



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	PALO ALTO, CA	<b>Accident Number:</b>	LAX00LA067
<b>Date &amp; Time:</b>	12/02/1999, 1124 PST	<b>Registration:</b>	N4319Y
<b>Aircraft:</b>	Piper PA-28-181	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

Prior to departure to return to home base, the pilot filed an IFR flight plan, conducted a preflight, and had the fuel tanks topped off. He flew on the left fuel tank for approximately 1 hour and then switched to the right fuel tank. Upon reaching his destination he noted multiple cloud layers, and requested and received an IFR clearance to his destination airport. About an hour later he switched back to the left fuel tank. He noted a drop to zero in the left fuel gage about 45 minutes later, and switched to the right tank, where he noted that the fuel gage read 5 gallons. He switched back to the left tank and the engine stopped; he switched back to the right tank and the engine restarted. He declared minimum fuel and received information on nearby airports; one 7 miles in his direction of flight, and his destination airport was 11 miles in his direction of flight. He continued the flight to the destination airport in order to lose altitude. He was at 4,000 feet, and traffic pattern altitude is 800 feet. He requested a straight in to a runway 30 even though 12 was the active runway. On short final, he initiated a go-around due to high speed, and high altitude. During the turn back to the runway the engine lost power and landed in a marshy area. There was no fuel observed in the tanks during the recovery of the airplane. During the engine examination it was noted that there was no fuel staining observed on the wings or fuselage of the airplane, and there were no leaks in the fuel system. No discrepancies were noted with the run-up.

## 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 properly calculate fuel consumption rate, and his improper in-flight planning to continue the flight to the destination airport instead of landing at a closer alternate airport. A factor was the pilot's inadequate aircraft control during the descent, which necessitated a go-around.

## Findings

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Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL  
Phase of Operation: CRUISE - NORMAL

### Findings

1. (C) FLUID,FUEL - EXHAUSTION
2. (C) FUEL CONSUMPTION CALCULATIONS - IMPROPER - PILOT IN COMMAND
3. (C) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND

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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: GO-AROUND (VFR)

### Findings

4. TERRAIN CONDITION - SWAMPY
5. (F) AIRCRAFT CONTROL - INADEQUATE - PILOT IN COMMAND
6. (F) GO-AROUND - ATTEMPTED - PILOT IN COMMAND

## Factual Information

On December 2, 1999, at 1124 hours Pacific standard time, a Piper PA-28-181, N4319Y, sustained substantial damage when it lost engine power during a landing go-around at the Palo Alto, California, airport. The airplane subsequently impacted a marshy area off the departure end of runway 30. The airplane was operated by West Valley Flying Club as a personal flight under the provisions of 14 CFR Part 91. The private pilot and a passenger were not injured. Visual meteorological conditions existed at the time, and an instrument flight rules (IFR) flight plan had been filed. The flight originated at the Carlsbad-Palomar airport, Carlsbad, California, at 0736, and was scheduled to terminate at the Palo Alto airport.

At the time of the accident, Palo Alto airport was reporting winds from 150 degrees at 10 knots, and the active runway was runway 12.

The pilot reported that he rented the airplane from the flying club and was planning a trip to Carlsbad with an interim stop in Camarillo, California. Prior to departure from Palo Alto, he checked the fuel levels and noted that they were "slightly above the tabs in both wing tanks." After arrival at Camarillo, the airplane was refueled with approximately 30.5 gallons of fuel. The pilot stated that there were no problems with the airplane's performance, and the fuel burn was approximately 9.76 gallons per hour, which was what he had expected it to be.

At 1430, the airplane departed on an IFR clearance to Carlsbad, and, after landing, the pilot noted a fuel burn of 10.1 gallons per hour. The next morning, prior to departure for the return to Palo Alto, the airplane was refueled with approximately 16 gallons of fuel. The pilot performed a preflight, which included sumping the fuel tanks, with no abnormal substances found.

After receiving a clearance for departure, and climbing through 3,000 feet to 8,000 feet, the pilot requested an initial altitude of 6,000 feet to minimize the headwind that he encountered. This request was denied by ARTCC, and instead, the pilot was given 10,000 feet with an expectation of a lower altitude later. The pilot said he leaned the engine passing through 4,000 feet. He reported that he had drawn fuel off of the left tank for 1 hour 20 minutes before switching to the right tank. He noted a "normal indication" from the fuel gages of both tanks. The pilot stated that he leaned the engine per the manufacturer's 70-75 percent power tables located on the sun visor in the cockpit.

After crossing over the Gorman VOR, the pilot was cleared to descend to 8,000 feet, and he again asked the Los Angeles Air Route Traffic Control Center (ARTCC) controller for a lower altitude to minimize headwind effect; however, his request was denied. He contacted Hawthorne radio and obtained updated weather, and filed a pilot report concerning the winds aloft. He returned to the ARTCC frequency, cancelled his IFR flight plan, and requested visual flight rules (VFR) flight following.

Upon reaching San Jose, he noted multiple cloud layers. He stated that he requested and received an IFR clearance to Palo Alto. An hour later, he switched to the left tank and noted that the right fuel gage was indicating "normal." The left tank fuel gage fell "rapidly toward 0" about 45 minutes later, and he switched to the right tank where he noted that the fuel gage read approximately 5 gallons. The pilot stated that he switched to the left tank with the intent of running it for 10 minutes to ensure he had adequate fuel in the right tank for the approach. About 15 seconds later the engine stopped. He switched back to the right tank and the engine

restarted. He declared minimum fuel to Bay Approach, and received information on nearby airports. The pilot stated that he continued to Palo Alto instead of landing at a closer airport (Moffett Field airport) because he had a lot of altitude to lose. He was at 4,000 feet and traffic pattern altitude is 800 feet.

The pilot noted that the right fuel gage indicator was continuing "to fall rapidly so requested straight in to 30 even though [Palo Alto] was using 12." He stated that when he broke through the clouds he switched to tower frequency. He was cleared to land; and attempted to descend rapidly to expedite landing but was unable to decrease airspeed adequately. The pilot initiated a go-around and was cleared to land on runway 12. He stated that he attempted a teardrop entry back to the runway over the San Francisco bay to avoid housing off of the right side. Halfway through the maneuver, the engine lost power. The pilot declared an emergency and was cleared to land on any runway. He made an unsuccessful attempt to restart the engine on both tanks, and landed in a marshy field off the departure end of the airport.

In a debriefing with the Chief Flight Instructor for the West Valley Flying Club, the pilot reported that approximately 40 miles from the airport he felt that he "had 10 gal in the right tank and 8 gal in the left tank." He then noted that the left tank showed empty and the right tank was showing 3 gallons. At 1113, he contacted Bay Approach and informed them that he had minimum fuel and wanted vectors to the final approach for runway 30 at Palo Alto. The pilot reported that on short final he realized he was "too fast and too high."

A witness to the accident, who was flying at the time of the accident, stated that he heard the pilot check in with Bay Approach. He heard the pilot state "I'm going to have to report minimum fuel." He heard the pilot being provided with vectors to Palo Alto, and then heard them tell the pilot that Palo Alto airport was 11 miles from his current position, and that the distance to Moffett Field was 7 miles. The witness stated that when the pilot was handed off to Palo Alto tower, he also switched to the tower. He heard the pilot state that he was on "empty."

Aircraft recovery personnel observed no fuel in the tanks during the recovery of the airplane.

Upon further inspection of the airplane, Steve's Aircraft, a Federal Aviation Administration certified repair station, noted that it had sustained substantial damage. No fuel staining was observed on the wings or fuselage of the airplane. It was also noted that there were no fuel leaks in the fuel system. The carburetor and propeller were inspected with no discrepancies noted. An engine run-up was conducted with no mechanical anomalies encountered.

The Safety Board was notified, and the incident was upgraded to an accident, on January 6, 2000.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	46, Male
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	05/11/1998
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	920 hours (Total, all aircraft), 28 hours (Total, this make and model), 920 hours (Pilot In Command, all aircraft), 44 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Piper	<b>Registration:</b>	N4319Y
<b>Model/Series:</b>	PA-28-181 PA-28-181	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	28-8490010
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	03/26/1999, Annual	<b>Certified Max Gross Wt.:</b>	2550 lbs
<b>Time Since Last Inspection:</b>	1518 Hours	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	5698 Hours	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	O-360
<b>Registered Owner:</b>	ENGINEERING MGT. CONSULTANT,	<b>Rated Power:</b>	180 hp
<b>Operator:</b>	WEST VALLEY FLYING CLUB	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	PAO, 3 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1121 PST	Direction from Accident Site:	300°
Lowest Cloud Condition:	Scattered / 1000 ft agl	Visibility	4 Miles
Lowest Ceiling:	Overcast / 2000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	150°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	13° C / 9° C
Precipitation and Obscuration:			
Departure Point:	CARLSBAD, CA (CRQ)	Type of Flight Plan Filed:	IFR
Destination:	(PAO)	Type of Clearance:	IFR
Departure Time:	0736 PST	Type of Airspace:	Class D

## Airport Information

Airport:	PALO ALTO (PAO)	Runway Surface Type:	Asphalt
Airport Elevation:	3 ft	Runway Surface Condition:	Dry
Runway Used:	30	IFR Approach:	None
Runway Length/Width:	2500 ft / 65 ft	VFR Approach/Landing:	Go Around; Straight-in

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	TEALEYE C CORNEJO	Report Date:	05/30/2001
Additional Participating Persons:	ROBERT CARNATHAN; SAN JOSE, CA		
Publish Date:			
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 <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).