

## **BGA ACCIDENT INVESTIGATION REPORT INTO THE ACCIDENT INVOLVING LYCOMING-CHIPMUNK G-BBNA AT HUSBANDS BOSWORTH 2 APRIL 2023**

### **Circumstances**

The aircraft had completed its 6<sup>th</sup> aerotow of the day and was recovering to land on the former taxiway parallel to grass runway 09. The surface wind was estimated to be 040/5-10 kts. All the previous 5 landings had been unremarkable, and the aircraft had remained straight on the asphalt surface and slowed normally. Shortly after a normal 3 point landing the aircraft veered to the left and departed from the former taxiway. The pilot initially applied rudder to correct the swing and when he felt that this has insufficient effect applied a large amount of power. This action reduced the angle of departure from the landing strip but sensing that he was close to a substantial hedge the pilot returned the throttle to idle. Shortly afterwards the left wingtip contacted the hedge violently turning the aircraft into the hedge and stopping it against a large tree embedded therein. The pilot was able to exit the wreckage unassisted and received minor injuries namely a small cut and bruising to his left hand.

The aircraft was damaged beyond economic repair in the accident.

### **Investigation**

The emergency services responded commendably quickly, and the site was made safe. The aircraft was then cordoned at the accident site and the formal investigation commenced the following morning.

The aircraft was resting on the hedge and the tree branches and was thus 12 inches off the ground on the left side and two feet on the right. The cockpit was accessed normally in-situ and the position on the major controls verified. The throttle was fully open, mixture fully rich, carburettor heat extended 1 centimetre, flaps down, brake lever fully forward, fuel-cock off.

Despite the ground having been disturbed by the rescue efforts and making the site safe there was a clear set of aircraft wheel tracks starting at the initial excursion from the landing strip. The wheel marks extended some 30 metres onto the grass and then demonstrated a small correction towards the strip. At this point, the tracks disappear to reappear some 40 metres later, the tracks then converge with the hedge. There was some damage to the hedge shortly before the final resting place of the aircraft which was clearly the point where the aircraft made first contact and thus rapidly yawed left into the tree.

Access to the left undercarriage was achieved but removing the vegetation around the left main wheel. It was impossible to gain access to the right main wheel until the aircraft had been extricated from the hedge however any fault in this assembly would have caused the aircraft to veer to the right so was considered not relevant to finding the cause of the accident. The left main wheel was free to rotate and there was no evidence of any malfunction of the braking system. The flexible brake-line was intact and leak free. There was no evidence of the sticky residue of old brake fluid anywhere including around the calliper.

The brake system was tested throughout its full range including deflecting the rudder with partial application of the brake lever to test the differential brake function. The system performed normally in all respects.

The recovery company were then cleared to crane the aircraft back onto the ground by lifting it using the engine frame and a strop under the rear fuselage. This was simply achieved and once back on the ground the foliage interfering with the right main wheel was cleared.

The brake hose on the right-wheel were in good condition and leak free. The right main wheel was free to rotate, and the aircraft ran straight and true when pushed forwards and backwards. The tail wheel castored normally.

The aircraft was then towed to the hangar without incident fully de-fuelled and placed on jacks. There was no evidence of any fault with the undercarriage or brake system additionally there was no evidence of fluid leak on either side. The brakes were tested on both main wheels throughout the full range including the differential function and the system performed very well and in accordance with expectation.

### **Meteorology**

It was a fine bright spring day with a light crosswind from approximately 40 degrees left of the nose. Wind strength was estimated to be around 5-10 Kts which would give a crosswind component of 6 knots or less. The recommended maximum crosswind component for the chipmunk is 15 knots. However, a very experienced club pilot stated that on occasion a curl-over effect had been experienced using this landing strip due to the proximity of the hedge. On the day in question no other pilot reported a problem with aircraft control on or near the ground.

### **Discussion**

Several people had witnessed the accident and there was good correlation between their reports. Their statements corresponded with the pilot's report of events. The position of the controls in the cockpit were also as expected except that the throttle was in the open position and a small amount of carburettor heat appeared to be present. Other tug pilots were questioned. The apparent selection of carburettor heat was dismissed as they all stated that the position of the carburettor heat selector was in fact in the resting position of the control ergo carburettor heat was in the normal cold position.

The position of the throttle was contrary to both the witness statements and the pilots report however it is easily explained by the damage to the pilot's hand which would have rapidly moved forward under inertia on impact. There would have been no associated change in engine note and this correlates with the reports.

As no fault could be identified with the undercarriage or brake system it is difficult to explain the excursion from the landing strip. A transient crosswind associated with a passing thermal or curl over is a possibility however the light wind makes it less likely that a phenomenon powerful enough to cause such a dramatic change of direction could be produced. Once the aircraft was tracking to the left the application of full power would have given the rudder greater authority hence the small correction, but this power increase caused the aircraft to leave the ground again. Still converging with the hedge, the pilot believed that the safest course of action was to close the throttle and then the subsequent contact with the hedge precipitated the final ground loop into the tree.

## **Conclusion**

It was not possible to identify any fault in the undercarriage or brake system to explain the excursion from the landing strip. The aircraft was being operated in accordance with all extant rules and recommended practices.

Whilst a transient effect from the crosswind remains a remote possibility the outcome of this investigation remains inconclusive.

## **Recommendation**

Nil.

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