



National Transportation Safety Board Aviation Accident Final Report

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| Location: | Roanoke, TX | Accident Number: | CEN13LA041 |
| Date & Time: | 11/03/2012, 1040 CDT | Registration: | N985GE |
| Aircraft: | CESSNA 172S | Aircraft Damage: | Substantial |
| Defining Event: | Miscellaneous/other | Injuries: | 2 Minor, 1 None |
| Flight Conducted Under: | Part 91: General Aviation - Instructional | | |

Analysis

The student pilot was returning from a solo cross-country flight at the time of the accident. He stated that the approach for landing was normal until he was on short final approach, when the airplane's landing gear struck an automobile that was being driven on a road that crossed near the approach end of the runway. The airplane subsequently landed hard and the nose and left main landing gear collapsed. The airplane veered off the right side of the runway before coming to rest in the grass. The student pilot stated that there were no malfunctions or failures with the airplane before it impacted the vehicle. The automobile driver reported that he had been to the airport before and was aware of the proximity of the road to the runway, describing the layout as "precarious." He noted that he did not see or hear the approaching airplane traffic before the accident. He said he was about halfway across the road, immediately north of the runway, when he first heard the airplane engine; the airplane impacted his car immediately afterward.

The displaced threshold for the landing runway was located about 140 feet from the approach end of the runway. The roadway that crossed the extended runway centerline was located about 25 feet from the approach end of the runway pavement, about 165 feet from the displaced threshold. Data indicated that the runway threshold was previously displaced 400 feet. Although the privately-owned airport was not required to maintain airport design standards established by the Federal Aviation Administration, the proximity of the roadway and the reduced runway threshold displacement did not provide any safety margin for approaching aircraft.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The student pilot's failure to maintain clearance from obstacles on the runway approach path. Contributing to the accident was the airport management's decision to relocate the runway displaced threshold, which did not provide an adequate safety margin for approaching aircraft, and the automobile driver's inadequate lookout for approaching aircraft before crossing the runway's approach path.

Findings

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| Aircraft | Descent/approach/glide path - Not attained/maintained (Cause) |
| Personnel issues | Incorrect action performance - Student pilot (Cause) |
| Environmental issues | Ground vehicle - Effect on operation (Factor) Airport facilities/design - Effect on operation (Factor) |

Factual Information

On November 3, 2012, about 1040 central daylight time, a Cessna 172S, N985GE, impacted an automobile on final approach to runway 17 (3,500 feet by 40 feet, asphalt) at the Northwest Regional Airport (52F), Roanoke, Texas. The student pilot was not injured. The automobile driver and passenger sustained minor injuries. The airplane was substantially damaged. The aircraft was registered to and operated by Marcair, Inc. under the provisions of 14 Code of Federal Regulations Part 91 as a solo instructional flight. Visual meteorological conditions prevailed for the flight, which was operated on a visual flight rules flight plan. The cross-country flight originated from Possum Kingdom Airport (F35), Graford, Texas, about 1005, with an intended destination of 52F.

The student pilot reported that he was returning from a solo cross-country flight, entered a left traffic pattern for runway 17 at 52F. He recalled that the approach was normal and the airspeed was about 60 knots when crossing the fence near the end of the runway. He stated that just after crossing the fence the landing gear impacted an automobile, which resulted in a hard landing. The nose and left main landing gear collapsed, and the airplane veered off the right side of the runway before coming to rest in the grass. The student pilot stated that there were no malfunctions or failures associated with the airplane before impacting the automobile.

The driver of the automobile reported that he had been to the airport before and was aware of the proximity of the road to the runway, describing the layout as "precarious." He noted that he did not see or hear the approaching airplane traffic prior to the accident; although, he had rolled the car windows down and turned off the radio to assist in hearing any airplane traffic. He stated that the vehicle was about halfway across the road immediately north of the runway when he first heard the airplane engine. The airplane impacted his car immediately afterward. He noted that the airplane impacted his car about 4-1/2 feet above the road.

The accident airport consisted of a single north-south oriented runway, designated 17 / 35. The published runway dimensions at the time of the accident were 3,500 feet by 40 feet. Although the Federal Aviation Administration (FAA) Airport Facility Directory (AFD) current at the time of the accident noted a 400-foot displaced threshold for runway 17, the runway threshold was actually displaced approximately 140 feet at the time of the accident. Satellite imagery indicated that the runway threshold markings were changed sometime between June 12, 2011, and the date of the accident. The edge of the roadway crossing the runway 17 approach path was located about 25 feet from the end of the runway; about 165 feet from the displaced threshold. The roadway was marked with a faded "Stop" indication painted on the pavement at each side of the runway. However, there were no signs requiring drivers to stop or advising them of low flying aircraft. Because the accident airport was privately owned, the airport management was under no obligation to maintain the airport to any federal standard.

Federal Aviation Administration (FAA) airport design guidance (Advisory Circular 150/5300-13A) noted a standard approach slope of 20:1, or about 3 degrees. Guidance related to Visual Approach Slope Indicators (VASI), contained in Chapter 2 of the FAA Aeronautical Information Manual, noted that a standard runway glide path angle is 3 degrees; however, the glide path angle may be up to 4.5 degrees if necessary for obstacle clearance. The calculated glide path height above the roadway, considering a 165-foot distance between the displaced runway threshold and the edge of the roadway, would be 8.6 feet and 13.0 feet for a 3-degree and a 4.5 degree glide path, respectively. This does not take into account any difference in the

elevation of the roadway relative to the runway, nor does it include any safety margin for momentary inadvertent operations slightly below the glidepath.

History of Flight

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| Approach-VFR pattern final | Miscellaneous/other (Defining event) Collision with terr/obj (non-CFIT) Loss of control in flight |
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Student Pilot Information

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| Certificate: | Student | Age: | 43, Male |
| Airplane Rating(s): | None | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | Seatbelt, Shoulder harness |
| Instrument Rating(s): | None | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | No |
| Medical Certification: | Class 3 With Waivers/Limitations | Last Medical Exam: | 02/10/2012 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | 08/10/2012 |
| Flight Time: | 45 hours (Total, all aircraft), 45 hours (Total, this make and model), 3 hours (Pilot In Command, all aircraft), 20 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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| Aircraft Manufacturer: | CESSNA | Registration: | N985GE |
| Model/Series: | 172S | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | No |
| Airworthiness Certificate: | Normal | Serial Number: | 172S10045 |
| Landing Gear Type: | Tricycle | Seats: | 4 |
| Date/Type of Last Inspection: | 09/12/2012, 100 Hour | Certified Max Gross Wt.: | 2558 lbs |
| Time Since Last Inspection: | 89 Hours | Engines: | 1 Reciprocating |
| Airframe Total Time: | 4798 Hours | Engine Manufacturer: | LYCOMING |
| ELT: | Installed, activated, did not aid in locating accident | Engine Model/Series: | IO-360-L2A |
| Registered Owner: | Marcair Inc. | Rated Power: | 180 hp |
| Operator: | Marcair Inc. | Air Carrier Operating Certificate: | None |

Meteorological Information and Flight Plan

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| Observation Facility, Elevation: | AFW, 722 ft msl | Observation Time: | 1053 CDT |
| Distance from Accident Site: | 7 Nautical Miles | Condition of Light: | Day |
| Direction from Accident Site: | 225° | Conditions at Accident Site: | Visual Conditions |
| Lowest Cloud Condition: | Few / 9000 ft agl | Temperature/Dew Point: | 23° C / 16° C |
| Lowest Ceiling: | None | Visibility | 10 Miles |
| Wind Speed/Gusts, Direction: | 3 knots, Variable | Visibility (RVR): | |
| Altimeter Setting: | 30.07 inches Hg | Visibility (RVV): | |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Graford, TX (F35) | Type of Flight Plan Filed: | VFR |
| Destination: | Roanoke, TX (52F) | Type of Clearance: | None |
| Departure Time: | 1005 CST | Type of Airspace: | |

Airport Information

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|----------------------|--------------------------|---------------------------|----------------------------|
| Airport: | Northwest Regional (52F) | Runway Surface Type: | Asphalt |
| Airport Elevation: | 643 ft | Runway Surface Condition: | Dry |
| Runway Used: | 17 | IFR Approach: | None |
| Runway Length/Width: | 3500 ft / 40 ft | VFR Approach/Landing: | Full Stop; Traffic Pattern |

Wreckage and Impact Information

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|---------------------|-----------------|---------------------|-------------|
| Crew Injuries: | 1 None | Aircraft Damage: | Substantial |
| Passenger Injuries: | N/A | Aircraft Fire: | None |
| Ground Injuries: | 2 Minor | Aircraft Explosion: | None |
| Total Injuries: | 2 Minor, 1 None | | |

Administrative Information

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| Investigator In Charge (IIC): | Timothy Sorensen | Adopted Date: | 01/30/2014 |
| Additional Participating Persons: | Paul Vercellino; FAA Flight Standards; Fort Worth, TX | | |
| Publish Date: | 01/30/2014 | | |
| Investigation Docket: | http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=85494 | | |

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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