



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	COLORADO SPGS, CO	<b>Accident Number:</b>	FTW95LA374
<b>Date &amp; Time:</b>	09/01/1995, 0737 MDT	<b>Registration:</b>	N4814F
<b>Aircraft:</b>	CESSNA 172N	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	2 Serious
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

WITNESSES REPORTED THAT THE AIRPLANE DID NOT APPEAR TO BE CLIMBING NORMALLY AFTER TAKEOFF. THE PILOT RECALLED TURNING 'BACK TOWARDS THE RUNWAY.' THE PILOT-RATED PASSENGER RECALLED THERE HAD BEEN A POWER LOSS 'AS IF THE POWER HAD BEEN BROUGHT BACK TO IDLE.' SUBSEQUENTLY, THE LEFT WING DROPPED, AND THE AIRPLANE COLLIDED WITH TERRAIN. THE MIXTURE CONTROL WAS FOUND IN THE FULL RICH POSITION. A 4 INCH BY 3/8 INCH PIECE OF BAFFLE SEAL MATERIAL WAS FOUND NEXT TO THE VENTURI IN THE AIR INTAKE SIDE OF THE CARBURETOR THROAT, LODGED BETWEEN THE ACCELERATOR PUMP DISCHARGE TUBE AND THE POWER JET. THE UNDISTURBED CARBURETOR WAS FACTORY TESTED ON A SIMILAR ENGINE. THE ENGINE OPERATED 'EXTREMELY RICH.' ONE PILOT WHO HAD PREVIOUSLY FLOWN THE AIRPLANE SAID THE ENGINE DID NOT DEVELOP FULL POWER. ANOTHER PILOT-INSTRUCTOR SAID HE NOTICED THE ENGINE REQUIRED 'MORE LEANING' THAN OTHER CESSNA 172S HE HAD FLOWN. ELEVATION AT THE AIRPORT WAS 6172 FEET.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: BLOCKAGE OF THE CARBURETOR BY A PIECE OF FOREIGN MATERIAL, WHICH RESULTED IN A LOSS OF ENGINE POWER, AND FAILURE OF THE PILOT TO MAINTAIN AIRSPEED, WHICH RESULTED IN AN INADVERTENT STALL. THE HIGH DENSITY ALTITUDE AND THE PILOT'S FAILURE TO PROPERLY LEAN THE FUEL MIXTURE WERE POSSIBLE FACTORS.

## Findings

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Occurrence #1: LOSS OF ENGINE POWER  
Phase of Operation: TAKEOFF - INITIAL CLIMB

### Findings

1. (C) FUEL SYSTEM,CARBURETOR - FOREIGN MATERIAL/SUBSTANCE
  2. (C) FUEL SYSTEM,CARBURETOR - BLOCKED(PARTIAL)
  3. (F) WEATHER CONDITION - HIGH DENSITY ALTITUDE
  4. (F) MIXTURE - IMPROPER USE OF - PILOT IN COMMAND
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Occurrence #2: FORCED LANDING  
Phase of Operation: MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

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Occurrence #3: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

### Findings

5. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
  6. (C) STALL - INADVERTENT - PILOT IN COMMAND
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Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: MANEUVERING - TURN TO LANDING AREA (EMERGENCY)

## Factual Information

On September 1, 1995, at 0737 mountain daylight time, a Cessna 172N, N4814F, was destroyed when it collided with terrain after taking off from Colorado Springs, Colorado. The commercial pilot and passenger were seriously injured. Visual meteorological conditions prevailed, and no flight plan was filed for the personal flight being conducted under Title 14 CFR Part 91. The flight was originating when the accident occurred.

In the Pilot/Operator Report, the pilot could not recall any of the accident details other than having initiated a left turn "back towards the runway." The pilot's father recalled that there had been a power loss, "as if the power had been brought back to idle." Control tower personnel observed the airplane take off on runway 35L, but it did not appear to be climbing. They asked the pilot if he was having difficulty or if he wanted to land. The pilot said he did not need any help. The left wing was then seen to drop and the airplane collided with terrain.

The on-scene examination by a Federal Aviation Administration operations inspector disclosed the mixture control was in the "FULL RICH" position. A piece of baffle seal material, measuring approximately 4 inches by 3/8 inch was found lodged upstream from the venturi in the air intake side of the carburetor throat, between the accelerator pump discharge tube and the power jet. A similar piece of material was found missing from the carburetor heat air box. The elevation at Colorado Springs Municipal Airport is 6,172 feet above mean sea level (MSL).

The undisturbed carburetor and carburetor heat air box were sent to Textron-Lycoming to be functionally tested. According to Textron-Lycoming's report, the baffle seal material obstructed air flow to the fuel discharge nozzle in the middle of the venturi. Although the accident engine was an O-320-H2AD, for test purposes the carburetor was mounted on a O-320-D3G engine. According to a Textron-Lycoming spokesman, there are internal differences between the two engines, but the test curves are the same. The engine was started and, according to one test engineer, operated "extremely rich." When the mixture was leaned, approximately 90 percent power (2,664 RPM) was attained. Full power (an air flow of 900 pounds per hour) could not be achieved due to the obstruction. Elevation at Williamsport, Pennsylvania, the test site, is approximately 529 feet MSL.

A flight instructor, who was the last person to fly N4814F, said the airplane and engine operated normally for him on the day before the accident. The instructor, who owns a Cessna 172, said he had noticed that N4814F required "more leaning" than other Cessna 172s he has flown.

One renter pilot, who had flown N4814F two weeks before the accident, stated that he made a night takeoff from Colorado Springs en route to Englewood, Colorado, and noticed the engine noise was "low" and the rate of climb was between 200 and 250 feet per minute (fpm). When he prepared to depart Englewood for the return trip, he performed an "extended" engine runup and made sure the mixture control was set properly and everything checked "normal." After takeoff and at an altitude of 15 to 20 feet above the ground, the airplane settled back towards the runway. The pilot was able to fly in ground effect until the airspeed increased. The airplane then climbed out at 100 fpm. He reported this to the operator the next morning, and the operator performed a cylinder compression check, finding nothing amiss, he returned the airplane to service.

## Pilot Information

<b>Certificate:</b>	Commercial; Military	<b>Age:</b>	30, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; 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>	Yes
<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>	08/23/1994
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	2100 hours (Total, all aircraft), 3 hours (Total, this make and model), 671 hours (Pilot In Command, all aircraft), 108 hours (Last 90 days, all aircraft), 35 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	CESSNA	<b>Registration:</b>	N4814F
<b>Model/Series:</b>	172N 172N	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	17273085
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	08/24/1995, 100 Hour	<b>Certified Max Gross Wt.:</b>	2300 lbs
<b>Time Since Last Inspection:</b>	7 Hours	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	8595 Hours	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed	<b>Engine Model/Series:</b>	O-320-H2AD
<b>Registered Owner:</b>	FALCON RENTALS	<b>Rated Power:</b>	160 hp
<b>Operator:</b>	FALCON RENTALS	<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:	COS, 6172 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0744 MDT	Direction from Accident Site:	0°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	100°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	17° C / 11° C
Precipitation and Obscuration:			
Departure Point:	(COS)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	VFR
Departure Time:	0737 MDT	Type of Airspace:	Class C

## Airport Information

Airport:	COLORADO SPGS MUNICIPAL (COS)	Runway Surface Type:	Asphalt
Airport Elevation:	6172 ft	Runway Surface Condition:	Dry
Runway Used:	35L	IFR Approach:	None
Runway Length/Width:	11021 ft / 150 ft	VFR Approach/Landing:	None

## Wreckage and Impact Information

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

## Administrative Information

Investigator In Charge (IIC):	ARNOLD W SCOTT	Report Date:	01/29/1996
Additional Participating Persons:	MICHAEL F DAVEY; DENVER, CO		
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> .		

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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](#).