CEN15FA331

Wilmot, Arkansas

August 1, 2015

Air Tractor 602

N6007N

NTSB ON-SCENE FIELD NOTES

August 4, 2015

PARTICIPANTS IN THE ON-SCENE EXAMINATION

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AIRFRAME AND ENGINE INFORMATION

Examination of the airplane was conducted at the accident site on August 2-3, 2015 and at Dawson Aircraft Inc. facilities in Clinton, Arkansas on August 4-5, 2015.

Airframe Manufacturer:	Air Tractor
Airframe Model Number:	AT-602
Airframe Serial Number:	602-1192
Engine Manufacturer:	Pratt and Whitney Canada
Engine Model Number:	PT6A-60AG
Engine Serial Number:	RG0168
Propeller Manufacturer:	Hartzell Propeller Inc.
Propeller Model:	HC-B5MP-3C/M10876ANS
Propeller Serial Number:	EVA3070

INITIAL EXAMINATION AS RECEIVED

On August 1, 2015, about 0700 central daylight time, an Air Tractor AT-602 airplane, N6007N, sustained substantial damage when in impacted the ground under unknown circumstances in Wilmot, Arkansas. The commercial rated pilot was fatally injured. The airplane was registered to Baylee Company and operated under the provisions of 14 Code of Federal Regulations Part 137 as an agricultural flight. Visual meteorological conditions prevailed for the flight and no flight plan had been filed. The flight originated at Lake Village Municipal Airport (M32), Lake Village, Arkansas.

Wreckage/Impact

Aircraft heading = ~060°

Altitude= 110 feet

Wreckage = N33° 04" 56', W091° 27" 39'

The aircraft came to rest inverted, at a near vertical attitude in a remote corn field. The corn height was approximately 7-8 feet tall. Ground scars consisted of a single impact crater at the nose of the aircraft where the propeller remained imbedded in the dirt. There was no discernable debris trail.

The nose section forward of the fire wall, including the engine, propeller and main landing gear had separated from the airplane. The remainder of the fuselage was intact. The right and left wings exhibited leading edge crushing in the downward direction. The left horizontal stabilizer had folded forward. The wings were oriented in a north-south line.

The airplane was located 2.6 miles northwest of the grass landing strip intended to be used for refilling agricultural spray.

Airframe and Flight Control Continuity

All major components of the aircraft were accounted for and the post-impact fire was confined to a small area around the engine. There was no evidence of agricultural chemicals on board. The fuel caps were properly installed on both wing fuel tanks and there was a noticeable smell of fuel present at the scene. The aircraft doors had been removed.

The aircraft was manufactured at the Air Tractor factory in 2010. The Hobbs meter showed a reading of 2,669.9 hours.

The 5-point seat belt restraint had been cut at the left lap belt and below the seatbelt airbags on both shoulder harness straps by first responders. The 5-point restraint remained latched in the wreckage. According to the deputy coroner, the pilot was secure in the 5-point restraint when he arrived on scene. The aircraft was equipped with AmSafe Inflatable Restraints. All three airbags had deployed.

The aircraft was equipped with a Hemisphere Intellistar agricultural GPS system. The GPS datacard was removed from the unit at the scene and provided to the NTSB IIC for later data retrieval.

Fuselage:

The master switch was found in the ON position. The Generator switch was found in the ON position.

The engine controls were found with the power lever in the full forward position and the propeller and start control levers were found in the full aft positions. It is important to note that these positions are not a reliable indicator of pre-impact control positions due to the stretching and damage to the powerplant controls during the impact.

The fuel valve handle was found detached from the fuel valve. The fuel valve was visually confirmed to be in the Open or ON position. The firewall fuel filter was recovered and there was fuel remaining in the attached fuel lines.

The fuselage forward of the cockpit was destroyed due to impact forces. The fuselage aft of (and including) the cockpit was largely intact.

The main and tail landing gear remained properly attached to the fuselage frame and were undamaged.

Wings:

The wings were found with the center section intact. The wings remained attached to the fuselage but were displaced slightly aft.

The ailerons and flaps remained intact and installed on the wings.

Both wings received symmetric crush damage to the leading edges. The leading edges were deformed aft and downward. There was some aft displacement of the main spar in the left wing in the fuel tank area.

Flight Controls:

The elevator controls were intact and continuous from the control stick through the aft-most pushrod. The aft 4 inches of this pushrod was damaged and bent at a 90 degree angle with the rod end bearing fractured at the outer race. The inner race remained installed on the elevator horns with the bolt installed. The right-hand elevator horn remained intact and the left-hand elevator horn was fractured around the torque-tube circumference and separated.

The right-hand rudder controls were found to be continuous and properly installed. The left-hand rudder cable was found properly routed and installed at both ends. This left-hand rudder cable was separated at the interior fairlead. The separated ends of the cable showed evidence of tensile overload.

The rudder and elevator trim controls remained continuous and operable.

The aileron controls were confirmed to be continuous from the control stick to both ailerons. The aileron drooping system was found to have all pushrods and bell cranks properly installed, although damaged. The two drooping system idlers were found with all pushrods properly installed. Both idler pivot bolts were found to be fractured with both ends of the bolt remaining in place.

The flap system was found with the actuator extended to 3-7/8" position. This position corresponds to a flap deflection of 28° or approximately full flaps. The flap actuator shaft was found fractured due to fuselage deformation at a position 1/4" outside of the ball screw shaft. The actuator shaft could not be turned by hand, indicating that the worm drive gearbox remained intact.

The flap torque tube was intact. The left-hand flap arm was intact on the flap torque tube with the tip of the arm bent and deformed due to a twisting motion. The flap arm bearing remained installed on the flap pushrod, which was, in turn, installed on the flap. The right-hand flap horn and pushrod were separated from the flap and remained attached to the flap arm. The upper flap arm bolt remained installed but was pulled free from the flap torque tube. The lower bolt was intact.

The aileron/rudder interconnect system had been removed from the aircraft. The elevator downspring system had been removed from the aircraft.

Engine Documentation

The engine was a Pratt & Whitney Canada PT6A-60AG model, serial number PCE- RG0168 (Ref. Photo No. 1).

Photo No. 1

The propeller assembly had separated from the engine at the propeller shaft flange (Ref. Photo No. 2). The accessory gearbox and inlet case had separated from the gas generator case during impact with the terrain (Ref. Photo No. 3). Most of the propeller governor had separated from its respective mounting pad on the front reduction gearbox housing. The fuel pump, fuel control, fuel/oil heater, and the external scavenge oil pumps were separated from their respective mounting positions on the accessory gearbox housing.

Photo No. 2

Photo No. 3

The exhaust duct displayed compressional bending due to contact/impact with the terrain (Ref. Photo No. 4). The exhaust stacks were bent and distorted. The gas generator case displayed bending and distortion on the lower right hand side (Ref. Photo No. 5).

Photo No. 4

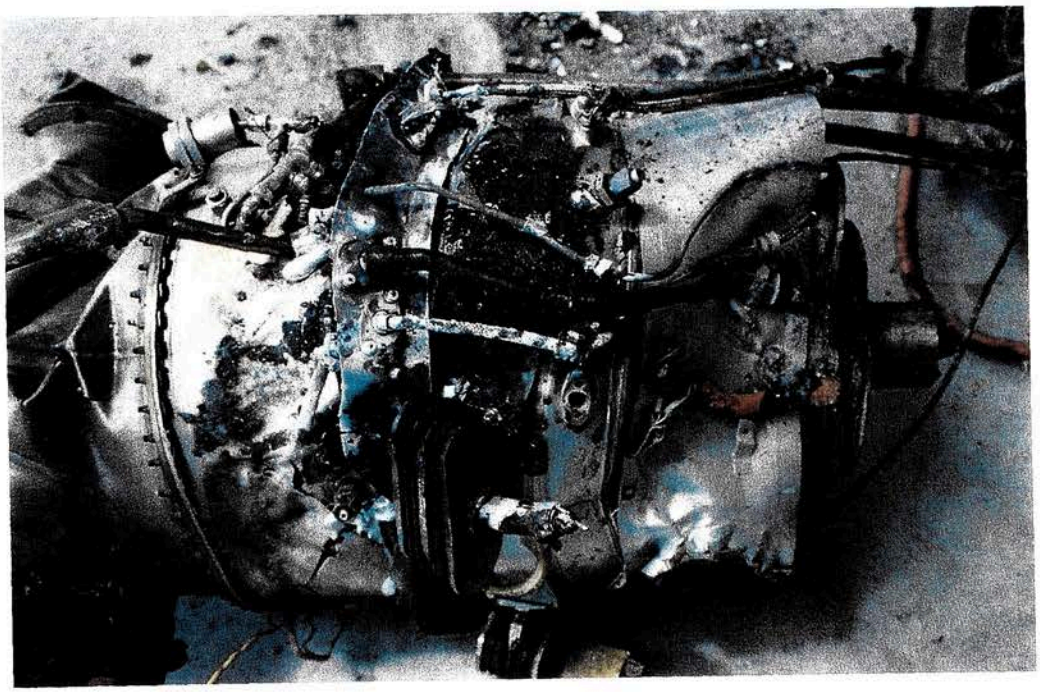

Photo No. 5

The engine was separated adjacent to the "C" flange to expose the hot section components. The downstream and upstream faces of the compressor turbine disc and blades exhibited rotational scoring from contact with its respective adjacent static components (Ref. Photo No. 6 & 7). The 1st stage power turbine vane and baffle exhibited rubs on both sides from contact with the power turbine and compressor turbine discs and blades. The 1st stage power turbine disc and blades exhibited rotational scoring on the upstream face (Ref. Photo No. 8). The 1st stage power turbine blades were all displaced forward in the disc (Ref. Photo No. 8).

Photo No. 6 (downstream side)

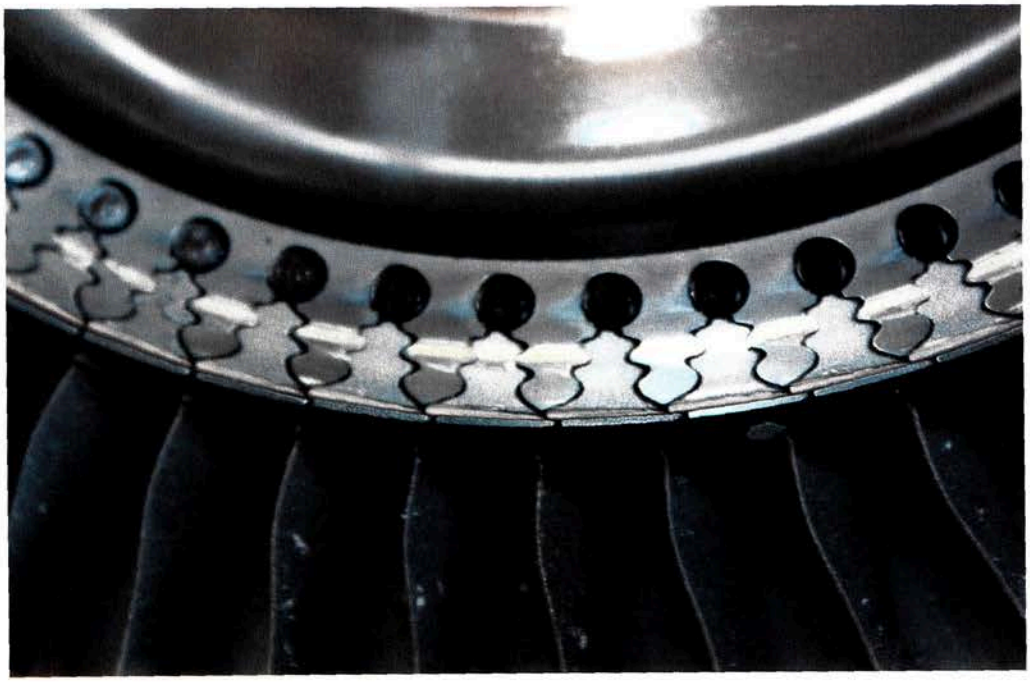

Photo No. 7 (upstream side)

Photo No. 8

The 1st stage compressor blades were all bent opposite of the direction of rotation. (Ref. Photo No. 9).

Photo No. 9

The oil filter was removed and no visible contamination was noted. The reduction gearbox magnetic chip detector poles were clean. The engine fuel filter was removed and no visible contamination was noted. Some residual fuel drained from the fuel pump after the filter was removed.

The bending of the compressor blades opposite the direction of rotation and the rotational scoring on the compressor turbine disc/blades, and the rotational scoring on the 1st stage power turbine disc/blades indicates that the engine was producing power at impact. The power range that the engine was operating at during impact could not be determined.

The engine examination did not reveal any evidence of any pre-impact mechanical anomalies that would have precluded normal operation. A final report of the engine examination will be provided by the Pratt & Whitney Canada.

Propeller Documentation

The propeller fractured off the engine mounting flange during impact. The propeller was relocated from the crash scene to Dawson's in the condition shown in Photos 10 and 11. The spinner dome was deformed around the hub, counterweights and blade clamps giving some blade angle information.

Photo No. 10

Photo No. 11

The spinner fragments, remaining blades, clamps and propeller piston were removed to examine the propeller. The blades 1 and 5 fractured the pilot tube and separated from the blade clamps and hub. Blade 2 fractured the pilot tube but was retained by the blade clamp. Blades 1, 2, and 5 showed blade butt impact marks indicating impact forces in the lead-to-trail direction (see Photo No. 12). Blades 3 and 4 remained attached to the hub and did not display any blade butt impact marks.

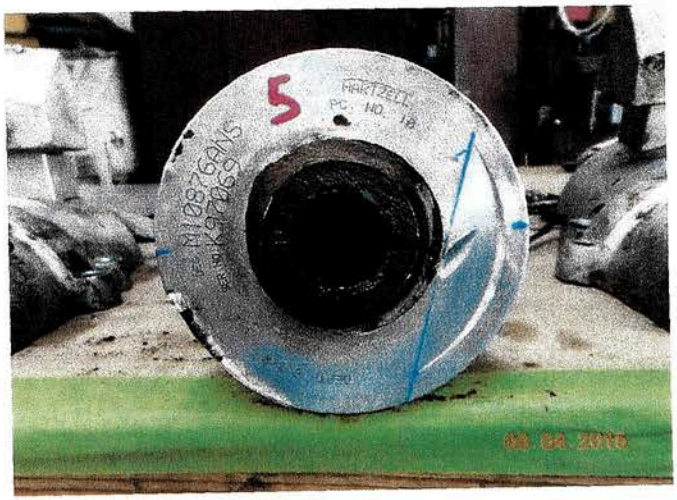

Photo No. 12

The piston showed internal impact marks providing some blade angle information (see Photo No. 13)

Photo No. 13

The cylinder, feathering spring assembly were intact with no apparent damage (Photo No. 14).

Photo No. 14

Blades 1 and 5 displayed bending in the forward direction. Blades 2 and 3 showed bending in the aft direction. Blade 4 did not have visually noticeable bending or twisting (Photo No. 15)

Photo No. 15

Blade angle impact marks indicated the propeller was operating in the normal blade angle range at impact. There were no discrepancies noted that would prevent or degrade normal propeller operation prior to impact. All damage was consistent with high impact forces.

Flight Crew

The pilot was a 38-year old male. He was issued a Second Class Medical Certificate on January 23, 2015. Limitations to his medical certificate stated the pilot must wear corrective lenses. The pilot was 69 inches in height and weighed 195 pounds. The pilot did not report flight experience on the latest medical. On the prior medical exam conducted on July 1, 2014, the pilot reported flight experience as 13,600 total hours with 300 hours in the previous six months.

Weather

The 0653 recorded weather observation at Greenville Mid-Delta Airport (KGLH), included winds from 360 degrees at 5 knots, visibility 10 miles, temperature 21 degrees C, dew point 19 degrees C; barometric altimeter 30.02 inches of mercury. GLH is located 38.9 miles northeast of the accident site.