

## Auster J4/100, G-AIJT, 14 October 1999 at 1345 hrs

<b>AAIB Bulletin No:</b>	<b>8/2000</b>	<b>Ref:</b>	<b>EW/G99/10/17</b>	<b>Category:</b>	<b>1.3</b>
<b>Aircraft Type and Registration:</b>	Auster J4/100, G-AIJT				
<b>No &amp; Type of Engines:</b>	1 Continental O-200-A piston engine				
<b>Year of Manufacture:</b>	1946				
<b>Date &amp; Time (UTC):</b>	14 October 1999 at 1345 hrs				
<b>Location:</b>	Whiterashes Airfield, Aberdeen				
<b>Type of Flight:</b>	Private				
<b>Persons on Board:</b>	Crew - 1 - Passengers - 1				
<b>Injuries:</b>	Crew - None - Passengers - None				
<b>Nature of Damage:</b>	Tailwheel leaf spring failed				
<b>Commander's Licence:</b>	Commercial Pilot's Licence				
<b>Commander's Age:</b>	30 years				
<b>Commander's Flying Experience:</b>	960 hours (of which 270 were on type)				
	Last 90 days - 181 hours				
	Last 28 days - 72 hours				
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot				

During a normal 3-point landing on grass Runway 27 at Whiterashes Airfield, the tailwheel leaf spring failed allowing the tailwheel to separate. However, the fractured spring acted as an effective tailskid, keeping the rear fuselage clear of the ground, and control of the aircraft was not materially affected. As the outer section of spring and tailwheel had separated from the aircraft, it had moved upward into the bottom edge of the rudder and caused local deformation.

The pilot reported that the leaf spring had fractured near its lower end, close to the point of attachment of the castering tailwheel unit. Inspection of the fracture revealed two lobes of clean metal on the fracture surface, whilst the rest of the surface was slightly discoloured with oxidation. Photographs provided by the pilot identified the region of failure as being through the third and final section of the three-leaf spring, coincident with the point where the second leaf terminated and the third leaf extended downward to the point where the tailwheel attached.

Both the character of the fracture described by the pilot and its location adjacent to, or just beneath, the end of the adjoining leaf were considered features typical of a leaf spring which had suffered

fatigue cracking in service. Such cracks in leaf springs are difficult to detect when carrying out a general visual inspection, not only because they are usually very 'tight' cracks but also because of their close proximity to the end of the adjoining spring leaf; often the crack is just out of sight beneath the end of the adjoining leaf. The inherently dirty environment in which the spring operates is an additional factor which makes crack detection difficult. In addition, because of the relatively brittle and notch-sensitive nature of spring steel, final overload fracture of the remaining spring section often occurs before such a fatigue crack has extended to any significant depth.