

# AIR SAFETY INSTITUTE

## 2011-2012 GA Accident Scorecard



**A**s the National Transportation Safety Board (NTSB) completes its investigations of fatal accidents during 2011, the Air Safety Institute (ASI) has compiled this brief statistical summary of all U.S. general aviation (GA) accidents in the past two years. Analysis of the causes of 2011's accidents will be presented in the *23<sup>rd</sup> Joseph T. Nall Report*, with publication anticipated in the first quarter of 2014.

While the numbers and circumstances of those accidents can be described, it is not yet possible to estimate accident rates for either year. Difficulties in completing the Federal Aviation Administration's (FAA) *General Aviation and Part 135 Activity*

*Survey* for 2011 mean that the flight-time data needed to calculate rates are not available for that year. Analysis of the 2012 activity survey is presently under way, but at this writing the results have not been published. The present report therefore includes ten-year trend data on numbers of accidents but not on accident rates.

The eventual disposition of the 2011 activity survey remains unclear. Rate estimates for 2011 will only be included in the next *Nall Report* if data on that year's flight activity are published before the report is otherwise complete *and* independent examination concludes that the accuracy of the results is comparable to that of previous years.

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# SUMMARY

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**T**he number of non-commercial fixed-wing accidents continued the gradual decline that in recent years has been attributed chiefly to decreasing flight activity. In the absence of reliable activity estimates for 2011 and 2012, it is impossible to say whether that remains the principal cause. There were 216 fatal non-commercial fixed-wing accidents in 2012, the second-lowest number in the more than 30 years covered by the ASI database, and the five years with the fewest fatal accidents are the most recent five (2008-2012). The average during that time was 17 percent less than that in 2003-2007, 27 percent less than the average over the previous decade (1993-2002), and 46 percent lower than the average for the decade before that.

The number of fatal accidents on non-commercial helicopter flights reached a new low in 2011 but returned to its recent average in 2012. The recent decrease in the total number of non-commercial helicopter accidents may be ending; the 127 in 2012 was tied with 2009 for the highest count in the past five years, though still more than 12% below the 2003-2007 average.

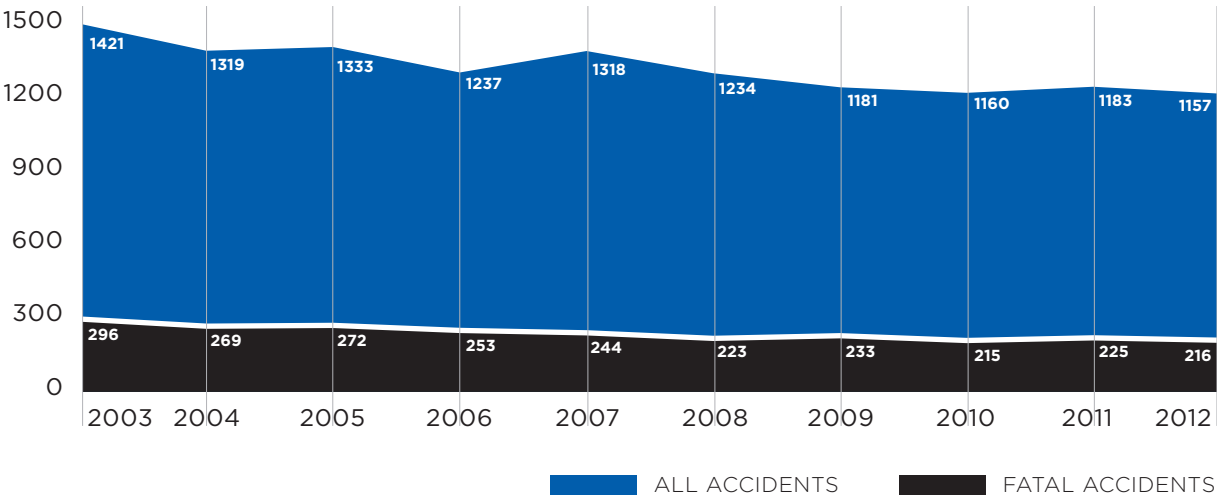
Commercial helicopter flights maintained the improved safety margins they have enjoyed since 2005, suffering only four fatal accidents in 2012. After two unusually good years, both fatal and non-fatal commercial fixed-wing accidents spiked during 2011, but returned to their 2009-2010 levels in 2012.

The circumstances surrounding GA accidents remained little changed from previous years. Personal flights accounted for about one-third of non-commercial helicopter accidents but nearly three-quarters of non-commercial fixed-wing. Instructional accidents, on the other hand, made up about twice as large a share of non-commercial accidents in helicopters compared to airplanes. The Air Safety Institute is currently preparing a detailed analysis of instructional accidents in both categories of aircraft.

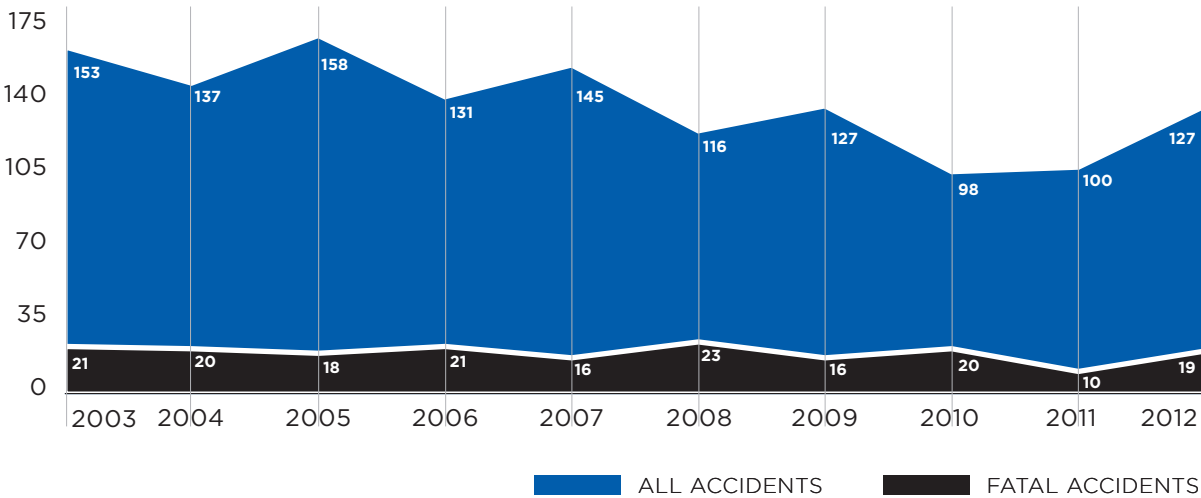
Aerial application flights resulted in the largest share of commercial accidents, but caused less than half the fatalities. The vast majority of all accidents occurred in visual meteorological conditions during daylight hours, the setting for more than three-quarters of all GA flight.

# General Aviation Accidents, 2003-2012

## NON-COMMERCIAL FIXED-WING

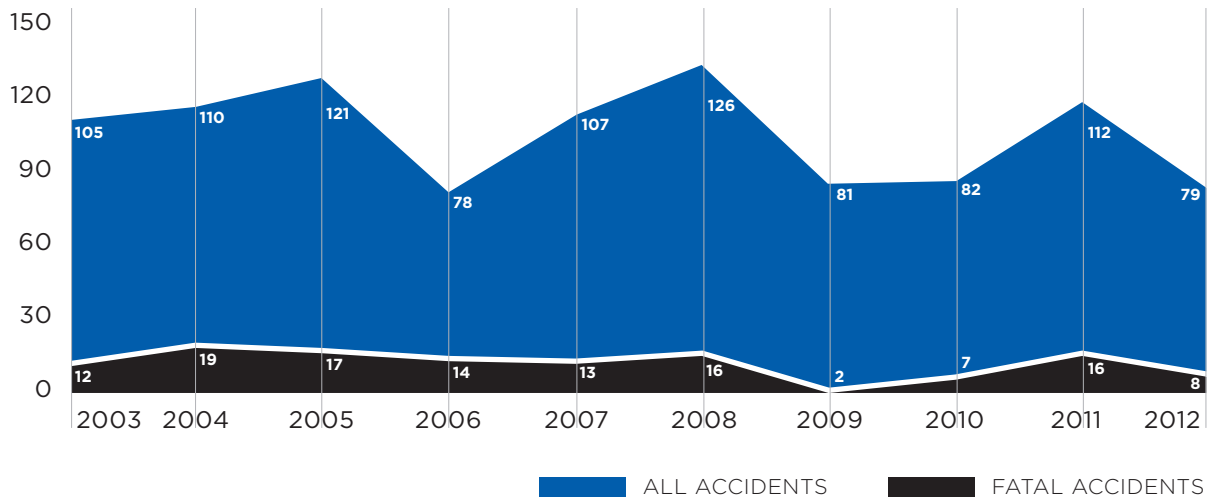


## NON-COMMERCIAL HELICOPTER

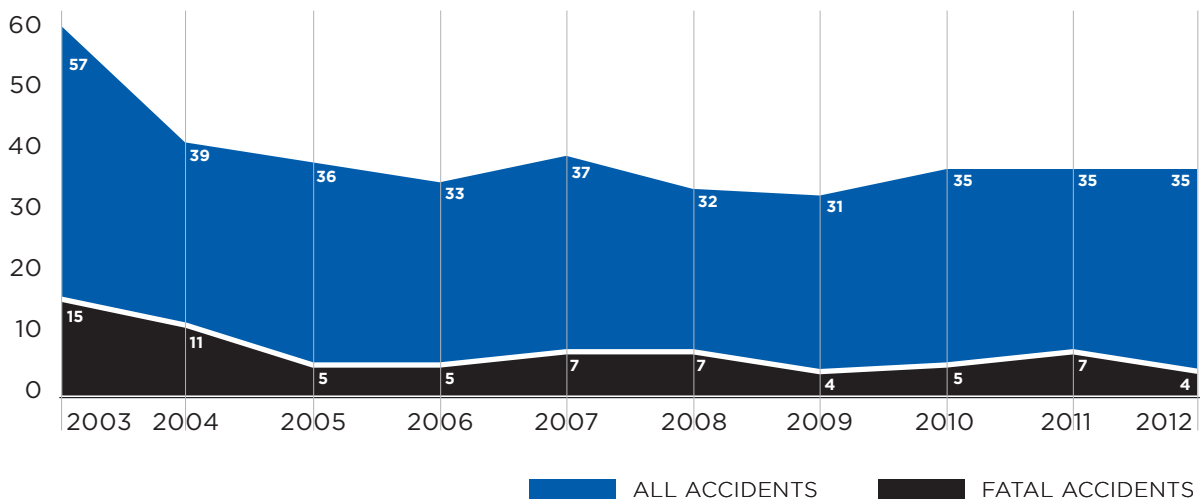


## General Aviation Accidents, 2003-2012 (Continued)

### COMMERCIAL FIXED-WING



### COMMERCIAL HELICOPTER



## Summary of General Aviation Accidents by Year

2011	Non-Commercial		Commercial	
	FIXED-WING	HELICOPTER	FIXED-WING	HELICOPTER
Number of Accidents	1,183	100	112	35
Number of Aircraft*	1,196	100	115	35
Number of Fatal Accidents	225	10	16	7
Lethality (Percent)	19.0	10.0	14.3	20.0
Fatalities	394	12	28	20

2012	Non-Commercial		Commercial	
	FIXED-WING	HELICOPTER	FIXED-WING	HELICOPTER
Number of Accidents	1,157	127	79	35
Number of Aircraft*	1,166	129	81	35
Number of Fatal Accidents	216	19	8	4
Lethality (Percent)	18.7	14.8	10.1	11.4
Fatalities	333	29	8	6

\* COUNTS EACH AIRCRAFT INVOLVED IN A COLLISION SEPARATELY.

## 2011 Accident Conditions: Non-Commercial Fixed-Wing

### AIRCRAFT CLASS

CONFIGURATION	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Single-Engine Fixed-Gear (SEF)	885 74%	141 61%	219 56%
SEF Tailwheel	383	60	87
Single-Engine Retractable Gear	229 19%	66 29%	129 33%
Single-Engine Turbine	21	7	15
Multi-Engine	82 7%	23 10%	46 12%
Multi-Engine Turbine	18	5	16

### TYPE OF OPERATION

PURPOSE OF FLIGHT	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Personal	890 74%	187 81%	321 81%
Instructional	172 14%	14 6%	22 6%
Public Use	6 1%	2 1%	3 1%
Positioning	16 1%	7 3%	8 2%
Aerial Observation	9 1%	0	0
Business	31 3%	2 1%	5 1%
Other Work Use	29 2%	3 1%	3 1%
Other or Unknown	43 4%	15 7%	32 8%

**NOTE:** PERCENTAGES ARE PERCENT OF ALL ACCIDENTS, ALL FATAL ACCIDENTS, OR INDIVIDUAL FATALITIES, RESPECTIVELY.

## Non-Commercial Fixed-Wing, 2011 (Continued)

### PILOT QUALIFICATIONS

CERTIFICATE LEVEL	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
ATP	168 14%	26 11%	34 9%
Commercial	343 29%	61 27%	114 29%
Private	557 47%	124 54%	224 57%
Sport	24 2%	6 3%	7 2%
Recreational	1 <1%	0	0
Student	83 7%	6 3%	7 2%
None	17 1%	5 2%	6 2%
Other or Unknown	3 <1%	2 1%	2 1%
Two Pilots on Board	108 9%	19 8%	34 9%
CFI on Board*	276 23%	39 17%	61 15%
IFR Pilot on Board*	672 56%	129 56%	227 58%

\* INCLUDES SINGLE-PILOT FLIGHTS

### LIGHT AND WEATHER CONDITIONS

CONDITIONS	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Day VMC	1046 88%	161 72%	268 68%
Night VMC*	80 7%	30 13%	57 14%
Day IMC	40 3%	23 10%	46 12%
Night IMC*	17 1%	11 5%	23 6%

\* INCLUDES DUSK. CIRCUMSTANCES OF ONE NON-FATAL ACCIDENT ARE UNKNOWN

## 2012 Accident Conditions: Non-Commercial Fixed-Wing

### AIRCRAFT CLASS

CONFIGURATION	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Single-Engine Fixed-Gear (SEF)	822 70%	124 57%	177 53%
SEF Tailwheel	350	41	45
Single-Engine Retractable Gear	255 22%	65 30%	112 34%
Single-Engine Turbine	29	10	23
Multi-Engine	89 8%	30 14%	44 13%
Multi-Engine Turbine	15	5	8

### TYPE OF OPERATION

PURPOSE OF FLIGHT	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Personal	865 74%	179 82%	273 82%
Instructional	183 16%	17 8%	29 9%
Public Use	5 <1%	0	0
Positioning	18 2%	6 3%	8 2%
Aerial Observation	11 1%	2 1%	3 1%
Business	22 2%	7 3%	11 3%
Other Work Use	30 3%	4 2%	5 2%
Other or Unknown	32 3%	4 2%	4 1%



## Non-Commercial Fixed-Wing, 2012 (Continued)

### PILOT QUALIFICATIONS

CERTIFICATE LEVEL	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
ATP	171 15%	26 12%	35 11%
Commercial	346 30%	62 28%	101 30%
Private	524 45%	114 52%	175 53%
Sport	21 2%	5 2%	5 2%
Student	76 7%	5 2%	5 2%
None	17 1%	4 2%	6 2%
Other or Unknown	11 1%	3 1%	6 2%
Two Pilots on Board	132 11%	27 12%	55 17%
CFI on Board*	277 24%	37 17%	61 18%
IFR Pilot on Board*	660 57%	124 57%	200 60%

\* INCLUDES SINGLE-PILOT FLIGHTS

### LIGHT AND WEATHER CONDITIONS

CONDITIONS	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Day VMC	1018 88%	152 70%	213 64%
Night VMC*	85 7%	30 14%	56 17%
Day IMC	35 3%	22 10%	43 13%
Night IMC*	17 1%	11 5%	20 6%
Unknown	2 <1%	1 <1%	1 <1%

\* INCLUDES DUSK

## 2011 Accident Conditions: Non-Commercial Helicopter

### AIRCRAFT CLASS

CONFIGURATION	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Single-Engine Piston	65 65%	7 70%	8 67%
Single-Engine Turbine	33 33%	3 30%	4 33%
Multi-Engine Turbine	2 2%	0	0

### TYPE OF OPERATION

PURPOSE OF FLIGHT	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Personal	30 30%	6 60%	8 67%
Instructional	32 32%	1 10%	1 8%
Public Use	6 6%	1 10%	1 8%
Positioning	7 7%	0	0
Aerial Observation	6 6%	0	0
Business	4 4%	0	0
Other Work Use	9 9%	0	0
Other or Unknown	6 6%	2 20%	2 17%

## Non-Commercial Helicopter, 2011 (Continued)

### PILOT QUALIFICATIONS

CERTIFICATE LEVEL	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
ATP	18 18%	2 20%	2 17%
Commercial	53 53%	2 20%	3 25%
Private	26 26%	5 50%	6 50%
Student	2 2%	0	0
None	1 1%	1 10%	1 8%

### LIGHT AND WEATHER CONDITIONS

CONDITIONS	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Day VMC	91 91%	8 80%	9 75%
Night VMC*	6 6%	1 10%	1 8%
Day IMC	1 1%	0	0
Night IMC*	2 2%	1 10%	2 17%

\* INCLUDES DUSK

## 2012 Accident Conditions: Non-Commercial Helicopter

### AIRCRAFT CLASS

CONFIGURATION	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Single-Engine Piston	78 60%	9 47%	13 45%
Single-Engine Turbine	42 33%	8 42%	14 48%
Multi-Engine Turbine	9 7%	2 11%	2 7%

### TYPE OF OPERATION

PURPOSE OF FLIGHT	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Personal	42 33%	8 42%	12 41%
Instructional	31 24%	2 11%	4 14%
Public Use	13 10%	2 11%	3 10%
Positioning	10 8%	1 5%	1 3%
Aerial Observation	7 5%	2 11%	4 14%
Business	10 8%	1 5%	1 3%
Other Work Use	9 7%	3 16%	4 14%
Other or Unknown	7 5%	0	0

## Non-Commercial Helicopter, 2012 (Continued)

### PILOT QUALIFICATIONS

CERTIFICATE LEVEL	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
ATP	20 16%	5 26%	7 24%
Commercial	81 63%	11 58%	16 55%
Private	19 15%	2 11%	5 17%
Sport	1 1%	0	0
Student	3 2%	0	0
None	4 3%	1 5%	1 3%
Other or Unknown	1 1%	0	0

### LIGHT AND WEATHER CONDITIONS

CONDITIONS	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Day VMC	110 87%	12 63%	18 62%
Night VMC*	13 10%	3 16%	6 21%
Day IMC	1 1%	1 5%	1 3%
Night IMC*	3 2%	3 16%	4 14%

\* INCLUDES DUSK

## 2011 Accident Conditions: Commercial Fixed-Wing

### AERIAL APPLICATION (PART 137)

	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
	72 74 Aircraft	5	5

#### AIRCRAFT CLASS

Single-Engine Piston	46 62%	4 80%	4 80%
Single-Engine Turbine	28 38%	1 20%	1 20%

#### CONDITIONS

Day VMC	70 97%	4 80%	4 80%
Night VMC*	1 1%	0	0
Day IMC	1 1%	1 20%	1 20%

\* INCLUDES DUSK

#### PILOT QUALIFICATIONS

ATP	8 11%	0	0
Commercial	65 88%	5 100%	5 100%
Private*	1 1%	0	0

\* OPERATING UNDER A PRIVATE PART 137 CERTIFICATE

## Commercial Fixed-Wing, 2011 (Continued)

### CHARTER AND CARGO (PART 135)

	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
	40 41 Aircraft	11 12 Aircraft	23
AIRCRAFT CLASS			
Single-Engine Piston	17 41%	4 33%	5 22%
Multi-Engine Piston	15 37%	6 50%	16 70%
Single-Engine Turbine	7 17%	2 17%	2 9%
Multi-Engine Turbine	2 5%	0	0
CONDITIONS			
Day VMC	26 65%	5 45%	11 48%
Night VMC*	5 13%	2 18%	4 17%
Day IMC	6 15%	3 27%	6 26%
Night IMC*	3 8%	1 9%	2 9%
* INCLUDES DUSK			
PILOT QUALIFICATIONS			
ATP	22 54%	7 58%	17 74%
Commercial	19 46%	5 42%	6 26%
Two-Pilot Crews	3 7%	1 8%	3 13%
Flight Instructors	20 49%	6 50%	16 70%

## 2012 Accident Conditions: Commercial Fixed-Wing

### AERIAL APPLICATION (PART 137)

	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
	51 53 Aircraft	4 5 Aircraft	4

### AIRCRAFT CLASS

Single-Engine Piston	23 43%	1 20%	1 25%
Single-Engine Turbine	30 57%	4 80%	3 75%

### CONDITIONS

Day VMC	51 100%	4 100%	4 100%
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### PILOT QUALIFICATIONS

ATP	5 9%	0	0
Commercial	48 91%	5 100%	4 100%



## Commercial Fixed-Wing, 2012 (Continued)

### CHARTER AND CARGO (PART 135)

	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
	28	4	4

#### AIRCRAFT CLASS

Single-Engine Piston	18 64%	2 50%	2 50%
Multi-Engine Piston	2 7%	1 25%	1 25%
Single-Engine Turbine	4 14%	1 25%	1 25%
Multi-Engine Turbine	4 14%	0	0

#### CONDITIONS

Day VMC	22 79%	3 75%	3 75%
Night VMC*	3 11%	0	0
Day IMC	3 11%	1 25%	1 25%

\* INCLUDES DUSK

#### PILOT QUALIFICATIONS

ATP	13 46%	0	0
Commercial	15 54%	4 100%	4 100%
Two-Pilot Crews	2 7%	0	0
Flight Instructors	16 57%	3 75%	3 75%

## 2011 Accident Conditions: Commercial Helicopter

AIRCRAFT CLASS	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Single-Engine Piston	12 34%	1 14%	1 5%
Single-Engine Turbine	21 60%	6 86%	19 95%
Multi-Engine Turbine	2 6%	0	0

TYPE OF OPERATION	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Aerial Application (Part 137)	19 54%	2 29%	2 10%
Charter or Cargo (Part 135)	11 31%	5 71%	18 90%
External Load (Part 133)	5 14%	0	0

PILOT QUALIFICATIONS	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
ATP	2 6%	2 29%	4 20%
Commercial	33 94%	5 71%	16 80%

CONDITIONS	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Day VMC	31 89%	4 57%	11 55%
Night VMC*	3 9%	2 29%	6 30%
Night IMC*	1 3%	1 14%	3 15%

\* INCLUDES DUSK

## 2012 Accident Conditions: Commercial Helicopter

AIRCRAFT CLASS	ACCIDENTS	FATAL ACCIDENTS	FATALITIES
Single-Engine Piston	7 20%	0	0
Single-Engine Turbine	25 71%	3 75%	3 50%
Multi-Engine Turbine	3 9%	1 25%	3 50%
TYPE OF OPERATION			
Aerial Application (Part 137)	14 40%	0	0
Charter or Cargo (Part 135)	9 26%	3 75%	5 83%
External Load (Part 133)	12 34%	1 25%	1 17%
PILOT QUALIFICATIONS			
ATP	6 17%	2 50%	4 67%
Commercial	29 83%	2 50%	2 33%
CONDITIONS			
Day VMC	32 91%	3 75%	3 50%
Night VMC*	2 6%	1 25%	3 50%
Day IMC	1 3%	0	0

\* INCLUDES DUSK