ACCIDENT

Aircraft Type and Registration:	Piper PA-28-161 Cherokee Warrior II, G-BODC
No & Type of Engines:	1 Lycoming O-320-D3G piston engine
Year of Manufacture:	1988
Date & Time (UTC):	17 November 2007 at 1025 hrs
Location:	Sherburn-in-Elmet Airfield, Yorkshire
Type of Flight:	Training
Persons on Board:	Crew - 2 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Burst nosewheel tyre, damage to nose leg and engine frame
Commander's Licence:	Commercial Pilot's Licence
Commander's Age:	25 years
Commander's Flying Experience:	746 hours (of which 430 were on type) Last 90 days - 226 hours Last 28 days - 66 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The instructor was demonstrating a short field landing in a crosswind. The aircraft encountered windshear on short finals and landed heavily on all three wheels. The nosewheel tyre burst and some damage occurred to the nosewheel assembly and engine frame.

History of the flight

At the end of a training flight the instructor was demonstrating a short field approach and landing onto the asphalt surface of Runway 29; the aircraft weight was 960 kg. The weather conditions were good with the surface wind estimated to be from 250º at 11 kt. The approach was flown with the aircraft heading offset to the left to compensate for the crosswind. The instructor reported that during the last 300 ft of the approach he reduced the airspeed to around 55 kt, at which speed the stall warning horn was initiated. Just prior to touchdown the aircraft encountered windshear and the rate of descent increased. The pilot eased the control column back but there was little elevator authority remaining and the aircraft landed heavily on all three wheels, facing to the left of the runway heading. The aircraft was brought to a halt, but the pilot experienced some difficulty in steering the aircraft and the nose appeared lower than normal. He radioed for assistance and shut the aircraft down. An inspection revealed that the nosewheel had burst causing some damage to the nosewheel assembly and engine frame.

Comment

The pilots' operating handbook for the PA-28-161, states that the initial approach speed should be about 70 kt, with a final approach speed of 63 kt. During the landing flare the speed should then be reduced to the minimum possible safe speed consistent with the existing conditions. The recommended technique for a short field landing is to maintain the final approach speed until the flare, and reduce speed during the flare to close to the stalling speed. There is a graph which provides the best approach speed, and the stalling speed, for various weights. At 960 kg, the recommended approach speed, which should be maintained until the flare, is 62 kt.