



NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Western Pacific Region

August 28, 2016

AIRFRAME AND ENGINE EXAMINATION

WPR16FA169

This document contains 10 embedded photos.

A. ACCIDENT

Location: Madras, Oregon
Date: August 28, 2016
Aircraft: Boeing A75N1 Stearman
N999PP, Serial #: 75-2389
NTSB IIC: Dennis Hogenson

B. EXAMINATION PARTICIPANTS:

Dennis Hogenson
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C. SUMMARY

Examination of the accident site was conducted on August 28, 2016, at Madras Municipal Airport, Madras, Oregon. All major structural components of the airplane were located at the accident site. No evidence of preimpact mechanical failure was noted during the examination of the airframe and engine. The wreckage was recovered to a secure location for further examination.

D. DETAILS OF THE INVESTIGATION

1.0 Accident Site Examination

The airplane impacted runway 34 while the pilot was attempting an inside loop on takeoff during an aerial demonstration.

The wreckage was located adjacent to runway 34 approximately 3,400 feet from the approach threshold. The first identified point of contact (FPIC) was followed by an approximate 120-foot long debris path that terminated at the wreckage. The forward right fuselage, engine bay and right wings (upper and lower) were consumed by post impact fire.

1.1 Accident Site Photos



Figure 1: View of Airplane Wreckage



Figure 2: Forward View of Airplane Wreckage

The wings remained attached to the fuselage and support braces and struts. The vertical stabilizer, left and right horizontal stabilizers remained attached to the empennage. The vertical and left horizontal stabilizer displayed no obvious signs of damage. The right horizontal stabilizer was bent upward towards the outer edge. Both the rudder and elevator moved freely.



Figure 3: Left Aft View of Wreckage



Figure 4: Right Horizontal Stabilizer and Elevator Impact Damage

Flight control continuity was established to all flight controls from both the forward and rear cockpit. The push-pull tubes connecting to the the right aileron and the cable connecting the rear cockpit right rudder pedal to the rudder were cut by emergency response personnel. Both left and right elevators remained attached at their respective connecting points. The push-pull tube from both control sticks remained attached to their respective flight control assemblies.

The elevator trim control lever was set to 0 degrees and remained connected by cable to the the elevator trim tabs; however due to deformation of the airfram its was not possible to actuate the trim control lever by hand.



Figure 5: Right Elevator Lower Trim Cable Broken Free

The left elevator trim cables remained attached to the trim tab; the right elevator top trim cable remained attached to the trim tab. The lower trim cable was separated at the from the lower trim tab horn. The fracture of the eyehole appeared to be consistent with overstress separation from impact forces.



Figure 6: Elevator Trim Control set 0 Degrees Trim



Figure 7: Close-up, Engine Impact Damage

The Pratt & Whitney R-985 engine was broken free of its mounting assembly and was located adjacent to the main wreckage. Propeller blade “A” was positioned towards the lower cylinders and bent aft approximately 90 degrees at mid span. The blade was twisted and length-wise striations towards the tip of the blade were noted. Propeller blade “B” was positioned towards the top cylinders. The blade was bent aft, exhibited chord-wise striations and “S” bending.



Figure 8: Close-up, Engine Impact Damage Lower Cylinders



Figure 9: Propeller blade “A” Damage



Figure 10: Propeller Blade “B” damage

Submitted by: Gregory Collins