

Rotorcraft Wire Strike Data

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16. Abstract Wire strikes pose a major threat to rotorcraft. A wire strike has the potential to cause significant and costly damage to the aircraft as well as human injury or death. AC 70/7460 is currently the standard for marking wires. There is currently no specific regulatory or guidance material addressing how to mitigate wire strikes on rotorcraft. The FAA plans to conduct research that will provide data to support new rules, guidance material, or both in the area of wire strikes. As a basis for this research, data from the National Transportation Safety Board (NTSB) accident database containing rotorcraft wire strike accidents were analyzed. The data were from 1966 to the present. The majority of the records were from the 2000s, most likely because of reporting improvements. The results of the analysis of the NTSB database are presented in this report. The findings can be used as the basis for determining methods for preventing rotorcraft wire strikes.					
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LIST OF ACRONYMS

GA	General aviation
NTSB	National Transportation Safety Board

EXECUTIVE SUMMARY

Wire strikes pose a major threat to rotorcraft. A wire strike has the potential to cause significant and costly damage to the aircraft as well as human injury or death.

AC 70/7460 is currently the standard for marking wires. There is currently no specific regulatory or guidance material addressing how to mitigate wire strikes on rotorcraft. The FAA plans to conduct research that will provide data to support new rules, guidance material, or both in the area of wire strikes.

As a basis for this research, data from the National Transportation Safety Board (NTSB) accident database containing rotorcraft wire strike accidents were analyzed. The data were from 1966 to the present, with the majority of the records being from the 2000s.

The result of the analysis of the NTSB database is presented in this report. A total of 227 records was found from 1966 to present that involved rotorcraft wire strike accidents. The findings can be used as the basis for determining methods for preventing rotorcraft wire strikes. Potential safety enhancements may include installing wire cutters or wire-detection systems on rotorcraft.

The results of the analysis are presented in this report and summarize wire strikes by rotorcraft model, type of flight operation, extent of damage, phase of flight when strike occurred, probable causes, and type of injuries reported.

This knowledge will be the basis for FAA research to determine what regulatory material and safety enhancements should be developed to prevent wire strikes from occurring.

ROTORCRAFT WIRE STRIKE DATA

BACKGROUND

Rotorcraft are at an increased risk for wire strikes because they tend to fly at lower altitudes (500 feet or below), which is the same height as transmission lines. Another cause for wire strikes is that wires are hard to see because of sun glare, darkness, or angle of sight.

Currently, no specific regulatory or guidance material exists addressing how to mitigate wire strikes on rotorcraft. Guidance for marking wires is given in AC 70/7460 [1]. It requires that high-voltage (69 kV or greater) transmission lines are fitted with lighted markers. Transmission lines less than 69 kV can be fitted with unlighted markers. AC 70/7460 also defines the size, shape, color, and spacing of the markers on the lines.

Rotorcraft fly a variety of missions, such as air ambulance under Part 91 general aviation (GA) [2] and agricultural spraying under Part 137 [3]. They also carry external loads under Part 133 [4] and serve as air and taxi commuters under Part 135 [5]. In the case of air ambulance services, these missions can be dangerous because the rotorcraft are landing and taking off in unfamiliar locations, using makeshift landing sites, sometimes at night and under poor visibility conditions. With respect to agricultural flights, most missions are flown low to the ground, increasing the risk of a wire strike. Rotorcraft carrying external loads also tend to fly lower to the ground, therefore having the potential for the load or rotorcraft to strike or become tangled in a wire.

An analysis of rotorcraft wire strike accidents was conducted using the National Transportation Safety Board (NTSB) accident database [6]. In total, 227 records were found, covering 1966 through the present. The results of the analysis are presented below and summarize wire strikes by rotorcraft model, type of flight operation, certification basis, extent of damage, phase of flight when strike occurred, probable causes, and type of injuries reported. This knowledge will allow the FAA to determine what guidance material and safety enhancements should be developed to reduce wire strike accidents.

ANALYSIS OF NATIONAL TRANSPORTATION SAFETY BOARD DATA Rotorcraft wire strike data were obtained from the NTSB accident database [6]. This database contains all aviation accident data from 1966 to the present. For this research, all rotorcraft accidents with the keywords of wire and strike were searched, and 227 records were obtained. The accident reports for each of these records were reviewed and data were obtained regarding the location, date, and time of the wire strike. Additionally, the aircraft model, category of flight, damage sustained, phase of flight, analysis of incident, and probable cause were all reviewed.

Figure 1 shows the percentage of wire strikes by rotorcraft model. The raw data are contained in table 1. The data show that the three rotorcraft models with the most wire strikes were the Bell 206 (48 accidents), the Bell 47 (35 accidents), and the Robinson R22 (25 accidents). These three models combined accounted for 48% of all the wire strikes reported. The Hiller UH-12, Robinson R 44, Hughes 269, and Hughes 369 also each had a significant number of strikes, accounting for a combined 26% of the wire strikes reported. Wire strikes for all other rotorcraft models were in the single digits.

WIRE STRIKES BY ROTORCRAFT MODEL

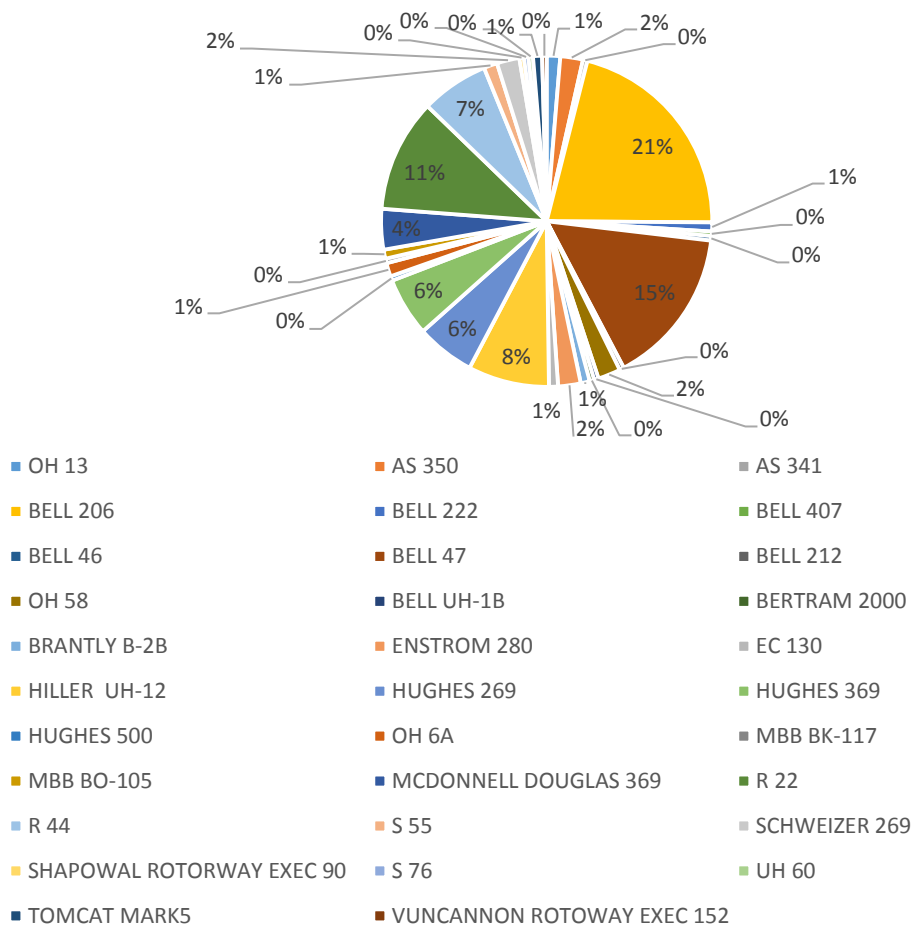


Figure 1. Wire strike by rotorcraft model

Table 1. Wire strike by rotorcraft model

Rotorcraft Model	Number of Wire Strike Occurrences
OH 13	3
AS 350	5
AS 341	1
Bell 206	48
Bell 222	2
Bell 407	1
Bell 46	1
Bell 47	35
Bell 212	1
OH 58	5
Bell UH-1B	1
Bertram 2000	1
Brantly B-2B	2
Enstrom 280	5
EC 130	2
Hiller UH-12	18
Hughes 269	13
Hughes 369	13
Hughes 500	1
OH 6A	3
MBB BK-117	1
MBB BO-105	2
McDonnell Douglas 369	9
Robinson 22	25
Robinson 44	15
S 55	3
Schweizer 269	5
Shapowal Rotorway Exec 90	1
S 76	1
UH 60	1
Tomcat Mark5	2
Vuncannon Rotoway Exec 152	1

Next, the type of flight operation the rotorcraft was flying when the wire strike occurred was determined. Figure 2 shows the type of flight operation, and the data are contained in table 2. The data show that the majority of wire strikes occurred during Part 91 GA operations. Part 91 requirements are less stringent than those of Part 135 of the FAR. Therefore, it seems logical that the data would show that Part 135 has significantly fewer wire strike incidents. Recreational pilots fly under Part 91 and are usually less experienced with fewer hours than those flying under Part 135. Twenty-three percent of the wire strikes occurred during Part 137 agricultural operations. Agricultural flights are usually flown at low altitudes to crop dust, increasing the likelihood of striking a wire. Part 133 external load operations accounted for 4%, and public aircraft flown by government or law enforcement entities accounted for 5% of wire strikes.

TYPE OF FLIGHT OPERATION

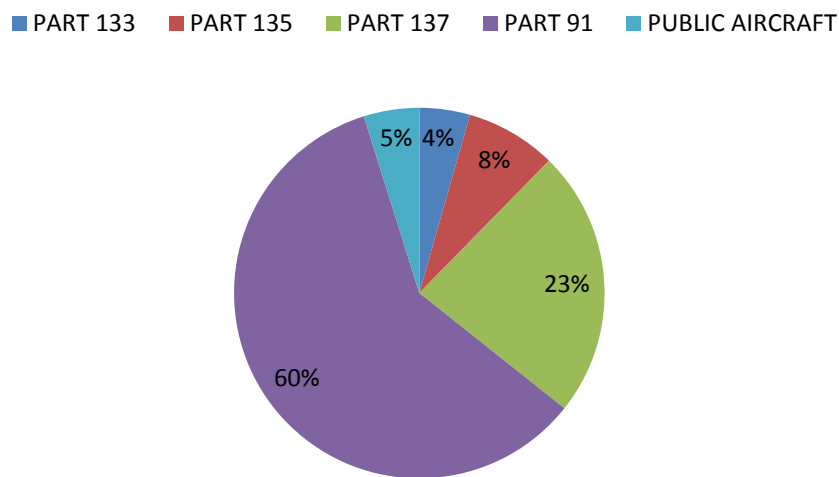


Figure 2. Wire strikes by type of flight operation

Table 2. Wire strike by flight operation

Part Number	Type of Flight Operation	Number of Strikes
Part 133	Rotorcraft External Load	10
Part 135	Air & Taxi Commuter	18
Part 137	Agricultural	53
Part 91	General Aviation	135
Public Aircraft		11

Table 3 shows wire strike accidents comparing rotorcraft model type and type of flight operations.

Table 3. Wire strikes by model and flight operation

	Rotorcraft External Load Part 133
Hughes 369	5
McDonnell Douglas 369	3
Bell 47G	1
Bell 212	1
	Air and Taxi Commuter Part 135
Bell 206	11
Bell 407	1
AS 350	1
EC 130	1
Bell 222	1
Bell 47	1
MBB BO-105	2
	Agriculture Part 137
OH 13	3
Bell 206	3
Bell 47	19
Bell OH 58	5
Bell UH-1	1
Hiller 12	12
Hughes 269	4
Hughes 369	1
R44	4
Tomcat MK5A	1

Table 3. Wire strikes by model and flight operation (continued)

	General Aviation Part 91
R44	12
Bell 206	29
S-55	3
Hughes 369	6
McDonnell Douglas 369	5
Hughes OH-6A	2
R22	23
Bertram 2000	1
Hughes 269	13
Bell 46	1
AS 350	3
Bell 47	15
Tomcat Marks	1
Hiller UH-12	6
Enstrom F28	5
Hughes 500	1
S-76	1
AS 341	1
Brantly 2B	2
EC 130	1
Shapowal Rotorway Exec 90	1
Vuncannon Rotorway Exec 152	1
Bell 222	1
MBB BK-117	1
	Public Aircraft
R22	2
OH-6	1
Hughes 369	1
McDonnell Douglas 369	1
Bell 206	4
AS 350	1
UH-60	1

The certification basis of each rotorcraft involved in a wire strike accident was also summarized. The data are shown in table 4.

Table 4. Certification Basis of Rotorcraft Experiencing Wire Strike

Certification Basis	# of Accidents
Normal	90
Restricted	39
Experimental	4
Transport	2
Unknown	91
Military	1

Of the 227 wire strike accidents in the database, 90 aircraft were certified Part 27 normal category rotorcraft. Part 27 [7] applies to normal category rotorcraft with a maximum weight of 7000 pounds or less and nine or fewer passenger seats. Only two wire strike accidents identified rotorcraft certified based on Part 29. Part 29 [8] applies to transport rotorcraft with a maximum weight greater than 20,000 pounds and 10 or more passenger seats. Unfortunately, there were 91 wire strikes for which the certification basis of the rotorcraft was unknown. It is likely that the majority of the rotorcraft for which the certification basis could not be determined were certified either based on normal or transport category rotorcraft operations or based on the rotorcraft model. However, this could not be confirmed based on researching the aircraft registration number.

Thirty-nine wire strikes involved rotorcraft flying in a restricted category. Part 21.25 [9] defines restricted category aircraft and indicates special operations that would place an aircraft into a restricted category. These operations include agricultural (spraying and dusting), aerial surveying (photography and mapping), and patrolling. These types of operations were seen in the wire strike accidents reported.

There were four accidents involving experimental aircraft. Part 21.191 [10] defines experimental certificates, which includes amateur built aircraft, crew training, and research and development. There was also one instance of a military aircraft (UH-60A) wire strike accident.

Next, the type of damage sustained to the rotorcraft for the 227 strikes was analyzed. Figure 3 shows that 62% of the reported strikes resulted in substantial damage, and 37% of the time the rotorcraft was destroyed. Table 5 shows there was only one instance of both minor and no damage reported.

The FAA defines substantial damage as “damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component [11].”

The FAA defines a destroyed aircraft as “an aircraft damaged to the extent that it would be impracticable to return the aircraft to an airworthy condition [11].”

TYPE OF DAMAGE DUE TO WIRE STRIKE

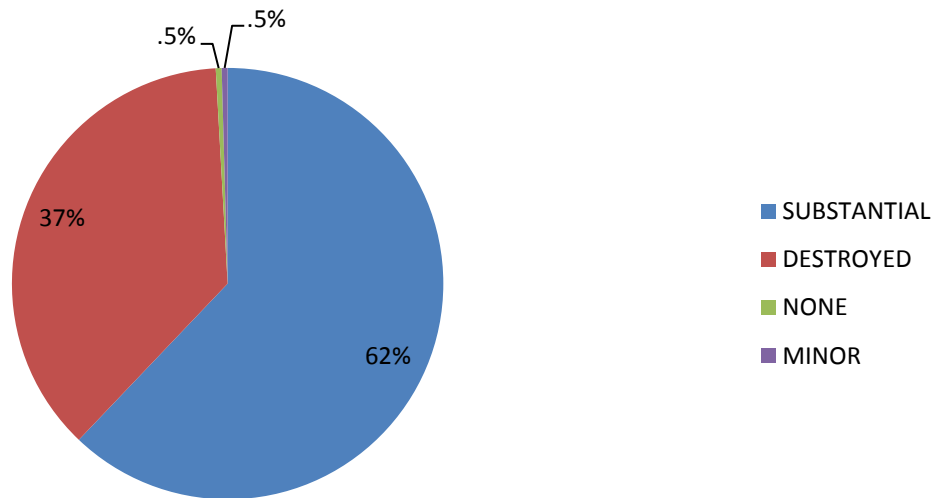


Figure 3. Damage sustained from wire strike

Table 5. Damage sustained from wire strike data

Type of Damage	Number of Aircraft
Substantial	141
Destroyed	84
None	1
Minor	1

The data were analyzed to determine the phase of flight the rotorcraft was in when the strike occurred. Figure 4 shows that 51% of the strikes occurred while the rotorcraft was maneuvering. Cruise and takeoff accounted for 17% and 14%, respectively.

PHASE OF FLIGHT WHEN WIRE STRIKE OCCURRED

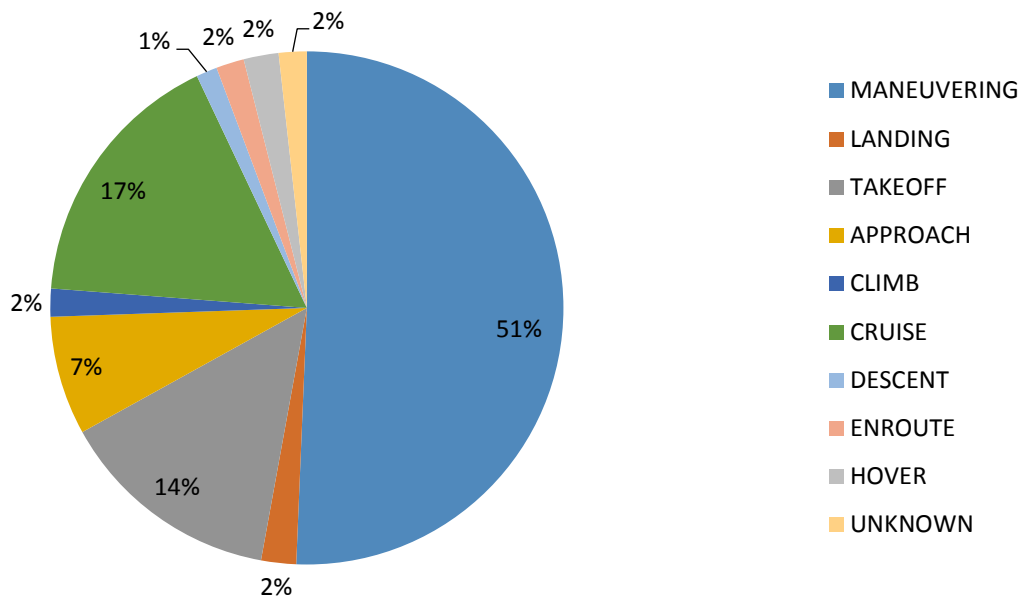


Figure 4. Phase of flight when wire strike occurred

Table 6 shows the phase of flight data when the strike occurred, from figure 4. Further analysis was done to determine the phase of flight when strike occurred by rotorcraft model data. These data are shown in table 7.

Table 6. Phase-of-flight data indicating when wire strike occurred

Phase of Flight	Number of Aircraft
Maneuvering	115
Landing	5
Takeoff	32
Approach	17
Climb	4
Cruise	38
Descent	3
Enroute	4
Hover	4
Unknown	5

Table 7. Phase of flight when wire strike occurred and rotorcraft model

Rotorcraft model	Cruise	Maneuvering	Initial Climb	Takeoff	Final Approach	Hover	Enroute	Landing	Descent	Unknown
OH 13		3								
AS 350	1	2		2						
AS 341		1								
Bell 206	11	20	1	10	3	1	1	1		
Bell 222	1						1			
Bell 407				1						
Bell 46		1								
Bell 47	3	24	1	4	2			1		
Bell 212		1								
OH 58		5								
Bell UH-1B		1								
Bertram 2000		1								
Brantly B-2B	1	1								
Enstrom 280	2				3					
EC 130		2								
Hiller UH-12		15		2	1					
Hughes 269	4	7	1	1						
Hughes 369	2	8		1	1		1			
Hughes 500				1						
OH 6A		3								
MBB BK-117					1					

Table 7. Phase of flight when wire strike occurred and rotorcraft model (continued)

Rotorcraft model	Cruise	Maneuvering	Initial Climb	Takeoff	Final Approach	Hover	Enroute	Landing	Descent	Unknown
MBB BO-105	1			1						
McDonnell Douglas 369	2	4				3				
R 22	7	7	1	3	3	1	1		1	1
R 44	2	4		4	2				2	1
S 55		1						2		
Schweizer 269	1	1		1	1					1
Shapowal Rotorway Exec 90								1		
S 76				1						
UH 60		1								
Tomcat Mark5		2								
Vuncannon Rotoway Exec 152										1

Probable causes for wire strike accidents were analyzed. The most prevalent probable causes included:

- Failure to see and avoid
- Inadequate visual lookout
- Failure to maintain obstacle clearance
- Lack of pilot experience
- Failure to maintain sufficient altitude
- Operating in Visual Flight Rules during Instrument Flight Rules conditions
- Pilots' failure to maintain clearance with wires during a low altitude aerial application flight
- Sun glare
- Fog
- Inadequate preflight planning
- Diverted pilot attention

There were often multiple probable causes for a single accident. Inadequate pilot planning prior to the flight to know where power lines along the flight path were was the cause of several accidents. Another issue was diminished visibility due to sun glare or fog, preventing the pilot from seeing power lines. Diverted pilot attention was also a major issue with respect to aerial and external load applications. Overall, most accidents involved the pilot's failure to see and avoid wires potentially because of inadequate visual lookout, not maintaining altitude, and not maintaining obstacle clearance.

The 227 NTSB records were analyzed to determine the types of injuries sustained in these wire strike accidents. The data are shown in table 8. Figure 5 shows the sum of all injuries or no injury by percentage.

Table 8. Type of injuries sustained from wire strikes

Type of Injury Sustained	Number of Occurrences
None	107
Minor	94
Serious	84
Fatal	144

Type of Injuries Sustained

■ NONE ■ MINOR ■ SERIOUS ■ FATAL

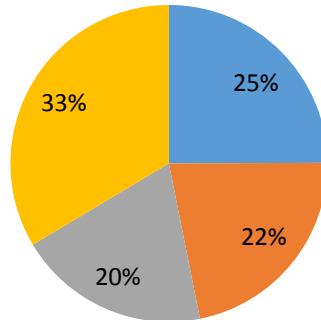


Figure 5. Type of injuries sustained from wire strikes

The FAA defines a fatal injury as “any injury which results in death within 30 days of the accident [12].”

The FAA defines serious injury as any injury which: “(1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface [12].”

Injuries that do not fit the definition of fatal or serious injuries are considered minor.

The data show a combined 429 reports of no injury, minor injury, serious injury, or fatalities. Of the 429 reports, 33% were of fatalities, 25% no injury, 22% minor injury, and 20% serious injury.

Additional analysis was done to compare the certification basis of the rotorcraft with the type of injury sustained. These data are shown in table 9.

Table 9. Certification basis of rotorcraft and type of injury sustained because of wire strike

Certification Basis of Rotorcraft and Type of Injury Sustained	
Normal	
None	53
Serious	39
Minor	30
Fatal	58
Unknown	
None	44
Serious	38
Minor	47
Fatal	59
Restricted	
None	9
Serious	6
Minor	13
Fatal	19
Transport	
None	0
Serious	0
Minor	1
Fatal	4
Experimental	
None	1
Serious	1
Minor	3
Fatal	0
Military	
None	0
Serious	0
Minor	0
Fatal	4

CONCLUSIONS

The analysis of the rotorcraft wire strike accidents from the National Transportation Safety Board database show that the Bell 206, the Bell 47, and the Robinson R22 accounted for 48% of all wire strikes reported in the database.

The data also showed that 60% of wire strikes occurred during Part 91 general aviation (GA) operations.

The reported strikes resulted in substantial damage in 62% of the accidents; the rotorcraft was destroyed in 37% of the accidents. There was only one instance of both minor and no damage reported.

Rotorcraft in the maneuvering phase of flight accounted for 51% of the wire strike accidents. Cruise and takeoff accounted for 17% and 14%, respectively.

Overall, most accidents involved the pilot's failure to see and avoid wires, potentially because of inadequate visual lookout, not maintaining altitude, and not maintaining obstacle clearance.

There were a combined 429 reports of injuries sustained because of wire strike accidents. This included 33% resulting in fatalities, 25% no injury, 22% minor injury, and 20% serious injury.

The data showed that most wire strike accidents occurred in small rotorcraft that can carry one or two passengers. Therefore, it may be beneficial to develop inexpensive wire cutters that can be retrofitted on smaller rotorcraft. Research would need to be conducted to determine types of wires and their specifications regarding what the cutters would need to be able to cut through (telephone, cable, electric, etc.). Another option would be to provide better training for GA pilots on wire avoidance and preflight planning.

Wire strikes could also be mitigated by installing sensors on rotorcraft that would detect and alert the pilot of wires. This option is probably more expensive and, therefore, a more viable option for larger rotorcraft. Research would need to be done to determine what sensor technologies are available, their ability to be integrated into the rotorcraft, and the variety of wires the sensors would need to detect.

Another way to mitigate wire strikes could be to develop a database of all wire locations, their heights, and the type and size of wire, and to make this available to pilots so they are aware of wire locations during their preflight planning. This option would be beneficial to both small and large rotorcraft.

In discussions with those who work in the utility, patrol, and construction industry, their feedback is that they are currently relying on marker balls on the lines to make them more easily distinguished. Many are also using iPhone®/iPad® applications to receive notifications that they are approaching wires based on satellite and GPS coordinates. Others are using geographic information systems to map out hazards in the areas in which they work using a tablet. As they approach the hazards they get a warning in their headsets.

Those in the industry also recommended adding wire locations on ForeFlight. However, there are limitations of knowing all wire locations and having to continuously update databases as wires are added to the grid. Presently, there are no known databases that contain all wire locations in the U.S.

The FAA has a requirement for rotorcraft wire strike research in fiscal year 2019 and plans to look at these research areas based on funding availability.

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APPENDIX A—ROTORCRAFT NTSB WIRE STRIKE DATASET

Table A-1. Rotorcraft NTSB wire strike dataset

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
7/22/2016	1600 CDT	Bell OH58A	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING
10/5/2015	1550CDT	ROBINSON R44 II	PART 91: GA BUSINESS	SUBSTANTIAL	1 NONE	TAKEOFF
7/15/2015	1300 CDT	ROBINSON R44	PART 91: GA PERSONAL	SUBSTANTIAL	1 NONE	APPROACH
7/12/2015	0800 CDT	ROBINSON R44	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	DESCENT
7/3/2015	1730 MDT	EUROCOPTER EC 130 B4	PART 135: AIR TAX AND COMMUTER	SUBSTANTIAL	5 NONE	MANEUVERING LOW ALTITUDE
7/1/2015	1000 PDT	HUGHES 269C	PART 91: GA PERSONAL	DESTROYED	2 FATAL	MANEUVERING LOW ALTITUDE
2/27/2015	1030 PST	BELL 47G 2A	PART 137: AGRICULTURAL		1 SERIOUS	
9/6/2014	1207 CDT	ROBINSON R44 II	PART 137: AGRICULTURAL	SUBSTANTIAL	1 FATAL	MANEUVERING LOW ALTITUDE
8/27/2014	1230 PDT	ROBINSON R22 BETA	PART 91: GA PERSONAL	SUBSTANTIAL	1 SERIOUS, 1 MINOR	TAKEOFF
8/19/2014	1100 CDT	MCDONNELL DOUGLAS 369E	PART 91: GA AERIAL OBSERVATION	SUBSTANTIAL	2 FATAL	MANEUVERING LOW ALTITUDE
8/18/2014	1350 CDT	HUGHES 369 HS	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING LOW ALTITUDE
7/31/2014	1430 CDT	ROBINSON R44	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING LOW ALTITUDE
7/18/2014	0738 PDT	BELL 47G 2A	PART 137: AGRICULTURAL	SUBSTANTIAL	1 SERIOUS	MANEUVERING LOW ALTITUDE
1/27/2014	1118 MST	BELL 206L 3	PART 135: AIR TAX AND COMMUTER	DESTROYED	3 FATAL	MANEUVERING LOW ALTITUDE
10/28/2013	1145PDT	BELL 206B	PART 91: GA AERIAL OBSERVATION	SUBSTANTIAL	3 SERIOUS	ENROUTE CRUISE
9/29/2013	0930 PDT	OH 13E/M74	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING LOW ALTITUDE
8/22/2013	1748 EDT	MCDONNELL DOUGLAS 369FF	PART 133: ROTORCRAFT EXTERNAL LOAD	SUBSTANTIAL	2 NONE	MANEUVERING HOVER
8/5/2013	0915 CDT	HUGHES 369D	PART 133: ROTORCRAFT EXTERNAL LOAD	NONE	2 FATAL, 1 NONE	MANEUVERING LOW ALTITUDE

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
7/29/2013	1045 EDT	MCDONNELL DOUGLAS 369E	PUBLIC AIRCRAFT (FLOWN BY DEA)	DESTROYED	2 SERIOUS	ENROUTE CRUISE
6/25/2013	1510 PDT	ROBINSON R44 II	PART 91: GA OTHER WORK USE	SUBSTANTIAL	1 NONE	MANEUVERING LOW ALTITUDE
2/18/2013	1424 PST	BELL 206B	PUBLIC AIRCRAFT (FLOWN BY DOI)	SUBSTANTIAL	1 FATAL	MANEUVERING LOW ALTITUDE
11/15/2012	1211 EST	HUGHES 369D	PART 91: GA AERIAL OBSERVATION	SUBSTANTIAL	2 FATAL	MANEUVERING LOW ALTITUDE
11/3/2012	2245 EDT	HUGHES OH-6A	PUBLIC AIRCRAFT (ATLANTA POLIC DEPT)	SUBSTANTIAL	2 FATAL	MANEUVERING LOW ALTITUDE
10/10/2012	1155 CDT	BELL 206B	PART 91: GA PERSONAL	SUBSTANTIAL	1 FATAL	ENROUTE
7/21/2012	1445 CDT	BERTRAM 2000 (GYROCOPTER)	PART 91: GA PERSONAL	SUBSTANTIAL	1 SERIOUS	MANEUVERING LOW ALTITUDE
12/21/2011	1615 EST	HUGHES 369D	PART 91: GA AERIAL OBSERVATION	SUBSTANTIAL	1 NONE	ENROUTE
8/1/2011	1818 EDT	BELL 206	PART 135: AIR TAXI AND COMMUTER, AIR MEDICAL	MINOR	4 NONE	INITIAL CLIMB
8/1/2011	0930 CDT	OH-13H/M74A	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING LOW ALTITUDE
7/31/2011	1600 CDT	OH-58C	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING LOW ALTITUDE
7/25/2011	1438 PDT	S-55B	PART 91: GA AERIAL APPLICATION	SUBSTANTIAL	1 FATAL	MANEUVERING LOW ALTITUDE
7/23/2011	1145 CDT	BELL 206B	PART 91: GA AERIAL APPLICATION	SUBSTANTIAL	3 NONE	MANEUVERING LOW ALTITUDE
7/20/2011	1030 PDT	BELL 47G-5	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING LOW ALTITUDE
12/10/2010	1155 EST	BELL 206B	PART 135: AIR AND TAXI COMMUTER	SUBSTANTIAL	1 MINOR, 2 NONE	MANEUVERING LOW ALTITUDE
11/3/2013	1459 MDT	BELL 206	PART 91: GA OTHER WORK USE	SUBSTANTIAL	1 FATAL, 1 SERIOUS	MANEUVERING LOW ALTITUDE
10/30/2010	1030 EDT	369E	PART 133: ROTORCRAFT EXTERNAL LOAD	SUBSTANTIAL	1 FATAL, 1 SERIOUS, 2 MINOR	MANEUVERING-HOVER
7/19/2010	0755 EDT	BELL 206	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING- LOW ALTITUDE

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
7/10/2010	0630 MDT	Bell OH58A	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING- LOW ALTITUDE
7/5/2010	1745 CDT	ROBINSON R44	PART 137: AGRICULTURAL	SUBSTANTIAL	1 FATAL	MANEUVERING- LOW ALTITUDE
2/5/2010	1209 PST	BELL 206B	PUBLIC AIRCRAFT-STATE GOVT	SUBSTANTIAL	4 FATAL	MANEUVERING
7/23/2009	2226 EDT	ROBINSON R44	PART 91: GA BUSINESS	SUBSTANTIAL	4 FATAL	ENROUTE-CRUISE
6/11/2009	1000 MST	ROBINSON R22 BETA	PART 91: GA OTHER WORK USE	SUBSTANTIAL	1 FATAL	MANEUVERING- LOW ALTITUDE
6/5/2009	1315 CDT	BELL 47G	PART 137: AGRICULTURAL	SUBSTANTIAL	1 SERIOUS	APPROACH
4/29/2009	1830 PDT	Bell OH58A	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING- LOW ALTITUDE
3/10/2009	1507 EDT	HUGHES 369D	PART 133: ROTORCRAFT EXTERNAL LOAD	SUBSTANTIAL	3 SERIOUS	MANUEVERING-HOVER
1/22/2009	1030 EST	HUGHES OH-6A	PART 91: GA OTHER WORK USE	SUBSTANTIAL	1 FATAL, 1 SERIOUS	MANEUVERING LOW ALTITUDE
10/15/2008	2358 CDT	BELL 222	PART 135: AIR TAXI AND COMMUTER, AIR MEDICAL	DESTROYED	4 FATAL	ENROUTE-CRUISE
8/22/2008	1800 AKD	ROBINSON R44	PART 91: GA , POSITIONING	SUBSTANTIAL	1 NONE	APPROACH
8/15/2008	0700 CDT	HILLER UH-12E	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANUEVERING-AERIAL APPLICATION
7/15/2008	0926 CDT	HUGHES 269B	PART 91: GA, AERIAL OBSERVATION	DESTROYED	2 FATAL	MANEUVERING- LOW ALTITUDE
7/4/2008	0030 PDT	SCHWEIZER 269 C-1	PART 91: GA, INSTRUCTIONAL	DESTROYED	2 FATAL	ENROUTE-CRUISE
1/25/2008	2257 PST	ROBINSON R22 BETA	PART 91: GA, PERSONAL	DESTROYED	1 FATAL	ENROUTE-CRUISE
12/1/2007	1310 CST	BELL 206 L4	PART 135: AIR TAX AND COMMUTER, AIR MEDICAL	SUBSTANTIAL	4 NONE	TAKE OFF
1/5/2007	1315 CST	ROBINSON R44	PART 91: GA	DESTROYED	3 FATAL	TAKE OFF-INITIAL CLIMB
8/22/2007	1226 CDT	BELL 206 L4	PART 91: GA, AIR MEDICAL	SUBSTANTIAL	2 SERIOUS, 1 MINOR	LANDING
3/23/2007	1555 EDT	BELL 206B	PART 135: AIR AND TAXI COMMUTER	SUBSTANTIAL	2 MINOR, 2 NONE	TAKE OFF
11/21/2006	1250 MST	HUGHES 369E	PART 91: GENERAL AVIATION, OTHER WORK USE	SUBSTANTIAL	1 FATAL, 1 SERIOUS	MANEUVERING

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
9/29/2006	1815 CDT	BRANTLY B-2B	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 NONE	CRUISE
6/30/2006	1251 CDT	BELL 206B	PART 91: GENERAL AVIATION, BUSINESS	DESTROYED	1 FATAL, 2 SERIOUS	MANEUVERING
5/28/2006	1515 EDT	HUGHES 269A	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 FATAL	CRUISE
5/2/2006	1945 EST	ROBINSON R44 RAVEN II	PART 91: GENERAL AVIATION, BUSINESS	SUBSTANTIAL	1 NONE	CRUISE-NORMAL
4/13/2006	1840 CDT	ROBINSON R44 II	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	2 FATAL, 1 SERIOUS	TAKE OFF-INITIAL CLIMB
4/1/2006	1802 CST	BRANTLY B-2B	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	1 SERIOUS	MANEUVERING
2/25/2006	1330 PST	SCHWEIZER 269 C-1	PART 91: GENERAL AVIATION, INSTRUCTIONAL	DESTROYED	1 FATAL, 1 SERIOUS	UNKNOWN
1/12/2006	1600 CST	AEROSPATIALE AS350-B2	PUBLIC AIRCRAFT- US CUSTOMS AND BORDER PATROL	SUBSTANTIAL	1 SERIOUS	MANEUVERING
12/22/2005	1319 CST	EUROCOPTER AS-35 B2	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 SERIOUS, 1 NONE	CRUISE
10/19/2005	1429 PDT	HUGHES 369D	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	2 SERIOUS	CRUISE
10/2/2005	0900 PDT	BELL 206B	PART 137: AGRICULTURAL	SUBSTANTIAL	1 SERIOUS	MANEUVERING
9/24/2005	1105 CDT	ROBINSON R44	PART 91: GENERAL AVIATION, BUSINESS SIGHTSEEING	SUBSTANTIAL	3 FATAL	UNKNOWN
6/22/2005	0845 CDT	OH-58A+	PART 137: AGRICULTURAL	SUBSTANTIAL	1 SERIOUS	MANEUVERING
6/15/2005	0805 CDT	HUGHES 269A	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 FATAL	CRUISE-NORMAL
5/18/2005	0930 CDT	ROBINSON R22 BETA	PART 91: GENERAL AVIATION, OTHER WORK USE	SUBSTANTIAL	1 SERIOUS, 1 NONE	MANEUVERING
8/6/2004	1959 CDT	EUROCOPTER EC130 B4	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	2 FATAL, 1 MINOR	MANEUVERING
6/26/2004	2041 CDT	BELL 206B	PART 91: GENERAL AVIATION, BUSINESS, SIGHTSEEING	DESTROYED	2 FATAL, 3 SERIOUS	MANEUVERING
2/28/2004	1200 CST	ROBINSON R44	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	2 NONE	TAKEOFF
12/20/2003	1100 CST	BELL 206B	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	3 NONE	APPROACH

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
10/24/2003	1830 CDT	SHAPOWAL ROTORWAY EXEC 90	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 MINOR	LANDING
9/4/2003	2000 CDT	ROBINSON R22 BETA	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 NONE	UNKNOWN
8/19/2003	1945 CDT	BELL 206B	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	SUBSTANTIAL	3 MINOR	MANEUVERING
7/30/2003	0720 PDT	OH 13E/M74	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING
7/15/2003	0730 CDT	BELL 47G-5	PART 137: AGRICULTURAL	DESTROYED	1 SERIOUS	MANEUVERING
6/1/2003	1120 MST	ROBINSON R22 BETA	PART 91: GENERAL AVIATION, INSTRUCTIONAL	SUBSTANTIAL	1 NONE	MANEUVERING
4/20/2003	1545 EDT	ROBINSON R22B	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 NONE	APPROACH
9/25/2002	1415 CDT	BELL 47G-2	PART 137: AGRICULTURAL	DESTROYED	1 FATAL	MANEUVERING
8/30/2002	1225 MDT	BELL 206L-III	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	1 SERIOUS	MANEUVERING
8/25/2002	1730 EDT	ENSTROM 280C	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 SERIOUS, 1 NONE	CRUISE
6/27/2002	0758 MDT	BELL 206BIII	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	DESTROYED	2 FATAL	MANEUVERING
12/27/2001	1241 MST	HUGHES 369E	PUBLIC AIRCRAFT- HIRED BY STATE	DESTROYED	3 FATAL	MANEUVERING
12/12/2001	1822 CST	ROBINSON R44	PART 91: GENERAL AVIATION, POSITIONING	DESTROYED	1 FATAL, 1 SERIOUS, 1 MINOR	CRUISE
11/22/2001	1330 CST	ENSTROM 280FX	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	2 FATAL, 1 SERIOUS	APPROACH
11/3/2001	1230 CST	ROBINSON R22	PART 91: GENERAL AVIATION, INSTRUCTIONAL	SUBSTANTIAL	1 FATAL, 1 SERIOUS	MANEUVERING
10/22/2001	1838 EDT	BELL 206B	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	2 FATAL	CRUISE
8/11/2001	0603 PDT	BELL 47G-4A	PART 137: AGRICULTURAL	DESTROYED	1 MINOR	MANEUVERING
7/26/2001	0940 CDT	BELL 47G-2	PART 137: AGRICULTURAL	SUBSTANTIAL	1 FATAL	MANEUVERING
3/10/2001	1000 CST	ROBINSON R22	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	2 NONE	HOVER
9/7/2000	1020 PDT	HUGHES 269C	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	1 FATAL	CRUISE
9/1/2000	0935 CDT	BELL 47G-3B-1	PART 137: AGRICULTURAL	DESTROYED	1 SERIOUS	MANEUVERING

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
5/6/2000	1313 EDT	HILLER UH-12C	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 MINOR	MANEUVERING
5/1/2000	1810 MDT	MCDONNELL DOUGLAS 369E	PART 91: GENERAL AVIATION, OTHER WORK USE	DESTROYED	2 FATAL	MANEUVERING
2/21/2000	0830 PST	HILLER H-12E	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING
1/26/2000	1330 PST	HILLER-UH-12E	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING
9/9/1999	1015 PDT	BELL B212	PART 133: ROTORCRAFT EXTERNAL LOAD	DESTROYED	1 MINOR	MANEUVERING
7/23/1999	1255 CDT	ROBINSON R22	PART 91: GENERAL AVIATION, OTHER WORK USE	SUBSTANTIAL	1 NONE	MANEUVERING
6/8/1999	1114 EDT	AMERICAN EUROCOPTER AS-350B	PART 91: GENERAL AVIATION, EXECUTIVE/CORPORATE	DESTROYED	1 FATAL	TAKE OFF
12/6/1998	1200 PST	ROBINSON R-22B	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	2 NONE	MANEUVERING
12/4/1998	0845 MST	ROBINSON R-22 BETA II	PART 91: GENERAL AVIATION, OTHER WORK USE	DESTROYED	1 FATAL	CRUISE
7/2/1998	1415 CDT	ROBINSON R-44	PART 91: GENERAL AVIATION, BUSINESS	SUBSTANTIAL	2 MINOR	DESCENT
6/10/1998	1200 CDT	BELL 47G	PART 137: AGRICULTURAL	DESTROYED	1 SERIOUS	MANEUVERING
6/2/1998	1610 MDT	MCDONNELL DOUGLAS 369FF	PART 133: ROTORCRAFT EXTERNAL LOAD	SUBSTANTIAL	1 FATAL, 1 SERIOUS	MANEUVERING
5/25/1998	0032 EDT	BELL 206L-3	PART 135: AIR TAXI AND COMMUTER, NON SCHEDULED	DESTROYED	5 FATAL	CRUISE
5/1/1998	1402 PDT	ROBINSON R22	PART 91: GENERAL AVIATION, INSTRUCTIONAL	DESTROYED	1 FATAL, 1 SERIOUS	APPROACH
3/19/1998	1740 PST	BELL 206B	PART 91: GENERAL AVIATION, PUBLIC AIRCRAFT	SUBSTANTIAL	1 NONE	APPROACH
12/14/1997	2200 MST	BELL 407	PART 135: AIR AND TAXI COMMUTER, NON SCHEDULED, AIR MEDICAL	DESTROYED	4 FATAL	TAKE OFF
10/14/1997	2126 CDT	SCHWEIZER 269	PART 91: GENERAL AVIATION, INSTRUCTIONAL	SUBSTANTIAL	1 NONE	APPROACH
9/20/1997	1632 EDT	BELL 47G-2	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	SUBSTANTIAL	3 NONE	MANEUVERING
6/13/1997	1100 EDT	ENSTROM F-280C	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	2 MINOR	APPROACH
3/14/1997	0900 PST	HILLER UH-12E	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
9/13/1996	1356 MDT	BELL 206B-3	PUBLIC AIRCRAFT, US FOREST SERVICE	SUBSTANTIAL	1 NONE	MANEUVERING
5/31/1996	1600 MDT	HUGHES 369HS	PART 91: GENERAL AVIATION, BUSINESS	SUBSTANTIAL	1 NONE	CRUISE
12/5/1995	1201 CST	MCDONNELL DOUGLAS 369E	PART 133: ROTORCRAFT EXTERNAL LOAD	DESTROYED	1 FATAL, 1 MINOR	HOVER
8/29/1995	1720 PDT	BELL 206-L1	PART 91: GENERAL AVIATION	DESTROYED	2 FATAL	MANEUVERING
7/4/1995	1400 PDT	HUGHES 369HS	PART 91: GENERAL AVIATION, SIGHTSEEING	SUBSTANTIAL	3 SERIOUS	APPROACH
6/4/1995	0818 MDT	HUGHES 269B	PART 137: AGRICULTURAL	DESTROYED	1 MINOR	MANEUVERING
4/25/1995	1050 CDT	BELL 47D1	PART 91: GENERAL AVIATION, INSTRUCTIONAL	DESTROYED	2 FATAL	TAKEOFF
4/1/1996	2130 CST	BELL 206L-1	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 FATAL, 2 SERIOUS, 4 MINOR	TAKEOFF
3/7/1995	1340 PST	MCDONNELL DOUGLAS 369E	PART 91: GENERAL AVIATION, INSTRUCTIONAL	DESTROYED	1 FATAL	HOVER
2/20/1995	0745 PST	BELL 47G-5	PART 91: GENERAL AVIATION, POSITIONING	SUBSTANTIAL	1 SERIOUS	TAKEOFF
1/14/1995	1945 PST	BELL 206B	PART 135: AIR TAXI AND COMMUTER, NON SCHEDULED	DESTROYED	2 FATAL, 2 SERIOUS	CRUISE
8/11/1994	1100 CDT	BELL 47G3B1	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING
6/23/1994	1155 CDT	HILLER HU-12E	PART 137: AGRICULTURAL	DESTROYED	1 FATAL	MANEUVERING
5/12/1994	1230 CDT	BELL 206B	PART 91: GENERAL AVIATION, BUSINESS	SUBSTANTIAL	2 NONE	MANEUVERING
5/10/1994	2142 PDT	ROBINSON R-22	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	2 FATAL, 3 MINOR	CRUISE
5/8/1994	1945 EDT	ROBINSON R-22B	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	2 NONE	TAKEOFF
5/5/1994	1250 EDT	ROBINSON R22A	PART 91: GENERAL AVIATION, INSTRUCTIONAL	DESTROYED	2 FATAL	CRUISE
4/21/1994	2001 PDT	TOMCAT MK5A	PART 137: AGRICULTURAL	DESTROYED	1 FATAL	MANEUVERING
2/28/1994	1210 MST	BELL 47G-3B-1	PART 133: ROTORCRAFT EXTERNAL LOAD	SUBSTANTIAL	1 MINIOR	MANEUVERING
1/20/1994	0900 PST	AEROSPATIALE AS350D	PART 135: AIR TAX & COMMUTER, NON SCHEDULED	DESTROYED	2 FATAL	MANEUVERING

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
1/4/1994	0920 MST	BELL 206B	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	DESTROYED	1 FATAL, 3 SERIOUS	CRUISE
11/6/1993	1122 PST	AEROSPATIALE SA-341G	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	4 NONE	CRUISE
10/19/1993	1650 EDT	MCDONNELL DOUGLAS 369E	PART 91: GENERAL AVIATION, BUSINESS	DESTROYED	1 FATAL, 1 SERIOUS, 1 MINOR	CRUISE
8/11/1993	1045 PDT	HILLER UH-12E	PART 137: AGRICULTURAL	DESTROYED	1 SERIOUS	MANEUVERING
7/24/1993	1430 EDT	ROBINSON R22	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	2 FATAL	TAKEOFF
7/14/1993	1033 EDT	SIKORSKY UH-60A	PUBLIC AIRCRAFT, US ARMY	DESTROYED	4 FATAL	MANEUVERING
6/20/1993	1742 CDT	BELL 206L-3	PART 135: AIR TAX & COMMUTER, NON SCHEDULED, AIR MEDICAL	SUBSTANTIAL	3 MINOR	TAKEOFF
6/17/1993	0935 EDT	ENSTROM F28C	PART 91: GENERAL AVIATION, BUSINESS	DESTROYED	FATAL	CRUISE
3/20/1993	0647 PST	BELL 47G5	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING
12/2/1992	1012 PST	HUGHES 369B	PART 133: ROTORCRAFT EXTERNAL LOAD	DESTROYED	2 FATAL	MANEUVERING
10/11/1992	1634 EDT	ENSTROM F-28A	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	3 NONE	APPROACH
9/13/1992	1600 PDT	ROBINSON R22 BETA	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 SERIOUS, 1 MINOR	CRUISE
6/25/1992	1430 CDT	BELL 47D1	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING
6/20/1992	2233 EDT	MBB BK-117	PART 91: GENERAL AVIATION, POSITIONING , AIR MEDICAL	DESTROYED	1 FATAL, 3 SERIOUS	APPROACH
6/16/1992	1000 EDT	BELL 47-G4A	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	DESTROYED	3 FATAL	CRUISE
6/13/1992	1306 MDT	HUGHES OH-6A	PART 91: GENERAL AVIATION, PUBLIC AIRCRAFT	DESTROYED	1 FATAL	MANEUVERING
4/18/1992	0822 PDT	HUGHES 269C	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING
10/4/1991	0900 EDT	BELL 47D1	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING
9/26/1991	1620 CDT	BELL 47G-5A	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	DESTROYED	3 MINOR	TAKEOFF
8/30/1991	1450 EDT	ROBINSON R22 BETA	PUBLIC AIRCRAFT, LAW ENFORCEMENT	DESTROYED	1 FATAL	CRUISE

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
6/9/1991	0734 PDT	SCHWEIZER 269B	PART 91: GENERAL AVIATION, OTHER WORK USE	DESTROYED	1 FATAL	TAKEOFF
5/9/1991	1930 CDT	VUNCANNON ROTOWAY EXEC 152	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	2 SERIOUS	UNKNOWN
4/15/1991	1035 PDT	ROBINSON R-22B	PART 91: GENERAL AVIATION, INSTRUCTIONAL	DESTROYED	1 SERIOUS	MANEUVERING
4/5/1991	0937 PST	ROBINSON R22B	PART 91: GENERAL AVIATION, INSTRUCTIONAL	DESTROYED	1 FATAL	CRUISE
9/2/1990	1235 MDT	BELL 47G-3B1	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 MINOR	APPROACH
8/9/1990	0943 PDT	HILLER UH-12-E	PART 137: AGRICULTURAL	DESTROYED	1 MINOR	MANEUVERING
8/7/1990	0912 EDT	BELL 206	PART 135: AIR TAXI & COMMUTER, NON SCHEDULED	SUBSTANTIAL	1 SERIOUS, 1 MINOR	CRUISE
7/26/1990	1358 CDT	ROBINSON R22B	PUBLIC AIRCRAFT	DESTROYED	1 FATAL	CRUISE
5/12/1990	1810 PDT	BELL 206B	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	1 FATAL, 1 MINOR	TAKEOFF
3/6/1990	1200 CST	MBB BO-105S	PART 135: AIR TAXI & COMMUTER, NON SCHEDULED, AIR MEDICAL	SUBSTANTIAL	4 NONE	TAKEOFF
1/30/1990	1010 EST	BELL 222	PART 91: GENERAL AVIATION, POSITIONING	SUBSTANTIAL	1 NONE	CRUISE
11/17/1989	0919 PST	MCDONNELL DOUGLAS 369	PART 133: ROTORCRAFT EXTERNAL LOAD	DESTROYED	1 FATAL	HOVER
8/26/1989	1545 CDT	BELL 206B	PART 91: GENERAL AVIATION, POSITIONING	SUBSTANTIAL	1 NONE	TAKEOFF
7/7/1989	1240 EDT	HUGHES 500D	PART 91: GENERAL AVIATION, BUSINESS	SUBSTANTIAL	1 SERIOUS, 1 MINOR, 1 NONE	TAKEOFF
5/22/1989	0708 EDT	BELL UH-1B	PART 137: AGRICULTURAL	DESTROYED	2 FATAL	MANEUVERING
3/22/1989	1830 EST	BELL 206B	PART 91: GENERAL AVIATION, POSITIONING	SUBSTANTIAL	1 SERIOUS	TAKEOFF
6/23/1988	1642 EDT	SIKORSKY S-76A	PART 91: GENERAL AVIATION, EXECUTIVE/CORPORATE	DESTROYED	2 MINOR, 4 NONE	TAKEOFF
6/18/1988	1500 EDT	ROBINSON R22HP	PART 91: GENERAL AVIATION, INSTRUCTIONAL	SUBSTANTIAL	2 NONE	DESCENT
5/9/1988	1000 PDT	HILLER 12E	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
2/16/1988	0840 EST	BELL 206B	PART 91: GENERAL AVIATION, BUSINESS	SUBSTANTIAL	2 SERIOUS, 1 NONE	CRUISE
1/17/1988	1530 MST	ROBINSON R22	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	2 SERIOUS	CLIMB
9/9/1987	1138 PDT	BELL 206B	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	DESTROYED	3 FATAL	MANEUVERING
3/17/1987	0836 AST	BELL 206B-3	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	SUBSTANTIAL	1 FATAL, 1 SERIOUS	CRUISE
8/7/1985	0915 CDT	BELL 47G-5	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING
7/29/1985	1701 CDT	AS350D ASTAR	PART 91: GENERAL AVIATION, POSITIONING	DESTROYED	1 FATAL	TAKEOFF
5/5/1985	0835 PDT	HUGHES 369D	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	DESTROYED	2 FATAL	TAKEOFF
3/15/1985	1500 AST	BELL 206B	PART 135: AIR TAXI & COMMUTER, NON SCHEDULED	SUBSTANTIAL	1 NONE	TAKEOFF
11/5/1984	1100 PST	HILLER UH-12E	PART 91: GENERAL AVIATION, BUSINESS	DESTROYED	3 MINOR	TAKEOFF
10/30/1984	2341 PST	BELL 206B	PART 91: GENERAL AVIATION, BUSINESS	DESTROYED	2 FATAL, 1 SERIOUS	CRUISE
9/20/1984	0925 PDT	BELL 206B	PART 137: AGRICULTURAL	DESTROYED	1 SERIOUS	MANEUVERING
9/8/1984	1625 EDT	BELL 206B	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	4 FATAL	MANEUVERING
7/14/1984	2250 EDT	MBB BO-105C	PART 135: AIR TAXI & COMMUTER, NON SCHEDULED, AIR MEDICAL	DESTROYED	2 FATAL, 2 SERIOUS	CRUISE
6/13/1984	0825 CDT	BELL 47G	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING
6/13/1984	2055 CDT	HUGHES 269C	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING
5/3/1984	1431 EDT	BELL 206B	PART 91: GENERAL AVIATION, EXECUTIVE/CORPORATE	DESTROYED	1 SERIOUS	CRUISE
10/30/1983	0800 EST	BELL 206B	PART 91: GENERAL AVIATION, BUSINESS	DESTROYED	1 SERIOUS, 1 MINOR	HOVER
7/18/1983	1823 CDT	HILLER UH-12E	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING
5/24/1983	1815 CDT	HILLER UH-12E	PART 137: AGRICULTURAL	DESTROYED	1 SERIOUS	MANEUVERING
5/4/1983	1215 CDT	BELL 206B	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	SUBSTANTIAL	3 NONE	MANEUVERING

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
5/3/1983	1100 CDT	HILLER UH-12E	PART 91: GENERAL AVIATION, AERIAL OBSERVATION	SUBSTANTIAL	1 NONE	MANEUVERING
2/7/1983	1230 CST	ROBINSON R22	PART 91: GENERAL AVIATION, INSTRUCTIONAL	SUBSTANTIAL	2 NONE	APPROACH
2/3/1983	1100 PST	BELL 47G4	PART 137: AGRICULTURAL	DESTROYED	1 MINOR	MANEUVERING
1/7/1983	1630 PST	HILLER UH-12E	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	TAKEOFF
6/28/1982	1245 MDT	HUGHES 269C	PART 137: AGRICULTURAL	SUBSTANTIAL	1 MINOR	MANEUVERING
5/10/1982	0910 EDT	BELL 47G-3B	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING
4/15/1982	0700 PST	BELL 47G-2	PART 137: AGRICULTURAL	DESTROYED	2 NONE	TAKEOFF
3/9/1982	0744 PST	HILLER 12E	PART 137: AGRICULTURAL	SUBSTANTIAL	1 NONE	MANEUVERING
7/13/1980	0700 EST	TOMCAT MARK5	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	MANEUVERING
5/29/1980	0832 EST	HUGHES 269C	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	MANEUVERING
1/19/1980	2211 EST	BELL 206B	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	6 MINOR	TAKEOFF
8/18/1979	1630 CST	BELL 206B	PART 135: AIR TAXI & COMMUTER	SUBSTANTIAL	2 MINOR	TAKEOFF
7/6/1979	0745 EST	BELL 47G-5	PART 91: GENERAL AVIATION	DESTROYED	1 FATAL	MANEUVERING
12/6/1978	0830 PST	BELL 46G2	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	MANEUVERING
7/5/1977	1000 CST	HUGHES 269C	PART 91: GENERAL AVIATION	DESTROYED	2 MINOR	CLIMB
5/28/1977	1030 PST	HILLER UH-12C	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	2 MINOR, 1 SERIOUS	MANEUVERING
3/30/1977	1430 CST	BELL 47D-1	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	MANEUVERING
8/6/1976	1752 EST	BELL 47D-1	PART 91: GENERAL AVIATION, PERSONAL	DESTROYED	2 FATAL	CRUISE-LOW
10/28/1973	1100 EST	BELL 47G-2	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 SERIOUS	MANEUVERING
8/17/1973	1058 EST	BELL 47D-1	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	MANEUVERING
6/9/1972	0850 PST	BELL 47G-2	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	LANDING
6/4/1972	0730 PST	BELL 47G-2	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	MANEUVERING
7/3/1971	2213 EST	BELL 206A	PUBLIC AIRCRAFT, POLICE PATROL	SUBSTANTIAL	2 MINOR	FINAL APPROACH
10/12/1970	0907 EST	SIKORSKY S-55	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	LANDING
7/21/1970	1015 CST	BELL 47G-5	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	MANEUVERING

Table A-1. Rotorcraft NTSB wire strike dataset (continued)

Date	Time	Aircraft	Type of Flight	Type of Damage	Injuries	phase of flight
7/11/1970	1550 PST	HILLER UH-12A	PART 91: GENERAL AVIATION, PERSONAL	SUBSTANTIAL	1 MINOR	FINAL APPROACH
6/28/1967	1430 CST	HUGHES 269B	PART 91: GENERAL AVIATION	DESTROYED	1 SERIOUS	CRUISE
6/18/1967	1030 PST	HUGHES 269A	PART 91: GENERAL AVIATION	SUBSTANTIAL	2 MINOR	TAKEOFF
6/12/1967	0945 CST	SIKORSKY S-55	PART 91: GENERAL AVIATION	SUBSTANTIAL	5 MINOR	LANDING
4/21/1967	1030 PST	HILLER UH-12E	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR	MANEUVERING
12/12/1966	1045 MST	BELL 47G-3B	PART 91: GENERAL AVIATION	SUBSTANTIAL	1 MINOR, 2 SERIOUS	CRUISE-LOW
2/25/1966	0825 CST	BELL 47G-2	PART 135: NON SCHEDULED OPERATION	SUBSTANTIAL	1 MINOR	INITIAL CLIMB