49	35	4	12.3	72.4	8.9
NAJEE B25	47	18	3	16.6	37.7	6.2
NAJEE F51	141	46	15	33.2	32.7	10.9
NAJEE NA260	51	40	5	12.8	78.1	10.0

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (10 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
NAVEE T6	400	279	10	3.7	69.7	2.6
NAVAL N3N	161	62	3	5.5	38.4	2.1
NAVICKNAVICN	1278	1131	32	2.8	88.5	2.5
NORMS165	53	33	4	13.7	61.8	8.5
PICARLX6	157	144	10	7.0	92.0	6.5
PILATSB4	24	24	0	0.0	100.0	0.0
PIPEE J2	67	28	3	12.4	41.8	5.2
PIPEE J3	4202	2366	102	4.3	56.3	2.4
PIPEE J4	240	96	5	5.4	40.2	2.2
PIPEE J5	348	184	17	9.3	52.9	4.9
PIPEE PA12	1361	864	65	7.6	63.5	4.8
PIPEE PA14	109	90	7	7.9	82.8	6.5
PIPEE PA15	197	105	5	5.0	53.5	2.7
PIPEE PA16	394	248	12	4.8	63.1	3.0
PIPEE PA17	120	59	9	15.3	48.8	7.5
PIPEE PA18	3113	2443	120	4.9	78.5	3.8
PIPEE PA20	486	308	20	6.5	63.3	4.1
PIPEE PA22	5206	4021	194	4.8	77.2	3.7
PIPEE PA23	3586	3422	119	3.5	95.4	3.3
PIPEE PA24	3377	3215	77	2.4	95.2	2.3
PIPEE PA25	1757	1476	86	5.8	84.0	4.9

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (11 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
PIPER PA28	18274	18232	70	0.4	99.8	0.4
PIPER PA30	1313	1290	25	2.0	98.3	1.9
PIPER PA31	1265	1265	0	0.0	100.0	0.0
PIPER PA31T	109	109	0	0.0	100.0	0.0
PIPER PA32	2763	2759	17	0.6	99.8	0.6
PIPER PA34	853	817	30	3.6	95.8	3.5
PIPER PA36	282	234	29	12.3	83.1	10.2
PITTS S1	139	130	6	4.5	93.9	4.2
PEATT PPG1	22	9	1	9.9	42.1	4.2
RAVEN RX6	119	109	7	6.8	91.8	6.2
RAVEN S50	105	93	5	5.2	88.8	4.6
RAVEN S55	200	186	8	4.2	93.0	3.9
RKVELL112	500	478	6	1.2	95.6	1.1
RKVELL500	346	338	8	2.4	97.7	2.3
RKVELL520	66	62	1	1.9	93.8	1.8
RKVELL560	135	135	0	0.0	100.0	0.0
RKVELL680	406	362	20	5.6	89.2	5.0
RKVELL690TP	133	133	0	0.0	100.0	0.0
RKVELL690TP	158	158	0	0.0	100.0	0.0
RKVELLN265	198	198	0	0.0	100.0	0.0
RYAN ST3	166	97	11	11.1	58.6	6.5

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (12 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
PYAN STA	32	12	1	9.9	37.0	3.7
SCHLESASW15	29	29	0	0.0	100.0	0.0
SCHLEFK8	23	22	1	2.7	94.4	2.5
SCHLEK16	79	73	2	2.6	92.9	2.4
SCHWEPS1	704	509	38	6.7	80.8	5.4
SCHWEPS2	561	478	22	4.5	85.3	3.9
SCHWIRG3A	22	7	1	12.5	31.6	3.9
SEMCO CLINGER	31	31	0	0.0	100.0	0.0
SEMCO F	39	31	3	9.3	79.9	7.5
SKRSKYS55	85	17	3	19.6	20.2	4.0
SKRSKYS58	23	5	2	40.0	21.7	8.7
SLINDS100	362	329	15	4.5	90.8	4.1
SMITH 60J	338	326	23	6.9	96.5	6.7
SNIS SA318	33	33	0	0.0	100.0	0.0
SOCATAM5854	41	37	2	5.3	91.0	4.9
SPETHCIR5US	109	90	12	13.5	83.0	11.2
STNSON10	178	91	12	13.8	50.9	7.0
STNSCN15	134	42	8	19.6	31.4	6.2
SINSCNSE9	27	9	1	15.5	35.0	5.4
STNSCNV77	104	33	2	6.8	32.1	2.2
STOLAFPC3	246	113	22	19.5	46.0	9.0

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (13 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
SUPAC LA	105	38	2	5.9	36.0	2.1
SUPAC V	26	5	2	39.0	19.1	7.5
SWINGSA226	117	117	0	0.0	100.0	0.0
SWINGSA26	99	99	0	0.0	100.0	0.0
TCRAFKD	265	118	3	2.7	44.5	1.2
TCRAFT19	92	92	0	0.0	100.0	0.0
TCRAFTA	30	3	2	47.4	10.6	5.0
TCRAFTBC	1854	1056	60	5.7	57.0	3.3
TCRAFTBF	41	22	2	10.5	53.2	5.6
TCRAFTBI	232	90	9	9.9	38.9	3.9
TEMOC 11A	34	21	2	9.9	61.0	6.0
THUNDERAX7	21	21	0	0.0	100.0	0.0
TRYTER65	325	150	22	14.5	46.0	6.7
TRYTEKK	32	10	2	19.9	32.6	6.2
UNIVACGC1	682	471	36	7.6	69.1	5.3
UNIVAR108	2214	1375	86	6.2	62.1	3.9
UNIVAE415	2532	1946	146	7.5	76.8	5.7
VICKER745	26	10	3	33.1	37.6	12.4
WACO A50	28	9	1	9.5	33.3	3.2
WACO GXS	34	8	1	11.4	23.3	2.6
WACO E	31	4	2	55.7	14.4	8.0

TABLE 2-11. GENERAL AVIATION ACTIVE AIRCRAFT BY SDR AIRCRAFT MANUFACTURER/MODEL GROUP -
CY 1977 (14 of 14)

MANUFACTURER/MODEL GROUP	GROUP SIZE	ESTIMATE OF ACTIVE AIRCRAFT	STANDARD ERROR	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	STANDARD ERROR
WACO UPF7	154	76	9	11.8	49.1	5.8
WACO YK	40	12	1	11.6	29.2	3.4
WHELY201	62	62	0	0.0	100.0	0.0
TOTAL	212598	184294	1034	0.6	86.7	0.5

TABLE 2-12. GENERAL AVIATION AVIONICS EQUIPMENT BY AIRCRAFT TYPE - CY 1977 (1 of 8)

TYPE	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NC COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	MIS	NO ILS
FIXED WING PISTON												
1 ENG 1-3 SEATS												
ESTIMATED POPULATION	41126	4041	4762	29403	8146	755	66308	8910	3474	1460	31	64476
% STANDARD ERROR	A	C	B	A	B	C	A	B	B	D	D	A
ESTIMATED % OF TYPE	55.2	5.4	6.4	39.5	10.9	1.0	89.1	12.0	4.7	2.0	0.0	86.6
1 ENG 4+ SEATS												
ESTIMATED POPULATION	67719	32367	64440	3123	71160	20128	27030	62660	55741	40078	387	31588
% STANDARD ERROR	A	A	A	B	A	A	A	A	A	A	D	A
ESTIMATED % OF TYPE	69.0	33.0	65.6	3.2	72.5	20.5	27.5	63.8	56.8	40.8	0.4	32.2
TOTAL 1 ENG												
ESTIMATED POPULATION	108846	36408	69202	32527	79307	20884	93338	71571	59215	41539	419	96064
% STANDARD ERROR	A	A	A	A	A	A	A	A	A	A	D	A
ESTIMATED % OF TYPE	63.0	21.1	40.1	18.8	45.9	12.1	54.1	41.5	34.3	24.1	0.2	55.6
2 ENG 1-6 SEATS												
ESTIMATED POPULATION	8821	7461	14451	155	15157	11381	532	15038	14975	14349	97	391
% STANDARD ERROR	A	A	A	C	A	A	C	A	A	A	D	C
ESTIMATED % OF TYPE	56.2	47.6	92.1	1.0	96.6	72.5	3.4	95.9	95.4	91.5	0.6	2.5

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TABLE 2-12. GENERAL AVIATION AVIONICS EQUIPMENT BY AIRCRAFT TYPE - CY 1977 (2 of 8)

TYPE	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NC COMM	4096 CODE	AIT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	MLS	NO ILS
2 ENG 7+ SEATS												
ESTIMATED POPULATION	3049	3869	5854	393	6362	4951	798	6432	6286	6341	114	688
% STANDARD ERROR	A	A	A	B	A	A	B	A	A	A	D	B
ESTIMATED % OF TYPE	42.6	54.0	81.8	5.5	86.8	69.1	11.2	89.8	87.8	88.6	1.6	9.6
TOTAL 2 ENG	11870	11330	20306	549	21520	16333	1330	21471	21262	20691	212	1079
ESTIMATED POPULATION	A	A	A	B	A	A	B	A	A	A	D	B
% STANDARD ERROR	A	A	A	B	A	A	B	A	A	A	D	B
ESTIMATED % OF TYPE	51.9	49.6	88.9	2.4	94.2	71.5	5.8	94.0	93.0	90.5	0.9	4.7
OTHER PISTON												
ESTIMATED POPULATION	222	102	244	28	235	74	117	235	244	230	0	97
% STANDARD ERROR	A	A	A	B	A	B	B	A	A	A	A	B
ESTIMATED % OF TYPE	63.1	29.0	69.4	11.0	66.8	21.2	33.2	66.6	69.3	65.2	0.0	27.5
TOTAL PISTON	120939	47841	89753	33115	101063	37292	94786	93278	80722	62460	631	97240
ESTIMATED POPULATION	A	A	A	A	A	A	A	A	A	A	D	A
% STANDARD ERROR	A	A	A	A	A	A	A	A	A	A	D	A
ESTIMATED % OF TYPE	61.8	24.4	45.8	16.9	51.6	19.0	48.4	47.6	41.2	31.9	0.3	49.7
TURBOPROP												
2 ENG 1-12 SEATS												
ESTIMATED POPULATION	533	1818	2131	1	2290	2255	5	2252	2252	2238	10	42
% STANDARD ERROR	B	A	A	D	A	A	D	A	A	A	D	D
ESTIMATED % OF TYPE	23.2	79.2	92.9	0.1	99.8	98.3	0.2	98.2	98.2	97.5	0.4	1.8
2 ENG 13+ SEATS												
ESTIMATED POPULATION	138	450	567	0	581	464	0	581	573	581	14	0
% STANDARD ERROR	C	A	A	A	A	A	A	A	A	A	D	A
ESTIMATED % OF TYPE	23.8	77.5	97.7	0.0	100.0	79.9	0.0	100.0	98.7	100.0	2.6	0.0

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TABLE 2-12. GENERAL AVIATION AVIONICS EQUIPMENT BY AIRCRAFT TYPE - CY 1977 (3 of 8)

TYPE	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	MLS	NO ILS
TOTAL 2 ENG	671	2268	2698	1	2871	2720	5	2833	2825	2819	24	42
ESTIMATED POPULATION	B	A	A	D	A	A	D	A	A	A	D	D
% STANDARD ERROR	23.4	78.9	93.8	0.1	95.8	94.6	0.2	98.5	98.3	98.0	0.9	1.5
ESTIMATED % OF TYPE												
OTHER TURBOPROP	54	41	79	1	89	65	6	86	83	83	0	9
ESTIMATED POPULATION	A	B	A	A	A	A	C	A	A	A	A	C
% STANDARD ERROR	55.3	42.7	81.6	1.0	91.4	67.0	6.6	88.0	85.0	85.0	0.0	9.9
ESTIMATED % OF TYPE												
TOTAL TURBOPROP	726	2310	2778	2	2960	2785	11	2919	2909	2902	24	52
ESTIMATED POPULATION	B	A	A	D	A	A	D	A	A	A	D	D
% STANDARD ERROR	24.4	77.7	93.4	0.1	99.5	93.7	0.4	98.2	97.8	97.6	0.8	1.7
ESTIMATED % OF TYPE												
TURBOJET	412	1644	1861	15	1978	1945	15	1974	1972	1971	16	19
ESTIMATED POPULATION	B	A	A	D	A	A	D	A	A	A	D	D
% STANDARD ERROR	20.7	82.4	93.3	0.8	99.2	97.5	0.8	99.0	98.9	98.8	0.8	1.0
ESTIMATED % OF TYPE												
OTHER	145	298	378	62	401	349	97	382	367	370	14	114
ESTIMATED POPULATION	B	A	A	B	A	A	B	A	A	A	D	A
% STANDARD ERROR	29.2	59.8	75.9	12.5	80.5	70.1	19.5	76.6	73.7	74.3	2.9	23.0
ESTIMATED % OF TYPE												
TOTAL TURBOJET	557	1942	2240	78	2379	2295	113	2357	2340	2342	30	134
ESTIMATED POPULATION	A	A	A	C	A	A	B	A	A	A	D	B
% STANDARD ERROR	22.4	77.9	89.8	3.1	95.4	92.0	4.5	94.5	93.8	93.9	1.2	5.4
ESTIMATED % OF TYPE												

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TABLE 2-12. GENERAL AVIATION AVIONICS EQUIPMENT BY AIRCRAFT TYPE - CY 1977 (4 of 8)

TYPE	VHF COMMUNICATIONS				TRANSponder EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	NLS	NO ILS
TOTAL FIXED WING												
ESTIMATED POPULATION	122223	52094	94773	33195	106403	42374	94911	98555	85972	67705	687	97426
% STANDARD ERROR	A	A	A	A	A	A	A	A	A	A	D	A
ESTIMATED % OF TYPE	60.7	25.9	47.1	16.5	52.9	21.0	47.1	49.0	42.7	33.6	0.3	48.4
ROTORCRAFT												
PISCHON												
ESTIMATED POPULATION	1952	745	389	1960	579	30	4072	92	22	15	1	4551
% STANDARD ERROR	A	C	D	A	C	D	A	D	D	D	D	A
ESTIMATED % OF TYPE	42.0	16.0	8.4	42.1	12.5	0.7	87.5	2.0	0.5	0.3	0.0	97.8
TURBINE												
ESTIMATED POPULATION	901	1378	948	149	1153	175	1039	681	373	289	0	1502
% STANDARD ERROR	B	A	B	D	B	D	B	B	C	D	A	A
ESTIMATED % OF TYPE	41.1	62.8	43.3	6.8	52.6	8.0	47.4	31.1	17.0	13.2	0.0	68.5
TOTAL ROTORCRAFT												
ESTIMATED POPULATION	2854	2123	1338	2109	1732	206	5112	773	395	305	1	6054
% STANDARD ERROR	A	A	B	A	B	D	A	B	C	D	D	A
ESTIMATED % OF TYPE	41.7	31.0	19.5	30.8	25.3	3.0	74.7	11.3	5.8	4.5	0.0	88.4
OTHER												
ESTIMATED POPULATION	1941	65	14	2430	52	16	4382	6	4	0	0	4428
% STANDARD ERROR	A	D	D	A	D	D	A	D	D	A	A	A
ESTIMATED % OF TYPE	43.8	1.5	0.3	54.8	1.2	0.4	98.8	0.1	0.1	0.0	0.0	99.9
TOTAL AIRCRAFT												
ESTIMATED POPULATION	127019	54283	96125	37735	108189	42597	104405	99335	86372	68011	688	107909
% STANDARD ERROR	A	A	A	A	A	A	A	A	A	A	D	A
ESTIMATED % OF POP	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	32.0	0.3	50.8

NOTE : COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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TABLE 2-12. GENERAL AVIATION AVIONICS EQUIPMENT BY AIRCRAFT TYPE - CY 1977 (5 of 8)

TYPE	NAVIGATION EQUIPMENT											NO WAVEQ	
	VOE 100CH	VOR 200CH	2+ RCVR	ADF	DME	RNAV	LENAV	AUTOPLT	RADAR ALT	WTHR RADAR			
FIXED WING													
PISTON													
1 ENG 1-3 SEATS													
ESTIMATED POPULATION	29650	10440	4356	3076	273	784	51	87	33	30		34879	
% STANDARD ERROR	A	B	B	B	D	D	D	D	D	D		A	
ESTIMATED % OF TYPE	39.8	14.0	5.9	4.1	0.4	1.1	0.1	0.1	0.0	0.0		46.8	
1 ENG 4+ SEATS													
ESTIMATED POPULATION	46565	51970	65916	62318	22035	3485	411	33985	1570	341		3796	
% STANDARD ERROR	A	A	A	A	A	B	D	A	C	D		B	
ESTIMATED % OF TYPE	47.4	52.9	67.1	63.5	22.4	3.5	0.4	34.6	1.6	0.3		3.9	
TOTAL 1 ENG	76216	62411	70273	65395	22308	4270	462	34072	1603	371		38676	
ESTIMATED POPULATION	A	A	A	A	A	B	D	A	C	D		A	
% STANDARD ERROR	44.1	36.1	40.7	37.9	12.9	2.5	0.3	19.7	0.9	0.2		22.4	
ESTIMATED % OF TYPE													
2 ENG 1-6 SEATS													
ESTIMATED POPULATION	6309	9790	14646	15019	13276	2686	135	13338	2617	3574		216	
% STANDARD ERROR	A	A	A	A	A	B	D	A	B	A		D	
ESTIMATED % OF TYPE	40.2	62.4	93.3	95.7	84.6	17.1	0.9	85.0	16.7	22.8		1.4	
2 ENG 7+ SEATS													
ESTIMATED POPULATION	2250	4548	6156	6282	5344	1444	103	5046	1390	3161		439	
% STANDARD ERROR	A	A	A	A	A	B	D	A	B	A		B	
ESTIMATED % OF TYPE	31.4	63.5	86.0	87.7	74.6	20.2	1.4	70.5	19.4	44.1		6.1	
TOTAL 2 ENG	8560	14338	20802	21301	18620	4130	238	18384	4008	6736		656	
ESTIMATED POPULATION	A	A	A	A	A	A	C	A	A	A		B	
% STANDARD ERROR	37.5	62.7	91.0	93.2	81.5	18.1	1.0	80.5	17.5	29.5		2.9	
ESTIMATED % OF TYPE													

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TABLE 2-12. GENERAL AVIATION AVIONICS EQUIPMENT BY AIRCRAFT TYPE - CY 1977 (6 of 8)

TYPE	NAVIGATION EQUIPMENT										NO NAVEQ	
	VOR 100CH	VOR 200CH	2+ RCVE	ADF	DME	RNAV	LRNAV	AUTOPLT	RADAR ALT	WTR RADAR		
OTHER PISTON												
ESTIMATED POPULATION	151	160	230	276	124	6	25	85	43	114	37	
% STANDARD ERROR	A	A	A	A	A	D	C	A	B	A	C	
ESTIMATED % OF TYPE	42.8	45.6	65.4	78.3	35.2	2.0	7.3	24.3	12.4	32.4	10.5	
TOTAL PISTON												
ESTIMATED POPULATION	84927	76910	51306	86973	41053	8407	727	52543	5656	7222	39369	
% STANDARD ERROR	A	A	A	A	A	A	C	A	B	A	A	
ESTIMATED % OF TYPE	43.4	39.3	46.6	44.4	21.0	4.3	0.4	26.8	2.9	3.7	20.1	
TURBOPROP												
2 ENG 1-12 SEATS												
ESTIMATED POPULATION	379	1914	2269	2264	2226	1241	107	2219	1796	2055	14	
% STANDARD ERROR	B	A	A	A	A	A	D	A	A	A	D	
ESTIMATED % OF TYPE	16.5	83.4	98.9	98.7	97.0	54.1	4.7	96.7	78.3	89.6	0.7	
2 ENG 13+ SEATS												
ESTIMATED POPULATION	163	425	565	570	521	123	58	258	238	420	0	
% STANDARD ERROR	C	A	A	A	A	D	D	A	B	A	A	
ESTIMATED % OF TYPE	28.2	73.2	97.4	98.2	89.8	21.2	10.0	44.5	41.0	72.5	0.0	
TOTAL 2 ENG												
ESTIMATED POPULATION	543	2340	2835	2835	2747	1365	165	2477	2034	2476	14	
% STANDARD ERROR	B	A	A	A	A	A	C	A	A	A	D	
ESTIMATED % OF TYPE	18.9	81.4	98.6	98.6	95.5	47.5	5.8	86.2	70.7	86.1	0.5	
OTHER TURBOENG												
ESTIMATED POPULATION	29	62	84	92	83	11	20	51	49	68	3	
% STANDARD ERROR	B	A	A	A	A	D	C	A	B	A	D	
ESTIMATED % OF TYPE	30.4	64.0	86.4	94.4	85.2	11.8	20.8	52.3	50.3	69.4	3.5	

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TABLE 2-12. GENERAL AVIATION AVIONICS EQUIPMENT BY AIRCRAFT TYPE - CY 1977 (7 of 8)

TYPE	NAVIGATION EQUIPMENT											NO NAVEQ
	VOE 100CH	VOE 200CH	2+ RCVP	ADF	DNE	EMAV	LRNAV	AUTOPLT	RADAR ALT	WTHE RADAR	WTHE RADAR	
TOTAL TURBOPROP	573	2403	2919	2928	2831	1376	185	2529	2083	2544	18	
ESTIMATED POPULATION	B	A	A	A	A	A	C	A	A	A	D	
% STANDARD ERROR	19.3	80.8	98.2	98.5	95.2	46.3	6.3	85.0	70.1	85.6	0.6	
ESTIMATED % OF TYPE												
TURBOJET	215	1801	1954	1974	1962	454	611	1971	1728	1944	15	
ESTIMATED POPULATION	B	A	A	A	A	B	A	A	A	A	D	
% STANDARD ERROR	11.0	90.3	98.0	99.0	98.4	22.8	30.7	98.8	86.7	97.4	0.8	
ESTIMATED % OF TYPE												
OTHER	92	310	340	371	353	47	218	326	269	296	93	
ESTIMATED POPULATION	B	A	A	A	A	C	A	A	A	A	B	
% STANDARD ERROR	18.5	62.3	68.2	74.5	70.9	9.5	43.8	65.5	54.0	59.4	18.7	
ESTIMATED % OF TYPE												
TOTAL TURBOJET	311	2111	2295	2346	2316	501	830	2298	1998	2240	108	
ESTIMATED POPULATION	B	A	A	A	A	B	A	A	A	A	B	
% STANDARD ERROR	12.5	84.7	92.0	94.1	92.9	20.1	33.3	92.2	80.1	89.8	4.4	
ESTIMATED % OF TYPE												
TOTAL FIXED WING	85812	81425	96521	92248	46201	10286	1743	57370	9738	12007	39497	
ESTIMATED POPULATION	A	A	A	A	A	A	B	A	A	A	A	
% STANDARD ERROR	42.6	40.4	47.9	45.8	22.9	5.1	0.9	28.5	4.8	6.0	19.6	
ESTIMATED % OF TYPE												
ROTORCRAFT	323	150	16	169	25	14	12	2	16	13	4071	
ESTIMATED POPULATION	C	D	D	D	D	D	D	D	D	D	A	
% STANDARD ERROR	6.9	3.2	0.4	3.6	0.5	0.3	0.3	0.1	0.3	0.3	87.5	
ESTIMATED % OF TYPE												

 * STANDARD ERROR * CODE *
 * GREATER * LESS THAN *
 * THAN * OR *
 * EQUAL TO *
 * 0 % 10 % * A *
 * 10 % 20 % * B *
 * 20 % 30 % * C *
 * 30 % * D *

TABLE 2-12. GENERAL AVIATION AVIONICS EQUIPMENT BY AIRCRAFT TYPE - CY 1977 (8 of 8)

TYPE	NAVIGATION EQUIPMENT										OTHER RADAR	MO WAVEQ	
	VOF 100CH	VOF 200CH	2+ ECVR	ADF	DNE	RNAV	LRNAV	AUTOPLT	RADAR ALT	WAVEQ			
TUPRINE													
ESTIMATED POPULATION	386	874	481	1360	371	122	49	38	123			28	440
% STANDARD ERROR	C	B	C	A	C	D	C	D	D			D	C
ESTIMATED % OF TYPE	17.6	39.9	22.0	62.0	16.9	5.6	2.3	1.7	5.7			1.3	20.1
TOTAL ROTORCRAFT													
ESTIMATED POPULATION	709	1025	497	1530	396	136	62	40	140			42	4512
% STANDARD ERROR	B	B	C	A	C	D	D	D	D			D	A
ESTIMATED % OF TYPE	10.4	15.0	7.3	22.4	5.8	2.0	0.9	0.6	2.0			0.6	65.9
OTHER													
ESTIMATED POPULATION	35	8	4	4	0	1	0	22	0			4	4366
% STANDARD ERROR	D	D	D	D	A	D	A	D	A			D	A
ESTIMATED % OF TYPE	0.8	0.2	0.1	0.1	0.0	0.0	0.0	0.5	0.0			0.1	98.5
TOTAL AIRCRAFT													
ESTIMATED POPULATION	86556	82459	97024	93782	46597	10424	1805	57434	9878			12054	48376
% STANDARD ERROR	A	A	A	A	A	A	B	A	A			A	A
ESTIMATED % OF POP	43.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6			5.7	22.8

NOTE : COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

```

*****
* STANDARD ERROR *
* CODE *
* GREATER *
* THAN *
* OR *
* EQUAL TO *
* 10 % *
* 20 % *
* 30 % *
* 30 % *
*****

```


TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(1 of 17)

STATE	VHF COMMUNICATIONS					TRANSPONDER EQUIPMENT					ILS RECEIVING EQUIPMENT				
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	A/E ENC	NO TRANS	LOC	MKR BEC	GLIDE SLOPE	MLS ILS	NO ILS			
ALABAMA	1334 D	806 D	1096 D	504 D	1836 D	605 C	747 C	1506 D	1384 D	1256 D	1	1065 D			
% STANDARD ERROR	48.1	29.1	39.6	18.2	66.2	21.8	27.0	54.3	49.9	45.3	0.1	38.4			
ESTIMATED % OF STATE															
ALASKA	4657 A	652 C	1144 B	735 B	877 B	139 D	5183 A	1282 B	809 B	547 C	0	4642 A			
% STANDARD ERROR	80.0	11.1	19.5	12.5	14.9	2.4	88.3	21.8	13.8	9.3	0.0	79.1			
ESTIMATED % OF STATE															
ARIZONA	3058 B	1089 D	2499 C	792 C	2174 C	552 D	2457 B	2437 C	1989 C	1699 C	0	2033 B			
% STANDARD ERROR	66.4	23.8	54.6	17.3	47.5	12.1	53.7	53.3	43.5	37.1	0.0	44.4			
ESTIMATED % OF STATE															
ARKANSAS	1407 C	725 D	1279 C	617 D	1474 C	637 C	1210 C	1222 D	1289 C	987 D	13	1272 C			
% STANDARD ERROR	48.5	25.0	44.1	21.3	50.8	22.0	41.7	42.2	44.5	34.1	0.5	43.9			
ESTIMATED % OF STATE															
CALIFORNIA P	16556 A	7072 B	12535 A	4909 A	14116 A	5546 B	13616 A	12951 A	11259 B	8874 B	83	14088 A			
% STANDARD ERROR	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	32.0	0.3	50.8			
ESTIMATED % OF STATE															

P : PRELIMINARY RESULTS

```

*****
*   STANDARD ERROR   *
*   -----         *
*   GREATER         *
*   THAN           *
*   -----         *
*   0 %           *
*   10 %          *
*   20 %          *
*   30 %          *
*   40 %          *
*   50 %          *
*   60 %          *
*   70 %          *
*   80 %          *
*   90 %          *
*   100 %         *
*   -----         *
*   LESS THAN      *
*   OR            *
*   -----         *
*   EQUAL TO      *
*   -----         *
*   10 %          *
*   20 %          *
*   30 %          *
*   40 %          *
*   50 %          *
*   60 %          *
*   70 %          *
*   80 %          *
*   90 %          *
*   100 %         *
*   -----         *
*   CODE          *
*   -----         *
*****

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TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(2 of 17)

STATE	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COHN	4096 CODE	ALT ENC	NO TRANS	LOC	MEER REC	GLIDE SLOPE	MLS	NO ILS
COLORADO												
ESTIMATED POPULATION	2394	1092	1668	641	2147	740	1870	1693	1467	1219	7	2293
% STANDARD ERROR	C	C	B	C	C	C	C	B	C	C	D	C
ESTIMATED % OF STATE	61.5	28.0	42.8	16.5	55.1	19.0	48.0	43.5	37.7	31.3	0.2	58.9
CONNECTICUT												
ESTIMATED POPULATION	957	459	800	248	839	382	800	851	793	569	13	772
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	55.8	20.8	46.7	14.5	48.9	22.3	46.7	49.6	46.3	33.2	0.8	45.0
DELAWARE												
ESTIMATED POPULATION	493	215	444	117	532	232	255	479	429	381	4	302
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	64.7	28.2	58.3	15.4	69.7	30.4	33.5	62.8	56.2	50.0	0.5	39.7
DC												
ESTIMATED POPULATION	33	111	137	14	145	123	14	141	141	141	0	18
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	A	D
ESTIMATED % OF STATE	20.0	66.0	81.2	8.3	86.0	73.2	8.3	83.5	83.5	83.5	0.0	10.9
FLORIDA P												
ESTIMATED POPULATION	6166	2634	4668	1828	5257	2066	5071	4823	4193	3305	31	5247
% STANDARD ERROR	A	B	B	B	B	B	A	B	B	B	D	A
ESTIMATED % OF STATE	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	32.0	0.3	50.8
GEORGIA												
ESTIMATED POPULATION	2495	1038	1934	829	2365	701	1779	1946	1777	1184	45	2121
% STANDARD ERROR	C	C	C	C	C	C	B	C	C	C	D	C
ESTIMATED % OF STATE	59.2	24.6	45.9	19.7	56.1	16.6	42.2	46.2	42.2	28.1	1.1	50.4
HAWAII												
ESTIMATED POPULATION	366	184	313	79	378	18	244	314	288	262	0	293
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	A	D
ESTIMATED % OF STATE	59.0	29.8	50.5	12.8	60.9	3.1	39.4	50.6	46.4	42.2	0.0	47.2

P : PRELIMINARY RESULTS

* STANDARD ERROR	* CODE
* GREATER THAN	* LESS THAN
* OR	* EQUAL TO
* 0 %	* 10 %
* 10 %	* 20 %
* 20 %	* 30 %
* 30 %	* D

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(3 of 17)

STATE	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT			ILS RECEIVING EQUIPMENT				
	360 CH	720 CH	2+ SYS	NC COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	MIS ILS	NO ILS
IDAHO												
ESTIMATED POPULATION	1674	492	995	405	1182	287	1134	1138	812	542	0	1090
% STANDARD ERROR	C	D	D	D	D	D	C	D	D	D	A	C
ESTIMATED % OF STATE	70.6	20.8	42.0	17.1	49.9	12.1	47.9	48.0	34.3	22.9	0.0	46.0
ILLINOIS P												
ESTIMATED POPULATION	4719	2016	3573	1399	4023	1581	3881	3691	3209	2529	24	4015
% STANDARD ERROR	B	C	B	B	B	C	B	B	B	B	D	B
ESTIMATED % OF STATE	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	32.0	0.3	50.8
INDIAN P												
ESTIMATED POPULATION	2590	1106	1961	768	2208	868	2130	2026	1761	1388	13	2204
% STANDARD ERROR	C	D	C	C	C	D	C	C	C	C	D	C
ESTIMATED % OF STATE	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	32.0	0.3	50.8
IOWA												
ESTIMATED POPULATION	2355	873	1569	821	1803	641	2034	1557	1246	979	3	2169
% STANDARD ERROR	C	D	C	D	C	D	C	C	C	D	D	C
ESTIMATED % OF STATE	60.8	22.5	40.5	21.2	46.6	16.6	52.5	40.2	32.2	25.3	0.1	56.0
KANSAS												
ESTIMATED POPULATION	2873	814	2558	886	2505	924	1852	2405	2170	1482	216	1900
% STANDARD ERROR	C	D	C	C	C	D	B	C	C	C	D	B
ESTIMATED % OF STATE	61.7	17.5	54.9	19.0	53.8	19.8	39.8	51.6	46.6	31.8	4.7	40.8
KENTUCKY												
ESTIMATED POPULATION	1029	354	712	196	860	417	681	789	649	548	1	721
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	66.9	22.1	46.4	12.8	56.0	27.2	44.3	51.4	42.3	35.7	0.1	47.0
LOUISIANA												
ESTIMATED POPULATION	1977	1373	1858	863	2018	767	1636	1733	1673	1367	0	1791
% STANDARD ERROR	C	C	C	C	C	C	B	C	C	C	A	B
ESTIMATED % OF STATE	50.5	36.9	50.0	23.2	54.3	20.6	44.0	46.6	45.0	36.8	0.0	48.2

P : PRELIMINARY RESULTS

* * * STANDARD ERROR	* * * CODE
* * * GREATER THAN	* * * LESS THAN
* * * OR	* * * EQUAL TO
* * * 0 %	* * * 10 %
* * * 10 %	* * * 20 %
* * * 20 %	* * * 30 %
* * * 30 %	* * * A
* * *	* * * B
* * *	* * * C
* * *	* * * D

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(5 of 17)

	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2* SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	ILS NO	NO ILS
MONTANA												
ESTIMATED POPULATION	1527	428	883	581	1046	265	1441	1015	826	632	6	1424
% STANDARD ERROR	C	D	D	C	C	D	C	C	D	D	D	C
ESTIMATED % OF STATE	62.9	17.6	36.4	24.0	43.1	10.9	59.3	41.8	34.0	26.1	0.3	58.6
NEBRASKA												
ESTIMATED POPULATION	1301	804	1220	581	1234	433	1364	1325	1041	818	10	1223
% STANDARD ERROR	C	D	C	C	C	D	C	C	C	D	D	C
ESTIMATED % OF STATE	49.0	30.3	46.0	21.2	46.5	16.3	51.4	49.9	39.2	30.8	0.4	46.1
NEVADA												
ESTIMATED POPULATION	1121	460	837	155	1188	337	496	736	734	576	0	847
% STANDARD ERROR	C	D	D	D	D	D	C	D	D	D	A	D
ESTIMATED % OF STATE	64.7	26.6	48.3	9.0	68.6	19.5	28.7	42.5	42.4	33.3	0.0	48.9
NEW HAMPSHIRE												
ESTIMATED POPULATION	679	255	481	230	552	265	598	609	509	404	13	521
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	57.8	21.8	40.9	19.6	47.0	22.6	50.9	51.8	43.4	34.4	1.2	44.3
NEW JERSEY												
ESTIMATED POPULATION	2984	1060	2670	449	2932	1474	1518	2500	2497	1986	14	1830
% STANDARD ERROR	C	D	C	C	C	C	C	C	C	C	D	C
ESTIMATED % OF STATE	66.0	23.5	59.0	9.9	64.8	32.6	33.6	55.3	55.2	43.9	0.3	40.5
NEW MEXICO												
ESTIMATED POPULATION	1278	451	1057	267	1085	530	899	1079	790	659	0	874
% STANDARD ERROR	C	D	C	D	C	D	C	C	C	D	A	C
ESTIMATED % OF STATE	66.1	23.4	54.7	13.9	56.1	27.5	46.5	55.9	40.9	34.1	0.0	45.3
NEW YORK												
ESTIMATED POPULATION	3878	1656	2936	1150	3306	1299	3189	3033	2637	2078	19	3299
% STANDARD ERROR	B	C	B	B	B	C	A	B	B	C	D	B
ESTIMATED % OF STATE	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	32.0	0.3	50.8

P : PRELIMINARY RESULTS

**	STANDARD ERROR	**	CODE
**	-----	**	-----
**	GREATER	**	LESS THAN
**	THAN	**	OR
**	-----	**	EQUAL TO
**	0 %	**	10 %
**	10 %	**	20 %
**	20 %	**	30 %
**	30 %	**	A
**		**	B
**		**	C
**		**	D

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(6 of 17)

STATE	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	HLS	NO ILS
NORTH CAROLINA	2463	1340	1942	611	2410	1018	1782	2357	1880	1464	11	1796
ESTIMATED POPULATION												
% STANDARD ERROR	58.2	31.6	45.9	14.4	56.9	24.0	42.1	55.7	44.4	34.6	0.3	42.4
ESTIMATED % OF STATE												
NORTH DAKOTA	703	395	590	485	601	190	977	491	439	335	0	1050
ESTIMATED POPULATION												
% STANDARD ERROR	42.1	23.6	35.3	29.0	36.0	11.4	58.5	29.4	26.3	20.1	0.0	62.9
ESTIMATED % OF STATE												
OHIO	5196	1970	3850	1254	3914	2119	4329	3572	3278	2843	1	4296
ESTIMATED POPULATION												
% STANDARD ERROR	62.9	23.8	46.6	15.2	47.4	25.6	52.4	43.2	39.7	34.4	0.0	52.0
ESTIMATED % OF STATE												
OKLAHOMA	2770	852	2182	994	2182	872	2379	2175	2013	1524	18	2120
ESTIMATED POPULATION												
% STANDARD ERROR	60.9	18.7	48.0	21.9	48.0	19.2	52.3	47.8	44.3	33.5	0.4	46.6
ESTIMATED % OF STATE												
OREGON	2798	1591	1721	976	3031	1226	2258	1807	1885	1151	0	3274
ESTIMATED POPULATION												
% STANDARD ERROR	54.2	30.8	33.3	18.9	58.7	23.8	43.8	35.0	36.5	22.3	0.0	63.4
ESTIMATED % OF STATE												
PENNSYLVANIA	3888	1163	2248	1154	2602	1530	3570	2601	2268	1822	0	3543
ESTIMATED POPULATION												
% STANDARD ERROR	61.9	18.5	35.8	18.4	41.4	24.4	56.8	41.4	36.1	29.0	0.0	56.4
ESTIMATED % OF STATE												
RHODE ISLAND	208	67	149	48	184	89	145	163	143	111	0	161
ESTIMATED POPULATION												
% STANDARD ERROR	61.4	25.7	44.1	14.4	54.5	26.4	43.0	48.2	42.5	32.9	0.0	47.7
ESTIMATED % OF STATE												

 * STANDARD ERROR *
 * GREATER *
 * THAN *
 * 0 % *
 * 10 % *
 * 20 % *
 * 30 % *
 * 10 % *
 * 20 % *
 * 30 % *
 * LESS THAN *
 * OR *
 * EQUAL TO *
 * 10 % *
 * 20 % *
 * 30 % *
 * CODE *
 * *****

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(7 of 17)

STATE	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MKR BEC	GLIDE SLOPE	MLS	NO ILS
SOUTH CAROLINA												
ESTIMATED POPULATION	1128	330	798	389	894	410	925	679	638	490	2	1105
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	64.8	19.0	45.8	22.4	51.3	23.6	53.1	39.0	36.6	28.2	0.2	63.5
SOUTH DAKOTA												
ESTIMATED POPULATION	789	231	487	372	393	137	992	502	370	355	0	868
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	A	D
ESTIMATED % OF STATE	55.2	16.2	34.1	26.1	27.6	9.6	69.4	35.1	25.9	24.9	0.0	60.8
TENNESSEE												
ESTIMATED POPULATION	1505	995	1509	505	1824	624	1166	1733	1378	1035	0	1169
% STANDARD ERROR	C	D	C	D	C	C	D	C	C	C	A	D
ESTIMATED % OF STATE	50.7	33.5	50.8	17.0	61.4	21.0	39.3	58.3	46.4	34.9	0.0	39.4
TEXAS												
ESTIMATED POPULATION	9381	4007	7102	2781	7998	3143	7715	7338	6379	5028	47	7982
% STANDARD ERROR	A	B	A	A	A	B	A	A	A	B	D	A
ESTIMATED % OF STATE	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	32.0	0.3	50.8
UTAH												
ESTIMATED POPULATION	1081	337	595	136	891	270	677	760	558	466	0	730
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	A	D
ESTIMATED % OF STATE	70.3	25.8	38.7	8.9	57.9	17.6	44.0	49.5	36.3	30.3	0.0	47.5
VIRGINIA												
ESTIMATED POPULATION	292	91	169	80	191	72	256	197	163	142	0	246
% STANDARD ERROR	E	D	D	D	D	D	D	D	D	D	A	D
ESTIMATED % OF STATE	65.9	20.6	38.1	18.1	43.2	16.3	57.7	44.3	36.7	32.0	0.0	55.4
VIRGINIA												
ESTIMATED POPULATION	1729	687	1479	562	1659	561	1112	1372	1394	911	1	1244
% STANDARD ERROR	C	D	D	D	C	D	C	D	D	D	D	C
ESTIMATED % OF STATE	62.0	24.6	53.0	20.1	59.5	20.1	39.9	49.2	50.0	32.7	0.0	44.6

P : PRELIMINARY RESULTS

* * * STANDARD ERROR	* * * CODE
* * * GREATER THAN	* * * LESS THAN
* * * OR	* * * EQUAL TO
* * * 0 %	* * * 10 %
* * * 10 %	* * * 20 %
* * * 20 %	* * * 30 %
* * * 30 %	* * * A
* * *	* * * B
* * *	* * * C
* * *	* * * D

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(8 of 17)

STATE	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	AKER BEC	GLIDE SLOPE	MIS NO ILS	
WASHINGTON	4130	879	2144	1660	2279	353	4108	1815	1358	1277	6	4473
ESTIMATED POPULATION	B	C	C	B	B	D	B	B	C	C	D	B
% STANDARD ERROR	64.7	13.8	33.6	26.0	35.7	5.5	64.4	28.4	21.3	20.0	0.1	70.1
ESTIMATED % OF STATE												
WEST VIRGINIA	616	351	617	142	713	372	395	665	597	539	0	431
ESTIMATED POPULATION	D	D	D	D	D	D	D	D	D	D	A	D
% STANDARD ERROR	56.3	32.1	56.4	13.0	65.1	34.0	36.1	60.7	54.5	49.2	0.0	39.3
ESTIMATED % OF STATE												
WISCONSIN	1907	1399	1664	1103	2237	597	2044	1739	1535	755	0	2155
ESTIMATED POPULATION	C	D	C	B	C	C	B	C	C	D	A	B
% STANDARD ERROR	43.4	21.8	37.9	25.1	50.9	13.6	46.5	39.6	34.9	17.2	0.0	49.0
ESTIMATED % OF STATE												
WYOMING	631	563	710	127	826	453	483	740	686	607	0	539
ESTIMATED POPULATION	D	D	D	D	D	D	D	D	D	D	A	C
% STANDARD ERROR	48.6	43.4	54.7	9.8	63.6	34.9	37.2	57.0	52.8	46.8	0.0	41.5
ESTIMATED % OF STATE												
PUEBLO RICO	341	110	260	24	287	114	178	279	235	229	0	183
ESTIMATED POPULATION	D	D	D	D	D	D	D	D	D	D	A	D
% STANDARD ERROR	73.6	23.9	56.1	5.3	62.0	24.6	38.4	60.3	50.8	49.5	0.0	39.4
ESTIMATED % OF STATE												
OTHER U.S. TERRITORIES	170	24	71	4	78	15	68	70	56	39	0	73
ESTIMATED POPULATION	D	D	D	D	D	D	D	D	D	D	A	D
% STANDARD ERROR	76.1	15.5	45.3	2.6	49.7	9.6	43.5	44.6	35.4	25.1	0.0	46.7
ESTIMATED % OF STATE												
POPEIGN	153	120	173	12	176	88	103	191	170	152	2	82
ESTIMATED POPULATION	D	D	D	D	D	D	D	D	D	D	D	D
% STANDARD ERROR	49.4	38.8	55.9	4.0	56.8	28.4	33.5	61.8	55.1	49.2	0.6	26.5
ESTIMATED % OF STATE												

 * STANDARD ERROR * CODE *
 * GREATER * LESS THAN *
 * THAN * OR *
 * ----- * EQUAL TO *
 * 0 % * 10 % * A *
 * 10 % * 20 % * B *
 * 20 % * 30 % * C *
 * 30 % * * D *

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(9 of 17)

STATE	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	MIS NO ILS	NO ILS
ESTIMATED POPULATION	127019	54283	96125	37735	108189	42597	104805	99335	86372	68011	688	107909
% STANDARD ERROR	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	32.0	0.3	50.8
ESTIMATED % OF POP												

NOTE: COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

STANDARD ERROR		CODE
GREATER THAN	LESS THAN	
EQUAL TO		
0 %	10 %	A
10 %	20 %	B
20 %	30 %	C
30 %		D

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(10 of 17)

STATE	NAVIGATION EQUIPMENT										NO HAVEQ
	VOR 100CH	VOR 200CH	2+ RCVB	ADF	DME	RNAV	RNAV LENAV	AUTOFLT	RADAR ALT	WTHR RADAR	
ALABAMA	1140	1235	1516	1447	574	97	6	733	67	199	560
ESTIMATED POPULATION	D	D	D	D	C	D	D	D	D	D	C
% STANDARD ERROR	41.1	44.5	54.7	52.2	20.7	3.5	0.2	26.4	2.4	7.2	19.5
ESTIMATED % OF STATE											
ALASKA	3413	1249	905	2474	312	35	17	195	47	22	1362
ESTIMATED POPULATION	A	B	B	B	C	D	D	D	D	D	B
% STANDARD ERROR	58.1	21.3	15.4	42.2	5.3	0.6	0.3	3.3	0.8	0.4	23.2
ESTIMATED % OF STATE											
ARIZONA	1987	1752	2345	1805	864	327	67	1331	64	122	967
ESTIMATED POPULATION	C	C	C	C	C	D	D	D	D	C	C
% STANDARD ERROR	43.4	38.3	51.2	39.4	18.9	7.2	1.5	29.1	1.4	2.7	21.1
ESTIMATED % OF STATE											
ARKANSAS	1048	1099	1426	1286	994	258	18	925	208	289	696
ESTIMATED POPULATION	D	D	C	D	D	D	D	D	D	D	C
% STANDARD ERROR	36.2	37.9	49.2	44.3	34.3	8.9	0.6	31.9	7.2	10.0	24.0
ESTIMATED % OF STATE											
CALIFORNIA P	11287	10760	12646	12230	6073	1359	222	7488	1276	1581	6323
ESTIMATED POPULATION	A	A	A	B	B	C	C	B	C	B	A
% STANDARD ERROR	40.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6	5.7	22.8
ESTIMATED % OF STATE											
COLORADO	1760	1364	1631	1629	791	172	30	1253	139	147	903
ESTIMATED POPULATION	C	C	B	B	C	D	D	C	D	D	C
% STANDARD ERROR	45.2	35.0	41.9	41.8	20.3	4.4	0.8	32.2	3.6	3.8	23.2
ESTIMATED % OF STATE											

 * STANDARD ERROR * CODE *
 * GREATER * * * * *
 * LESS THAN * * * * *
 * OR * * * * *
 * EQUAL TO * * * * *
 * 0 % * * * * *
 * 10 % * * * * *
 * 20 % * * * * *
 * 30 % * * * * *

P : PRELIMINARY RESULTS

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(11 of 17)

STATE	NAVIGATION EQUIPMENT										
	VOR 100CH	VOR 200CH	2+ RCVF	ADF	DME	RNAV	RNAV	AUTOPILOT	RADAR ALT	WTDR RADAR	NO NAVEQ
CONNECTICUT	620	724	785	717	314	34	88	377	122	144	304
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	36.2	42.3	45.8	41.8	18.3	2.0	5.2	22.0	7.1	8.4	17.7
DELAWARE	250	428	462	450	275	40	7	257	72	137	144
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	32.8	56.1	60.6	59.0	36.1	5.3	1.0	33.7	9.5	18.1	19.0
DC	0	141	141	141	99	25	64	133	87	89	18
% STANDARD ERROR	A	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	0.0	83.5	83.5	83.5	58.7	14.9	38.2	78.7	52.0	52.7	10.9
FLORIDA P	4204	4007	4710	4555	2262	506	83	2789	475	589	2355
% STANDARD ERROR	B	B	B	B	B	D	C	B	C	B	B
ESTIMATED % OF STATE	40.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6	5.7	22.8
GEORGIA	1411	1741	1936	2145	837	182	9	999	123	216	1032
% STANDARD ERROR	C	C	C	C	C	D	D	C	D	D	B
ESTIMATED % OF STATE	33.5	41.3	46.0	50.9	19.9	4.3	0.2	23.7	2.9	5.1	24.5
HAWAII	222	268	225	229	57	1	2	44	1	1	131
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	35.8	43.2	36.4	36.9	9.2	0.3	0.3	7.2	0.3	0.3	21.2
IDAH0	1153	785	949	1043	255	47	4	538	72	28	459
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	C
ESTIMATED % OF STATE	48.7	33.1	40.0	44.0	10.8	2.0	0.2	22.7	3.0	1.2	19.4

P : PRELIMINARY RESULTS

* STANDARD ERROR	* CODE
* GREATER	* ---
* THAN	* ---
* LESS THAN	* ---
* OR	* ---
* EQUAL TO	* ---
* 0 %	* A
* 10 %	* B
* 20 %	* C
* 30 %	* D

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(12 of 17)

STATE	NAVIGATION EQUIPMENT										
	VOR 100CH	VOR 200CH	2+ RCVR	ADF	DME	RNAV	IRNAV	AUTOPILT	RADAR ALT	WTHR RADAR	NO NAVIG
ILLINOIS ^P											
ESTIMATED POPULATION	3217	3067	3604	3486	1731	387	63	2134	364	451	1802
% STANDARD ERROR	B	B	B	B	B	D	D	B	D	C	B
ESTIMATED % OF STATE	40.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6	5.7	22.8
INDIANA ^P											
ESTIMATED POPULATION	1766	1683	1978	1913	950	213	35	1171	200	247	989
% STANDARD ERROR	C	C	C	C	C	D	D	D	D	D	C
ESTIMATED % OF STATE	40.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6	5.7	22.8
IOWA											
ESTIMATED POPULATION	1508	1573	1537	1597	779	116	41	1168	135	127	529
% STANDARD ERROR	C	D	C	C	C	D	D	D	D	D	C
ESTIMATED % OF STATE	39.0	40.6	39.7	41.2	20.1	3.0	1.1	30.2	3.5	3.3	24.0
KANSAS											
ESTIMATED POPULATION	1502	2087	2528	1789	1375	141	0	1555	251	284	950
% STANDARD ERROR	C	C	C	C	C	D	A	C	D	D	C
ESTIMATED % OF STATE	32.2	44.8	54.3	38.4	29.5	3.0	0.0	33.4	5.4	6.1	26.4
KENTUCKY											
ESTIMATED POPULATION	838	414	821	736	416	140	1	481	115	181	304
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	54.6	27.0	53.5	47.9	27.1	9.1	0.1	31.4	7.5	11.8	19.8
LOUISIANA											
ESTIMATED POPULATION	870	1524	1583	2084	1067	144	66	1145	132	533	975
% STANDARD ERROR	C	C	C	B	C	D	D	C	D	C	C
ESTIMATED % OF STATE	23.4	41.0	42.6	56.1	28.7	3.9	1.8	30.8	3.6	14.3	26.2
MAINE											
ESTIMATED POPULATION	516	336	342	340	117	16	7	135	19	21	405
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	42.4	27.7	28.1	28.0	9.7	1.4	0.6	11.2	1.6	1.7	32.2

P : PRELIMINARY RESULTS

* * * * *	STANDARD ERROR	* * * * *	CODE	* * * * *
* * * * *	GREATER THAN	* * * * *	---	* * * * *
* * * * *	LESS THAN	* * * * *		* * * * *
* * * * *	OR	* * * * *		* * * * *
* * * * *	EQUAL TO	* * * * *		* * * * *
* * * * *	0 %	* * * * *	A	* * * * *
* * * * *	10 %	* * * * *	B	* * * * *
* * * * *	20 %	* * * * *	C	* * * * *
* * * * *	30 %	* * * * *	D	* * * * *
* * * * *		* * * * *		* * * * *

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(13 of 17)

STATE	NAVIGATION EQUIPMENT											NO HAVE
	VOR 100CH	VOR 200CH	2+ RCVR	ADF	DME	RNAV	RNAV	AUTOPLT	RADAR ALT	WTR RADAR		
MARYLAND												
ESTIMATED POPULATION	1375	1183	1507	1238	540	43	11	830	66	88	416	
% STANDARD ERROR	D	D	C	C	D	D	D	D	D	D	D	
ESTIMATED % OF STATE	48.4	41.6	53.0	43.6	19.0	1.5	0.4	29.2	2.3	3.1	14.6	
MASSACHUSETTS												
ESTIMATED POPULATION	1222	1250	1439	1257	575	117	44	664	71	80	483	
% STANDARD ERROR	D	D	C	C	D	D	D	D	D	D	C	
ESTIMATED % OF STATE	43.5	44.4	51.1	44.7	20.5	4.2	1.6	23.6	2.6	2.9	17.2	
MICHIGAN												
ESTIMATED POPULATION	2057	3362	2865	3782	1084	163	2	1734	248	239	2339	
% STANDARD ERROR	B	C	B	C	C	D	D	C	D	D	C	
ESTIMATED % OF STATE	27.3	43.8	37.3	49.2	14.1	2.1	0.0	22.6	3.2	3.1	30.4	
MINNESOTA												
ESTIMATED POPULATION	1922	1910	2120	2115	976	58	21	1019	59	105	1250	
% STANDARD ERROR	C	C	C	C	D	D	D	D	D	D	D	
ESTIMATED % OF STATE	37.6	37.2	41.3	41.2	19.0	1.1	0.4	19.9	1.2	2.1	24.4	
MISSISSIPPI												
ESTIMATED POPULATION	719	684	868	782	451	68	1	410	49	118	784	
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	C	
ESTIMATED % OF STATE	32.4	30.9	39.2	35.3	20.3	3.1	0.1	18.5	2.2	5.3	35.4	
MISSOURI												
ESTIMATED POPULATION	2017	1707	1998	1718	832	206	19	1236	136	218	1059	
% STANDARD ERROR	C	C	C	C	C	D	D	C	D	D	C	
ESTIMATED % OF STATE	44.1	37.3	43.7	37.5	18.2	4.5	0.4	27.0	3.0	4.8	23.2	
MONTANA												
ESTIMATED POPULATION	1205	655	938	992	388	24	6	531	64	55	688	
% STANDARD ERROR	C	D	D	C	D	D	D	D	D	D	C	
ESTIMATED % OF STATE	49.6	27.0	38.6	40.9	16.0	1.0	0.3	21.9	2.7	2.3	28.3	

 * STANDARD ERROR *
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 * GREATER *
 * THAN *
 * OR *
 * EQUAL TO *
 * 0 % *
 * 10 % *
 * 20 % *
 * 30 % *
 * 30 % *
 * D *

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(14 of 17)

STATE	NAVIGATION EQUIPMENT										NO NAVEQ
	VOR 100CH	VOR 200CH	2+ RCVR	ADF	DME	RNAV	LRNAV	AUTOPLT	RADAR ALT	WTHR RADAR	
NEBRASKA	897	1103	1193	1095	549	225	21	944	143	144	660
% ESTIMATED POPULATION	D	C	C	C	D	D	D	D	D	D	C
% STANDARD ERROR	33.8	41.5	44.9	41.3	20.7	8.5	0.8	35.6	5.4	5.4	24.9
% ESTIMATED % OF STATE											
NEVADA	684	790	839	905	358	93	29	457	109	91	246
% ESTIMATED POPULATION	D	D	D	D	D	D	D	D	D	D	D
% STANDARD ERROR	39.5	45.6	48.4	52.3	20.7	5.4	1.7	26.4	6.3	5.3	14.2
% ESTIMATED % OF STATE											
NEW HAMPSHIRE	442	450	499	534	250	33	6	258	24	32	287
% ESTIMATED POPULATION	D	D	D	D	D	D	D	D	D	D	D
% STANDARD ERROR	37.6	38.3	42.5	45.5	21.3	2.9	0.5	22.0	2.1	2.8	24.5
% ESTIMATED % OF STATE											
NEW JERSEY	2426	1850	2638	2262	1486	193	242	1670	503	291	530
% ESTIMATED POPULATION	C	C	C	C	C	D	D	C	C	C	C
% STANDARD ERROR	53.6	40.9	58.3	50.0	32.9	4.3	5.4	36.9	11.1	6.4	11.7
% ESTIMATED % OF STATE											
NEW MEXICO	733	896	1097	894	571	84	8	632	68	76	373
% ESTIMATED POPULATION	D	D	C	C	D	D	D	C	D	D	C
% STANDARD ERROR	38.0	46.4	56.8	46.3	29.5	4.4	0.4	32.7	3.5	4.0	19.3
% ESTIMATED % OF STATE											
NEW YORK P	2643	2520	2962	2864	1422	318	52	1754	299	370	1481
% ESTIMATED POPULATION	B	B	B	B	C	D	D	C	C	C	B
% STANDARD ERROR	40.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6	5.7	22.8
% ESTIMATED % OF STATE											
NORTH CAROLINA	1772	1732	2021	2146	1049	263	14	1219	275	380	725
% ESTIMATED POPULATION	D	C	C	C	C	D	D	C	D	D	C
% STANDARD ERROR	41.8	40.9	47.7	50.7	24.8	6.2	0.3	28.8	6.5	9.0	17.1
% ESTIMATED % OF STATE											

 * STANDARD ERROR * CODE *
 * GREATER *
 * THAN *
 * LESS THAN *
 * OR *
 * EQUAL TO *
 * 0 % * A *
 * 10 % * B *
 * 20 % * C *
 * 30 % * D *

P : PRELIMINARY RESULTS

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(15 of 17)

STATE	NAVIGATION EQUIPMENT											
	VOR 100CH	VOR 200CH	2+ RCVR	ADF	DME	RNAV	RNAV	LENAV	AUTOPLT	RADAR ALT	FTHE RADAR	NO NAVEQ
NORTH DAKOTA												
ESTIMATED POPULATION	548	503	633	494	246	32	0	305	22	24	541	
% STANDARD ERROR	D	D	D	D	D	D	A	D	D	D	C	
ESTIMATED % OF STATE	32.8	30.2	37.9	29.6	14.7	1.9	0.0	18.3	1.4	1.5	32.4	
OHIO												
ESTIMATED POPULATION	3606	3156	4165	2993	1641	428	43	2179	205	497	1656	
% STANDARD ERROR	B	B	B	B	C	D	D	B	C	C	B	
ESTIMATED % OF STATE	43.6	38.2	50.4	36.2	19.9	5.2	0.5	26.4	2.5	6.0	20.0	
OKLAHOMA												
ESTIMATED POPULATION	1876	1587	2229	2022	1292	246	58	1566	379	338	1104	
% STANDARD ERROR	C	C	C	C	B	D	D	B	C	C	C	
ESTIMATED % OF STATE	41.3	34.9	49.0	44.5	28.4	5.4	1.3	34.4	8.3	7.4	24.3	
OREGON												
ESTIMATED POPULATION	1828	2083	1517	1890	1135	225	17	1028	171	222	1432	
% STANDARD ERROR	C	C	B	C	C	D	D	C	D	D	B	
ESTIMATED % OF STATE	35.4	40.4	29.4	36.6	22.0	4.4	0.3	19.9	3.3	4.3	27.7	
PENNSYLVANIA												
ESTIMATED POPULATION	2507	1991	2471	2053	1483	516	55	1235	587	301	1424	
% STANDARD ERROR	C	C	B	C	C	D	D	C	D	C	B	
ESTIMATED % OF STATE	46.3	31.7	39.3	32.7	23.6	8.2	0.9	19.7	9.4	4.8	22.7	
RHODE ISLAND												
ESTIMATED POPULATION	155	116	147	137	66	11	12	68	14	7	64	
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D	
ESTIMATED % OF STATE	45.9	34.3	43.5	40.5	19.7	3.4	3.8	20.3	4.4	2.3	19.0	
SOUTH CAROLINA												
ESTIMATED POPULATION	899	437	787	799	417	119	6	436	68	148	513	
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	B	
ESTIMATED % OF STATE	51.6	25.1	45.2	45.9	24.0	6.9	0.4	25.1	3.9	8.5	29.5	

 * STANDARD ERROR * CODE *
 * * * * *
 * GREATER * * * * *
 * THAN * * * * *
 * OR * * * * *
 * EQUAL TO * * * * *
 * * * * *
 * 0 % * * * * * A * * * * *
 * * * * *
 * 10 % * * * * * B * * * * *
 * * * * *
 * 20 % * * * * * C * * * * *
 * * * * *
 * 30 % * * * * * D * * * * *
 * * * * *

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(16 of 17)

STATE	NAVIGATION EQUIPMENT										NO HAVE
	VOP 100CH	VOR 200CH	2+ RCVR	ADF	DME	RNAV	LRNAV	AUTOFLT	RADAR ALT	WTR RADAR	
SOUTH DAKOTA											
ESTIMATED POPULATION	544	439	520	532	207	23	0	269	75	11	423
% STANDARD ERROR	D	D	D	D	D	D	A	D	D	D	D
ESTIMATED % OF STATE	38.1	30.8	36.4	37.2	14.5	1.7	0.0	18.8	5.3	0.8	29.6
TENNESSEE											
ESTIMATED POPULATION	845	1323	1522	1345	887	226	5	1023	223	316	794
% STANDARD ERROR	D	D	C	C	C	D	D	C	D	D	D
ESTIMATED % OF STATE	28.4	44.5	51.2	45.3	29.9	7.6	0.2	34.4	7.5	10.6	26.7
TEXAS P											
ESTIMATED POPULATION	6395	6097	7165	6929	3441	770	126	4243	723	896	3583
% STANDARD ERROR	B	B	A	A	B	C	B	B	B	B	A
ESTIMATED % OF STATE	40.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6	5.7	22.8
UTAH											
ESTIMATED POPULATION	742	680	601	487	275	97	0	373	71	41	212
% STANDARD ERROR	D	D	D	D	D	D	A	D	D	D	D
ESTIMATED % OF STATE	48.3	44.2	39.1	31.7	17.9	6.4	0.0	28.3	4.7	2.7	13.8
VERMONT											
ESTIMATED POPULATION	197	147	171	182	86	9	3	97	17	18	110
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	44.5	35.3	38.6	41.1	19.5	2.1	0.7	22.0	3.9	4.2	24.9
VIRGINIA											
ESTIMATED POPULATION	1223	1077	1467	1147	404	111	4	657	127	171	679
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D
ESTIMATED % OF STATE	43.7	38.6	52.6	41.1	14.5	4.0	0.2	23.6	4.6	6.1	24.4
WASHINGTON											
ESTIMATED POPULATION	2526	1734	2180	2064	648	58	9	829	169	45	2126
% STANDARD ERROR	B	C	C	C	D	D	D	C	D	D	B
ESTIMATED % OF STATE	39.6	27.2	34.2	32.3	10.2	0.9	0.1	13.0	2.7	0.7	33.3

P : PRELIMINARY RESULTS

* * * * *	STANDARD ERROR	* * * * *	CODE	* * * * *
* * * * *	-----	* * * * *	---	* * * * *
* * * * *	GREATER	* * * * *		* * * * *
* * * * *	THAN	* * * * *		* * * * *
* * * * *	-----	* * * * *		* * * * *
* * * * *	0 %	* * * * *	A	* * * * *
* * * * *	10 %	* * * * *	B	* * * * *
* * * * *	20 %	* * * * *	C	* * * * *
* * * * *	30 %	* * * * *	D	* * * * *
* * * * *	-----	* * * * *		* * * * *
* * * * *	LESS THAN	* * * * *		* * * * *
* * * * *	CR	* * * * *		* * * * *
* * * * *	EQUAL TO	* * * * *		* * * * *
* * * * *	-----	* * * * *		* * * * *
* * * * *	10 %	* * * * *		* * * * *
* * * * *	20 %	* * * * *		* * * * *
* * * * *	30 %	* * * * *		* * * * *
* * * * *	-----	* * * * *		* * * * *
* * * * *	*****	* * * * *		* * * * *

TABLE 2-13. GENERAL AVIATION AVIONICS EQUIPMENT BY STATE OF BASED AIRCRAFT - CY 1977
(17 of 17)

STATE	NAVIGATION EQUIPMENT										NO HAVEQ	
	VOE 100CH	VOR 200CH	2+ RCVR	ADF	DME	RNAV	LENAV	AUTOPLT	RADAR ALT	WHER RADAR		
WEST VIRGINIA												
ESTIMATED POPULATION	480	507	678	639	487	160	1	405	110	155	152	
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D	
ESTIMATED % OF STATE	43.9	46.4	61.9	58.4	44.5	14.7	0.1	37.0	10.1	14.2	13.9	
WISCONSIN												
ESTIMATED POPULATION	1798	1460	1709	2059	590	62	12	827	116	207	1190	
% STANDARD ERROR	C	C	C	C	C	D	D	C	D	D	B	
ESTIMATED % OF STATE	40.9	33.2	38.9	46.9	13.4	1.4	0.3	18.8	2.7	4.7	27.1	
WYOMING												
ESTIMATED POPULATION	669	486	764	726	259	273	12	501	15	28	169	
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	D	
ESTIMATED % OF STATE	51.6	37.4	58.8	55.9	19.9	21.0	0.9	38.6	1.2	2.2	13.0	
PUEBLO RICO												
ESTIMATED POPULATION	279	140	279	341	124	6	0	155	3	6	49	
% STANDARD ERROR	D	D	D	D	D	D	A	D	D	D	D	
ESTIMATED % OF STATE	60.1	30.3	60.1	73.5	26.9	1.4	0.0	33.5	0.7	1.4	18.6	
OTHER U.S. TERRITORIES												
ESTIMATED POPULATION	94	48	70	95	16	0	0	31	1	6	7	
% STANDARD ERROR	D	D	D	D	D	A	A	D	D	D	D	
ESTIMATED % OF STATE	59.6	30.4	44.4	60.5	10.2	0.0	0.0	19.9	0.9	4.3	4.7	
FOREIGN												
ESTIMATED POPULATION	97	148	176	204	82	8	0	105	6	23	34	
% STANDARD ERROR	D	D	D	D	D	D	A	D	D	D	D	
ESTIMATED % OF STATE	31.5	47.8	57.0	66.0	26.6	2.6	0.0	33.9	1.9	7.6	11.0	
TOTAL												
ESTIMATED POPULATION	86556	82459	97024	93782	46597	10424	1805	57434	9878	12054	48376	
% STANDARD ERROR	A	A	A	A	A	A	B	A	A	A	A	
ESTIMATED % OF POP	40.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6	5.7	22.8	

NOTE : COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

 * STANDARD ERROR * CODE *
 * ----- * ----- *
 * GREATER * LESS THAN *
 * THAN * OR *
 * ----- * EQUAL TO *
 * 0 % * 10 % * A *
 * 10 % * 20 % * B *
 * 20 % * 30 % * C *
 * 30 % * * D *

TABLE 2-14. GENERAL AVIATION AVIONICS EQUIPMENT BY REGION OF BASED AIRCRAFT - CY 1977
(1 of 6)

REGION	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT				
	360 CH	720 CH	2+ SYS	NO COMM	4396 CODE	ALT ENC	NO TRANS	LOC	MKR REC	GLIDE SLOPE	RMS	NO ILS	
MINNESOTA	ESTIMATED POPULATION	4697	652	1144	735	877	139	5183	1292	809	547	0	4642
	% STANDARD ERROR	A	C	B	B	B	D	A	B	B	C	A	A
	ESTIMATED % OF REGION	98.0	11.1	19.5	12.5	14.9	2.4	88.3	21.8	13.8	9.3	0.0	79.1
CONNECTICUT	ESTIMATED POPULATION	5159	3785	7265	3199	7872	2615	7530	7647	6317	4965	234	7509
	% STANDARD ERROR	B	B	B	B	B	B	B	B	B	B	D	B
	ESTIMATED % OF REGION	58.1	24.0	46.1	20.3	49.9	16.6	47.8	48.5	40.1	31.5	1.5	47.6
WEST VIRGINIA	ESTIMATED POPULATION	15674	5829	11866	3936	13527	6094	11320	12268	11306	8841	43	11958
	% STANDARD ERROR	A	B	B	A	A	A	A	A	A	B	D	A
	ESTIMATED % OF REGION	62.7	23.3	47.5	15.8	54.1	24.4	45.3	49.1	45.3	35.4	0.2	47.9
INDIANA	ESTIMATED POPULATION	14	81	89	7	89	67	42	96	87	87	0	34
	% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	A	D
	ESTIMATED % OF REGION	28.3	51.1	56.6	4.7	56.2	42.8	26.7	60.9	55.4	55.4	0.0	21.9
SOUTH CAROLINA	ESTIMATED POPULATION	22673	8577	16372	7201	17551	6896	20202	15173	13748	10522	82	21239
	% STANDARD ERROR	A	B	A	A	A	B	A	A	A	A	D	A
	ESTIMATED % OF REGION	60.1	22.7	43.4	19.1	46.5	18.3	53.6	40.2	36.4	27.9	0.2	56.3

P : PRELIMINARY RESULTS

 * STANDARD ERROR * CODE *
 * GREATER * LESS THAN *
 * THAN * OR *
 * EQUAL TO *
 * 0 % 10 % A *
 * 10 % 20 % B *
 * 20 % 30 % C *
 * 30 % D *

TABLE 2-14. GENERAL AVIATION AVIONICS EQUIPMENT BY REGION OF BASED AIRCRAFT - CY 1977
(2 of 6)

REGION	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	MLS NO ILS	
NEW ENGLAND												
ESTIMATED POPULATION	4622	2104	3223	1288	3623	1550	4007	3931	3144	2302	30	3576
% STANDARD ERROR	B	C	B	B	B	C	B	B	B	B	D	B
ESTIMATED % OF REGION	60.0	27.3	41.8	16.7	47.0	20.1	52.0	51.0	40.8	29.9	0.4	46.4
NORTHEASTERN												
ESTIMATED POPULATION	8614	2962	4864	3045	6497	1869	7510	4762	4057	2973	6	8848
% STANDARD ERROR	A	C	B	B	B	C	A	B	B	B	D	A
ESTIMATED % OF REGION	61.8	21.3	34.9	21.9	46.6	13.4	53.9	34.2	29.1	21.3	0.0	63.5
PACIFIC												
ESTIMATED POPULATION	403	193	338	81	308	21	280	344	317	285	0	309
% STANDARD ERROR	D	D	D	D	D	D	D	D	D	D	A	D
ESTIMATED % OF REGION	60.5	29.0	50.9	12.3	58.4	3.2	42.2	51.8	47.6	42.9	0.0	46.4
ROCKY MOUNTAIN												
ESTIMATED POPULATION	7127	3107	4934	2345	5907	2058	6443	5204	4347	3617	13	6907
% STANDARD ERROR	B	B	B	B	B	B	B	B	B	B	D	B
ESTIMATED % OF REGION	58.1	25.3	40.2	19.1	48.2	16.8	52.6	42.4	35.5	29.5	0.1	56.3
SOUTHERN P												
ESTIMATED POPULATION	17768	8074	13858	5592	16822	6266	13591	15027	12956	10125	96	14790
% STANDARD ERROR	A	B	A	A	A	A	A	A	A	A	D	A
ESTIMATED % OF REGION	57.9	26.3	45.1	18.2	54.8	20.4	44.3	48.9	42.2	33.0	0.3	48.2
SOUTHWESTERN P												
ESTIMATED POPULATION	16718	7409	13480	5525	14761	5951	13841	13552	12148	9569	79	14047
% STANDARD ERROR	A	B	A	A	A	A	A	A	A	A	D	A
ESTIMATED % OF REGION	58.0	25.7	46.8	19.2	51.2	20.7	48.0	47.0	42.2	33.2	0.3	48.

P : PRELIMINARY RESULTS

*****	STANDARD ERROR	*****	CODE	*****
*****	GREATER	*****	---	*****
*****	THAN	*****	---	*****
*****	OR	*****	---	*****
*****	EQUAL TO	*****	---	*****
*****	0 %	*****	10 %	*****
*****	10 %	*****	20 %	*****
*****	20 %	*****	30 %	*****
*****	30 %	*****	A	*****
*****		*****	B	*****
*****		*****	C	*****
*****		*****	D	*****
*****		*****		*****

TABLE 2-14. GENERAL AVIATION AVIONICS EQUIPMENT BY REGION OF BASED AIRCRAFT - CY 1977
(3 of 6)

REGION	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MRRB SEC	GLIDE SLOPE	MLS NO ILS	
WESTERN P												
ESTIMATED POPULATION	20716	8622	15872	5857	17499	6435	16569	16125	13984	11149	83	16968
% STANDARD ERROR	A	B	A	A	A	B	A	A	A	B	D	A
ESTIMATED % OF POP	60.9	25.3	46.6	17.2	51.3	18.9	48.7	47.4	41.1	32.8	0.2	49.8
TOTAL	127019	54283	96125	37735	108189	42597	104405	59335	86372	68011	688	107909
% STANDARD ERROR	A	B	A	A	A	A	A	A	A	A	D	A
ESTIMATED % OF POP	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	32.0	0.3	50.8

NOTE : COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

STANDARD ERROR	CODE
GREATER THAN	---
LESS THAN	---
EQUAL TO	---
0 %	A
10 %	B
20 %	C
30 %	D

P : PRELIMINARY RESULTS

TABLE 2-14. GENERAL AVIATION AVIONICS EQUIPMENT BY REGION OF BASED AIRCRAFT - CY 1977
(4 of 6)

REGION	NAVIGATION EQUIPMENT										
	VOR 100CH	VOE 200CH	2+ RCVR	ADF	DME	ENAV	LENAV	AUTOPLT ALT	HADAR ALT	WTHE RADAR	ND NMEQ
ALASKAN	3413	1249	905	2474	312	35	17	195	47	22	1362
ESTIMATED POPULATION											
% STANDARD ERROR	A	B	B	B	C	D	D	D	D	D	B
ESTIMATED % OF REGION	58.1	21.3	15.4	42.2	5.3	0.6	0.3	3.3	0.8	0.4	23.2
CENTRAL	5525	6471	7257	6201	3537	689	82	4903	666	775	3599
ESTIMATED POPULATION											
% STANDARD ERROR	B	B	B	B	B	C	D	B	D	D	B
ESTIMATED % OF REGION	37.6	41.1	46.0	39.3	22.4	4.4	0.5	31.1	4.2	4.9	22.8
EASTERN P	11305	9720	12350	10818	6201	1409	439	6964	1855	1605	4849
ESTIMATED POPULATION											
% STANDARD ERROR	B	B	A	A	B	C	C	B	B	B	A
ESTIMATED % OF REGION	45.3	38.9	49.4	43.3	24.8	5.6	1.8	27.9	7.4	6.4	19.4
BUECPAN	21	90	91	103	42	4	0	59	4	14	21
ESTIMATED POPULATION											
% STANDARD ERROR	D	D	D	D	D	D	A	D	D	D	B
ESTIMATED % OF REGION	13.8	56.8	57.9	65.0	27.0	2.5	0.0	37.2	2.6	9.0	13.8
GREAT LAKES P	14417	14641	16444	16352	6976	1314	179	9067	1196	1749	9228
ESTIMATED POPULATION											
% STANDARD ERROR	A	A	A	A	A	C	D	A	B	B	A
ESTIMATED % OF REGION	38.2	38.8	43.8	43.4	18.5	3.5	0.5	24.0	3.2	4.6	24.5
NEW ENGLAND	3155	3024	3384	3168	1411	223	162	1600	270	305	1655
ESTIMATED POPULATION											
% STANDARD ERROR	B	C	B	B	C	D	D	C	D	D	B
ESTIMATED % OF REGION	41.0	39.3	43.9	41.1	18.3	2.9	2.1	20.8	3.5	4.0	21.5

P : PRELIMINARY RESULTS

```

*****
* STANDARD ERROR * CODE *
* ----- *
* GREATER *
* THAN *
* OR *
* EQUAL TO *
* ----- *
* 0 % * 10 % * A *
* 10 % * 20 % * B *
* 20 % * 30 % * C *
* 30 % * * D *
*****

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TABLE 2-14. GENERAL AVIATION AVIONICS EQUIPMENT BY REGION OF BASED AIRCRAFT - CY 1977
(5 of 6)

REGION	NAVIGATION EQUIPMENT										
	VOR 100CH	VOR 200CH	2+ ECVE	ADF	DME	RNAV	LRNAV	AUTOPLT ALT	RADAR ALT	WTHR RADAR	NO NAVEQ
NORTHERN	5512	4607	4651	5001	2041	331	31	2398	413	295	4022
ESTIMATED POPULATION	B	B	B	B	B	D	D	B	D	D	A
% STANDARD ERROR	39.6	33.1	33.4	35.9	14.7	2.4	0.2	17.2	3.0	2.1	28.9
ESTIMATED % OF REGION											
PACIFIC	247	279	248	267	70	1	2	60	1	6	137
ESTIMATED POPULATION	D	D	D	D	D	D	D	D	D	D	D
% STANDARD ERROR	37.2	41.9	37.3	40.2	10.5	0.3	0.3	9.1	0.3	1.0	20.7
ESTIMATED % OF REGION											
ROCKY MOUNTAIN	5470	4130	5089	4863	2167	624	49	3233	389	308	2938
ESTIMATED POPULATION	B	B	B	B	B	D	D	B	D	D	B
% STANDARD ERROR	44.6	33.7	41.5	39.7	17.7	5.1	0.4	26.4	3.2	2.5	24.0
ESTIMATED % OF REGION											
SOUTHERN P	12248	11789	14573	14436	7062	1614	128	8288	1404	2168	7110
ESTIMATED POPULATION	A	A	A	A	A	B	C	A	B	B	A
% STANDARD ERROR	39.9	38.4	47.4	47.0	23.0	5.3	0.4	27.0	4.6	7.1	23.1
ESTIMATED % OF REGION											
SOUTHWESTERN P	10927	11206	13503	13220	7368	1504	278	8515	1511	2134	5733
ESTIMATED POPULATION	A	A	A	A	A	B	B	A	B	A	A
% STANDARD ERROR	37.9	38.9	46.9	45.9	25.6	5.2	1.0	29.6	5.2	7.4	23.4
ESTIMATED % OF REGION											
WESTERN P	13959	13304	15831	14941	7296	1781	319	9277	1450	1795	7537
ESTIMATED POPULATION	A	A	A	A	B	C	C	B	C	B	A
% STANDARD ERROR	41.0	39.1	46.5	43.9	21.4	5.2	0.9	27.3	4.3	5.3	22.1
ESTIMATED % OF REGION											

***** PRELIMINARY RESULTS *****

* STANDARD ERROR * CODE *
 * GREATER * LESS THAN *
 * THAN * OR *
 * EQUAL TO *
 * 0 % * 10 % * A *
 * 10 % * 20 % * B *
 * 20 % * 30 % * C *
 * 30 % * D *

TABLE 2-14. GENERAL AVIATION AVIONICS EQUIPMENT BY REGION OF BASED AIRCRAFT - CY 1977
(6 of 6)

REGION	NAVIGATION EQUIPMENT				NO NAVEQ						
	WGR 100CH	WOR 200CH	2+ RCVE	ADP		DME	RNAV	LENAV	AUTOPILOT	RADAR SLT	WTHE RADAR
TOTAL	86556	82459	97024	93782	46597	10424	1805	57434	9878	12054	48376
% ESTIMATED POPULATION	A	A	A	A	A	A	B	A	A	A	A
% STANDARD ERROR	40.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6	5.7	22.8

NOTE : COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

```

*****
* STANDARD ERROR * CODE *
* GREATER * LESS THAN *
* THAN * OR *
* EQUAL TO *
* 0 % * 10 % * A *
* 10 % * 20 % * B *
* 20 % * 30 % * C *
* 30 % * * D *
*****

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TABLE 2-15. GENERAL AVIATION AVIONICS EQUIPMENT BY PRIMARY USE - CY 1977 (1 of 4)

	VHF COMMUNICATIONS				TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT			
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	HKER BEC	GLIDE SLOPE	NLS	NO ILS
EXECUTIVE												
ESTIMATED POPULATION	3204	6103	7949	41	8558	7728	366	8391	8197	3044	32	527
% STANDARD ERROR	E	A	A	D	A	A	D	A	A	A	D	C
ESTIMATED % OF USE	36.5	69.5	90.5	0.5	97.4	88.0	4.2	95.6	93.3	91.6	0.4	6.0
BUSINESS												
ESTIMATED POPULATION	26043	16851	3044E	1112	34576	16355	7235	29950	28318	23474	183	11026
% STANDARD ERROR	A	A	A	B	A	A	B	A	A	A	D	B
ESTIMATED % OF USE	62.9	40.7	73.6	2.7	83.5	39.5	17.5	72.4	68.4	56.7	0.4	26.6
PERSONAL												
ESTIMATED POPULATION	65413	14743	37834	12806	38129	9823	52221	35668	30358	19466	428	51330
% STANDARD ERROR	A	A	A	A	A	B	A	A	A	A	D	A
ESTIMATED % OF USE	74.1	16.7	42.9	14.5	43.2	11.1	59.1	40.4	34.4	22.0	0.5	58.1
AERIAL APPLICATION												
ESTIMATED POPULATION	1535	283	423	5805	418	87	7187	397	474	141	0	6956
% STANDARD ERROR	B	D	C	A	C	D	A	C	D	D	A	A
ESTIMATED % OF USE	20.8	3.8	5.7	78.5	5.7	1.2	97.2	5.4	6.4	1.9	0.0	94.1
INSTRUCTIONAL												
ESTIMATED POPULATION	10881	5209	5563	578	8477	1728	7663	7958	5455	5140	5	7920
% STANDARD ERROR	B	C	B	B	B	C	B	B	B	B	D	B
ESTIMATED % OF USE	67.6	32.4	34.6	3.6	52.7	10.7	47.6	49.4	33.9	31.9	0.0	49.2

 * STANDARD ERROR * CODE *
 * GREATER * LESS THAN *
 * THAN * OR *
 * EQUAL TO *
 * 0 % 10 % A *
 * 10 % 20 % B *
 * 20 % 30 % C *
 * 30 % D *

TABLE 2-15. GENERAL AVIATION AVIONICS EQUIPMENT BY PRIMARY USE - CY 1977 (2 of 4)

VHF COMMUNICATIONS										TRANSPONDER EQUIPMENT				ILS RECEIVING EQUIPMENT									
360 CH	720 CH	2+ CH	NO SYS	NO COHM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	HLS	NO ILS	ESTIMATED POPULATION	% STANDARD ERROR	ESTIMATED % OF USE	ESTIMATED POPULATION	% STANDARD ERROR	ESTIMATED % OF USE					
AIR TAXI																							
3823 B	3477 B	5204 B	46 D	5581 A	3438 B	1387 B	5761 A	5293 A	4715 A	1193 B	1193 B	1193 B	55.9	50.8	76.1	0.7	81.6	50.3	20.3	84.3	77.4	0.0	17.5
INDEPENDENT/SPECIAL																							
916 C	473 D	546 D	28 D	800 C	273 D	577 C	572 C	462 D	364 D	758 C	758 C	758 C	68.3	55.3	40.7	2.1	59.6	20.4	43.1	42.7	34.5	0.0	56.5
RENTAL																							
4338 C	3867 C	4863 B	621 C	7173 B	1853 C	1621 C	5538 B	4915 B	4585 B	3148 C	3148 C	3148 C	50.3	44.9	56.4	7.2	83.2	21.5	18.8	64.3	57.0	0.0	36.5
OTHER																							
2415 E	1419 E	1731 B	1289 C	2195 B	1060 B	2918 B	1972 C	1519 B	1241 B	3012 B	3012 B	3012 B	50.3	29.6	36.1	26.9	44.7	22.1	60.8	41.1	31.7	0.4	62.8
INACTIVE																							
9143 A	1062 C	2187 B	15414 A	2196 B	530 C	23357 A	2549 B	1961 B	1217 B	22602 A	22602 A	22602 A	31.5	3.7	7.5	53.1	7.6	1.8	80.4	8.8	6.8	0.1	77.8
TOTAL																							
127019 A	54283 A	96125 A	37735 A	108189 A	42597 A	104405 A	99335 A	86372 A	69011 A	107909 A	107909 A	107909 A	59.7	25.5	45.2	17.7	50.9	20.0	49.1	46.7	40.6	0.3	50.8

NOTE : COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

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*****
* STANDARD ERROR *
*-----*
* GREATER *
* THAN *
*-----*
* 0 % *
* 10 % *
* 20 % *
* 30 % *
* 30 % *
*****
* CODE *
*-----*
* LESS THAN *
* OR *
* EQUAL TO *
*-----*
* A *
* B *
* C *
* D *
*****

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TABLE 2-15. GENERAL AVIATION AVIONICS EQUIPMENT BY PRIMARY USE - CY 1977 (3 of 4)

	NAVIGATION EQUIPMENT											NO NAVEQ
	VOR 100CH	VOR 200CH	2+ RCVR	ADF	DME	RNAV	LENAV	AUTOPLT	RADAR ALT	WTHE RADAR		
EXECUTIVE												
ESTIMATED POPULATION	2480	6638	8081	8514	7948	3201	855	7832	4330	6061		114
% STANDARD ERROR	B	A	A	A	A	A	A	A	A	A		D
ESTIMATED % OF USE	28.2	75.6	92.0	96.9	90.5	36.5	9.7	89.2	49.3	69.0		1.3
BUSINESS												
ESTIMATED POPULATION	18770	22820	31424	31969	19346	4009	426	22594	2826	2846		1590
% STANDARD ERROR	A	A	A	A	A	B	C	A	B	B		B
ESTIMATED % OF USE	45.3	55.1	75.9	77.2	46.7	9.7	1.0	54.6	6.8	6.9		3.8
PERSONAL												
ESTIMATED POPULATION	46745	29974	38412	32315	9290	1618	256	15014	1090	708		16795
% STANDARD ERROR	A	A	A	A	B	B	D	A	C	D		A
ESTIMATED % OF USE	52.9	33.9	43.5	36.6	10.5	1.8	0.3	17.0	1.2	0.8		19.0
AERIAL APPLICATION												
ESTIMATED POPULATION	415	374	331	377	141	2	0	48	1	12		6814
% STANDARD ERROR	C	C	C	C	D	B	A	D	D	D		A
ESTIMATED % OF USE	5.6	5.1	4.5	5.1	1.9	0.0	0.0	0.7	0.0	0.2		92.2
INSTRUCTIONAL												
ESTIMATED POPULATION	7126	7110	5093	5642	2210	508	0	2623	340	162		2153
% STANDARD ERROR	B	B	B	B	C	D	A	C	D	D		D
ESTIMATED % OF USE	44.3	44.2	31.6	35.1	13.7	3.2	0.0	16.3	2.1	1.0		13.4
AIR TAXI												
ESTIMATED POPULATION	2158	4042	5194	6054	3668	514	53	3655	565	1464		343
% STANDARD ERROR	B	A	A	A	A	C	C	B	B	B		D
ESTIMATED % OF USE	31.6	59.1	76.0	88.5	53.6	7.5	0.8	53.5	8.3	21.4		5.0

 * STANDARD ERROR *
 * CODE *
 * GREATER *
 * THAN *
 * LESS THAN *
 * OR *
 * EQUAL TO *
 * 0 % *
 * 10 % *
 * 20 % *
 * 30 % *
 * 30 % *
 * *****

TABLE 2-15. GENERAL AVIATION AVIONICS EQUIPMENT BY PRIMARY USE - CY 1977 (4 of 4)

	NAVIGATION EQUIPMENT										NO HAVEQ	
	VOR 100CH	VOE 200CH	2+ RCVR	ADF	DME	RNAV	LRNAV	AUTOFLT	RADAR ALT	WHR RADAR		
INDUSTRIAL/SPECIAL												
ESTIMATED POPULATION	640	459	438	568	259	0	32	218	31	48	278	
% STANDARD ERROR	C	D	D	C	D	A	D	D	D	B	C	
ESTIMATED % OF USE	47.7	34.2	32.6	42.4	19.3	0.0	2.4	16.3	2.3	3.6	20.8	
RENTAL												
ESTIMATED POPULATION	2132	6157	4988	4897	2052	319	41	3669	215	21	567	
% STANDARD ERROR	C	B	B	B	C	D	C	C	D	C	B	
ESTIMATED % OF USE	24.7	71.4	57.9	56.8	23.8	3.7	0.5	42.6	2.5	2.5	6.6	
CITEF												
ESTIMATED POPULATION	860	2029	1554	1745	1052	240	109	992	281	352	2155	
% STANDARD ERROR	C	C	B	B	B	D	D	B	C	C	B	
ESTIMATED % OF USE	17.9	42.3	32.4	36.4	21.9	5.0	2.3	20.7	5.9	7.3	44.9	
INACTIVE												
ESTIMATED POPULATION	5817	2147	2046	2124	676	131	33	758	119	174	17545	
% STANDARD ERROR	B	B	C	B	C	D	D	C	B	E	A	
ESTIMATED % OF USE	20.0	7.4	7.0	7.3	2.3	0.5	0.1	2.6	0.4	0.6	60.4	
TOTAL												
ESTIMATED POPULATION	86556	82459	97024	93782	46597	10424	1805	57434	9878	12054	48376	
% STANDARD ERROR	A	A	A	A	A	A	B	A	A	A	A	
ESTIMATED % OF POP	40.7	38.8	45.6	44.1	21.9	4.9	0.8	27.0	4.6	5.7	22.8	

NOTE : COLUMN SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES.

```

*****
* STANDARD ERROR * CODE *
* ----- *
* GREATER *
* THAN *
* OR *
* EQUAL TO *
* ----- *
* 0 % * A *
* 10 % * B *
* 20 % * C *
* 30 % * D *
*****

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TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(1 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE [IN THOUSANDS]	STANDARD ERROR [IN THOUSANDS]	PERCENT STANDARD ERROR
OTHER 1	8637.1	1984.8	23.0
OTHER 2	1594.5	186.6	11.7
OTHER 3	845.7	44.5	5.3
OTHER 4	1238.2	80.1	6.5
OTHER 5	1279.1	280.4	21.9
OTHER 6	1108.6	272.3	24.6
OTHER 7	1200.1	293.7	24.5
OTHER 8	251.6	48.2	19.1
OTHER 9	537.9	209.7	39.0
OTHER 10	784.0	174.3	22.2
OTHER 11	1837.0	303.2	16.5
OTHER 12	441.3	63.6	14.4
OTHER 13	437.4	80.6	18.4
AEROSPACE 16	54.6	9.2	16.9
AEROSPACE 41	37.9	10.4	27.5
AEROSPACE	594.3	62.1	10.5
AEROSPACE 18	7.5	0.7	9.0
AEROSPACE 200	42.9	8.3	19.4
AND F1C10	105.6	20.5	19.4
AND F1C20	1028.1	109.0	10.6
AETICS1A	326.4	32.4	9.9
AETICS1B1	15.1	1.7	11.5
AERONAS 15	368.3	16.5	4.5
AERONAS 58	303.9	40.8	13.4
AERONAS 65	362.0	28.9	8.0
AERONAS 63	118.4	34.0	28.8

NOTE: See following page for coding.

NOTE: Other XX refers to all general aviation aircraft belonging to manufacturer/model groups of fewer than 20 aircraft in size for aircraft XX where XX stands for

- 01 Fixed wing piston, 1 engine, 1-3 seats.
- 02 Fixed wing piston, 1 engine, 4+ seats.
- 03 Fixed wing piston, 2 engines, 1-6 seats.
- 04 Fixed wing piston, 2 engines, 7+ seats.
- 05 Fixed wing piston, other.
- 06 Fixed wing turboprop, 2 engines, 1-12 seats.
- 07 Fixed wing turboprop, 2 engines, 13+ seats.
- 08 Fixed wing turboprop, other.
- 09 Fixed wing turbojet, 2 engines.
- 10 Fixed wing turbojet, other.
- 11 Rotorcraft, piston.
- 12 Rotorcraft, turbine.
- 13 Other aircraft.

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(2 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE [IN THOUSANDS]	STANDARD ERROR [IN THOUSANDS]	PERCENT STANDARD ERROR
AYRES S2	1470.9	131.1	8.9
BAC 111	234.9	20.7	8.8
BALMSPICEFY	22.6	3.6	16.1
BEAGLEB206	50.2	6.5	12.9
BEECH 100	681.9	270.5	39.7
BEECH 17	436.6	51.2	11.7
BEECH 18	8147.8	373.7	4.6
BEECH 200	149.6	34.4	23.0
BEECH 23	4064.7	572.0	14.1
BEECH 33	2934.8	317.4	10.8
BEECH 35	18277.2	1038.3	5.7
BEECH 36	886.3	179.4	20.2
BEECH 45	1707.4	86.2	5.0
BEECH 50	1737.6	68.7	4.0
BEECH 55	3553.0	583.7	16.4
BEECH 56	100.7	10.8	10.8
BEECH 58	662.6	85.4	12.9
BEECH 60	250.4	56.7	22.6
BEECH 65	572.8	99.1	17.3
BEECH 80	905.1	60.6	6.7
BEECH 90	1627.5	200.7	12.3
BEECH 95	1532.1	86.9	5.7
BEECH 99	1510.6	167.4	11.1
BELL 204	504.8	6.7	1.3
BELL 205	186.1	43.7	23.5
BELL 206	3094.4	672.1	21.7
BELL 212	240.8	42.4	17.6

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(3 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE [IN THOUSANDS]	STANDARD ERROR [IN THOUSANDS]	PERCENT STANDARD ERROR
BELL 47	736.6	779.4	10.6
ELANCA11	1365.0	39.5	2.9
ELANCA1413	476.7	26.2	5.5
ELANCA1419	469.4	19.5	4.2
ELANCA17	878.5	99.2	11.3
ELANCA7	11308.0	633.5	5.6
ELANCA8	165.1	19.4	11.8
EDOHM 532	218.2	81.3	37.2
BOEING707	929.3	19.1	2.1
BOEING720	671.2	17.3	2.6
BOEING727	1332.8	163.0	12.2
BOEING75	8771.1	456.4	5.2
BOEINGB17	133.0	0.1	0.0
POLKMS135	120.9	22.8	18.9
BRISTPLE112	93.1	6.2	6.6
EMSTPFL117	66.2	4.4	6.6
CAMPONCD11C	1.9	0.4	18.7
CESSNA120	2235.1	188.9	8.5
CESSNA140	6813.3	426.5	6.3
CESSNA150	36717.2	3899.6	10.6
CESSNA170	7181.4	795.4	11.1
CESSNA172	30615.8	3532.9	11.5
CESSNA175	3352.1	350.8	10.5
CESSNA177	2026.2	495.6	16.5
CESSNA180	8138.9	1013.5	12.5
CESSNA182	40734.3	8916.5	21.9
CESSNA185	1994.1	1020.1	51.2

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(4 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE (IN THOUSANDS)	STANDARD ERROR (IN THOUSANDS)	PERCENT STANDARD ERROR
CESSNA188	1927.0	253.2	13.1
CESSNA190	223.3	9.2	4.1
CESSNA195	1381.3	97.8	7.1
CESSNA205	672.8	43.1	6.4
CESSNA206	3879.3	688.6	17.8
CESSNA207	546.2	116.7	21.4
CESSNA210	5290.9	623.2	11.8
CESSNA305	993.5	118.0	11.9
CESSNA310	6247.6	679.5	10.9
CESSNA320	1068.6	131.5	12.3
CESSNA336	194.1	7.4	3.8
CESSNA337	1500.2	197.7	13.2
CESSNA340	528.7	134.6	25.5
CESSNA401	731.8	49.0	6.7
CESSNA402	1293.1	246.7	19.1
CESSNA404	16.7	2.3	14.0
CESSNA411	695.7	77.3	11.1
CESSNA414	445.7	37.6	8.4
CESSNA421	1356.1	213.3	15.7
CESSNA500	462.7	105.9	22.9
CESSNA750	150.9	23.0	15.2
CESSNAUC94	85.3	3.7	4.4
CCWTH185	42.0	7.4	17.7
CONAFLA4	154.6	17.9	11.6
CURTISC46	880.4	51.2	5.8
CURTISJ4	15.9	0.3	2.0
CURTISROBIN	55.1	9.6	17.4

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(5 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE [IN THOUSANDS]	STANDARD ERROR [IN THOUSANDS]	PERCENT STANDARD ERROR
CURTISWAIN	569.7	47.9	8.4
CVAC 22	842.1	44.8	5.3
CVAC 240	1074.4	97.8	9.1
CVAC 340	401.6	51.7	12.9
CVAC 440	771.9	107.3	13.9
CVAC BT13	287.6	11.3	3.9
DART G	32.7	2.1	6.5
DEAV DHC2	2329.4	90.5	3.9
DEAV DHC3	122.8	5.2	4.2
DEAV DHC6	1327.1	356.2	26.8
DEAVYXDR82	273.3	10.8	3.9
DOUG A26	147.9	7.4	5.0
DOUG DC3	13484.8	2275.4	16.9
DOUG DC4	1863.5	115.0	6.2
DOUG DC6	3460.4	149.0	4.3
DOUG DC7	1027.2	53.1	5.2
DOUG DC8	1731.9	50.8	2.9
DOUG DC9	1838.0	461.9	25.1
EMERY28	265.8	60.0	22.6
FLEET 16B	50.3	5.1	10.1
FRCHLD24	539.6	38.1	7.1
FRCHDC119	129.7	2.2	1.7
FRCHLDF27	550.9	78.2	14.2
FRCHLDFH1100	206.7	27.0	13.1
FRCHLDN62	373.5	15.7	4.2
GLASF1201	12.1	2.2	18.4
GLASF1R301	83.9	8.9	10.6

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(6 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE [IN THOUSANDS]	STANDARD ERROR [IN THOUSANDS]	PERCENT STANDARD ERROR
GRTLKS2T1	63.8	10.9	17.2
GEUMANG21	745.5	110.6	14.8
GEUMANG44	402.5	60.0	14.9
GEUMANG73	262.8	15.9	6.0
GEUMANTDM	64.7	3.1	4.8
GEUMAVAN1	1458.3	112.0	7.7
GEUMAVAA5	1119.4	317.8	28.4
GEUMAVG1159	446.2	77.6	17.4
GEUMAVG159	1079.5	90.3	8.4
GEUMAVG164	2448.4	243.4	9.9
HELIC H295	121.1	14.4	11.9
HELIC H391	54.0	4.3	8.0
HILIFRUH12	2410.8	286.4	11.9
HWLYFGHP137	47.1	10.7	22.6
HUGHES269	1610.8	189.6	11.8
HUGHES369	352.7	49.5	14.0
HWKSLYDH104	263.5	40.5	15.4
HWKSLYDH114	982.1	72.3	7.4
HWKSLYDH125	538.6	82.8	15.4
HYNES B2	131.1	9.3	7.1
INTFCF200	137.9	5.9	4.3
ISRAELI1121	490.8	35.7	7.3
ISRAELI1123	28.3	3.8	13.5
ISRAELI1124	11.7	1.0	8.1
JEMSTEDGA15	122.8	4.3	3.5
LAIKFK10	129.6	63.8	49.2
LEAR 23	332.4	9.4	2.8

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(7 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE [IN THOUSANDS]	STANDARD ERROR [IN THOUSANDS]	PERCENT STANDARD ERROR
LEAF 24	589.5	92.0	15.6
LEAF 25	346.5	33.8	9.7
LEAF 35	88.0	12.9	14.7
LEZ L13	79.8	13.8	17.3
LKHEED12A	222.7	12.5	5.6
LKHEED1329	612.2	82.1	13.4
LKHEED18	802.3	72.3	9.0
LKHEED188	493.3	35.9	7.3
LKHEEDPV1	105.5	13.6	12.9
LKHEEDT33	312.1	18.2	5.8
LUSCCMB	5092.4	358.9	7.0
MARTIN404	1397.5	44.4	3.2
MAULE M4	263.6	32.7	12.4
MAULE M5	81.3	12.2	15.0
MCCULHJ2	7.1	0.9	12.9
MCLISHFUNKB	190.5	4.2	2.2
MEYERSOW	109.2	3.6	3.3
MNCOMF90	104.6	8.8	8.4
MNJTET18	162.5	12.6	7.7
MOONEYM30	7195.3	578.3	8.0
MOCNEFM22	22.8	2.0	8.7
MORISY2150	64.4	3.5	5.4
MPCHTIS205	34.6	3.0	8.5
MTSBSIMU2	625.6	86.8	13.9
MULTICD16	147.4	37.0	25.1
NAKPE B25	247.4	21.4	8.7
NAKPE F51	186.5	22.4	12.0

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(8 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE [IN THOUSANDS]	STANDARD ERROR [IN THOUSANDS]	PERCENT STANDARD ERROR
MAHER WA260	117.0	6.9	5.9
MAHER T6	1763.3	56.6	3.2
NAVAL M3N	909.6	28.5	3.1
NAVIONNAVION	3298.9	102.7	3.1
NORWST65	97.9	10.1	10.4
FICARPAK6	30.9	8.0	26.0
PILATSR4	3.9	0.7	17.1
PIPER J2	101.3	10.0	9.9
PIPER J3	12000.7	446.3	3.7
PIPER J4	428.5	11.0	2.6
PIPER J5	914.0	84.5	9.2
PIPER PA12	3381.4	189.5	5.6
PIPER PA14	375.8	93.7	24.9
PIPER PA15	261.8	7.0	2.7
PIPER PA16	685.4	16.8	2.5
PIPER PA17	217.5	16.3	7.5
PIPER PA18	6918.4	719.0	10.4
PIPER PA20	1168.2	132.6	11.4
PIPER PA22	11972.4	707.8	5.9
PIPER PA23	9202.1	753.9	8.2
PIPER PA24	8171.5	382.0	4.7
PIPER PA25	3881.7	325.5	8.4
PIPER PA28	34607.3	3438.5	9.9
PIPER PA30	2955.0	158.4	5.4
PIPER PA31	2469.4	237.0	12.0
PIPER PA31T	70.7	11.4	16.1
PIPER PA32	3399.6	604.3	17.8

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(9 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE [IN THOUSANDS]	STANDARD ERROR [IN THOUSANDS]	PERCENT STANDARD ERROR
PIPER PA34	1046.6	135.5	13.0
PIPER PA36	107.7	31.8	29.5
PITTS S1	42.2	5.4	12.7
PRATT PRG1	13.3	1.0	7.7
RAVEN EX6	11.3	2.1	18.3
RAVEN S50	18.5	3.4	18.3
RAVEN S55	22.2	2.5	11.4
RKWELI112	264.4	18.4	7.0
RKWELI500	1130.1	117.0	10.4
RKWELI520	256.3	7.3	2.8
RKWELI560	673.5	68.3	10.1
RKWELI680	1536.8	137.7	9.0
RKWELI680TP	384.9	34.2	8.9
RKWELI690TP	187.3	18.1	9.6
RKWELIWA265	731.0	60.9	8.3
RYAN ST3	394.1	18.7	4.7
RYAN STA	66.0	4.0	6.0
SCHLEPNSM15	18.2	1.8	9.9
SCHIEK2	19.0	1.4	7.5
SCHIEK26	63.8	6.6	10.4
SCHZEFSG1	405.3	47.5	11.7
SCHZEFSG2	572.0	68.5	12.0
SCHZRETG2A	19.6	1.3	6.5
SEMCO CLNGER	3.4	0.7	21.8
SEMCO T	5.8	0.7	11.6
SKESKYS55	427.8	33.7	7.9
SKESKYS58	105.5	8.8	8.4

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(10 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE [IN THOUSANDS]	STANDARD ERROR [IN THOUSANDS]	PERCENT STANDARD ERROR
SLINDS100	439.0	29.3	6.7
SMITH 600	564.8	328.5	58.2
SNIFS SA318	151.3	21.3	14.1
SOCMTANS894	21.3	1.7	7.8
SPHETHCIRREUS	50.7	11.4	22.5
SINSCN10	310.0	17.5	5.6
SINSCN15	281.8	19.7	7.0
SINSCNSR9	86.2	4.3	5.0
SINSCNV77	129.0	5.8	4.5
STOLAMPC3	234.1	53.7	22.9
SUPAC IA	140.9	9.0	6.4
SUPAC V	19.8	1.6	8.2
SWRNGNSA226	324.8	46.5	14.3
SWRNGNSA26	335.4	43.3	12.9
TC0AFKD	475.2	8.1	1.7
TCRAFT19	32.8	11.4	34.8
TCRAFTA	44.8	7.6	17.1
TCRAFTBC	4476.0	413.7	9.2
TCRAFTEF	75.2	4.1	5.5
TCRAFTBL	591.7	25.5	4.3
TEMCO 11A	57.8	5.2	8.9
THUNDEAX7	4.0	1.6	40.8
TEYTER65	649.6	44.9	6.9
TRYTEKK	34.3	2.6	7.7
UNIVACGC1	1091.8	45.4	4.2
UNIVAF108	4118.7	189.7	4.6
UNIVAF415	3846.3	222.7	5.8

TABLE 2-16. GENERAL AVIATION AIRFRAME HOURS BY AIRCRAFT MANUFACTURER AND MODEL - CY 1977
(11 of 11)

MANUFACTURER / MODEL	HOURS ESTIMATE (IN THOUSANDS)	STANDARD ERROR (IN THOUSANDS)	PERCENT STANDARD ERROR
VICKER745	606.3	60.6	10.0
WACO ASO	82.8	4.9	5.9
WACO GXE	42.6	2.7	6.3
WACO E	49.0	5.0	10.1
WACC UPF7	512.0	21.4	4.2
WACO YK	89.6	3.9	4.3
WHEELY201	26.3	11.6	44.2
TOTAL AIRCRAFT	492261.	11908.3	2.4

TABLE 2-17. GENERAL AVIATION AIRCRAFT ON LONG-TERM LEASE BY TYPE OF AIRCRAFT AND YEAR OF MANUFACTURE - CY 1977 (1 of 4)

AIRCRAFT TYPE	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1968 PRIOR 1968	UNKNOWN	TOTAL
FIXED WING													
PISTON													
1 ENG 1-3 SEATS	21 D 0.0	207 D 0.3	142 D 0.2	182 D 0.2	441 D 0.6	76 D 0.1	1 D 0.0	55 D 0.1	127 D 0.2	106 D 0.1	349 C 0.5	81 D 0.1	1787 C 2.4
1 ENG 4+ SEATS	267 D 0.3	1861 D 1.9	1958 D 2.0	836 D 0.9	232 D 0.2	48 D 0.0	43 D 0.0	302 D 0.3	135 D 0.1	215 D 0.2	550 D 0.7	176 D 0.2	6724 B 6.8
TOTAL 1 ENG	287 D 0.2	2068 C 1.2	2100 D 1.2	1018 D 0.6	673 D 0.4	124 D 0.1	44 D 0.0	358 D 0.2	261 D 0.2	321 D 0.2	1000 C 0.6	257 D 0.1	8511 B 4.9
2 ENG 1-6 SEATS	115 D 0.7	182 D 1.2	439 D 2.8	218 D 1.4	208 D 1.3	28 D 0.2	17 D 0.1	38 D 0.2	46 D 0.3	44 D 0.3	579 D 3.7	73 D 0.5	1989 B 12.7
2 ENG 7+ SEATS	41 D 0.6	19 D 0.3	16 D 0.2	59 D 0.8	76 D 1.1	152 D 2.1	1 D 0.0	0 D 0.0	20 D 0.3	40 D 0.6	314 B 4.4	124 D 1.7	863 B 12.1
TOTAL 2 ENG	157 D 0.7	201 D 0.9	455 D 2.0	278 D 1.2	284 D 1.2	180 D 0.8	18 D 0.1	38 D 0.2	66 D 0.3	85 D 0.4	893 C 3.9	197 D 0.9	2852 B 12.5
OTHER PISTON	0 A 0.0	0 A 0.0	0 A 0.0	0 A 0.0	0 A 0.0	0 A 0.0	0 A 0.0	0 A 0.0	0 A 0.0	0 A 0.0	46 B 13.1	9 C 2.5	55 B 15.6
TOTAL PISTON	444 D 0.2	2270 C 1.2	2555 D 1.3	1295 D 0.7	957 D 0.5	304 D 0.2	62 D 0.0	396 D 0.2	327 D 0.2	405 D 0.2	1939 B 1.0	463 D 0.2	11418 B 5.8

NOTE: COLUMN AND ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES

```

*****
* STANDARD ERROR * CODE *
* ----- *
* GREATER *
* THAN *
* OR *
* EQUAL TO *
* ----- *
* 0 % * 10 % * A *
* 10 % * 20 % * B *
* 20 % * 30 % * C *
* 30 % * * D *
*****

```


TABLE 2-17. GENERAL AVIATION AIRCRAFT ON LONG-TERM LEASE BY TYPE OF AIRCRAFT AND YEAR OF MANUFACTURE - CY 1977 (2 of 4)

AIRCRAFT TYPE	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1968	UNKNOWN	TOTAL
FIXED WING													
TURBOPROP													
2 ENG 1-12 SEATS	1	20	144	36	56	9	5	0	0	11	45	5	333
% STD ERROR	D	D	D	D	D	D	D	A	A	D	D	D	C
% OF TYPE	0.1	0.9	6.3	1.6	2.5	0.4	0.2	0.0	0.0	0.5	2.0	0.2	14.5
2 ENG 13+ SEATS	0	4	4	0	0	0	0	0	47	6	49	0	109
% STD ERROR	A	D	D	A	A	A	A	A	D	D	D	A	D
% OF TYPE	0.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	8.0	1.1	8.4	0.0	18.8
TOTAL 2 ENG	1	24	148	36	56	9	5	0	47	17	94	5	442
% STD ERROR	D	D	D	D	D	D	D	A	D	D	D	D	B
% OF TYPE	0.0	0.8	5.1	1.3	2.0	0.3	0.2	0.0	1.6	0.6	3.3	0.2	15.4
CIPHER TURBOPROP	0	0	0	0	0	0	0	0	0	2	17	4	23
% STD ERROR	A	A	A	A	A	A	A	A	A	D	C	D	C
% OF TYPE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	17.4	3.6	23.1
TOTAL TURBOPROP	1	24	148	36	56	9	5	0	47	19	111	9	465
% STD ERROR	D	D	D	D	D	D	D	A	D	D	D	D	B
% OF TYPE	0.0	0.8	5.0	1.2	1.9	0.3	0.2	0.0	1.6	0.6	3.7	0.3	15.6

NOTE: COLUMN AND ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES

```

*****
* STANDARD ERROR * CODE *
*-----*-----*
* GREATER * LESS THAN *
* THAN * OR *
* * EQUAL TO *
*-----*-----*
* 0 % * 10 % * A *
* 10 % * 20 % * B *
* 20 % * 30 % * C *
* 30 % * * D *
*****

```

TABLE 2.17. GENERAL AVIATION AIRCRAFT ON LONG-TERM LEASE BY TYPE OF AIRCRAFT AND YEAR OF MANUFACTURE - CY 1977 (3 of 4)

AIRCRAFT TYPE	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	PRIOR UNKNOWN 1968	TOTAL
FIXED WING												
TURBOJET												
2 ENG	0	8	14	28	12	44	0	0	23	21	194	361
	A	D	D	D	D	D	A	A	D	D	C	B
% STD ERROR	0.0	0.4	0.7	1.4	0.6	2.2	0.0	0.0	1.2	1.1	9.7	18.1
% CF TYPE												
OTHER	1	4	0	0	0	0	0	13	0	0	33	63
	D	D	A	A	A	A	A	D	A	A	B	B
% STD ERROR	0.2	0.8	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	6.5	12.7
% CF TYPE												
TOTAL TURBOJET	1	12	14	28	12	44	0	13	23	21	227	425
	D	D	D	D	D	D	A	D	D	D	C	B
% STD ERROR	0.0	0.5	0.6	1.1	0.5	1.8	0.0	0.5	0.9	0.5	9.1	17.0
% CF TYPE												
TOTAL FIXED WING	446	2306	2717	1360	1026	357	67	409	396	446	2277	12308
	D	C	C	D	D	D	D	D	D	D	B	B
% STD ERROR	0.2	1.1	1.3	0.7	0.5	0.2	0.0	0.2	0.2	0.2	1.1	6.1
% CF TYPE												

NOTE: COLUMN AND ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES

```

*****
* STANDARD ERROR * CODE *
* GREATER * LESS THAN *
* THAN * OR *
* EQUAL TO *
* 0 % 10 % A *
* 10 % 20 % B *
* 20 % 30 % C *
* 30 % D *
*****

```

TABLE 2.17. GENERAL AVIATION AIRCRAFT ON LONG-TERM LEASE BY TYPE OF AIRCRAFT AND YEAR OF MANUFACTURE - CY 1977 (4 of 4)

AIRCRAFT TYPE	1977	1976	1975	1974	1973	1972	1971	1970	1969	1968	1968 PRIOR 1968	UNKNOWN	TOTAL
PROPULSION PISTON	EST POPULATION	10	0	10	5	1	2	10	0	0	46	0	85
	% STD ERROR	D	A	D	D	D	D	D	A	A	D	A	D
	% CF TYPE	0.2	0.0	0.2	0.1	0.0	0.0	0.2	0.0	0.0	1.0	0.0	1.8
TURBINE	EST POPULATION	0	44	14	27	199	7	10	6	4	6	16	340
	% STD ERROR	A	D	D	D	D	D	D	D	D	D	D	C
	% CF TYPE	0.0	2.0	0.6	1.2	9.1	0.3	0.4	0.3	0.3	0.3	0.7	15.5
TOTAL ROTORCRAFT	EST POPULATION	10	44	24	33	201	8	6	7	4	51	16	424
	% STD ERROR	D	D	D	D	D	D	D	D	D	D	D	C
	% OF TYPE	0.1	0.6	0.4	0.5	2.9	0.1	0.3	0.1	0.1	0.7	0.2	6.2
OTHER	EST POPULATION	6	13	32	6	24	11	21	1	4	47	18	189
	% STD ERROR	D	D	D	D	D	D	D	D	D	D	D	C
	% OF TYPE	0.1	0.3	0.7	0.1	0.5	0.2	0.5	0.0	0.1	1.1	0.4	4.3
TOTAL AIRCRAFT	EST POPULATION	463	2362	2774	1398	1251	376	109	408	454	2375	535	12921
	% STD ERROR	D	C	C	D	D	D	D	D	D	B	D	B
	% OF POPULATION	0.2	1.1	1.3	0.7	0.6	0.2	0.1	0.2	0.2	1.1	0.3	6.1

NOTE: COLUMN AND ROW SUMMATIONS MAY DIFFER FROM PRINTED TOTALS DUE TO ESTIMATION PROCEDURES

```

*****
* * STANDARD ERROR * * CODE * *
* * ----- * * ----- * *
* * GREATER * * LESS THAN * *
* * THAN * * OR * *
* * ----- * * EQUAL TO * *
* * 0 % * * 10 % * * A * *
* * 10 % * * 20 % * * B * *
* * 20 % * * 30 % * * C * *
* * 30 % * * * * D * *
*****

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TABLE 2-18. GENERAL AVIATION MEAN HOURS AND ACTIVE ENGINES BY ENGINE MANUFACTURER/MODEL GROUP-CY 1977

ENGINE MANUF/ MODEL GROUP	ESTIMATE OF ACTIVE POPULATION	PERCENT STANDARD ERROR	ESTIMATE OF PERCENT ACTIVE	ESTIMATE OF MEAN HOURS	PERCENT STANDARD ERROR
ALLSN 250C	1400	2.3	98.2	682	8.4
AMTRMCHCCULH	156	10.5	33.7	44	14.5
ARSRCHTPE331	810	1.1	99.1	378	6.8
CONT A65	5809	2.7	58.1	64	4.9
CONT A75	1349	10.6	61.5	56	22.4
CONT C145	2178	3.4	90.2	76	14.9
CONT C85	4675	3.2	72.6	56	5.8
CONT C90	2203	3.2	82.4	63	6.8
CONT E185	1684	8.0	77.0	121	15.1
CONT F225	1462	6.0	91.5	76	17.0
CONT O200	14413	4.7	90.4	218	16.0
CONT O300	10395	3.6	96.6	78	17.5
CONT O346	346	4.3	99.2	132	30.2
CONT O470	25310	1.1	97.2	156	6.5
CONT O520	19946	0.7	98.5	304	3.8
CONT R670	525	6.7	50.8	102	12.8
FRMKLNGA4150	633	8.5	55.7	52	12.9
GE CJ610	941	2.2	94.3	514	4.4
JACOBRSR755	136	24.1	32.9	92	11.0
LYC O145	433	8.2	50.3	49	10.3
LYC O235	5037	7.1	85.7	184	26.3
LYC O290	2390	6.9	72.6	71	9.2
LYC O320	31637	1.7	94.6	183	10.2
LYC O360	20198	1.4	96.4	222	6.6
LYC O435	1175	8.1	73.8	194	17.3
LYC O480	1014	2.1	92.7	247	9.2
LYC O540	17313	1.2	97.1	286	6.0
LYC O541	985	1.2	99.3	227	15.2
LYC R680	276	7.7	40.6	86	24.7
PWA J78	753	0.0	100.0	433	16.1
PWA PT6	2218	0.7	99.5	730	5.9
PWA PT6T	129	2.7	98.2	1090	6.8
PWA R1340	1600	4.2	83.4	328	6.2
PWA R985	2981	3.7	66.1	365	5.6
WRIGHTR1820	330	8.4	70.4	135	19.9
ALL ENGINES	208502	0.0	87.1	216	2.4

NOTE: ENGINE MANUFACTURER/MODEL GROUPS FOR WHICH SEPARATE ESTIMATES ARE NOT AVAILABLE ARE NOT LISTED IN THE TABLE, BUT ARE INCLUDED IN THE "ALL ENGINES" ESTIMATES.

APPENDIX A1. FIRST MAILING COVER LETTER

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

WASHINGTON, D.C. 20591

February 15, 1978



Dear Aircraft Owner:

The Federal Aviation Administration is gathering statistical information on the use and characteristics of the general aviation fleet. The enclosed survey questionnaire replaces a form previously mailed annually to all general aviation aircraft owners. This new survey is being mailed to a random sample of only approximately fifteen percent of GA aircraft owners each year, so that it is unlikely that you will be selected for the survey every year.

Survey methods for collecting general aviation activity data will save money for both the federal government and the public. Not only will there be a reduction in the volume of data collected, but also more reliable estimates are expected as a result of statistical sampling.

It is possible that more than one of your aircraft may be selected. When this happens, you will find a separate questionnaire provided for each aircraft sampled. Please answer all questions for the aircraft identified. If you cannot determine precisely an answer to a question, please make your best estimate. If your aircraft is operated principally by another (leased, etc.), please obtain the necessary information from the operator or forward these materials to that person or firm for completion.

Because this survey is based on a sample of GA aircraft, your response is especially important to the accuracy of the results. The data gathered from this survey will be used only to produce summary statistics and not to disclose individual operations nor to make corrections to your aircraft records.

Please return this questionnaire in the enclosed self-addressed, postpaid envelope within 10 days. A prompt response will eliminate the need for additional follow-up contacts and thus enhance the savings associated with the survey. A high response rate in this survey will ensure the continued use of statistical sampling methods in lieu of a mandatory reporting system. We appreciate your cooperation.

Sincerely,

A handwritten signature in cursive script, appearing to read "F. C. Osgood".

F. C. OSGOOD
Chief, Information & Statistics Division

Enclosure

APPENDIX A2: SECOND MAILING COVER LETTER

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

WASHINGTON, D.C. 20591

March 22, 1978



Dear Aircraft Owner:

In February, the Federal Aviation Administration sent aircraft owners a questionnaire as part of its program to gather statistical information on the use and characteristics of the general aviation fleet.

You were one of the aircraft owners selected at random to receive a questionnaire. As of this date, we have not received a response from you. In the event the survey questionnaire has been lost or misplaced, another copy is enclosed for your convenience in responding. A prompt response will eliminate the need for additional follow-up contacts. If you have already responded, please disregard this notice. We appreciate your cooperation.

Sincerely,

A handwritten signature in cursive script, appearing to read "F. C. Osgood".

F. C. OSGOOD
Chief, Information & Statistics Division

Enclosure

APPENDIX A-3. SURVEY QUESTIONNAIRE

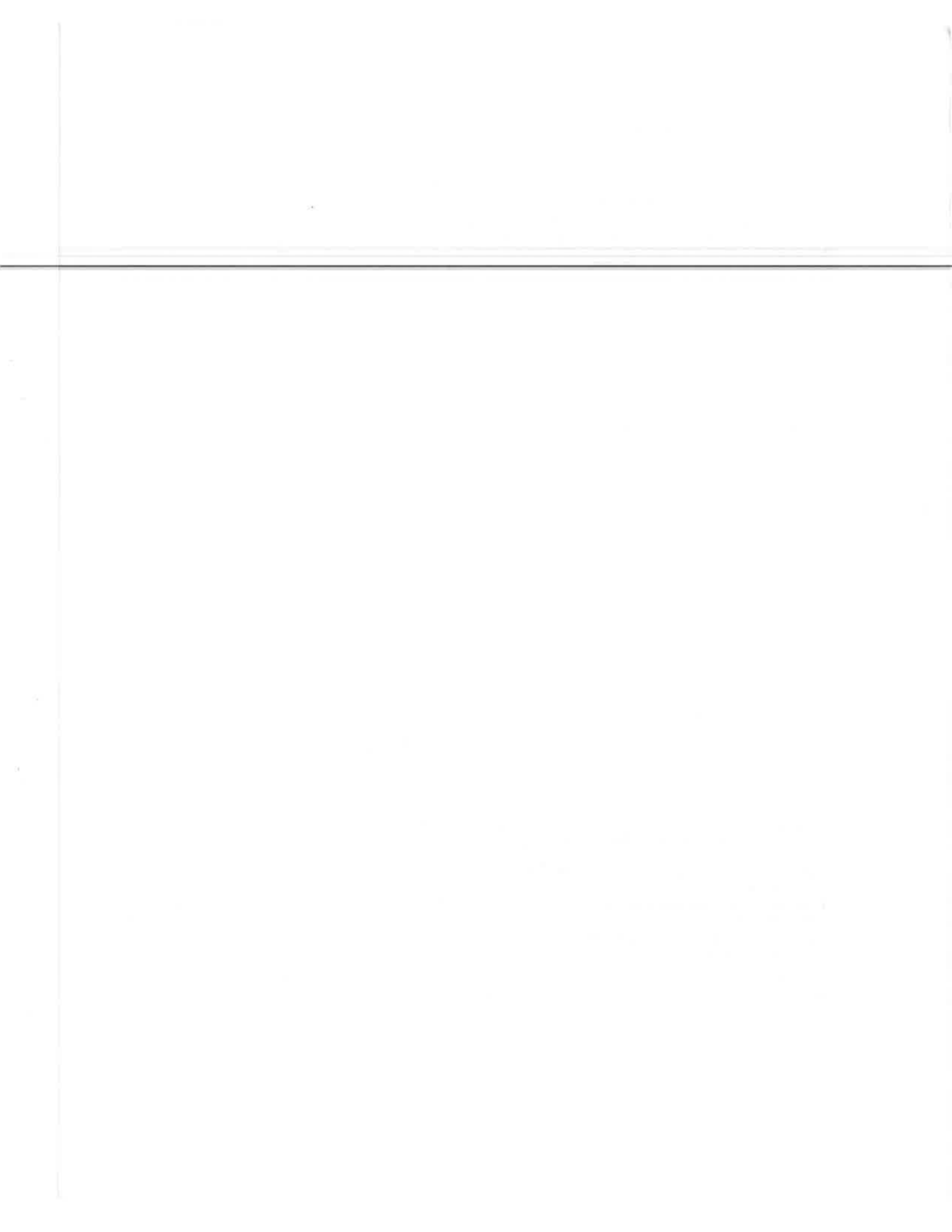
1 CONTROL NUMBER	DEPARTMENT OF TRANSPORTATION—FEDERAL AVIATION ADMINISTRATION GENERAL AVIATION ACTIVITY and AVIONICS SURVEY (As of December 31, 1977)	Form Approved OMB No 04—R0185
This report is authorized by Section 311 of the Federal Aviation Act of 1958, as amended. While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate and timely. Information collected in this survey will be used for statistical purposes only and not to disclose individual aircraft activity.		2 <input type="checkbox"/> "X" here if you operate your aircraft principally as an air carrier (under FAR 121 or 127). If so, DO NOT complete remainder of form. However, please return to address shown below. ▼

3. AIRCRAFT CHARACTERISTICS

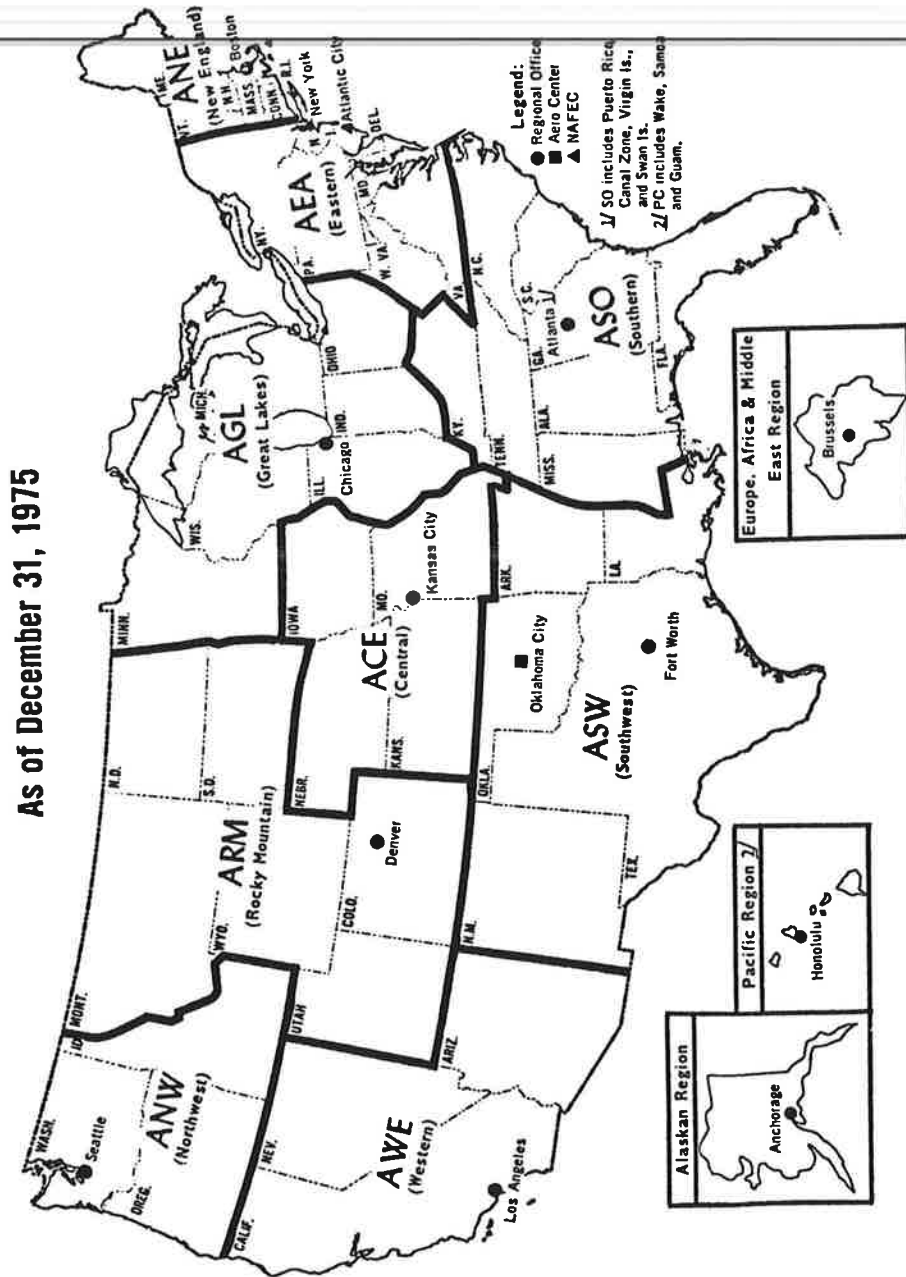
Federal Aviation Administration
P.O. Box 28045
Oklahoma City, Oklahoma 73126

INSTRUCTIONS: Please answer questions for the aircraft identified at right. Mail the completed questionnaire in the enclosed postage paid envelope to

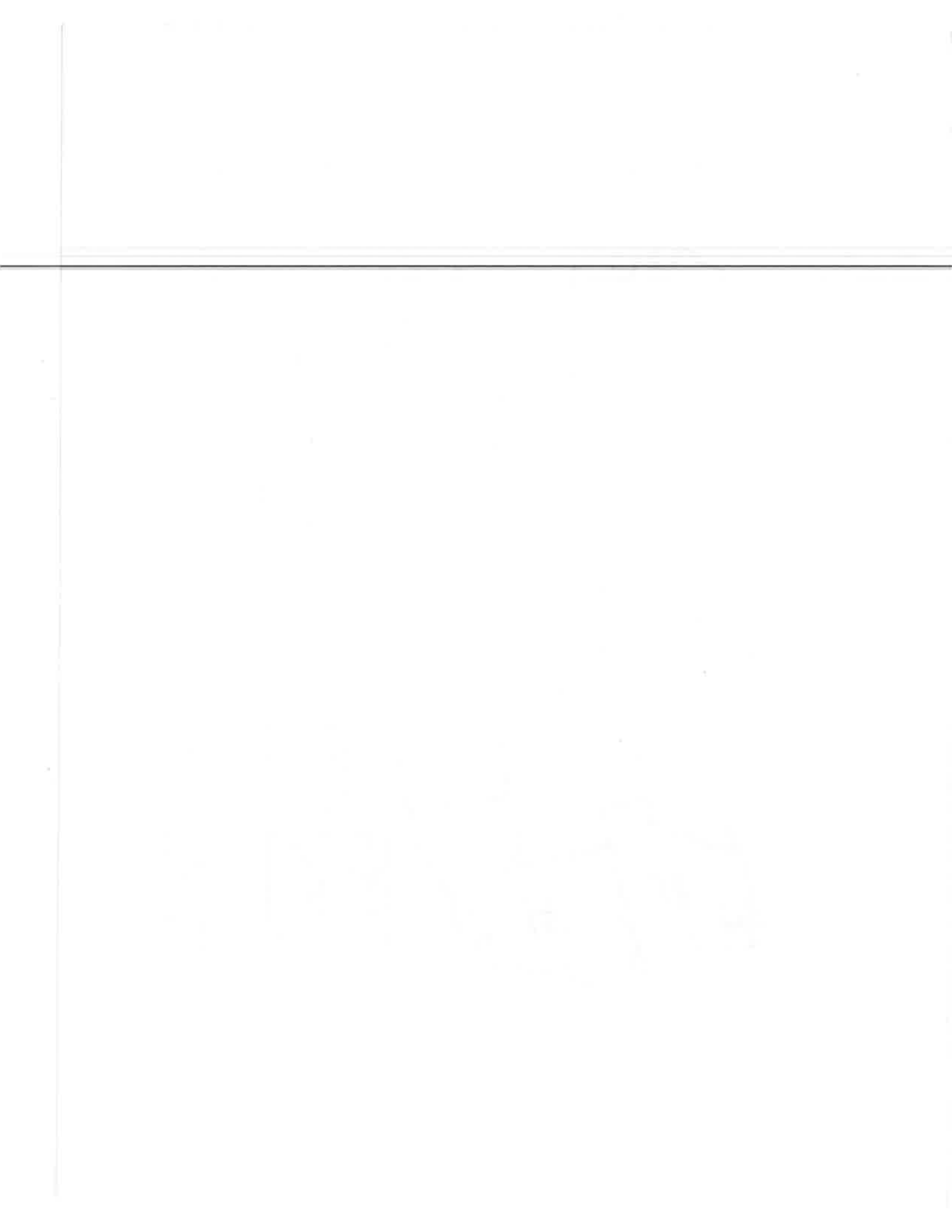
<p>4. What were the total lifetime airframe hours as of December 31, 1977?</p> <p>5. Was aircraft flown in Calendar Year 1977? 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No (Skip to question 9)</p> <p>6. HOURS FLOWN DURING CALENDAR YEAR 1977</p> <p>a. If you did not own aircraft for entire year, "X" box and include previous owner's hours in your estimates</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;"></td> <td style="text-align: center; border: 1px solid black;">"X"</td> </tr> <tr> <td style="border: 1px solid black;">EXECUTIVE—Corporate flying with professional crew</td> <td style="border: 1px solid black;">b</td> </tr> <tr> <td style="border: 1px solid black;">BUSINESS—All non-executive flying for business reasons</td> <td style="border: 1px solid black;">c</td> </tr> <tr> <td style="border: 1px solid black;">PERSONAL—Individual flying for personal reasons</td> <td style="border: 1px solid black;">d</td> </tr> <tr> <td style="border: 1px solid black;">AERIAL APPLICATION—Agriculture, health, forestry</td> <td style="border: 1px solid black;">e</td> </tr> <tr> <td style="border: 1px solid black;">INSTRUCTIONAL—Flying with or under supervision of a flight instructor</td> <td style="border: 1px solid black;">f</td> </tr> <tr> <td style="border: 1px solid black;">AIR TAXI—All Part 135 passenger, cargo, and mail operations, including charter</td> <td style="border: 1px solid black;">g</td> </tr> <tr> <td style="border: 1px solid black;">INDUSTRIAL/SPECIAL—Patrol, survey, photo, hoist, etc.—Other than Part 135</td> <td style="border: 1px solid black;">h</td> </tr> <tr> <td style="border: 1px solid black;">AIRCRAFT RENTAL BUSINESS—Commercial flying club, leased and rental aircraft activity</td> <td style="border: 1px solid black;">i</td> </tr> <tr> <td style="border: 1px solid black;">OTHER—R&D, government, air show, sales, parachuting, etc.</td> <td style="border: 1px solid black;">j</td> </tr> </table> <p>7. Was this aircraft flown on an Instrument Flight Plan in 1977? 1 <input type="checkbox"/> No 2 <input type="checkbox"/> Yes → Hours flown →</p> <p>8. Estimate of this aircraft's average rate of fuel consumption (gal./hr.) during 1977</p> <p>9. State (Abbreviation) in which aircraft was based as of December 31, 1977</p> <p>10. Was this aircraft on long-term lease during 1977? (Principal use for three months or more by operator other than owner.) 1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No</p>		"X"	EXECUTIVE—Corporate flying with professional crew	b	BUSINESS—All non-executive flying for business reasons	c	PERSONAL—Individual flying for personal reasons	d	AERIAL APPLICATION—Agriculture, health, forestry	e	INSTRUCTIONAL—Flying with or under supervision of a flight instructor	f	AIR TAXI—All Part 135 passenger, cargo, and mail operations, including charter	g	INDUSTRIAL/SPECIAL—Patrol, survey, photo, hoist, etc.—Other than Part 135	h	AIRCRAFT RENTAL BUSINESS—Commercial flying club, leased and rental aircraft activity	i	OTHER—R&D, government, air show, sales, parachuting, etc.	j	<p>11. AVIONICS EQUIPMENT CAPABILITY ("X" ALL boxes that reflect this aircraft's current capability.)</p> <p>VHF COMMUNICATIONS EQUIPMENT "X"</p> <p>VHF Communications System:</p> <p>360 Channels or less a <input type="checkbox"/></p> <p>720 Channels or more b <input type="checkbox"/></p> <p>More than one comm. system c <input type="checkbox"/></p> <p>No VHF Communications Equipment d <input type="checkbox"/></p> <p>TRANSPONDER EQUIPMENT</p> <p>4096 Code e <input type="checkbox"/></p> <p>Altitude Encoding Equipment f <input type="checkbox"/></p> <p>No Transponder Equipment g <input type="checkbox"/></p> <p>NAVIGATION EQUIPMENT</p> <p>VOR Receiver:</p> <p>100 Channels h <input type="checkbox"/></p> <p>200 Channels i <input type="checkbox"/></p> <p>More than one VOR Receiver j <input type="checkbox"/></p> <p>Automatic Direction Finder (ADF) k <input type="checkbox"/></p> <p>Distance Measuring Equipment (DME) l <input type="checkbox"/></p> <p>Area Navigation Equipment (RNAV) m <input type="checkbox"/></p> <p>Long Range Nav. (Doppler, INS, Other) n <input type="checkbox"/></p> <p>Automatic Pilot o <input type="checkbox"/></p> <p>Radar Altimeter p <input type="checkbox"/></p> <p>Weather Radar q <input type="checkbox"/></p> <p>No Navigation Equipment r <input type="checkbox"/></p> <p>ILS RECEIVING EQUIPMENT</p> <p>Localizer s <input type="checkbox"/></p> <p>Marker Beacon t <input type="checkbox"/></p> <p>Glide Slope u <input type="checkbox"/></p> <p>Microwave Landing System v <input type="checkbox"/></p> <p>No ILS Receiving Equipment w <input type="checkbox"/></p>
	"X"																				
EXECUTIVE—Corporate flying with professional crew	b																				
BUSINESS—All non-executive flying for business reasons	c																				
PERSONAL—Individual flying for personal reasons	d																				
AERIAL APPLICATION—Agriculture, health, forestry	e																				
INSTRUCTIONAL—Flying with or under supervision of a flight instructor	f																				
AIR TAXI—All Part 135 passenger, cargo, and mail operations, including charter	g																				
INDUSTRIAL/SPECIAL—Patrol, survey, photo, hoist, etc.—Other than Part 135	h																				
AIRCRAFT RENTAL BUSINESS—Commercial flying club, leased and rental aircraft activity	i																				
OTHER—R&D, government, air show, sales, parachuting, etc.	j																				
Continue with Question 11	<div style="border: 2px solid black; padding: 10px; display: inline-block;"> <p style="text-align: center; margin: 0;">THANK YOU FOR YOUR COOPERATION</p> </div>																				



APPENDIX B.
 FEDERAL AVIATION ADMINISTRATION REGIONS AND REGIONAL OFFICES



FAA Air Traffic Activity Calendar Year 1977, (March, 1978), p. 10.



BIBLIOGRAPHY

Census of U.S. Civil Aircraft Calendar Year 1977, U.S. Department of Transportation, Federal Aviation Administration, Washington, D.C.: U.S. Government Printing Office, 1979.

Code of Federal Regulations, Aeronautics and Space, Title 14, Parts 60 to 199, U.S. General Services Administration, National Archives and Records Service, Washington, D.C.: U.S. Government Printing Office, 1978.

FAA Air Traffic Activity Calendar Year 1977, U.S. Department of Transportation, Federal Aviation Administration, Washington, D.C.: U.S. Government Printing Office, 1978.

Standards for Discussion and Presentation of Errors in Data, U.S. Department of Commerce, Bureau of the Census, Washington, D.C.: U.S. Government Printing Office, 1974.

*U.S. GOVERNMENT PRINTING OFFICE: 1979 - 601-461/71

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