National Transportation Safety Board
Aviation Accident Data Summary

Location:	College Station, TX	**Accident Number:**	CEN13LA149B
Date & Time:	02/01/2013, 0805 CST	**Registration:**	N93124
Aircraft:	CESSNA 152	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

A review of available flightpath data established that there was a midair collision between a Cessna 152 and a Cirrus SR22 at 3,500 ft mean sea level (msl). The flight instructor of the Cessna 152 reported that he was conducting a local training flight with a primary student on her second instructional flight. The commercial pilot of the Cirrus SR22 was on a business flight en route to the same airport from which the Cessna 152 had departed. Both flights were operating in visual meteorological conditions (VMC).

The flight instructor stated that they had been practicing basic attitude flight maneuvers, and, as the airplane was climbing to 3,500 ft msl while maintaining a southeast heading, they felt an impact that originated from the right side of the airplane, aft of the main cabin, and heard a loud bang. He added that they were not in radio contact with the tower controller before the collision. The flight instructor subsequently observed that the right main landing gear wheel had separated from the airplane. After informing the tower controller of the damage, they were asked to perform a low pass and then to circle the airport until emergency equipment was in position. After circling the airport several times, the flight instructor made an uneventful landing.

The Cirrus pilot reported that, while established in cruise flight at 3,500 ft msl, the airplane's windshield suddenly imploded from an apparent impact with an object. His initial thought was that the airplane had collided with a bird because he had not received any alerts from the airplane's traffic advisory system nor did he see another aircraft. He subsequently recovered from an unintended descent before continuing directly toward the planned destination and declaring an emergency with the tower controller. The pilot reported that he had not established radio contact with the tower controller before the collision. He subsequently landed the airplane without further incident.

The flightpath data showed that the Cirrus had maintained a 080-degree true course at 3,500 ft msl for about 14 minutes before the collision. About 90 seconds before the collision, the Cessna was in a climbing left turn from a west-southwest course to the south-southeast. The plotted data established that, during the 70 seconds before the collision, the Cessna maintained a 160-degree true course and continued to climb from 3,100 ft to a maximum GPS altitude of 3,573 ft, which was recorded about 12 seconds before the collision. The Cessna subsequently descended about 60 ft during the 12-second period before the collision. The calculated angle between each airplane's flightpath was about 80 degrees at the time of the collision. During the 70 seconds before the collision, the Cessna's relative position to the Cirrus flightpath averaged 27 degrees left of course (11-o'clock position). Conversely, the Cirrus's position relative to the Cessna flightpath averaged 72 degrees right of course (between the 2- and 3-o'clock positions).

Additional review of air traffic control radar track data revealed no transponder beacon returns associated with the Cessna until 2 minutes 34 seconds after the collision. During the same time period, primary radar returns were recorded by the radar sensor that closely matched the flightpath as recorded by the flight instructor's portable GPS receiver. However, after the collision, the radar sensor began receiving transponder beacon returns from the Cessna that included a 1200 beacon code

with associated mode-C altitude data. A reinforced beacon return was received for a remainder of the flightpath. When presented with a summary of the radar track data, the flight instructor acknowledged that he likely departed with the transponder off, or in the standby position, and then subsequently turned it on following the collision. Additionally, postaccident testing of the airplane's altitude, static, and transponder systems revealed no anomalies that would have precluded their normal operation.

The Cirrus was equipped with a traffic advisory system, which actively interrogates other nearby aircraft transponders to provide the pilot with relevant traffic advisories; however, the system only displayed traffic targets from those aircraft that have transponders that could be interrogated. When a target airplane has its transponder turned off, selected to standby, or is malfunctioning, the system does not generate a traffic advisory. Additionally, the system's operating manual cautioned that pilots should remain vigilant for nontransponder-equipped aircraft or aircraft with unresponsive transponders. A postaccident data extraction from the Cirrus's recoverable data module established that a traffic advisory was issued shortly after takeoff while the airplane was on initial climb from the departure airport; however, there were no traffic advisories issued for the remainder of the accident flight.

In conclusion, given the flightpath data and that VMC existed at the time of the accident, the pilots should have been able to see the other airplane and maintain adequate separation. The Cirrus was equipped with a traffic advisory system; however, the flight instructor likely had the Cessna's transponder turned off or placed in standby before the collision, which prevented a traffic advisory message from being issued to the pilot of the Cirrus. However, if the flight instructor had turned on the transponder before departure, a traffic advisory would likely have been issued to the pilot of the Cirrus and the collision avoided.

Flight Events

Enroute - Midair collision

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The flight instructor's and commercial pilot's failure to see and avoid the other airplane, which resulted in a collision during cruise flight. Contributing to the accident was the failure of the flight instructor to activate the transponder before departure, which resulted in no traffic advisories being issued to the pilot of the other airplane before the collision.

Findings

Aircraft-Aircraft systems-Navigation system-ATC transponder system-Not used/operated - F
Personnel issues-Psychological-Attention/monitoring-Monitoring other aircraft-Pilot of other aircraft - C
Personnel issues-Psychological-Attention/monitoring-Monitoring other aircraft-Instructor/check pilot - C
Personnel issues-Task performance-Use of equip/info-Use of equip/system-Instructor/check pilot - F

Flight Instructor Information

Certificate:	Flight Instructor; Commercial	**Age:**	54
Airplane Rating(s):	Single-engine Land	**Instrument Rating(s):**	Airplane
Other Aircraft Rating(s):	None	**Instructor Rating(s):**	Airplane Single-engine
Flight Time:	897 hours (Total, all aircraft), 300 hours (Total, this make and model), 757 hours (Pilot In Command, all aircraft), 36 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Student Pilot Information

Certificate:	Student	**Age:**	19
Airplane Rating(s):	None	**Instrument Rating(s):**	None
Other Aircraft Rating(s):	None	**Instructor Rating(s):**	None
Flight Time:	2 hours (Total, all aircraft), 2 hours (Total, this make and model), 2 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CESSNA	**Registration:**	N93124
Model/Series:	152	**Engines:**	1 Reciprocating
Operator:	Texas A&M Flying Club	**Engine Manufacturer:**	Lycoming
Air Carrier Operating Certificate:	None	**Engine Model/Series:**	O-235-L2C
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	CLL, 321 ft msl	**Weather Information Source:**	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	**Lowest Ceiling:**	None
Condition of Light:	Day	**Wind Speed/Gusts, Direction:**	Calm
Temperature:	7°C / 3°C	**Visibility**	10 Miles
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	College Station, TX (CLL)	**Destination:**	College Station, TX (CLL)

Airport Information

Airport:	Easterwood Field Airport (CLL)	**Runway Surface Type:**	
Runway Used:	N/A	**Runway Surface Condition:**	
Runway Length/Width:			

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Minor
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None

Administrative Information

Investigator In Charge (IIC):	Andrew T Fox	**Adopted Date:**	08/01/2016
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=86138		