Accident

Aircraft Type and Registration:	Jodel D18, G-BODT	
No & Type of Engines:	1 Rotax 912-UL piston engine	
Year of Manufacture:	1988 (Serial no: PFA 169-11290)	
Date & Time (UTC):	27 October 2025 at 1350 hrs	
Location:	Portmoak Airfield, Kinross	
Type of Flight:	Private	
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:	81 years	
Commander's Flying Experience:	Approximately 700 hours (of which around 250 were on type) Last 90 days - Unknown Last 28 days - Unknown	
Information Source:	AAIB Field Investigation	

Synopsis

During the takeoff ground roll from Portmoak Airfield, the aircraft yawed sharply to the right. After becoming airborne, while still yawed, it then rolled to the right and entered a descending turn. Approximately six seconds after takeoff the aircraft struck the ground in a field to the north of the runway. The aircraft was destroyed and the pilot was fatally injured. No mechanical or technical defects were identified which would have prevented normal control of the aircraft. It is possible that the pilot suffered either a partial or complete incapacitation during the takeoff roll.

History of the flight

On the day of the accident, the pilot drove to the airfield with the intention of conducting a short, local area flight. He prepared the aircraft and taxied from the hangar to the takeoff end of the runway. He made a brief radio call to announce that he was going to take off from Runway 28R which was heard by several glider pilots who were operating on the southern area of the airfield.

A CCTV camera mounted to a local building overlooking the airfield captured the takeoff and subsequent accident. The camera is approximately 250 m from the accident site, and it was not possible to observe details of G-BODT such as control positions although the general attitude and direction of the aircraft was clear. The footage shows the aircraft pause at the beginning of the runway for a few minutes, presumably to perform pre-takeoff power

checks before lining up on the runway. It then commenced its takeoff roll. The tailwheel lifts off from the ground and a few seconds later appears to make contact with the ground again. During the final section of the ground roll, the aircraft deviated sharply to the right. Despite the deviation, the aircraft continued to accelerate and became airborne. Immediately after lifting off, the aircraft continued to yaw to the right and did not realign with the original takeoff heading. Within seconds the aircraft began to roll to the right while climbing only slightly. The rate of roll then increased rapidly, and the aircraft descended in a tightening right turn. Approximately six seconds after leaving the ground the right wingtip struck the ground followed by the nose of the aircraft. Figure 1 shows a composite photo taken from the CCTV footage.

Figure 1

Composite CCTV image G-BODT, arrow shows flight direction

Witnesses reported that engine power sounded normal and continuous throughout the takeoff.

Accident site

The aircraft came to rest in a field adjacent and to the north of Runway 28R, approximately 95 m from the edge of the grass runway. Ground marks showed the right wingtip struck the ground first, followed by the propeller and then the canopy. Clear propeller strikes in the ground and the location of a propeller blade tip 65 m from the strikes suggested propeller rotation at the time of impact and that the engine was producing high power. The aircraft travelled a further 30 m before coming to rest. Separation of the fuselage from both the wing structure and the engine indicated a dynamic impact sequence that included inversion.

Aircraft information

The Jodel D18 is a low-wing two seat aircraft fitted with a tailwheel. It is a plans-built aircraft, of wood construction with fabric covering. The aircraft was built in 1988, had accrued 1,888 flying hours, and had a valid Permit to Fly.

G-BODT was equipped with a Rotax 912-UL engine and three-bladed Ivoprop in-flight electrically adjustable pitch propeller. Pitch adjustment is made using a sprung toggle switch on the instrument panel, requiring constant pressure to hold the switch in the FINE or COARSE positions to adjust the propeller pitch. The switch self-centres after releasing pressure, and the propeller remains in the selected pitch. The propeller rotates clockwise, as viewed from the rear.

Aircraft examination

Engine and propeller

The engine and engine controls were severely damaged during the accident sequence, although some inspection was possible. The throttle control was found fully open, and the friction adjustment was at a tight setting. There was control continuity between the throttle and mixture controls to both carburettors. Oil and coolant were both present and the spark plugs were in good condition. The fuel tank was damaged but intact and contained just over 30 litres of Mogas.

The propeller sustained substantial damage. The composite outer surfaces of all three blades had detached from the hub as well as from their adjustable pitch rods, which were deformed. The pitch adjustment switch had self-centred.

Airframe

The airframe was significantly disrupted, having come to rest with the wing structure detached from the fuselage. The outer section of the right wing had separated from the rest of the wing structure, which was largely undamaged. The tailplane and rudder were attached to the fuselage and remained intact. The engine, engine mounting structure and cockpit instrument panel were no longer attached to the fuselage and had turned through 90°. The canopy transparency and frame had been destroyed, and all parts were found at the accident site.

Flying Controls

Continuity between the ailerons, elevator, and elevator trim tab with their respective controls was established with no physical restrictions within the control runs. The rudder pedals were connected to the combined rudder/tail wheel steering mechanism with no physical restrictions and with correct sense of movement for left/right control input. The elevator trim adjustment knob was found in the fully NOSE UP position, but due to airframe disruption introducing tension into the control cables, exact positions of any of the surfaces at the time of the accident could not be confirmed.

Landing gear

Both main landing gear wheels were free to rotate within their spats, and the tyres were in good condition. The brake cables were attached between the actuating lever in the cockpit, and the brake assemblies on both mainwheels. Each brake was able to be manually actuated and released. Both main landing gear oleo struts demonstrated free movement. The solid tailwheel was undamaged.

Survivability

Both left and right seats were fitted with three-point fixed harnesses. These comprised a two-part lap strap and a shoulder restraint strap, which fastened into a single buckle. The airframe attachment points of the left harness all showed significant disruption, indicating they had been subjected to shock loading and therefore that the pilot had been wearing the harness including the shoulder strap. First responders found the pilot partially underneath the disrupted front of the aircraft, secured by his harness. Both sides of the left seat lap strap had been cut to release the pilot during the emergency response. The right seat harness was intact and buckled.

Pilot

Experience and medical

The pilot achieved his NPPL in 2006 and flew several tailwheel aircraft. He had extensive experience flying G-BODT which he had flown since 2007. He held a Pilot Medical Declaration valid until January 2026; he also held a current Heavy Goods Vehicle (Group 2 licence) medical certificate. The pilot had previously suffered a myocardial infarction[1] and had been diagnosed with Type 2 diabetes[2]. He was in an age group where chronic cardiovascular and metabolic conditions are common, and where prescribed treatment is typically aimed at risk reduction and disease stabilisation rather than cure.

The post-mortem results did not reveal any obvious cause of either a partial or complete incapacitation. The pathologist noted the history of heart disease and commented that in the absence of any other explanation for the accident that it was possible that the pilot may have experienced a cardiac arrhythmia[3].

Incapacitation

Incapacitation may be partial or complete. In cases of partial incapacitation, a pilot may retain the ability to operate the aircraft but experience an impairment of judgement or decision-making capability. Such impairment may arise from medical causes or from human performance factors, including fatigue, hydration, or nutrition. In these circumstances, a pilot may act in a manner that is inconsistent with the situation or with their level of experience.

Footnote

1 A myocardial infarction (MI), commonly known as a heart attack, is heart muscle damage caused by a sudden blockage of blood flow in a coronary artery.
2 Not medicated – controlled via diet.
3 Cardiac arrhythmia refers to an abnormal heart rhythm – meaning the heart may beat too fast, too slow, or irregularly.

Airfield information

Portmoak Airfield is located approximately 20 miles north of Edinburgh. On the day of the accident, gliding was taking place on the southern area using Runway 28L. The northern area was for all other powered operations (Figure 2).

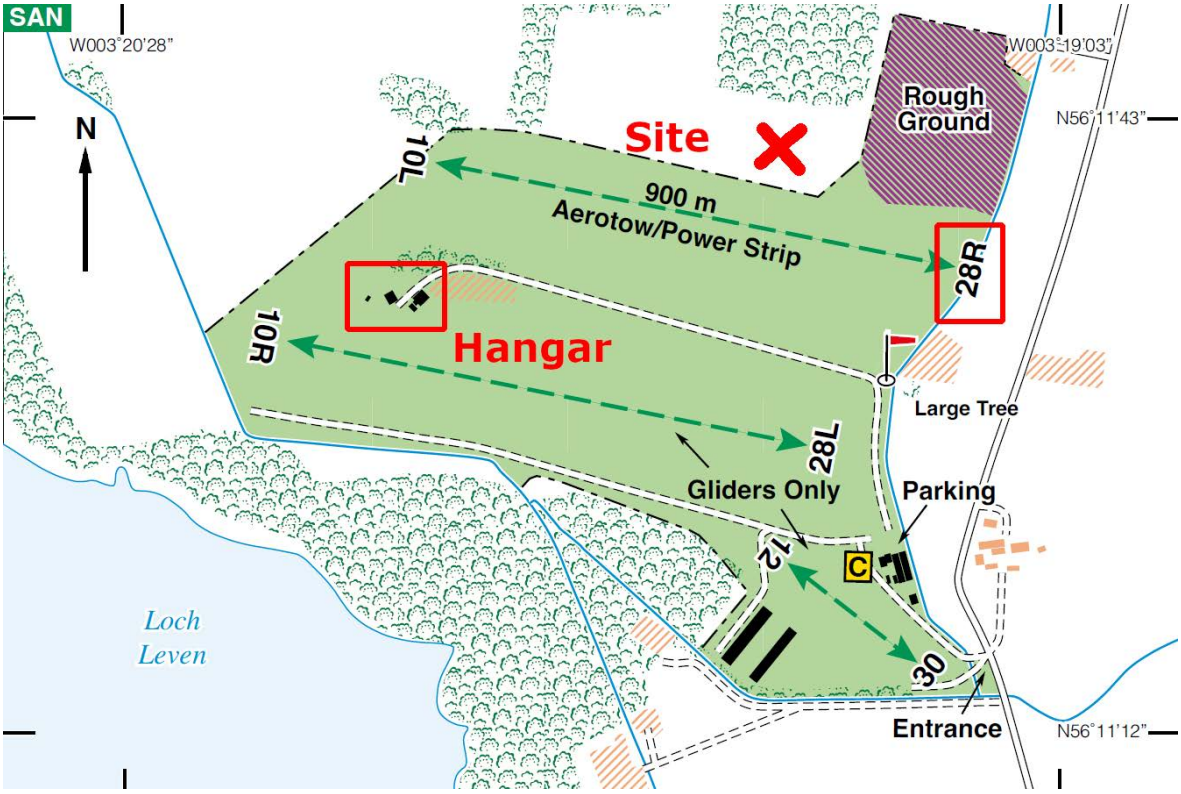

Figure 2

Portmoak Airfield ©Robert Pooley

At the time of the accident the wind recorded at the airfield was from the north-west, at a maximum of 12 kt. The weather was clear and temperature 10°C.

Yaw effects of a propeller on takeoff

A single engined propeller-driven aircraft has a natural tendency to yaw during the takeoff run. In tailwheel aircraft, this effect can be pronounced due to the aircraft attitude, and the additional propeller related effects present during the early stages of the takeoff run. Figure 3 illustrates the effects which are described.

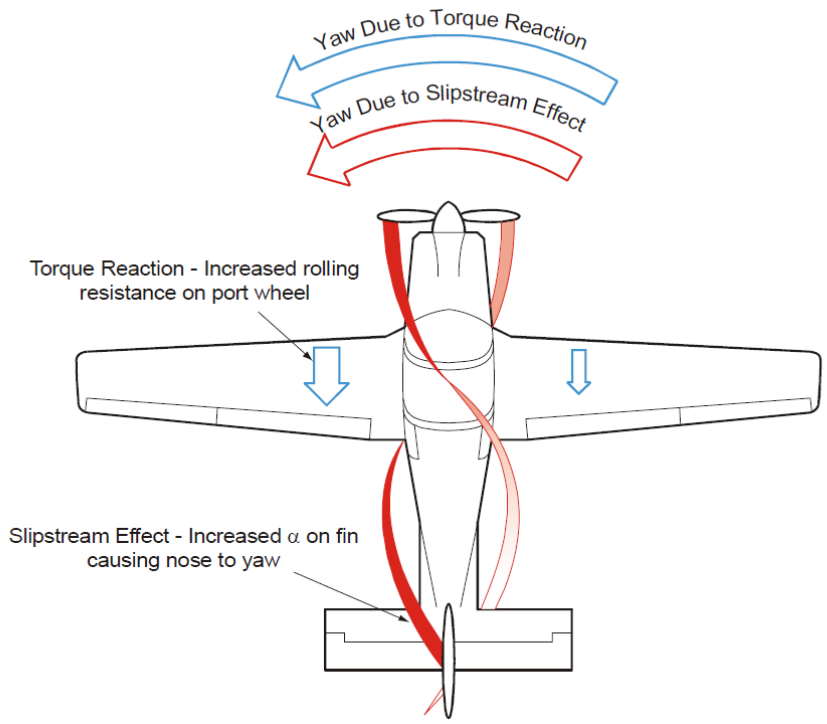

Figure 3

Effects of a clockwise rotating propeller from AP3456[4]

For an aircraft fitted with a clockwise-rotating propeller like G-BODT, several aerodynamic and mechanical effects act simultaneously to produce a yawing tendency to the left. The spiralling slipstream generated by the propeller strikes the fin and rudder, applying a lateral force that displaces the tail to the right and causes the aircraft to yaw left. In addition, the torque reaction generated by the propeller imposes an increased load on the left mainwheel while the aircraft remains on the ground. The propeller also behaves as a gyroscope, such that changes in propeller disc attitude during the takeoff run result in a shortlived yawing moment to the left as the pilot pitches forward to lift the tail, and to the right during rotation, due to gyroscopic precession. Balancing these changing forces will take awareness and skill.

Finally, where the propeller disc is inclined to the airflow, asymmetric blade effect causes the downgoing blade to produce greater thrust than the upgoing blade. For a clockwise rotating propeller, this imbalance results in increased thrust on the right side of the disc and a corresponding yaw to the left.

Collectively, these effects act in the same direction, producing a cumulative left yawing tendency which must be countered by pilot control input.

Footnote

[4] AP3456, *The Aerodynamics of Flight*, UK Ministry of Defence. Slipstream Effect and Torque Reaction. Propeller Rotating Clockwise (viewed from the Cockpit)

Analysis

Engineering

Control continuity was established between the flying control stick, rudder pedals, and all control surfaces. No physical restrictions were identified that could have prevented the pilot from controlling the aircraft.

No mechanical defects were found with the engine or engine controls. The propeller ground marks, damage to blades and distance of propeller pieces found from the ground marks indicates that the engine was producing high power at the time of striking the ground.

The damage sustained to the right outer wing section is commensurate with the right wingtip striking the ground first, followed by a dynamic impact sequence including inversion which resulted in the separation of the engine, front bulkhead/instrument panel and the fuselage from the main wing structure. All pieces of the canopy were found within the area of ground marks, indicating that it was closed and present with the aircraft.

Flight profile

The CCTV showed that immediately before leaving the ground, the aircraft yawed to the right which continued after the aircraft became airborne. This yaw resulted in the aircraft beginning to roll to the right with an increasing angle of bank and the nose dropping. Although it is not possible to observe the control surfaces due to the aircraft being some distance from the CCTV camera, there is no evidence on the footage of the aircraft beginning to recover from the high angle of bank before it struck the ground.

Possible incapacitation

Although the postmortem did not find any evidence of an event that could have caused an incapacitation, the pilot had a number of medical issues both current and historic. The pathologist raised the possibility of a heart arrhythmia which could have rendered the pilot unable to control the aircraft at a critical moment. Given the pilot's experience both with tailwheel aircraft and on G-BODT, the flight profile did not match his skill level nor any usual flight profile on takeoff. However, the yaw of the aircraft to the right on takeoff would not occur on an aircraft with a clockwise rotating propeller such as was fitted to G-BODT without a pilot input.

Incapacitation can be complete or it can be only partial, leaving a pilot partly aware and capable but not completely able to control or fly an aircraft. Given the lack of any technical malfunction that could explain the departure from controlled flight, it is possible that the pilot was incapacitated to some degree and was unable to either stop the aircraft or exert directional control either before or after takeoff.

Conclusion

The aircraft became airborne while yawed to the right and did not realign with the runway heading after takeoff. The right yaw developed into a right roll and descending turn, and the flightpath continued until the aircraft struck the ground. The post-accident examination

did not identify any mechanical or control system defects that would have prevented normal operation of the aircraft.

The pilot was experienced on tailwheel aircraft and on this particular aircraft. The observed takeoff profile was not consistent with expected handling for an aircraft of this type operated by an experienced pilot. Although the postmortem examination did not identify a definitive medical cause, it was not possible to exclude the possibility that the pilot experienced a sudden or partial incapacitation at a critical stage of the takeoff.

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