No: 7/91 **Ref: EW/G91/04/13** **Category: 1c**

Aircraft Type and Registration:	Piper PA-30, G-BKCL
No & Type of Engines:	2 Lycoming IO-320-B1A piston engines
Year of Manufacture:	1969
Date & Time (UTC):	22 April 1991 at 1925 hrs
Location:	Leeds-Bradford Airport
Type of Flight:	Private
Persons on Board:	Crew - 2 Passengers - None
Injuries:	Crew - Minor Passengers - N/A
Nature of Damage:	Damage to left propeller, right main gear and fuselage undersurface
Commander's Licence:	Take-off Pilot - Private Pilot's Licence Landing Pilot - Commercial Pilot's licence with Instrument and Night ratings
Commander's Age:	Take-off Pilot - 52 years Landing Pilot - 31 years
Commander's Flying Experience:	Take-off Pilot - 660 hours (of which 1 was on type) Landing Pilot - 2,600 hours (of which 3 were on type)
Information Source:	Aircraft Accident Report Form submitted by the pilot and examination of failed components by the AAIB

As the pilot was fairly new to the type and the intention of this flight was to practise landings, the pilot decided to take along, as a passenger, a friend who possessed a Commercial Pilot's Licence and Instrument rating, and who had over 2,000 hours flying experience on multi-engined aircraft. After an uneventful flight from Leeds to Sturgate, the "gear-in-transit" red light stayed on, and no green light illuminated, after the landing gear had been selected down in preparation for landing. The pilot could see, in the mirror on the left engine cowling, that the nose gear appeared only to be partly extended and his repeated attempts to recycle the gear resulted in the circuit breaker activating each time.

At this point the passenger elected to take control of the aircraft and swapped seats with the pilot.

The aircraft was flown to Waddington where several overflights were made. An observer reported that all three landing gears were partially extended but with one wheel at 90° to its correct alignment. It was

decided to return to Leeds for an emergency landing, where another overflight was made, and on this occasion ground observers reported that it was the right main gear wheel which was out of alignment.

After remaining airborne to use up more of the remaining fuel, whilst discussing options for landing, two practise approaches were carried out and the aircraft was then landed on runway 28. Just before touchdown, both engines were shut down, the propellers feathered, and the magnetos, fuel selectors and master switch were selected to 'off'. As the aircraft landed, the landing gear folded into its wheel wells and the aircraft settled onto its underside, coming to rest approximately 300 m from the threshold. Both occupants, who both later reported backache but were otherwise uninjured, were able to make their own escape from the aircraft.

When the aircraft was lifted from the runway, the landing gears dropped slightly. It was apparent, from cuts on the right tyre and adjacent damage on the lower wing skin/wheel well structure, that a foul had probably occurred between them. It was also noticed that a failure had occurred to the anti-torque links on this right leg. Examination of these links showed that one had fractured across its pivot pin lug, at the joint between the pair, and that there was mating damage at the bases of the lugs on both items. Metallurgical examination of the fracture revealed that it was due to overload and had occurred as a result of the links being closed far enough for them to interfere with each other and generate excessive loading on the lugs. It was apparent that, by comparison with the installation drawing in the maintenance manual and measurements made on the re-assembled links, the link pair had been installed 'back-to-front', such that as they closed together a foul occurred. When installed correctly, the links were able to close more fully as a result of a machined chamfer at the base of each lug.

The maintenance manual for this aircraft states that after installation of the torque links there should be 'no binding or interference of the torque links when the main gear is fully compressed'.

The most recent maintenance on the aircraft was an Annual/"Star"/Certificate of Airworthiness check in January 1991, the records for which indicated that no work had been carried out on the links at that time.