

Jodel D18, G-BPJN

AAIB Bulletin No: 1/97 Ref: EW/G96/07/20 Category: 1.3

Aircraft Type and Registration:	Jodel D18, G-BPJN
No & Type of Engines:	1 Volkswagen 1835 cc converted piston engine
Year of Manufacture:	1990
Date & Time (UTC):	21 July 1996 at 1210 hrs
Location:	Pencefen Farm, Nr Aberystwyth, Wales
Type of Flight:	Private
Persons on Board:	Crew - 1 - Passengers - None
Injuries:	Crew - Minor - Passengers - N/A
Nature of Damage:	Aircraft severely damaged, beyond economical repair
Commander's Licence:	Private Pilot's Licence
Commander's Age:	36 years
Commander's Flying Experience:	80 hours (of which 29 were on type) Last 90 days - 11 hours Last 28 days - 11 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and AAIB inquiries

The aircraft was on a flight from Rhigos to Caernarfon. Weather conditions were reported as wind from the north-west at 5 kt 10 kt, visibility 15 nm in slight haze with no cloud. While in the cruise, 35 minutes after take-off, the engine RPM began to fluctuate. The pilot selected carburettor heat and cycled the throttle but the fluctuations continued. A severe vibration began and simultaneously the engine RPM increased from 3,000 to 3,500; the maximum permissible is 3,300 RPM. As the throttle was retarded the vibration worsened and the engine RPM further increased to 4,500. Closure of the throttle reduced the severity of the vibration. A check of engine running on each magneto in turn produced no improvement and the pilot considered that he was committed to a forced landing.

The surrounding terrain was very hilly and the pilot selected the only available area that had a moderate gradient, a mown hayfield in the floor of a valley. However, a landing in the direction of the upslope resulted in a crosswind/downwind landing. A side-slipping approach was made, straightening up at 200 feet agl at 60 kt IAS, and the aircraft cleared a boundary fence of the

selected field by approximately 20 feet 30 feet. Shortly afterwards a severe right roll developed which the pilot was unable to arrest with full left rudder and partial left aileron. The right wing-tip contacted the ground, turning the aircraft to the right and then nose struck the ground. The aircraft came to rest with the outboard half of the right wing destroyed and the fuselage separated from the wing. The disruption caused the pilot's seat to fail and his lap strap anchorage to release and the forward fuel tank was punctured. The pilot found himself in amongst the wreckage, completely bathed in Mogas. There was no fire. He was able to extricate himself without assistance, having sustained cuts, bruises, grazes and burns from the hot engine.

In a straightforward report the pilot noted that the wing drop probably resulted from insufficient airspeed, with a possible contribution from thermal activity over the hayfield.

The pilot had owned the aircraft for 2 years. After experiencing a number of power plant problems he had replaced the engine with a new one approximately 20 flying hours before the accident. The recently overhauled magnetos from the original engine were fitted, but new magneto drive gears were installed as part of an accessory kit. After the accident the pilot found that the teeth of the magneto gears were severely worn and it appeared that the correct meshing with the accessory drive gear had probably been lost. No evidence was found to suggest that the problem had resulted from oil starvation. Specialist metallurgical examination of the magneto gears reportedly found no sign of case hardening of the gear teeth. It was reported that the supplier of the accessory kit ceased business some time before the accident.