Aviation Investigation Final Report

Location:	Porterville, California	**Accident Number:**	LAX06GA287
Date & Time:	September 6, 2006, 10:39 Local	**Registration:**	N419DF
Aircraft:	North American OV-10A	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Public aircraft		

Analysis

The airplane impacted rising mountainous terrain in a box-like canyon while performing mission-related low altitude aerial surveillance. The pilot was under contract to fly California Department of Forestry (CDF) personnel over an area where three fires had occurred and to search for newly developing fires. During the 14-minute-long flight, the pilot proceeded to the designated area and commenced providing his observer-crewmember with a viewing opportunity. The pilot flew up and down the canyon's drainage area, which was surrounded by higher elevation terrain. Witnesses initially observed the airplane flying 1,000 to 1,500 feet above ground level (agl). Subsequently, the airplane was observed flying 100 to 150 feet agl. Seconds before the crash, a witness located 3/4-mile downslope from the accident site observed the airplane 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 destroyed by the post impact fire. Wreckage from the airframe and all six propeller blades were examined on the 6,240-foot mean sea level mountainside. The turboprop engines were subsequently recovered and torn down. A plethora of evidence was found consistent with rotational operation at high power followed by sudden stoppage. No evidence of any preimpact airframe or engine malfunction was observed. CDF had published a restriction specifying that the accident airplane not be flown lower than 500 feet agl during missions. The restriction document was found in the airplane wreckage. Additionally, CDF had not authorized the pilot to fly missions at any time below 500 feet agl.

Probable Cause and Findings

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

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING

Findings
1. TERRAIN CONDITION - BLIND/BOX CANYON
2. TERRAIN CONDITION - RISING
3. (C) PROCEDURES/DIRECTIVES - NOT FOLLOWED - PILOT IN COMMAND
4. (C) LOW ALTITUDE FLIGHT/MANEUVER - PERFORMED - PILOT IN COMMAND
5. (C) ALTITUDE/CLEARANCE - INADEQUATE - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On September 6, 2006, about 1039 Pacific daylight time, a North American Aviation, Inc., OV-10A, N419DF, (call sign "Air Attack 410") impacted trees and rising mountainous terrain while maneuvering about 25 statute miles northeast of the Porterville Municipal Airport, Porterville, California. The accident occurred in the Mountain Home Demonstration State Forest (MHSF). The United States Forest Service and the State of California Department of Forestry & Fire Protection (CDF) owned the airplane, which was operated by CDF during the public-use flight. The airplane was destroyed during the impact sequence and post impact ground fire. The two occupants, an airline transport certificated pilot and an observer-crewmember, were fatally injured. No one on the ground was injured. Visual meteorological conditions prevailed. CDF management reported that the flight was conducted under the provisions of 14 CFR Part 91, and it was dispatched in accordance with the department's flight following procedures. The accident flight commenced from Porterville at 1025.

On the day of the accident and during several preceding days, three fires existed near the MHSF. The CDF's airborne mission involved using air attack (reconnaissance) airplanes and air tankers (fire retardant droppers) to address the fires.

Air Attack 410's mission was to provide tactical coordination and communication with the incident commander (IC) on the ground. The information that the crew gathered was related to evaluating the status of the previously observed fires, and identifying the onset of new fires including providing information regarding their respective spread.

CDF management reported to the National Transportation Safety Board investigator that during the flight the accident airplane was operating pursuant to its prescribed mission in the air attack capacity by flying within the MHSF and adjacent areas. The accident OV-10A was the only CDF airplane flying in the area.

The pilot was an employee of DynCorp, McClellan, California, and was working under contract for CDF. The observer-crewmember was a CDF battalion chief and was working as the air tactical group supervisor (ATGS).

After the pilot received his duty assignment and signed the CDF's flight release document, he proceeded to preflight the airplane. The ATGS similarly received his duty assignment. Thereafter, both crewmembers boarded the airplane and the flight commenced.

Visual and/or auditory witnesses to the airplane's flight were situated at varying locations and elevations in the vicinity of the MHSF. No witness reported observing the final seconds of the

airplane's flight and the impact sequence. The latter portion of the airplane's flight path was reconstructed from the witness statements. (The reconstructed path is included in the public docket for this accident report.)

After departure and flight in a northeasterly direction over the increasingly higher elevation terrain, the airplane was observed to perform several orbits before proceeding farther up the canyon. Witnesses reported hearing communications between the accident airplane and the IC in which the flight operation plan was discussed. One witness recalled that the crew was going to "check for smokes." Some witnesses reported that the engines were sputtering and did not sound right, while others reported hearing nothing unusual.

The airplane flew past the location of three fires referred to as the Mountain Fire, the Camp Fire, and the Jaguar Fire. Thereafter, the airplane continued flying in a northeasterly direction for an additional 1/2-mile over increasingly higher elevation terrain. Several witnesses (auditory and visual) were located near the airplane's flight path as it flew over an area known as the Bear Creek drainage.

An auditory witness, located near the Mountain Fire (about 2 miles southwest of the crash site) reported to the Safety Board investigation team that he heard the ATGS say they would fly "low and slow" while in the canyon.

An eyewitness, also located about 2 miles southwest of the crash site, reported that he observed the airplane flying 1,000 to 1,500 feet above ground level (agl) when flying down the canyon, and between 100 to 150 feet agl when flying up the canyon. This witness also reported that he heard the engine noise become louder as if the engine power was being increased.

An eyewitness located near the Jaguar Fire, about 0.75 miles southwest of the crash site, reported observing the airplane flying up the canyon 8 to 10 seconds before it crashed. This witness estimated that the airplane was between 400 and 600 feet agl, and was in a 40-degree nose up attitude.

The witness closest to the accident site was located less than 0.5-mile southwest of the site. This witness 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.

None of the eyewitnesses who observed the accident airplane flying in or near the MHSF, either up or down the drainage area, 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.

PERSONNEL INFORMATION

Pilot.

The pilot held an airline transport pilot certificate, multiengine land, and he had commercial pilot privileges, airplane single engine land. He also held a certified flight instructor certificate, airplane single engine land, with an expiration date of February 2007.

The pilot's resume indicated that he had been employed as a pilot since 1981 and had principally worked for California-based companies. In April 2002, DynCorp employed the pilot. The pilot received flight proficiency checks in the OV-10A from CDF personnel.

During employment with DynCorp, the pilot had flown 670 hours of fire surveillance flights. During the 90 days preceding the accident, the pilot had flown the OV-10A for 127 hours. The pilot had been on duty for the sixth consecutive day when the accident occurred. He had not flown the day prior to the accident day, and he had flown 3 hours 2 days prior to the accident. According to the CDF participant, the pilot was in compliance with all department crew day and crew rest requirements during this time frame.

The pilot completed a flight review and instrument proficiency check in April 2006. The pilot's most recent CDF flight check was successfully completed as an air attack pilot on May 25, 2006. On this date, the pilot reported his total flight time was 12,387.7 hours, and his total pilot-in-command time flying the OV-10A was 730.6 hours. (The pilot's flight time in the OV-10A is approximated.)

CDF management reported that the pilot had completed its training program in accordance with the "Aviation Management 8300 Procedures Handbook." In pertinent part, the CDF handbook includes the following important notes in section 8362.4.1:

"Special training and pilot certification are required for fixed wing low level flight operations (flight below 500 feet AGL). Unless specifically authorized for low level operations by an inter-agency pilot inspector, pilots may not descend below 500 feet AGL, except during takeoff and landing."

"When operating within the confines of a canyon, pilots shall always make allowances for completing a 180-degree turn away from rising terrain."

On April 7, 2005, CDF issued the pilot a USDA interagency qualification identification card. On the backside of the card specific authorizations were identified that referred to the "SPECIAL MISSION" assignments the pilot was authorized to undertake. The pilot was authorized to fly the OV-10 airplane in an air attack capacity. The authorization for "LOW LEVEL OPNS. (LESS THAN 500' AGL)" was lined out. Accordingly, CDF management reported to the Safety Board investigator that the pilot was not authorized to fly below 500 feet above the ground.

The CDF's management also reported to the Safety Board investigator that the official record indicating flight approvals is called the "Airplane Pilot Qualifications and Approval Record."

This most recent record, dated May 25, 2006, indicates that no authorization for low-level flight operations was given to the pilot. Had such authorization been granted, it would have been indicated on the form by a specific notation in the box entitled "Other."

Observer-Crewmember.

The ATGS was a battalion chief with 18 years of experience as a CDF firefighter. He became qualified as an ATGS in 2005, and he was performing aircrew duties for his second season. During the preceding 90-day period, the ATGS had flown 63 hours.

The ATGS was on duty for the third consecutive day when the accident occurred. He had not flown the day prior, and had flown 3 hours 2 days prior to the accident. According to the CDF participant, the ATGS was in compliance with all department crew day and crew rest requirements during this time frame.

CDF management reported that the ATGS had no known health conditions that would adversely affect his ability to act as a crewmember. CDF does not require its ATGS's to submit to a flight physical.

The ATGS observer-crewmember was seated behind the pilot in the 2-seat airplane. He did not hold a pilot certificate.

AIRCRAFT INFORMATION

Manufacture and Acquisition.

In 1968, North American Aviation, Inc., manufactured the twin-turboprop airplane with serial number 305-104M-56, and a customer (military) serial number of 155445. In 1992, the airplane was placed into storage at the conclusion of its United States military usage assignment.

The CDF acquired the airplane from Department of Defense storage in June 1998. The listed total airframe time was 5,777.4 hours.

Modifications and Flight Activity and Authorized Uses.

CDF converted the airplane for firefighting use as an air attack airplane. The modifications included removal of all military armament, sponsons (hard points for ordinance), ejection seats, avionics, communication equipment, electronics, and environmental systems. On May 10, 1999, following completion of the conversion, CDF's "Significant Historical Data and Maintenance Record" form was completed. The form indicated the airplane was inspected in accordance with a California Department of Forestry annual inspection guide and was determined to be in airworthy condition. CDF continued operation of the airplane until the accident date.

The airplane was maintained by a private contractor, DynCorp, under CDF's 200-hour progressive inspection maintenance program. These inspections were accomplished at 50-hour intervals.

According to CDF's dispatch records, when the airplane departed on the accident flight, its total airframe time was approximately 7,438.7 hours. Based upon CDF communication and witness data, by the time of the accident, the airplane had flown an additional 0.2 hours. Its total time at impact was about 7,438.9 hours.

An aluminum binder was located in the wreckage of the accident airplane. The binder contained, in part, a copy of the airplane's weight documents entitled "2005 Aircraft Reweigh Form," and a CDF "Interagency Data Card." The Reweigh form provided the airplane's current empty weight, center of gravity location, and useful load. The Data Card provided a list of the authorized flight uses for which the airplane could be operated. The use item entitled "LOW-LEVEL" was lined out.

According to CDF's chief of flight operations, the only authorized uses for the airplane were passenger, cargo, and fire surveillance/recon-related flights. Low-level flight is flight below 500 feet agl (except for landing and takeoff).

Federal Aviation Administration Certification and CDF Operation.

The CDF owns the FAA type data certificate for the OV-10A make and model of airplane. For departmental administrative reasons, CDF management opted not to obtain type certification for the accident airplane following its conversion from military to civilian configuration. There is no requirement to operate the public-use airplane under an FAA-issued airworthiness certificate, and conformity with the type data certificate was not demonstrated to the FAA.

Airworthiness.

CDF management reported that the airplane was being maintained in accordance with its maintenance program. The airplane's last 150-hour progressive inspection was accomplished on August 7, 2006, at a total airframe time of 7,415.7 hours.

A review of the maintenance records pertinent to the accident flight did not reveal evidence of any pilot squawks or outstanding safety-of-flight discrepancies. No "grounding" or other flight safety-related remarks were listed on the "Airplane Log" CDF form FC-84M, which was pertinent to the accident flight and to the preceding flight on September 4, 2006. During the maintenance record review, no evidence was found indicating a lack of compliance with the established inspection intervals and frequencies on the airframe, engine, propellers, and accessories.

Weight and Balance Calculation.

According to CDF, 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.

By the time of the accident, the airplane is estimated to have burned off about 163 pounds of fuel. Its approximate weight at the time of the accident was 10,250 pounds. The airplane's weight is not included on the CDF dispatch release documents that are provided to the pilot.

Weight and balance calculations by CDF indicated that the airplane's loading was within its approved operating envelope during the accident flight.

Instruments.

The airplane is equipped with two instrument panels, a full panel for the pilot and a partial panel for the rear seat observer-crewmember. The observer's panel consists, in part, of a clock, airspeed indicator, compass, altimeter, vertical speed indicator, and fuel status annunciator lights. The altimeter is physically located in the center of the panel, directly in front of the observer, who has an unobstructed view out of both sides of the airplane (see photographs of the cockpit from an exemplar airplane).

METEOROLOGICAL INFORMATION

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 1035, 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 weather observation facility, elevation 6,450 feet msl, is located about 14 statute miles northwest of the accident site. At 1100, this facility reported, in part, the following weather conditions: wind from 171 degrees at 4 knots; and temperature/dew point 22/11 degrees Celsius, respectively.

The estimated density altitude was approximately 8,700 feet.

COMMUNICATION

The FAA reported that it did not receive communications from the accident airplane during its flight. None of the witnesses located in the MHSF reported to the Safety Board investigation team that communications with the accident airplane's crew were recorded.

The Visalia Emergency Command Center (ECC) recorded communications with the accident airplane during an approximate 2-minute-long period following its departure from Porterville.

During the communications, the crewmembers did not indicate experiencing any mechanical malfunction or unusual situation.

WRECKAGE AND IMPACT INFORMATION

Based upon an examination of the accident site and airplane wreckage, the initial point of impact (IPI) area was identified by the location of dozens of severed tree limbs, and by the presence of fragmented airplane components adjacent to the felled branches. The IPI area was further evidenced by gouges in the upper half of estimated 125-foot-tall trees. The trees were based on estimated 25- to 40-degree upsloping 6,240-foot msl terrain several hundred feet below the top of a box-like canyon. Terrain elevation within 1/3-mile west, north, and east of the accident site rises between 6,400 and 6,500 feet msl. The global positioning system (GPS) coordinates for the main wreckage were approximately 36 degrees 13.89 minutes north latitude by 118 degrees 41.01 minutes west longitude.

The magnetic bearing from the IPI area to the main wreckage, in a thick stand of trees, was estimated between 060 and 070 degrees. The left wing tip fairing was observed in the IPI area, suspended by branches about 70 feet above the ground. The fragmented and burned main wreckage and cockpit were 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 engines were found northeast of the main wreckage. In total, components from the airplane were found over an estimated 50-foot wide by 200-foot long area. (See the wreckage distribution diagram in the public docket for this accident for additional details.)

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.

FIRE

Evidence of a post crash fire was observed in and adjacent to the main wreckage. No evidence consistent with a preimpact fire (soot patterns/streaking) was noted on the unburned portion of the impact-severed outboard section of the right wing, which was found near the IPI. The entire cockpit, fuselage, left wing, and the majority of the tail booms were destroyed by fire. No visually discernable instrument markings were visible on the instrument panel gauges, which were also destroyed by fire.

MEDICAL AND PATHOLOGICAL INFORMATION

The pilot's first-class FAA aviation medical certificate was last issued in April 2006. The certificate bore the following limitation: "Holder shall possess glasses for near and intermediate vision."

On September 8, 2006, autopsies were performed on the pilot and observer-crewmember 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 the pilot, no evidence was found of carbon monoxide, cyanide, volatiles, ethanol, or any screened drugs.

No evidence was found in the observer-crewmember 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.

TESTS AND RESEARCH

Performance.

Based upon the reported weather conditions and performance data for an OV-10A, the calculated single engine service ceiling for the accident airplane's weight was approximately 4,400 feet msl. The twin-engine service ceiling was about 24,000 feet msl.

Airframe Examination.

The airframe structure was observed fragmented. Numerous felled branches were observed beneath, adjacent, and on top of components. Crush deformation signatures were noted in several of the fragmented components. Abrasions and gouges were observed in tree trunks and limbs. Clothing and airplane structure was observed suspended from trees (see photographs in the public docket for this accident).

The cargo bay compartment and its door handle were found connected together, but separated from the remainder of the wreckage. No evidence of soot or fire damage was observed on these components. The door handle was observed in the open position. Upon examination of its attachment/closure mechanism, the upper door-locking pawl was observed bent, and it was deformed in a direction consistent with the pawl being pulled outward while in a closed/locked position.

The outboard 6.5-foot-long span of the right wing was severed from the inboard portion of the wing. The wing tip's navigation light filament was visually examined, and it exhibited an uncoiled (stretched) appearance. The left wing was consumed by fire.

Aileron, rudder, and elevator flight control continuity was established by observation of broomstraw separations of the actuating control cables.

CDF participating personnel reported that measurement of the rudder trim actuator's extension was found consistent with a near neutral position. The wing flaps were fully retracted, as evidenced by its flap actuator.

The left engine's fuel shutoff control was in the open position, and the right engine's fuel shutoff control position was not confirmed. It was impact and fire damaged.

Engine Examinations.

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 from which the following pertinent factual observations/findings and analysis have been extracted:

Engine serial number GE-00190 (left nacelle).

1. The torsion shaft separation is consistent with that of torsional overload as a result of a sudden stoppage.

2. Rotation at the time of terrain impact was evidenced by (a) mounting holes in the planet carrier mount feet being slightly elongated; (b) planet gear carrier mount dowels being displaced in the clockwise direction; (c) slight rotational scoring on the aft outer larger diameter of the HSP-to-power section coupling shaft; (d) slight rotational scoring on the forward inner diameter of the main shaft; (e) contour rubbing on the second-stage compressor impeller shroud; and (f) rotational scoring to the shroud line edge of all second-stage compressor impeller blades.

3. Engine operation at the time of terrain impact was evidenced by metal spray deposits adhering to (a) the dished area of the outer transition liner; (b) pressure and suction side of the first-stage turbine stator vanes; (c) suction side and leading edge of the first-stage turbine rotor blades; (d) inside diameter of the second-stage turbine blade tip shroud; (e) suction side and leading edge of the second-stage turbine stator vanes; (f) suction side and leading edge of the second-stage turbine rotor blades; (g) suction side of the third-stage turbine stator vanes; and (h) pressure side of the third-stage turbine rotor blades.

Engine serial number GE-00329 (right nacelle).

1. Evidence of an uncontained separation of the third-state turbine blades was noted. Honeywell personnel opined that this occurrence was "due to a secondary overspeed event," and they provided the following statement in that regard: "The overspeed event was the result of the primary torsional overload separation of the torsion shaft upon impact with terrain. The separation of the torsion shaft results in the uncoupling of the power section from the

gearbox. The fuel control is not directly geared to the power section. Once the uncoupling occurs and the load is removed from the power section, the fuel control no longer has the ability to correctly modulate fuel flow based on gearbox rotational input. As the gearbox speed decays, the fuel control senses an underspeed condition and increases fuel flow to the uncoupled power section, which may result in the observed overspeed condition;"

2. Rotation at the time of terrain impact was evidenced by (a) rotational scoring through 360 degrees on the forward section of the main shaft beginning approximately 1.5 inches aft of the mid-splines; (b) contour rubbing on the first-stage compressor impeller shroud; (c) rotational scoring damage to the shroud line edge of the first-stage impeller blades, through 360 degrees on the first-stage compressor impeller aft hub, and to the seal area of the first-stage compressor diffuser assembly; (d) contour rubbing through 360 degrees at the inducer and exducer of the second-stage compressor impeller shroud; (e) rotational scoring to the inducer and exducer shroud line edges of the second-stage impeller blades, through 360 degrees on the second-stage compressor impeller forward hub, through 360 degrees to the second-stage compressor impeller blade platform outer diameter, and through 360 degrees on the inner diameter of the second-stage diffuser vane assembly; (f) rotational scoring to the abradable seal area of the outer transition liner and to the knife seals of the center curvic coupling; (g) rotational scoring through 360 degrees just outboard of the aft curvic hub to face radius of the first-stage turbine rotor; (h) rotational scoring and deformation of the abradable seal and seal support within the second-stage turbine stator; (i) rotational scoring to both the forward and aft faces and blade platforms of the second-stage turbine rotor; (j) leading edge scoring to approximately six of the third-stage turbine stator vanes; (k) scoring marks on the forward inner vane support of the third-stage turbine stator; and (l) rotational scoring on both the forward and aft faces of the third-stage turbine rotor.

3. Engine operation at the time of terrain impact was evidenced by metal spray deposits adhering to the inner (dome) surface of the outer transition liner.

Following completion of the examinations, the Honeywell participant provided the Safety Board investigator with the following statements:

"The material analysis findings...indicate all examined fracture surfaces were indicative of overload." Also, both engines "experienced a torsional overload separation of the torsion shaft resulting in the uncoupling of the gearbox from the power section. The right engine experienced an uncontained separation of turbine hardware due to a secondary overspeed event whereas the left engine did not."

"The teardown and examination...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."

Propeller Examination.

Maintenance records indicate that the three left engine Hamilton Standard propeller blades were serial numbered N850489, N850490, and N850491. The three right engine propeller blades were serial numbered N801660, N801661, and N801662. The six blades and blade fragments were located at the accident site. One of the left and two of the right blades were partially consumed by fire.

The left propeller blades exhibited torsional twist deformation, leading edge gouging and bending. The three blades were found separated from the engine's attachment hub. The right propeller blades exhibited similar signatures. Additionally, their tips were fragmented. One of the right blades was found retained in the hub. (See photographs).

ADDITIONAL INFORMATION

Wreckage Release.

The main wreckage was released to CDF on September 9, 2006. The engines were released to CDF on April 23, 2007. No original records were retained.

This narrative was modified on May 14, 2007.

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	52,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	April 1, 2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	May 1, 2006
Flight Time:	12516 hours (Total, all aircraft), 860 hours (Total, this make and model), 12254 hours (Pilot In Command, all aircraft), 127 hours (Last 90 days, all aircraft), 27 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	North American	**Registration:**	N419DF
Model/Series:	OV-10A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:		**Serial Number:**	305104M56
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:	August 1, 2006 100 hour	**Certified Max Gross Wt.:**	10500 lbs
Time Since Last Inspection:	23 Hrs	**Engines:**	2 Turbo prop
Airframe Total Time:	7439 Hrs at time of accident	**Engine Manufacturer:**	Garrett-AiResearch
ELT:	Installed	**Engine Model/Series:**	T76-G-419
Registered Owner:	USDA and Calif Dept. of Forestry & Fire Protection	**Rated Power:**	715 Horsepower
Operator:	California Dept. of Forestry & Fire Protection	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PTV,442 ft msl	**Distance from Accident Site:**	22 Nautical Miles
Observation Time:	10:35 Local	**Direction from Accident Site:**	222°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	290°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.97 inches Hg	**Temperature/Dew Point:**	31°C / 16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Porterville, CA (PTV)	**Type of Flight Plan Filed:**	Company VFR
Destination:	Porterville, CA (PTV)	**Type of Clearance:**	None
Departure Time:	10:25 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	36.231666,-118.684997

Administrative Information

Investigator In Charge (IIC):	Pollack, Wayne
Additional Participating Persons:	Doug Kredit; Federal Aviation Administration; Fresno, CA Tom Humann; Calif. Dept of Forestry & Fire Protection; McClellan, CA Bill Mason; Calif. Dept. of Forestry & Fire Protection; McClellan, CA David Studtmann; Honeywell; Phoenix, AZ Antonio Agosto, Jr.; DynCorp; McClellan, CA Russell Looney; IAM Union; Athens, OH Rick Swan; CDF Firefighters, Local Union 2881; Sacramento, CA
Original Publish Date:	May 29, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=64478