

**ACCIDENT**

<b>Aircraft Type and Registration:</b>	PZL-104 Wilga 35A, G-BWDF	
<b>No &amp; type of Engines:</b>	1 PZL Kalisz AI-14RA piston engine	
<b>Year of Manufacture:</b>	1995	
<b>Date &amp; Time (UTC):</b>	6 August 2006 at 1600 hrs	
<b>Location:</b>	Dunsfold Aerodrome, Surrey	
<b>Type of Flight:</b>	Aerial Work	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Starboard forward link brace parted. Pitot tube assembly damaged and missing	
<b>Commander's Licence:</b>	Commercial Pilot's Licence	
<b>Commander's Age:</b>	41 years	
<b>Commander's Flying Experience:</b>	585 hours (of which 48 were on type) Last 90 days - 57 hours Last 28 days - 29 hours	
<b>Information Source:</b>	AAIB Field Investigation	

**Synopsis**

The aircraft had completed a banner towing operation and was returning to land. The banner was dropped uneventfully but as the aircraft climbed and turned left to enter the circuit the pilot heard a thump and felt the aircraft 'stagger' in the air. Control response was normal; the pilot made an abbreviated circuit and a normal landing. After landing an inspection showed the pitot tube had detached and the right front wing spar had broken.

**History of the flight**

The aircraft was being operated on a banner towing flight. The pilot prepared the banner and carried out a pre-flight inspection of the aircraft, which included removing the

pitot cover. He took off, carried out a short circuit and picked up the banner. The flight was uneventful until he returned to the airfield. He dropped the banner and then made a climbing turn to the left with full power applied. As he did so he heard a thump and felt the aircraft 'stagger' in the air. The aircraft recovered and he realised he still had normal control so he completed a shortened circuit and landed. After landing, he taxied to the fuel bowser and then shut the aircraft down. The aircraft was refuelled and then he towed it back into the hangar. When it was in the hangar he noticed that the pitot tube was missing and on further inspection saw that there was also damage at the right wing root.

Witnesses on the ground saw the aircraft 'lurch' and then recover whilst in a climbing turn to the left. Several of them were sufficiently concerned that they approached the pilot subsequently to ask what had happened.

### **Damage to the aircraft**

The pitot tube is mounted at the outboard end of the right wing. The loss of the pitot tube would have affected the indicated airspeed, although it was possible that there was still a reading. The pilot could not recollect exactly when he had last checked the airspeed indicator during the flight but he commented that during banner towing operations it is necessary to closely monitor the airspeed and was therefore certain that it was functioning throughout the towing operation.

The missing pitot tube was not found. There was no physical evidence on the wing either of a bird strike or of an impact with another object while the aircraft was in the air. The pitot tube had failed as a result of an overload with an upward and slightly inboard component. The load applied to the pitot tube had caused the resultant failure of the front wing spar in overload. The rear lower mainplane spar appeared to be undamaged.

### **Conclusion**

It is difficult to readily identify an event, or sequence of events, that can explain the damage to the right wing. Possible causes include: an impact in the air with a model aircraft or a bird, structural fatigue or failure, or an impact on the ground during ground handling. There is no clear evidence to support any of these possibilities.