National Transportation Safety Board
Aviation Accident Final Report

Location:	East Highlands, CA	**Accident Number:**	LAX04FA002
Date & Time:	10/03/2003, 1116 PDT	**Registration:**	N299MA
Aircraft:	LOCKHEED P2V	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Positioning		

Analysis

The fire tanker airplane was on a cross-country positioning flight and collided with mountainous terrain while maneuvering in a canyon near the destination airport. Witnesses who held pilot certificates were on a mountain top at 7,900 feet and saw a cloud layer as far to the south as they could see. They used visual cues to estimate that the cloud tops were around 5,000 feet mean sea level (msl). They noted that the clouds did not extend all the way up into the mountain canyons; the clouds broke up near the head of some canyons. When they first saw the airplane, they assumed that it came from above the clouds. It was proceeding north up a canyon near the edge of clouds, which were breaking up. They were definitely looking down at the airplane the whole time. They saw the airplane make a 180-degree turn that was steeper than a standard rate turn. The wings leveled and the airplane went through one cloud, reappeared briefly, and then entered the cloud layer. It appeared to be descending when they last saw it. About 2 minutes later, they saw the top of the cloud layer bulge and turn a darker color. The bulge began to subside and they observed several smaller bulges appear. They notified local authorities that they thought a plane was down. Searchers discovered the wreckage at that location and reported that the wreckage and surrounding vegetation were on fire. The initial responders reported that the area was cloudy and the visibility was low. Examination of the ground scars and wreckage debris path disclosed that the airplane collided with the canyon walls in controlled flight on a westerly heading of 260 degrees at an elevation of 3,400 feet msl. The operator had an Automated Flight Following (AFF) system installed on the airplane. It recorded the airplane's location every 2 minutes using a GPS. The data indicated that the airplane departed Prescott and flew direct to the Twentynine Palms VORTAC (very high frequency omni-directional radio range, tactical air navigation). The flight changed course slightly to 260 degrees, which took it to the northeast corner of the wilderness area where the accident occurred. At 1102:57, the data indicated that the airplane was at 11,135 feet msl at 204 knots. The airplane then made three left descending 360-degree turns. The third turn began at 6,010 feet msl. At 1116:57, the last recorded data point indicated that the airplane was at an altitude of 3,809 feet heading 256 degrees at a speed of 128 knots.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's inadequate in-flight planning/decision and continued flight into instrument meteorological conditions that resulted in controlled flight into mountainous terrain.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: MANEUVERING

Findings
1. WEATHER CONDITION - CLOUDS
2. WEATHER CONDITION - OBSCURATION
3. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
4. (C) WEATHER EVALUATION - INADEQUATE - PILOT IN COMMAND
5. (C) VFR FLIGHT INTO IMC - CONTINUED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: MANEUVERING

Findings
6. TERRAIN CONDITION - MOUNTAINOUS/HILLY
7. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On October 3, 2003, at 1116 Pacific daylight time, a Lockheed P2V, N299MA, collided with mountainous terrain while maneuvering near East Highlands, California. Minden Air Corporation was operating the airplane under the provisions of 14 CFR Part 91. The airline transport pilot (ATP) licensed first pilot and the ATP licensed copilot sustained fatal injuries; the airplane was destroyed. The cross-country positioning flight departed Prescott, Arizona, at 0957, en route to San Bernardino, California. Visual meteorological conditions prevailed at March Air Force Base, Riverside, California (RIV), which was the nearest official reporting station. Visual (VMC) and instrument meteorological conditions (IMC) existed at the accident site. A company visual flight rules (VFR) flight plan had been filed. The primary wreckage was at approximate global satellite positioning system (GPS) coordinates of 34 degrees 08.324 minutes north latitude and 117 degrees 05.7 minutes west longitude at an estimated elevation of 3,300 feet.

Two observers were in a forest lookout tower (elevation about 7,900 feet) that was north of the accident site. One of the observers held a commercial pilot certificate with an instrument rating. They saw a cloud layer as far to the south as they could see. They used visual cues to estimate that the cloud tops were around 5,000 feet mean sea level (msl). They noted that the clouds did not extend all the way up into the mountain canyons; the clouds broke up near the head of some canyons.

When the pilot observer first saw the airplane, he assumed that it came from above the clouds. It was proceeding north up a canyon near the edge of clouds, which were breaking up. Both observers said that they were definitely looking down at the airplane the whole time. They saw the airplane make a 180-degree turn. The pilot observer described the turn as steeper than a standard rate turn. The wings leveled and the airplane went through one cloud, reappeared briefly, and then entered the cloud layer. It appeared to be descending when they last saw it.

About 2 minutes later, the observers saw the top of the cloud layer bulge and turn a darker color. The bulge began to subside and they observed several smaller bulges appear. They notified local authorities that they thought a plane was down.

Searchers discovered the wreckage about 1300. The wreckage and surrounding vegetation were on fire. The initial responders reported that the area was cloudy and the visibility was low.

The operator had an Automated Flight Following (AFF) system installed on the airplane. It recorded the airplane's location every 2 minutes using a GPS. The data indicated that the airplane departed Prescott and flew direct to the Twentynine Palms VORTAC (very high frequency omni-directional radio range, tactical air navigation). The pilots changed course slightly to 260 degrees, which took them to the northeast corner of the San Gorgonio Wilderness Area and Big Bear Lake. At 1102:57, the data indicated that the airplane was at 11,135 feet msl at 204 knots. The airplane then made three left descending 360-degree turns. The third turn began at 6,010 feet msl. At 1116:57, the last recorded data point indicated that the airplane was at an altitude of 3,809 feet heading 256 degrees at a speed of 128 knots. The coordinates were 34.143 degrees north latitude and 117.064 degrees west longitude.

PERSONNEL INFORMATION

The operator submitted a written report.

Captain

A review of Federal Aviation Administration (FAA) airman records revealed that the pilot held an airline transport pilot certificate with a rating for airplane multiengine land and type ratings in the B-17, DC-4, FA-119C, L-B34, and L-P2V. He held a commercial pilot certificate with ratings for single engine land, single engine sea, and glider.

The pilot held a second-class medical certificate issued on January 17, 2003. It had the limitation that the pilot must wear corrective lenses for near and distant vision.

The operator reported that the captain had a total flight time of 7,803 hours. He accumulated 203 hours in the last 90 days, and 36 in the last 30 days. He had 1,853 hours in this make and model.

The operator reported that they had no record from either a USFS form 122 or company records regarding instrument proficiency flights that might have occurred.

Copilot

The copilot held an airline transport pilot certificate with a rating for airplane multiengine land with a type rating in the L-P2V. He held a commercial pilot certificate with ratings for single engine land, single engine sea, rotorcraft-helicopter, instrument helicopter, and glider aero tow. He held a certified flight instructor certificate with ratings for airplane single engine land and instrument airplane. He held a ground instructor certificate with advanced ground and instrument ratings. He held a certificate for senior parachute rigger with ratings for back, chest, and seat; it had a seal symbol NC6 limitation. He also held a mechanic certificate with ratings for airframe and powerplant.

The copilot held a second-class medical certificate issued on February 11, 2003. It had no limitations or waivers.

The operator reported that the copilot had a total flight time of 7,363 hours. He accumulated 203 hours in the last 90 days, and 36 in the last 30 days. He had 853 hours in this make and model.

The operator reported that they had no record from either a USFS form 122 or company records regarding instrument proficiency flights that might have occurred.

AIRCRAFT INFORMATION

The airplane was a Lockheed P2V, serial number 147961. The operator reported a total airframe time of 11,297 hours. An annual inspection was completed on August 15, 2003.

The airplane had a Curtis Wright R3350-32 engine, serial number 572645, installed on the inboard left side. Total time on the engine was 11,030 hours with 514 hours since overhaul.

The airplane had a Westinghouse J-34-36 jet engine, serial number W211247, installed on the outboard left side. Total time on the engine was 11,030 hours with 254 hours since overhaul.

The airplane had a Curtis Wright R3350-32 engine, serial number 573651, installed on the inboard right side. Total time on the engine was 11,207 hours with 116 hours since overhaul.

The airplane had a Westinghouse J-34-36 jet engine, serial number W211264, installed on the outboard right side. Total time on the engine was 11,030 hours with 201 hours since overhaul.

METEOROLOGICAL CONDITIONS

Investigators were unable to find a record of a weather briefing obtained by the crew from any official source that recorded such information. The Prescott Air Tanker Base Manager reported that he drove the flight crew from their hotel to the airplane. They drove by an FAA Automated Flight Service Station, but did not stop and did not obtain a weather brief or file a flight plan.

March Air Force Base was on a bearing of 200 degrees at 17 nautical miles (nm) from the accident site. The elevation of the weather observation station was 1,535 feet msl. A routine aviation weather report (METAR) for RIV was issued at 0955. It stated: skies 2,700 feet scattered, 3,000 feet overcast; visibility 10 miles; winds from 180 degrees at 6 knots; temperature 66 degrees Fahrenheit; dew point 52 degrees Fahrenheit; altimeter 29.87 inches of mercury.

Riverside Airport, bearing 225 degrees at 21 nm and elevation 818 feet, reported at 0953: skies 3,700 feet broken; visibility 5 miles, haze; winds variable at 4 knots; temperature 64 degrees Fahrenheit; dew point 55 degrees Fahrenheit; altimeter 29.86 inches of mercury.

Ontario Airport, bearing 240 degrees at 26 nm and elevation 944 feet, reported at 0953: skies 2,100 feet overcast; visibility 4 miles, haze; winds from 300 degrees at 3 knots; temperature 61 degrees Fahrenheit; dew point 55 degrees Fahrenheit; altimeter 29.87 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

Investigators from the National Transportation Safety Board, the FAA, Minden Air Corporation, and the Office of Aircraft Services (OAS) examined the wreckage at the accident scene.

The accident site was in mountainous terrain about 3,400 feet msl. The debris path was about 200 feet in length and along a magnetic bearing of 260 degrees. The first identified point of contact (FIPC) was on the south wall of a canyon, whose closed end was to the west. The FIPC was bushes with the tops cut off and limbs broken off in the direction of the debris path. The topped bushes were about 30 feet in length and the slant of the tops sloped downhill, but not as much as the canyon wall sloped. The wall sloped 45 degrees downhill (left to right) looking in the direction of the debris path. The height of the topped bushes decreased from about 8 feet at the FIPC to ground level at the end, where a ground scar (IGS) began.

The airplane fragmented and the debris path spread in a V-shape from the IGS. About 30 feet from the IGC was the left aileron gap seal. This and other nearby pieces from the left side of the airplane were not in the charred area and were not scorched.

The main wreckage was at the closed end of the canyon. It consisted of wing sections, two radial engines, two jet engines, the two victims, instruments, and other debris. The last half of the debris field was in the burned area, and the pieces in this area sustained thermal damage.

MEDICAL AND PATHOLOGICAL INFORMATION

The San Bernardino County Coroner completed an autopsy of both pilots. The FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing of specimens of the pilots.

The results of analysis of the specimens for the captain contained no findings for volatiles and tested drugs. There were no tests for carbon monoxide or cyanide.

The results of analysis of the specimens for the copilot contained no findings for volatiles and tested drugs. There were no tests for carbon monoxide or cyanide.

TESTS AND RESEARCH

Investigators examined the wreckage at Aircraft Recovery Service, Littlerock, California.

Examination revealed that the landing gear was up, the flaps were at 10 degrees, and the spoilers were not deployed. The operator noted that the jet pod door actuator was extended, which indicated that the pod doors were closed. He also pointed out that the jet throttle actuator was extended, which indicated an off position. The jet fuel valve was off. He said that this indicated that the two jet engines were not in use at impact.

One of the operator's contract pilots stated that the company provided initial instrument flight training. However, recurrent training was the responsibility of each individual pilot. He noted that the USFS imposed a great amount of pressure on pilots to complete their dispatched mission. Failure to complete a mission could result in monetary losses and conflict. He knew one of the pilots and felt that the pilot would try to avoid conflict. He noted that it was difficult to maintain altitude in the event of a loss of engine power on a P2V, and many pilots were reluctant to fly in IMC when over rising terrain. He opined that most P2V pilots would try to fly underneath the clouds rather than fly in IMC.

The operator's chief pilot stated that the company did not encourage flight in IMC unless a firefighting situation required it. He added that pilots made considerable effort, when dispatched, to reach their specified destination. He noted that pilots who fly firefighting missions are comfortable flying in close proximity to the terrain.

San Bernardino International Airport had instrument landing system (ILS) and non-directional radio beacon (NDB) approaches.

ADDITIONAL INFORMATION

The OAS interviewed another tanker captain who departed Prescott shortly after Tanker 99. He said that Tanker 99's captain had told him a few days earlier that the airplane ran great, and had been flying with very little down time. Tanker 99's crew did not report any discrepancies to their mechanic the night before the flight.

The IIC released the wreckage to the owner's representative.

Pilot Information

Certificate:	Airline Transport; Commercial	**Age:**	54, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 2	**Last FAA Medical Exam:**	01/01/2003
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	05/01/2003
Flight Time:	7803 hours (Total, all aircraft), 1853 hours (Total, this make and model), 6423 hours (Pilot In Command, all aircraft), 203 hours (Last 90 days, all aircraft), 36 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	**Age:**	50, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane; Helicopter	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane Single-engine; Instrument Airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 2	**Last FAA Medical Exam:**	02/01/2003
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	03/01/2002
Flight Time:	7363 hours (Total, all aircraft), 853 hours (Total, this make and model), 6050 hours (Pilot In Command, all aircraft), 203 hours (Last 90 days, all aircraft), 36 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	LOCKHEED	**Registration:**	N299MA
Model/Series:	P2V	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Restricted	**Serial Number:**	147961
Landing Gear Type:	Retractable - Tricycle	**Seats:**	2
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	4 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Curtis Wright
ELT:		**Engine Model/Series:**	R-3350-32
Registered Owner:	Minden Air Corporation	**Rated Power:**	2900 hp
Operator:	Minden Air Corporation	**Operating Certificate(s) Held:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	RIV, 1535 ft msl	**Distance from Accident Site:**	16 Nautical Miles
Observation Time:	1055 PDT	**Direction from Accident Site:**	20°
Lowest Cloud Condition:	Scattered / 2700 ft agl	**Visibility**	10 Miles
Lowest Ceiling:	Overcast / 3000 ft agl	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	180°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.87 inches Hg	**Temperature/Dew Point:**	19°C / 11°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Prescott, AZ (PRC)	**Type of Flight Plan Filed:**	Company VFR
Destination:	San Bernardino, CA (SBD)	**Type of Clearance:**	None
Departure Time:	0957 MST	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	2 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-Ground
Total Injuries:	2 Fatal	**Latitude, Longitude:**	34.138611, -117.095000

Administrative Information

Investigator In Charge (IIC):	HOWARD D PLAGENS	**Report Date:**	10/31/2006
Additional Participating Persons:	Gary Kappa; Federal Aviation Administration; Riverside, CA Office of Aircraft Services; Department of the Interior; Boise, ID L Parker; Minden Air Corporation; Minden, NV		
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Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.		