

Europa Tri-Gear, G-OURO, 29 March 1997

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Aircraft Type and Registration:	Europa Tri-Gear, G-OURO
No & Type of Engines:	1NSI Subaru EA-81 piston engine
Year of Manufacture:	1995
Date & Time (UTC):	29 March 1997 at 1630 hrs
Location:	Little Snoring, Norfolk
Type of Flight:	Private
Persons on Board:	Crew - 1 - Passengers - 1
Injuries:	Crew - None - Passengers - None
Nature of Damage:	Nose landing gear, propeller, and lower engine cowling
Commander's Licence:	Private Pilot's Licence
Commander's Age:	59 years
Commander's Flying Experience:	500 hours (of which 5 were on type) Last 90 days - 5 hours Last 28 days - 5 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot, metallurgical examination of the nose landing gear structure and liaison with the aircraft kit manufacturer

During the approach to the airfield the pilot assessed the wind to be light and more or less down Runway 25, which had an initial 300 metres of grass followed by 490 metres of asphalt/concrete. The pilot was familiar with the airfield and had landed on Runway 25 on a number of occasions in a Piper PA 28. He made a good stable approach, crossed the threshold at the correct speed, reduced the engine power to idle and flared the aircraft, keeping the nose landing gear wheel off the runway by using back pressure on the control column. Back pressure was maintained after the main landing gear wheel had contacted the runway. The nose wheel then contacted the runway and the aircraft tracked straight and started to decelerate. As the speed reduced to around 30 kt and with back pressure still being applied to the control column, the aircraft passed over some undulations in the runway's grass surface. At about this time, the pilot felt a vibration coming from

the nose landing gear which was followed by a 'bang' and the aircraft pitched forward onto its nose. It slid off the grass section of the runway and onto the concrete, coming to rest some 60 metres from where the nose landing gear collapsed. A detailed metallurgical examination of the failure area of the nose landing gear was subsequently carried out. This examination found that the nose wheel castoring bearing housing had detached from the nose landing gear leg where the two items had been welded together, due to a single load application. The failure had occurred through the heat-affected zone of the attachment weld, which was brittle and probably suffering from high internal stress. The steel, from which the bearing housing had been manufactured, had produced hard untempered 'martensite' during the tungsten inert gas (TIG) welding process. The manufacturer of the aircraft kit has, as a result of these metallurgical findings, redesigned the nose wheel castoring bearing housing to reduce overall stress levels and changed the associated material specification to one that is more suitable to TIG welding.