Aviation Investigation Final Report

Location:	JOHNSON VALLEY, California	**Accident Number:**	LAX99FA261
Date & Time:	August 2, 1999, 13:32 Local	**Registration:**	N32409
Aircraft:	Porterfield CP-65	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airstrip manager arrived at the airstrip and found the aircraft parked on the ramp. The pilot informed him that he had noticed a drop in oil pressure during his flight and had landed and 'fixed the problem.' The pilot asked for oil and the airport manager gave him 6 quarts of automotive oil. The manager saw the pilot pour 3 quarts of oil into the oil tank and put the additional 3 quarts of oil in the back of the aircraft cockpit. He hand-propped the aircraft and the engine fired immediately with no apparent difficulties. After the pilot took off, the manager noticed dark smoke coming from the exhaust. The airplane completed a crosswind and downwind traffic pattern leg, and appeared to be headed back toward the airport. The airstrip manager stated that as the airplane turned from base to final about 300 feet agl, it stalled, entered a 180-degree spin, and impacted the ground in a near vertical, nose down attitude. There were streaks of oil underneath the engine outward to the left wing and wheel pants, and the bottom of the fuselage was covered in oil. The oil line that provides the reading for the oil pressure gauge was found to be split approximately 180 degrees in circumference at the hose fitting, and was split in two other locations. The hose was a soft, pliable rubber material, and testing revealed that it was pressure-rated at 10 psi. Oil is pumped through the line about 40 to 45 psi during normal operations. The oil pressure hose fitting on the engine was not equipped with a restricted orifice to prevent the escape of fluid in case of line failure as required by regulation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the pilot to maintain adequate airspeed while attempting to make a precautionary landing, which resulted in a stall/spin and collision with the terrain. A factor in his failure to maintain an adequate airspeed is the pilot's likely diverted attention to the oil loss

problem and pending engine failure. An additional factor is the pilot/mechanic's improper installation of an unapproved oil hose, which ruptured under pressure.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Findings
1. (F) LUBRICATING SYSTEM,OIL HOSE - UNAPPROVED PART
2. (F) MAINTENANCE,INSTALLATION - IMPROPER - OWNER/PILOT MECHANIC
3. (F) LUBRICATING SYSTEM,OIL HOSE - RUPTURED
4. (F) FLUID,OIL - LEAK
5. (C) AIRSPEED(VS) - NOT MAINTAINED - PILOT IN COMMAND
6. (F) DIVERTED ATTENTION - PILOT IN COMMAND
7. (C) STALL/SPIN - ENCOUNTERED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

HISTORY OF FLIGHT

On August 2, 1999, approximately 1332 hours Pacific daylight time, a Porterfield CP-65, N32409, collided with terrain while on approach to runway 09 at the private Valley Vista airstrip, Johnson Valley, California. The airplane, owned and operated by the pilot, was destroyed. The private pilot was fatally injured. The personal cross-country flight was conducted under the provisions of 14 CFR Part 91 and originated at the Tehachapi, California, airport, at an unknown time, and was en route to Brownwood, Texas. Visual meteorological conditions prevailed and no flight plan was filed, nor were any air traffic control (ATC) services provided.

The manager of the Valley Vista airstrip, who resided on the field, returned from an errand and found the accident airplane parked on the ramp. The pilot informed him that while en route from Tehachapi he had noticed a drop in oil pressure during his flight and had landed and "fixed the problem." The pilot did not specify how he fixed the problem, but stated that he was "ready to go," and planned to stop at the Twentynine Palms airport (approximately 35 miles away) for "more gas and oil." The pilot asked the airstrip manager for oil, and was given 6 quarts of 10W30 automotive oil. The manager observed the pilot pour 3 quarts of oil into the oil tank (according to Teledyne Continental the engine's nominal capacity is 4 quarts) and put the additional 3 quarts of oil in the back of the aircraft cabin.

The airstrip manager reported that he hand-propped the engine for the pilot and the engine started immediately with no apparent difficulties. He heard the pilot perform a run-up and did not notice any unusual sounds or smoke emanating from the engine. The manager reported that after the pilot took off from runway 09, he noticed dark smoke coming from the exhaust and observed that the aircraft appeared to have trouble climbing. The airplane completed a crosswind and downwind traffic pattern leg and appeared to be headed back toward the airport. The manager stated that as the aircraft turned from base to final about 300 feet agl, it stalled, entered a 180-degree spin, then impacted the ground in a near vertical, nose down attitude. The aircraft was then blown over by the wind and came to rest inverted. The airstrip manager contacted emergency services and drove over to the accident site. He stated that there was no smoke or fire.

The airstrip manager reported that there were no fuel or maintenance services available at the airstrip.

The Safety Board investigator estimated the density altitude to be approximately 6,200 feet at the time of the accident, based on a reported temperature of 93 degrees Fahrenheit, and a field elevation of 3,370 feet msl.

PERSONNEL INFORMATION

Certified copies of the pilot's airman and medical certification records were obtained from the Federal Aviation Administration (FAA.

According to the files, the pilot held a private pilot certificate with a single engine land rating. The original date of issuance of the certificate was listed as November 27, 1965. He also held an airframe and powerplant certificate, and an inspection authorization. He received his airframe and powerplant certificate in 1960. The records reflected that his inspection authorization was last renewed on March 4, 1999.

The FAA aeromedical certification files revealed that the pilot held a third-class medical issued June 24, 1998, with the limitation that the pilot must have glasses available for near vision. The pilot's medical records from the FAA Civil Aeromedical Institute (CAMI) were reviewed and are appended to this file. The pilot had been denied an FAA airman medical certificate in 1991 due to a "history of depression requiring the use of disqualifying medication." Later in 1991, the pilot was again denied a medical certificate for the same reason.

The pilot applied for a medical certificate in 1992, checking the block marked "Yes" under medical history next to "Mental disorders of any sort: depression, anxiety, etc." The instructions for filling out that section of the application indicate to "Answer 'Yes' for every condition you have ever had in your life." He listed his only current medication as one for glaucoma. He was issued a third-class medical with an accompanying letter, which stated that "operation of aircraft is prohibited at any time new symptoms or adverse changes occur or any time medication is required for depression."

In 1994, when the pilot reapplied for a medical certificate, he checked the block marked "No" under medical history next to "mental disorders of any sort: depression, anxiety, etc." The only medication listed was "Contac - occasional use only - do not fly when using this." The FAA issued the pilot a medical certificate, but cautioned that "because of your history of glaucoma, operation of aircraft is prohibited at any time new symptoms or adverse changes occur or if you experience side effects or require a change in medication." There was no mention of depression in this letter.

In the pilot's 1996 application for medical certificate renewal, he indicated "Yes" next to "mental disorders of any sort: depression, anxiety, etc." and noted that he was "treated several years ago - occasionally used Paxil in past." Medications were listed as "Paxil occasionally" and "Anacin occasionally." After requesting further information regarding the pilot's treatment for depression, the FAA issued him a medical certificate.

When the pilot applied for and was issued a third-class medical certificate in 1998, he checked the block marked "No" under medical history next to "Mental disorders of any sort: depression, anxiety, etc." The only medications listed were Anacin and Aleve.

The pilot's personal flight records were not located. His application for the 1998 medical certificate listed his total flight time as 1,360 hours. According to the pilot's son, the pilot had accumulated approximately 800 hours in the accident aircraft.

AIRCRAFT INFORMATION

The airframe and engine maintenance records were reviewed. The last recorded inspection was an annual inspection completed on November 1, 1998. The records indicated that at the time of the annual inspection, the total airframe time was 2,807 hours, and the tachometer time was 925 hours. At that time, the engine had a total time of 2,125 hours, with 1,002 hours since major overhaul. The only entry recorded in the maintenance logbooks after the annual inspection was for the overhaul and reinstallation of the airspeed indicator on April 29, 1999. The tachometer time at the time of the accident was 980.

The pilot's son reported that his father performed most of the maintenance to the accident airplane.

WRECKAGE AND IMPACT

An on-site examination of the wreckage was conducted. The airplane was found inverted, 203 yards from the approach end of runway 09, in an area of flat desert terrain, surrounded by low scrub bushes approximately 3 to 7 feet high. Mountains bordered the airstrip to the south. The nose of the airplane was facing the runway. The magnetic bearing from the nose of the airplane to the runway was 117 degrees. The left and right wingtips, nose, and tail had impacted bushes directly underneath these components; however, none of the surrounding bushes displayed any limb breakage or disturbance. All components were located in the immediate vicinity of the aircraft. There was no visible ground scarring or terrain disturbance around the aircraft. There was no evidence of postcrash fire.

The nose of the aircraft was deformed and crushed aft. One of the wooden propeller blades was splintered and was missing approximately 15 inches of the blade, as measured from the spinner to the blade tip. The blade tip and splintered fragments of the blade were located in a bush adjacent to the center section of the aircraft. Both propeller blades displayed chordwise striations from the spinner to the tips. Both wings exhibited symmetrical aft accordion crushing damage from the leading edge toward the trailing edge. The wing lift struts, landing gear struts, and wheel structures were intact. The tail section from approximately mid-fuselage back to the tail control surfaces was intact and evidenced no deformation.

There were streaks of oil underneath the engine outward to the left wing and wheel pants and oily spots on the underside of the right wing. A layer of oil covered the fabric on the bottom of the fuselage.

There was approximately 1/4-ounce of fuel found in the main fuel line that extends between

the carburetor and gascolator. No water or debris was noted in the fuel sample.

The Safety Board investigator dug a crater approximately 17 inches deep beneath the engine. Small fragments of Plexiglas, red fabric, and wooden splinters were found. The soil was dark and moist and contained a strong odor of fuel.

TESTS AND RESEARCH

A teardown examination of the engine was performed on August 12, 1999.

The top and bottom spark plugs were removed and examined; they exhibited normal color and wear patterns in accordance with the Champion Check-A-Plug chart. The rocker box covers were removed. Each rocker cover contained oil. The rocker assemblies, springs, and valve retainers were secure at each cylinder assembly. Crankshaft rotation produced weak compression in the Nos. 1, 2, and 4 cylinders, and no compression in the number 3 cylinder. Accessory gear and valve train continuity was established.

The four cylinder assemblies were removed and examined. The combustion chambers were undamaged. There was no evidence of detonation or foreign object ingestion. The four pistons were intact and displayed consistent combustion deposits. The number 2 piston was found to have a stuck compression ring. The rings on the remaining pistons were intact and unobstructed with the end gaps resting at staggered locations. The crankshaft was intact with the respective connecting rods securely attached. The piston ends of the rods were intact and the piston pins were intact through the rod wrists.

The oil pump impeller gears were undamaged; some small metal particles were found inside the pump. Oil was found inside the crankcase. The camshaft was intact. The camlobes displayed a normal shape at each lobe but the tips revealed some minor roughness to the touch.

The left magneto was fractured inboard of the left hold-down flange. The right magneto was found securely clamped. The magneto-to-engine timing for the right magneto was established and found to be within manufacturer's specifications. The magnetos were functionally tested on a test bench. Both magnetos produced sparks at the spark plug leads in firing order.

The carburetor was found secure at the mounting flange. The throttle/mixture controls were found securely attached and continuity to the cockpit was established. The carburetor and induction system were examined and observed to be absent of any obstruction. All engine compartment fuel lines were found to be securely attached to their proper fittings. The carburetor was disassembled; there was no noted evidence of mechanical malfunction.

The exhaust system was opened to expose the internal baffling. The muffler appeared unobstructed and displayed light gray gas path coloration.

An air/oil separator was found on the oil breather line. The separator was not equipped with any ventilation holes. The pilot's son reported that the air/oil separator had been on the airplane for about 3 years.

The oil line that provides the reading for the cockpit oil pressure gauge was found to be split approximately 180 degrees in circumference at the junction of the fitting orifice and the inner tube, just above the clamp. The hose was also ruptured about 1 inch above the clamp and about 1.25 inchs from the opposite end of the fitting. The edge of the hose just below the clamp was uneven; the opposite edge was straight and smooth. Oil was pooled beneath the fitting area in the engine compartment.

Further examination of the ruptured hose revealed that it had a measured inner diameter of 1/4 inch, an outer diameter of 3/8 inch, and a wall thickness of 1/16 inch. Markings on the hose identified it as Santoprene tubing, industrial grade Shore A64. Marketing literature for the tubing states that it is resistant to acids and alkali's, remains flexible from -60 degrees to 275 degrees Fahrenheit, and is pressure rated at 10 psi at 73 degrees Fahrenheit. According to the Continental representative, oil is pumped through the hose at about 40 to 45 psi during normal operations. He also reported that the engine is shipped from Continental without a fitting or hose. FAR Part 23.1017, entitled "oil lines and fittings", states that "oil lines must . . . accommodate a flow of oil at a rate and pressure adequate for proper engine functioning under any normal operating condition."

Federal Aviation Regulation (FAR) Part 23.1337, entitled "powerplant instruments," states that, "each line carrying flammable fluids under pressure must have restricting orifices or other safety devices at the source of pressure to prevent the escape of excessive fluid if the line fails, and be installed and located so that the escape of fluid would not create a hazard." The fitting was not equipped with a restricting orifice.

MEDICAL AND PATHOLOGICAL

An autopsy was completed by the San Bernardino County Coroner's office on August 13, 1999, with specimens retained for toxicological examination. A toxicology test was performed by the FAA Civil Aeromedical Institute (CAMI) on September 24, 1999. The Safety Board investigator examined the pilot's personal effects after the accident and found several bottles of medication, including Acetaminophen, Timoptic, Paxil, Hydrocodone, Lorazepam, Flexeril, Alevel, Anacin, Sleepinal, and Doans PM. CAMI screened for those drugs.

According to the toxicology report, codeine, dihydrocodeine, hydrocodone, and morphine were found in the urine. Paroxetine (trade name Paxil), a prescription antidepressant that is also used to treat obsessive-compulsive disorder and panic attacks, was found in the urine and liver fluid. Diphenhydramine was also found in the urine and liver fluid. According to CAMI, insufficient blood was received to screen for the listed drugs.

The refill date on the bottle of Paxil found in the pilot's personal effects was July 26, 1999.

ADDITIONAL INFORMATION

The aircraft wreckage was released to the insurance representative on November 16, 1999.

Pilot Information

Certificate:	Private	**Age:**	63,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
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 24, 1998
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	1360 hours (Total, all aircraft), 800 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Porterfield	**Registration:**	N32409
Model/Series:	CP-65 CP-65	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	839
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	November 1, 1998 Annual	**Certified Max Gross Wt.:**	1200 lbs
Time Since Last Inspection:	55 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2807 Hrs	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	A65-8F
Registered Owner:	LARRY TRAGER	**Rated Power:**	65 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	NXP ,1905 ft msl	**Distance from Accident Site:**	21 Nautical Miles
Observation Time:	12:55 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Clear	**Visibility**	7 miles
Lowest Ceiling:	Unknown	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	110°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	33°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(6CA5)	**Type of Flight Plan Filed:**	None
Destination:	TWENTY NINE PAL, CA (TNP)	**Type of Clearance:**	None
Departure Time:	13:30 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	JOHNSON VALLEY 6CA5	**Runway Surface Type:**	Dirt
Airport Elevation:	3370 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	9	**IFR Approach:**	None
Runway Length/Width:	2800 ft / 40 ft	**VFR Approach/Landing:**	Precautionary landing

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	34.329914,-116.510459(est)

Administrative Information

Investigator In Charge (IIC):	Mars, Noelani
Additional Participating Persons:	GARY KAPPA; RIVERSIDE , CA MIKE GRIMES; PALMDALE , CA
Original Publish Date:	May 9, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=47044