

## ACCIDENT

<b>Aircraft Type and Registration:</b>	Czech Sport Aircraft SportCruiser, G-EMSA	
<b>No &amp; Type of Engines:</b>	1 Rotax 912ULS piston engine	
<b>Year of Manufacture:</b>	2010 (Serial no: 09SC323)	
<b>Date &amp; Time (UTC):</b>	30 August 2014 at 1245 hrs	
<b>Location:</b>	Near Saffron Walden, Essex	
<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>	Damage to propeller, engine cowling and exhaust, noseleg and landing light	
<b>Commander's Licence:</b>	Commercial Pilot's Licence	
<b>Commander's Age:</b>	60 years	
<b>Commander's Flying Experience:</b>	2,065 hours (of which 2,057 were on type) Last 90 days - 180 hours Last 28 days - 60 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and technical information published by the aircraft manufacturer	

## Synopsis

Following a normal approach and touchdown at a private grass airstrip, the nose landing gear failed. The nosewheel detached and the aircraft came to a rest within a short distance. Examination of the failed components showed what appeared to be a fatigue failure in the nose landing gear leg.

## History of the flight

The aircraft was landing at a private airstrip when the accident occurred. The airstrip, where the aircraft was based, was of short grass and was dry. The weather was fine, with an 11 kt crosswind. The pilot flew a normal approach and touched down at about 35 kt. After touchdown, the aircraft pitched nose-down and came to an abrupt stop in a distance later measured at 8.5 m. One propeller blade broke and the engine stopped. The pilot, who was uninjured, turned off the switches and vacated the aircraft. It was found that the nosewheel had detached and was lying on the ground behind the aircraft.

The pilot explained that the nosewheel assembly had detached following a failure in the nose leg. The failure occurred in a vertical spindle at the forward, lower end of the leg, which entered an upper bushing on the nosewheel bracket. The pilot attributed the failure of the vertical spindle to fatigue, and noted that no corrosion was visible on the leg. A photograph of the failed component is shown at Figure 1.

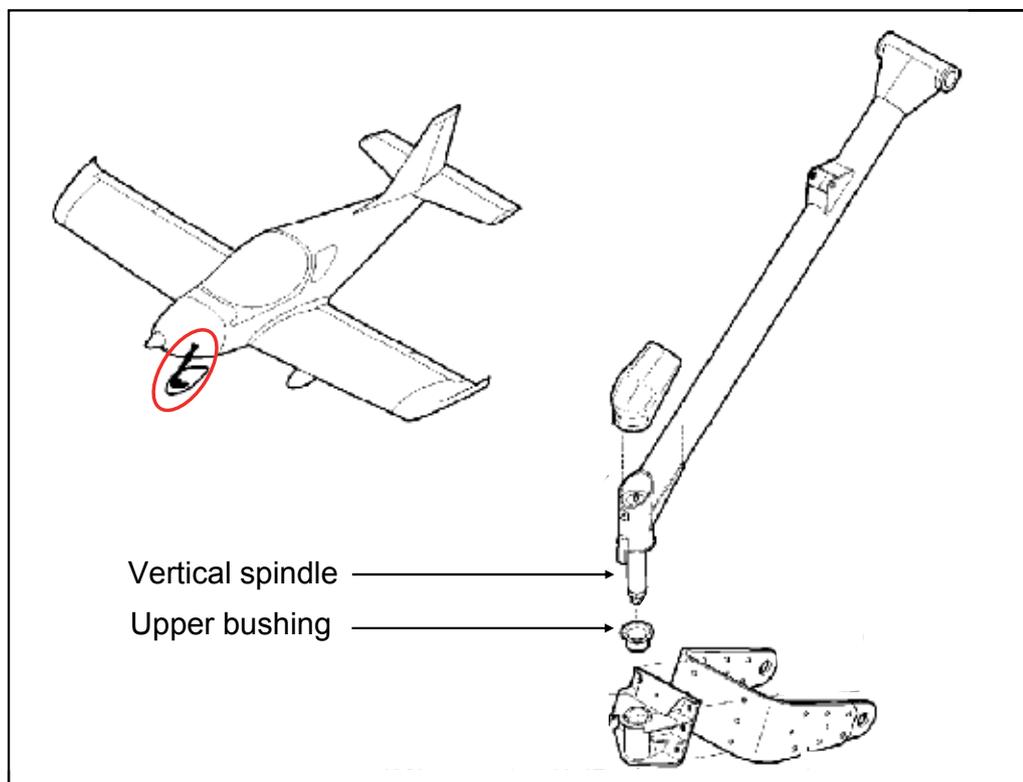


**Figure 1**

Photograph of the failed vertical spindle, taken from above

#### **Manufacturer's technical information**

Figure 2 shows the general arrangement of the nose landing gear (NLG), being a simplified version of a diagram included in the manufacturer's illustrated parts catalogue. The vertical spindle and upper bushing, referred to by the pilot, are identified.



**Figure 2**

Nose landing gear assembly (simplified, nosewheel omitted)

On 9 October 2013, the aircraft manufacturer issued service bulletin (SB) SB-CR-016 (Revision 1 to the SB was issued 26 June 2014), which called for an inspection and replacement (if required) of the NLG. The SB included the following text:

*'Some SportCruiser / PiperSport / PS-28 Cruiser aircraft have developed cracks in the bottom side of the lower section of the nose landing gear (NLG). The cracks develop on the NLG assembly along the weld of the tube and the bracket. Furthermore, on several aircraft it was found bending of the pivot connecting the fork with leg. To address this potential condition, an inspection of the bottom side of the lower section, in the place of the weld of the tube and the bracket and the pivot is required.'*

The SB went on to identify, with the aid of diagrams, the correct method of inspection. A further SB (SB-CR-021) was issued on 10 July 2014, containing instructions for replacement of the NLG. The SB included the following text:

*'Some PS-28 Cruiser / SportCruiser / PiperSport aircraft have developed cracks in the bottom side of the lower section of the nose landing gear (NLG) SG0270N. To address this potential condition, CSA has issued service bulletin SB-CR-016 that prescribes an inspection of the nose landing gear SG0270N. Subsequently, CSA have developed an improved NLG SG0300N, which has better fatigue resistant properties. For the reasons described above, CSA recommends replacement of the NLGSG0270N with an improved NLG SG0300N especially on aircraft used in intensive flight training activity and operated from unpaved runways.'*

## **G-EMSA**

The pilot confirmed that the inspection required by SB-CR-016 had been carried out and also that the modified NLG referred to in SB-CR-021 had not been fitted. Although the aircraft was routinely operated from a grass airstrip, its surface was smooth and in good condition. The NLG had not been subject to any hard landings or other abnormal loading. The Light Aircraft Association is currently reviewing the design of both the modified and unmodified versions of this type of NLG.