

**Survey of Companies Using  
Turbine-Powered General Aviation Aircraft  
for Business Transportation**

Conducted for:

**National Business Aircraft Association, Inc.**

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# Table of Contents

<b>List of Tables</b> .....	iv
<b>Introduction:</b>	
Methodological Overview .....	i
Notes on Reading Tables.....	i
Project Responsibility and Acknowledgments.....	i
Public Release of Survey Findings.....	i
<b>Executive Summary</b> .....	ii
<b>Chapter One:</b>	
Who Flies on Business Aircraft? .....	1
Number of People Flown on Business Aircraft.....	1
Classification of Business Aircraft Passengers by Title.....	1
<b>Chapter Two:</b>	
Flying on Business Aircraft .....	6
Passenger Flight Frequency.....	6
Reasons for Using Company Aircraft.....	6
Locations Flown to Using Business Aircraft .....	6
<b>Chapter Three:</b>	
Productivity and Use of Time on Company Aircraft.....	10
Use of Time Aboard Aircraft.....	10
Productivity Aboard Company Aircraft.....	10
<b>Chapter Four</b>	
Authorization and Impact of Price on Company Aircraft Use.....	15
<b>Chapter Five</b>	
Characteristics of Business Aircraft Fleet.....	17
Total.....	20
One business aircraft.....	20
<b>Appendix A:</b>	
Survey Methodology.....	23
Telephone Interviewing Procedures.....	23
Self-Completion Survey Procedures.....	23
Weighting of Data .....	23
Reliability of Survey Percentages.....	24
CATI System Used in Interviews for the United States .....	25

## List of Tables

### **Chapter One:**

Table 1-1	Q.A1 Number of Passengers Flown - Total Count.....	2
Table 1-2	Q.A3 Number of Passengers Flown - Individual Count.....	3
Table 1-3	Q.A2 Passenger Profile by Title - Total Count.....	3
Table 1-4	Q.A4 Passenger Profile by Title - Individual Count.....	4
Table 1-5	Q.F3 Passenger Profile by Title - Self-reported.....	5
Table 1-6	Summary of Passenger Profile by Title .....	5

### **Chapter Two:**

Table 2-1	Q.A1 Business Trips Taken.....	7
Table 2-2	Q.A2a Aircraft Flown.....	7
Table 2-3	Q.B1/B1a Reasons for Use of Company Aircraft.....	8
Table 2-4	Q.C1/2/3 Types of Airports Flown Into.....	9
Table 2-5	Q.F1/2/3 Types of Locations Flown Into.....	9

### **Chapter Three:**

Table 3-1	Q.C1, C2 Use of Time Aboard Aircraft .....	11
Table 3-2	Q.D2/3 Laptop Computer Use Aboard Aircraft.....	12
Table 3-3	Q.D1 Productivity Aboard Aircraft .....	13
Table 3-4	Q.D1a-d Productivity Aboard Aircraft.....	14
Table 3-5	Q.F4/5 Cost and Value of Passenger Time.....	14

### **Chapter Four:**

Table 4-1	Q.E1 Employees Able to Authorize Use of Company Aircraft.....	15
Table 4-2	Q.E2/3/4 Impact of Price Increase on Use of Company Aircraft.....	16
Table 4-3	Q.E2/3/4 Percent Change in Use of Company Aircraft .....	16

### **Chapter Five:**

Table 5-1	Q.S1 Number of Aircraft Operated.....	18
Table 5-2	Q.D2/8/14/20 Type of Aircraft Operated .....	18
Table 5-3	Q.D3a/9a/15a/21a Size of Jet .....	19
Table 5-4	Q.D3b/9b/15b/21b Size of Turboprop.....	19
Table 5-5	Q.D4/10/16/22 Annual Number of Flight Hours .....	20
Table 5-6	Q.D5/11/17/23 Average Trip Length.....	20
Table 5-7	Q.D6/12/18/24 Average Passenger Count.....	21
Table 5-8	Q.D7/13/19/25 Practical Maximum Number of Passengers Carried .....	21
Table 5-9	Q.D26 Office Equipment Onboard Aircraft .....	22

### **Appendix A:**

Table A-1	Effect of Weighting on Chief Pilot Sample.....	24
Table A-2	Approximate Sampling Tolerances (At 95 percent Confidence) To Use In Evaluating Percentage Results Appearing In This Report.....	24
Table A-3	Approximate Sampling Tolerances (At 95 percent Confidence) To Use In Evaluating Differences Between Two Percentage Results Appearing In This Report.....	25

## Introduction

The *Survey of Companies Using Turbine-Powered General Aviation Aircraft for Business Transportation* was conducted by Louis Harris and Associates, Inc. on behalf of the National Business Aircraft Association to identify and describe the characteristics of passengers flying on business aircraft (defined as turbine-powered, turboprop, or jet aircraft) in America and to better understand why and how they use those aircraft. The survey was designed to explore the following broad areas:

- Who Flies on Business Aircraft
- Reasons for and Frequency of Company Aircraft Use
- Productivity and Use of Time Aboard Company Aircraft
- Authorization and Impact of Price on Company Aircraft Use

### ***Methodological Overview***

The findings described in the *Survey of Companies Using Turbine-Powered General Aviation Aircraft for Business Transportation* are based on interviews with both business aircraft pilots and passengers. These interviews were conducted in two overlapping phases. Phase one was conducted by telephone with 301 Chief Pilots and Directors of Flight Operations. Interviews averaging 13 minutes in length were conducted between April 3 and April 15, 1997. Phase two included the responses of 346 passengers on business aircraft and were collected between April 7 and May 12, 1997. Phase two surveys were distributed to passengers aboard business aircraft; the passengers completed the surveys and mailed them back to Louis Harris and Associates. A detailed methodology is outlined in Appendix A of this report. The survey questionnaires appear in Appendix B.

### ***Notes on Reading Tables***

The base for each question is the total number of respondents answering that question. All bases sizes shown in the report are unweighted; percentages for chief pilot responses are weighted, percentages for passengers are not. An asterisk (\*) on a table signifies a value of less than one-half percent (0.5 percent). A dash represents a value of zero. Percentages may not always add up to 100 percent because of computer rounding or the acceptance of multiple answers from respondents answering that question. Note that in some cases results may be based on small sample sizes. This is typically true when questions were asked of subgroups. Caution should be used in drawing any conclusion from results based on these small samples.

### ***Project Responsibility and Acknowledgments***

The Harris team responsible for the design and analysis of the survey included David Krane, Executive Vice President, and Amy Cottreau, Research Associate. David Almy, Vice President, Communications at NBAA, provided an invaluable contribution to the design of the questionnaire. Louis Harris and Associates, Inc. is responsible for final determination of topics, question wording, collection of data, analysis and interpretation in the report.

### ***Public Release of Survey Findings***

All Louis Harris and Associates, Inc. surveys are designed to comply with the code and standards of the Council of American Survey Research Organizations (CASRO) and the code of the National Council of Public Polls (NCPP). Because data from the survey may be released to the public, any release must stipulate that the complete report is also available.

## Executive Summary

The stereotypical image of the business aircraft passenger is that of the high-power executive or company CEO jetting across the country between major U.S. cities. In reality, the users of business aircraft are not only top and senior management but often middle managers, technical and support staff, as well as customers conducting business while aboard the aircraft.

The results of the *Survey of Companies Using Turbine-Powered General Aviation Aircraft for Business Transportation* are based on interviews conducted with both chief pilots and passengers of business aircraft and reveal a number of interesting findings which are highlighted in this section:

### ***An average of 800 passengers per company were flown on business aircraft in the last six months.***

- Companies with more than one aircraft generally carry more passengers, averaging 1,400 passengers in the last half year as compared with 425 passengers flown by companies with only one business aircraft.
- Discounting for those passengers who flew on more than one flight in this period, the individual count of the number of people flown on business aircraft averages just under 500 people (478) in the last six months. Again, those companies with only one aircraft carried fewer individuals, on average, than those companies with multiple aircraft (271 people vs. 830 people).

### ***Employees with varying titles and from diverse positions all use company aircraft.***

- Chief pilots report that top management was the largest group of passengers over the last six months.
- The majority of passengers surveyed were middle-management employees.

### ***The majority (61 percent) of business travel taken by air is flown on company aircraft.***

- The ability to efficiently meet business schedules is cited by chief pilots and passengers alike as the main reason why employees fly on company aircraft.
- The destination of most business aircraft flights (39 percent) is an airport with infrequent or no scheduled airline service.

### ***Passengers of business aircraft are more productive aboard company aircraft than in the office or aboard commercial aircraft.***

- Passengers report spending nearly half (48 percent) of their time aboard company aircraft in work-related meetings, conferences, or discussions with other company employees or customers, compared with only 8 percent of time in these activities while aboard commercial aircraft.
- Compared with a typical office productivity level of 5.0, passengers rank their productivity while aboard the company jet at 6.2, while productivity aboard commercial airline aircraft is only 3.2.

### ***Significant majorities of those passengers who are able to authorize the use of company aircraft report their use of business aircraft would change if the cost of a flight were to increase.***

- Authorizing passengers who make decisions about whether or not to use company aircraft estimate a decrease in business aircraft use of more than 50 percent if the cost of a flight were to increase by \$300 per takeoff and landing.

## CHAPTER ONE

### Who Flies on Business Aircraft?

The stereotypical image of the business aircraft passenger is that of the high-power executive or company CEO jetting across the country between major U.S. cities. In reality, the users of business aircraft are not only top and senior management but often middle managers, technical and support staff, as well as customers.

#### ***Number of People Flown on Business Aircraft***

Examining and categorizing the passengers of business aircraft requires that common methods of measurement be defined. From the chief pilot's perspective, passengers can be measured in two ways:

- The first method counts the number of passengers on each flight over the given period of time. If one person is a passenger three times, then that person represents three passengers in this passenger count.
- The second method is to consider only the number of different people who have been passengers, regardless of the number of times each may have flown. If one person is a passenger three times, that person still only represents one passenger in this passenger count.

Both of these passenger count methods were used to collect data from chief pilots regarding the number of passengers they have flown.

When asked approximately how many passengers flew on business aircraft owned or operated by their company over the last six months, chief pilots report an average of just under 800 (798) passengers. As would be expected, the number of passengers flown on business aircraft varies dramatically depending on the number of aircraft operated by the company. Comparisons based on fleet size show that those companies with only one business aircraft had an average of 425 passengers over the last six months, while those companies that charter or operate more than one business aircraft averaged over 1,400 passengers in the last half year. Furthermore, the majority (51 percent) of chief pilots at those companies with only one business aircraft report that over the last six months they have flown 250 or fewer passengers. The majority (54 percent) of companies with more than one business aircraft, by contrast, report flying more than 575 passengers over this same time period (Table 1-1).

When asked how many people would be present if all the passengers who flew in the last six months on business aircraft chartered or operated by their company were standing in a hanger at once, chief pilots report an average of 478 people, implying that nearly half of their business aircraft passengers flew on multiple flights. Differences again are stark between companies with one aircraft and those operating multiple aircraft. Nearly one-fourth (24 percent) of those companies who charter or operate only one business aircraft have flown 25 or fewer people in the past six months with the overall average for one-aircraft companies being 271 people. Multiple aircraft companies, by contrast, average 830 different people flown over the last six months, and over one-fourth of these companies report more than 625 different people flown (Table 1-2).

#### ***Classification of Business Aircraft Passengers by Title***

The classification of these passengers by title also differs depending on whether one is measuring all passengers across all flights or individual passengers only. Chief pilots report that of the total number of passengers flown in the last six months the majority (57 percent) were top managers (Chairman, CEO, COO, CFO, Board Directors) or senior managers (Executive or Senior Vice President). Middle managers (Vice President, General Manager, Director) and Technical, Sales, Service, Professional or Contract staff comprised just over one-fourth (26 percent) of those passengers, and 1 out of 10 passengers in the last six months was a customer.

Chief pilots of companies who operate only one business aircraft report that slightly more of their passengers in the last six months were top or senior management, compared with chief pilots of those companies with more

than one business aircraft (62 percent vs. 50 percent). Similarly, chief pilots of companies who operate multiple business aircraft report carrying nearly twice as many middle management passengers as those companies with only one business aircraft (20 percent vs. 11 percent) (Table 1-3).

The group of passengers who have flown on business aircraft chartered or operated by their company were characterized differently by chief pilots. One-third of these people are classified by chief pilots as being top management. Comparing this percentage with the 40 percent chief pilots reported for top management in general (Table 1-3), implies that this group flew more frequently over the last six months than did other groups. Middle management, technical sales and professional staff, as well as customers, all increased slightly in their percentage of the total passenger classification over the last six months, which indicates that they flew less often than top management (Table 1-4).

A final perspective on the classification of the passengers of business aircraft by title comes from the passengers themselves. Nearly half (49 percent) of surveyed business aircraft passengers report they are middle management, compared to the 15 percent which chief pilots identify as middle management — nearly double the proportion of passengers who identify themselves as top or senior management (28 percent). Technical, sales and service professionals comprise the remaining one-fifth of business aircraft passengers (Table 1-5).

Given these three varying pictures, what exactly is the breakdown of business aircraft passengers? It is clear that who is measuring and how it is being done can result in significant differences in the profile of business aircraft passengers that emerges. This may be attributable to several factors. Chief pilots, in describing their passengers, may not know the positions and titles of those people who fly on their company’s aircraft (especially lower-level employees.) This is probably particularly true in large companies operating more than one business aircraft. Additionally, chief pilots might be inclined to over-represent top and senior management due to their high profile and visibility. The passenger survey may not completely reflect the true demographics of business aircraft passengers as upper-management may have chosen not to participate in the study at a higher rate than their colleagues. (See methodology in Appendix A for further details.) The actual profile of business aircraft passengers is probably somewhere in between the chief pilots’ profile — in which top and senior management comprise the majority of passengers — and the profile from the passengers themselves, in which middle management represents the largest group of passengers.

**Table 1-1 Q.A1 Number of Passengers Flown - Total Count**

Q: Over the last six months, a total of approximately how many passengers flew on business aircraft chartered or operated by your company?

**Base: Chief Pilots**

<b>Base</b>	<b>Total (301)</b>	<b>One business aircraft (156)</b>	<b>More than one business aircraft (145)</b>
	%	%	%
1-75 passengers	22	28	12
76-250 passengers	18	23	10
251-575 passengers	23	25	20
576-1,600 passengers	19	14	28
1,600 or more passengers	12	4	26
Don't know	6	6	4
MEAN (No. of Passengers)	798	425	1,413

**Table 1-2 Q.A3 Number of Passengers Flown - Individual Count**

Q: If all the passengers who flew on business aircraft chartered or operated by your company in the last six months were standing in a hanger at once, how many people would be there?

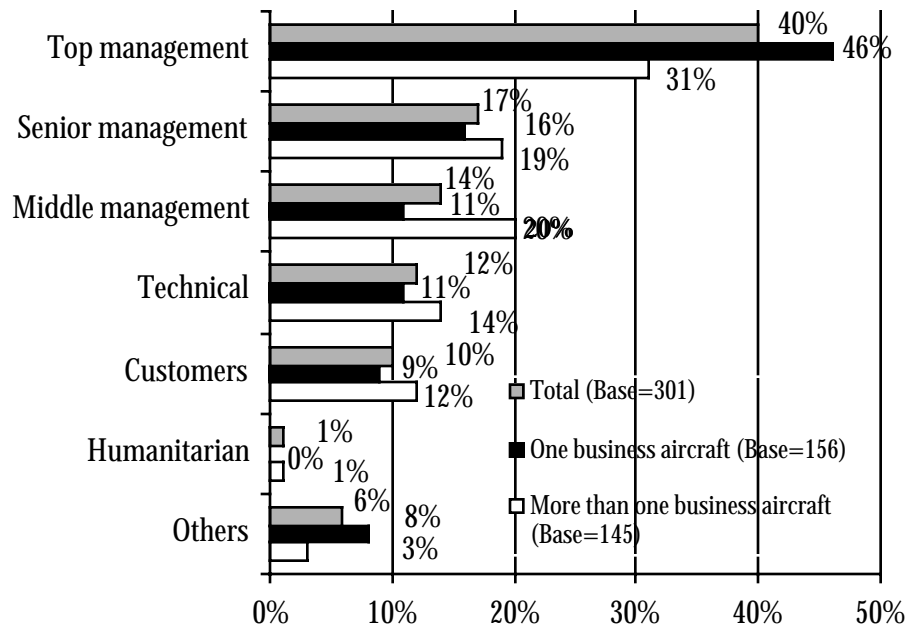
**Base: Chief Pilots**

Base	Total (301)	One business aircraft (156)	More than one business aircraft (145)
	%	%	%
1-25 passengers	18	24	8
26-75 passengers	22	28	13
76-250 passengers	20	17	24
251-625 passengers	19	17	21
626 or more passengers	15	8	27
Don't know/Refused	6	6	6
MEAN (No. of Passengers)	478	271	830

**Table 1-3 Q.A2 Passenger Profile by Title - Total Count**

Q: What percent of those passengers were [READ EACH ITEM]?

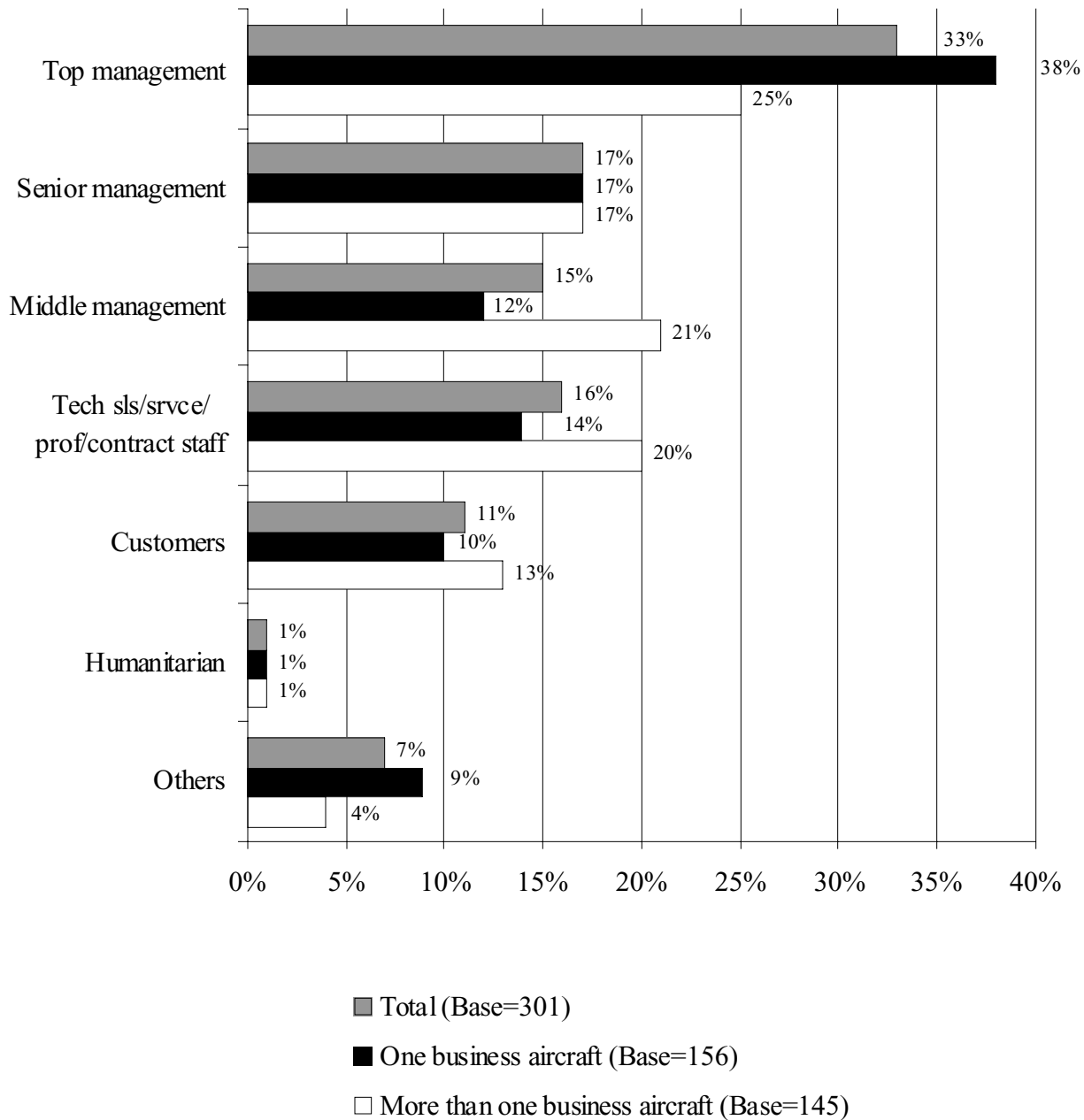
**Base: Chief Pilots**



**Table 1-4 Q.A4 Passenger Profile by Title - Individual Count**

Q: What percent of the people standing in that hangar would be [READ EACH ITEM]?

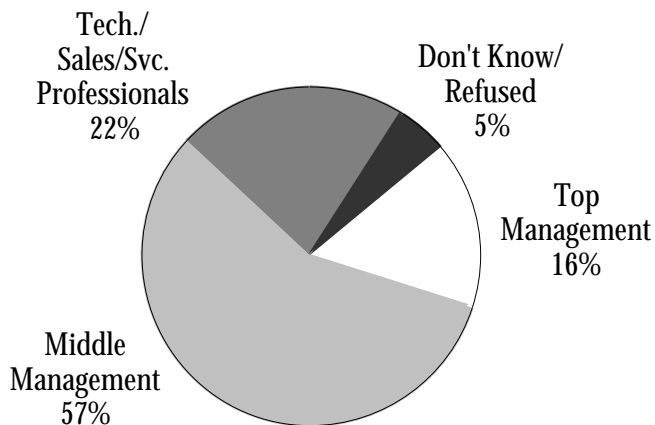
**Base: Chief Pilots**



**Table 1-5 Q.F3 Passenger Profile by Title - Self-reported**

Q: What is your title?

**Base: Passengers (n=346)**



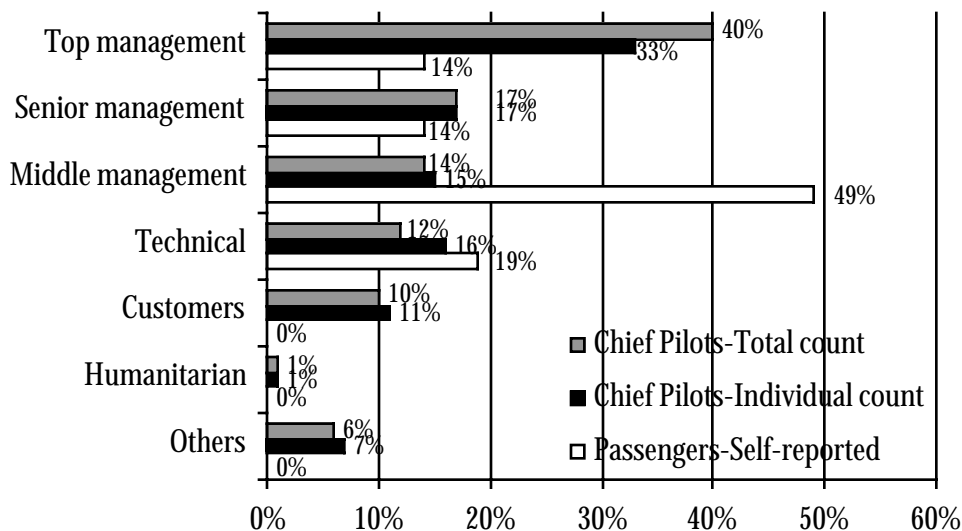
**Table 1-6 Summary of Passenger Profile by Title**

Q: (Total count) What percent of those passengers were [READ EACH ITEM]?

Q: (Individual count) What percent of the people standing in that hangar would be [READ EACH ITEM]?

Q: (Self-reported) What is your title?

**Base: Chief Pilots/Passengers**



## CHAPTER TWO

### Flying on Business Aircraft

#### ***Passenger Flight Frequency***

The average business aircraft passenger reports taking 21 business trips which involved travel by air over the last six months. Only 1 in 10 (10 percent) business aircraft passengers report taking less than one trip a month in the last half year, with fully one third (34 percent) taking more than 20 business trips by air. (Table 2-1)

The majority (61 percent) of these passengers' business trips were flown on company operated aircraft. Passengers report that slightly less than one-third (31 percent) of the business trips they took by air in the last six months were flown on scheduled commercial airlines. (Table 2-2) Combining these two figures, one can estimate that the average business aircraft passenger takes 26 business trips flying on company-operated aircraft and 13 business trips using scheduled commercial airlines during a typical year.<sup>1</sup>

#### ***Reasons for Using Company Aircraft***

Chief pilots and passengers of business aircraft share a similar understanding of why passengers fly using company aircraft. The majority (68 percent) of chief pilots state that the main reason why passengers fly on company aircraft is because their business schedules could not be efficiently met using scheduled airlines. Passengers of business aircraft agree, stating that just over 60 percent (61 percent) of their travel aboard company aircraft is done to support business schedules that could not be efficiently met using scheduled airlines. Another 25 percent of passengers' travel aboard company aircraft is done to reach locations that the scheduled airlines do not serve. One-fourth of chief pilots name this as the main reason why their passengers use company aircraft (Table 2-3).

The ability to efficiently support business schedules and reach non-serviced locations are clearly the main reasons why business aircraft are being used. Less than 10 percent of passengers and chief pilots cite industrial security or connecting with scheduled airline flights as being a major reason for using company aircraft.

#### ***Locations Flown to Using Business Aircraft***

In serving their passengers' needs to meet business schedules and reach alternative locations, chief pilots report that most flights are made into an airport with infrequent or no scheduled airline service (39 percent). Flights into major hub (28 percent) and secondary (34 percent) airports served by a scheduled airline account for the remaining 60 percent of all flights. This breakdown in percent of flights flown into the various types of airports remains relatively similar regardless of the number of business aircraft operated by the company (Table 2-4).

In making these flights, chief pilots fly to many different locations, serving different company needs. Over the last six months, chief pilots report flying to an average of 28 different customer offices or facilities, 26 different company-owned offices or facilities, and 16 different locations seeking out new business (Table 2-5).

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<sup>1</sup> These figures were derived by extrapolating the six-month, 21.4 business trip average to 43 per year and applying the percentage taken aboard varying types of aircraft.

**Table 2-1 Q.A1 Business Trips Taken**

Q: In the past six months, how many business trips did you take which involved travel by air?

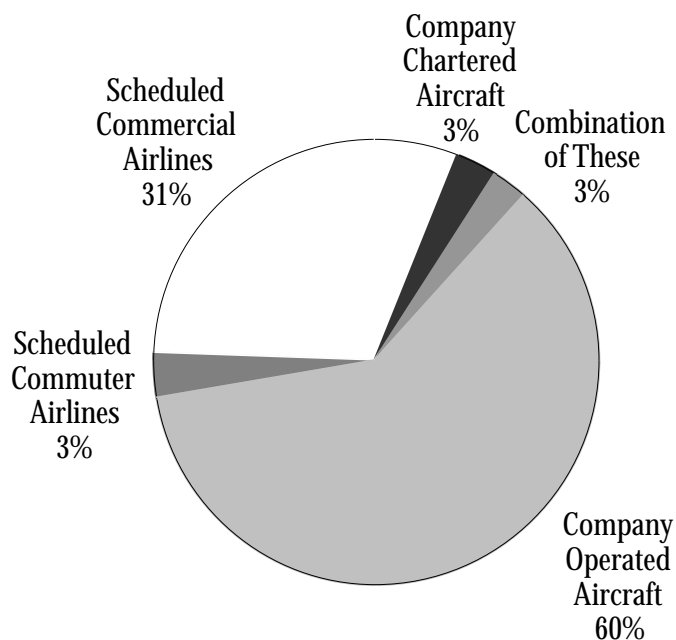
**Base: Passengers**

Base	Total (346)
	%
1-5 trips	10
6-10 trips	21
11-15 trips	18
16-20 trips	14
21-30 trips	18
31 or more trips	16
Don't know	4
MEAN (Number of Trips)	21

**Table 2-2 Q.A2a Aircraft Flown**

Q: Approximately what percent of all the business trips that you took by air in the last six months were flown on [READ EACH ITEM]?

**Base: Passengers (n=346)**



**Table 2-3 Q.B1/B1a Reasons for Use of Company Aircraft**

Q: Thinking about why your passengers fly on company aircraft, which of the following would you say is the main reason that your passengers use your company's aircraft?

Q: Approximately what percent of your travel aboard company aircraft is [READ EACH ITEM]?

**Base: Chief Pilots and Passengers**

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	<b>Chief Pilots</b>
<b>Base</b>	<b>(301)</b>
	%
Their business schedules could not be efficiently met using scheduled airlines	68
Company aircraft are able to reach locations that the scheduled airlines do not serve	25
Company aircraft are used to make connections with scheduled airline flights	*
Company aircraft are used to ensure industrial security	1
Some other reason	6

	<b>Passengers</b>
<b>Base</b>	<b>(346)</b>
	%
To support business schedules that could not be efficiently met using scheduled airlines	61
To reach locations that the scheduled airlines do not serve	25
To make connections with scheduled airline flights	5
For industrial security purposes	1
Don't know	7

**Table 2-4 Q.C1/2/3 Types of Airports Flown Into**

Q: Approximately what percent of your flights are into [READ EACH ITEM]?

**Base: Chief Pilots (n=301)**

---

	<b>Total</b>	<b>One business aircraft</b>	<b>More than one business aircraft</b>
<b>Base</b>	<b>(301)</b>	<b>(156)</b>	<b>(145)</b>
	%	%	%
A major hub airport served by a scheduled airline	28	29	26
A secondary airport served by a scheduled airline	34	34	33
An airport with infrequent or no scheduled airline service	39	38	41

**Table 2-5 Q.F1/2/3 Types of Locations Flown Into**

Q: In the last six months, to how many [READ EACH ITEM] did you fly?

**Base: Chief Pilots (n=301)**

---

	<b>Mean No. of locations</b>
Different customer offices or facilities	28
Different office or facilities owned by your company	26
Different locations to seek out new business	16

## CHAPTER THREE

### Productivity and Use of Time on Company Aircraft

In comparison to commercial aircraft, company aircraft are much more conducive to conducting work-related meetings with company employees and customers and provide a much more productive work environment for business aircraft passengers. When considering the cost and value of business aircraft passengers' time, these productivity and time-use considerations reveal the potential economic impact of business aircraft use.

#### *Use of Time Aboard Aircraft*

Looking at what percent of time aboard company and commercial aircraft is spent doing various activities, stark differences emerge in the use of time aboard the different types of aircraft. While aboard company aircraft, passengers report that they spend nearly half of their time (48 percent) in work-related meetings, conferences or discussions with other company employees or customers onboard or via telephone. This is eight times the amount of time spent in similar activities aboard commercial aircraft, where passengers report spending only 6 percent of their time in work-related meetings with company employees or customers. The majority of these meetings are with other company employees, which suggests they use company aircraft as a mobile office.

Individual work-related study or analysis accounts for just over one-fourth (28 percent) of the average business aircraft passenger's time aboard company aircraft; however, it is the leading use of time aboard commercial aircraft, taking up nearly four-tenths (38 percent) of the time spent aboard commercial aircraft. The other significant activity done while on commercial aircraft is sleeping or resting, which accounts for nearly one quarter (23 percent) of time spent aboard commercial aircraft. This is more than double the time spent sleeping or resting while on company aircraft (11 percent) (Table 3-1).

Passengers of business aircraft also are more likely to use a laptop computer while aboard company aircraft than they are while aboard airline or commuter aircraft. Twice as many passengers report using a laptop at least somewhat often while aboard company aircraft than while aboard airline or commuter aircraft (27 percent vs. 13 percent) (Table 3-2). Clearly, business aircraft passengers find that much more of their time aboard company aircraft is spent involved in work-related meetings and activities, compared to their time aboard commercial aircraft.

#### *Productivity Aboard Company Aircraft*

Not only are business aircraft passengers more likely to be engaged in work-related meetings and activities while aboard company aircraft, their time spent in these activities is viewed as being more productive than even normal office time. Business aircraft passengers report a productivity increase of 24 percent while aboard a company jet as compared with a typical hour in their office. Productivity while aboard an airline jet drops a full 36 percent from office productivity levels.<sup>2</sup> When comparing their productivity aboard various types of aircraft with that during a typical office hour, passengers reported that productivity aboard a company jet or turboprop — not aboard the airlines — is more productive than in the office. With a set office baseline of 5.0 on a scale of 1 to 10, passengers rate their productivity aboard a company jet at 6.2, and productivity aboard company turboprop at 5.2. Airline and commuter aircraft rank significantly below office productivity, with average productivity of 3.2 and 2.1, respectively (Table 3-3).

Looking beyond the average productivity level while in the office and aboard varying aircraft types, it is interesting to note that while less than one in six passengers would rate his or her productivity aboard company aircraft as low, over 60 percent of all passengers rate their productivity as low on airline and commuter aircraft. Additionally, while the plurality (39 percent) of passengers find they are highly productive aboard a company jet, only 1 in 20 (5 percent) feels as productive while on an airline jet (Table 3-4).

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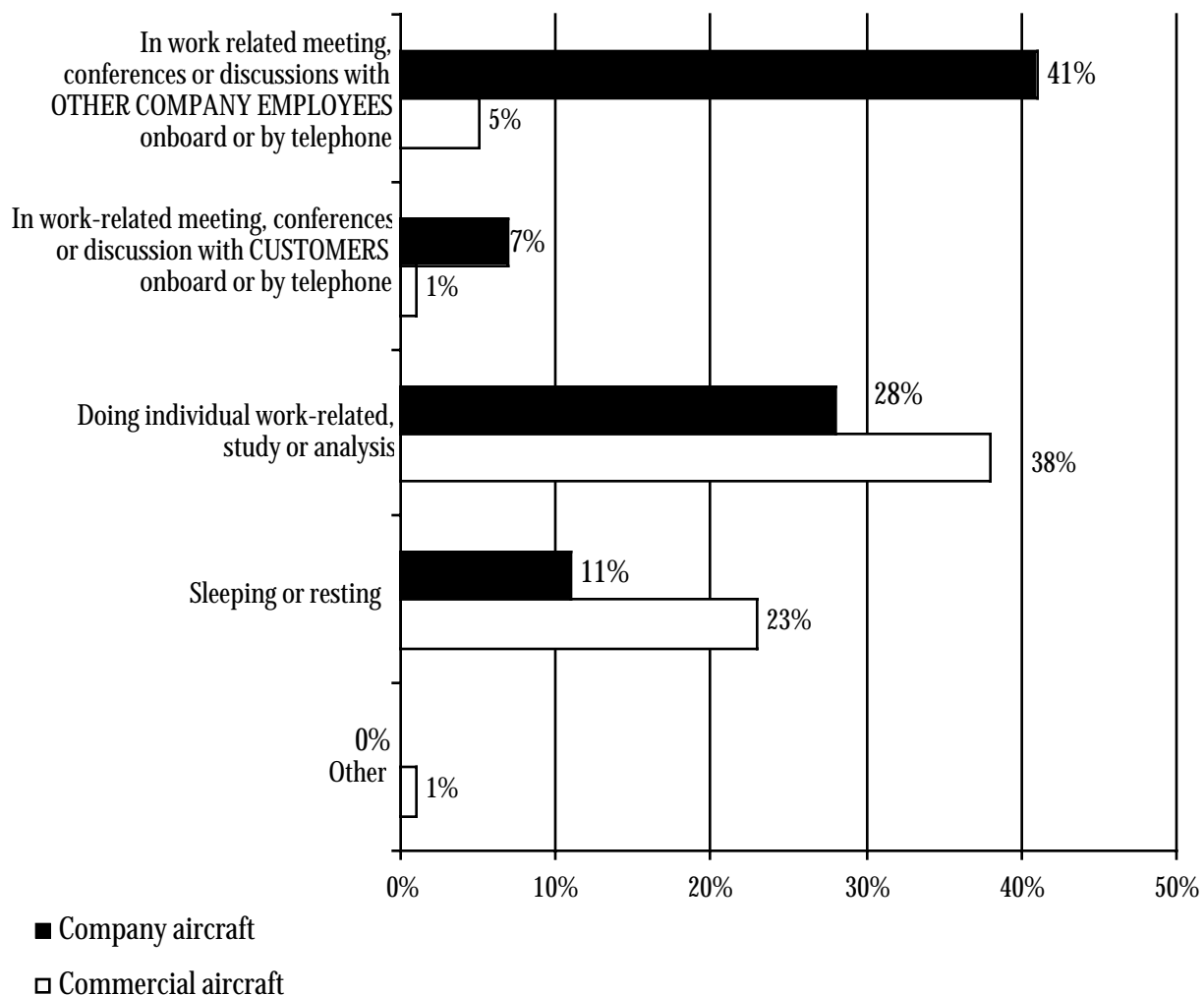
<sup>2</sup> These figures were derived by comparing the relative change in productivity from office to company or airline jet.

These differences in the use of passenger time and level of productivity while aboard business aircraft come to have a meaning in economic terms when one considers the cost and value of passengers' time. The average business aircraft passenger estimates that one hour of their time costs their employer \$259. The value to their employer of an hour of their time is more than double the cost at an average \$551. Given these figures, the added expense of operating a company plane may be highly cost-effective. A cost-benefit analysis would be able to further substantiate this claim (Table 3-5).

**Table 3-1 Q.C1, C2 Use of Time Aboard Aircraft**

Q: Approximately what percent of your time aboard (company/commercial) aircraft would you say you spend [READ EACH ITEM]?

**Base: Passengers (n=346)**

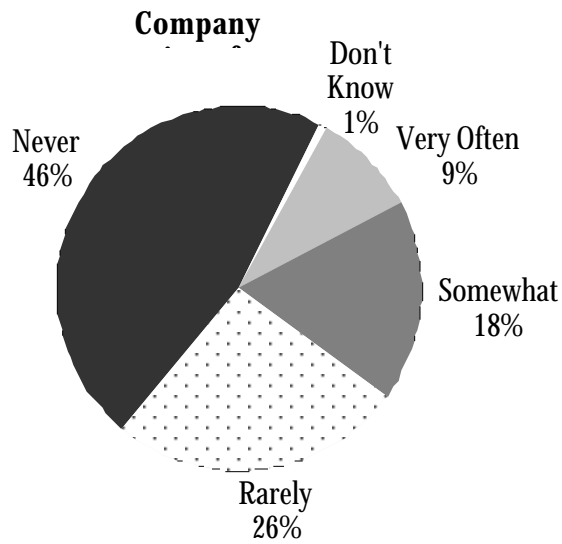


**Table 3-2 Q.D2/3 Laptop Computer Use Aboard Aircraft**

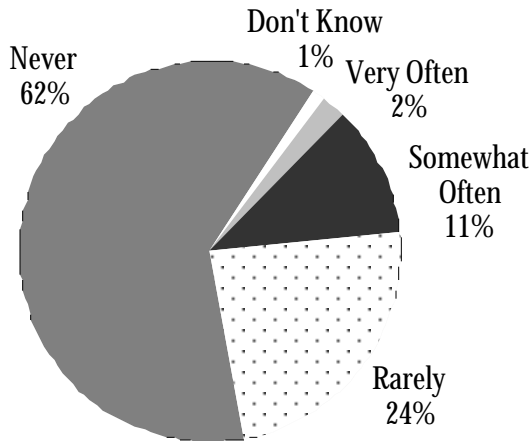
Q: How often do you use a laptop computer while you are aboard [READ EACH ITEM]?

**Base: Passengers (n=346)**

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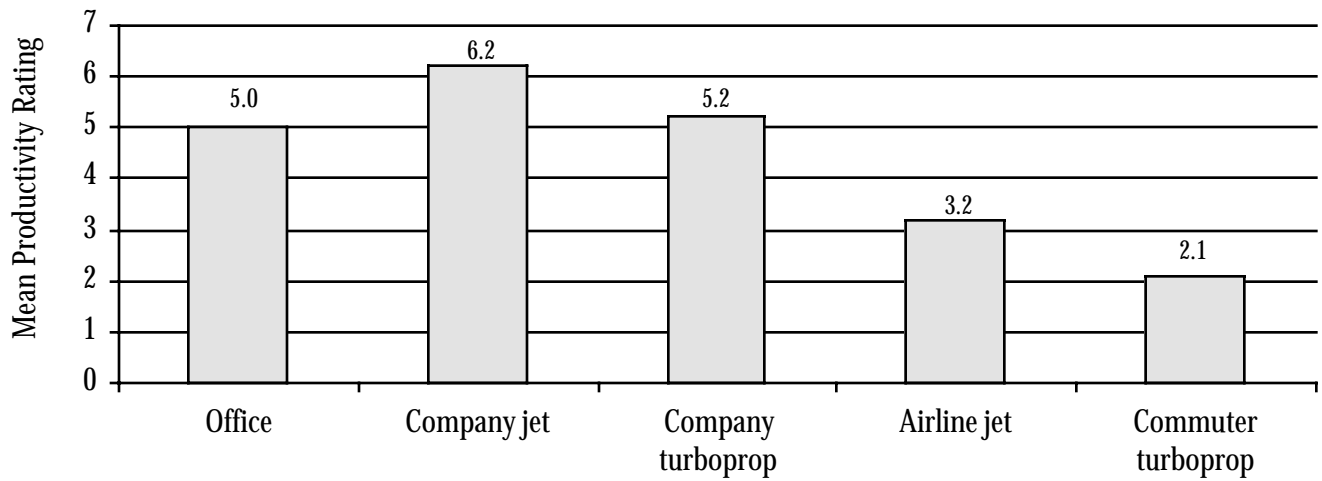
**Airline or commuter aircraft**



**Table 3-3 Q.D1 Productivity Aboard Aircraft**

Q: On a scale of zero to ten where five represents your productivity in an average or typical hour in your office, how would you rate your productivity in a typical hour aboard [READ ITEM]?

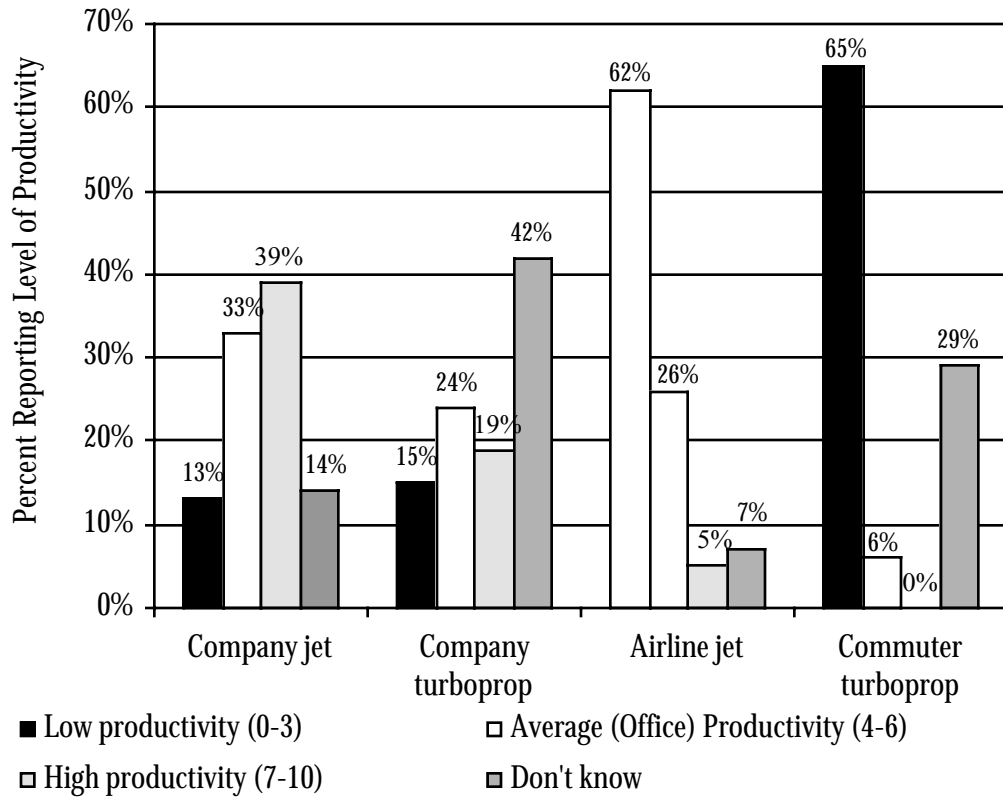
**Base: Passengers (n=346)**



**Table 3-4 Q.D1a-d Productivity Aboard Aircraft**

Q: On a scale of zero to ten where five represents your productivity in an average or typical hour in your office, how would you rate your productivity in a typical hour aboard [READ EACH ITEM]?

**Base: Passengers (n=346)**



**Table 3-5 Q.F4/5 Cost and Value of Passenger Time**

Q: What is your personal estimate, in dollars, of the (cost/value) to your employer of one hour of your time?

**Base: Passengers**

Base	<u>Cost</u> <b>(346)</b>	<u>Value</u> <b>(346)</b>
	%	%
\$1-50	19	9
\$51-100	23	15
\$101-300	22	19
\$301-1000	7	13
\$1001+	2	3
Don't know	27	40
MEAN	\$259	\$551

## CHAPTER FOUR

### Authorization and Impact of Price on Company Aircraft Use

Approximately half (49 percent) of surveyed passengers on business aircraft are able to authorize the use of company aircraft (Table 4-1). Of the passengers who are able to authorize the use of a company plane, a significant majority would change their use of company aircraft if the cost of a flight was to change.

If the cost of a flight were to increase per takeoff and landing by \$150, nearly half (49 percent) would change their aircraft use, decreasing it an average of 27 percent. If the per takeoff/landing cost increased by \$225, nearly two-thirds of those passengers able to authorize the use of company aircraft would change their use, with an average decline in use of 40 percent. Lastly, an increase in the cost of a flight by \$300 per takeoff and landing would cause 68 percent of these passengers to change their use of company aircraft. The average reported decline in use represents a significant reduction — less than half as many flights would be taken (55 percent fewer flights) using company aircraft. While a very slight number of passengers report that these price increases would cause them to increase their use of company aircraft, the clear trend is that these price increases would have a negative, and often significant, impact on the use of company aircraft (Tables 4-2 and 4-3).

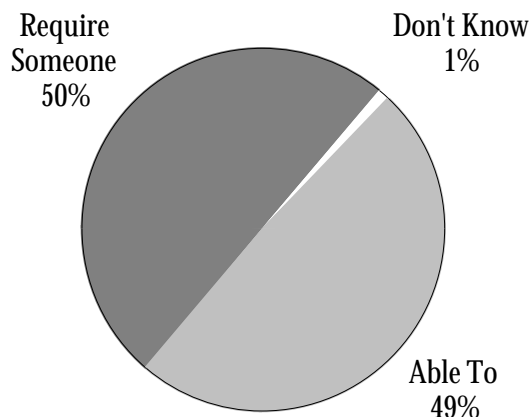
A word of caution: The respondents were asked to respond to a hypothetical situation which may or may not happen. Actual behavior is difficult to predict. Additionally, the number of respondents who were eligible to respond to the questions on the impact of price changes on company aircraft use is small. Caution should be used in drawing conclusions or projecting from small sample sizes to a larger population.

**Table 4-1 Q.E1 Employees Able to Authorize Use of Company Aircraft**

Q: Are you able to authorize use of the company plane or do you require authorization from someone else?

**Base: Passengers (n=346)**

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**Table 4-2 Q.E2/3/4 Impact of Price Increase on Use of Company Aircraft**

Q: If the cost of a flight (per takeoff and landing) aboard company aircraft were increased by a total of [READ EACH ITEM], would your use of this aircraft change?

**Base: Passengers able to authorize use of company aircraft (n=168)**

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	\$150	\$225	\$300
<b>Base</b>	<b>(168)</b>	<b>(168)</b>	<b>(168)</b>
	%	%	%
Yes	49	64	68
No	35	19	14
Don't know	16	17	18

**Table 4-3 Q.E2/3/4 Percent Change in Use of Company Aircraft**

Q: By what percentage would your use (increase/decrease)?

**Base: Passenger able to authorize use of company aircraft and use would change.**

---

	\$150	\$225	\$300
<b>Base</b>	<b>(82)</b>	<b>(108)</b>	<b>(115)</b>
	%	%	%
Mean percent Increase	2	2	3
Mean percent Decrease	27	40	55

## CHAPTER FIVE

### Characteristics of Business Aircraft Fleet

The majority (63 percent) of companies in this survey operate only one business aircraft; however, a significant number (37 percent) have more than one aircraft in their fleet, and fully 1 in 10 (10 percent) operates five or more aircraft (Table 5-1). The majority (59 percent) of all business aircraft are jet aircraft. Companies that operate only one business aircraft, however, are much more likely to operate a turboprop aircraft than those with more than one aircraft. Companies that operate only one aircraft are split almost evenly, with nearly half (46 percent) operating a turboprop aircraft, and the remaining half (54 percent) operating jet aircraft. Jets constitute a greater majority (62 percent) of the fleets of companies with more than one business aircraft (Table 5-2).

The size of jet aircraft operated by surveyed chief pilots is split roughly equally, with 42 percent light jets (less than 20,000 lbs.) 34 percent medium jets (20,000 - 35,000 lbs.) and 23 percent heavy jets (more than 35,000 lbs.) (Table 5-3). The vast majority (76 percent) of turboprops operated by companies are light turboprops, weighing less than 12,500 lbs., with fewer than one-fourth (23 percent) being heavy turboprops over 12,500 lbs. (Table 5-4).

Business aircraft use averaged 442 hours per aircraft over the last year, although companies with more than one business aircraft averaged slightly higher use over the last year than companies that operate only one aircraft (486 hours vs. 378 hours) (Table 5-5). Despite somewhat higher average aircraft usage as measured in flight hours, average trip length is comparable for companies operating both one (1.7 hours) and more than one business aircraft (1.8 hours) (Table 5-6).

Surveyed chief pilots report that across all aircraft the average passenger count or passenger load factor is 3.9. Nearly half (49 percent) of those aircraft operated by companies for which this is the sole aircraft have a passenger load factor of 3.0 or less. This is nearly double the proportion of aircraft with an average passenger count of 3.0 or less operated by companies with more than one business aircraft (Table 5-7).

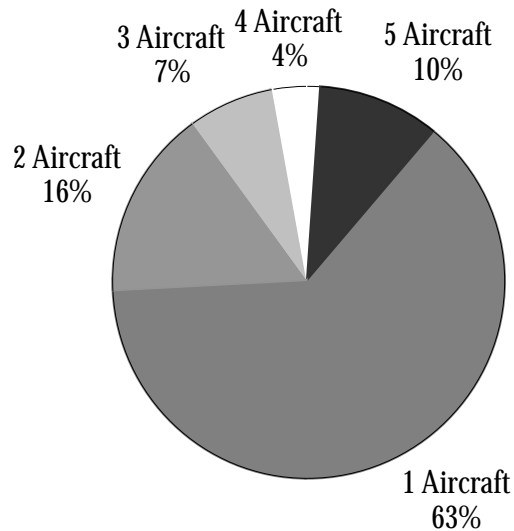
Similarly, the average practical number of passengers ordinarily carried on the aircraft displays somewhat higher usage by companies operating more than one business aircraft. The overall average practical maximum number of passengers carried is 7.5, while one business aircraft companies average 6.7 passengers ordinarily carried, and aircraft operated by companies with more than one aircraft average 8.1 passengers (Table 5-8).

Looking at the equipment found on business aircraft, the large majority (76 percent) of all turbine-powered aircraft have a satellite phone or Flitephone. A significant one out of five (18 percent) is equipped with a television, while very few have a fax machine (6 percent) or copier (3 percent). These communication and office accessories are likely to contribute to the reported passenger productivity while aboard business aircraft (Table 5-9).

**Table 5-1 Q.S1 Number of Aircraft Operated**

Q: How many turbine-powered aircraft does your company operate?

**Base: Chief Pilots (n=301)**

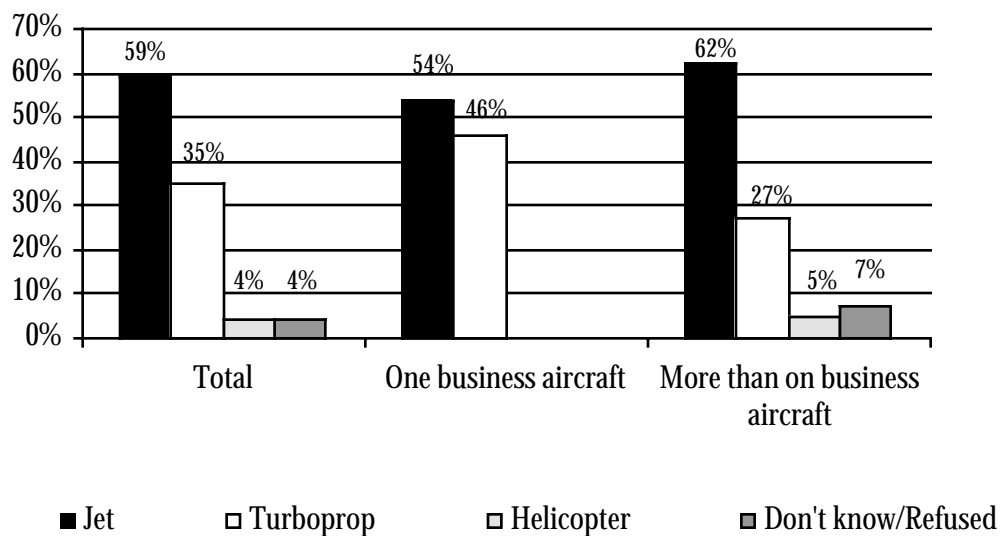


MEAN = 2.1 aircraft

**Table 5-2 Q.D2/8/14/20 Type of Aircraft Operated**

Q: Is that a jet, a turboprop, or a turbine-powered helicopter?

**Base: Chief Pilots/All Aircraft**

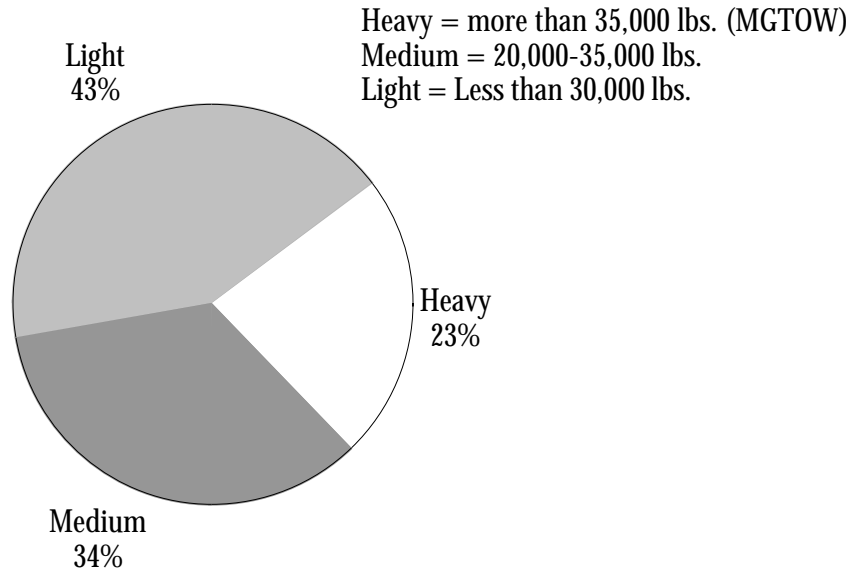


**Table 5-3 Q.D3a/9a/15a/21a Size of Jet**

Q: Is it a heavy, medium, or light jet?

**Base: Chief Pilots/All Jets**

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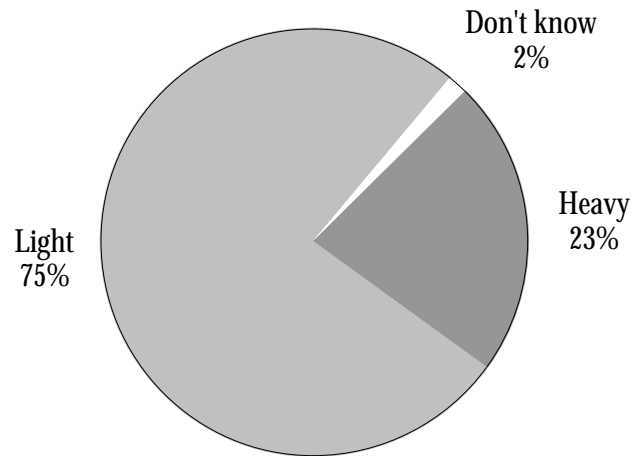
**Table 5-4 Q.D3b/9b/15b/21b Size of Turboprop**

Q: Is it a heavy or light turboprop?

**Base: Chief Pilots/All Turboprops**

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Heavy = 12,500 lbs or more (MGTOW)  
Light = less than 12,500 lbs.



**Table 5-5 Q.D4/10/16/22 Annual Number of Flight Hours**

Q: For this aircraft, how many flight hours did your company log last year?

**Base: Chief Pilots/All Aircraft**

<b>Base</b>	<b>Total (527)</b>	<b>One business aircraft (156)</b>	<b>More than one business aircraft (371)</b>
	%	%	%
1-200 hours	17	20	15
201-300 hours	17	24	12
301-400 hours	22	25	20
401-500 hours	14	12	15
501-600 hours	11	9	12
601-700 hours	8	5	10
701-1,000 hours	4	2	5
1,001 or more hours	3	1	5
Don't know/ Refused	5	2	6
MEAN (No. of Hours)	442	378	486

**Table 5-6 Q.D5/11/17/23 Average Trip Length**

Q: What was the average trip length for this aircraft, in hours?

**Base: Chief Pilots/All Aircraft**

<b>Base</b>	<b>Total (527)</b>	<b>One business aircraft (156)</b>	<b>More than one business aircraft (371)</b>
	%	%	%
0.1-1.0 hours	33	26	37
1.1-1.5 hours	18	24	13
1.6-2.0 hours	25	25	25
2.1-3.0 hours	14	16	12
3.1-9.9 hours	7	6	8
Don't know/ Refused	5	3	6
MEAN (No. of Hours)	1.8	1.7	1.8

**Table 5-7 Q.D6/12/18/24 Average Passenger Count**

Q: What was the average passenger count or passenger load factor on this aircraft last year?

**Base: Chief Pilots/All Aircraft**

<b>Base</b>	<b>Total (527)</b>	<b>One business aircraft (156)</b>	<b>More than one business aircraft (371)</b>
	%	%	%
0.1-2.0	14	19	11
2.1-3.0	22	30	16
3.1-4.0	30	28	31
4.1-5.0	14	10	17
5.1-6.0	10	10	9
6.1-9.9	4	1	5
Don't know/Refused	7	3	9
MEAN (No. of Passengers)	3.9	3.5	4.1

**Table 5-8 Q.D7/13/19/25 Practical Maximum Number of Passengers Carried**

Q: What is the practical maximum number of passengers your company ordinarily carries on this aircraft?

**Base: Chief Pilots/All Aircraft**

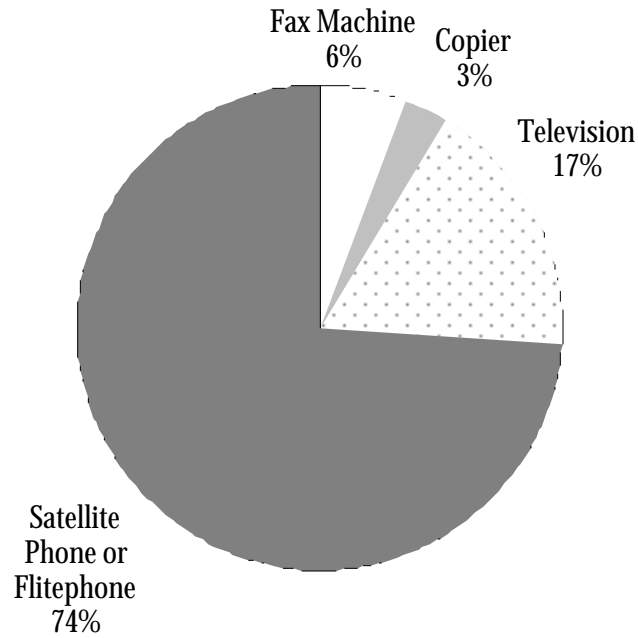
<b>Base</b>	<b>Total (527)</b>	<b>One business aircraft (156)</b>	<b>More than one business aircraft (371)</b>
	%	%	%
1-2	2	5	1
3-4	12	15	11
5-6	25	33	20
7-8	38	31	42
9-10	10	12	9
11-15	6	4	7
16 or more	3	1	4
Don't know/Refused	3	--	5
MEAN (Number of Passengers)	7.5	6.7	8.1

**Table 5-9 Q.D26 Office Equipment Onboard Aircraft**

Q: Approximately what percent of your company's turbine-powered aircraft have [READ EACH ITEM]?

**Base: Chief Pilots (n=301)**

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## APPENDIX A

### Survey Methodology

The *Survey of Companies Using Turbine-Powered General Aviation Aircraft for Business Transportation* is based on a survey of 301 Chief Pilots or Directors of Flight Operations from U.S. companies, universities, and governmental agencies and 346 passengers on business aircraft at these organizations. The companies, universities and government agencies were randomly selected from a list supplied to the National Business Aircraft Association by Aviation Data Service (Wichita, Kansas) of owners of fixed wing general aviation turbine aircraft. Prior to interviewing, a letter describing the nature of the study and urging their participation and a questionnaire template with some of the questions was faxed to prospective chief pilot respondents.

Upon completion of the interview, chief pilots were asked to assist in distributing and collecting the passenger survey to 15 passengers on upcoming flights. A letter explaining the nature of the passenger study describing the desired passenger survey dissemination process and urging their cooperation, along with 15 individual passenger survey packets and a return express mail pouch, was sent to willing chief pilots. Each passenger survey packet contained a letter describing the nature of the study and urging their participation, along with a self-completion questionnaire and a postage-paid return envelope.

#### ***Telephone Interviewing Procedures***

All chief pilot interviewing was conducted between April 3-15, 1997. The telephone interviews averaged 13 minutes in length. Interviewing was regularly quality-monitored by Harris' field supervisory staff. The computer-assisted telephone interviewing (CATI) system permitted on-line data entry and on-line data editing of the telephone interview.

#### ***Self-Completion Survey Procedures***

Self-completion interview packets were distributed to passengers aboard business aircraft through chief pilots between April 7 and May 12, 1997. Each passenger interview packet contained a letter of introduction, a questionnaire, and return envelope. Several potential consequences of this sampling methodology should be kept in mind when reviewing data collected from passenger surveys. Only those passengers aboard business aircraft whose chief pilots or director of flight operations were willing to disseminate the survey were contacted. Chief pilots who refused to distribute the survey packets or selectively distributed them (possibly excluding top and senior management) may have had an impact on the sample of passengers who received the survey. Additionally, since the survey is self-completed, the sample of passenger interviews is based upon only those passengers who read, completed, and returned the survey. One might expect to reach a slightly more representative sample had a random sample of all business aircraft passengers been accessible and used to conduct telephone interviews.

#### ***Weighting of Data***

The chief pilot data was weighted to accurately represent the true sample proportion of companies with one and more than one business aircraft. The passenger data was not weighted.

**Table A-1 Effect of Weighting on Chief Pilot Sample****Base: Chief Pilots**

	<u>Unweighted</u>	<u>Weighted</u>
Total	301	301
One business aircraft	156	189
One jet	84	102
One turbo	72	87
More than one business aircraft	145	112
Flight hours: High (701+)	108	85
Medium (351-700)	95	100
Low (1-350)	95	112
Company size: Large (2,000+)	86	76
Medium (101-2,000)	103	109
Small (1-100)	106	109

**Reliability of Survey Percentages**

It is important to bear in mind that the results from any sample survey are subject to sampling variation. The magnitude of this variation is measurable and is affected both by the number of interviews involved and by the level of the percentages expressed in the results. Table A-2 shows the possible sample variation that applies to percentage results for this survey. The chances are 95 in 100 that the survey result does not vary, plus or minus, by more than the indicated number of percentage points from the results that would have been obtained if interviews had been conducted with all persons in the universe represented by the sample.

For example, if the response for a sample size of 200 is 30 percent, then in 95 cases out of 100 the response in the total population would be between 24 percent and 36 percent. Note that survey results based on subgroups of small size can be subject to large sampling error.

**Table A-2 Approximate Sampling Tolerances (At 95 percent Confidence) To Use In Evaluating Percentage Results Appearing In This Report**

Number Of People Asked Question On Which Survey Result Is Based	Survey Percentage Result At 10 % Or 90%	Survey Percentage Result At 20 % Or 80%	Survey Percentage Result At 30 % Or 70%	Survey Percentage Result At 40 % Or 60%	Survey Percentage Result At 50 %
400	3	4	4	5	5
300	3	5	5	6	6
200	4	6	6	7	7
100	6	8	9	10	10
50	8	11	13	14	14

Sampling tolerances are also involved in the comparison of results from different surveys or from different parts of a sample (subgroup analysis). Table A-3 shows the percentage difference that must be obtained before a difference can be considered statistically significant. These figures, too, represent the 95 percent confidence level.

For example, suppose a group of 100 has a response of “yes” to a question, and an independent group of 50 has a response of 28 percent “yes” to the same question, for an observed difference of 6 percentage points. According to the table, this difference is subject to a potential sampling error of 16 percentage points. Since the observed difference is smaller than the sampling error, the observed difference is not significant. Sampling error is only one type of error encountered in survey research. Survey research is also susceptible to other types of error, such as data handling error and interviewer recording error. The procedures followed by Louis Harris and Associates, however, keeps errors of these kinds to a minimum.

**Table A-3 Approximate Sampling Tolerances (At 95 percent Confidence) To Use In Evaluating Differences Between Two Percentage Results Appearing In This Report**

Approximate Sample Size Of Two Groups Asked Question On Which Survey Result Is Based	Survey Percentage Result At 10% or 90%	Survey Percentage Result At 20% or 80%	Survey Percentage Result At 30% or 70%	Survey Percentage Result At 40% or 60%	Survey Percentage Result At 50%
500 vs. 500	4	5	6	6	6
200	5	7	8	8	8
100	6	9	10	11	11
50	9	12	13	14	15
200 vs. 200	6	8	9	10	10
100	7	10	11	12	12
50	9	12	14	15	15
100 vs. 100	8	11	13	14	14
50	10	14	16	17	17
50 vs. 50	12	16	18	19	20

***CATI System Used in Interviews for the United States***

An example of these procedures is the CATI system - computer assisted telephone interviewing - which is used for all Harris telephone interviews conducted in the United States. This system controls complicated skip patterns based on individual response during the course of the interview, and it also allows consistency checks to be built in for key items. Since interviewers enter the respondents’ answers directly into a computer terminal during the interview itself, it also reduces the number of potential clerical errors.