

Sipa 903, G-BBBO

AAIB Bulletin No: 2/98 Ref: EW/C97/9/4 Category: 1.3

Aircraft Type and Registration:	Sipa 903, G-BBBO
No & Type of Engines:	1 Continental C90-12F piston engine
Year of Manufacture:	1951
Date & Time (UTC):	14 September 1997 at 1620 hrs
Location:	Gatts Green Farm, Battle, Sussex
Type of Flight:	Private
Persons on Board:	Crew - 1 - Passengers - 1
Injuries:	Crew - Serious - Passengers - Serious
Nature of Damage:	Broken propeller, engine shock-loaded, canopy frame and transparencies severely damaged, cockpit roll protection frame distorted and right wing tip damaged
Commander's Licence:	Private Pilot's Licence
Commander's Age:	52 years
Commander's Flying Experience:	298 hours (of which 201 were on type) Last 90 days - 12 hours Last 28 days - 3 hours
Information Source:	AAIB Field Investigation

Upon arrival overhead the farm strip the pilot carried out two circuits at 1500 feet agl to show his passenger the landing site and to establish the surface wind conditions. Having decided to land, he commenced a wide right-hand circuit from overhead the strip. Initial flap was selected on base leg and the final approach was flown at 60 kt with full flap selected at about 300 feet agl. The initial touchdown was made gently on the main wheels, however the aircraft's tail then rose rapidly despite corrective elevator input. The aircraft nosed-over and came to rest inverted, injuring and trapping both the pilot and passenger within the cockpit. The property owner, who was present at the landing strip, assisted by lifting the aircraft structure sufficiently to allow their egress.

Initial examination of the aircraft and the landing strip revealed that the left main landing wheel had detached from its axle at the point of initial touchdown and caused the axle to dig into the grass

surface. There was no evidence of the main wheel hubcap or retaining nut. However, over the next few days both items were found in the grass at the departure airfield.

Detailed examination of the retaining nut and the axle revealed that the last 2 1/2 screw threads in the axle had been stripped. There was no evidence that the wheel retaining nut had been engaged on the axle by more than the 2 1/2 threads. Examination of the retaining nut showed that the centre tapered locking device had only been acting on the 2 1/2 threads that were engaged on the axle, compared to 8 or more threads when the retaining nut was correctly fitted. Examination of the wheel and brake assembly revealed very good evidence that the wheel, when last fitted, had not been correctly located onto the brake assembly. The tang on the inside of the wheel body had not been engaged with the key-ways of the brake assembly but had been against the outer face of one of the brake discs. When this occurs the wheel retaining nut will only engage on the axle by about some 2 1/2 threads before it becomes tight. There was also good evidence that, at some time after the wheel had been incorrectly fitted and the retaining nut tightened and locked, the wheel had become correctly located on the brake assembly. However, because the retaining nut was only engaged by 2 1/2 threads the wheel had been free to move approximately 1/4 inch along the axle. During the last take-off, lateral forces were applied to the retaining nut by the wheel that were sufficient to strip the threads on the axle.

The wheel was last fitted by the owner some 18 months prior to the accident.

Safety Recommendation

As a result of these findings the following Safety Recommendation has been made to the Popular Flying Association (PFA):

Safety Recommendation 97-66: It is recommended that the Popular Flying Association should bring the circumstances of this accident to the attention of owners and maintenance personnel associated with SIPA 903 aircraft so that landing gear wheels are refitted correctly.