



# Aviation Investigation Final Report

<b>Location:</b>	Sheldon, Iowa	<b>Accident Number:</b>	CHI01LA303
<b>Date &amp; Time:</b>	September 1, 2001, 18:25 Local	<b>Registration:</b>	N5593E
<b>Aircraft:</b>	Cessna 172N	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Minor, 1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The airplane experienced a rough running engine 1/4 mile from the approach end of runway 33 (4,199 feet by 75 feet, concrete) at an altitude of 1,581 feet above the airport. The pilot reported being too high and fast while landing on runway 33 with 20 degrees of flaps, so he executed a go around which was then followed by a total loss of engine power. The airplane landed in a dry corn field and came to rest inverted. The private pilot had a total flight time of 119 hours. The Flight Training Handbook cites techniques for performing an emergency landing and also states that the eagerness to get down is one of the most common faults of inexperienced pilots during simulated forced landings resulting in excessive speed to permit a safe landing. Examination of the engine revealed an ingested exhaust valve from the number two cylinder.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the in-flight planning/decision and proper touchdown point not attained by the pilot. Contributing factors were the ingested exhaust valve and lack of experience of the pilot.

## Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - MECH FAILURE/MALF  
Phase of Operation: APPROACH  
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Occurrence #2: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF  
Phase of Operation: GO-AROUND (VFR)

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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: EMERGENCY LANDING

Findings

1. (F) ENGINE ASSEMBLY, VALVE, EXHAUST - INGESTED
2. (C) IN-FLIGHT PLANNING/DECISION - INADEQUATE - PILOT IN COMMAND
3. (F) LACK OF EXPERIENCE - PILOT IN COMMAND
4. (C) PROPER TOUCHDOWN POINT - NOT ATTAINED - PILOT IN COMMAND

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Occurrence #4: NOSE OVER  
Phase of Operation: EMERGENCY LANDING

## Factual Information

On September 1, 2001, at 1825 central daylight time, a Cessna 172N, N5593E, operated by Midwest Flying Service Incorporated, was substantially damaged during a forced landing on a cornfield one mile northwest of the Sheldon Municipal Airport (SHL), Sheldon, Iowa. The pilot reported a rough running engine while on approach to runway 33 (4,199 feet by 75 feet, concrete). Visual meteorological conditions prevailed at the time of the accident. The 14 CFR Part 91 personal flight was operating on a visual flight rules flight plan. The private pilot received no injuries and passenger received minor injuries. The flight departed from the Des Moines International Airport, Des Moines, Iowa, at 1705, en route to SHL.

The pilot reported the following in a written statement, "...I was coming back from a cross-country trip originated from Des Moines, IA. Where we refueled full tanks. I believe I opened my VFR flight plan about 5:05 CST. ... I tried to get AWOS for altimeter setting, wind direction and velocity information when about 10 miles of the airport but I didn't work for some reason. So I decided to cross the field at higher altitude than pattern altitude as recommended to find out the wind direction from the windsock. (Refer to figure attached, #1). The wind was from about 180 degrees. I needed then to land on runway 15. So I went on heading 150 degrees close to the runway (#4), at point #5 the engine started to shake real bad, I decided to proceed with an emergency landing downwind. But I was too close to the runway, high and too fast to make it on runway 33. But still I tried (#6). At point #7, I decided to go-around realizing for sure that I wouldn't have enough runway to land safely. At point #8, at less than 400' AGL, the engine quit while I started a climb for a go-around. At that point all I could do was to put the plane in gliding attitude with appropriate angle of attack, correct airspeed and find a suitable field to land. The cornfield was my best choice (#9). We landed safely on the main landing gear, the plane rolled for a while; then the cornstalk resistance made the plane flips upside down..."

During a postaccident telephone interview, the pilot stated that approximately 25 nm from SHL the engine began to run rough but thinking that it was carburetor ice he selected carburetor heat which stopped the engine roughness. He added that the engine began to run rough approximately 1/4 mile from the approach end of runway 33 and at an altitude of approximately 3,000 feet msl. He selected a flap setting of 20 degrees for a landing flap setting on runway 33. During the go around, the engine quit and the pilot landed on a reportedly dry corn field with approximately 6 foot tall corn stalks. The airplane nosed over and came to rest.

SHL elevation is 1,419 feet msl.

Advisory Circular 61-21A, Flight Training Handbook, "Emergency Approaches (Simulated)", states, "...Slipping the airplane, using flaps, varying the position of the base leg, and varying the

turn onto final approach should be stressed as ways of correcting for misjudgment of altitude and glide angle. Eagerness to get down is one of the most common faults of inexperienced pilots during simulated forced landings. In giving way to this, they forget about speed and arrive at the edge of the field with too much speed to permit a safe landing. Too much speed may be just as dangerous as too little; it results in excessive floating and overshooting the desired landing spot..."

The pilot reported a total flight time of 119 hours all of which were in the make and model of the accident airplane.

Examination of the engine by the Federal Aviation Administration (FAA) revealed a missing exhaust valve from the number two cylinder. The valve was not found in the exhaust system or elsewhere in the engine. The piston dome was damaged but not punctured.

The Lycoming O-320-H2AD, serial number RL-1767-76T, engine accumulated a total time of 1,595.6 hours since overhaul.

### Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	45, 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>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	October 22, 1999
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	119 hours (Total, all aircraft), 119 hours (Total, this make and model), 42 hours (Pilot In Command, all aircraft), 27 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N5593E
<b>Model/Series:</b>	172N	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	17271895
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	July 24, 2001 100 hour	<b>Certified Max Gross Wt.:</b>	2300 lbs
<b>Time Since Last Inspection:</b>	55.9 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	6879.9 Hrs	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, activated, aided in locating accident	<b>Engine Model/Series:</b>	O-320-H2AD
<b>Registered Owner:</b>	Midwest Flying Service Inc.	<b>Rated Power:</b>	160 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	UQMA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	SHL, 1419 ft msl	<b>Distance from Accident Site:</b>	1 Nautical Miles
<b>Observation Time:</b>	18:25 Local	<b>Direction from Accident Site:</b>	135°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	8 knots / 0 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	160°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29.92 inches Hg	<b>Temperature/Dew Point:</b>	24°C / 19°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Des Moines, IA (DSM )	<b>Type of Flight Plan Filed:</b>	VFR
<b>Destination:</b>	Sheldon, IA (SHL )	<b>Type of Clearance:</b>	Unknown
<b>Departure Time:</b>	17:05 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	Sheldon Municipal SHL	<b>Runway Surface Type:</b>	Concrete
<b>Airport Elevation:</b>	1419 ft msl	<b>Runway Surface Condition:</b>	Unknown
<b>Runway Used:</b>	33	<b>IFR Approach:</b>	Unknown
<b>Runway Length/Width:</b>	4199 ft / 75 ft	<b>VFR Approach/Landing:</b>	Forced landing;Go around

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 Minor	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 Minor, 1 None	<b>Latitude, Longitude:</b>	43.170478,-95.840438(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Gallo, Mitchell
<b>Additional Participating Persons:</b>	Eugene R Lawson; Federal Aviation Administration; Des Moines, IA
<b>Original Publish Date:</b>	January 23, 2002
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	The NTSB traveled to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=53406">https://data.nts.gov/Docket?ProjectID=53406</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](#).