Aviation Investigation Final Report

Location:	Avalon, California	**Accident Number:**	SEA08MA136
Date & Time:	May 24, 2008, 09:20 Local	**Registration:**	N67GE
Aircraft:	Aerospatiale AS-350-D	**Aircraft Damage:**	Destroyed
Defining Event:	Loss of engine power (total)	**Injuries:**	3 Fatal, 3 Serious
Flight Conducted Under:	Part 135: Air taxi & commuter - Non-scheduled		

Analysis

The helicopter was descending to the planned destination during the on-demand air taxi flight when witnesses reported hearing a loud pop, followed by flames emitting from the back of the engine. The helicopter subsequently collided with the ground.

A surviving passenger reported that just after the loud pop, the pilot told passengers that he was going to autorotate. The helicopter entered a descent at an altitude witnesses on the ground estimated at 200 to 400 feet above ground level. During the descent, the pilot had to clear numerous obstacles, including buildings and power lines, to reach an open field located beyond the obstacles but short of the normal landing area. The ground witnesses stated that the helicopter was in an area near the shoreline when they witnessed the flames and heard the loud pop; however, the exact location in reference to the shoreline could not be determined.

Since the pilot stated to passengers that he was going to autorotate, it is likely that the helicopter experienced a loss of power after the loud pop. In the event of a loss of engine power, the pilot must enter an autorotation by immediately reducing the collective pitch to maintain main rotor speed to avoid a main rotor stall. The collective pitch must be reduced to the point required to maintain, or regain a safe main rotor speed. This would allow the pilot to maintain sufficient rotor speed while maneuvering to a suitable landing area, and to arrest the descent when needed. If the main rotor blades stall, this will ultimately result in a loss of control and uncontrolled descent.

Because of the relatively low altitude at which the loss of power occurred, it is likely that the

accident pilot had to trade rotor rpm to maintain the altitude needed to clear the obstacles and reach the open field. This would have resulted in a lack of sufficient rotor rpm to arrest the helicopter’s descent rate as it approached the ground. Further, examination of the main rotor blades at the accident scene did not show evidence of high rotational energy at impact.

Postaccident inspection of the turbine engine revealed localized damage to four consecutive power turbine blades. Two of the blades were fractured transversely across the airfoil above the blade root platform and two were fractured higher up their respective airfoils near the blade tips. Generalized damage was observed to the remaining power turbine blades; however, all blades were in place and remained secured to the power turbine wheel. A Safety Board materials engineer's examination of the fractured blades revealed striation features typical of fatigue cracking on the pressure (concave) side of the airfoil. The fatigue crack features emanated from the boundary area between the base material and a casting pin. Further analysis disclosed that the fracture was the result of fatigue cracking that emanated from two platinum casting pins on the pressure side of the blade adjacent to the platform. The fracture face of the blade contained isolated regions of fatigue cracking that were separated by fracture regions and showed oxidation damage consistent with fatigue. Additional testing of the fractured blade(s) indicated that the microstructure in the airfoil portions showed no evidence of operation above a temperature profile expected for this stage of the engine. The fracture features of the remaining turbine blades were consistent with overstress separation.

Review of maintenance records indicated that, the engine's cycle counting process, inspection requirements, and compliance with airworthiness directives and service bulletins were all satisfactory. More specifically, due to the power turbine blade failures, the life and maintenance history of the power turbine rotor, including the power turbine blades, were assessed. The information contained in the maintenance records, as well as the information provided by the manufacturer on the history and inspection requirements of the power turbine blades showed that they were operated in accordance with the requirements set forth by the manufacturer.\

Following the accident, Honeywell Aerospace issued Service Bulletins; LT 101-71-00-0252 and LTS101-71-00-0253. The Service Bulletins require the removal and inspection of the turbine assemblies, "To address a service related difficulty with Power Turbine Rotor Blade Part No. 4-141-084-06 cracking at the mid span of the airfoil that can lead to a blade separation and subsequent inability to maintain powered flight resulting in potential injuries and damage to the aircraft."

Additionally, two FAA Airworthiness Directives pertaining to this issue are pending.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Loss of engine power during approach for landing due to a fatigue fracture of a power turbine blade.

Findings

Aircraft	Turbine section - Failure
Aircraft	Turbine section - Fatigue/wear/corrosion

Factual Information

History of Flight

Approach	Loss of engine power (total) (Defining event)
Emergency descent	Off-field or emergency landing
Autorotation	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On May 24, 2008, at 0920 Pacific daylight time, an Aerospatiale AS-350-D helicopter, N67GE, operated by Island Express Helicopters, Inc., impacted terrain while landing at Two Harbors, Avalon, located on Santa Catalina Island, California, during a 14 Code of Federal Regulations Part 135 on-demand, commercial flight. The flight departed from the Queensway Bay Heliport, Long Beach, California, at 0907. The commercial pilot, a company employee, and one passenger were killed, and three passengers were seriously injured. The helicopter was destroyed by impact damage and fire. Visual meteorological conditions prevailed at the time of the accident. The flight was approaching the destination when the accident occurred. A company flight plan was in effect.

According to the operator, the purpose of the flight was to transport passengers from Long Beach to Two Harbors. The intent was to drop the passengers off at Two Harbors and the pilot and company employee were to return to Long Beach.

After the flight departed from Long Beach, the pilot reported via radio that they were mid-channel at 0914 and that they were on final to land at 0919.

Witnesses reported seeing the helicopter approaching the island from the north, heading south about 300 feet above ground level. In the area of Two Harbors, several of the witnesses heard a “pop” sound, followed by flames emitting from the back of the engine. The helicopter then entered a descent and collided with the ground. A fire erupted and the helicopter was destroyed.

A surviving passenger later reported that just after the loud pop, the pilot told passengers that he was going to “autorotate.”

The helicopter impacted sloped, grassy terrain on a heading of southwest. The main wreckage came to rest adjacent to a series of power transmission lines; however, there was no evidence of contact between the helicopter and the transmission lines. The debris field was about 200 feet in length and located approximately .2 miles from the intended landing site.

The town of Two Harbors, elevation 20 feet, is located on an isthmus that joins the western

and eastern mountainous areas of Catalina Island. It is named for the bays that form its northern and southern boundaries, Isthmus Cove to the north and Catalina Harbor to the south. Bird Rock is a small island located about 1 mile north-northwest of Isthmus Cove. Fisherman's Cove is located about 3/4 mile northwest of Isthmus Cove; the University of Southern California's (USC's) Wrigley Marine Science Center is at Fisherman's Cove.

DAMAGE TO HELICOPTER

The helicopter was destroyed by impact forces and a postcrash fire.

OTHER DAMAGE

Ground vegetation surrounding the accident site was damaged as a result of the postcrash ground fire. The adjacent structures and power transmission lines were not damaged.

PERSONNEL INFORMATION

The pilot-in-command (PIC), age 33, held a commercial pilot certificate, with a rotorcraft helicopter rating and an instrument helicopter rating. Additionally, he held a flight instructor certificate, with a rotorcraft helicopter rating. His most recent second-class medical certificate was issued November 29, 2007, with no limitations.

A review of the Federal Aviation Administration (FAA) Airman Records database indicated that on September 24, 1996, the pilot acquired his commercial certificate. The records further indicated that the pilot failed his first attempt to complete the practical test for a flight instructor certificate on April 15, 1998, due to unsatisfactory performance of the rating element, straight in autorotation. The pilot passed a reexamination on May 10, 1998.

A review of the pilot's records disclosed that at the time of the accident, the pilot had accumulated a total time of 5,692 hours, with 3,942 hours accumulated in the AS350 series helicopters. He had additionally recorded a total of 63 hours of simulated instrument experience and 340 hours of night flight. During the preceding 90 days, he had flown for 238 hours.

The operator hired the pilot in January 2003. Between January 28 and March 6, 2003, the pilot completed initial new hire training, which included 32 hours of aircraft ground school and 5 hours of flight training. The Chief Pilot provided all of this training. On March 7, 2003, the pilot successfully passed an Airman Competency/Proficiency Check (FAR 135.293 and 135.299), which was administered by an FAA operations inspector and completed in an AS-350-D. The check ride encompassed the pilot's demonstration of current knowledge and competency as well as satisfactorily demonstrating line checks.

The pilot's most recent recurrent training, which included 8 hours of aircraft ground school and 2.2 hours of flight training, was completed between April 15 and April 21, 2008. The Chief Pilot

provided all of this training. He passed his most recent Airman Competency/Proficiency Check, which was administered by the FAA Principal Operations Inspector (POI) and completed in an AS-350-D, on April 29, 2008. The POI stated that the pilot "did rather well" during the check ride. Maneuvers performed included a hovering autorotation, a straight in autorotation, and a simulated engine failure over water.

The accident date, May 24, 2008, was the pilot's 14th consecutive duty day. The pilot's duty day began at 0826, and the accident flight was his first flight of the day.

At the time of the accident, the PIC was current and qualified to fly the accident helicopter in accordance with CFR Parts 135 and 91.

AIRCRAFT INFORMATION

The accident helicopter, an Aerospatiale AS-350-D, which was originally manufactured in 1984 as an Aerospatiale AS-350-B, was powered by a single Honeywell LTS101-600A-3, which replaced the original Turbomeca Arriel 1B engine. The helicopter was configured with a three blade main rotor system, and conventional two bladed tail rotor anti-torque system. The maximum takeoff power rating for the engine was 615 horsepower.

The helicopter had a seating capacity of 6 passengers plus a pilot (right front) and single corresponding flight controls.

The published maximum gross takeoff weight for the helicopter is 4,300 pounds. A weight and balance form was located in the maintenance records for the helicopter.
The document showed that the empty weight of the helicopter was 2,792.33 and its Center of Gravity location was 138.64 inches. Upon departure, according to the helicopter manifest for the flight, the gross weight of the helicopter was 4,260 pounds with a Center of Gravity of 129.39 inches. During the accident flight, the helicopter was operating within the published weight and balance constraints.

The helicopter was equipped with a APICAL emergency floatation system.

The helicopter had accrued 9,687 total hours of operation and it's most recent inspection, a 100-hour inspection, was completed on May 19, 2008, at a total airframe time of 9,680.6 hours, and an engine total time of 13,027.2 hours (30,199 power turbine cycles). The last annual inspection was completed on July 17, 2007, at a total airframe time of 8,708.0 hours.

The helicopter was originally certified as an Aerospatiale AS-350-B powered by a single Turbomeca Arriel 1B turboshaft engine and registered as N58046. The registration number was changed to N67GE on July 9, 1986. According to FAA Aircraft Registry data, the helicopter was registered to Island Express on January 6, 2000. Prior to that time, the helicopter had been registered to companies in Oregon, Texas, Indiana, Florida, and Idaho.

FAA Civil Aviation Airworthiness records indicate that on January 18, 2001, the Turbomeca Arriel 1B engine was removed and a Honeywell LTS101-600-A3 engine was installed. On the basis of FAA form 337 (Major Repair and Alteration), the helicopter was issued a new airworthiness certificate by the FAA as an Aerospatiale AS-350-D.

The operator was authorized by the FAA to conduct CFR Part 135 flight operations and maintenance in accordance with its FAA issued operations specifications (ops specs). The ops specs allowed the company to conduct maintenance on its helicopters as prescribed by the original equipment manufacturer (OEM) maintenance programs.

METEOROLOGICAL INFORMATION

At 0928, the reported weather conditions at Catalina Airport, located approximately 5 miles southeast of the accident site, at an elevation of 1,597 feet above ground level (agl), were winds from 080 degrees at 3 knots, thin broken clouds at 700 feet agl, broken clouds at 1,500 feet agl, and overcast clouds at 2,000 feet agl, visibility 10 miles, light rain, temperature 9 degrees Celsius (C), dew point 8 degrees C, and altimeter setting 29.96 inches of mercury.

When the accident occurred, the operator's chief pilot was flying a company helicopter over the channel inbound to the Pebbly Beach Heliport in Avalon. Upon receiving notification of the accident, he turned toward Two Harbors and could see black smoke rising in a vertical column. The Chief Pilot then turned back towards Pebbly Beach. While flying to Pebbly Beach, he noted that the visibility towards the west end of the island was unrestricted with cloud bases broken at about 3,500 to 4,000 feet mean sea level (msl). The winds were light from the west at his location and appeared to be the same along the shore of the island to the west.

At 0904, the reported weather conditions at the Long Beach Airport (Daugherty Field) approximately 4 nautical miles (nm) northeast of the departure site at an elevation of 14 feet msl, were, in part, winds variable at 7 knots, visibility 10 statute miles, scattered clouds at 2,600 feet, broken clouds at 3,700 feet, overcast clouds at 5,500 feet, temperature 13 degrees C, dew point 6 degrees C, altimeter 29.96 inches of mercury.

FLIGHT RECORDERS

The helicopter was not equipped with a cockpit voice recorder (CVR) or flight data recorder (FDR) and was not required by Federal regulation to be so equipped.

WRECKAGE AND IMPACT INFORMATION

The Safety Board investigator-in-charge performed an on-scene wreckage examination and documentation on May 25-26, 2008.

The accident site was located about .2 miles from the intended landing site on open, down sloping terrain bordered on the north by a series of power transmission lines and on the east

by small hills. The sloped terrain was comprised of firm dirt and dry wild vegetation. The measured elevation at the main wreckage was about 17 feet mean sea level (msl).

The wreckage debris field encompassed an area approximately 200 feet in length (from northeast to southwest). The main wreckage came to rest on a heading of about 300 degrees and was located in the confines of a large burn area. All aerodynamic control surfaces were located at the crash site. Composite material fragments and numerous pieces of Plexiglas was scattered between the first identified point of contact and the main wreckage. A majority of the wreckage was located in the immediate area of the main wreckage.

The first identified point of contact with terrain was a ground scar located at the northeast end of the debris field, about 230 feet from the main wreckage. The ground scar was approximately 24 inches in length and consistent in size with the tail stinger contact. Approximately 2 ft. further, a scar was noted that was consistent with a tail rotor blade strike. Paint transfer, that matched the color (blue/grey) of the tail rotor blade, was observed on packed dirt found within the ground scar. A strong odor of jet fuel was present between the first identified point of contact with terrain and the main wreckage. The fuel system was destroyed during the post crash fire.

The lower section of the vertical fin, stinger and tail rotor guard were located along the debris path about 60 feet beyond the first identified point of contact with terrain (toward the main wreckage). The stinger, tail rotor guard and lower fin had separated, as a unit, from aft end of the tail boom.

A piece of the right aft cross tube (approximately 13 inches in length) and the fuel tank probe were located along the debris path between the first identified point of contact and the main wreckage at 105 feet and 131 feet respectively.

The main wreckage was located in the confines of a large burn area at the southwest end of the wreckage distribution track. The nose, instrument panel, pedestal, cockpit, and cabin area sustained impact and thermal related damage. The remains of the cabin area settled on to its right side on top of the right skid tube and step. Both skid tubes remained attached to the cross tubes and came to rest in the upright position. The right skid tube was fractured at it's approximate mid point.

The main transmission, including the rotor mast and rotor head was coupled and sustained thermal and impact damage. The transmission mounting and support structure sustained extensive thermal and impact damage. The transmission and rotor mast was laying to the right, perpendicular to the helicopters longitudinal axis, and resting on two of the main rotor blades. The main rotor assembly was intact and sustained impact and thermal damage. The main rotor head cover (hat) was in place and intact. The Starflex was in place, but two of the three star arms, red and yellow, were fractured. The associated blade sleeves (upper and lower) remained intact and attached to the Starflex and main rotor blades. All three pitch change rods were in place and attached between the pitch change arms and the rotating star

of the swashplate. The three main rotor servos were in place and attached between the epicyclic lugs and the swash plate lower lugs. Main rotor flight control continuity could not be positively established on site due to extensive fire damage.

The red main rotor blade remained attached to the main rotor hub. The blade was buckled and nearly severed about 3.5 feet outboard of the attachment bolts. The outboard section of the blade was hanging from the inboard section with the tip resting on the ground. With the exception of the chordwise fracture, the stainless steel leading edge was intact with no evidence of rearward deformation. The upper and lower skin was in place and the core material was intact. Thermal distortion and discoloration was noted along the entire length of the blade. The blue main rotor blade remained attached to the main rotor hub. The blade sustained minor damage. The upper and lower skin was intact and the stainless steel abrasion strip was in place and not damaged. The yellow main rotor blade remained attached to the main rotor hub. Extensive thermal related damage was noted to both the upper and lower skins. Thermal delaminating type damage was noted to the entire trailing edge of the rotor blade. The inboard and outboard stainless steel abrasion strips were in place and thermal damage was noted to both. The inboard part of the outer strip was intact with thermal damage noted. The outboard section of the strip was detached from the leading edge of the main blade assembly. Thermal damage was noted. The core material of the red and blue blades remained intact and no anomalies were noted.

The engine assembly was located within the main wreckage burn area. The engine was laying on its right side and was attached to the engine deck. The deck and associated engine mounts sustained thermal and impact damage. The engine remained attached to associated mechanical control linkages, oil lines, fuel lines and metal shroud material. The engine remained attached to the main transmission. The forward flex coupling, connecting casing, gimble ring, coupling tube, drive shaft and aft flex coupling were in place. The engine coupling components sustained impact related damage.

The exterior of the engine case remained intact and no evidence of uncontainment or case rupture was observed. Localized damage was noted to four consecutive power turbine blades. Two of the blades were fractured transversely across the airfoil above the blade root platform and two were fractured high up their respective airfoils near the blade tips. Generalized damage was observed to the remaining power turbine blades; however, all blades were in place and remained secured to the power turbine wheel.

The forward section of the tail boom assembly was destroyed by fire. The aft section of the tail boom (from about two feet forward of the horizontal stabilizer) assembly sustained extensive thermal type damage. The horizontal and vertical stabilizers were intact aside from the separated lower vertical fin. The tail rotor gearbox and tail rotor assembly remained attached to the tail boom, but sustained severe thermal damage. Pitch and drive continuity was confirmed from the tail boom separation through the tail rotor gearbox to the tail rotor assembly.

MEDICAL AND PATHOLOGICAL INFORMATION

The FAA's Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing on the pilot. Fluid and tissue specimens tested negative for carbon monoxide, cyanide, ethanol, and tested drugs.

SURVIVAL ASPECTS

An autopsy was performed on the pilot on May 27, 2008, by the Los Angeles County Coroner's office. The postmortem report attributed the pilot's cause of death to blunt force trauma.

On May 27, 2008, the Los Angeles County Coroner's Office performed autopsies on the passenger seated in the left rear seat and passenger seated in the right rear seat. According to the postmortem reports, both passengers' cause of death was attributed to thermal injuries.

The helicopter was equipped with lap belts for each passenger and a combination lap belt shoulder harness for the pilot.

According to first responders, the deceased rear seat passengers were located within the helicopter. The pilot, with the help of bystanders, exited the helicopter and then collapsed. The remaining passengers exited the helicopter with the help of bystanders.

TESTS AND RESEARCH

On June 17-18, 2008, examination and disassembly of the engine was conducted at Honeywell's facility in Phoenix, Arizona, in the presence of the Safety Board Power Plant Group Chairman and members of the Power Plant group.

Power Turbine Module Disassembly

The power turbine blades (27 total) and disk were in place and the associated retaining rivets were secure. Rotational scoring and deformation was noted to the power turbine blades. Power turbine blade No. 21 was fractured transversely across the airfoil approximately 5/8-inches above the blade root platform. Power turbine blade No. 20 was fractured transversely across the airfoil 7/8 -inches above the blade root platform. The leading edge tip corners of power turbine blades Nos. 18 and 19 were missing. Several other randomly located power turbine blades displayed nicks, dents, or holes on the airfoils' leading edges.

The power turbine blades were submitted to the Safety Board's Materials Laboratory for metallurgical examination. The Materials Laboratory's report stated that the examination (utilizing a scanning electron microscope [SEM]) of power turbine blade No. 21 revealed striation features typical of fatigue cracking on the pressure (concave) side of the airfoil. The fatigue crack features emanated from the boundary area between the base material and a casting pin. The fracture features of power turbine blades 18, 19 and 20 exhibited a matte

texture consistent with over stress separation.

During the casting process of the hollow core power turbine blades, five cylindrical platinum pins, 0.018-inches in diameter and 0.220- inches long, are used on each side (10 total) of the airfoil, pressure and suction (convex), to position an internal mold when the power turbine blade is cast. After the power turbine blade casting is complete, the internal mold is removed; however, the 10 pins remain, and become a permanent part of the airfoil.

The Safety Board's Materials Laboratory report stated that there were striations typical of fatigue cracking from the edge of pin, Nos. 4 and 5. The report also stated that the fatigue striations from pin No. 4 progressed forward towards the leading edge and rearwards toward pin No. 5 and the fatigue from pin No. 5 progressed rearward toward the trailing edge.

The materials laboratory report stated that the x-ray energy dispersive spectroscopy of an undamaged portion of power turbine blade No. 21 produced a spectra consistent with the specified alloy, Inconel 792. The Materials Laboratory report stated that a dimensional inspection of the airfoil's pressure and suction side wall thickness showed that they conformed to the engineering drawing's requirements.

Following the Safety Board's examination of the power turbine blades, Honeywell, with oversight of the NTSB investigator-in-charge, performed additional examinations of the power turbine blades. The subsequent Honeywell report stated that the examination of the power turbine blades revealed additional fatigue cracks, emanating from pins in the pressure side of the airfoil in blades Nos. 17 and 23.

The Honeywell report stated the power turbine blades were examined for indications of an over temperature condition, but the metallographic examination indicated that the blades had not been exposed to temperatures greater than 1,600 degrees Fahrenheit.

The complete Power Plant Group Factual Report and Materials Laboratory Factual Report are contained in the official docket of this investigation.

ORGANIZATIONAL AND MANAGEMENT INFORMATION

Island Express Helicopters Inc., based in Long Beach, California, was founded in 1982. The company's operations include on-demand charters, sightseeing flights, and servicing offshore oil platforms in Huntington Beach and Long Beach. The company maintains a business office on Catalina Island, a main base in Long Beach at the Queen Mary, and a maintenance facility at the Long Beach Airport. Company personnel estimated they flew approximately 3,200 hours per year from their Queensway Heliport.

The operator reported that they have a total of 19 employees, including 4 pilots and 3 mechanics, and operated 4 helicopters in total (including the accident helicopter). The operator's pilot certification requirements for pilots conducting 14 CFR Part 135 helicopter

operations were as follows: Commercial pilot certificate, rotorcraft category rating, helicopter class rating, a second-class medical certificate, and an instrument rating or current enrollment in an instrument rating course. The minimum flight time requirements for pilots were 1,000 hours helicopter PIC time, 100 hours cross country time, and 25 hours of night cross country time.

ADDITIONAL INFORMATION

According to the engine manufacturer, the power turbine rotor assembly is life limited at 11,000 cycles.

Pilot Information

Certificate:	Commercial	**Age:**	33,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	No
Instructor Rating(s):	Helicopter	**Toxicology Performed:**	Yes
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	November 29, 2007
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	April 29, 2008
Flight Time:	5692 hours (Total, all aircraft), 3942 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Aerospatiale	**Registration:**	N67GE
Model/Series:	AS-350-D	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1640
Landing Gear Type:	Emergency float; Skid	**Seats:**	7
Date/Type of Last Inspection:	May 20, 2008 100 hour	**Certified Max Gross Wt.:**	4300 lbs
Time Since Last Inspection:	7 Hrs	**Engines:**	1 Turbo shaft
Airframe Total Time:	9687 Hrs at time of accident	**Engine Manufacturer:**	Lycoming
ELT:	C91A installed, activated, did not aid in locating accident	**Engine Model/Series:**	LTS - 101
Registered Owner:	Island Express Helicopters	**Rated Power:**	615 Horsepower
Operator:	Island Express Helicopters	**Operating Certificate(s) Held:**	On-demand air taxi (135)
Operator Does Business As:		**Operator Designator Code:**	ISHA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	AVX,1597 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	09:28 Local	**Direction from Accident Site:**	135°
Lowest Cloud Condition:	700 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 1500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	80°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	9°C / 8°C
Precipitation and Obscuration:	In the vicinity - Showers -		
Departure Point:	Long Beach, CA	**Type of Flight Plan Filed:**	Company VFR
Destination:	Avalon, CA	**Type of Clearance:**	None
Departure Time:	09:07 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	2 Fatal, 3 Serious	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	3 Fatal, 3 Serious	**Latitude, Longitude:**	33.438331,-118.499725

Administrative Information

Investigator In Charge (IIC):	Hogenson, Dennis
Additional Participating Persons:	Robert Drake; FAA AAI 100; Washington, DC John Moore; Island Express Helicopters; Long Beach, CA Dana Metz; Honeywell; Phoenix, AZ Joe Syslo; American Eurocopter; Grand Prairie, TX
Original Publish Date:	May 11, 2010
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=68076