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AAIB Field Investigation reports

ACCIDENT

Aircraft Type and Registration:	1) Grob G115E Tutor, G-BYUB 2) Grob G115E Tutor, G-CGKC
No & Type of Engines:	1 Lycoming AEIO-360-B1F piston engine
Year of Manufacture:	1) 1999 2) 2009
Date & Time (UTC):	1) 23 August 2012 at 0834 hrs 2) 09 Jan 2013 at 1225 hrs
Location:	Fields adjacent to RAF Cranwell, Lincolnshire
Type of Flight:	Military Training
Persons on Board:	Crew - 2 Passengers - N/A
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	(Both aircraft) Propeller counterweight assembly detached and severe damage to corresponding propeller blade and spinner
Commander's Licence:	Both aircraft were being operated by military personnel with service qualifications
Commander's Age:	N/K
Commander's Flying Experience:	N/K
Information Source:	AAIB Field Investigation

Synopsis

Two Grob 115E aircraft suffered detachment of a propeller counterweight assembly during initial climb severely damaging the corresponding propeller blade. Successful forced landings were completed in both cases. Evidence from the second event suggested that the failure was caused by an issue concerning the method of installation of the counterweight assemblies on the affected propeller blades.

shortly after the final takeoff, a loud bang was heard; this was followed by severe vibration. The pilot immediately reduced power, lowered the nose and landed in a level field of crops near the airfield. Subsequent examination revealed that one of the propeller blades was severely damaged and missing its counterweight assembly.

History of the flights

On 23 August 2012, following an aerobatic detail and return to RAF Cranwell, G-BYUB carried out a series of touch-and-go landings. Whilst in the initial climb,

Approximately four months later, on 9 January 2013, a second aircraft, G-CGKC, suffered a similar occurrence. Once again, the aircraft landed safely in a field. The damage was found to be similar to that sustained by G-BYUB.

Background information

The Grob G115E aircraft are owned by a civilian contractor, maintained on the civil register, and operated by the UK MoD. The fleet totals 119 aircraft. The airframe/engine/propeller combination is understood to be unique to this fleet.

Component description

The aircraft type is equipped with a Hoffmann HO-V343K-V/183GY three-bladed, constant speed propeller. The blades are manufactured from timber, sheathed in a carbon-composite skin. An aluminium alloy ferrule at the base of each blade engages with the pitch change bearing in the propeller hub. Each blade counterweight assembly (Figure 1) incorporates two semi-circular clamps secured by a pair of nuts and bolts. Tightening the bolts causes the clamps to grip the blade ferrule. Each clamp is extended in one direction and a counterweight is bolted to the extension.

A wide recess is machined circumferentially around each blade ferrule; this accommodates a corresponding

semi-circular projection around the inner face of each clamp half. The engagement of the projection into the recess prevents radial movement of the counterweight assembly under the influence of centrifugal force when the propeller is rotating. The relative dimensions of the assembled components leave a gap between the inner faces of the projections of the clamp halves and the base of the circular recess in the ferrule. Thus, the clamping loads act only between the 'shoulders' of the clamp halves and the outer diameter of the ferrule. Ideally, the two clamp halves should be assembled such that their faces are parallel, giving an even gap between the clamp faces on either side of the ferrule. A set screw is threaded through one of the clamp halves and bears on the recessed face of the ferrule.

When the engine is operating, the counterweights each exert a centrifugal turning moment on the blade ferrule to which they are attached. This moment loads the bolt nearest the counterweight on each blade in tension. The tensile load produces a stress when operating, in addition to that created in static conditions by the tension force clamping the assembly to the ferrule.



Figure 1

Propeller blade counterweight assembly

G-BYUB investigation findings

General

Post-event examination of the aircraft found that one of the three propeller blades was severely damaged and its counterweight assembly was missing. The spinner was disrupted by the passage of the counterweight assembly as it translated along the pitch change axis of the ferrule and the corresponding axis of the blade. Fragments of the damaged blade and part of the spinner were recovered from the airfield. Despite an extensive search, using military personnel equipped with metal detection equipment, the missing counterweight assembly was not found.

Detailed examination

From detailed examination of the propeller by the AAIB, it was deduced that the two parts of the counterweight assembly had separated sufficiently such that the semi-circular projections had disengaged from the recess in the ferrule, allowing the counterweight assembly to translate radially outwards under the influence of centrifugal force. An 'extruding' effect had removed both timber and carbon composite from the leading and trailing edges of the propeller blade. This had continued until the assembly had reached a radial position at about 50% of the blade span. At this point, the magnitude of its reaction against the blade leading edge, as a result of the acceleration (owing to the rising linear velocity at the greater radius from the propeller axis), caused it to cut through the blade material, completely severing the outer portion of the blade.

Removal of the counterweight assemblies from the two undamaged blades revealed unusual markings in the recess in one of the ferrules. Personnel who had removed and refitted very large numbers of counterweight assemblies during overhauls over a number of years remarked that they had not seen such marks before. It was suggested

that they were the consequence of a lightning strike. A check of the magnetic characteristics of the propeller hub provided evidence in support of this suggestion.

The counterweight assembly from the damaged blade was missing so its loss could not be explained. However, it was judged that the evidence of a lightning strike was unique to this particular aircraft and was therefore considered to be of some significance.

Following this event, operation of the G115E fleet was temporarily suspended. All counterweight assemblies were removed, examined and refitted using new nuts and bolts prior to returning the aircraft to service.

G-CGKC investigation findings

General

As in the previous event, it was noted that a single propeller blade was severely damaged, its counterweight assembly was absent and the spinner was badly damaged by the outward passage of the counterweight assembly. The blade damage was virtually identical to that observed on G-BYUB. On this occasion, a fractured threaded portion of a bolt shank with a nut on it was found lying on the ground below the propeller. The nut was of the type used to secure the counterweight clamps to the blade ferrule. It is assumed that this had remained within the rotating spinner and had fallen out after the engine was shut down.

It was determined from flight records that, at the time of the failure, the aircraft had completed approximately 60 flight cycles averaging approximately one hour each since re-installation of the counterweight assemblies with new nuts and bolts.

Following this event the G115E fleet was once again temporarily withdrawn from service.

Detailed examination

Examination of the recovered nut and threaded portion of bolt showed that the bolt had suffered a fatigue fracture in the plane of the face of the nut in contact with the counterweight clamp (Figure 2). The fatigue fracture exhibited multiple origins at the base of the thread form on one side of the bolt. The fatigue cracking had propagated over most of the bolt cross section; the remainder of the cross section had then failed in ductile overload. The nut contact face was confirmed on laboratory examination to be correctly perpendicular to the bolt axis.

A further search was successful in locating a major proportion of one of the missing clamp halves (Figure 3), together with the remainder of the fractured bolt, which was heavily distorted. The section of recovered bolt was from the bolt hole nearest the counterweight. The other clamp half and bolt were not found. The recovered portion of clamp had its curved section deformed plastically to a much straighter, larger radius shape due to the effects of bending.

Examination of the fracture face of the broken bolt in the recovered portion of clamp revealed that it was the matching face to the portion of threaded bolt shank (with nut attached) recovered from beneath the aircraft after the landing. Smearing and damage to the thread forms of the bolt and slight bending of the bolt end were observed; this was consistent with the forces likely to have been imparted to the bolt during the separation sequence. Consideration of the geometry of the clamp and bolt assembly, in conjunction with the thread damage, enabled the rotational orientation of the bolt at the time of the bolt failure/clamp separation to be determined. From this it became clear that the multi-fatigue origin was located on the side of the bolt orientated furthest from the ferrule, ie the side closest to the counterweight.

The laboratory examination of the fatigue fracture face of the bolt revealed prominent beach marks with less prominent marks between them. The area closest to the origin had no clearly defined pattern but ten distinct beach marks were visible between there and the ductile

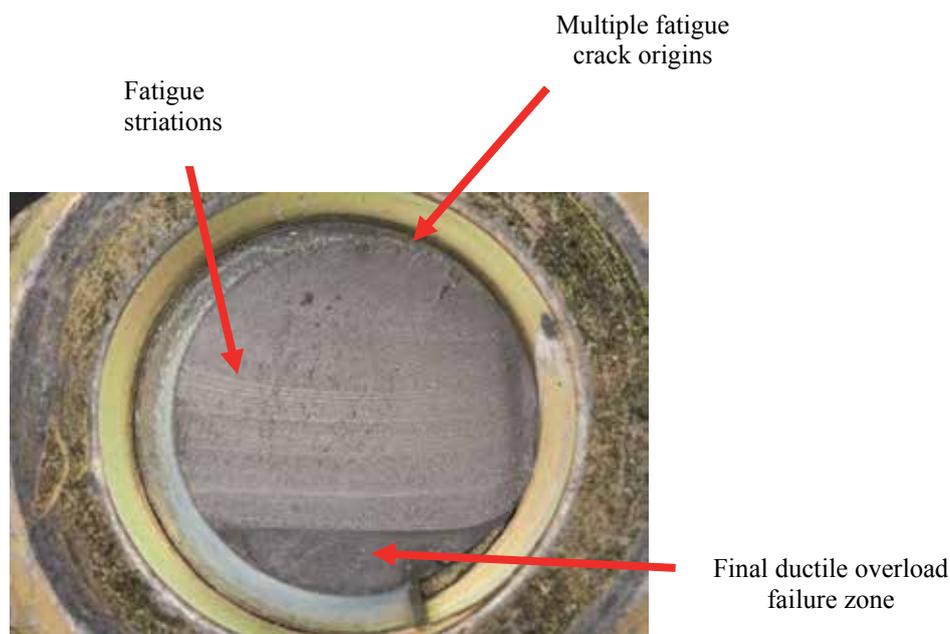


Figure 2

Fracture face of failed counterweight clamp bolt



Figure 3

Recovered portion of counterweight clamp and fractured bolt

failure zone. The most reasonable interpretation of the evidence on the bolt fracture face was that each of the final ten flight cycles had produced a distinct beach mark with lesser marks between these created by smaller load variations.

Qualitative consideration of the loads likely to be experienced by the propeller in normal operation did not identify any high frequency cyclic loads significant enough to result in a fatigue failure of the counterweight attachment bolts.

Discussion

Possible cause of multiple fatigue origins

This aircraft type has, until recently, operated extensively without counterweight clamp bolts fracturing in flight. It is therefore reasonable to assume that those bolts do not normally incur significant fatigue damage within the overhaul life of the propeller. This suggests that the presence of the multi-origin feature from which the fatigue crack on G-CGKC propagated was the critical factor leading to the event on that aircraft. As these origins were concentrated near the base of the thread form on one side of the failed bolt, and no cyclic bending load can be envisaged to have occurred in service, it was

reasonable to assume they resulted from a concentrated static tensile load at that location. Elevated local static stress, when combined with the stress due to the centrifugal turning moment, reacted by the clamp bolt in normal propeller operation, may have been sufficient to initiate the fatigue failure mechanism.

A possible way of creating the multi-origin feature would have been to have torque-tightened the nut/bolt combination without the contact faces of the clamp lying parallel. Under such circumstances the tensile stress in the bolt would be distributed eccentrically, thus concentrating a high stress on the one side of the bolt with a significantly lower stress on the opposite side.

The gap between the two assembled clamp halves on each blade permits the assembly bolts to be torque-tightened without the inner clamp faces lying completely parallel (Figure 4). The greatest extent of this loss of parallel orientation is permitted by the clamp geometry if the nut on the bolt furthest from the counterweight is screwed further along its bolt than the nut on the other bolt. Thus with the counterweights ‘spread’ further apart from ‘normal’, an eccentric stress distribution occurs on each bolt and the orientation of the bolt nearest to



Figure 4

Counterweight clamps assembled with faces not parallel
(note the uneven gap either side of ferrule)

the counterweight is such that a stress concentration would occur at the same location as the fatigue origins identified on the failed bolt.

An independent review commissioned by the aircraft operator concluded that the design of the counterweight assembly is such that it is difficult to align both faces exactly parallel to one another around the blade ferrule while ensuring that the torque applied to each bolt is maintained within a tight tolerance band.

Conclusion

In light of the second event, it is now considered that the failure on G-BYUB was probably from the same root cause as that on G-CGKC. However, since the

relevant components were not recovered, no further progress with the first investigation is possible. The evidence from the G-CGKC event suggests that the failure may be linked to the method of installation of the counterweight assembly on the propeller ferrule when it was last refitted. More detailed analysis by the propeller manufacturer would be required to confirm this. Since the airframe/engine/propeller combination is unique to this fleet, the AAIB has shared its investigation findings with both the propeller manufacturer and the operator to enable them to develop a 'return-to-service' strategy.

AAIB correspondence reports

These are reports on accidents and incidents which were not subject to a Field Investigation.

They are wholly, or largely, based on information provided by the aircraft commander in an Aircraft Accident Report Form (AARF) and in some cases additional information from other sources.

The accuracy of the information provided cannot be assured.

INCIDENT

Aircraft Type and Registration:	DHC-8-402 Dash 8, G-FLBD
No & Type of Engines:	2 Pratt & Whitney Canada PW150A turboprop engines
Year of Manufacture:	2009 (Serial no: 4259)
Date & Time (UTC):	1 June 2013 at 0907 hrs
Location:	On approach to Runway 27 at Liverpool Airport
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 4 Passengers - 61
Injuries:	Crew - None Passengers - None
Nature of Damage:	None
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	57 years
Commander's Flying Experience:	12,431 hours (of which 1,723 were on type) Last 90 days - 80 hours Last 28 days - 62 hours
Information Source:	Aircraft Accident Report Form submitted by the flight crew and additional enquiries by the AAIB

Synopsis

The aircraft flew below the recommended glide slope during a visual approach, resulting in an EGPWS alert. The flight crew took appropriate action and continued the approach to a safe landing.

History of the flight

The aircraft was nearing the end of a short flight from the Isle of Man to Liverpool. The weather at Liverpool Airport was good and the aircraft initially flew a standard Runway 27 arrival under ATC radar vectors, with the co-pilot as handling pilot. Considering the good weather and absence of other traffic, the co-pilot asked the commander if he could convert to a visual approach. The commander agreed and ATC approval was obtained.

The co-pilot began to configure the aircraft for landing, disengaged the autopilot and turned the aircraft right onto a base leg, tracking approximately towards the Runcorn Bridge while descending. The co-pilot was concerned that he may fly above the ideal glide path if he turned towards the runway too early, so he continued on the base leg and maintained the descent, recalling seeing a radio height of 1,200 ft. However, in doing so, the aircraft descended below the recommended profile. The commander prompted the co-pilot to turn right towards the runway at about the same time as the EGPWS¹ "CAUTION OBSTACLE" alert sounded. The flight crew adjusted the aircraft's flight path and

Footnote

¹ Enhanced Ground Proximity Warning System.

confirmed that it was safe and appropriate to continue the approach.

The commander reported that the co-pilot had allowed the aircraft's rate of descent to increase while on the base leg and that he himself had become distracted from monitoring the vertical profile.

The aircraft operator provided a summary of the recorded flight data, which showed that the aircraft reached a rate of descent of about 2,000 ft/min on base leg, and that the "CAUTION OBSTACLE" alert was generated at a radio height of 894 ft.

Discussion

The EGPWS is a terrain awareness and alerting system. It uses internal terrain, obstacle and airport databases to predict a potential conflict between an aeroplane's flight

path and terrain or an obstacle. Potential conflict with terrain or an obstacle results in the EGPWS providing a visual and audio caution or warning alert. The obstacle concerned in this case was not positively identified but was possibly the Runcorn Bridge. The Aeroplane Operating Manual for the Dash 8 Q400 states that the correct crew response to the "CAUTION OBSTACLE" alert is to:

'take appropriate action to correct the unsafe condition.'

ACCIDENT

Aircraft Type and Registration:	Short SC7 Skyvan 3, G-BEOL	
No & Type of Engines:	2 Garrett Airesearch TPE331-2-201A turboprop engines	
Year of Manufacture:	1977 (Serial no: SH.1954)	
Date & Time (UTC):	3 May 2013 at 1320 hrs	
Location:	Weston-on-the-Green, Oxfordshire	
Type of Flight:	Aerial Work	
Persons on Board:	Crew - 1	Passengers - 3
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Nose landing gear fractured, nosewheel detached, damaged frames on the underside of fuselage	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	59 years	
Commander's Flying Experience:	1,117 hours (of which 146 were on type) Last 90 days - 92 hours Last 28 days - 35 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and enquiries by the AAIB	

Synopsis

As the nosewheel contacted the ground on touchdown on Runway 27 at Weston-on-the-Green the nosewheel and yoke assembly detached from the aircraft. The aircraft veered off the runway and came to a stop with a nose-down attitude. There were no injuries to the crew or passengers. The nose landing gear had fractured across the plated portion of the oleo. A forensic examination of the damaged nose landing gear assembly is being carried out by the manufacturer.

History of the flight

The aircraft had returned to Weston-on-the-Green after refuelling at RAF Brize Norton and made an uneventful approach to the grass Runway 27. The pilot was about to take up steering control on the tiller but as the nosewheel touched down the wheel and its yoke detached from the aircraft. The aircraft veered off the runway to a controlled stop. The pilot conducted engine and aircraft shutdown drills and the passengers and crew disembarked the aircraft without further incident. The nosewheel and yoke assembly had come to rest at the edge of the runway having sheared from the oleo within the plated portion just above the yoke.

Pilot's comment

The pilot described the landing, up to the nose landing gear failure at Weston-on-the-Green, as “quite normal with nothing untoward”. However on reflection he noted that during the landing at RAF Brize Norton he became aware of more nose gear shimmy than usual. This subsided as his speed decayed and he thought nothing more of it. The shimmy did not re-appear during taxi and takeoff for the return flight to Weston-on-the-Green.

Aircraft details

The Short SC7 Skyvan is an all-metal high-wing monoplane powered by two turboprop engines. It is fitted with fixed tricycle landing gear with a steerable nosewheel. It is designed to operate from prepared and unprepared runways and although its primary role was originally for cargo transport it is often used as a parachute drop aircraft.

Engineering investigation

The remains of the nose landing gear assembly were removed from the aircraft and along with the nosewheel and yoke assembly were transferred to the manufacturer

for analysis at the request of the aircraft owner. The lower portion of the torque link had separated at the mid-pivot point and remained attached to the yoke and the upper portion of the torque link had detached completely from the nose landing gear forging. There were two fracture faces apparent on the main forging and on the yoke. The inner oleo liner had fractured just above an area where its diameter increases to accommodate the male portion of the thread on to which the outer piston of the oleo and yoke attaches. The second fracture face was around the circumference of the outer oleo piston where the female portion of the attachment thread finishes. Inspection of the aircraft structure revealed damage to the structure of the underside of the fuselage consistent with the nose landing gear collapse. The mechanism by which the fractures occurred is the subject of an ongoing forensic investigation by the manufacturer.

ACCIDENT

Aircraft Type and Registration:	Cirrus SR22, N450CD	
No & Type of Engines:	1 Continental Motors IO-550 Series Engine	
Year of Manufacture:	2005 (Serial no: C/N 1478)	
Date & Time (UTC):	5 April 2013 at 1750 hrs	
Location:	Owen Roberts Airport, Grand Cayman	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Propeller tips heavily bent and nosewheel spat detached	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	71 years	
Commander's Flying Experience:	378 hours (of which 228 were on type) Last 90 days - 8 hours Last 28 days - 8 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot was landing downwind at Owen Roberts Airport, Grand Cayman. The aircraft touched down and bounced twice before going around. Although the pilot was not immediately aware, the propeller tips had been damaged and the nosewheel spat had detached. An uneventful landing was made following a visual inspection of the landing gear by the control tower.

flight plan and, about four minutes after that, he crossed the eastern end of Runway 26/08 and was told to join the circuit 'left downwind' for Runway 08. The pilot reported downwind and was cleared to land. He was abeam the control tower at 1,200 ft and the wind was from about 200° at 16 kt, becoming 240/12 on finals and 240/10 on touchdown.

History of the flight

The aircraft arrived at Grand Cayman, following a flight from Edward Bodden Airport on Little Cayman. First contact was made with the control tower at Owen Roberts Airport (Figure 1) when the aircraft was at 30 miles DME at an altitude of 6,000 ft on an IFR flight plan. Two minutes later the pilot cancelled the IFR

The aircraft bounced twice on touchdown before the pilot opened the throttle to go around. Although the propeller tips were later found to have been badly damaged, the pilot reports that the engine performed normally. However, an aircraft waiting at a holding point halfway along the runway saw debris fall off (subsequently found to be the nosewheel spat) and the Tower asked the pilot

to perform a fly-by for them to inspect the nose landing gear. Apart from the missing spat, nothing amiss was seen and the aircraft landed without further incident, a full emergency having been declared by the airport.

Discussion

The pilot attributed the heavy, nosewheel-first landing to several factors. He states that he had touched down at 85 kt instead of the target 70 kt and that this was largely due to his desire to land short and clear the

runway as soon as possible since there had been much traffic waiting to land and take off. In addition, he was used to arriving 'right downwind' and turning over the coast (shown in Figure 1). He had employed the same technique with the 'left downwind' pattern but, because of the geography of the coastline, this put him about half a mile closer to the runway threshold. He believes that the propeller strike occurred on the second bounce and that he should have gone around after the first.



Figure 1

Aerial view of Owen Roberts Airport with left-hand circuit, and right-hand circuit more normally flown by the pilot of N450CD

INCIDENT

Aircraft Type and Registration:	Gulfstream AA-5B Tiger, G-BJAJ	
No & Type of Engines:	1 Lycoming O-360-A4K piston engine	
Year of Manufacture:	1979 (Serial no: AA5B-1177)	
Date & Time (UTC):	2 June 2013 at 1900 hrs	
Location:	Mount Rule Airfield, Isle of Man	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damage to right wing leading edge, flap and stall warning sensor	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	38 years	
Commander's Flying Experience:	383 hours (of which 105 were on type) Last 90 days - 29 hours Last 28 days - 27 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The aircraft had flown from Bishops Court in Northern Ireland and was joining the circuit, 'right-hand, downwind to land' at Mount Rule Airfield, Isle of Man. The flight had been uneventful and the weather was good with a light and variable northerly wind, visibility in excess of 10 km and no cloud below 1,900 ft. The pilot had lowered full flap in preparation for a short field landing and, as the flaps were reaching the end of their travel, he sighted a large brown bird directly ahead of the aircraft. The airspeed had been reduced to 80 kt and

the pilot elected not to take avoiding action, in order to prevent the possibility of departing from controlled flight. The bird struck the leading edge of the right wing near the stall warning sensor and then impacted the lowered flap. There were no handling difficulties and the pilot carried out a normal landing. The bird was seen at such a late stage that only violent avoiding action might have avoided the collision. Given the aircraft's low airspeed and the limited damage, the pilot considered his actions had been correct.

ACCIDENT

Aircraft Type and Registration:	Jodel D117A, G-BEDD
No & Type of Engines:	1 Continental Motors Corp C90-14F piston engine
Year of Manufacture:	1958 (Serial no: 915)
Date & Time (UTC):	10 July 2013 at 1657 hrs
Location:	Abbots Bromley Airfield, Staffordshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - 1 (Serious) Passengers - 1 (Serious)
Nature of Damage:	Aircraft inverted and beyond economic repair
Commander's Licence:	Private Pilot's Licence
Commander's Age:	52 years
Commander's Flying Experience:	141 hours (of which 5 were on type) Last 90 days - 16 hours Last 28 days - 4 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Summary

Whilst attempting to land at Abbots Bromley Airfield the aircraft encountered a downdraft that caused it to lose height. Despite the pilot applying full power the aircraft landed short of the runway, colliding with two hedges before coming to rest inverted. It is likely that the downdraft resulted from a combination of the local topography and turbulence from nearby trees. The pilot's lack of familiarity with the aircraft type may also have been a factor.

History of flight

The runway at Abbots Bromley is a grass strip orientated 04/22, with the 04 threshold located approximately 630 m from, and 30 m above, the edge of a reservoir. The northwestern boundary of the airfield is bordered

by a small wood and, at the time of the accident, the strip itself was surrounded by a standing crop.

The pilot and his passenger arrived at the airfield with the intention of conducting a 30-minute flight in the local area. Although there was some haze the pilot estimated the visibility was around 10 km. The wind was light, with the direction varying between 020° and 040° and the pilot judged from the windsock that there were gusts of around 10 kt.

The aircraft took off from Runway 04 and entered a left-hand circuit. After climbing downwind to approximately 1,300 ft it became evident that the visibility was worse than it had appeared on the ground; the pilot therefore

decided to land. After descending on base leg the aircraft turned onto final approach, much of it being over the reservoir. The pilot later stated that he set the speed at around 60 kt and aimed for a touchdown point some 20 m beyond the runway threshold. At a late stage on the approach, the aircraft suddenly dropped, losing a “large amount of height” and the airspeed reduced to 45 kt. The pilot applied full power but the aircraft did not climb and subsequently collided with two hedges located either side of a road close to the threshold of Runway 04. After passing through the second hedge the aircraft nosed over, coming to rest inverted in the crop on the left side of the runway. Although injured, the occupants managed to escape on the passenger’s side of the aircraft via the broken canopy.

Discussion

The pilot subsequently commented that a combination of the wind direction and topography resulted in a downdraft in the area where the ground rises from the reservoir to the level of the runway. There was also the possibility that turbulence from the trees adjacent to the airfield affected the aircraft. Finally, he considered that his lack of familiarity with the aircraft type may also have been a factor and that the accident may have been avoided had he flown at 65-70 kt and selected a touchdown point further into the runway.

ACCIDENT

Aircraft Type and Registration:	Jodel D120A Paris-Nice, G-BICR	
No & Type of Engines:	1 Continental Motors Corp C90-14F piston engine	
Year of Manufacture:	1958 (Serial no: 135)	
Date & Time (UTC):	29 August 2013 at 1530 hrs	
Location:	White Waltham Airfield, Berkshire	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Right landing gear, main spar, propeller and cowling damaged	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	62 years	
Commander's Flying Experience:	3,143 hours (of which 2 were on type) Last 90 days - 68 hours Last 28 days - 24 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

G-BICR was positioned for a glide approach from the end of the downwind leg. It was trimmed to maintain the best glide speed of 55 kt until short final, when the speed was reduced to 50 kt. The flare for landing was reported as being normal but, immediately after touchdown, the aircraft "decelerated rapidly and, after 20 metres, the nose pitched down and the aircraft came to an abrupt halt skewed to the right". Both pilots were uninjured and vacated the aircraft using the normal exits.

After landing, the right mainwheel was found detached from the landing gear 5 metres beyond the aircraft in the

direction of landing. The pilot considered that, when the mainwheel detached, the landing gear dug into the ground causing the rapid deceleration, right rotation and nose-down pitch.

Although not an engineer, the pilot reported seeing what he thought might have been a pre-existing crack in the weld between the landing gear leg and the axle.

ACCIDENT

Aircraft Type and Registration:	Lancair 320, G-FOPP	
No & Type of Engines:	1 Lycoming IO-320-B1A piston engine	
Year of Manufacture:	1999 (Serial no: PFA 191-12319)	
Date & Time (UTC):	16 May 2013 at 1520 hrs	
Location:	Henstridge Airfield, Somerset	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to propeller and nose landing gear	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	56 years	
Commander's Flying Experience:	1,041 hours (of which 9 were on type) Last 90 days - 18 hours Last 28 days - 11 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The pilot had completed eight hours of dual instruction on the Lancair and was on his first solo flight in the aircraft. After completing about 55 minutes of high and low speed handling exercises, he returned to Henstridge. Runway 25 was in use, with a left-hand circuit. The pilot reported that the wind was from the south at an estimated 8 kt and the visibility was "perfect".

Having joined overhead and descended dead side, he joined the circuit downwind and approached at 90 kt,

with full flap. On touchdown the aircraft bounced and, in trying to retrieve the situation, he overcorrected and the aircraft then landed heavily on its nosewheel. After taxiing back to the hangar and shutting down he discovered that the propeller tips were badly damaged and the nosewheel fork was distorted.

ACCIDENT

Aircraft Type and Registration:	Minicab (JB01 Standard), G-AWEP	
No & Type of Engines:	1 Continental Motors Corp C90-8F piston engine	
Year of Manufacture:	1969 (Serial no: PFA 1801)	
Date & Time (UTC):	6 July 2013 at 1230 hrs	
Location:	Sittles Farm Airstrip, Lichfield, Staffordshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damage to propeller, cowling, canopy, cabin front and roof	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	55 years	
Commander's Flying Experience:	144 hours (of which 44 were on type) Last 90 days - 14 hours Last 28 days - 4 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and additional enquiries by the AAIB	

Synopsis

The aircraft was landing at a farm strip. Approach and touchdown were normal but, as the pilot started to apply the brakes, the aircraft swung to the left and he was unable to prevent it from veering off the runway at slow speed and into a tall crop, where it overturned. Subsequent examination found that wear in a component of the left main landing gear leg was allowing considerable torsional movement of the left wheel, causing an uncommanded application of the cable brake on that side.

History of the flight

The pilot and his passenger were planning to depart from New York Farm in Lincolnshire to attend a fly-in

at Sittles Farm near Litchfield. As he had not flown in there before, he telephoned the airstrip to obtain permission and receive an airfield briefing to back up the information he had learned from their website. He also checked the weather and NOTAM information before notifying RAF Coningsby of his intentions.

The weather was good, with light winds from the south and the pilot resolved that he would only land if Runway 09/27 was in use; at 530 metres long he felt it preferable to Runway 17/35, which was 350 metres long. He states that he would have been prepared to accept a 10 kt crosswind component, but expected closer to 5 kt.

He took off from Runway 26 at New York Farm with RAF Coningsby providing him with the information that the wind was 190°/7 kt. He reports that he felt that he was having to apply a lot more right rudder than normal to counter a left drift during the takeoff roll, even though the windsock appeared slack.

Arriving at Sittles Farm, he had been given Runway 27 and could see that the windsock was hanging limp and concluded that there was no crosswind component. Following a stable approach at 50 kt, the aircraft touched-down in a three-point attitude at a speed of 45 kt at the start of the runway. It rolled straight without requiring correction and the pilot started to apply the heel brakes gently, feeling that he had plenty of runway left. However, as he applied the brakes, the aircraft started to yaw left and he released the brakes and corrected with right rudder. As this did not appear to be effective he used right brake as well but, even with full opposite rudder and brake, the pilot could not prevent the aircraft from veering off the left side of the runway at an estimated speed of 10–15 kt and entering a crop of beans standing about 4 feet high. The aircraft almost immediately came to a halt and flipped inverted.

Having checked that his passenger was uninjured, the pilot started to break away the remains of the shattered canopy and was about to exit when help arrived and the left wing was lifted to make egress easier.

Description of the main landing gear

Minicab aircraft have two main landing gear (MLG) legs and a tailwheel. The MLG legs comprise a polished steel tube with the axle assembly welded to it (see Figure 1) and an aerofoil-shaped fixed housing which is bolted to the wing main spar. The upper part of the housing is filled with rubber blocks and separator plates which are compressed under landing loads by a Duralumin 'piston' attached to the top of the steel tube. These attachments comprise two mild steel pins which are a force fit into the piston, filed flush and then locked with a pin punch. They are additionally retained by two brass sealing strips which are attached to the piston using countersunk screws. It will be evident that the attachment pins also control the toe angle of the wheel, since it is they which prevent the tubular leg from rotating relative to the housing. Independent mainwheel braking is achieved by two cable-operated drum brakes actuated by heel pedals.

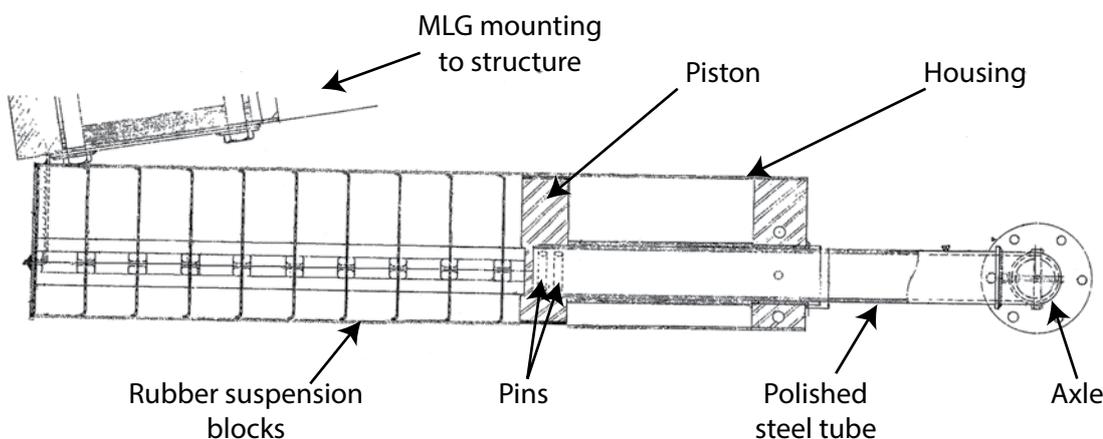


Figure 1

Drawing of Minicab MLG leg showing the Duralumin piston and steel pins which provide torsional location of the leg

Examination of the aircraft

The owner-pilot was initially unsure as to the reason for the loss of control, although he states that he sensed that the left brake may have been occasionally dragging after the aircraft was righted and was being wheeled into a hangar. However, once the aircraft was jacked, he noticed that the left wheel could be rotated around the axis of the MLG leg through about $\pm 10-12^\circ$ and that, at the fully 'toed-out' condition, a pull on the brake cable was also applying the brake. Upon removal of the tube and piston assembly from the housing, it could be seen that there was considerable rotary play between the piston and the tube and that, when the brass seal strips

were unscrewed, the two pins fell out freely from the piston, exhibiting considerable wear as well as ovality of the holes in the piston (see Figure 2). The right MLG also exhibited rotational looseness, but this was limited to about $\pm 3-5^\circ$.

The owner advised that he had carried out an overhaul of both brake assemblies fairly recently but had not noticed the degree of play, probably because the aircraft had been jacked on the bottom of each MLG leg. He has notified the Light Aircraft Association of his findings with a recommendation that other Minicab owners should check for this condition.

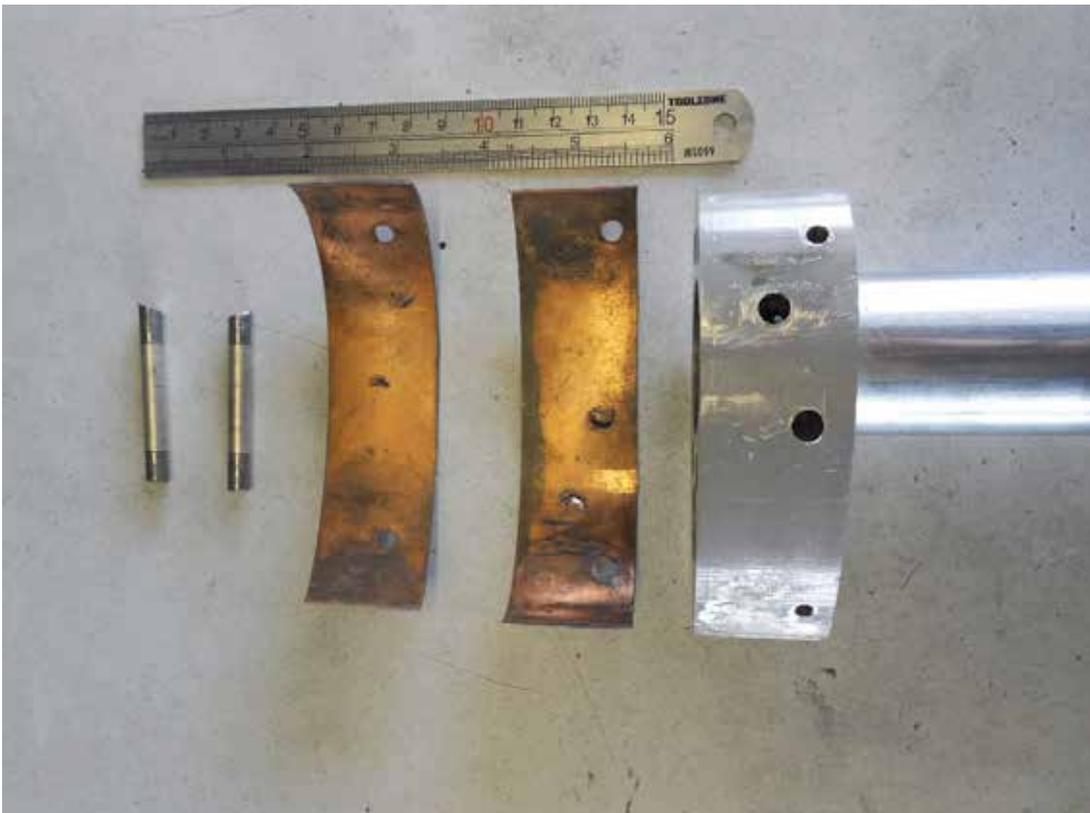


Figure 2

Photograph of disassembled piston, showing wear to the pins, ovalisation of the holes and indentations on the brass sealing strips showing lateral movement of the pins

ACCIDENT

Aircraft Type and Registration:	Pietenpol Air Camper, G-DAYZ	
No & Type of Engines:	1 Subaru EA81 piston engine	
Year of Manufacture:	2011 (Serial no: PFA 047-12342)	
Date & Time (UTC):	12 July 2013 at 1035 hrs	
Location:	Bolt Head Airfield, Devon	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to fin, wing, propeller and cowling	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	69 years	
Commander's Flying Experience:	319 hours (of which 8 were on type) Last 90 days - 8 hours Last 28 days - 7 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The aircraft was landing on the grass strip in a south-easterly direction. The wind was reported to be light and variable. On touchdown the aircraft bounced and veered right. The pilot was unable to bring it under control, it entered a 2 ft high corn crop and almost flipped

inverted. He was uninjured and vacated the aircraft with the assistance of flying club members. He was unsure as to the reason for his inability to counter the yaw to the right.

ACCIDENT

Aircraft Type and Registration:	Pioneer 300 Hawk, G-OHJE	
No & Type of Engines:	1 Rotax 912ULS piston engine	
Year of Manufacture:	2010 (Serial no: LAA 330A-14853)	
Date & Time (UTC):	6 July 2013 at 1400 hrs	
Location:	Private strip, Alloa, Clackmannanshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to propeller, engine, nosewheel and left main landing gear	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	53 years	
Commander's Flying Experience:	140 hours (of which 36 were on type) Last 90 days - 19 hours Last 28 days - 15 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The aircraft was taking-off on a flight as part of the renewal of its Permit-to-Fly, from an airstrip with a 470 m runway. The pilot elected to use the direction which had an upslope because this was favoured by the wind direction. However, the aircraft was unable to clear a high wire fence at the far end of the runway. This brought the aircraft to a standstill with the nose landing gear collapsed.

History of the flight

The aircraft had been prepared for a flight to renew its Permit-to-Fly. This involved adding 20 kg of ballast and refuelling to full such that the aircraft was at 70% of its maximum gross weight. The pilot knew that

he would later have to perform the test at 92% gross weight for the Permit process, but wanted to check the aircraft's performance at a lower weight first because the 8 kt prevailing wind favoured use of the westerly runway, which had an upslope for the first 330 m of its 470 m total length.

Having performed all the required checks, the pilot commenced the takeoff roll. As the aircraft reached the top of the upslope it became airborne briefly but then descended. The pilot decided to continue the takeoff because he felt that, with 140 m of level ground remaining, he would be able to clear the 8 ft wire netting fence at the end of the runway. Unfortunately, this was

not the case and the aircraft contacted the fence at a height of about 6 ft, winding the netting around the propeller and bringing the aircraft to a halt some 100 m beyond the fence with the nosewheel collapsed.

Discussion

The pilot stated that, having read after the event numerous reports on the effect of upslope and wind speed on takeoff distance, he believed the aircraft was

on its performance limit and that he should have used the downhill runway instead. He thought that a slight downdraft caused by nearby trees may have reduced the aircraft's climb rate still further. In future he intends to estimate a point on a runway with an upslope beyond which the takeoff would be abandoned if not airborne.

ACCIDENT

Aircraft Type and Registration:	Piper J3C-65 Cub, G-BTET
No & Type of Engines:	1 Continental Motors Corp A65-8 piston engine
Year of Manufacture:	1946 (Serial no: 18296)
Date & Time (UTC):	31 August 2013 at 0900 hrs
Location:	Enstone Airfield, Oxfordshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - 1 (Minor) Passengers - N/A
Nature of Damage:	Damage to landing gear, fuselage, propeller and engine
Commander's Licence:	Private Pilot's Licence
Commander's Age:	66 years
Commander's Flying Experience:	270 hours (of which 24 were on type) Last 90 days - 13 hours Last 28 days - 1 hour
Information Source:	Aircraft Accident Report Form submitted by the pilot

During the final approach, the pilot became aware that the aircraft was descending below the normal approach path and that the engine was not developing the usual level of power. The engine failed to respond to throttle movement and the aircraft continued to descend below the approach path. The aircraft struck a signal post which was positioned just outside the airfield perimeter fence and came to rest within the airfield boundary. The

pilot was unhurt and left the aircraft unaided. Several other pilots who had flown the aircraft had experienced similar low power events which had been attributed to carburettor icing. The pilot also attributed this incident to carburettor ice formation during the later stages of the flight. The weather conditions at the time of the incident were conducive to the formation of carburettor icing at cruise or descent power settings.

ACCIDENT

Aircraft Type and Registration:	Piper PA-28R-180 Cherokee Arrow, G-OKAG	
No & Type of Engines:	1 Lycoming IO-360-B1E piston engine	
Year of Manufacture:	1967 (Serial no: 28R-30075)	
Date & Time (UTC):	29 July 2013 at 1550 hrs	
Location:	Field near Hertford, Hertfordshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to nosewheel, main landing gear, inboard section of left wing and belly strobe light	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	40 years	
Commander's Flying Experience:	388 hours (of which 255 were on type) Last 90 days - 16 hours Last 28 days - 9 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot planned a flight from Stapleford, Essex, to Leicester and a return via Panshanger, Hertfordshire. Although he had checked the forecast, he was unable to land at Leicester due to bad weather. After two go-arounds at Panshanger due to strong turbulence, the pilot decided to return to Stapleford but, on climbout the engine stopped and he performed a forced landing in a field. The aircraft overran through a hedge and across a shallow ravine before coming to a halt. The pilot suspects that he may have made an incorrect fuel valve selection due to preoccupation with handling the aircraft in the challenging weather conditions.

History of the flight

The pilot was intending to fly from Stapleford to Leicester where he planned a brief technical stop before returning to Stapleford via Panshanger. The aircraft was fuelled with 20 US gallons and the usual planning and pre-flight checks were carried out. Checking the weather forecast, he saw that there was a 15-20 kt south-westerly airflow with 10 k visibility but with isolated showers and cumulonimbus clouds. The METARs were reporting uniformly VFR conditions throughout central/south-eastern England and the pilot was content that he would be able to avoid any storm cells visually.

As he approached Leicester with about 20 nm to run at 1510 hrs, he heard Leicester ATC report bad weather to

another aircraft, which elected to hold a few miles out. The pilot was visual with the cell and he considered that his best option was to immediately divert to Panshanger rather than hold for an indeterminate time at an airfield which was due to close at 1600 hrs. Having considered and rejected Sywell as an alternative, the fact that he had seen that conditions were good at Panshanger on the outbound leg, and that the airfield would be open until 1800 hrs, persuaded him that this was the correct course of action.

At 1545 hrs, the pilot had positioned the aircraft on right base leg for Runway 29 at Panshanger and carried out the pre-landing checks which included changing fuel tanks and selecting the electric fuel pump ON. When established on finals, he sensed unusual power or propeller fluctuations. Checking fuel on, pump ON, mixture rich and pitch fine, it now appeared to him that the fluctuations were related to varying crosswind effects and turbulence. He saw that the windsock was showing about 240°/15 kt but the gusts were increasing and the approach was unstable, so he made the decision to go around, noting dark clouds to his left, encroaching on the airfield. During the go-around, which involved an early right turn for noise abatement reasons, he suddenly found himself working very hard to maintain his target airspeed and angle of bank whilst retracting the landing gear and flaps. The airspeed indicator (ASI) was showing large fluctuations and the varying wind strength was making directional control difficult such that his entire concentration was required to maintain control.

On the late downwind leg, the power symptoms appeared to subside a little but the aircraft was still being severely buffeted by turbulence so the pilot decided to continue on to Stapleford, which was about 10 minutes flying time away in good weather conditions. Climbing to a safe altitude whilst departing Panshanger Air Traffic

Zone (ATZ), the pilot was still having difficulty in keeping the aircraft under control and felt that there was a recurrence of the power/pitch fluctuations which he had experienced on the approach to Panshanger. He also reports that he was having difficulty reading the instruments.

The pilot then sensed a further reduction in power and feared a complete loss was imminent. He started to search for a suitable forced landing ground and, after about 15 seconds, the engine stopped completely. The pilot quickly transitioned from a climbing attitude to a trimmed glide as he descended towards the field he had selected earlier whilst transmitting a MAYDAY call to Panshanger radio. He extended the landing gear but not the flaps since some power lines became apparent as he drew closer and he did not want to touch down short. After touchdown, the pilot realised that he would be unable to prevent the aircraft from running into a hedge at the far end of the field. He briefly thought about trying to turn the aircraft to avoid the hedge but, being aware of reports of accidents where this had been attempted, he decided that it was safer to strike it at right angles.

The aircraft passed easily through the hedge, down a shallow ravine and, as it rolled up the other side, the nose landing gear collapsed. It came to rest at right angles to its direction of travel and the pilot shut the aircraft down and vacated it. A few minutes later the police and the farm owner arrived.

The pilot commented that controlling the aircraft in challenging weather conditions had been absorbing most of his concentration and, when the engine stopped, he was unable to carry out any diagnostics as to a possible reason. He does not rule out the possibility that he may have made an incorrect selection of the fuel selector valve.

ACCIDENT

Aircraft Type and Registration:	Piper PA-28-161 Cherokee Warrior II, G-BOHA	
No & Type of Engines:	1 Lycoming O-320-D3G piston engine	
Year of Manufacture:	1978 (Serial no: 28-7816352)	
Date & Time (UTC):	17 July 2013 at 1455 hrs	
Location:	Lee-on-Solent Airfield, Hampshire	
Type of Flight:	Training	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to nosewheel, engine mount and propeller, engine shock-loaded	
Commander's Licence:	Student pilot	
Commander's Age:	37 years	
Commander's Flying Experience:	36 hours (of which 21 were on type) Last 90 days - 6 hours Last 28 days - 3 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and reports from the duty Air/Ground radio operator and the aircraft operator	

Synopsis

The student pilot was making a second attempt at landing in a 10 kt crosswind on his second solo flight. He had rejected the first landing after having directional control difficulties on touchdown. He experienced similar difficulties on his second landing, and was not able to correct the situation with full rudder pedal. An attempt at a further go-around was not successful and the aircraft left the hard runway with significant power applied. The pilot eventually brought the aircraft to rest after the nose leg collapsed.

History of the flight

The student pilot was briefed by his instructor for a local exercise, which was to be his second solo flight. The weather conditions were generally fine, with a light and variable wind. Runway 23 was in use, which was a hard surface of 1,309 m length.

The first part of the flight (a short navigation exercise) proceeded normally, and the pilot returned to Lee-on-Solent in preparation for landing. Since takeoff, the surface wind had increased to 10 kt from 170°. The pilot flew a stable approach to Runway 23 but, as the aircraft touched down, it veered left into wind. The pilot corrected with right rudder pedal, and stopped the

deviation as the aircraft reached the runway edge. He initiated a go-around, which was successful.

The pilot reported that he had flown dual in similar crosswind conditions without significant problem. He therefore requested the surface wind again, and was advised it was from between 150° and 170° at 10 kt. He flew a further stable approach, but again experienced a swing on touchdown. He applied full right rudder pedal but felt no effect on the aircraft. He again attempted to go around but the application of full power aggravated the situation. The pilot again tried to correct with right rudder pedal and also reduced power, but the nose leg collapsed and the aircraft came to a stop.

Further information

The duty Air/Ground radio operator witnessed the event and described seeing the aircraft veer off the runway and continue to travel about 80 m in an easterly direction.

From the pilot's report and photographs of the scene, the aircraft turned left through about 150° from its initial heading before coming to a stop. Ground witness marks suggested that the nose gear failure had occurred relatively late in the sequence, and propeller damage indicated that significant engine power was still applied at that time.

The student pilot acknowledged that his inexperience was a probable factor in the accident but could not account for the aircraft's failure to respond to his right rudder pedal application. The aircraft operator reported that the aircraft had been flown by a senior club member about 2 hours earlier without incident. An inspection of the aircraft after the accident had not revealed any defects which may have contributed to the accident.

INCIDENT

Aircraft Type and Registration:	Pitts S-1S, G-EEPJ	
No & Type of Engines:	1 Lycoming O-360-A4A piston engine	
Year of Manufacture:	1991 (Serial no: PFA 009-11557)	
Date & Time (UTC):	10 August 2013 at 0710 hrs	
Location:	Leicester Airport	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Left landing gear collapsed, left wing and propeller tip damaged	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	54 years	
Commander's Flying Experience:	283 hours (of which 80 were on type) Last 90 days - 21 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot and AAIB enquiries	

Synopsis

The aircraft developed an uncommanded turn to the right as its speed reduced during a landing roll. The pilot applied left rudder to counter the turn with no effect and the right turn continued and accelerated to the point where the tailwheel unlocked. The aircraft then rapidly pirouetted clockwise through 180°, collapsing the landing gear and striking the left wing on the runway. The pilot was uninjured and vacated the aircraft. The loss of control of the tailwheel was probably caused by detachment of the left side ring which connects the chain and spring from the rudder to the tailwheel steering T-bar.

History of the flight

The pilot was landing at Leicester and as the speed reduced on landing to a fast taxi, the aircraft developed a "minor right turn". The pilot made a left rudder input to counter the turn but to no effect. The turn to the right accelerated causing the tailwheel to unlock and the aircraft to pirouette through 180°. This motion overloaded the left landing gear struts and caused them to collapse and fold underneath the aircraft. During the rotation the left wing struck the ground and sustained damage to its lower surface and aileron. The propeller blade tips were also damaged. The pilot was uninjured and vacated the aircraft. Inspection of the tailwheel found the left tailwheel steering chain and spring hanging loose

having become detached from the tailwheel steering T-bar. Closer examination of the tailwheel assembly found that the connecting split ring was missing.

Steering system

The Pitts S-1S can be steered on the ground using the small castering tailwheel for assistance. There is a T-bar at the top of the tailwheel king pin which is connected to the rudder with chain linkage assemblies, springs and split rings. Rudder pedal inputs from the pilot move the rudder to the left and right as required, which in turn moves the tailwheel. The tailwheel king pin is connected to the T-bar via a spring-loaded detent assembly designed to unlock the tailwheel to rotate independently of the T-bar should an excessive side load occur.

Pilot's observations

The pilot was surprised at what had taken place. His previous takeoff and the landing, up to the incident, had been uneventful with the aircraft responding correctly to his steering inputs. On reflection he considered that

during the initial part of his landing the aircraft was responding to the aerodynamic authority of the rudder rather than steering control from the tailwheel. It was only at low speed, with reduced rudder authority, that the effect of the missing linkage became apparent. The pilot was unable to define the point at which the split ring detached and he walked the runways at Brighton and at Leicester after the incident in an effort to find the missing ring but was unsuccessful. He did note that in the past he had been unhappy with his aircraft having a "sloppy" steering response and requested an engineer take corrective action. This was done by the removal of a link from the left and right chains to reduce the slack in the system. As far as the pilot was concerned this had cured the problem and he had carried out satisfactory low speed taxiing on numerous occasions since.

ACCIDENT

Aircraft Type and Registration:	Pitts S-1T Special, G-WILD	
No & Type of Engines:	1 Lycoming AEIO-360-A1E piston engine	
Year of Manufacture:	1983 (Serial no: 1017)	
Date & Time (UTC):	31 March 2013 at 1355 hrs	
Location:	White Waltham Airfield, Berkshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Aircraft beyond economic repair	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	29 years	
Commander's Flying Experience:	398 hours (of which 93 were on type) Last 90 days - 3 hours Last 28 days - 3 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and subsequent AAIB enquiries	

Synopsis

On touchdown, the aircraft pitched nose-down, and somersaulted completely onto its back before coming to rest once again erect, but substantially damaged. Photographs showed that the aircraft had touched down amongst ruts slightly to the side of the 30 m width of licensed runway. The ruts had been left by a vehicle deploying and retrieving portable runway lighting, used for night flying operations. The airfield operator made several changes to procedures as a result of the investigation.

History of the flight

Following an aerobatic flight, the aircraft approached the airfield from the south-west and joined the circuit.

The weather was benign, with a light easterly wind, good visibility, and no low cloud. The pilot established the aircraft on a stable final approach to Runway 11 with power at between 85 and 90 mph. In order to keep the centreline of the runway in sight, she elected to fly with sideslip to the right and aimed to touch down to the right of the centreline. Slightly before touchdown, the pilot "kicked off" the sideslip, maintaining a three-point attitude for touchdown, and reduced power to idle.

The tailwheel touched down first, followed very quickly by the main wheels. The aircraft pitched nose-down immediately, prompting the pilot to be concerned

that the brakes were unintentionally being applied; she checked that no pressure was being applied to the brake pedals. The pitching continued, the tail rose up, and the aircraft somersaulted completely, rotating around its lateral axis onto its back before coming to rest once again erect, but substantially damaged. A witness stated that the approach had appeared normal, and that on touchdown, the aircraft “flipped dramatically, as if it had hit a divot”.

The pilot, uninjured, evacuated the aircraft and was attended by staff on the airfield and then emergency services. She stated that three things contributed to her survival: having been flying aerobatics, her harness was fully tight; a thick energy-absorbing foam cushion on the seat protected her back; and although her head had apparently shattered the canopy, a leather flying helmet had prevented injury.

Additional information

Photographs showed that the aircraft had touched down amongst ruts slightly to the side of the 30 m width of licensed runway (the edges of the runway were not marked). The ruts had been left by a vehicle deploying and retrieving portable runway lighting, used for night flying operations.

An experienced Pitts pilot and instructor commented that the somersault was possibly precipitated by the propeller tips striking the ground. Photographs showed witness marks in the grass consistent with propeller blade strikes and there was evidence of ground contact on the blade tips. A collapse of the right main landing gear could have contributed to the propeller strike. However, examination of the wreckage showed that the landing gear strut had distorted towards the end of the somersault sequence. The leg bending in compression along its axis was caused by an impact with considerable

lateral motion. Grass was found lodged between the tyre wall and wheel rim, also indicating that significant side-load had been present. There was no evidence of pre-impact fatigue.

Aerodrome operations matters

At the time of the accident, the air/ground radio at the aerodrome was being manned by staff in the operations room on the ground floor of the flying club buildings, not in the visual control room on an upper floor. The personnel in the operations room were engaged in several tasks apart from responding to radio calls, and were not able to devote their attention entirely to radio communications or keeping a watch out over the aerodrome. Only part of the manoeuvring area was visible from the operations room.

The accident site was not visible from the operations room, and the air/ground radio operator was not aware of the accident until a flying instructor, who had witnessed it, reported it. The emergency was only recognised by the radio operator following the second of two radio calls which the instructor made. Staff in the operations room then alerted the aerodrome’s rescue and fire-fighting personnel.

Safety actions

Following the accident, the aerodrome operator reported that procedures have been amended, and an air/ground radio operator is now put on duty in the visual control room whenever staffing permits. Pilots and instructors at the aerodrome have been reminded to make an urgency (pan) transmission if they observe an incident or accident.

The chief flying instructor and airfield manager will also carry out a risk assessment based on the surface conditions before night flying. If the ground conditions

make it appear that operations will exacerbate the rutting on the manoeuvring area, night flying will not take place. The ground crew will be briefed to vary the route of the truck and trailer whilst installing the night lights and efforts will be made to fill and/or flatten the ruts that are already in place by using a roller when the ground is soft enough for it to be effective.

imparted when the main landing gear contacted the ruts, causing a pitching motion to begin, and that the propeller strike exacerbated the pitching motion, which developed into the somersault.

Conclusion

It is likely that the somersault was caused by forces

ACCIDENT

Aircraft Type and Registration:	Tecnam P2002-JF Sierra, G-UFCM	
No & Type of Engines:	1 Rotax 912-S2 piston engine	
Year of Manufacture:	2011 (Serial no: 192)	
Date & Time (UTC):	25 July 2013 at 1620 hrs	
Location:	Playing field in Newtownards, County Down, Northern Ireland	
Type of Flight:	Training	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - 1 (Minor)	Passengers - 1 (Minor)
Nature of Damage:	Damaged beyond economic repair	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	38 years	
Commander's Flying Experience:	1,326 hours (of which 320 were on type) Last 90 days - 77 hours Last 28 days - 37 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Whilst on final approach the engine spluttered and then cut out when the throttle was advanced. The aircraft struck the ground and overturned into an area of trees; both occupants suffered minor injuries.

History of the flight

Whilst the student was performing the pre-flight magneto check at 1,000 rpm, there was a large drop in rpm and the engine ran roughly. The engine speed was then increased to 1,600 rpm for 30 seconds. On repeating the magneto check the engine ran smoothly. This was the first time that the instructor had observed such engine behaviour on this aircraft type.

Three circuits were then flown without incident. On the fourth circuit the student carried out the downwind checks and noticed a difference in the fuel gauge readings. The fuel selector was switched from the left to the right (fuller) tank and the instructor recalled checking that the fuel pressure had been maintained.

The aircraft was configured for base leg with the throttle closed, carburettor heat set to ON and the flaps set to 15°. The student turned onto finals at 700 ft and then selected flaps to 40°, and carburettor heat to OFF. The descent was continued at idle power. The instructor felt there was training benefit in demonstrating to the student the effect of selecting full flap early; this caused the aircraft to descend below the correct flight path. At

300 ft the instructor explained that they were too low and that more power was needed. The student applied power; however the engine spluttered and then stopped. The instructor transmitted a MAYDAY and selected an area on a playing field away from where some children were playing football. The aircraft struck the ground and overturned into an area of trees; both occupants suffered minor injuries.

Discussion

The Met Office supplied an aftercast which included information from several sources. Belfast Harbour

Airport (EGAC) was reporting a temperature of 19°C and a dewpoint of 15°C; this would place the engine as being potentially at serious risk of icing at descent power (Figure 1). The instructor considered that the engine could have stopped due to carburettor icing, fuel starvation or spark plug fouling but it was not possible to determine which of these was most likely.

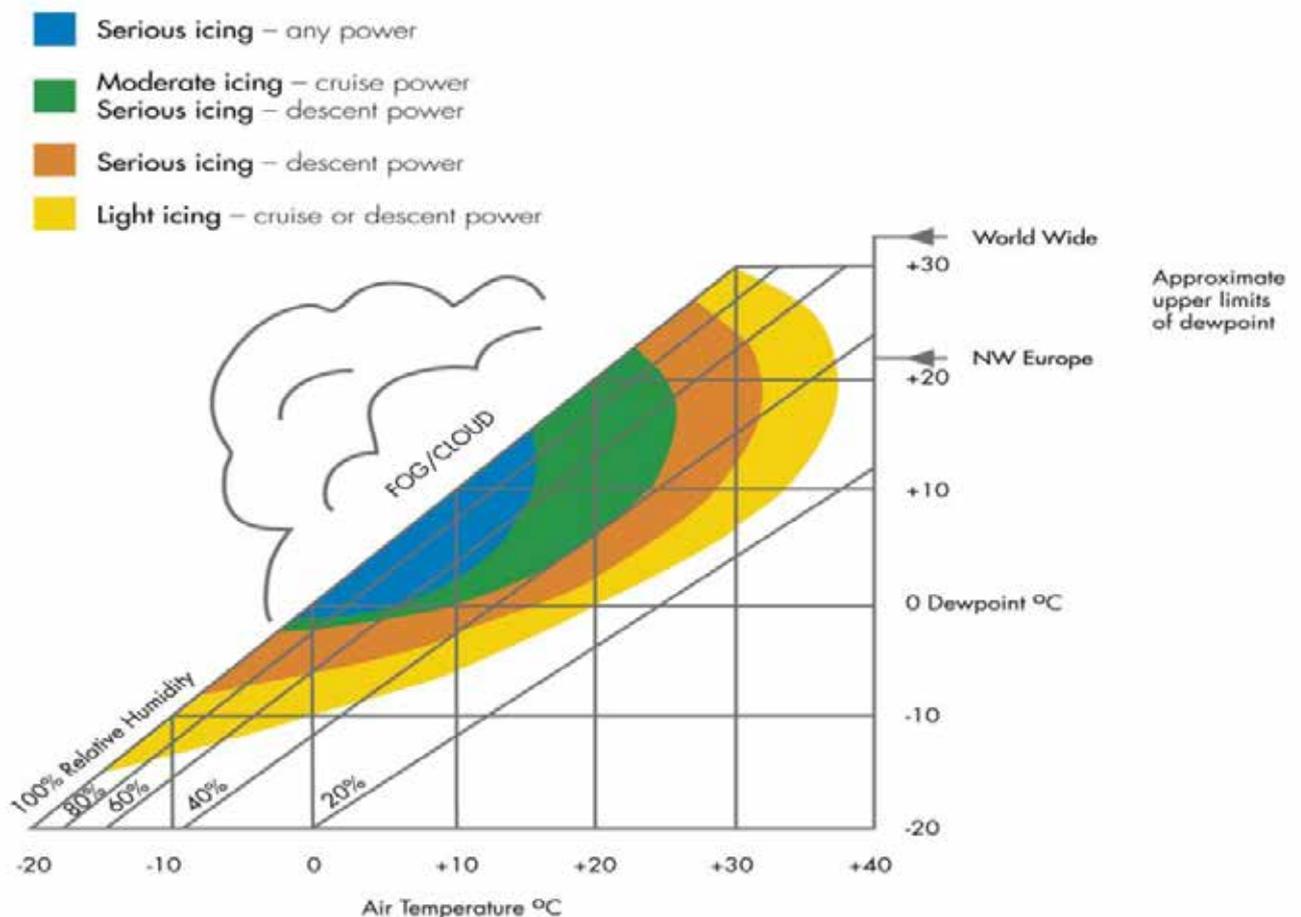


Figure 1

ACCIDENT

Aircraft Type and Registration:	Valentin Taifun 17E, D-KFIH	
No & Type of Engines:	1 Limbach L2400 DF1 piston engine	
Year of Manufacture:	2001 (Serial no: 1057)	
Date & Time (UTC):	11 August 2013 at 1245 hrs	
Location:	Weybourne (Muckleburgh) Airfield, Norfolk	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Fuselage, landing gear	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	60 years	
Commander's Flying Experience:	9,000 hours (of which 462 were on type) Last 90 days - 49 hours Last 28 days - 31 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

While on final approach to land on Runway 21 at Weybourne Airfield, the pilot became distracted by a truck crossing the approach path near the runway threshold, resulting in a hard landing. The left main landing gear subsequently collapsed.

Description of the event

Weybourne is a grass airfield with two intersecting runways: Runways 21/03 and 16/34. Runway 21 has a slight upslope. An MOD radar site is located between the thresholds of Runways 21 and 16, and there is a military museum situated adjacent to the airfield. A narrow road runs from the radar site to the museum around the periphery of the airfield, crossing close to the start of Runway 21.

While on final approach to Runway 21, the pilot noticed a large army truck on the road. The truck was about to cross his approach path, but he considered that there was sufficient clearance and decided to continue the approach. At a very late stage in the approach he noted that the airspeed had reduced to the minimum approach speed. The pilot commented that the wind dropped when the aircraft was a few metres above the runway, causing a further reduction in airspeed, leading to a hard landing. When he subsequently applied the brakes the left main gear collapsed.

The pilot was uninjured and was able to exit the aircraft without assistance. He considered that he had become distracted by the truck crossing the approach path and

had “focussed on it too long to assess safe continuation”
of the approach.

BULLETIN CORRECTION

The correct date of manufacture of the aircraft is 1985.

This correciton was issued prior to publication of the
Bulletin.

ACCIDENT

Aircraft Type and Registration:	W.A.R. FW190 (replica), G-SYFW	
No & Type of Engines:	1 Continental Motors Corp O-200-A piston engine	
Year of Manufacture:	1984 (Serial no: PFA 081-10584)	
Date & Time (UTC):	19 July 2013 at 1920 hrs	
Location:	Shacklewell Farm, Leicestershire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to fuselage underside, air box and propeller	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	73 years	
Commander's Flying Experience:	1,069 hours (of which 4 were on type) Last 90 days - 5 hours Last 28 days - 4 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The aircraft was landing at its home field. After one practice touch-and-go and a go-around due to another aircraft in the circuit, the aircraft landed wheels-up because the gear electric actuator fuse had blown. The pilot had not noticed that the green indicator lights were not lit on the approach.

History of the flight

The W.A.R. Focke-Wulf 190 is an approximately half-scale home-built replica of the WWII fighter. It has two electrically-actuated retractable mainwheels and a fixed tailwheel. When the mainwheels are down and locked, two green lights illuminate in the cockpit. In the event of failure of the electric actuation system, the gear can be extended using a manual crank system.

The pilot of G-SYFW was returning to his home field at Shacklewell Farm. Arriving overhead, he selected landing gear DOWN and commenced an approach for a touch-and-go landing. On finals he checked 'two greens' and executed the manoeuvre, retracting the gear as the aircraft climbed away. On the second approach, having extended the gear and checked 'two greens', the pilot saw that another aircraft was taking off so he decided to abandon the approach and selected gear UP again. Extending the climb-out to allow the other, slower aircraft to become established downwind, he selected the landing gear DOWN and continued the approach to land after it. As he flared to land, he realised that the landing gear was not down and the green indicator lights were not illuminated. The aircraft slid to a halt on its belly with relatively minor damage.

The pilot admits that he omitted to check the green lights during the last approach. It was subsequently found that the gear actuator motor fuse had blown and, after the aircraft was lifted, the gear was extended using the alternate crank mechanism.

ACCIDENT

Aircraft Type and Registration:	Yak-52, G-STNR
No & Type of Engines:	1 Ivchenko Vedeneyev M-14P piston engine
Year of Manufacture:	1983 (Serial no: 833810)
Date & Time (UTC):	23 August 2013 at 1008 hrs
Location:	Swansea Airport
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Damage to propeller, flaps and tailskid
Commander's Licence:	Private Pilot's Licence
Commander's Age:	65 years
Commander's Flying Experience:	1,027 hours (of which 791 were on type) Last 90 days - 27 hours Last 28 days - 4 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

The aircraft was inbound to Swansea Airport when the oil chip light illuminated. During the expedited approach the pilot selected the landing gear and flaps however the aircraft settled on the runway on its fuselage and trailing edge of the flaps damaging the windmilling propeller. When the aircraft was subsequently lifted using slings, the three gear legs lowered and then locked in position.

The pilot considered that he selected the flaps and the gear just before touchdown and at the same time placing a heavy demand on the air system. This resulted in there being insufficient time for the gear to lock down. A small washer and metallic particles were later found in the oil chip detector filter.

ACCIDENT

Aircraft Type and Registration:	Cosmik Aviation EV-97 Eurostar, G-CEHL	
No & Type of Engines:	1 Rotax 912-UL piston engine	
Year of Manufacture:	2006 (Serial no: 2928)	
Date & Time (UTC):	9 August 2013 at 1224 hrs	
Location:	Gloucestershire Airport	
Type of Flight:	Training	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to nose landing gear, propeller, engine cowling and firewall	
Commander's Licence:	Student pilot	
Commander's Age:	64 years	
Commander's Flying Experience:	46 hours (of which all were on type) Last 90 days - 9 hours Last 28 days - 3 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The student pilot initiated takeoff with an incorrect pitch trim setting. The aircraft pitched nose-down shortly after takeoff and entered a series of pitch oscillations during which it touched down on its nose landing gear, which collapsed.

History of the flight

The student pilot was conducting a solo takeoff from Runway 27 when the accident occurred. The weather was fine, with good visibility and a 9 kt wind from 290°. With full power applied, the aircraft lifted off at 55 to 60 mph and climbed to 8 to 10 ft before pitching nose-down. The student pilot reduced power to idle and allowed the aircraft to settle on the runway, before

reapplying full power. The aircraft followed a similar motion as before, this time entering a series of pitch oscillations. This resulted in the nose landing gear collapsing. The aircraft skidded to a halt on the runway and the student pilot made switches safe before vacating. The Airport's RFFS arrived on scene shortly afterwards.

The student's flying instructor witnessed the accident and observed multiple touchdowns on the nose landing gear before it collapsed. He was subsequently able to replicate the pitch and feel of the aircraft by applying more down trim than was normal, and concluded that the aircraft had commenced takeoff with an incorrect pitch trim setting. The instructor noted that the pitch

trim control on the Eurostar aircraft is relatively coarse and has a powerful effect. It was also found that, with training in assertive selection of pitch attitude against unexpected control pressures, it was possible to overcome the effects of an incorrectly trimmed aircraft.

Additional training to improve recognition and reaction to such a situation was to be included in the training organisation's syllabus.

ACCIDENT

Aircraft Type and Registration:	EV-97 Eurostar, G-CDNI	
No & Type of Engines:	1 Rotax 912-UL piston engine	
Year of Manufacture:	2005 (Serial no: 2321)	
Date & Time (UTC):	3 May 2013 at 1850 hrs	
Location:	Landmead Farm Strip, Oxfordshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damage to landing gear and propeller	
Commander's Licence:	National Private Pilot's Licence (Microlight)	
Commander's Age:	54 years	
Commander's Flying Experience:	265 hours (of which 238 were on type) Last 90 days - 6 hours Last 28 days - 3 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The Eurostar aircraft was parked at Shoreham when a member of the ground crew observed it being "lifted off the ground" several times as an Apache helicopter landed nearby. Before departing for Landmead the Eurostar pilot made only a quick pre-flight check because the Apache was due to start up. During the landing roll at Landmead the pilot applied the brakes and the aircraft

swerved left, causing the nose leg and right main gear leg to collapse.

The pilot considered that some damage may have been caused at Shoreham which a more thorough pre-flight inspection might have revealed.

ACCIDENT

Aircraft Type and Registration:	EV-97 Teameurostar UK, G-CFNW	
No & Type of Engines:	1 Rotax 912-UL piston engine	
Year of Manufacture:	2008 (Serial no: 3317)	
Date & Time (UTC):	14 August 2013 at 1410 hrs	
Location:	Perth Airport, Scotland	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Scuffed right winglet, dented nose landing gear leg	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	61 years	
Commander's Flying Experience:	3,100 hours (of which 85 were on type) Last 90 days - 86 hours Last 28 days - 25 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The pilot was carrying out an approach to Runway 21 at Perth Airport, accompanied by an instructor. During the flare, the pilot perceived an "excessive sink" rate and the aircraft yawed and rolled to the right. The instructor took control to commence a go-around and, as he started to rotate the aircraft into the climbing attitude,

he assessed that the right wingtip contacted the runway. He immediately aborted the go-around and the aircraft touched down on the grass beside the runway and rolled into standing crop. The damage to the underside of the winglet was consistent with it having contacted the runway.

ACCIDENT

Aircraft Type and Registration:	Gemini Flash IIA, G-MVXB	
No & Type of Engines:	1 Rotax 462 piston engine	
Year of Manufacture:	1989 (Serial no: 762-789-7-W555)	
Date & Time (UTC):	13 July 2013 at 1430 hrs	
Location:	Eshott Airfield, Northumberland	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Wing destroyed beyond repair	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	50 years	
Commander's Flying Experience:	810 hours (all on type) Last 90 days - 49 hours Last 28 days - 20 hours	
Information Source:	Aircraft Accident Report Forms submitted by the instructor pilot and student	

The flex-wing microlight was engaged on a training exercise when the accident occurred. The weather was fine, with a surface wind from 090° at 10 kt. The student pilot flew a normal approach and landing to Runway 08 and, as the aircraft slowed, made a steering input to turn to the left in order to vacate the runway. As he did so,

the instructor's right foot became stuck between the rear steering control and the right fuselage side, preventing the student from returning the steering to centre. The aircraft steered sharply to the left, causing it to roll to the right and overturn. Neither occupant was injured.

ACCIDENT

Aircraft Type and Registration:	Kolb Twinstar Mk III (Modified) Twinstar, G-MYXS	
No & Type of Engines:	1 Rotax 582 piston engine	
Year of Manufacture:	1994 (Serial no: PFA 205-12528)	
Date & Time (UTC):	27 July 2013 at 1115 hrs	
Location:	Field south of Arclid Airfield, Cheshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damaged beyond economic repair	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	75 years	
Commander's Flying Experience:	316 hours (of which 59 were on type) Last 90 days - 13 hours Last 28 days - 3 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and additional enquiries by the AAIB	

The aircraft was being prepared for a flight back to its home base at Clotton, about 13 km east of Chester, having earlier made a 46 minute flight to Arclid Airfield. The pilot performed his usual checks and noted that all the instruments gave normal readings; he also had more than sufficient fuel onboard for the flight.

He took off using maximum engine rpm but at a height of approximately 250 ft, the engine stopped abruptly. The pilot realised that he could not safely alter his heading substantially, so he searched ahead for a suitable field. The first field he saw was growing tall rape but the

one after that contained wheat, which the pilot thought looked preferable for a forced landing. However, there was insufficient height for the aircraft to glide to the second field and it landed in the rape, coming to a rapid halt as it did so. The aircraft remained upright and the pilot was uninjured.

The pilot is uncertain of the cause of the engine failure but notes that the carburettor bowl was dry and the propeller very stiff to turn, possibly because of fuel (and therefore also lubricating oil) starvation of this two-stroke engine.

ACCIDENT

Aircraft Type and Registration:	Pegasus Quantum 15-912, G-EEKS	
No & Type of Engines:	1 Rotax 912 piston engine	
Year of Manufacture:	1999 (Serial no: 7504)	
Date & Time (UTC):	29 June 2013 at 1230 hrs	
Location:	Plaistows Farm, St Albans, Hertfordshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damage to wing, propeller and pod	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	46 years	
Commander's Flying Experience:	100 hours (of which 70 were on type) Last 90 days - 40 hours Last 28 days - 25 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The aircraft was approaching to land with a slight crosswind component from the left. The pilot reported that he was both high and slow on the round-out and control response was sluggish. A gust of wind blew the

aircraft off the centreline and it stalled at a height of about 3 ft. The aircraft struck the ground nose first and another gust blew it over inverted. Neither the pilot nor his passenger was injured.

ACCIDENT

Aircraft Type and Registration:	Pegasus Quik, G-CDSA	
No & Type of Engines:	1 Rotax 912ULS piston engine	
Year of Manufacture:	2005 (Serial no: 8144)	
Date & Time (UTC):	6 July 2013 at 1500 hrs	
Location:	Bycross Farm, Herefordshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - 1 (Minor)
Nature of Damage:	Damage to leading edges of wing and propeller	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	60 years	
Commander's Flying Experience:	220 hours (of which 80 were on type) Last 90 days - 14 hours Last 28 days - 5 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The aircraft had touched down at a short farm strip on a very warm day and at a high landing weight. The pilot felt that he was not going to stop in the distance available and tried to steer the aircraft off the runway to the right. However, it tipped onto its left wing and came to a halt on the runway 20 m from a hedge at the end.

History of the flight

On a very warm day (about 25°C), the pilot was landing at Bycross Farm for the first time, following a short flight from another farm strip. He observed the windsock indicating light and variable winds and decided that they were favouring grass Runway 09, which he had earlier established was 300 m long. He realised that, due to the runway length and because the aircraft was close to its

maximum gross weight, he would have to touch down near the runway threshold. However, there were farm buildings, trees and a campsite on the approach which he had to overfly at a reasonable height. Eventually, he closed the throttle at about 150 ft agl and, at a speed of 60 mph, flew a glide approach as close to the obstructions as he felt was safely possible.

After what he described as a smooth landing on the mainwheels, at 55 mph, the pilot lowered the nosewheel and commenced braking; he estimated that he had used about a third of the runway at this point. As he applied the brakes, he felt that the wheels were locking and the aircraft was skidding in a straight line along the grass. He released the brakes and tried applying them several

more times but to no avail. Still travelling at an estimated 15 mph, he realised that he might not stop before the end of the runway so he steered the aircraft to the right in the hope that it would increase the available stopping distance. However, the aircraft continued in a straight line and became unbalanced. It tipped onto its left side and came to a halt about 20 m from the hedge at the end of the runway, damaging the wing and propeller. The pilot was uninjured and his passenger suffered minor bruises on her legs.

Discussion

The pilot gave a full and frank analysis of the factors which he believed may have contributed to the accident, bearing in mind that the aircraft was heavy, the weather was hot and the strip was short. They include the following;

- He had underestimated the distance required to stop whilst recognising that there would be a reliance on the brakes, given the high landing weight and warm weather conditions.
- He should have been aware that applying the brakes at high speed ran the risk of the wheels skidding and increasing the ground roll.
- He might have been able to reduce the ground roll if he had pulled the control bar fully back to increase the drag from the wing. This is an emergency technique recognised in the aircraft's operating manual but which cautions that it could result in damage to the nose landing gear due to the higher loads it generates.
- The strip had recently been mown and the cuttings left on the surface. This may have rendered the surface more prone to skidding.

CAA Safety Sense Leaflet No.12, '*Strip Flying*', contains information for pilots operating into such fields. It includes advice on assessing the strip prior to a flight and relevant operating and flying considerations. It also recommends adding a 43% safety factor to the aircraft manufacturer's published figure for the landing distance from 50 ft. For this flight, applying this factor would have resulted in the calculated Landing Distance Required exceeding the Landing Distance Available.

ACCIDENT

Aircraft Type and Registration:	Rans S6-ESD (Modified) Coyote II, G-MYUZ	
No & Type of Engines:	1 Jabiru 2200 piston engine	
Year of Manufacture:	1994 (Serial no: PFA 204-12741)	
Date & Time (UTC):	27 August 2013 at 0950 hrs	
Location:	Sandown Airport, Isle of Wight	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Propeller, wings, engine housing, cabin, elevator and landing gear	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	65 years	
Commander's Flying Experience:	342 hours (of which 70 were on type) Last 90 days - 21 hours Last 28 days - 3 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The pilot stated that having touched down on Runway 23 at Sandown Airport, the aircraft veered to the right. The pilot applied full engine power in an attempt to go around but the right wing dropped. The aircraft departed the side of the runway and crossed the adjacent grass taxiway before coming to rest in an area of rough

grassland on a heading of about 050°. The final position was adjacent to buildings located approximately 450 m from the threshold of Runway 23 and about 80 m to the right of the runway centreline. The reported wind was light and variable. The pilot, who was uninjured, advised that he was unsure as to the cause of the accident.

ACCIDENT

Aircraft Type and Registration:	Shadow Series CD, G-MWTP	
No & Type of Engines:	1 Rotax 503-2V piston engine	
Year of Manufacture:	1991 (Serial no: K107)	
Date & Time (UTC):	12 July 2013 at 1840 hrs	
Location:	Grange Farm, Lincolnshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damaged beyond economic repair	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	64 years	
Commander's Flying Experience:	418 hours (of which 327 were on type) Last 90 days - 5 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The pilot was approaching to land at a farm strip cut into a crop of wheat in an east-west orientation. With the calm wind conditions slightly favouring a landing towards the west, he approached from the north, intending to close with the runway part-way along its length to avoid overflying a farm at the eastern end. He reported that he had performed this approach on many occasions. He planned to practise a 'dead-stick' approach and closed the throttle as he descended from 1,500 ft.

The pilot recalled being about 15 to 20 ft above the wheat crop and aiming for the touchdown point when

he suddenly became aware that he was brushing the top of it. He opened the throttle but this seemed to draw him further into the crop, so he closed the throttle and accepted a landing in the crop. The aircraft stopped very rapidly, but remained upright, and he evacuated normally.

The pilot believes he allowed the aircraft to become too slow and flat on the approach and that tall trees to the south sheltered it from any breeze that might have been present.

ACCIDENT

Aircraft Type and Registration:	Skyranger Nynja 912S(1), G-CHKG	
No & Type of Engines:	1 Rotax 912ULS piston engine	
Year of Manufacture:	2012 (Serial no: BMAA/HB/627)	
Date & Time (UTC):	19 July 2013 at 1845 hrs	
Location:	Strathaven Airfield, Lanarkshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Propeller, spinner front cowlings, radiator, roof, tailplane fairing, nosewheel and suspension	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	46 years	
Commander's Flying Experience:	612 hours (of which 47 were on type) Last 90 days - 47 hours Last 28 days - 18 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Having flown from Broadmeadow Airfield to pick up a passenger at a private airstrip near Retford, the pilot then routed to Strathaven Airfield where the aircraft was positioned for landing on Runway 09. The pilot stated that the weather conditions were good, with a light north-easterly wind.

The approach was uneventful but, shortly after touching down, the aircraft became airborne again due to an undulation in the grass surface. The pilot stated that

he moved the stick forward and the aircraft began to porpoise, initially touching down and bouncing before touching down again with a more pronounced nose-down attitude. The nose gear collapsed and the aircraft tipped forward and came to rest inverted. Both occupants were wearing full harnesses and no injuries were sustained. The pilot stated that he had probably landed a little too fast and his forward stick input had been a major factor. He further reflected that he should have applied additional power and gone around.

ACCIDENT

Aircraft Type and Registration:	X'air 133(1), G-CWAL	
No & Type of Engines:	1 Verner 133M piston engine	
Year of Manufacture:	2004 (Serial no: BMAA/HB/339)	
Date & Time (UTC):	27 August 2013 at 0940 hrs	
Location:	Farmer's field approx 2 miles north of Kilkeel, County Down	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damaged beyond economic repair	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	58 years	
Commander's Flying Experience:	153 hours (of which 94 were on type) Last 90 days - 11 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Approximately 15 minutes into an uneventful flight, the engine started to make a loud, unusual noise and lost power. The pilot managed to use the limited power available to position the aircraft for a landing in the only suitable field in the immediate vicinity. The field was approximately 200 m long and 100 m wide, and bounded by a 2 m high dry stone wall. Electrical overhead cables ran diagonally across the field in which a herd of cows was grazing. During the landing, both mainwheels broke off the stub axles.

Following the accident the owner found a large number of small fragments of metal in the oil drained from the engine sump and assessed that the loss of power was probably due to an internal mechanical failure. At the time of the accident the aircraft and engine had flown approximately 137 hours. The damage to the landing gear and bends in the main fuselage tube wing spars were consistent with the aircraft having landed heavy. The damage to the aircraft was assessed as beyond economic repair.

Miscellaneous

This section contains Addenda, Corrections and a list of the ten most recent Aircraft Accident ('Formal') Reports published by the AAIB.

The complete reports can be downloaded from the AAIB website (www.aaib.gov.uk).

BULLETIN ADDENDUM

Aircraft Type and Registration:	Cameron Z-275 balloon, G-VBFT
Date & Time (UTC):	19 July 2013 at 0640 hrs
Location:	Near Lanark, South Lanarkshire
Information Source:	Aircraft Accident Report Form

AAIB Bulletin No 10/2013, page 63 refers

The pilot's original report included forecast meteorological information which indicated that calm or very light winds were to be expected in the area. As the balloon climbed, it experienced up to 18 kt of wind, although this reduced to around 10 kt as the balloon descended prior to landing. The AAIB report contained the details of takeoff wind conditions and those prior to landing, but not the increased wind experienced at higher levels.

The pilot has contacted the AAIB highlighting that the increased wind at higher level was significant because, combined with the hilly terrain, it probably resulted in unstable conditions experienced prior to landing and so contributed to the accident. The pilot stated that the flight would not have been attempted had the actual conditions been forecast.

**TEN MOST RECENTLY PUBLISHED
FORMAL REPORTS
ISSUED BY THE AIR ACCIDENTS INVESTIGATION BRANCH**

1/2010	Boeing 777-236ER, G-YMMM at London Heathrow Airport on 17 January 2008. Published February 2010.	6/2010	Grob G115E Tutor, G-BYUT and Grob G115E Tutor, G-BYVN near Porthcawl, South Wales on 11 February 2009. Published November 2010.
2/2010	Beech 200C Super King Air, VQ-TIU at 1 nm south-east of North Caicos Airport, Turks and Caicos Islands, British West Indies on 6 February 2007. Published May 2010.	7/2010	Aerospatiale (Eurocopter) AS 332L Super Puma, G-PUMI at Aberdeen Airport, Scotland on 13 October 2006. Published November 2010.
3/2010	Cessna Citation 500, VP-BGE 2 nm NNE of Biggin Hill Airport on 30 March 2008. Published May 2010.	8/2010	Cessna 402C, G-EYES and Rand KR-2, G-BOLZ near Coventry Airport on 17 August 2008. Published December 2010.
4/2010	Boeing 777-236, G-VIIR at Robert L Bradshaw Int Airport St Kitts, West Indies on 26 September 2009. Published September 2010.	1/2011	Eurocopter EC225 LP Super Puma, G-REDU near the Eastern Trough Area Project Central Production Facility Platform in the North Sea on 18 February 2009. Published September 2011.
5/2010	Grob G115E (Tutor), G-BYXR and Standard Cirrus Glider, G-CKHT Drayton, Oxfordshire on 14 June 2009. Published September 2010.	2/2011	Aerospatiale (Eurocopter) AS332 L2 Super Puma, G-REDL 11 nm NE of Peterhead, Scotland on 1 April 2009. Published November 2011.

Unabridged versions of all AAIB Formal Reports, published back to and including 1971,
are available in full on the AAIB Website

<http://www.aaib.gov.uk>