Aviation Investigation Final Report

Location:	Cordes Lakes, Arizona	**Accident Number:**	WPR13FA417
Date & Time:	September 21, 2013, 11:50 Local	**Registration:**	N22490
Aircraft:	Bell UH-1V	**Aircraft Damage:**	Destroyed
Defining Event:	Part(s) separation from AC	**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

About 5 months before the accident, the pilot purchased the former military helicopter, which he was operating as an experimental aircraft in the exhibition category, and had flown it about 33 hours. On the day of the accident, during cruise flight, about 2,000 ft above ground level, the main rotor (MR) mast failed, and the MR hub and blade assembly separated from the helicopter. The primary debris trail was relatively linear and extended a distance of about 2,000 ft. Examination of the recovered wreckage revealed that five components of one MR blade's pitch control system, including a rotary damper assembly, were missing. Several subsequent searches of the accident site were unsuccessful in locating the missing components. The inability to locate these five components, combined with the damage patterns on neighboring components that were recovered, suggested that the components' separation was the precipitating event in the accident sequence. It is likely that one or more of the missing components either failed or otherwise became detached, which resulted in a loss of MR blade pitch control, mast bumping, and mast failure.

For most of the 9 years before its purchase, the helicopter had been on display in a museum and was flown infrequently. After acquiring the helicopter, the pilot contacted several people who were knowledgeable about this make and model helicopter to solicit maintenance advice and/or services. Interviews of these people and review of available records indicated that the pilot, who was not an FAA-certificated aircraft mechanic, conducted a majority of the maintenance activity on the helicopter. The pilot purchased multiple used components of unknown airworthiness and at least one of these components, a rotary damper assembly, was installed on the MR blade pitch control system by the pilot about 2 months before the accident. However, incomplete component purchase and aircraft maintenance records prevented the investigation from determining whether that damper was still installed on the day of the accident and exactly what maintenance the pilot had performed on the MR blade pitch control system.

The pilot's limited maintenance qualifications and experience decreased the likelihood that he would detect nonairworthy conditions or components and increased the risk of improper repairs. It is likely that

the inflight separation of the MR hub and blade assembly was precipitated by the pilot's improper maintenance actions on the MR blade pitch control system.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's improper maintenance on the helicopter's main rotor blade pitch control system, which resulted in an in-flight loss of main rotor blade pitch control, mast bumping, and mast failure.

Findings

Personnel issues	(general) - Pilot
Aircraft	(general) - Failure

Factual Information

History of Flight

Prior to flight	Aircraft maintenance event
Enroute-cruise	Part(s) separation from AC (Defining event)
Enroute-cruise	Mast bumping

HISTORY OF FLIGHT

On September 21, 2013, about 1150 mountain standard time, a Bell UH-1V helicopter, N22490, was destroyed when it impacted the ground near Cordes Lakes, Arizona, following the in-flight separation of the main rotor hub and blade assembly. The owner/pilot and the non-pilot rated passenger were fatally injured. The personal flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed, and no Federal Aviation Administration (FAA) flight plan was filed for the flight.

The helicopter was based at Scottsdale airport (SDL), Scottsdale, Arizona, and reportedly departed SDL the morning of the accident. According to witnesses, the helicopter landed at Sedona airport (SEZ), Sedona, Arizona, that morning, where a fly-in and aircraft exhibition event was being held. SEZ was located approximately 75 nautical miles (nm) north of SDL. The pilot and passenger re-boarded the helicopter about 2 hours later, and departed SEZ. On departure, the helicopter first air-taxied along runway 3, which was approximately downwind, about 100 feet above ground level. It was then observed to make a course reversal near the end of the runway, and flew along runway 21 before departing the area. A short time later, eyewitnesses who were located about 30 miles south-southwest of SEZ observed the airborne helicopter "explode" near them, and telephoned 911 to report the accident.

A partial radar track associated with the helicopter indicated that the first target was acquired about 1138, at an indicated altitude of 6,500 feet. That target was located about 12 miles from SEZ, on a magnetic bearing of 197 degrees. The last radar target associated with the helicopter was recorded about 1150, at an indicated altitude of 5,700 feet. That final target was approximately coincident with the wreckage location.

The wreckage was distributed for a distance of about 1/2 mile along the flight path. FAA and Honeywell personnel responded to the accident site on the afternoon of the accident, and began mapping the debris field. The following day the NTSB investigator arrived, the team completed the on-scene mapping and examination, and the wreckage was recovered to a secure facility for detailed examination.

PERSONNEL INFORMATION

The pilot held a private pilot certificate with airplane single- and multi-engine land ratings, and was issued a rotorcraft helicopter rating in May 2013. On his most recent application for an FAA medical certificate, the pilot reported that he had 1,856 total hours of flight experience. His helicopter flight training and flight examination were conducted in a Hughes 269 helicopter.

Portions of the pilot's flight log were recovered in the wreckage, and partially-completed helicopter flight logs were recovered from the pilot's hangar. Review of the available records indicated that the pilot had purchased the helicopter in Texas in April 2013. He reportedly received 1 to 2 hours of instruction in the helicopter while it was in Texas, but this was not able to be confirmed by the investigation. The pilot then flew the helicopter to his home base in Arizona, in a trip that consisted of 7 legs and 9.6 flight hours. On that trip, the pilot was accompanied by a rotorcraft instructor who had no prior experience in the UH-1 or any of its variants.

In the period between the delivery trip and early May, 2013, the pilot conducted 5 flights in the helicopter with two other, different instructors, one of whom was his flight examiner for his rotorcraft rating. Those flights had a total duration of 8.3 hours. The records indicated that subsequent to that, the pilot completed 12 additional flights, with a total duration of 13.4 hours, in the helicopter but without an instructor. Several of the flight entries did not have dates associated with them. The last dated flight entry in the helicopter was for a flight on August 4, 2013. That entry was followed by two undated ones for two more flights, the last of which was to Payson, Arizona. The last entry that was dated in the pilot's flight log was for a flight on August 15. The duration was 1.0 hours, but the flight location/destination was indecipherable.

The pilot's helicopter flight examiner stated that the pilot had purchased the UH-1 prior to his completion of his helicopter rating. The examiner estimated that the pilot had less than 100 hours of helicopter flight experience at the time of the accident. Compilation of all available records indicated that the pilot had a total flight experience of about 33 hour in the accident helicopter make and model.

The Yavapai County (Arizona) Office of the Medical Examiner (ME) autopsy report cited multiple blunt force trauma as the cause of death. The report cited a toxicology finding for ethanol of 1.470 mg/g, which is a weight per unit weight parameter. The laboratory that conducted the toxicology determination was located in Indiana. The investigation was unable to determine how the samples were packed, how long they were in transit, and under what temperature conditions; without such information the possibility of putrefaction, and resultant ethanol production, could not be quantified. Except for caffeine and nicotine, all other Yavapai County ME toxicology findings were negative.

The FAA Civil Aeromedical Institute (CAMI) conducted forensic toxicology examinations on specimens from the pilot, and reported that no carbon monoxide, cyanide, ethanol, or any screened drugs were detected. The CAMI cutoff level for ethanol was 10 mg/dL, which is a weight per unit volume parameter.

AIRCRAFT INFORMATION

The helicopter was manufactured in 1974. It was equipped with a Lycoming/Honeywell T-53 series turboshaft engine, and was originally delivered to the United States (US) Army. The helicopter was equipped with a two-blade teetering main rotor (MR) system, and a two-blade tail rotor (TR) system. For reference and maintenance purposes, the two blades and their control components in each rotor system were differentiated by arbitrarily assigning them color names, in this case "Red" and "White;" both the MR and TR systems each had one Red and one White blade.

In 2001, the helicopter was transferred to the civil registry as surplus equipment, to a non-profit agency in Texas. In 2004, the helicopter was transferred to the Marine Aviation Museum in Texas, and was sold to JR Helicopter in 2012, which sold it to the accident pilot in April 2013.

According to Bell records, the helicopter was delivered as a UH-1H. The US Army converted it to a medical configuration, UH-1V. At some point the helicopter was again modified, back to a UH-1H configuration, but the civil registry did not reflect that; it remained registered as a UH-1V. In March 2013, JR Helicopter unsuccessfully requested that the FAA alter the registration to designate it as a UH-1H model.

On May 6, 2013, the pilot submitted his application to the FAA for the special airworthiness certificate. The FAA registered the helicopter to the pilot in the "Experimental" class, "Exhibition" category in July 2013. FAA representatives at the Scottsdale, Arizona Flight Standards District Office (FSDO) reported that the Phase II limitations issued by the Houston FSDO on March 28, 2013, remained in effect after the transfer of ownership to the accident pilot.

Review of the maintenance records that were obtained by the investigation indicated that that the most recent annual condition inspection was completed on April 20, 2013. That inspection was signed off by the seller of the helicopter, and stated that the helicopter was in "a safe operational condition for continued use." The records indicated that at the time of that inspection, the helicopter had a total time in service of just over 3,664 hours. The most recent airworthiness directive (AD) compliance list for the helicopter was dated December 26, 2006, but that list was annotated to indicate that it was re-validated on December 22, 2008.

Review of recovered flight log and maintenance records indicated that the helicopter had accumulated approximately 3,693 hours total time in service at the time of the accident.

METEOROLOGICAL INFORMATION

The SEZ 1135 automated weather observation included winds from 230 degrees at 5 knots, gusting to 17 knots, visibility 10 miles, with clear skies. Review of available meteorological information indicated that winds aloft in the general vicinity of the accident location were from 210 degrees at 15 knots at 6,000 feet, and 220 degrees at 18 knots for 7,000 feet.

WRECKAGE AND IMPACT INFORMATION

The helicopter debris trail was oriented along a magnetic track of about 160 degrees. The distance between the northernmost (earliest) and southernmost (last) items in the debris field was about 3,200 feet. However, the northernmost items were light, low-density, and high-drag items, which were more readily influenced by winds. The distance from the northernmost wreckage item not readily influenced by the wind to the southern end of the debris field was about 2,000 feet. The majority of the debris was arrayed in highly linear fashion, but the main rotor assembly, which included the two blades and the hub, was located about 600 feet east of the debris trail.

The debris trail included the cockpit windshields and doors, cabin sidewall, and cabin interior items. The majority of the helicopter, including the cockpit/cabin, engine, transmission, tail boom, and tail rotor assembly, was located in or near an impact crater at the southern end of the debris trail. No evidence of any pre-impact failures of the engine, reduction gearbox, transmission, or tail rotor drive assemblies was

observed. No evidence of fire or a high-order explosion was observed on any components found in the debris trail, and the only evidence of fire was observed in and around the main impact crater.

The initial on-scene and post recovery examinations of the wreckage resulted in the following observations:
- The MR hub and blade assembly separated as a unit from the helicopter
- The location of the MR hub and blade assembly, about 600 feet east of the north-south main debris trail, was consistent with an early event in the accident sequence
- The location of the MR hub and blade assembly was consistent with the assembly having sufficient rotational energy to 'fly' in a non-ballistic path that diverged significantly from the helicopter's flight path
- The damage patterns to the MR hub and blade assembly and the rest of the helicopter were consistent with one or both of the MR blades cutting into the cockpit and cabin
- The damage patterns were consistent with the right cockpit/cabin sidewall and right landing skid being sheared from the helicopter in a plane oriented approximately parallel to the helicopter's longitudinal and vertical axes, from front to back.
- Five components of the MR "White" blade control system were not located; these included the pitch horn, pitch change link, stabilizer bar mixing lever, rotary damper assembly, and the pitch control tube normally situated between the scissor links and the stabilizer bar assembly.
- The damage patterns were consistent with the missing White components being liberated by overload forces while the MR hub and blade assembly was rotating

The MR hub and blade assembly, with the MR blade grips and most of the MR blade leading edge spars attached, separated via a rotor mast fracture at the base of the hub. At the mast fracture location, the circular cross section of the mast was deformed to an oval. The mast fracture was consistent with overload, and no evidence of pre-existing problems such as corrosion or fatigue, was observed. Above the fracture, the mast exhibited evidence of hard contact with the aluminum main rotor hub static stops. The static stops exhibited corresponding contact witness marks and deformation.

The hub moment spring support assembly remained attached to the bottom of the MR yoke, but the hub springs (elastic bumpers) were not installed. The stabilizer bar assembly was found separated from the MR hub and blade assembly. The White side stabilizer support remained attached to the White center frame of the stabilizer bar assembly. The White stabilizer support was fracture-separated from the White side trunnion, and all four support attach bolt fractures were consistent with shear and bending overload forces.

The tailboom was fracture-separated from the fuselage, consistent with overload, and was located adjacent to the main wreckage. The TR drive shaft and housing along the top of the tailboom did not exhibit any non-impact-related distress. No evidence of any pre-impact anomalies in the TR system was observed.

The engine was found in the main wreckage crater, but was located outside of the fire-affected area; the engine was found separated from the fuselage mounts. Engine damage signatures, including blade deformation, and metal spattering and accretions, were consistent with rotation under power at the time of impact. No evidence of any pre-impact engine anomalies was observed.

Subsequent to the initial recovery efforts, two additional dedicated search efforts were conducted in attempts to locate the missing components from the White MR blade control system. Although both of those searches located additional debris, the noted White MR blade control system components were never located.

Refer to the NTSB public docket for this accident for additional information.

ADDITIONAL INFORMATION

Main Rotor Hub Moment Spring

In the mid 1980's the United States Army, in conjunction with Bell Helicopter, developed and installed a "hub moment spring kit" on US Army UH-1 helicopters. According to Army maintenance guidance document TM-55-1520-210-10, the hub moment spring also provided "an additional margin of safety in the event of an inadvertent excursion of the helicopter beyond the approved flight envelope."

On February 1, 2002, the FAA issued AD 2002-01-31, which affected multiple models of the Bell UH-1, 204 and 205 helicopters "with main rotor mast (mast), part number (P/N) 204-011-450-007... or main rotor trunnion (trunnion), P/N 204-011-105-001 installed, certificated in any category." Review of the maintenance records indicated that both the main rotor mast and main rotor trunnion part numbers specified by the AD were installed on the accident helicopter. Among other actions, the AD required, within 25 hours time in service, the removal of "any hub spring installed on any affected helicopter" which were "intended to prevent failure of a mast or trunnion, separation of the main rotor system, and subsequent loss of control of the helicopter."

Review of the helicopter's most recent AD compliance list indicated that the AD had been complied with, which was contrary to the physical evidence observed during the wreckage examination. The hub springs (elastic bumpers) had been removed from the helicopter, but the hub spring support mount was still installed on the helicopter. The normal static stops limit the hub teeter (pivot) angle to a value less than that required to result in contact between the bumper-less spring mount and the mast.

Post-Purchase Pilot Maintenance Inquiries

Subsequent to his return to Arizona with the newly purchased helicopter, the pilot contacted several persons or agencies knowledgeable about UH-1 helicopters, with the apparent intent of soliciting maintenance advice and/or services.

On May 6, 2013, in response to a request from the pilot, the pilot's rotorcraft examiner physically examined the helicopter in detail. In a post-accident interview with the NTSB, he reported that the helicopter was in "fairly decent shape" when he examined it. The examiner noticed that one of the main rotor blade dampers was in need of repair/replacement, but stated that it appeared to be functional. He did not provide any observations regarding the visual appearance or clarity of the damper oil.

Also in early May, 2013, and in response to a request from the pilot, the president of a company called Helicopter Consulting (HC) briefly examined the helicopter. His findings were summarized in a May 7, 2013, letter to the pilot. The letter stated that although the maintenance records were not reviewed, a "visual look" at the helicopter revealed two obvious concerns; the laminated tail fin spar had not been replaced with the single-piece spar per an Airworthiness Directive, and the helicopter had a "bump kit"

(hub moment spring assembly) installed. The letter recommended the accomplishment of the fin spar AD, the removal of the bump kit, and the compilation and accomplishment of a complete AD list for the helicopter. The letter also noted that the pilot's contention that registration of the helicopter in the Experimental class precluded the need for the pilot to accomplish ADs was not in the "interest of safety,"

In an October 23, 2013, interview with the NTSB, the HC president stated that he informed the pilot that the helicopter "was unsafe to fly" and that he (the president) "wouldn't fly it." He also noted that the main rotor blade tension-torsion ("TT") straps calendar life limits (24 months) had been exceeded, that the engine service time and cycles had not been tracked, and therefore the engine was in an unknown compliance condition.

In August 2013, the pilot visited with Overseas Aircraft Support (OAS), which provided maintenance services for UH-1 helicopters, including some US Forest Service UH-1 helicopters. In that meeting, the pilot reportedly told the OAS representative that he recently experienced a "mast bump event" in the helicopter. In the same meeting, the OAS representative cautioned the pilot for not correcting a previously-discussed tail rotor vibration, and for incurring the mast bump event. The OAS representative never viewed the helicopter or its maintenance records.

The available records did not enable a complete and accurate determination of the maintenance status of the helicopter at the time of the accident.

Others' Perceptions of Pilot's Attitude

At least two individuals who were interviewed by the NTSB after the accident offered observations and opinions about the pilot's attitude regarding operational and flight/mechanical safety. Both the pilot's helicopter flight examiner and the OAS representative offered unsolicited opinions that the pilot "did not respect" the helicopter, meaning that the pilot held the opinion that he was not obligated to comply with the maintenance and flight requirements and limitations. The examiner explained that the pilot was unwilling to acknowledge the peculiarities and/or necessary maintenance and flight procedures for the helicopter, and instead elected to operate and maintain the helicopter as he deemed appropriate.

The pilot owned several other aircraft, including a Nanchang CJ-6, an Aerovodochody L-39, and a Beech 200. He did not hold an FAA aircraft mechanic certificate. The examiner reported that the pilot told him that the "Experimental" registry of those airplanes, including the Beech, as well as the helicopter, enabled the pilot to maintain the aircraft himself, and thereby save money by reducing the need to pay for maintenance. The examiner advised the pilot that that approach was flawed logic and false economy, particularly because the helicopter required 3 to 4 hours of qualified maintenance per flight hour to ensure its and the pilot's safety.

The pilot's stated position to the President of HC that registry of aircraft in the Experimental class obviated the need to comply with ADs was consistent with an attitude of reduced concern about aircraft airworthiness.

Component and Maintenance Activities (Pilot)

Multiple telephone conversations, email exchanges, and forwarded emails from a parts provider in Pennsylvania provided some information regarding the pilot's efforts to locate parts for the helicopter.

The parts provider sold used and some new components. He stated to both the pilot and the investigation that all components were sold "as is," and that he made no representation of any component's airworthiness. The parts provider indicated that the pilot had purchased multiple items from him, including a main rotor mast and dampers. The parts provider sometimes sold components in "batches" or "lots," and he did not typically track the part or serial numbers of any of the items that he sold. Therefore the investigation was unable to determine what specific parts the pilot purchased from this provider.

A July 25, 2013, email from the pilot to the parts provider stated that "I even had to refill the damper I got from you as it sat for so long the fluid was half gone :)! we will see how it works when I fire it up this weekend." Although this communication makes it clear that the pilot had replaced at least one MR damper, the sparsity of the pilot's maintenance records, combined with the parts provider's lack of detailed sales records, prevented the investigation from determining the maintenance or service history of most components on the helicopter. In addition, the lack of part number accountability prevented the investigation from determining whether any of those components remained with or separated from the helicopter during the breakup sequence.

FAA Ground Tracking Radar Information

Although the pilot did not contact FAA air traffic control (ATC) for services, and ATC was not actively tracking the flight, a portion of the accident flight was captured by three separate ARSR-4 radar facilities, all located in Arizona. Review of the track data resulted in the use of the data from the "PHX" facility, which provided the longest and most continuous coverage. The radar sweep rate was 5 rpm, for a radar return interval of 12 seconds. A total of 58 radar returns from the helicopter were obtained by the PHX facility, during the period from 1138:47 to 1150:10.

The track began about 13 miles south-southwest of SEZ, and measured about 17 miles long. The track overlaid the debris path and main wreckage site, but terminated about 300 feet south of (beyond) the main wreckage impact location. This apparent discrepancy was attributed to the resolution uncertainties of the radar system target location data. The transponder-reported altitude varied irregularly between about 6,500 and 7,100 feet. The radar altitude trace was not consistent with any terrain-following maneuvering. The groundspeeds derived from the radar data indicated that the groundspeed averaged about 90 knots, with irregular variations of plus and minus about 5 knots; those values were consistent with the normal flight regime of the helicopter.

Mast Bumping Scenarios

The teetering-rotor design made the helicopter susceptible to a phenomenon known as "mast-bumping," where, under certain circumstances, the rotor hub could pivot to the point where the hub static stop(s) contact the rotor mast. In-flight mast bumping can impart loads beyond the mast's structural limit, resulting in mast failure, separation of the MR blade system, and loss of the helicopter. Potential initiators for mast bumping include pilot inputs and mechanical failure. The MR mast failure was consistent with a mast-bumping event, but the evidence was insufficient to determine the initiating event for the mast bump.

For the pilot-input scenario, the system was most susceptible to mast bumping when the helicopter g-loading was 0.5 or less, and significant or aggressive cyclic control inputs were made. The combination of low-g loading and aggressive cyclic inputs can be encountered in low altitude, terrain-following

flight, particularly when the helicopter crests a hill, and the pilot then attempts to follow the descending terrain by rapidly descending the helicopter. The available radar data was not consistent with the helicopter conducting terrain-following flight.

For the mechanical failure scenario, if the pitch of one MR blade can no longer be regulated by the flight control system due to the physical decoupling of the flight controls, the resulting blade flap, due to the free-flying blade and asymmetric lift between the two blades,, can result in mast bumping. Decoupling of the pitch control can occur for several reasons, including:
- The direct mechanical failure of a component in the MR blade pitch link system
- The failure or loss of MR blade pitch control link attach hardware between the rotating swashplate and the main rotor grip, resulting in loss of pitch control system joint integrity
- The failure or separation of another component in the rotating MR hub and blade assembly, such as a damper, which then damages and fails the pitch control linkage as a result of flailing and/or impact due to rotary motion and centrifugal force

Pilot Information

Certificate:	Private	**Age:**	51
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	August 7, 2013
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 1856 hours (Total, all aircraft), 33 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Bell	**Registration:**	N22490
Model/Series:	UH-1V	**Aircraft Category:**	Helicopter
Year of Manufacture:	1974	**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	74-22490
Landing Gear Type:	Skid	**Seats:**	
Date/Type of Last Inspection:	April 20, 2013 Condition	**Certified Max Gross Wt.:**	9500 lbs
Time Since Last Inspection:	29 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	3664 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming/Honeywell
ELT:		**Engine Model/Series:**	T-53
Registered Owner:	On file	**Rated Power:**	
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SEZ	**Distance from Accident Site:**	30 Nautical Miles
Observation Time:	11:55 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots / 16 knots	**Turbulence Type Forecast/Actual:**	/ Unknown
Wind Direction:	170°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	28°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Sedona, AZ (SEZ)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	11:30 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	34.395278,-112.046943

Administrative Information

Investigator In Charge (IIC):	Huhn, Michael
Additional Participating Persons:	Jack G Major; FAA; Scottsdale, AZ Mark Stuntzner; Bell Helicopter; Fort Worth, TX Jim Allen; Honeywell; Phoenix, AZ
Original Publish Date:	November 19, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=88096