ACCIDENT

Aircraft Type and Registration:	Piper PA-28-181 Cherokee Archer II, G-BHZE
No & Type of Engines:	1 Lycoming O-360-A4M piston engine
Year of Manufacture:	1978
Date & Time (UTC):	16 April 2008 at 1140 hrs
Location:	White Waltham Airfield, Berkshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Damage to propeller, nose landing gear leg, forward fuselage underside, and firewall
Commander's Licence:	Private Pilot's Licence
Commander's Age:	42 years
Commander's Flying Experience:	188 hours (of which 166 were on type) Last 90 days - 41 hours Last 28 days - 14 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The aircraft bounced on touchdown and then bounced four more times with increasing severity and increasing nose-down attitude. The nose gear leg sheared on the fourth touchdown, and on the fifth and final touchdown the propeller and spinner dug into the ground bringing the aircraft to an abrupt stop.

History of the flight

The pilot was carrying out circuits at White Waltham using Runway 11 which has a grass surface of 930 metres. The weather conditions were good and there was a light wind from approximately 110º. The pilot had already completed five or six touch-and-go landings when the accident occurred. He was lined up on final approach at approximately 70 KIAS with full flap. On passing the runway threshold he closed the throttle and initiated the flare by progressively applying back pressure on the yoke. The aircraft floated down the runway for approximately 100 to 200 metres, then touched down on its main gear and bounced back into the air. The aircraft bounced again during the second touchdown with increased pitching, and then bounced three more times with increasing severity. On the fifth touchdown the propeller and spinner hit the ground, bringing the aircraft to an abrupt stop. This occurred because the nose gear leg had sheared. The pilot reported the accident on the radio, turned off the electrics, shut off the fuel cock, and then exited the aircraft.

An eyewitness to the accident was positioned at the hold to Runway 11. He reported that the approach appeared normal and then, on landing, the aircraft bounced approximately 3 to 4 feet back into the air. He saw the nose lower and thought that the second touchdown was slightly nosewheel first and was followed by another bounce of 3 to 4 feet. The nose attitude then lowered considerably and a significant nosewheel-first contact occurred on the third touchdown. The aircraft then bounced 6 to 8 feet. After the fourth touchdown, which was also nosewheel first, he noticed damage to the nose gear leg. The fifth, and final, touchdown resulted in the damaged gear leg digging into the ground.

Pilot's assessment of the cause

The pilot could not recall with certainty the control inputs he made after the initial bounce but he was certain that he kept the throttle closed. He believes that he applied back pressure on the yoke after the first and subsequent bounces in an attempt to land back on the main wheels. He had always successfully recovered from bounced landings in the past using this technique. He assumed that the severity of subsequent bounces was caused by the nosewheel hitting before the main wheels during the second touchdown, and he believed that this was due to him applying insufficient back pressure on the yoke.

AAIB comment

Different techniques are required depending upon the severity of a bounce during landing. Small to moderate initial bounces may be recoverable by appropriate technique where sufficient runway is available. A good technique for dealing with a heavy bounce is to go around.