

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research & Engineering
Washington, D.C. 20594

January 11, 2008

Fire & Explosion Group Factual

A. ACCIDENT

Accident Number: NYC07MA162
Location: Sanford, Florida
Date: 7/10/2007
Registration number: N501N
Vehicle: Cessna 310R

B. FIRE GROUP

Joseph Panagiotou
Fire Group Chairman
National Transportation Safety Board
Washington, D.C.

Jan R. Smith, Cessna Aircraft Company
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C. SUMMARY

On July 10, 2007, at 0835 eastern daylight time, a Cessna 310R, N501N, operated by the National Association for Stock Car Auto Racing (NASCAR), was destroyed during a collision with trees and structures in a residential area, while attempting an emergency landing to the Sanford Orlando International Airport (SFB), Orlando, Florida. The certificated commercial pilot and the certificated airline transport pilot (ATP) were fatally injured. Three people on the ground were fatally injured, and four were seriously injured. A post crash fire consumed the airplane and two single-family homes. Visual meteorological conditions prevailed, and an instrument flight rules (IFR) flight plan was filed for the personal flight that was conducted under 14 *Code of Federal Regulations* (CFR) Part 91. The airplane departed Daytona Beach International Airport (DAB), Daytona Beach, Florida, at 0822, and was destined for Lakeland Linder Regional Airport (LAL), Lakeland, Florida.

The Fire Group convened at the accident site on July 11, 2007, and began examination of the aircraft wreckage. The field phase of the investigation concluded on July 18, 2007.

D. DETAILS OF THE INVESTIGATION

Accident Scene Description

The scene of the accident was located in a residential development (Figure 1). The aircraft wreckage was scattered over a large area due to the fact that the aircraft sustained impact with trees prior to the final impact with a single level, single-family home in the development. The aircraft first impacted a row of trees along the border of the residential development and then it impacted a large palm tree within the confines of the development prior to impacting the home (Figure 2). Parts of the aircraft also impacted a two level home adjacent to the single level home. The fuselage and bulk of the wing structure ended up inside the single level home while the tail section, which had separated from the rest of the aircraft, was found leaning up against the two level home. Parts of the aircraft were also found in the space separating the two homes. A post crash fire ensued which consumed the two homes.

Radio Communications

Shortly after reaching a cruising altitude of 6,000 feet MSL, the pilot declared a smoke in the cockpit emergency to ATC with an intention to land at Sanford International Airport (KSFB), FL, and the aircraft began a rapid descent. The last radio transmission from the pilot was cutoff mid sentence including the words; “shutoff all radios, elec.”

Discrepancy Logbook

Among the debris found on scene were sheets of paper belonging to the discrepancy logbook. Of particular interest was a page (Figure 3) containing an entry from the previous day, July 9, 2007, which stated that during the previous day’s flight the weather radar went blank during cruise flight and was accompanied by the smell of burning electrical equipment. After the radar was turned off and the circuit breaker was pulled the smell went away.

Wreckage Description

The aircraft wreckage can be separated into two categories. The first category contains parts that were not involved in the post crash fire and were found in the debris field leading up to the homes and continuing downstream of the homes. The second category contains parts found inside the homes and in their immediate vicinity at the final impact site which were involved in the post crash fire.

The parts that were not exposed to the post crash fire and found between the impact with the trees and slightly past the final impact with the homes consisted of portions of wing skin, engine cowlings, portions of the engine nacelles, portions of the auxiliary bladder fuel tanks, ailerons, the trailing edges of the wing tip fuel tanks, one of the propellers, the right hand side cockpit door, and the glare shield. These components did not have any signs of thermal damage, discoloration or heavy soot deposition that would be consistent with having been exposed to the effects of a fire. Certain components did however have small amounts of black soot like powder

in discrete locations on them. This soot could easily be removed by touch. These components were the portions of the engine nacelle, and the engine cowlings. The soot found in the locations of the engine nacelles and cowlings was determined to be the result of normal operation of the aircraft. This was established by inspection of an exemplar aircraft and the concurrence of Cessna engineers. The right hand cockpit door was also found outside the post crash fire area. The door did not exhibit any thermal damage. There was an oily film with a clumpy black residue along the bottom edge of the door's armrest. The upper portions of the door however did not have this oily film and residue. The glare shield from the cockpit was found resting on the roof of a house upstream and adjacent to the single level house that the aircraft impacted. The glare shield did not have any signs of exposure to a fire.

The parts of the wreckage found at the final impact location were involved in a post crash fire. The fuselage and bulk of the wing structure was found inside the single level house. Large portions of the fuselage structure had melted and collapsed. Debris from the structure of the house had fallen on top of the fuselage and they had become intertwined. The severity of the post crash fire precluded any determination of fire damage and patterns that could be identified as being a result of an in flight fire. The tail section of the aircraft was found leaning up against the adjacent two level home and it was also within the area of the post crash fire. There were no fire patterns or any other evidence of an in flight fire on the tail section. A close examination of the parts found in the post crash fire zone did not turn up any evidence of broom strawing of aluminum components which would indicate that the parts were severely heated before being shocked by the impact forces. The majority of the aircraft's wiring and electrical systems were found with the fuselage inside of the single level home. The insulation on the wiring was missing and the conductors themselves were covered in soot and had become brittle. The wiring was examined for evidence of electrical failures in the form of pitting and beading, which would result from electrical arcing. The wiring did not show any signs of such failures with the exception of a few small sections of stranded wire and a bundle of stranded wires, which terminated at a female connector plug on one end and was severed on the other. The single wires and wire bundle were retained for close examination at the Safety Board's material's laboratory. The results of those examinations can be found in a separate laboratory factual report. The aircraft's combustion heater was also found inside the single level home with the rest of the fuselage. The combustion heater was severely damaged by the post crash fire and could not be established as a source of ignition.

Medical Examiner's Report

The medical examiner's report concluded that neither the pilot nor the copilot had been exposed to any significant level of carbon monoxide, based on the lack of carboxyl hemoglobin in their organs. In addition there was no soot found in their tracheas.

Items Retained for Laboratory Examination

During the on scene investigation certain items were collected for further examination at the Safety Board's material's laboratory. These items were:

1. Wire bundle with a female plug connector
2. Single strands of wire
3. ID tag from the combustion heater
4. A portion of the circuit breaker panel
5. A portion of the electrical systems switch panel
6. A part of the DE-ICE system from the right hand engine nacelle
7. A GPS antenna and mounting bracket
8. A terminal block
9. A portion of the radar antenna assembly

A report describing the observations made from the examinations of these parts is contained in a separate material's laboratory factual report (07-116).

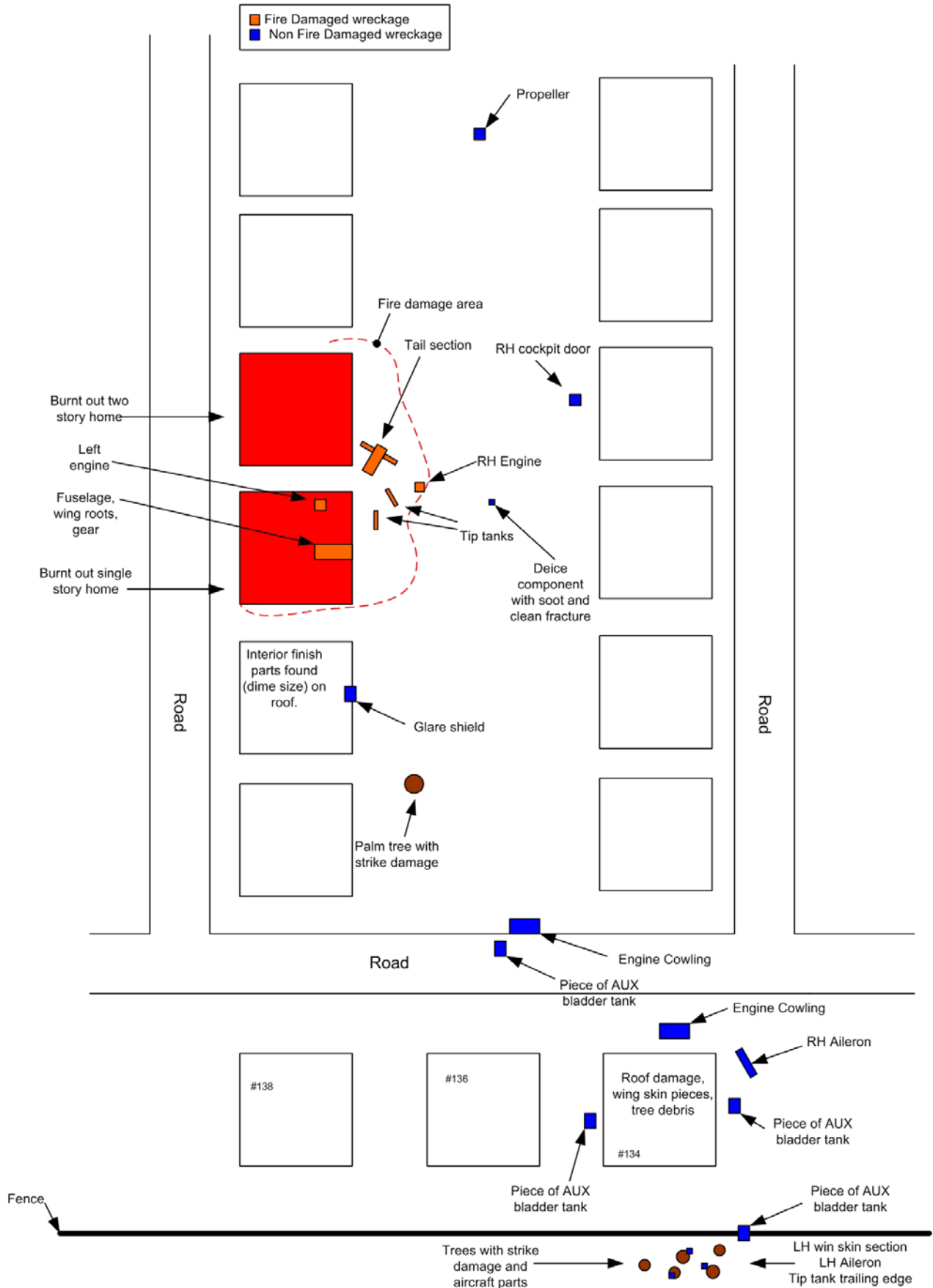


Figure 1: Accident site plan. (Not to scale)



Figure 2: Final impact location of accident aircraft.

AIRCRAFT: N561N		DATE: 07-09-07	-ACTT	
			-ACTL	
MAINTENANCE WRITE-UP		MAINTENANCE CLEARING ACTION		
Entered By: ACT	Location: DAB	<input type="checkbox"/> Repaired	<input type="checkbox"/> Replaced	
		<input type="checkbox"/> Released- Could Not Duplicate	<input type="checkbox"/> Loaner Installed	
RADAR WENT BLANK DURING CRUISE FLIGHT. RECYCLED - NO RESPONSE... SMELL OF ELECTRICAL COMPONENTS BURNING TURNED OFF UNIT - PULLED RADAR C.B. - SMELL WENT AWAY. - RADAR INOP		Corrective Action:		

Figure 3: Page from discrepancy logbook found on scene.