

ACCIDENT

Aircraft Type and Registration:	Aero AT-3, G-UKAT	
No & Type of Engines:	1 Rotax 912 ULS piston engine	
Year of Manufacture:	2005	
Date & Time (UTC):	9 May 2010 at 1324 hrs	
Location:	North Weald Airfield, Essex	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - 1 (Serious)	Passengers - N/A
Nature of Damage:	Landing gear and wings damaged on impact; aircraft destroyed by post-crash fire	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	46 years	
Commander's Flying Experience:	464 hours (of which 258 were on type) Last 90 days - 19 hours Last 28 days - 6 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot, wreckage examination by AAIB and weather aftercast by the Met Office	

Synopsis

On short finals at North Weald, the pilot initiated a go-around, increasing the throttle setting to full power and raising the flaps to 15°. During the climbout the aircraft entered a turn to the left and headed off the runway centre line by around 45°. The pilot was unable to level the wings and stop the turn to the left. As the aircraft approached tall trees the pilot made a very tight left turn and the stall warning begun to sound at approximately 70 ft agl. The pilot put the aircraft nose down and pulled the throttle to idle, to reduce the turn motion to the left, preventing the crash from being onto parked aircraft.

History of the flight

The pilot was returning to North Weald after a short local flight, where he had climbed to 2,800 to 3,000 ft near Chelmsford and spent about 15 minutes practising a series of turns and other general handling manoeuvres.

He descended in stages, due to the Stansted airspace restrictions, called North Weald Radio Air/Ground (A/G) for joining information at North Weald and joined the aerodrome circuit on the downwind leg for a landing on Runway 13, "13 left hand", flying a wide circuit to avoid overflying the car racing event taking place on Runway 02/20. The pilot reports that at about three-quarters of the way along the downwind leg, at

a height of 800 ft agl, he slowed the aircraft to 75 kt, lowered the flaps to 15° and then trimmed the aircraft for 70 kt. The pilot made the base leg a continuous manoeuvre to the left, descending from 800 to 550 ft and called “Golf Alpha Tango finals 13” to A/G, who acknowledged and advised that the wind was still northerly at 8 kt. Due to the northerly wind over the nearby trees and buildings the pilot expected a bumpy approach and decided that if the landing approach “was not perfect” he would initiate a go-around.

At approximately 400 ft the pilot lowered the flaps from 15° to the maximum setting of 40°, trimmed the aircraft for 60 kt and removed the carburettor heat. He carried out the approach with the left wing slightly low, due to the crosswind, and felt that the approach was good. However, on final approach, at a height of approximately 20 ft and a speed of 55 kt, the aircraft was affected by strong turbulence and the pilot detected the onset of a high rate of sink. He applied some power and maintained the runway centre line at a height of approximately 10 ft and then decided to initiate a go-around.

In the go-around the pilot applied full power and raised the flaps from 40° to 15° for the climbout and, with no passenger onboard, the pilot considered the engine was giving a decent rate of climb. At this point the pilot glanced down at the instruments for what he considered was a very short period but, looking up, was amazed to find the aircraft was in a turn to the left, heading off the runway centre line by around 45° towards buildings and maintenance hangars.

With the aircraft still climbing, the pilot felt that he could hold the heading and continue to climb. However, he found he was not able to level the wings and stop the turn to the left, as application of right aileron and rudder appeared to be ineffective - even with full power,

the pilot felt that he should have been able to turn the aircraft to the right with the application of both rudder and aileron. The aircraft climbed over a line of parked aircraft, still turning to the left. At this point, the pilot believes he was at approximately 100 ft and was still unable to level the wings. He was concerned that the aircraft would not be able to clear the tall trees, behind a large hangar, which he was very rapidly approaching. He made the decision to make a very tight left turn to avoid hitting the trees, making sure that the aircraft cleared the hangar. He realised that by making such a steep turn the aircraft might stall, but at that point he considered that he had no other option available to avoid the trees.

At this point the aircraft was heading in a westerly direction, still turning left and losing airspeed. The stall warning was now sounding and to avoid crashing into parked aircraft the pilot put the aircraft nose down and pulled the throttle to idle, calculating that this action would help reduce the turn motion to the left, putting the inevitable crash onto the grass between the perimeter track and the runway, rather than on top of the parked aircraft. At this point, the pilot realised that he had little control of the aircraft as it was in a stalled condition with a nose down attitude and with the left wing still very low.

As the aircraft hit the ground the pilot saw the rear of a car directly in front of him and watched the propeller and front cowling breaking up on impact with the vehicle. He recalled that the side of his head hit hard on part of the airframe, causing a loss of vision in that eye. From his right eye the pilot could see smoke rising from the top of the cowling; he tried to turn the master and ignition switches off, but noticed that the key and instrument panel were distorted. Hearing someone shouting urgently for him to get out, he unclipped the seat belt. The pilot was unable to climb out of the aircraft due to a broken left

leg, but was dragged out by the driver and passenger of the vehicle the aircraft had struck. He was able to talk to the various workers and other pilots who came to his assistance.

The pilot was then taken by ambulance to the Princess Alexandra Hospital in Harlow, Essex.

Wreckage examination

Following the removal and transportation to a secure storage facility, the AAIB carried out an examination of the wreckage, finding no evidence of a pre-impact structural failure or disconnect or restriction of the flying control system. However, the extent of the impact and fire damage was such that a pre-impact anomaly could not be entirely excluded.

Weather aftercast

Following the accident, the Met Office estimated that for North Weald at the time of the accident, the surface wind would have been about 040°, steady at 8 to 12 kt.

Discussion

Since the accident the pilot had time to think about the event and, on reflection, considered that having applied full power at the initiation of the go-around he should not have looked down at the instruments, and instead concentrated on keeping the aircraft flying straight, knowing the prevailing turbulent conditions and having just experienced a downdraft. He further considered that he should also have opened the throttle more slowly, to accommodate the distinct leftward torque effect from this engine.

However, the pilot was still surprised that he could not stop turning to the left in the climb, even with the application of right aileron and rudder, given that the stall warning did not start until after he made the final steep turn to the left, to avoid the high trees. He considered that there might have been a subtle mechanical cause for this difficulty in stopping the continuing turn to the left.