No: 9/88 **Ref: EW/C1070** **Category: 1c**

Aircraft Type and Registration:	Piper PA-28-161 Cherokee Warrior, G-OVER
No & Type of Engines:	1 Lycoming O-320-D3G piston engine
Year of Manufacture:	1978
Date and Time (UTC):	16 June 1988 at 1809 hrs
Location:	Detling, near Maidstone, Kent
Type of Flight:	Private (pleasure)
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - 1 (Fatal) Passengers - N/A
Nature of Damage:	Aircraft destroyed
Commander's Licence:	Private Pilot's Licence
Commander's Age:	47 years
Commander's Total Flying Experience:	100 hours (of which 66 were on type)
Information Source:	AAIB Field Investigation

G-OVER departed Stuttgart Airport, Germany at 1429 hrs on a VFR Flight Plan to Fairoaks Airport, Surrey. At 1754 hrs the aircraft crossed the English coast near Folkestone and the pilot reported, to Kent Radar, that he was "at 1800 feet just getting VMC" and requested further descent to 1500 feet. The Channel QNH had previously been passed as 1018 mb. The aircraft was tracking towards the Detling VOR, intending to route Detling - Biggin - Ockham to Fairoaks, and at 1800 hrs, passing Ashford, Kent, a frequency change to London Information on 124.6 Megahertz was given.

In his initial call to London Information the pilot said that he was at 1500 feet on 1018 mb and passed his estimate for Detling as 1806 hrs. At 1808 hrs G-OVER called "Delta Echo Tango". This was the last radio transmission recorded from the aircraft.

The recorded plot from the radar head at Pease Pottage, Surrey shows a contact, with SSR code matching that of G-OVER, tracking towards the Detling VOR. The aircraft passed the VOR at about 1808 hrs and turned left onto a westerly track. Shortly afterwards it was seen to carry out a complete

orbit left. The last recorded radar contact was at 1809 hrs and 45 seconds, when the aircraft appeared to be tracking westerly again. No height information was received.

Several people in the village of Detling heard what they described as a light aircraft which sounded as if it was doing aerobatics overhead the village. One witness saw a light aircraft come out of the cloud in a steep nose-down attitude and banked slightly to the right. He heard the engine roar and then cut out shortly before impact with the ground. The cloud base was estimated to be 100 to 200 feet above the point of impact, and it was drizzling.

The accident site was approximately 625 feet amsl, and an aftercast prepared by the Meteorological Office at Bracknell, Berkshire showed that the area was subject to light to moderate drizzle, and that the cloud base was between 600 and 800 feet amsl. The top of the cloud was between 5000 and 6000 feet amsl.

The aircraft had been manufactured in December 1977 and had flown 2105 hours up to the last entry in the log book on 18 April 1988. It had been imported from Belgium in January 1983 and registered as G-BKNE; on 14 January 1988 it was re-registered in the private category as G-OVER. In February 1988 a piper single axis Auto Control was fitted to the roll channel; no electric pitch trim was fitted.

The crash site was to the right of a group of mature trees on the edge of pasture capping the top of a 673 feet hill and sloping downwards to the south at an angle of about 10°; a wire fence separated the field from dense undergrowth.

The right wing had struck a tree lying on the ground, burying the navigation light under the trunk; the marks on the tree gave an attitude of approximately 30° nose down, 20° right wing low, and a heading of 280° to 290° magnetic. The rest of the aircraft had then hit the ground and had come to rest in a crater over a distance of 7 feet with the left wing overhanging the fence and the engine buried in the clay soil; the final heading of the wreckage was aligned with the fence on 330°.

Both fuel tanks had burst under internal pressure, the fuel being thrown forwards and upwards creating two distinct swathes of discoloration in the vegetation on a heading of 292°. There was no fire.

The fuselage was completely disrupted with the roof section having moved forward to cover the engine, which had rotated downwards through 90° and was buried. The front section of the cockpit was lying horizontally with the rudder pedals under the seats. The fuselage sections in front of, and behind, the wings had crumpled allowing the right main wheel, which had bent back, to impact the tailplane. The nose wheel and the left main wheel had separated from the aircraft. The outer 5 feet of the right wing had been removed by its impact with the fallen tree and the underside of both wings showed extensive buckling.

The propeller blades were buried under the engine but had become detached, they were bent backwards and showed evidence of rotation at low power. Marks on one blade showed that it had struck the wire fence, whilst the other had stone damage on the leading edge consistent with hitting the flints which existed 18" below the clay surface; the outer 5" of this blade was missing and was not recovered.

No pre-impact fault was found in the flying control system. The pitch trim system was entirely mechanical and consisted of a loop of cable going from the handwheel to the barrel of a screwjack operating the tab. Although the screwjack was found jammed in a position corresponding to approximately half nose-down trim, there was evidence to suggest that much of this had been applied during the impact sequence, culminating with a tensile failure of the cable operating the jack in a nose-down sense.

The Nav/Approach Coupler was found in the Omni mode.

Some evidence was available from witness marks on instrument dials:

ASI - 158 kts
VSI - full scale deflection
RPM - 2700 rpm

The Altimeter scale was set at 1018 mbs and the Turn and Bank Indicator needle indicated 15° right wing low.

No evidence was found of any medical factor which would have been likely to have caused or contributed to the accident.