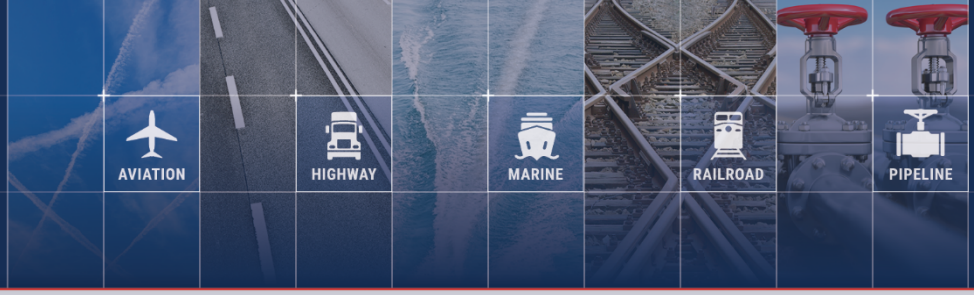

Aviation Investigation Final Report

Location:	TUCSON, Arizona	**Accident Number:**	LAX96LA005
Date & Time:	October 9, 1995, 09:30 Local	**Registration:**	N59931
Aircraft:	PIPER J3C-65	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the takeoff initial climb, the engine lost power and the airplane collided with trees short of the intended forced landing area. Examination of the airplane revealed that it was using automotive gasoline. During a test run the engine operated at full rpm, then began to lose power output (300 to 400) rpm. Carburetor heat was applied, and the engine gained partial return of power. When the carburetor heat was removed, the engine returned to the previous running condition. A float level problem was suspected, and the carburetor was sent out for analysis at an overhaul shop. The aircraft owner subsequently decided to replace the carburetor with a different type, and the accident carburetor was lost in the overhaul process. Information Letter 8401 (12/15/84) from the EAA advises of a long standing problem with rubber tipped needle valves which swell when exposed to automotive fuels. The letter states that slow degeneration of in-flight engine power has been observed when the rubber needle valve tips swell and decrease the orfice size at the carburetor inlet. Sudden losses of power have also been reported during takeoffs in aircraft following a long period of inactivity.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: fuel starvation due to swelling of the carburetor needle valve tip, which restricted the fuel flow to the carburetor inlet. A factor in the accident was the use of automotive gasoline.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings
1. (F) FLUID,FUEL - AUTOMOTIVE
2. (C) FUEL SYSTEM,CARBURETOR - RESTRICTED
3. (C) FLUID,FUEL - STARVATION

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: EMERGENCY LANDING AFTER TAKEOFF

Findings
4. OBJECT - TREE(S)

Factual Information

On, October 9,1995, at 0930 hours mountain standard time, a Piper J3C-65, N59931, collided with trees following a power loss during the takeoff and initial climb from Ryan Field, Tucson, Arizona. The aircraft was owned and operated by the pilot and was beginning a local area personal flight at the time. No flight plan was filed and visual meteorological conditions prevailed. The aircraft incurred substantial damage. The certificated recreational pilot, the sole occupant, was not injured.

The pilot stated that after completing a preflight check he entered runway 33 for a normal takeoff at full power. At an altitude between 50 and 100 feet, the engine lost power and the pilot began a gentle right-hand bank with intentions of landing in a grassy area parallel to the runway. The pilot further stated that he attempted to maintain flying speed and landed short of the intended grassy area. The aircraft sustained substantial damage to the left wing, landing gear, and fuselage. There was no postcrash fire.

FAA airworthiness inspectors examined the aircraft and determined that the aircraft was utilizing automotive gasoline and there were 5 gallons of fuel available in the tanks. The fuel selector was found in the off position. The pilot stated that he never used the fuel shut-off and assumed that the airport people shut off the fuel on the day of the accident. The FAA inspector turned the fuel selector on and got good fuel flow at the carburetor.

A postaccident engine run was conducted by FAA airworthiness inspectors. They found the that the engine started and operated at full rpm, then began to loose power output (300 to 400) rpm. The inspector applied the carburetor heat and the engine gained partial return of power. When the carburetor heat was removed from the engine, it returned to the to the previous running condition.

The inspector stated that he suspected a float level problem and sent the carburetor out for analysis at an overhaul shop. The aircraft owner subsequently decided to replace the carburetor with a different type and the accident carburetor was lost in the overhaul process.

Information Letter 8401 (12/15/84) from the Experimental Aircraft Association advises of a long standing problem with rubber tipped needle valves which swell when exposed to automotive fuels. The letter states that slow degeneration of inflight engine power has been observed when the rubber needle valve tips swell and decrease the orfice size at the carburetor inlet. Sudden losses of power have also been reported during takeoffs in aircraft following a long period of inactivity.

Pilot Information

Certificate:		**Age:**	70,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	May 6, 1994
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	705 hours (Total, all aircraft), 542 hours (Total, this make and model), 602 hours (Pilot In Command, all aircraft), 38 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	**Registration:**	N59931
Model/Series:	J3C-65 J3C-65	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	8472
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	February 24, 1995 Annual	**Certified Max Gross Wt.:**	1220 lbs
Time Since Last Inspection:	122 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	5035 Hrs	**Engine Manufacturer:**	CONTINENTAL
ELT:	Installed, not activated	**Engine Model/Series:**	A-65-8
Registered Owner:	ROBERT P. NELSON	**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:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 13000 ft AGL	**Visibility**	50 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	29°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(RYN)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	09:30 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	RYAN FIELD RYN	**Runway Surface Type:**	Dirt
Airport Elevation:	2415 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	33	**IFR Approach:**	None
Runway Length/Width:	3547 ft / 75 ft	**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	32.14965,-110.930145(est)

Administrative Information

Investigator In Charge (IIC):	Rich, Jeff
Additional Participating Persons:	MIKE BROWN; SCOTTSDALE , AZ
Original Publish Date:	April 29, 1996
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=29304