Reims Cessna F152, G-BGSX

AAIB Bulletin No: 11/99 Ref: EW/C99/02/08 Category: 1.3

Aircraft Type and Registration:	Reims Cessna F152, G-BGSX
No & Type of Engines:	1 Lycoming O-235-L2C piston engine
Year of Manufacture:	1979
Date & Time (UTC):	2 February 1999 at 1546 hrs
Location:	Biggin Hill Airport
Type of Flight:	Private (Training)
Persons on Board:	Crew - 1 - Passengers - None
Injuries:	Crew - None - Passengers - N/A
Nature of Damage:	Nose landing gear and support frame damaged
Commander's Licence:	Student Pilot
Commander's Age:	68 years
Commander's Flying Experience:	41 hours (all on type) Last 90 days - 17 hours Last 28 days - 7 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and AAIB examination of the nose landing gear support frame

The pilot had first flown solo in November 1998 and had completed 2.2 hours solo flying at the time of the accident. He had carried out much of his training with one instructor who judged all of his landings to be of a satisfactory or good standard. On the day of the accident the pilot flew a check circuit with the instructor who then authorised him to fly additional solo circuits. The runway in use was Runway 29, which is 816 metres long and asphalt surfaced. The reported weather conditions were CAVOK, with a wind from 280°M at 6 kt. The pilot flew two circuits on Runway 29, with touch-and-go landings which the pilot judged to be normal.

The instructor watched the aircraft from the ground but from his position was not able to see the aircraft on the runway and was therefore unable to comment on the landings. As the aircraft climbed away from the second touch-and-go he saw that the nose landing gear was bent rearwards from its normal position. He telephoned ATC and asked for a message to be passed to the pilot that there appeared to be a problem with the nose landing gear and asking him to make the next landing a full stop. He also asked ATC to advise the pilot to operate the mixture control to idle cut-off just

before touchdown and to hold the nosewheel off the runway for as long as possible. The message was passed to the pilot and, after obtaining clarification, he complied. The aircraft came to rest near the left side of the runway with no further damage to the nose landing gear and with the propeller remaining clear of the runway. The pilot evacuated without difficulty.

The nose landing gear was mounted on a welded steel tube space frame that attached to the fuselage forward bulkhead and also formed the engine mounting structure. The frame had been installed as a new item in November 1998 following an incident in which the previously installed frame had been distorted by excessive nose landing gear loads. In view of the available evidence and reservations by the maintenance organisation involved, the frame involved in the 2 February 1999 accident was examined in detail. This showed that it had suffered severe plastic distortion of some of the tubes, that one of the tubes had separated at a fillet weld attaching the tube to one of the nose leg mounting bosses and that two of the tubular members were cracked. Inspection by the DERA Structural Materials Centre (SMC) at Farnborough revealed a slight lack of penetration in the root of the weld. However, SMC concluded that this would not have appreciably affected the strength and that all of the frame damage had resulted from severe overload. It was not possible to establish whether this had been single or multiple overloading.