

INCIDENT

Aircraft Type and Registration: Piper PA-34-200T Seneca II, G-BSPG

No & Type of Engines: 2 Continental TSIO-360-EB piston engines

Year of Manufacture: 1980

Date & Time (UTC): 2 March 1993 at 1220 hrs

Location: 25 nm south west of Bournemouth, Dorset

Type of Flight: Private

Persons on Board: Crew - 1 Passengers - 4

Injuries: Crew - None Passengers - None

Nature of Damage: None

Commander's Licence: Private Pilot's Licence with Instrument and Night ratings

Commander's Age: 27 years

Commander's Flying Experience: 1,580 hours (of which 35 were on type)
Last 90 days - 162 hours
Last 28 days - 54 hours

Information Source: Aircraft Accident Report Form submitted by the pilot and telephone enquiries by the AAIB

The aircraft was being used for a pleasure flight from Bournemouth to Cherbourg with the intention of returning the same day. After take off, routine checks had shown everything to appear normal. The aircraft was climbed to FL40 and entered the cruise in IMC conditions. About 10 minutes later, whilst the front seat passenger was identifying the French coast on the weather radar, there was an apparent complete failure of the aircraft's electrical system.

The battery master switch and all fuses were checked immediately but no indication of the cause of the malfunction was evident. As the aircraft's position had been established over the sea during an RT conversation with the radar operator just before the loss of electrical power, the aircraft was descended with reference to the vacuum driven artificial horizon to 1,200 feet amsl where VMC was re-established. The aircraft was then turned back towards Bournemouth.

A few minutes later, the electrical power returned without any associated action by the pilot. Bournemouth Approach control were immediately advised of the situation by radio and a request for vectors for an approach onto Runway 08 at 1,200 feet in VMC was made. Just after radar had passed a heading to put the aircraft onto base leg, the electrical power was lost for a second time. The approach was continued visually, speed being reduced to 85 kt with 40° flap (*flap is operated manually on this aircraft type*) with the landing gear lowered using the emergency system and the nosewheel position checked in the mirror on the inboard side of the left engine cowling.

An uneventful landing was made, with the AFS standing by, and the electrical power returned again on touchdown. Electrical power then remained on until the aircraft was shut down normally.

During exhaustive investigation of the electrical system by the maintenance engineer, the fault did not recur. It was found, however, that the mechanical drive to the alternator on the right engine had failed. The design of the electrical system is such that, even if both alternators were to fail, power from the battery should be available if the battery master switch is 'on'. No fault was found either in the battery master switch or in the battery contactor.