

## ACCIDENT

<b>Aircraft Type and Registration:</b>	Morane Saulnier Rallye 180T Galerien, G-BTOW	
<b>No &amp; Type of Engines:</b>	1 Lycoming O-360-A3A piston engine	
<b>Year of Manufacture:</b>	1982	
<b>Date &amp; Time (UTC):</b>	28 June 2008 at 1210 hrs	
<b>Location:</b>	Gransden Lodge Airfield, Cambridgeshire	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Propeller, nosewheel, exhaust damaged	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	54 years	
<b>Commander's Flying Experience:</b>	326 hours (of which 70 were on type) Last 90 days - 4 hours Last 28 days - 1 hour	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB	

## Synopsis

Towards the end of G-BTOW's landing run, its nose gear collapsed, the propeller hit the ground and the nose leg folded back under the fuselage. The fitting at the top end of the nose landing gear oleo had failed leaving the nose gear free to rotate backwards. The failure was caused by the growth of fatigue cracks weakening the fitting's attachment lugs which failed on this flight due to overload.

## History of the flight

G-BTOW landed after its ninth glider tow of the day, with the accident flight and first part of the landing ground run reported as "normal" by the pilot. Towards the end of the landing run and at a low taxiing speed,

the nose gear collapsed. The propeller hit the ground and stopped and the nose gear leg folded back under the fuselage. The aircraft came to a stop resting on the lower part of the engine cowling. The pilot was wearing a full harness and was unhurt. He shut the engine down and vacated the aircraft using the normal exit.

## Determination of the cause

The fitting at the top end of the nose landing gear oleo had failed and was found on the grass about 10 ft away from the aircraft. The failure left the nose gear free to rotate backwards. Examination of the fitting showed that both the attachment lugs had failed in almost

identical positions across their 7 mm thick sections. Each fracture appeared to have a pre-existing crack extending from the bore. Both fractures were caused by the growth of fatigue cracks from multiple origins within the bore of the attachment lugs. The fatigue growth extended into the lug to depths of 3 mm and 1.5 mm respectively before final failure occurred due to overload.

The operator reported that the aircraft had flown approximately 150 hours per year since 1992 with a landing rate of about five per hour. This suggested that the aircraft had made over 11,000 landings at the time of the accident. The mode of operation of the aircraft and the benign conditions reported at the time of failure, were consistent with fatigue being the underlying cause of the accident.