

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division

Washington, DC 20594

October 17, 2016

Speed Study

Specialist's Study Report

By Christopher Babcock

1. EVENT SUMMARY

Location: Westmoreland, New York
Date: April 18, 2016
Aircraft: Cessna 172C
Registration: N1863Y
Operator: Private
NTSB Number: ERA16FA161

On April 18, 2016, at 1910 eastern daylight time (EDT), a Cessna 172C, registration N1863Y, collided with trees and terrain during takeoff from Sophie's Choice airstrip in Westmoreland, New York. The airplane was destroyed by a postcrash fire. The private pilot and one passenger were fatally injured and a second passenger sustained minor injuries. The airplane was registered to a private individual and operated under the provisions of 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed for the flight, which was originating at the time of the accident.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received a file containing audio and video from an unknown device.

3.1. File Description

The video file was 37 seconds in duration and recorded at a resolution of 1920 by 1080 pixels and a frame rate of 29.97 frames per second. Audio was contained in a single mono channel sampled at 44100 Hz. Figure 1 shows a Google Earth image of the grass airstrip and the approximate location of the camera.

The aircraft began its takeoff approximately 2 seconds after the video began. The aircraft became airborne just after it passed the windsock noted in Figure 1, approximately 20 seconds after the aircraft began its takeoff roll. The windsock was pointing straight at the ground. The aircraft banked to the left and then to the right before the camera shifted toward the ground. Sounds of impact were heard approximately 28 seconds after the start of the takeoff roll. Due to the angle between the line of sight from the camera to the aircraft

and the aircraft's groundpath, it was not possible to determine where the aircraft began its takeoff from the video.

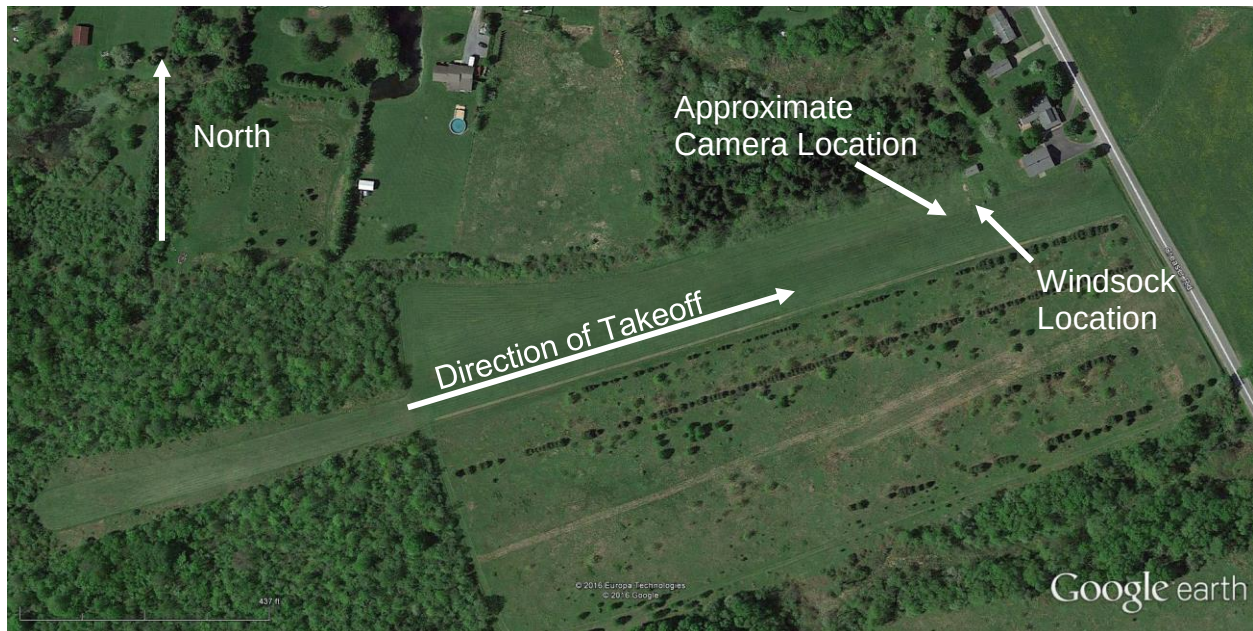


Figure 1. Overview of accident location.

3.2. Speed Study

The aircraft passed the windsock at 20.10 seconds video elapsed time (ET) and the sound of impact was detected on the audio at 30.05 ET. The impact location was 736 feet from the point on the runway when the aircraft passed the wind sock. The temperature at Griffiss International Airport, about 7 nautical miles north of the accident site, was 20° Celsius at the time of the accident, resulting in a speed of sound of approximately 1126 feet per second (fps). Given the 736-foot straight line distance, the impact actually occurred at 29.35 ET, 9.25 seconds after the aircraft passed the windsock. Using this information, the average ground speed from the point where the aircraft passed the windsock just prior to becoming airborne to the accident site was approximately 47 knots, assuming a straight line ground path. Any maneuvering off of this straight line ground path would increase the speed estimate slightly.

3.3. Sensitivity Analysis

Uncertainty in the speed of sound due to local temperature and humidity variations 7 nautical miles away from the official observation station may have affected the calculation. A variation of temperature of 5% would change the speed of sound estimate by about 1 knot.