

# **Accident Investigation Report Executive Summary**



**AIR ATTACK 410**

**September 6, 2006**

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## **OVERVIEW OF ACCIDENT**

A series of three fires had occurred in the Bear Creek drainage, 22 statute miles northeast of Porterville, Tulare County, California, beginning Monday, September 4, 2006. The Mountain Fire was reported at about 12:45 a.m. on September 6, 2006. A request for a reconnaissance flight of the area was processed through the Visalia ECC that morning.

On September 6, 2006 Air Attack 410 was dispatched to a reconnaissance flight of the Bear Creek drainage. At 10:26 a.m. the Battalion Chief (BC) working in the Air Tactical Group Supervisor (ATGS) capacity onboard Air Attack 410 confirmed with the Visalia Emergency Command Center their status as in route to the incident and confirmed the command frequency.

Shortly thereafter, Air Attack 410 contacted the Mountain Incident Commander (IC) on the assigned tactical frequency. Mountain IC and the ATGS maintained radio transmissions regarding the flight mission until approximately 10 to 15 seconds prior to the accident. At no time during the accident flight were communications received indicating that any mechanical difficulty or unusual situation had occurred.

After flying up the Bear Creek drainage, at approximately 10:39 a.m. Air Attack 410 impacted trees and mountainous terrain in the Mountain Home Demonstration State Forest (MHSF). The airplane was owned and operated by the California Department of Forestry and Fire Protection (CDF), and it was destroyed during the impact sequence and post impact ground fire. The airline transport certified pilot and ATGS passenger were fatally injured.

Witnesses located in the MHSF near Bear Creek Road reported observing and/or hearing Air Attack 410 as it flew in a northeasterly direction toward the accident site. One witness observed the airplane flying between 400 to 600 feet above the treetops, as it was proceeding in a northerly direction up the Bear Creek drainage. Another witness reported hearing the airplane's engines revving up, and thereafter heard the sound of an impact.

Based upon an examination of the accident site and airplane wreckage, the initial point of impact (IPI) occurred with estimated 125-foot-tall trees. The trees were located on a 25- to 40-degree up sloping 6,240-foot mean sea level (MSL) terrain in a box-like canyon. The tops of several trees were found severed, trunks were observed gouged, and fragmented airframe components were noted around the tree.

The bearing from the area of the impacted trees to the main wreckage was estimated between 060 to 070 degrees. The main wreckage was found about 120 feet northeast of the IPI area. One tree with an estimated 3-foot diameter was observed felled in this area, and airplane components were noted around the tree.

The global positioning system (GPS) coordinates for the main wreckage was 36 degrees 13.9 minutes north latitude by 118 degrees 41.1 minutes west longitude.

Ground and air resources immediately responded to the accident and extinguished a vegetation fire surrounding the accident site and fire involving the wreckage.

## SEQUENCE OF EVENTS

On September 3, 2006 at 7:37 p.m. the Emergency Command Center (ECC) for the California Department of Forestry and Fire Protection (CDF) in Visalia, received two reports of a possible vegetation fire in the Bear Creek drainage, northeast of Porterville. The ECC dispatched an initial attack response and by 8:18 p.m. fire suppression personnel arrived at the fire and began suppression activities. The fire was named the Camp Fire and was contained to 1 ½ acres in heavy timber.

On September 4, 2006 at 3:35 p.m. fire suppression personnel assigned to the Camp Fire observed smoke in the Bear Creek canyon. Investigation of the smoke revealed a fire subsequently named the Jaguar Fire. This fire was contained to 1 ¼ acres in heavy timber. Air Attack 410 (AA410), piloted by George “Sandy” Willet and Battalion Chief Robert Stone as the Air Tactical Group Supervisor (ATGS), was dispatched to the Jaguar Fire (CATUU10531) at 3:37 p.m. and departed the Porterville Air Attack Base (PAAB) at 3:45 p.m. AA410 remained assigned to the Jaguar Fire until their return to PAAB at 7:02 p.m.

On September 6, 2006 at 12:37 a.m. employees at the Mountain Home Conservation Camp smelled smoke and located a vegetation fire burning adjacent to Bear Creek, below the Bear Fire. This new fire, named the Mountain Fire, was 2 ½ acres in heavy timber.

At approximately 8:00 a.m. On September 6, 2006, BC Stone was at the headquarters office in Visalia. BC Stone and Division Chief (DC) Kirk Swartzlander discussed using a Forward Looking Infra Red (FLIR) equipped aircraft to reconnoiter the Bear Creek canyon for any additional fires. Based on the limitations of the FLIR abilities during daylight hours, it was determined AA410 would be better suited and the request (A-1 on CATUU010573) was placed through the Visalia ECC.

According to witness accounts, BC Stone left the Visalia Headquarters and proceeded to the Porterville Air Attack Base. While enroute, BC Stone contacted the Incident Commander on the Mountain Fire, BC Muchado, via radio. The radio traffic was on an unrecorded frequency. BC Muchado and BC Stone discussed the upcoming flight mission and specifically about looking for other fires in the canyon. BC Stone had flown the area on September 4, 2006 as the ATGS and was familiar with the topography. Based on witness accounts BC Stone understood the requirements for the current flight mission.

Upon his arrival at the PAAB, BC Stone followed standard protocol for an upcoming mission. Pilot Willett arrived and performed his standard morning check of AA410. When Pilot Willett returned to the office with BC Stone, standard pre-flight activities took place, including a weather briefing and a review of the Notice to Airmen (NOTAM) and Temporary Flight Restrictions (TFR). At approximately 10:20 a.m. both Pilot Willett and BC Stone made their way to AA410 and performed the standard start and take-off procedures. Witnesses at the Porterville Air Attack Base did not observe anything different or out of ordinary with the take-off.

At 10:26 a.m. there was a recorded radio transmission between AA410 and the Visalia ECC.

BC Stone: Visalia, Air Attack 410

Visalia ECC: Visalia

BC Stone: Off the ground Porterville, enroute to the Mountain Fire showing a 5-minute ETA.

Visalia ECC: 10:26

(pause)

BC Stone: Visalia, 410. Can you confirm that Command frequency is Local, or, ah, Command 2?

Visalia ECC: Command 2

BC Stone: Okay, copy that, I'll be switching.

Witnesses visually observed AA410 entering the fire area at approximately 10:30 a.m. One witness specifically recalled that it appeared AA-410 was flying lower than normal. During this time BC Muchado and BC Stone were discussing the strategy and tactics of the reconnaissance flight on the tactical frequency (Tac 8), an unrecorded frequency. At no time during the conversation was there any indication of distress. BC Stone advised BC Muchado that AA410 was flying over "Bear Tree," a landmark Sequoia tree, going up canyon and they would come back low and slow on their pass down the canyon.

BC Craw, the Incident Commander assigned for the day shift, arrived in the area of the Mountain Fire and was walking into the scene listening to the radio transmissions between BC Muchado and BC Stone. BC Craw had visual contact with AA410 and estimated the aircraft was 150 to 200 feet above ground level (AGL). The conversation ended between BC Muchado and BC Stone as the aircraft passed over BC Craw's location. BC Craw saw the aircraft continue up the canyon approximately 100 to 150 feet AGL. BC Craw heard the engines on AA410 increase in sound, as if to add power, as the aircraft went out of his sight. No other aircraft were observed in the area.

Fire Captain (FC) Gratian Bidart, the assigned Day Operations Chief on the Jaguar Fire observed the aircraft pass just east of the Jaguar Fire. FC Bidart observed AA410 in a "nose-up" attitude, which he estimated at approximately 40 degrees. FC Bidart estimated the aircraft was approximately 400 to 600 feet AGL. FC Bidart heard an explosion and within moments heard a transmission on Command 2, the assigned command channel, alerting that AA410 had gone down.

None of the eyewitnesses who observed AA410 flying in or near the Bear Creek drainage reported observing any evidence of smoke trailing the airplane. With the

exception of the airplane's last few seconds of flight, none of the eyewitnesses reported observing any maneuvering inconsistent with the typical operation that they had previously observed when this model of airplane performed other surveillance flights. At no time prior to the accident were any emergency communications heard.

At 10:38 a.m. Strike Team Leader (W-6) Richard Logan reported the following to the Visalia ECC on the command frequency:

Logan: Visalia, Strike Team 9388 Golf emergency traffic.

Visalia ECC: Golf unit to Visalia repeat.

Visalia ECC: 9388 Golf, Visalia, on Command 2, tone 3, how do you copy?

Logan: Loud and clear. Air Attack went down, Jaguar Fire.

Visalia ECC: Visalia copies (pause) we got it.

At 10:40 a.m. (W-10) Muchado reported the following to the Visalia ECC on Local net:

Muchado: Visalia, Mountain I.C., emergency traffic.

Visalia ECC: Mountain I.C. we have just been advised by Fenner Canyon.

Muchado: Copy 410, unsure the exact location but should be up by state forest.

Visalia ECC: 10:40.

Fire personnel involved with suppression activities from the Day and Jaguar Fires immediately responded to the accident site. Due to the rugged terrain, limited access routes and heavy vegetation in the area, responding resources had a difficult time locating the accident site. The accident site was located approximately 350 feet from Balch Park Road. The first-in units discovered a majority of the wreckage involved in fire, with fire spreading through the vegetation. The vegetation fire was contained at 1 acre.



An immediate search of the wreckage did not reveal any survivors and not until the fire surrounding the fuselage was contained were the bodies of Pilot Willett and BC Stone discovered. The lap belt for BC Stone was discovered without the shoulder harness attached. In close proximity to the fuselage the remnants of a Glock handgun, model 27 was discovered. The weapon was severely damaged by fire. Subsequent investigation revealed the handgun was registered to Pilot Willett.

Battalion Chief Davidson, a peace officer, was at the Mountain Home Conservation Camp investigating the fires when he heard via his radio that AA410 had gone down. He returned to his vehicle and responded to the scene and protected the crash site until relieved later that evening.

Notifications were made through the Visalia ECC and the Tulare Sheriff's Office was notified of the fatal crash. Sergeant Robert Schimpf of the Tulare Sheriff's Department was assigned as the investigating officer and coroner's representative. The bodies of Pilot Willett and BC Stone were removed and transported to the Tulare County Coroner's morgue.

## **FINDINGS**

### *Flight*

On September 6, 2006, while flying a reconnaissance mission in the Bear Creek drainage, AA410 impacted rising mountainous terrain in a box-like canyon. The reconnaissance flight was due to a number of fires being discovered in the drainage over the previous 3 days. Pilot Willett flew the canyon's drainage area, which was surrounded by higher elevation terrain.

Witnesses on the ground initially observed the airplane flying 1,000 to 1,500 feet above ground level (AGL). As AA410 was flying up the drainage, a witness observed the plane approximately 100 to 150 feet AGL. Seconds before the crash, a witness located 3/4-mile downslope from the accident site observed AA410 fly overhead proceeding over progressively higher elevation terrain while flying between 400 to 600 feet AGL, and with its nose pitched upward at a 40-degree angle. Another witness about 1/2-mile downslope from the accident site reported hearing airplane engine noise consistent with high rpm, the sound of a crash, and the sound of a falling tree followed by an explosion.

The airplane impacted 125-foot-tall trees on 25- to 40-degree upsloping terrain, fragmented, and was partially destroyed by the post impact fire. The wreckage field was approximately fifty feet wide and two hundred feet in length on a 20- to 25-degree slope.

Per FAA regulations 91.105 and 91.107 use of the shoulder harness by BC Stone was not required, except during take off and landing. Use of the shoulder harness by BC Stone would not have increased his chances of survivability.

The NTSB final report of probable cause cites the cause of the accident as:

“the pilot's failure to maintain adequate terrain clearance while maneuvering over rising terrain in a box canyon. Also causal was the pilot's failure to adhere to procedures/directives regarding minimum altitude requirements.”

### *Weights and Balances*

The airplane's maximum weight for an air tactical mission is 10,500 pounds. The airplane had been completely refueled 2 days prior to the accident, and thereafter, it had not been flown. The airplane's weight at departure for the accident flight was subsequently calculated about 10,412.9 pounds.

### *Autopsy*

On September 8, 2006, autopsies were performed on Pilot Willett and BC Stone by the Tulare County Sheriff's Department, Coroner's Unit, 1225 South O Street, Tulare, CA 93274. The FAA's Forensic Toxicology Research Team, Civil Aeromedical Institute, Oklahoma City, Oklahoma, performed toxicology tests from blood specimens.

In Pilot Willett, no evidence was found of carbon monoxide, cyanide, volatiles, ethanol, or any screened drugs.

No evidence was found in BC Stone of cyanide. The carboxyhemoglobin saturation level (carbon monoxide) in the blood was 27 percent. Ethanol was detected in a blood specimen (21 mg/dL) and N-Propanol was also detected in a blood specimen (3 mg/dL). No ethanol was detected in a urine specimen. The FAA stated in its toxicology report that the ethanol found in this case is from sources other than ingestion. No evidence of putrefaction was found.

### *Engine Examination*

The engines were transported to the Honeywell Aerospace facility in Phoenix, Arizona, where they were torn down and examined by Honeywell participants

under the direction and observation of the Safety Board investigator and CDF participants between October 24 and 27, 2006. In April 2007, Honeywell completed its teardown report (Attachment 29) and developed the following conclusion:

“The teardown and examination of engines GE-00190 and GE-00329, left and right engines respectively, disclosed that the type and degree of damage was indicative of engine rotation and operation at the time of impact with the terrain. No pre-existing condition was found on either engine that would have interfered with normal operation.”

The Honeywell report provided in Attachment 29 is included pursuant to the disclosure statement on the second title page. Appendix A as cited in the report was not copied or distributed due to the copyrighted work of Honeywell International Inc., and prevention of trade secret release.

# CAUSAL FACTORS ANALYSIS

## GUIDE FOR IDENTIFYING CAUSAL FACTORS

Did any of the following start or sustain the occurrence?

Poor Housekeeping				
Answer Yes No	Causal Factors	Findings	Reference Supporting Information	Comments
<b>No</b>	Inadequate storage facilities			
<b>No</b>	Lack of routine maintenance			
<b>No</b>	Failure to ensure everything is kept in place			
<b>No</b>	Poor planning or scheduling			
<b>No</b>	Failure to designate responsibility for an area			
<b>No</b>	Lack of supervision			
<b>No</b>	CDF-66			
Poor Planning, Lack of Standard Practice or Established Safe Methods				
<b>No</b>	Failure to recognize need for planning for safe procedures			
<b>No</b>	Project Safety Work Plan Form CDF-66 not completed			
<b>No</b>	Safety tailgate sessions not held	Session conducted at air attack base		
<b>Yes</b>	Failure to follow prescribed procedures		8300 Aviation Handbook Section 8362.4.1	
Unsafe Loading, Securing, or Piling				
<b>N/A</b>	Failure to recognize that existing procedures are hazardous			
<b>N/A</b>	Lack of storage facilities			
<b>N/A</b>	Shortcuts taken or prescribed procedures not followed			
<b>N/A</b>	Lack of supervision			
<b>N/A</b>	Poor housekeeping			

Answer Yes No	Causal Factors	Findings	Reference Supporting Information	Comments
<b>Unsafe Materials Handling</b>				
<b>N/A</b>	Lack of proper materials for handling equipment			
<b>N/A</b>	Lack of standard practices; failure to establish job procedures			
<b>N/A</b>	Lack of training			
<b>N/A</b>	New methods implemented without notifying employees			
<b>N/A</b>	Shortcuts taken or prescribed procedures not followed			
<b>Violation of Rules and Orders</b>				
<b>Yes</b>	Failure to enforce rules	Witnesses observed aircraft below 500 feet AGL.		
<b>No</b>	Inexperienced employees			
<b>Yes</b>	Rules known but not followed	Rules were covered during training	8300 Aviation Handbook Section 8371.2	
<b>No</b>	Shortcuts are taken			
<b>Defective Tools, Equipment, or Facilities</b>				
<b>N/A</b>	Failure to notice unusual appearances or recognize a possible hazard			
<b>N/A</b>	Failure to inspect for defects			
<b>N/A</b>	Inadequate or no program for routine equipment maintenance			
<b>N/A</b>	Recognition of a hazard but failure to act to eliminate it			
<b>No</b>	AA410 airplane	No mechanical defections noted during pre and post flight inspections.		

Answer Yes No	Causal Factors	Findings	Reference Supporting Information	Comments
<b>Improper Use of Tools, Equipment, or Facilities</b>				
<b>No</b>	Employees are not properly trained; correct handling not demonstrated			
<b>No</b>	Need for standard procedures is not recognized in advance			
<b>Yes</b>	Correct methods known but not put into practice	Flew below 500 feet AGL	8300 Aviation Handbook Section 8362.4.1	
<b>No</b>	Lack of practice		8300 Aviation Handbook Section 8371.2	
<b>Inadequate Guarding or Lack of Safety Device</b>				
<b>N/A</b>	Failure to recognize need for guarding			
<b>N/A</b>	Failure to provide equipment guard			
<b>N/A</b>	Failure to follow through on procedures			
<b>N/A</b>	Machine used improperly			
<b>N/A</b>	CSP/SHA not on file or inadequate			
<b>Lack of Proper Tools, Equipment, or Facilities</b>				
<b>No</b>	Failure to enforce safety regulations			
<b>N/A</b>	Failure to recognize that existing equipment is inadequate			
<b>No</b>	Equipment is out-of-service due to lack of maintenance			
<b>No</b>	Employee does not ensure that proper tools are available			



Answer Yes No	Causal Factors	Findings	Reference Supporting Information	Comments
<b>Lack of Safety Equipment or Clothing</b>				
<b>No</b>	Safety equipment or clothing unavailable to employee			
<b>Yes</b>	Employee fails to use safety equipment or clothing	ATGS shoulder restraints were not fastened properly.		Not a causal factor for accident. Use of shoulder restraints would not have improved survivability.
<b>N/A</b>	Failure to recognize hazards requiring safety equipment or clothing			
<b>Yes</b>	Failure to enforce safety rules	Shoulder restraints not fastened on ATGS.		
<b>Neglect of Obvious Safe Practices, Measures, or Precautions</b>				
<b>Yes</b>	Willful disregard of safe practices	Flew below 500 feet AGL	8300 Aviation Handbook Section 8362.4.1	
<b>Yes</b>	Failure to recognize safe practices	Flew below 500 feet AGL	8300 Aviation Handbook Section 8362.4.1	
<b>No</b>	Shortcutting procedures			
<b>No</b>	Horseplay			
<b>No</b>	Failure to respond to known practices			
<b>N/A</b>	Supervisor fails to supervise			
<b>Yes</b>	ATGS fail to act		8300 Aviation Handbook Section 8321.4	
<b>Yes</b>	Pilot fail to act		8300 Aviation Handbook Section 8321.4	
<b>Yes</b>	Ground personnel fail to act		8300 Aviation Handbook Section 8321.4	

## **SUPPORTING INFORMATION**

- A. Narrative of Review
- B. Circumstances
- C. Site Conditions
- D. Evidence

## ***Narrative of Review***

On September 6, 2006, as soon as it was known that Air Attack 410 was involved in a fatal accident on the Mountain Fire, an interagency accident investigation team was designated by the Director of the California Department of Forestry and Fire Protection. The team consisted of the following 11 members.

Mike Chuchel – Team Leader, CDF

Joshua White – Lead Investigator, CDF

Tom Humann – Aviation Safety Specialist, CDF

Bill Mason – OV-10A Aviation Specialist, CDF

Tony Agosto Jr. – OV-10A Aviation Specialist, DynCorp

Marshall Turbeville – Graphic Information Specialist, CDF

Rick Swan – Interviewer, CDF Firefighters Local 2881 Labor Representative

Russ Looney – California Fire Pilots Association Labor Representative, DynCorp

Ethan Foote – Documentation Specialist, CDF

Ben Nunley – Interviewer, CDF

Tom Francis – Interviewer, CDF

### ***Outside Agency Activity***

On September 7, 2006 the National Transportation Safety Board assigned an Investigator-In-Charge (IIC), Wayne Pollack to investigate the cause of the fatal accident.

### ***Investigative Team Authority***

The Investigative Team had full authority to use whatever resources deemed necessary to complete the accident investigation. The team was directed to do the following:

- Identify factual data associated with the circumstance related to the incident.
- Accurately and objectively record the findings of its investigation.

- Analyze the findings to determine factors involved and their relationships.
- Recommend actions that should be immediately implemented to prevent similar future occurrences.
- Develop and submit a factual report and an investigative report to the Director, California Department of Forestry and Fire Protection.

### ***Team Chronology***

**September 7, 2006** – The team convened in the morning in Porterville, California. The team received a briefing by Team Leader Mike Chuchel. The team reconvened in Visalia, California at the CDF Headquarters facility. A briefing was provided by Sergeant Robert Schimpf of the Tulare County Sheriff's Department (TCSD). The bodies had been recovered by the TCSD and taken to the Tulare County Coroner's Office. NTSB IIC Wayne Pollack arrived, recorded signatures of those agreeing to be party to the official NTSB investigation and delegated assignments. Blue Sheet was submitted for departmental review.

**September 7 – 15, 2006** – Over the next week, the team investigated the accident site and conducted a series of interviews with witnesses. A detailed site examination was conducted including the gathering of physical evidence. Personal effects from the crash site were analyzed and returned to the family. A bottle of Absolut vodka was found in Pilot Willett's bag and kept as evidence. Training and qualification records of Pilot Willett and BC Stone were assembled. The team gathered information and evidence about dispatch records, fire history, policies, procedures and guidelines related to the accident. The team met in the mornings for briefings and in the evenings for debriefings and information sharing.

**September 8, 2006** - Autopsies performed on Pilot Willett and BC Stone by the Tulare County Coroner's Office.

**September 10, 2006** – First load of evidence collected from accident site and transported to Visalia Headquarters. The evidence was subsequently sealed and locked into three storage containers.

**September 11, 2006** – Second and final load of evidence collected from accident site and transported to Visalia Headquarters. The evidence was subsequently sealed and locked into three storage containers.

**September 12, 2006** – Preliminary Report released by the NTSB. BC Stone's Memorial Service was conducted at the Visalia First Assembly Church.

**September 13, 2006** - Pilot Willett's Memorial Service was conducted at the Kings County Fairground. Evidence stored at Visalia Headquarters consolidated into one storage container, sealed and locked.

**September 14, 2006** – Green Sheet was submitted for departmental review. Both engines shipped to Honeywell in Phoenix, Arizona.

**September 15, 2006** – With the initial interviews completed, the team adjourned. Individual members continued their specific assignments. Team Leader briefed the CDF Tulare Unit Chief on the status prior to departing.

**September 19, 2006** – Evidence container arrived at Davis Mobile Equipment Facility for storage.

**September 20, 2006** – Memo from Chief Ken McLean required a Safety Stand Down and review of Departmental Policies for all CDF Air Attack Bases.

**October 24 – 27, 2006** – A subset of the investigative team met at the Honeywell Aerospace facility in Phoenix, Arizona. The engines were torn down and examined by Honeywell participants under the direction and observation of Wayne Pollack and the investigative team members present.

**December 7, 2006** – Bill Mason testified at Preliminary Hearing in re: State of California v. Patrick Courtney.

**February 20, 2007** – Investigative team met at the Aviation Management Unit in Sacramento to compile a rough draft report.

**February 27, 2007** – A subpoena was issued by the Tulare Superior Court for all documents pertaining to the investigation. Lead investigator brought the documents to Visalia, California to comply with the subpoena.

**April 13, 2007** – The Honeywell Teardown Report released to the investigation team.

**April 15, 2007** – Evidence retained by the Lead Investigator turned over to the Tulare CDF Prevention Bureau per Tulare District Attorney Tim Ward's request.

**April 23, 2007** – Engines released from Honeywell to CDF. Returned to AMU and placed in evidence container at Davis Mobile Equipment Facility.

**May 14, 2007** – The NTSB Factual Report was released.

**May 29, 2007** – The NTSB Probable Cause report was released.

**August 21-23, 2007** – Investigation Team met at the AMU facility to finalize the report.

## **CIRCUMSTANCES**

### *Weather*

The closest aviation observation station to the accident site was located at the Porterville Municipal Airport, about 25 statute miles southwest of the accident site. Porterville's elevation is 442 feet mean sea level (MSL). At 10:35 a.m., Porterville reported the following weather conditions at the airport: sky clear; wind from 290 degrees at 4 knots; visibility 10 miles; temperature/dew point 31/16 degrees Celsius, respectively; and altimeter 29.98 inches of Mercury.

The Case Mountain Remote Activated Weather Station (RAWS), elevation 6,450 feet MSL, is located about 14 statute miles northwest of the accident site. At 11:00 a.m., this facility reported, in part, the following weather conditions: wind from 171 degrees at 4 knots; and temperature/dew point 77°/49° Fahrenheit, respectively.

The estimated density altitude was approximately 8,700 feet.

### *Observations*

A camera located on Jordan Lookout, northeast of the accident site, captured digital photographs of the accident site prior to and after the accident. A photograph time stamped at 10:36:45 a.m., prior to the accident, revealed a layer of smoke or dark haze above the accident site and a small cloud in the distance. A photograph time stamped at 10:39:53 a.m., after the accident, shows the same conditions with the addition of a dark smoke column, presumably from the accident site. Subsequent photographs reveal a building column of smoke and not under the influence of a strong wind. A photograph time stamped 10:56:51 a.m. revealed the smoke column turned white and dispersed aloft by a south wind.

## **SITE CONDITIONS**

The initial point of impact (IPI) occurred with estimated 125-foot-tall trees. The trees were based on 25- to 40-degree upsloping 6,240-foot mean sea level (MSL) terrain in a box-like canyon. The tops of several trees were found severed, trunks were observed gouged, and fragmented airframe components were found scattered in the forest surrounding the trees.

The magnetic bearing from the area of the impacted trees to the main wreckage was estimated between 060 and 070 degrees. The main wreckage was found about 120 feet northeast of the IPI area. One tree with an estimated 3-foot diameter was observed felled in this area, and airplane components were noted around the tree. The wreckage field was approximately fifty feet wide and two hundred feet in length on a 20- to 25-degree slope.

The global positioning system (GPS) coordinates for the main wreckage were 36 degrees 13.9 minutes north latitude by 118 degrees 41.1 minutes west longitude.

All major airframe components (fuselage, empennage, wings, cockpit) were found at the site. Portions of all flight control surfaces and corresponding flight control cable/control systems were also found at the accident site.



## **EVIDENCE**

The evidence at the scene was evaluated, documented and collected by or under the direct supervision of members of the investigation team. The engines were packed and shipped to the manufacturer for a complete teardown inspection. In April of 2007, Honeywell released its report to the investigation team (Attachment 29).

The remainders of the components of the airplane were transported from the accident site to Visalia Headquarters where they were loaded into a storage container and transported to the Davis Maintenance Facility in Davis, California.

Personal effects of BC Stone and Pilot Willett were returned to their families the week after the accident. Miscellaneous items such as the remnants of the Glock handgun, bottle of Vodka, and aluminum binder were held by the lead investigator and turned over to the Tulare Prevention Bureau.

On September 8, 2006, autopsies were performed on Pilot Willett (Attachment 27) and BC Stone (Attachment 28) by the Tulare County Sheriff's Department, Coroner's Unit, 1225 South O Street, Tulare, CA 93274. The FAA's Forensic Toxicology Research Team, Civil Aeromedical Institute, Oklahoma City, Oklahoma, performed toxicology tests from blood specimens.