



# Aviation Investigation Final Report

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<b>Location:</b>	GRASS VALLEY, California	<b>Accident Number:</b>	LAX96LA072
<b>Date &amp; Time:</b>	December 14, 1995, 08:00 Local	<b>Registration:</b>	N4598K
<b>Aircraft:</b>	CESSNA P210N	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General aviation		

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## Analysis

THE PILOT ABORTED HIS FIRST TAKEOFF BECAUSE THE ENGINE PRODUCED ONLY 25 INCHES OF MANIFOLD PRESSURE AND NOT THE NORMAL TAKEOFF POWER OF 38 INCHES AT 2,700 RPM. THE PILOT TURNED THE FUEL BOOST PUMP SWITCH TO LOW AND WAS ABLE TO GAIN 3 MORE INCHES OF MANIFOLD PRESSURE, BUT AGAIN NOT FULL TAKEOFF POWER. THE PILOT ATTEMPTED A SECOND TAKEOFF. AT 80 KNOTS THE PILOT ROTATED THE AIRPLANE. THE AIRPLANE BECAME LIGHT ON THE LANDING GEAR, AT WHICH TIME THE LANDING GEAR BEGAN TO RETRACT. THE PILOT IMMEDIATELY SAW THE LANDING GEAR HANDLE WAS IN THE UP POSITION AND MOVED IT TO THE DOWN POSITION. THE AIRPLANE SETTLED TO THE RUNWAY WITH ONE OF THE MAIN LANDING GEAR NOT FULLY EXTENDED. THE AIRPLANE VEERED OFF THE RIGHT SIDE OF THE RUNWAY AND STRUCK THE CONCRETE FOOTING OF A RUNWAY EDGE LIGHT UNDER CONSTRUCTION. THE POSITION OF THE LANDING GEAR LEVER IS LISTED AS AN ITEM ON THE AIRPLANE'S BEFORE STARTING ENGINE CHECKLIST. THERE WAS NO EVIDENCE OF MECHANICAL FAILURE OR MALFUNCTION FOUND THAT WOULD ACCOUNT FOR THE 8- TO 10-INCH DROP IN MANIFOLD PRESSURE.

## 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 follow the before starting engine checklist and ensure that the landing gear selector was in the down position, and the pilot's decision to takeoff with a known aircraft deficiency.

## Findings

Occurrence #1: GEAR RETRACTION ON GROUND

Phase of Operation: TAKEOFF - ROLL/RUN

### Findings

1. POWERPLANT - OUTPUT LOW
2. (C) OPERATION WITH KNOWN DEFICIENCIES IN EQUIPMENT - INTENTIONAL - PILOT IN COMMAND
3. (C) CHECKLIST - NOT FOLLOWED - PILOT IN COMMAND
4. (C) GEAR RETRACTION - INADVERTENT - PILOT IN COMMAND

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Occurrence #2: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: TAKEOFF - ABORTED

### Findings

5. OBJECT - RUNWAY LIGHT
6. DIRECTIONAL CONTROL - NOT MAINTAINED - PILOT IN COMMAND

## Factual Information

On December 14, 1995, at 0800 hours Pacific standard time, a Cessna P210N, N4598K, collided with a concrete footing after an on-ground loss of control during takeoff from runway 25 at the Nevada County Airpark, Grass Valley, California. The airplane was substantially damaged. The certificated commercial pilot and passenger were not injured. The airplane was being operated by the pilot/owner as a business flight under 14 CFR Part 91. The flight was destined for Novato, California. Visual meteorological conditions prevailed. An instrument flight rules (IFR) flight plan was filed, but not opened.

The pilot aborted his first takeoff because the engine produced only 25 inches of manifold pressure, and not the normal takeoff power of 38 inches of Hg at 2,700 rpm. The pilot turned the fuel boost pump switch to the low position and was able to gain 3 more inches of manifold pressure, but again not full takeoff power. The pilot attempted a second takeoff. At 80 knots the pilot rotated the airplane.

The airplane became light on the landing gear, at which time the landing gear began to retract. The pilot immediately saw the landing gear handle was in the up position and moved it to the down position. The main left gear extended and locked. The right main gear and nose gear did not. The airplane settled to the runway and the pilot aborted the takeoff. The airplane veered off the right side of the runway and struck the concrete footing of a runway edge light under construction. The airplane continued another 50 feet and slid down an embankment.

The airplane checklist reminds the pilot to check the position of the landing gear lever before starting the engine.

The engine was examined by an Federal Aviation Administration aviation airworthiness safety inspector on January 3, 1996. During the examination, there was no evidence of mechanical failure or malfunction found that would account for the 8- to 10-inch drop in manifold pressure. The engine was not capable of being run due to accident damage.

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	50, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<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>	October 25, 1995
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	2301 hours (Total, all aircraft), 1412 hours (Total, this make and model), 2256 hours (Pilot In Command, all aircraft), 16 hours (Last 90 days, all aircraft), 1 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	CESSNA	<b>Registration:</b>	N4598K
<b>Model/Series:</b>	P210N P210N	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	P21000230
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	February 12, 1995 Annual	<b>Certified Max Gross Wt.:</b>	4000 lbs
<b>Time Since Last Inspection:</b>	5 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2422 Hrs	<b>Engine Manufacturer:</b>	CONTINENTAL
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	TSIO-520-P
<b>Registered Owner:</b>	KING, LARRY W.	<b>Rated Power:</b>	310 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	BAB ,113 ft msl	<b>Distance from Accident Site:</b>	21 Nautical Miles
<b>Observation Time:</b>	09:55 Local	<b>Direction from Accident Site:</b>	240°
<b>Lowest Cloud Condition:</b>	25000 ft AGL	<b>Visibility</b>	15 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	200°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	11°C / 7°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>		<b>Type of Flight Plan Filed:</b>	IFR
<b>Destination:</b>	NOVATO , CA (056 )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	00:00 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	NEVADA COUNTY AIRPARK 017	<b>Runway Surface Type:</b>	Asphalt
<b>Airport Elevation:</b>	3151 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	25	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>	3915 ft / 50 ft	<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 None	<b>Latitude, Longitude:</b>	39.180633,-120.979896(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Wilcox, Thomas
<b>Additional Participating Persons:</b>	JOHN L HANCOCK; SACRAMENTO , CA
<b>Original Publish Date:</b>	March 21, 1996
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=29354">https://data.nts.gov/Docket?ProjectID=29354</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).