



# Aviation Investigation Final Report

|                                |   |                         |             |
|--------------------------------|---|-------------------------|-------------|
| <b>Location:</b>               | Waco, Texas                               | <b>Accident Number:</b> | CEN23LA355  |
| <b>Date &amp; Time:</b>        | August 6, 2023, 22:15 Local               | <b>Registration:</b>    | N6319G      |
| <b>Aircraft:</b>               | Cessna 172S                               | <b>Aircraft Damage:</b> | Substantial |
| <b>Defining Event:</b>         | Hard landing                              | <b>Injuries:</b>        | 1 None      |
| <b>Flight Conducted Under:</b> | Part 91: General aviation - Instructional |                         |             |

## Analysis

The solo student pilot reported he was anxious on the flight controls in preparation for night landing. During the approach, he felt the airplane was higher above the runway than his actual altitude, and he descended the airplane in a nose low attitude which caused a hard landing on the nose wheel. The student pilot then pulled back on the control yoke, and subsequently the airplane porpoised and settled on to the runway surface. The airplane sustained substantial damage to the forward fuselage. The student pilot reported that the airplane had no preimpact mechanical malfunctions or failures that would have precluded normal operation.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The solo student pilot's improper descent path which resulted in a hard landing on the nose wheel and subsequent bounced landing.

## Findings

|                         |   |
|-------------------------|---|
| <b>Personnel issues</b> | Visual illusion/disorientation - Student/instructed pilot |
| <b>Personnel issues</b> | Aircraft control - Student/instructed pilot               |
| <b>Personnel issues</b> | Incorrect action selection - Student/instructed pilot     |
| <b>Aircraft</b>         | Descent/approach/glide path - Not attained/maintained     |

## Factual Information

### History of Flight

|                         |                               |
|-------------------------|-------------------------------|
| Landing-flare/touchdown | Hard landing (Defining event) |
|-------------------------|-------------------------------|

### Pilot Information

|                           |  |                                   |                 |
|---------------------------|--|-----------------------------------|-----------------|
| Certificate:              | Private  | Age:                              | 21, Male        |
| Airplane Rating(s):       | Single-engine land   | Seat Occupied:                    | Left            |
| Other Aircraft Rating(s): | None   | Restraint Used:                   | 3-point         |
| Instrument Rating(s):     | None   | Second Pilot Present:             | No              |
| Instructor Rating(s):     | None   | Toxicology Performed:             |                 |
| Medical Certification:    | Class 1 Without waivers/limitations  | Last FAA Medical Exam:            | October 4, 2022 |
| Occupational Pilot:       | No   | Last Flight Review or Equivalent: |                 |
| Flight Time:              | 211 hours (Total, all aircraft), 75 hours (Total, this make and model), 155 hours (Pilot In Command, all aircraft), 50 hours (Last 90 days, all aircraft), 21 hours (Last 30 days, all aircraft) |                                   |                 |

### Aircraft and Owner/Operator Information

|                               |                                |                                |                 |
|-------------------------------|--------------------------------|--------------------------------|-----------------|
| Aircraft Make:                | Cessna                         | Registration:                  | N6319G          |
| Model/Series:                 | 172S                           | Aircraft Category:             | Airplane        |
| Year of Manufacture:          | 2008                           | Amateur Built:                 |                 |
| Airworthiness Certificate:    | Normal                         | Serial Number:                 | 172S10781       |
| Landing Gear Type:            | Tricycle                       | Seats:                         | 4               |
| Date/Type of Last Inspection: | July 21, 2023 100 hour         | Certified Max Gross Wt.:       | 2550 lbs        |
| Time Since Last Inspection:   |                                | Engines:                       | 1 Reciprocating |
| Airframe Total Time:          | 7270 Hrs as of last inspection | Engine Manufacturer:           | Lycoming        |
| ELT:                          | C126 installed, not activated  | Engine Model/Series:           | IO-360-L2A      |
| Registered Owner:             | On file                        | Rated Power:                   | 180 Horsepower  |
| Operator:                     | On file                        | Operating Certificate(s) Held: | None            |

## Meteorological Information and Flight Plan

|                                  |                                  |   |                  |
|----------------------------------|----------------------------------|---|------------------|
| Conditions at Accident Site:     | Visual (VMC)                     | Condition of Light:                     | Night            |
| Observation Facility, Elevation: | KACT,498 ft msl                  | Distance from Accident Site:            | 0 Nautical Miles |
| Observation Time:                | 22:51 Local                      | Direction from Accident Site:           | 348°             |
| Lowest Cloud Condition:          | Clear                            | Visibility                              | 10 miles         |
| Lowest Ceiling:                  | None                             | Visibility (RVR):                       |                  |
| Wind Speed/Gusts:                | 9 knots /                        | Turbulence Type<br>Forecast/Actual:     | /                |
| Wind Direction:                  | 140°                             | Turbulence Severity<br>Forecast/Actual: | /                |
| Altimeter Setting:               | 29.91 inches Hg                  | Temperature/Dew Point:                  | 33°C / 17°C      |
| Precipitation and Obscuration:   | No Obscuration; No Precipitation |   |                  |
| Departure Point:                 | San Marcos, TX (HYI)             | Type of Flight Plan Filed:              | VFR              |
| Destination:                     | Waco, TX                         | Type of Clearance:                      | None             |
| Departure Time:                  | 20:30 Local                      | Type of Airspace:                       | Class D          |

## Airport Information

|                      |                  |                           |              |
|----------------------|------------------|---------------------------|--------------|
| Airport:             | WACO RGNL ACT    | Runway Surface Type:      | Asphalt      |
| Airport Elevation:   | 516 ft msl       | Runway Surface Condition: | Dry          |
| Runway Used:         | 19               | IFR Approach:             | Unknown      |
| Runway Length/Width: | 7107 ft / 150 ft | VFR Approach/Landing:     | Touch and go |

## Wreckage and Impact Information

|                        |        |                         |                          |
|------------------------|--------|-------------------------|--------------------------|
| Crew Injuries:         | 1 None | Aircraft Damage:        | Substantial              |
| Passenger<br>Injuries: |        | Aircraft Fire:          | None                     |
| Ground Injuries:       |        | Aircraft Explosion:     | None                     |
| Total Injuries:        | 1 None | Latitude,<br>Longitude: | 31.61353,-97.226852(est) |

## Administrative Information

|                                   |   |
|-----------------------------------|---|
| Investigator In Charge (IIC):     | Sauer, Aaron  |
| Additional Participating Persons: | Jonathan Dekhtyar; FAA; Dallas, TX  |
| Original Publish Date:            | September 28, 2023  |
| Last Revision Date:               |   |
| Investigation Class:              | <a href="#">Class 4</a>   |
| Note:                             | The NTSB did not travel to the scene of this accident.  |
| Investigation Docket:             | <a href="https://data.nts.gov/Docket?ProjectID=192831">https://data.nts.gov/Docket?ProjectID=192831</a> |

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