



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	CONCORD, CA	<b>Accident Number:</b>	LAX93LA088
<b>Date &amp; Time:</b>	01/02/1993, 1345 PST	<b>Registration:</b>	N2008M
<b>Aircraft:</b>	PIPER PA-28R-201T	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Minor

**Flight Conducted Under:** Part 91: General Aviation - Personal

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## Analysis

DURING AN IFR FLIGHT AT ABOUT 11,000 FEET MSL, THE AIRPLANE'S ENGINE BEGAN TO RUN ROUGH AND THE ENGINE OIL PRESSURE DROPPED TO ZERO. THE PILOT ALSO SAID HE SMELLED SOMETHING THAT WAS BURNING. THE PILOT ENTERED A DESCENT AND REQUESTED VECTORS TO THE NEAREST AIRPORT. WHILE ON THE VECTOR, THE ENGINE BEGAN TO RUN ROUGHER AND THE BURNING SMELL BECAME STRONGER. THE PILOT SHUT DOWN THE ENGINE AND ENTERED A POWER OFF FORCED LANDING. HE BROKE OUT OF THE CLOUDS AND DETERMINED THAT HE COULD NOT GLIDE TO THE AIRPORT. HE PERFORMED A LANDING TO THE ONLY AVAILABLE AREA. DURING TOUCHDOWN, THE AIRPLANE COLLIDED WITH POSTS. AN FAA SAFETY INSPECTOR EXAMINED THE ENGINE. HE DETERMINED THAT 1 OF THE 4 BOLTS USED TO BOLT THE ENGINE OIL PUMP COVER TO THE CRANKCASE WAS MISSING. A DAMAGED BOLT WAS FOUND IN THE ENGINE'S CAMSHAFT GEAR. THE TAB WASHERS USED TO LOCK THE OIL PUMP COVER BOLTS HAD THEIR SINGLE TAB BENT DOWNWARD. THE TAB WASHERS' TWIN TABS ON THE 3 REMAINING BOLTS WERE POINTED STRAIGHT OUT. THEY APPEARED TO HAVE NEVER BEEN BENT INTO PLACE AFTER THE BOLTS WERE TIGHTENED. IMPROPER INSTALLATION OF THE WASHERS RESULTED IN ONE BOLT FALLING OFF AND BEING INGESTED THROUGH VARIOUS DRIVE GEARS. THE ENGINE WAS OVERHAULED BY THE MANUFACTURER 515 HOURS PRIOR TO THE ACCIDENT.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE ENGINE MANUFACTURER FAILING TO PROPERLY INSTALL TAB WASHERS DURING OVERHAUL WHICH RESULTED IN ONE BOLT BECOMING LOOSE AND BEING INGESTED THROUGH VARIOUS ENGINE GEAR DRIVES. THE INGESTION AND LOOSE OIL PUMP COVER RESULTED IN THE ENGINE RUNNING ROUGH AND A BURNING SMELL WHICH CAUSED THE PILOT TO HAVE TO SHUT DOWN THE ENGINE.

## Findings

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

### Findings

1. (C) LUBRICATING SYSTEM,OIL PRESSURE PUMP - LOOSE
2. (C) MAINTENANCE,INSTALLATION - IMPROPER - MANUFACTURER
3. FLUID,OIL - PRESSURE TOO LOW
4. EMERGENCY PROCEDURE - PERFORMED - PILOT IN COMMAND
5. PRECAUTIONARY LANDING - INITIATED - PILOT IN COMMAND

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Occurrence #2: FORCED LANDING  
Phase of Operation: DESCENT - EMERGENCY

### Findings

6. TERRAIN CONDITION - NONE SUITABLE
7. TERRAIN CONDITION - RESIDENTIAL AREA

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Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

### Findings

8. OBJECT - SIGN
9. OBJECT - FENCE

## Factual Information

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	49, 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 3 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	06/01/1992
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	716 hours (Total, all aircraft), 62 hours (Total, this make and model), 628 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	PIPER	<b>Registration:</b>	N2008M
<b>Model/Series:</b>	PA-28R-201T PA-28R-201	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	28R-7803099
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	09/30/1992, Annual	<b>Certified Max Gross Wt.:</b>	3000 lbs
<b>Time Since Last Inspection:</b>	50 Hours	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2227 Hours	<b>Engine Manufacturer:</b>	CONTINENTAL
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	TSIO-360-FB3
<b>Registered Owner:</b>	RICHARD TALLEY/LARRY SHATTUCK	<b>Rated Power:</b>	200 hp
<b>Operator:</b>	RICHARD TALLEY/LARRY SHATTUCK	<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:	CCR, 23 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	1350 PST	Direction from Accident Site:	10°
Lowest Cloud Condition:	Unknown / 5000 ft agl	Visibility	30 Miles
Lowest Ceiling:	Broken / 5000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	4 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	350°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	9°C / 1°C
Precipitation and Obscuration:			
Departure Point:	NAVATO, CA (O56)	Type of Flight Plan Filed:	IFR
Destination:	UPLAND, CA (CCB)	Type of Clearance:	IFR
Departure Time:	1317 PST	Type of Airspace:	Class D; Class E

## Wreckage and Impact Information

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

## Administrative Information

Investigator In Charge (IIC):	RICHARD V CHILDRESS	Report Date:	11/15/1993
Additional Participating Persons:	CHRIS WERLHOF; OAKLAND, 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:pubinquiry@ntsb.gov">pubinquiry@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> .		

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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](#).