NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594

July 31, 2007

Video/Image Study

NTSB Accident Number:
CHI06FA210

by Douglass P. Brazy

A. ACCIDENT

Location:	Sullivan, MO
Date:	July 29, 2006
Time:	1345 Central Daylight Time
Aircraft:	de Havilland DHC-6-100, registration N203E

B. GROUP

N/A

C. SUMMARY

On July 29, 2006, about 1345 central day light time, a de Havilland DHC-6-100, N203E, piloted by an airline transport pilot, sustained substantial damage on impact with trees and terrain during takeoff from runway 24 (4,500 feet by 75 feet, dry concrete) at the Sullivan Regional Airport (KUUV), near Sullivan, Missouri. Witnesses observed flame emitting from the right engine during the takeoff. The skydiving flight was operating under 14 CFR Part 91. Visual meteorological conditions prevailed at the time of the accident. No flight plan was on file. The pilot and five passengers sustained fatal injuries. Two passengers sustained serious injuries. The local flight was originating from

KUUV at the time of the accident.

D. DETAILS OF INVESTIGATION

The NTSB Vehicle Recorder Division received a Sony model DCR-PC100 s/n 30091 handheld digital video recorder, as well as a loose (no camera) 60 minute DV format digital video tape, and a photograph that was taken with a Nikon model Coolpix L3 digital still camera.

Description of Recordings

Digital Photograph

The digital still photograph was taken from the ground, viewing the airplane as it departed near the end of runway 24.

Figure 1 - Photograph taken from ground

The photograph shows smoke trailing from the airplane, the right propeller rotating at a slower speed than the left propeller, and a bright yellow/orange area near the right engine. Metadata[1] retrieved from the original image files indicate that the picture was taken on July 29 at 19:57:29 (according to the camera's internal clock) with a shutter speed of 1/336 second, and an aperture of F5.3. The image was imported into a computer drafting program to measure the "smearing" of the propeller blade, caused by motion blur.

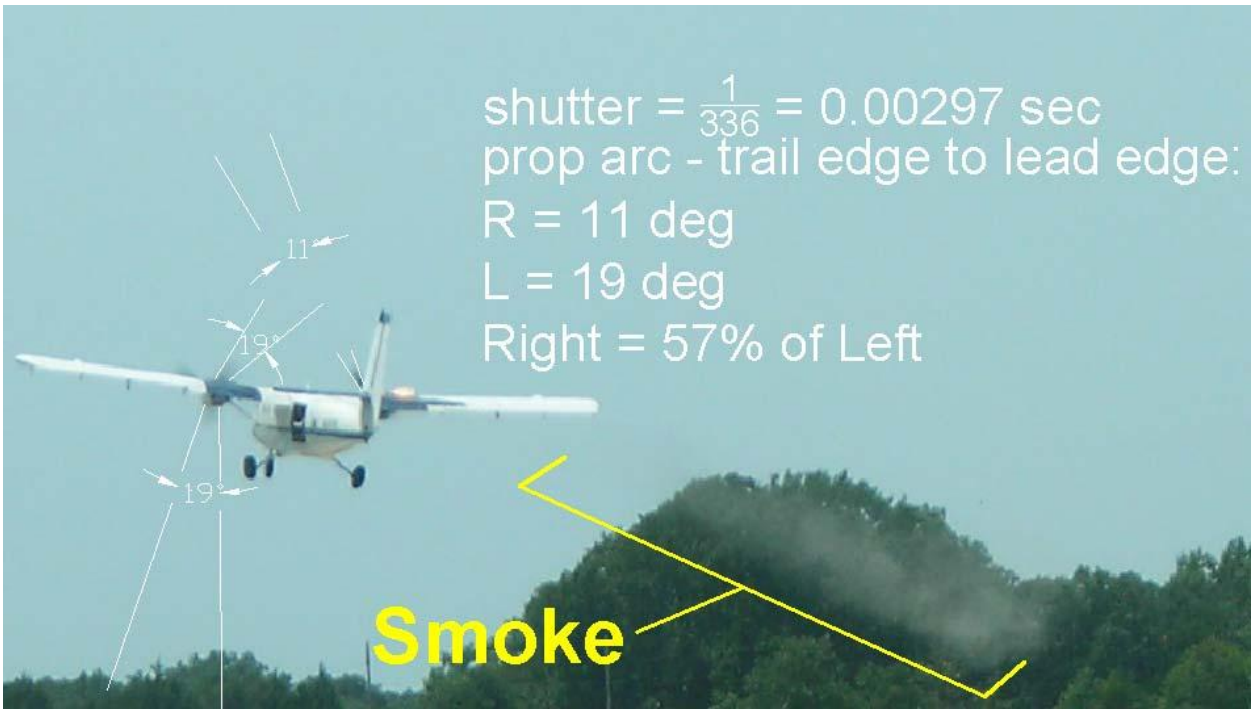

Figure 2 - Enlarged area of photograph

The "smearing" of one propeller blade on the left engine was measured to be about 19 degrees, compared to about 11 degrees on the right engine.

[1] Most digital cameras store information in each digital picture file about the camera, image, settings, internal clock date and time, and other parameters. Typically, this data is stored at least in part according to the EXchangable Image Format (EXIF) standard. See www.exif.org for more information .

Video Recordings

The two video recordings were from skydiver's helmet mounted cameras. Both contained numerous segments from previous skydiving trips, as well as a segment from the accident trip. One of the recordings stopped during the flight, the other continued until the impact with the ground. Both videographers begin filming through the jump door during taxi and takeoff, and shortly after rotation both videographers move inside the airplane and sit down. A summary of the contents of both recordings is as follows:

At elapsed time 00:00[2] the airplane began the takeoff roll, as a rolling start from the taxiway intersection[3] on runway 24. At 00:12 the airplane begins to rotate. After liftoff at about 00:17, the background engine/propeller noise decreases in frequency sharply. At 00:20, the airplane crosses over the end of the runway pavement/concrete. One second later, both videographers move from the jump doorway, to seated positions inside the airplane. One videographer is seated on the left side of the airplane facing rearward, with his camera viewing almost directly aft, at the rear bulkhead of the airplane, with some view outside through the jump doorway. The other videographer is seated near the aft bulkhead, on the right side of the airplane facing forward. This camera view is generally forward, but shifts left and right frequently.

At 00:21 the forward facing video camera catches a brief view through the cockpit door, where the pilot's right hand can be seen on the overhead power levers. However, the actual position of the power levers cannot be determined. At 00:27, another brief view through the cockpit door shows the pilot's right hand is up near the center of the overhead panel, to the right of the power levers. However, it cannot be determined what, if anything, the pilot is manipulating at this time. The propeller levers are located in the center of the overhead panel, immediately to the right of the power levers. Also in the center of the overhead panel, just aft of the propeller levers, is the flap handle. In this same brief view through the cockpit door at 00:27, it appears that the

[2] Times are noted in elapsed time in minutes:seconds, since the start of the takeoff roll.
[3] There is only one midfield taxiway intersection on runway 24/6 at Sullivan Regional Airport. This taxiway runs perpendicular to the runway from the ramp area, and intersects at approximately 2790 feet down runway 24. The runway is 4500 feet long.

power levers are asymmetrical, as a “gap” can be seen between the grips of the power levers. The actual lever positions could not be determined. No instruments or other cockpit displays could be seen during the brief views through the cockpit door. The control wheel was not in view. At 00:40, the recording from the forward facing video camera ends.

The recording from the rearward facing camera continues until the impact with the ground at 01:08.

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