Aviation Investigation Final Report

Location:	INDEPENDENCE, California	**Accident Number:**	LAX00FA302
Date & Time:	August 15, 2000, 21:50 Local	**Registration:**	N300P
Aircraft:	Piper PA-24	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane collided with terrain on the downwind leg as it approached a point abeam the runway threshold. Auxiliary lighting had recently been installed in the glareshield. This did not provide adequate lighting, so the pilot clipped two flashlights onto the glareshield, used two additional handheld flashlights to illuminate the instrument panel, and continued the flight. The airplane maintained a gradual descent as it flew south of the airport, then completed a left turn to the north on the downwind leg. It continued to descend until it collided with the terrain. The pilot, at some time in the past, had significant surgery on at least one of his eyes, including a corneal transplant. Such surgery can result in complications that substantially impair vision. The lighting level in the cockpit, with the additional lighting from the flashlights, would have essentially prohibited any dark-adaptation of the pilot's vision, and interfered with him seeing anything clearly outside the airplane. Analysis of specimens for the pilot was positive for the following drugs: Benzoylecgonine and ecgonine methyl ester (inactive metabolites of cocaine), cocaine, Temazepam, Oxazepam, and acetaminophen. The pilot was likely impaired by the effects of cocaine withdrawal, and possibly by the use of a prescription sleeping aid. The use of a medication for control of pain/fever symptoms implies that such symptoms were significant. Distraction, sensory disturbance, or impaired judgment as a result of illness could have conceivably played some role in this accident. It is also possible, but less likely, that the pilot had an acute event that resulted in incapacitation (fainting or seizure, for example) as a result of his drug use. The pilot and passenger were both thrown forward and to the right by the impact. The lack of shoulder restraint concentrated deceleration forces on the lap belt resulting in separation of the floor to which the seat belt attached. The damage, deformation, and fractures were typical of a single overload event, and indicate substantial forward rotation of the attachment point during the separation process. This and centrifugal force allowed the pilot to strike the instrument console to his right.

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 terrain clearance. Factors included night conditions, cockpit lighting, which compromised the pilot's night vision, and drug impairment.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings
1. INSTRUMENT LIGHT(S) - ACTIVATED
2. FLASHLIGHT - ACTIVATED
3. (F) LIGHT CONDITION - NIGHT
4. (C) ALTITUDE/CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND
5. (F) PHYSICAL IMPAIRMENT(VISUAL DEFICIENCY) - PILOT IN COMMAND
6. (F) IMPAIRMENT(DRUGS) - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On August 15, 2000, about 2150 hours Pacific daylight time, a Piper PA-24, N300P, collided with obstacles and terrain during a night landing at Independence, California. The owner was operating the airplane under the provisions of 14 CFR Part 91. The private pilot sustained fatal injuries and the passenger sustained serious injuries. The airplane was destroyed. The personal flight departed Oroville, California, about 1930 as a nonstop flight to Independence. Visual meteorological conditions prevailed and no flight plan had been filed.

According to the pilot's wife, the pilot and passenger were en route to Independence to go backpacking. She stated the couple flew into nearby Lone Pine the previous year on a similar trip, but thought this was her husband's first flight into Independence.

The pilot established radio contact with Oakland Air Route Traffic Control Center (ARTCC) at 1942. He reported he was out of Oroville, climbing through 8,000 feet for 13,500 feet, and requested flight following. At 2008, the pilot lost radio contact with ARTCC, but established contact with Reno Approach Control. After he flew out of Reno's airspace, he reestablished contact with ARTCC at 2025, but then lost contact again at 2042. At 2139, the ARTCC controller coordinated with High Desert TRACON, who verified they had radar contact on the airplane 10 miles south of Bishop, California. At 2148, High Desert TRACON verified they still had contact, and the airplane was descending through 7,500 feet near Independence airport. At 2201, ARTCC contacted High Desert, who reported that they had lost radar contact over the Independence airport.

According to the passenger, they were scheduled to depart about 1700 after he got off work; however, he was delayed and they did not leave until 1930. About midway into the flight, the pilot activated the dash lights. The lights did not seem bright enough, so they attached two small flashlights to the cabin interior and used them as floodlights. They also used two small flashlights to scan the instrument panel. This seemed adequate so they continued.

The last landmark the passenger recalled seeing was Mono Lake. He recalled seeing the runway lights after the pilot activated the pilot controlled runway lighting about 10 minutes from the airport. He did not recall seeing the lights as they maneuvered over the airport to enter the landing pattern. The passenger further stated that the pilot did not express any concerns during the approach.

The passenger felt a violent jerk to the left about 1 second before the crash. The passenger extricated himself from the wreckage. He contacted emergency services via his cell phone about 2300.

About 2150, a motorist going northbound on a highway along the west boundary of the airport said he saw an airplane he thought was moving slowly and low to the ground. He saw a green light over a red light and reported that both were steady. The lights "hopped straight up" then went back down, and then he could not see the lights anymore. He did not observe any flashing lights.

The airplane came to rest several hundred yards abeam the approach end of runway 14. The debris path was oriented along a magnetic bearing of 300 degrees.

A data readout from an onboard portable global positions system (GPS) unit showed that the airplane maintained a steady descent as it came by the west side of the airport on a southerly direction. The descent continued as the track turned 180 degrees to the left over Independence and proceeded back to the downwind leg for runway 14, where the data ended. The last data point recorded an altitude of 3,932 feet at 2152:18. The manufacturer stated that the pilot can adjust the hour setting, but the minutes and seconds are matched to UTC time.

PERSONNEL INFORMATION

A review of Federal Aviation Administration (FAA) airman records revealed the pilot held a private pilot certificate with an airplane single engine land rating. A third-class medical certificate with the limitation the pilot must wear corrective lenses was issued on June 28, 2000. An examination of the pilot's logbook indicated an estimated total flight time of 252 hours, with an estimated 85 hours in this make and model. About 19 hours were logged in the last 90 days, and about 7 in the last 30 days. The pilot's logbook recorded the last night flight on April 16, 2000.

Federal Aviation Regulation (FAR) 61.57(d)(1) states that no person may act as pilot-in-command of an aircraft carrying passengers at night "unless, within the preceding 90 days, that person has made not fewer than three takeoffs and three landings to a full stop, at night, as the sole manipulator of the controls in the same category and class of aircraft."

AIRCRAFT INFORMATION

The airplane was a Piper PA 24, serial number 24-2879. A review of the airplane's logbooks revealed an estimated total airframe time of 3,441 hours. An entry dated January 31, 2000, recorded an annual inspection at a tachometer time of 39.6 hours. The tachometer read 165.6 at the accident scene. A Textron Lycoming O-360-A1D engine, serial number L-3798-36, was installed on the airplane. Estimated time since overhaul was 528 hours. The propeller was a Hartzell HC-C2YK-1BF, serial number CH-33694B.

METEOROLOGICAL INFORMATION

A routine aviation weather report (METAR) was issued at 2156 for Bishop, California, magnetic

bearing 332 degrees at 39 miles from Independence. It stated: skies clear; visibility 10 statute miles; winds calm; temperature 83 degrees Fahrenheit; dew point 37 degrees Fahrenheit; and altimeter 30.09 InHg.

Safety Board software determined there was 99 percent illumination of the moon.

AIRPORT INFORMATION

The Airport/Facility Directory, Southwest U. S., indicated Independence's runway 14 was 3,722 feet long and 60 feet wide. The runway surface was asphalt, and the field elevation was 3,900 feet. The remarks section noted that medium intensity runway lighting could be pilot activated on the common traffic advisory frequency.

WRECKAGE AND IMPACT INFORMATION

Investigators from the Safety Board, Textron Lycoming, and New Piper Aircraft Company inspected the wreckage at the accident scene on August 16, 2000. The first identified point of ground contact (IPC) was a ground scar about 3 feet long and 6 inches wide in soft dirt. Investigators found red lens fragments and a lens cap several feet past the IPC in the direction of the debris field. A three-strand barbed wire fence, 18 feet from the IPC, ran diagonally across the debris path; two strands of severed wire led to the main wreckage. One fence post was fractured and was lying in the left side of the debris path near the principal impact crater (PIC.) The crater, which was 10 feet long 3 feet wide and 4 inches deep, was about 38 feet from the IPC. Green lens fragments were 83 feet from the IPC and 12 feet right of the debris path centerline. The main wreckage came to rest about 135 feet from the IPC with the upright fuselage aligned along a magnetic bearing of 240 degrees.

The left wing fractured along a splice outboard of the inner attach point with some rivets sheared spanwise through the skin, while other rivet heads pulled through the skin. The aileron sheared through 90 percent of its chord, but remained connected at both attachment points. A vertical dent about 6.5 feet from the wing root crushed the wing skin up and aft. All control surfaces were with the main wreckage and investigators established control continuity.

Investigators observed about 3 inches of fuel in the right fuel tank. The left tank ruptured, and the fuel selector valve was to the left tank position. The nose gear was pushed back into its wheel well, while both main landing gear were displaced to the left and aft.

One propeller blade exhibited an S-bend and was polished along the leading edge from root to tip. The second blade was bent aft, twisted toward the cambered side, and polished along the leading edge of the tip.

An oxygen bottle, which weighed 10 pounds, was strapped to the back of the left front seat, and a mask was attached to the right control yoke. The bottle's valve was in the on position, and the bottle was empty.

First responders reported freeing the lap belt for the pilot; however, the shoulder harness was not connected. The pilot's seat belt inboard attachment fitting was attached at the bolt. However, the airplane floor sheared and separated around the attachment bracket. The magnetic compass, which was located on the top of the front windshield's center post, was bent up and to the right.

MEDICAL AND PATHOLOGICAL INFORMATION

The Inyo County Coroner completed an autopsy. The FAA Toxicology and Accident Research Laboratory performed toxicological testing of specimens of the pilot. The results of analysis of the specimens were negative for carbon monoxide, cyanide, and volatiles. The laboratory obtained positive results for the following drugs: Benzoylecgonine present in urine and 0.093 (ug/mL, ug/g) detected in blood; cocaine detected in urine; Ecgonine Methyl Ester present in urine and 0.03 (ug/mL, ug/g) detected in blood; Metroprolol present in urine and detected in blood; Oxazepam (0.079 (ug/mL, ug/g)) detected in urine; Temazepam present in urine and 0.036 (ug/mL, ug/g) detected in blood; and acetaminophen 6.963 (ug/mL, ug/g) detected in urine.

A family member reported to the coroner that the pilot had undergone corrective surgery in one eye several years prior to the accident. The pilot's eyesight did not respond to the surgery and he had a corneal transplant performed.

The pilot had been taking instruction in instrument flying. The instructor reported they had flown together at night and he did not notice any problems with the pilot's vision at day or night.

The Safety Board investigator obtained a certified copy of the pilot's medical records from the FAA Aeromedical Branch. Applications for medical certificates dated July 29, 1998, and June 28, 2000, asked if the applicant had any history in his life of eye or vision trouble, visits to a health professional within the previous 3 years, and currently used prescription or nonprescription drugs. The "no" box was checked for all of these questions on both applications.

TESTS AND RESEARCH

A Safety Board investigator and representatives from the airframe and engine manufacturer conducted an examination of the wreckage at Aircraft Recovery Service, Compton, California, on August 22.

They removed the engine from the airframe and slung it from a hoist. They removed the propeller. Its mounting flange fractured around 180 degrees of its circumference and bent about 30 degrees from the longitudinal axis. The flange impinged on the crankcase, and investigators cut it off to allow inspection of the engine. Investigators observed rotational

scoring on the nose of the starter housing and on the face of the generator pulley.

Investigators established continuity from both magnetos to the ignition switch. Both magnetos produced spark at all posts when manually rotated.

The vacuum pump rotated freely; it's plastic drive gear and vanes were undamaged. Investigators removed the vacuum pump. They placed a socket in the vacuum pump drive and rotated the crankshaft by hand.

The investigators obtained thumb compression on all cylinders, all valves moved in sequence, and the accessory gears rotated freely. A borescope inspection of the internal portion of the cylinders did not reveal any mechanical damage on the cylinder walls or on the piston heads. All spark plugs, except the bottom plugs for cylinders number 1 and 3, were gray in color. The bottom plugs for cylinders 1 and 3 were oily (the engine was canted to the right at the accident scene). According to the Champion Aviation Check-A-Plug AV-27 Chart, this corresponded to normal operation. The spark plugs did not exhibit any mechanical damage. Investigators found a blue fluid that smelled like avgas in the fuel filter and carburetor.

All navigation light bulbs were in their respective sockets. All bulbs but the lower taillight operated when connected to a battery. Both landing lights functioned when connected to a battery. The landing light switch was in the off position. The strobe light switch was in the on position. It controlled both the white belly strobe and the red rotating beacon on top of the fuselage. The belly strobe flashed when connected to a battery. The beacon rotated, however, the beacon light did not illuminate.

The airplane manufacturer's representative determined the stabilizer trim measured 0.8 inches, which equated to a midrange nose up position. The representative determined the landing gear was down, and the flaps were up.

The Safety Board's Metallurgical laboratory examined the portion of the cabin floor that separated and the seat belt that was attached to this piece.

The laboratory reported that filaments of the pilot's seat belt webbing adjacent to the attachment fitting exhibited a random bushy appearance. The laboratory noted loose filaments and indications of compression to the woven strands on the inside surface of the webbing where it passes through the attachment fitting.

The laboratory reported that the floor and bracket pieces displayed a 45-degree shear lip on all fracture faces. The attaching bracket deformed in the forward direction. A tear in the floor structure in the forward direction had dimensions, which matched the attachment hardware in this area.

The airport manager for Inyo County reported that he has based an airplane at Independence airport for over 7 years and he has never experienced nor talked to any pilot who experienced

problems with the airport lighting. He spoke with two local pilots who reported that the lighting was functioning normally 2 nights prior to the mishap. The manager checked the lighting on the 16th, and every 2 weeks after the accident, and did not experience any problems.

ADDITIONAL INFORMATION

The Safety Board released the wreckage to the owner's representative.

Pilot Information

Certificate:	Private	**Age:**	56,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	June 28, 2000
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 29, 1998
Flight Time:	252 hours (Total, all aircraft), 85 hours (Total, this make and model), 94 hours (Pilot In Command, all aircraft), 19 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N300P
Model/Series:	PA-24 PA-24	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	24-2879
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	January 31, 2000 Annual	**Certified Max Gross Wt.:**	2550 lbs
Time Since Last Inspection:	126 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3441 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-360-A1D
Registered Owner:	WAYNE FERGUSON	**Rated Power:**	180 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Not reported
Observation Facility, Elevation:	BIH,4120 ft msl	**Distance from Accident Site:**	40 Nautical Miles
Observation Time:	21:56 Local	**Direction from Accident Site:**	313°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	28°C / 3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	OROVILLE, CA (OVE)	**Type of Flight Plan Filed:**	None
Destination:	INDEPENDENCE, CA (2O7)	**Type of Clearance:**	VFR flight following
Departure Time:	19:30 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	INDEPENDENCE 2O7	**Runway Surface Type:**	Asphalt
Airport Elevation:	3900 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	14	**IFR Approach:**	None
Runway Length/Width:	3722 ft / 60 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	36.830711,-118.24073(est)

Administrative Information

Investigator In Charge (IIC):	Plagens, Howard
Additional Participating Persons:	PETE SORRELLS; FEDERAL AVIATION ADMINISTRATION; LAS VEGAS, NV CHARLES LITTLE; NEW PIPER AIRCRAFT CORPORATION; CHINO HILLS, CA MARK PLATT; TEXTRON LYCOMING; VAN NUYS, CA
Original Publish Date:	February 20, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=50001