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INCIDENT

Aircraft Type and Registration:	Embraer 190-200, G-FBEH
No & Type of Engines:	2 General Electric CF34-10E7 turbofan engines
Year of Manufacture:	2007
Date & Time (UTC):	15 January 2009 at about 0740 hrs
Location:	Overhead Edinburgh
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 5 Passengers - 40
Injuries:	Crew - None Passengers - None
Nature of Damage:	None
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	40 years
Commander's Flying Experience:	6,250 hours (of which approximately 100 were on type) Last 90 days - 137 hours Last 28 days - 33 hours
Information Source:	AAIB Field Investigation

Synopsis

During flight, "smoke" was seen to emanate from a galley sink and the flight deck and cabin crews took appropriate emergency action. In the course of the *'Electrical System Fire or Smoke'* procedure the flight crew established the aircraft on emergency power, after which communications between the flight deck and cabin became difficult. The aircraft landed safely. Deficiencies in the interphone system were identified, and four safety recommendations are made.

History of the flight

The aircraft was on a scheduled passenger service from Aberdeen to London Gatwick. As it cruised overhead Edinburgh at FL370, the Senior Cabin Crew Member

(SCCM) poured half a jug of water down the forward galley sink. He saw that "smoke", apparently "ice-blue" in colour, immediately began to emanate from the sink. He assumed that this was not steam, as the jug of water had been drawn from the boiler some minutes previously, and he checked the galley area for signs of fire. He called another cabin crew member to the forward galley, and they both assessed that the "smoke" was not steam. There were no signs of combustion, and neither crew member detected an odour.

The flight deck and cabin crews took appropriate emergency action. In the course of the *'Electrical System Fire or Smoke'* procedure, the flight crew disarmed the emergency lighting, deployed the Ram

Air Turbine (RAT) and then selected OFF the Integral Drive Generators (IDGs), which are the engine-driven sources of main electrical power. This caused all the cabin lighting to extinguish; it was early morning and there was little ambient light. In the flight deck, only one Primary Flight Display (PFD) and one Multi-Function Display (MFD) remained operating.

The RAT is positioned on the right side of the aircraft nose, forward and below the forward service door; ram air drives a two-bladed 'propeller' connected to a generator, supplying emergency electrical power to the aircraft's systems. The cabin crew heard the noise caused by the RAT's operation, for which they were unprepared, and which they described as "horrendous". The cabin lights extinguished soon afterwards.

The SCCM attempted to call the flight crew on the cabin interphone system, by pressing the PILOT call button. The green light above the button (Figure 1) illuminated, but the flight crew did not answer. Despite repeated attempts, using handsets in both the forward and rear galleys, the SCCM could not establish communication with the pilots in this way.

The "smoke" diminished and eventually ceased. Nonetheless, the cabin crew became concerned at the darkness in the cabin, the unexplained noise from the forward part of the aircraft, and the lack of communication with the flight crew. They became concerned either that the flight crew might have become incapacitated or that a serious emergency had developed in the flight deck. After some minutes they decided to attempt to access the flight deck using the emergency flight deck access system¹, but this, too, did not function

¹ Footnote

A system which enables the cabin crew to gain access to the flight deck if both flight crew members become simultaneously incapacitated; safeguards prevent its use to gain unauthorised access to the flight deck.



Figure 1

Cabin interphone handset at front galley

and the cabin crew were unable to gain access to the flight deck.

Concern amongst the cabin crew continued until the commander made a public address announcement explaining that the aircraft was diverting to Newcastle; the cabin crew then recognised that their concerns were unfounded.

The aircraft landed without further incident and was inspected by the Airport Fire and Rescue Service, who used a thermal imaging camera to search for evidence of heat or fire; none was found.

Interphone system

The interphone system includes handsets with illuminated pushbuttons at the forward and aft galleys (Figure 1) and illuminated push-buttons on audio panels in the flight deck (Figure 2). With normal power applied to the aircraft, removing the handset from its cradle and then pressing the PILOT call pushbutton above the handset causes a single chime to sound in the flight deck, and the CAB pushbuttons on the pilots' audio panels illuminate to show an incoming communication. Pressing the pushbutton

on either pilot's panel enables voice communications. Pressing the EMER PILOT pushbutton on the handset causes a triple chime to sound in the flight deck, and the EMER pushbuttons on the pilots' audio panels illuminate to show an incoming communication. Pressing the pushbutton on either pilot's panel enables voice communications.

With emergency power (from the RAT and batteries) applied to the aircraft, the EMER system functions



Figure 2

Pilot's audio panel in flight deck

normally. However, if a PILOT call is initiated from either handset in the cabin, the green light above the pushbutton illuminates and a single chime is heard in the flight deck, but the pushbuttons on the pilots' audio panels do not illuminate, and voice communication cannot be established.

The flight deck access system

On emergency power, the normal flight deck access system does not function. Access to the flight deck in this condition relies upon action within the flight deck.

Engineering investigation and analysis

The initiating factor in this incident was the "smoke" emanating from the forward galley sink. Initial investigation of the forward galley did not identify any signs of fire or smoke. AAIB investigations continue, and it is notable that the ice-blue coloured light above the forward galley sink may give that colour to smoke or steam in the area.

Tests on the interphone system on another Embraer 190-20 aircraft showed similar functioning.

Operational investigation and analysis

Whilst the "smoke" was the initiating factor in this incident, it was the performance of some of the aircraft's systems whilst the aircraft was on emergency power which caused serious concern amongst the crew.

The PILOT function of the interphone system seemed, to the cabin crew, to indicate that it was functioning normally. However, the CAB pushbutton in the flight deck did not illuminate, and no voice contact was possible. The cabin crew did not attempt to use the EMER PILOT function, as this would involve an emergency call, which differed (in the cabin crewmembers' perception) from the normal

call only in the number of chimes.

The 'false positive' indication of the PILOT call was crucial to the incident; had the PILOT call not appeared to function correctly, it is probable that the cabin crew, instead of contemplating incapacitation of the flight crew or serious emergency on the flight deck, would have attempted to establish communication using the EMER PILOT call.

The operator's operations manual did not detail the functioning of the interphone and flight deck access systems when the aircraft was on emergency power, and training had not made the crew aware of this functioning.

Safety Recommendations

The AAIB investigation is continuing. However, prior to publication of the final report, the following Safety Recommendations are made:

Safety Recommendation 2009-017

It is recommended that Embraer (Empresa Brasileira de Aeronautica SA) immediately notify all operators, of the Embraer 190 family of aircraft, to inform flight crew of the importance of advising cabin crew when an aircraft is on emergency electrical power.

Safety Recommendation 2009-018

It is recommended that Embraer (Empresa Brasileira de Aeronautica SA) immediately notify all operators, of the Embraer 190 family of aircraft, to inform their flight and cabin crew of the functioning of the interphone system when the aircraft is supplied only with emergency electrical power.

Safety Recommendation 2009-019

It is recommended that Embraer (Empresa Brasileira de Aeronautica SA) modify the functioning of the interphone systems of Embraer 190 family aircraft to provide crew with the facility to make both normal and emergency calls when the aircraft is supplied only with emergency electrical power.

Safety Recommendation 2009-020

It is recommended that Embraer (Empresa Brasileira de Aeronautica SA) immediately notify all operators, of the Embraer 190 family of aircraft, to inform flight and cabin crew of the functioning of the flight deck access system when the aircraft is supplied only with emergency electrical power.

INCIDENT

Aircraft Type and Registration:	Boeing 767-200, Z-WPE	
No & Type of Engines:	2 Pratt & Whitney PW 4056 turbofan engines	
Year of Manufacture:	1989	
Date & Time (UTC):	3 August 2008 at 1850 hrs	
Location:	On approach to London Gatwick Airport	
Type of Flight:	Commercial Air Transport (Passenger)	
Persons on Board:	Crew - 10	Passengers - 206
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Detached slide, minor dents and skin perforation on fuselage aft of right wing trailing edge	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	44 years	
Commander's Flying Experience:	9,700 hours (of which 3,160 were on type) Last 90 days - 250 hours Last 28 days - 38 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and information from UK handling agents	

Synopsis

On final approach into London Gatwick, the right overwing escape slide separated from the aircraft. It is likely that this occurred as a result of the compartment opening.

History of the flight

The aircraft was making its final approach into London Gatwick Airport, on a passenger flight from Harare. The crew later reported that, on selecting flaps to 15°, they felt an unusual roll motion but the aircraft quickly stabilised. The crew continued the approach and the landing was normal, without further incident. During their post-flight external inspection, the crew noticed

that the compartment for the right overwing escape slide was open and the slide itself was missing. The actuating mechanism was hanging from the compartment and had caused slight dents and perforations in the adjacent fuselage skin.

A deflated overwing slide was found a few days later, under the approach path into Gatwick, and it was traced to the incident to Z-WPE. By that time the aircraft had been repaired and had flown several subsequent sectors. The aircraft had been repaired and dispatched without a detailed inspection to determine the cause of the slide compartment opening.

This inflatable overwing slide is mounted in an exterior fuselage compartment near the trailing edge of the wing and is designed to allow safe descent to the ground by passengers and crew using one of the overwing emergency exits. In later designs this function is performed by door-mounted slides, avoiding the complications of the exterior compartment and the actuation mechanism.

The aircraft manufacturer, Boeing, was able to conduct a limited investigation into the case of Z-WPE although, like the AAIB, it was unable to examine the hardware. It was established that the latch and door opening actuators had not fired, that the overwing escape hatch had remained securely latched and that, as the escape slide came out of the compartment, the inflation cylinder had discharged. The most recent

maintenance input into this system had been on 7 July 2008, following which the slide compartment door had been closed and latched.

Boeing had records of a number of previous instances of overwing escape slides detaching. These broadly fall into two categories: one category is the 'in-compartment inflation', which involves activating the inflation system while the slide compartment is closed and latched. This 'blows' the compartment door open as the slide inflates and leaves telltale evidence. This was not the case on Z-WPE.

The other category involves, generally, a combination of incomplete latching and, in some instances, an element of misrigging or worn components. It is likely that this occurrence, to Z-WPE, fell into this category.

INCIDENT

Aircraft Type and Registration:	Cessna 560XL Citation XLS, G-OROO	
No & Type of Engines:	2 Pratt & Whitney Canada PW545B turbofan engines	
Year of Manufacture:	2007	
Date & Time (UTC):	29 June 2008 at 1815 hrs	
Location:	En route from Bournemouth, Dorset, to Biggin Hill, Kent	
Type of Flight:	Unknown	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Cowling and rudder	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	Unknown	
Commander's Flying Experience:	N/K hours Last 90 days - N/K hours Last 28 days - N/K hours	
Information Source:	AAIB Field Investigation	

Synopsis

During a post-maintenance ferry flight from Bournemouth to Biggin Hill, approximately 75% of the left engine upper cowling detached, damaging the leading edge of the fin and left elevator. Inspection of the aircraft showed that a number of the leading edge cowling fasteners had not been secured.

History of the flight

The aircraft was being ferried to Biggin Hill after maintenance at Bournemouth. Whilst in the climb from FL070 to FL080 at 230 kt, the flight crew heard a rumble and felt a slight 'thud' in the rear of the aircraft. Due to a vibration in the control column, the autopilot was disconnected and a check of the flight controls was carried out; no abnormalities were noted. During the

descent, passing through 3,000 ft and at 180 kt, another rumble was heard together with a thud at the rear of the aircraft. Another check of the flight controls was carried out and once again no abnormalities were noted. No further problems were encountered and the aircraft carried out a normal approach and landing. After shutdown, an inspection of the aircraft revealed that approximately 75% of the left engine upper cowling had separated from the aircraft damaging the leading edge of the fin and the left elevator.

Investigation

Examination of the aircraft revealed that a section of the upper cowling remained attached to the airframe by the latches securing it to the lower engine cowling, the

leading and trailing edge fasteners having been pulled through the cowl structure. All of the trailing edge, and three of the outboard leading edge, cowl fasteners remained secured to the nacelle structure. There was no evidence of damage or deformation to the cowling securing points on the engine nacelle.

An investigation of the event carried out by the maintenance organisation revealed that the mechanic tasked with the reinstallation of the upper left engine cowling had been interrupted for several minutes whilst carrying out the task. This caused him to descend from the engine, but he had no recollection of climbing back up to the engine to secure the inboard fasteners. A further 'panel re-fitment inspection' and a 'post maintenance safety check' failed to identify that the inboard leading edge cowling fasteners had not been secured.

Safety Action

As a result of the investigation, the maintenance organisation has introduced several changes to minimise the possibility of this type of incident happening again. These include: relocation of the hangar management staff to provide more effective support of day-to-day operations, an increase in the number of administration staff, and a detailed briefing for inspectors, to identify those areas that require a more detailed inspection after maintenance tasks have been completed.

As a result of the actions taken by the maintenance organisation, it is thought that no further safety action should be recommended at this time.

ACCIDENT

Aircraft Type and Registration:	Aero AT-3 R100, G-DPEP	
No & Type of Engines:	1 Rotax 912-S piston engine	
Year of Manufacture:	2007	
Date & Time (UTC):	27 October 2008 at 1409 hrs	
Location:	Old Sarum Airfield, Wiltshire	
Type of Flight:	Training	
Persons on Board:	Crew – 1	Passengers – None
Injuries:	Crew – None	Passengers – N/A
Nature of Damage:	Damage to leading edge of wings and one propeller blade missing	
Commander's Licence:	Student pilot	
Commander's Age:	61 years	
Commander's Flying Experience:	33 hours (of which 33 were on type) Last 90 days - 10 hours Last 28 days - 10 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

A student pilot on his second solo lost control of the aircraft during the takeoff roll and struck a fence and a piece of agricultural machinery to the left of the runway.

History of the flight

The student pilot was on his second solo to practise circuits, having had a dual sortie with his instructor after his first solo. The instructor was very satisfied with his student's abilities on the dual sortie. After positioning the aircraft into wind, the solo student opened the throttle rapidly and the aircraft swung violently to the left. By his own admission, he was late in applying corrective right rudder and considers he should have aborted the

takeoff at that point, however he continued to accelerate in the hope that he would soon become airborne whilst still heading roughly on the grass runway heading. He states that he inadvertently applied pressure on the left brake pedal, which turned the aircraft sharply to the left and towards an agricultural roller standing in an adjacent field. The left wheel struck a runway marker before running through the perimeter fence, striking the roller with the left wingtip and coming to rest.

The pilot assessed the causes of the accident as being his application of full throttle too rapidly at the start of the takeoff run and his inadvertent application of left brake.

ACCIDENT

Aircraft Type and Registration:	1) Beechcraft 76 Duchess, G-BXHD 2) Cessna 208b Grand Caravan, G-BZAH
No & Type of Engines:	1) 2 Lycoming LO-360-A1G6D piston engines 2) 1 Pratt & Whitney Canada PT6A-114A turboprop engine
Year of Manufacture:	1) 1979 2) 2000
Date & Time (UTC):	28 November 2008
Location:	Bournemouth Airport
Type of Flight:	1) Training 2) N/A
Persons on Board:	1) Crew - 2 Passengers - None 2) Crew - None Passengers - None
Injuries:	1) Crew - None Passengers - N/A 2) Crew - N/A Passengers - N/A
Nature of Damage:	1) Top edge of rudder bent 2) Leading edge of right wing indented
Commander's Licence:	1) Commercial Pilot's Licence 2) N/A
Commander's Age:	1) 38 years 2) N/A
Commander's Flying Experience:	1) 920 hours (of which 350 were on type) Last 90 days - 150 hours Last 28 days - 20 hours 2) N/A
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

During ground manoeuvring, the rudder of a Beechcraft 76 struck the right wing of the Cessna 208B, damaging the rudder and the leading edge of the Cessna's wing.

History of the flight

After landing, the pilot of a Beechcraft 76 had intended to taxi the aircraft into a position from where it could be pushed backwards into a vacant space between a Cessna 208B and another parked aircraft. The Beechcraft was taxiing with the parked aircraft to its right and, as it passed the Cessna's nose, the pilot initiated a right turn off the taxiway. This was to

be followed by a left turn to bring the aircraft into a position ahead of the two parked aircraft, from where it could be pushed backwards into the parking space. As the Beechcraft's right wing passed underneath the

Cessna's wing, the pilot started to turn left, resulting in the top of the Beechcraft's rudder striking the leading edge of the Cessna's right wing.

ACCIDENT

Aircraft Type and Registration:	Cessna F150J, G-AWRK
No & Type of Engines:	1 Continental Motors Corp O-200-A piston engine
Year of Manufacture:	1968
Date & Time (UTC):	20 September 2008 at 1225 hrs
Location:	Deanland Airfield, near Hailsham, East Sussex
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Severe damage to wings, empennage and fuselage
Commander's Licence:	Private Pilot's Licence
Commander's Age:	55 years
Commander's Flying Experience:	199 hours (of which 100 were on type) Last 90 days - 6 hours Last 28 days - 1 hour
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The pilot, who was inexperienced in short field operations, was making his first landing at Deanland. He landed long and to the left of the runway centreline, and only became aware that there was a slight tailwind when he saw the wind sock just before touchdown. The aircraft bounced and veered to the left, before striking a building and coming to a stop. The pilot was uninjured.

History of the flight

The pilot took off from Shoreham on Runway 20 for a short flight to Deanland. He had not landed at Deanland before and had little experience of landing on short strips as pilot in command, however he had recently flown into a number of small grass strips with another pilot who was experienced in operating from this type of airfield.

The pilot made radio calls to Deanland radio and had the airfield in sight but was unable to see a windsock; he considered that it was probably obscured by trees. He joined downwind, and with the aircraft at 600 ft agl he turned to land on Runway 24. At first the approach seemed normal, however the pilot became concerned that he was a little high. Conscious of the short runway at Deanland he selected the final stage of flap, but he was increasingly aware that his approach was high. The aircraft touched down halfway along the runway and to the left of the centreline, and then bounced. His initial reaction was to go around, however he had noticed the windsock and realised that he had a slight tailwind. Following the bounce the aircraft veered to the left and departed the runway. Its left wing struck a building

and the aircraft spun around before coming to a stop. The pilot was uninjured and exited the aircraft with assistance.

Airfield and weather information

Deanland Airfield has a grass runway aligned 06/24; right hand circuits are in operation for Runway 24, which has a Landing Distance Available of 457 m. There are trees and buildings to the left of the end of Runway 24.

When the pilot departed from Shoreham the wind was approximately 180°/6 kt with more than 10 km visibility. He estimated the wind at Deanland at the time of the accident to be light and northerly, and the runway condition to be dry.

Comment

The pilot considered that he should have overflown the airfield to clearly establish the wind direction before joining the circuit and that having a more experienced pilot with him would have been an advantage. He thought that the situation may have been retrievable had he touched down on the centreline; he did not attempt to go-around as he felt that this would have been potentially hazardous in a Cessna 150 with three stages of flap and a tailwind.

ACCIDENT

Aircraft Type and Registration:	Europa, G-MIME	
No & Type of Engines:	1 Rotax 912 ULS piston engine	
Year of Manufacture:	2001	
Date & Time (UTC):	13 July 2008 at 1135 hrs	
Location:	Caernarfon Airfield, Gwynedd	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Propeller and wing damaged	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	52 years	
Commander's Flying Experience:	17,734 hours (of which 221 were on type) Last 90 days - 200 hours Last 28 days - 83 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The aircraft departed the runway during landing due to the right landing gear outrigger failing to lock down. The reason for its failure to lock down could not be determined.

History of the flight

On start-up prior to departure, the pilot, who owned the aircraft, noted that the landing gear outrigger down and locked indicator lights were not operating. Since both lights were affected, he concluded that there was a continuity problem in the common earth return lead. As this was an owner modification and not required for flight, he elected to continue with the flight.

The circuit to land on Runway 26 at Caernarfon was

uneventful and as there was a pair of slower microlight aircraft in the circuit ahead of him, the pilot ensured that his speed was not excessive. He lowered the flaps and landing gear on the base leg at an airspeed of between 60 and 65 kt. He did this in a slow and progressive fashion, to avoid sudden trim changes from rapid flap deployment. There was a slight crosswind from the left and he applied left aileron after touchdown to compensate. As the aircraft slowed on the runway it began to roll to the right and it quickly became evident that the right landing gear outrigger had not locked down. Despite the application of full left aileron and right rudder, the pilot was unable to prevent the aircraft from veering to the left and departing the runway. It pitched nose down sufficiently for the propeller blade

tips to strike the runway surface. On subsequent examination the right outrigger was found to be locked down.

Aircraft information

G-MIME was equipped with the monowheel landing gear configuration, comprising a single large retractable mainwheel, a fixed tailwheel and a pair of small wheels fitted to retractable outrigger legs mounted on the wings, outboard of the flaps. The landing gear and flap systems were interconnected and were mechanically-operated via a single lever in the cockpit. The rate of movement of the lever directly controls the rate of downward movement of the landing gear and flaps. The outriggers are locked down via latch mechanisms. Since the position of the outriggers cannot be seen from the cockpit when lowered, the pilot had modified his aircraft to incorporate a pair of green lights which illuminate when the outriggers are locked down.

The pilot had incorporated additional modifications to the aircraft, in conjunction with the PFA (now LAA) and the aircraft manufacturer, to address certain mechanical problems identified in the landing gear outrigger system.

Discussion

The pilot suggested that the right outrigger may have locked down when the load on it was briefly removed

when the aircraft left the runway, due to the slight drop between the edge of the runway and the grass. Examination did not identify any reason for its failure to lock down initially.

The owner was aware of other previous cases of Europa landing gear outriggers failing to lock down. Possible causes are thought to include mechanical reasons, due to the limitations of the design, or lowering the flaps and landing gear at too high an airspeed. Owners have reported that when the flaps landing gear are lowered at speeds in the region of 75 to 80 kt, the outriggers do not always lock down immediately, but will do so once the airspeed has reduced.

Given that, according to the pilot, modifications to the outriggers of G-MIME had eliminated any mechanical shortcomings and that the airspeed was not excessive when he lowered the flaps and landing gear, both outriggers should have locked down. On this occasion, he had lowered the flap and landing gear system in a slow and progressive fashion, to avoid the trim effects of rapid flap deployment. After discussion with another owner of this aircraft type, he concluded that a more positive lowering of the system might be advantageous in that it would achieve more rapid rotation of the outrigger legs, which would assist them in locking down.

ACCIDENT

Aircraft Type and Registration:	Mooney M20E, N7423V	
No & Type of Engines:	1 Lycoming IO-360-AIA piston engine	
Year of Manufacture:	1975	
Date & Time (UTC):	27 August 2008 at 1637 hrs	
Location:	Old Sarum Airfield	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew – None	Passengers - None
Nature of Damage:	Nose gear, nose gear doors, propeller and engine lower cowl damaged; engine shock loaded.	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	50 years	
Commander's Flying Experience:	380 hours (of which 5 were on type) Last 90 days - 5 hours Last 28 days - 5 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot, and subsequent enquiries by the AAIB	

Old Sarum Airfield has a single grass runway oriented 06/24. The pilot made a normal, full flap approach to Runway 24; the reported wind at the time was 220° at 8 kt. He confirmed that three greens were showing and ATC reported that all three landing gear were visibly down. The touchdown was reportedly normal, except that it was well short of the normal aiming point. The nose gear collapsed during the landing roll and the aircraft slid to a halt with its nose on the ground.

The pilot subsequently observed that with nearly full fuel tanks and two occupants having a combined weight of approximately 455lb, the aircraft was considerably heavier than on any previous landing he had carried out in it and the conditions constituted the lowest headwind in which he had landed the aircraft. No evidence was found of any pre-existing defect on the nose landing gear that could have caused it to collapse.

ACCIDENT

Aircraft Type and Registration:	Piper PA-28-161 Cherokee Warrior II, G-RIZZ	
No & Type of Engines:	1 Lycoming O-320-D3G piston engine	
Year of Manufacture:	1978	
Date & Time (UTC):	10 February 2008 at 1630 hrs	
Location:	Sibson Airfield, Peterborough	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Propeller, nose gear and wing damaged	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	43 years	
Commander's Flying Experience:	177 hours (of which 41 were on type) Last 90 days - 3 hours Last 28 days - 3 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

After two unsuccessful approaches to Runway 24, due to the low sun, the pilot elected to land on Runway 15. During the base leg he lost visual references, again due to the low sun, resulting in a high and fast final approach. The subsequent touchdown point was 165 metres into the 551 metre long wet grass runway; the wind at the time was from 110° at 4 kt. Despite the application of brakes the aircraft failed to stop and departed the end of the runway before coming to rest in a ditch at the airfield boundary.

History of the flight

The pilot had already made two attempts at landing on the grass Runway 24 at Sibson. On both occasions the sun was low and was distracting the pilot, causing

him to abort the landings. After the second attempt the pilot elected to use the grass Runway 15. On base leg for Runway 15, the low sun again caused the pilot to lose his visual references of the airfield. By the time he turned onto final, the pilot thought he was probably too high and fast but had the impression he would be able to stop on the runway, he continued his approach.

The aircraft touched down at the intersection with Runway 24, approximately 165 metres into the 551 metre long runway. The wind at the time was from 110° at 4 kt with an outside air temperature of 8°C. Despite the application of brakes, the aircraft failed to stop on the short wet grass and it departed the end of the

runway before coming to rest in a ditch at the airfield boundary. The pilot and passenger were uninjured and exited the aircraft normally.

Accident

Aircraft Type and Registration:	Piper PA-28-181 Cherokee Archer II, G-BPYO	
No & Type of Engines:	1 Lycoming O-360-A4M piston engine	
Year of Manufacture:	1989	
Date & Time (UTC):	6 December 2008 at 1525 hrs	
Location:	Crosland Moor, near Huddersfield, West Yorkshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 2
Injuries:	Crew - None	Passengers - 1 (Minor)
Nature of Damage:	Propeller, cowlings and wings damaged, landing gear detached	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	65 years	
Commander's Flying Experience:	527 hours (of which 420 were on type) Last 90 days - 11 hours Last 28 days - 0.5 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and subsequent enquiries by the AAIB	

Synopsis

The aircraft failed to gain sufficient airspeed during the takeoff roll, causing the pilot to abort the takeoff. The aircraft overran the runway and was substantially damaged. Contributory factors to the accident were the carburettor heat control inadvertently being left in the ON position, a hurried departure due to the late hour and the takeoff being performed towards a low sun, which presented a significant distraction.

2.6% upslope over the first three quarters of its length. The pre-takeoff checks were completed satisfactorily. The pilot applied carburettor heat during the backtrack to the Runway 25 threshold as a precaution against carburettor icing, as the damp grass suggested that the relative humidity was high. According to the pilot's calculations, the aircraft's weight and CG were within limits.

History of the flight

The pilot was attempting to take off from Runway 25, which has an asphalt surface for the first 550 m followed by 250 m of grass; the asphalt section has a

The takeoff roll was towards the setting sun, which the pilot found to be a significant distraction and he found it difficult to see inside the cockpit after looking out. The passenger in the right seat, who was a qualified PPL

holder, assisted by calling out the airspeed. By the time the aircraft reached the end of the asphalt section, it had reached a speed of only 50 kt and the pilot elected to abandon the takeoff. He was unable to stop the aircraft within the remaining runway and it overran the end and was substantially damaged. The three occupants were able to evacuate the aircraft without assistance. The pilot later established that he had left the carburettor heat control in the ON position.

Comments

The pilot candidly noted that his previous 10 hours of flying had been in an aircraft which was not equipped

with carburettor heat and that this, and his hurriedness to depart given the late hour, may have been contributory factors to the oversight. He has since been debriefed by his club's Chief Flying Instructor on takeoff performance, establishing an abort point, the effect of carburettor heat on engine power, the time of day and the dangers of doing additional adjustments and checks after all regular checks have been completed. He has also completed a successful check flight covering these points.

ACCIDENT

Aircraft Type and Registration:	Piper PA-28-180 Cherokee, G-ATTX	
No & Type of Engines:	1 Lycoming O-360-A3A piston engine	
Year of Manufacture:	1966	
Date & Time (UTC):	9 October 2008 at 1130 hrs	
Location:	Earls Colne Airfield, Essex	
Type of Flight:	Private	
Persons on Board:	Crew – 1	Passengers - 1
Injuries:	Crew – None	Passengers - None
Nature of Damage:	Damage to the nose landing gear and propeller, and possible engine shock loading	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	63 years	
Commander's Flying Experience:	329 hours (of which 32 were on type) Last 90 days - 2 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot started the engine and the aircraft immediately began to move forward and accelerate. It continued for a short distance before the nose of the aircraft struck the airfield mower, which was attached to a tractor and parked next to the main hangar. The aircraft parking brake had not been selected ON and the pilot was unable to apply the hand brake in time to prevent the collision.

History of the flight

The pilot had been a member of the flying group which owned G-ATTX since November 2007. Prior to that, he was a member of a flying club which operated Cessna 150s, on which he had accrued most of his flying

experience, and Cessna 172s. The procedure adopted by that club when parking these aircraft was to chock the aircraft wheels and leave the parking brake OFF. This was partly due to the reliability of the parking brake but also ensured a physical means of preventing the aircraft from moving.

The pilot had flown 25 hours in G-ATTX and felt he had no particular problem with the single brake lever, which was used both for braking when taxiing and as a parking brake. However, he had noticed that his hand did not fall naturally onto the lever and that he had to look or feel for it. By contrast, all the previous aircraft he had flown had been fitted with toe brakes located on the rudder pedals.

On the day of the accident, the pilot was preparing for a flight to Popham Airfield with one passenger. He moved the aircraft over to the fuel pumps, by hand, and parked it facing the fuel pumps, with the nosewheel chocked and the parking brake released. After refuelling the aircraft, he pushed it back some 30 metres to a parking space almost opposite the fuel pumps. The pilot entered the aircraft, followed by his passenger, and commenced the pre-engine start checks using his printed checklist. He read the second item, 'Brakes – ON', but apparently did not carry out the action. He continued with the checklist and, once completed, started the engine.

As the engine started, the aircraft began to move forward and gather speed. The pilot could not recall if he closed the throttle but he did remember immediately trying to stop the aircraft by pressing the rudder pedals. When this had no effect, he grabbed the flap lever and then, realising his mistake, reached forward for the brake lever. Before he could locate it, the aircraft collided

with the airfield mower, which was attached to a tractor parked next to the main hangar.

The pilot selected the electrical master switch and fuel selector to OFF and he and his passenger, who were uninjured, vacated the aircraft through the normal exit. The airfield Rescue and Fire Fighting Service attended immediately but there was no fire.

In an honest report, the pilot concluded that the main cause of the accident was that he did not apply the parking brake when he read out the relevant item in the checklist. Secondly, even after accumulating 25 flying hours in the aircraft, his instinct in this emergency was to return to his previous training and experience and attempt to use toe brakes to stop the aircraft. He also considered that operating in a confined space, with limited time to find the hand brake lever and recover the situation, contributed to the outcome.

ACCIDENT

Aircraft Type and Registration:	Piper PA-28R-180 Cherokee Arrow, G-AVWN	
No & Type of Engines:	1 Lycoming IO-360-B1E piston engine	
Year of Manufacture:	1967	
Date & Time (UTC):	30 August 2008 at 1320 hrs	
Location:	On mudflats near Topsham, Devon	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 2
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Wings extensively damaged, landing gear detached, propeller bent, engine shock loaded	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	51 years	
Commander's Flying Experience:	798 hours (of which 447 were on type) Last 90 days - 23 hours Last 28 days - 7 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and telephone enquiries by the AAIB	

Synopsis

Whilst in the cruise at Flight level (FL) 55, the engine lost power and a forced landing in a field was required. A late sighting of power lines in the chosen field required a rapid change to a field which was traversed by drainage ditches. The aircraft struck one of these, incurring major damage.

History of the flight

The aircraft was returning to Jersey from Caernarfon airport, having flown there with two passengers earlier in the day. The passengers had not flown in a light aircraft before so the pilot had briefed them on the emergency procedures, including the procedure to be

followed in the event of ditching. Prior to takeoff, he had refuelled with 53 litres of fuel, with 30 litres being put into the right tank and the remainder in the left giving a total, the pilot recalled, of 130 litres on board. He also performed what he terms "an abbreviated Check A" including fuel contents check and a fuel sample. During the takeoff and the initial part of the cruise, all engine indications were normal and the aircraft was performing normally.

The pilot later stated that, in flight, he had followed his normal policy of avoiding changing tanks over water. He had therefore been running on the right tank but

had changed to the left tank during a 'FREDA' check about 10 minutes before the incident. His procedure was to select the electric fuel pump ON, look at the selector, make the selection and then switch off the pump.

The aircraft was cruising at FL55, having passed Exeter, when the engine "surged" slightly, followed about 5 seconds later by a series of more dramatic surges. Placing the propeller lever to fully fine and switching the electric pump ON, the pilot suspected that he may have lost control of the propeller and requested radar vectors for a precautionary landing at Exeter Airport. The surging stopped and the engine appeared to continue running, albeit at much reduced power. The pilot realised that he was going to be unable to reach Exeter, and so trimmed the aircraft to best glide speed and briefed his passengers for a forced landing. He then informed Exeter ATC that he was going to have to land in a field and was directed towards the Exe estuary where suitable fields would be found. The pilot selected a field but, as he got closer, he saw power cables running across it so he lowered the nose to increase airspeed and turned left towards a field which he could see was divided by drainage ditches. He had intended to land wheels-up but believes that the automatic override may have operated to extend them at least partially. The impact and deceleration were comparatively gentle and the aircraft slid across one drainage ditch and came to rest on the edge of another, close to a herd of cows which dispersed rapidly. All three landing gears had been torn from the aircraft; the main gears at least had clearly detached upon impact with the first drain.

The pilot admits he had omitted to shut down the engine just before impact but there was no fire and the three occupants evacuated normally and without

injury. He transmitted a message informing Exeter ATC that he had landed and was evacuating before he shut off fuel and electrical power. After checking that his passengers were all right he returned to retrieve his personal locator beacon and hand-held radio. As he was about to establish contact with Exeter again, a police helicopter arrived.

Analysis

The team from a nearby maintenance organisation who were tasked with recovering the aircraft reported that the left fuel tank was nearly full but the right tank was virtually empty – less than a litre being recovered and with no leaks evident. In a detailed written analysis of the events the pilot is at a loss to explain this and questions whether it was the initial reason that the engine lost power. As far as he was concerned, the aircraft was flying on the left tank when the power loss occurred and he only selected the right tank in an attempt to recover the situation. He also believes that the engine did not stop but rather lost power. He raised the possibility that the initial cause of the surging may have been a propeller control unit malfunction, as he at first believed, but in switching to the right tank as a diagnostic action, he may have been responsible for the engine failing. He observed that he had no experience of a windmilling engine and did not know whether he could tell the difference between that and an engine turning under low power. In either event, he considered that the right tank should still have held 10-20 minutes of fuel and was not empty.

He admitted that he did not check the engine or fuel gauges during the emergency and candidly suggested that, despite performing practice forced landings regularly, when the emergency was real, apart from concern for his passengers' welfare he found his attention almost entirely focussed outside the cockpit

and on handling the aircraft. He also commented that the 'constant aspect' method of judging forced landings had worked well for him and he was confident

that, had it not been for the power cables, the landing would have been entirely successful.

ACCIDENT

Aircraft Type and Registration:	Piper PA-28R-200 Cherokee Arrow II, G-GYMM	
No & Type of Engines:	1 Lycoming IO-360-C1C piston engine	
Year of Manufacture:	1971	
Date & Time (UTC):	8 October 2008 at 1200 hrs	
Location:	Old Warden Airfield, Shuttleworth, Bedfordshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Propeller bent, engine shock loaded, minor damage to flaps	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	43 years	
Commander's Flying Experience:	103 hours (of which 40 were on type) Last 90 days - 11 hours Last 28 days - 3 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

The pilot made an initial approach to Runway 03 but decided to go around after seeing vehicles moving close to the runway. He then repositioned for an approach to Runway 21. During this second approach he heard an alarm, which he associated with a low throttle position. Its function is, in fact, to alert the pilot that the landing gear is up and it will sound when power is reduced significantly

with the landing gear retracted. He advanced the throttle slightly, believing this would silence the alarm, but when it did not, he assumed the switch had malfunctioned and continued with the approach. Shortly before touching down he suddenly realised that the landing gear was up and selected it down, but too late to prevent the aircraft from landing wheels up.

ACCIDENT

Aircraft Type and Registration:	Steen Skybolt, G-BWPJ	
No & Type of Engines:	1 Continental Motors Corp IO-346-A piston engine	
Year of Manufacture:	1996	
Date & Time (UTC):	12 July 2008 at 1500 hrs	
Location:	Croft Farm Airfield, Defford, Worcestershire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to left landing gear structure, left leading edge and tip of lower mainplane	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	51 years	
Commander's Flying Experience:	1,492 hours (of which 163 were on type) Last 90 days -137 hours Last 28 days - 39 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Taxiing after landing, the main landing gear collapsed due to failure of the landing gear bungee truss.

History of the flight

The aircraft had just landed on Runway 27 at Croft Farm, a grass strip from which it had been operated for 12 years. The pilot estimates that the aircraft was taxiing at about 8 mph when the main landing gear collapsed and the aircraft came to rest, with the engine

stopping abruptly as the propeller struck the ground. The pilot, who is a professional licensed engineer, reports that the bungee, which supports the landing gear and attenuates the landing gear transient loads, had become slack because of the structural failure of the bungee truss. This appeared to have been due to the development of a hairline crack in the truss over a long period of operating the aircraft from the grass strip.

ACCIDENT

Aircraft Type and Registration:	Supermarine Aircraft Spitfire Mk 26 (scale replica), G-HABT	
No & Type of Engines:	1 Jabiru Aircraft PTY 5100A piston engine	
Year of Manufacture:	2008	
Date & Time (UTC):	27 September 2008 at 1635 hrs	
Location:	Perranporth Airfield	
Type of Flight:	Private	
Persons on Board:	Crew – 1	Passengers – None
Injuries:	Crew – None	Passengers – N/A
Nature of Damage:	Damage to propeller, landing gear and right wingtip	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	57 years	
Commander's Flying Experience:	137 hours (of which 0 were on type) Last 90 days - 2 hours Last 28 days - 0 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Whilst the pilot was conducting his first flight in the aircraft, it became airborne unexpectedly in a nose-high attitude. Whilst correcting a left wing drop, he hit the right wing and propeller on the ground.

History of the flight

The Spitfire Mk 26 is an all-metal, approximately 80% scale replica of the WWII fighter. It is sold as a kit of parts for assembly by the purchaser.

The owner was conducting his first flight in the aircraft, on Runway 05; the wind was 360°/8 kt and the weather was sunny with a slight haze. As he started the takeoff roll under partial power, the pilot's view of the runway was

obscured by the long nose of the aircraft. As he reached 30 kt he applied full power and eased the control column forward to raise the tail. As he did so, he glanced left and right to ensure he was still aligned with the runway. When he returned his attention to the instrument panel, he became aware that the aircraft was lifting off in a nose-high attitude, with the left wing dropping. He over-corrected with opposite aileron and a swing to the right developed with the right wing dropping and striking the ground, together with the propeller. The aircraft came to rest on the perimeter track and the pilot evacuated normally, without injury.

The pilot had rehearsed and taken advice in preparation for his first flight in the Spitfire. Much of the advice had centred on an apparent ‘nose-heavy’ characteristic which could lead to striking the propeller if the tail is raised too early. He was advised to ensure that an indicated airspeed of about 30 kt is achieved with the stick back before moving it forward. He states that he was unprepared for

the rapid acceleration from 30 kt to flying speed, possibly because most of his tailwheel flying had been from grass runways whereas Runway 05 was paved, resulting in faster acceleration. With hindsight, he believes his usual technique used on other types, in which he raises the tail earlier, would have served him better.

ACCIDENT

Aircraft Type and Registration:	Vans RV-4, G-BXPI	
No & Type of Engines:	1 Lycoming O-360-A1A piston engine	
Year of Manufacture:	1998	
Date & Time (UTC):	16 October 2008 at 1605 hrs	
Location:	Swansea Airport, Wales	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Slight damage to the propeller and engine shock loaded	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	48 years	
Commander's Flying Experience:	173 hours (of which 12 were on type) Last 90 days - 4 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot had already completed six uneventful circuits using Runway 28 at Swansea Airport. The seventh circuit was also without incident until the flare on landing, which was carried out "a little high" and as the power was reduced the aircraft sank, resulting in a bounce. The aircraft then veered to the left and departed the asphalt runway surface onto grass. The

wheels dug into the soft earth and the propeller stuck the ground "three or four times" before the aircraft came to a halt on the disused Runway 33. The pilot and the passenger were uninjured and exited the aircraft normally. Following an inspection of the aircraft, which only revealed some damage to the propeller, the pilot taxied back to the apron.

ACCIDENT

Aircraft Type and Registration:	Robinson R22 Beta, G-SBUT	
No & Type of Engines:	1 Lycoming O-360-J2A piston engine	
Year of Manufacture:	1997	
Date & Time (UTC):	17 October 2008 at 1217 hrs	
Location:	Helicopter Training Area Whiskey, Shoreham Airfield	
Type of Flight:	Training	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - 1 (Serious)	Passengers - N/A
Nature of Damage:	Main rotor damaged	
Commander's Licence:	Student	
Commander's Age:	64 years	
Commander's Flying Experience:	31 hours (of which n/k were on type) Last 90 days - 26 hours Last 28 days - 8 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

History of the flight

After completing several dual flight exercises, the instructor briefed the student to fly his first solo circuit. He advised him to apply additional forward and left cyclic during takeoff to compensate for the lack of an occupant in the left seat. During the first attempted takeoff the aircraft yawed left. The student controlled the yaw by applying right yaw pedal and landed. The instructor returned to the aircraft and, speaking on the intercom, reminded him to apply forward and left cyclic control. When the instructor had moved away from the aircraft the student resumed the exercise.

During the second takeoff the aircraft yawed more violently to the left while remaining in contact with the

ground. The student responded by applying right cyclic and yaw pedal inputs. He then felt the aircraft "jolt" and responded by applying aft cyclic control, which caused the aircraft to pitch nose up. The student attempted to control this by applying forward and left cyclic and then raised the collective in order to gain height. However, the rear tip of the right skid remained in contact with the ground and the aircraft rolled over onto its right side, causing damage to the main rotor and a fuel leak. The pilot, whose right arm was trapped in the cockpit, vacated the aircraft with assistance from the instructor, having sustained a broken wrist. The airport fire and rescue service was quickly in attendance but there was no fire.

The instructor commented that, acting on her advice to apply additional forward and left cyclic on takeoff, the student may have overcompensated for the lack of a left seat occupant. It is likely that during his subsequent attempts to control the aircraft the rear tip of the right skid became a pivot point, resulting in dynamic rollover. This

condition cannot be stopped by application of opposite cyclic control alone, but may be arrested by lowering the collective control. The instructor intends to reinforce her teaching of dynamic rollover and the appropriate techniques for avoiding and recovering from it.

ACCIDENT

Aircraft Type and Registration:	Aerotechnik EV-97A Eurostar, G-CCEM	
No & Type of Engines:	1 Rotax 912-UL piston engine	
Year of Manufacture:	2003	
Date & Time (UTC):	16 November 2008 at 1200 hrs	
Location:	Netherthorpe Airfield, near Sheffield, Yorks.	
Type of Flight:	Private	
Persons on Board:	Crew – 1	Passengers -1
Injuries:	Crew – None	Passengers - None
Nature of Damage:	Aerotechnik Auster	Propeller Left wing and aileron
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	67 years	
Commander's Flying Experience:	471 hours (of which 120 were on type) Last 90 days - 17 hours Last 28 days - 2 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot was taxiing with the intention of parking his aircraft in a vacant place between two aircraft. During manoeuvring the propeller of the Aerotechnik hit the left wing of an Auster, damaging the aileron and wing.

ACCIDENT

Aircraft Type and Registration:	Cameron A-300 hot air balloon, G-SNIF
No & Type of Engines:	Not Applicable
Year of Manufacture:	2005
Date & Time (UTC):	7 August 2008 at 1915 hrs
Location:	Croxton, Staffordshire
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 1 Passengers - 14
Injuries:	Crew - None Passengers - 1 (Serious)
Nature of Damage:	None to balloon
Commander's Licence:	Commercial Pilot's Licence
Commander's Age:	43 years
Commander's Flying Experience:	2,064 hours (of which 1,800 were on type) Last 90 days - 50 hours Last 28 days - 16 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB

Synopsis

After a firm landing in a field, the balloon bounced twice before coming to rest on its side. During the landing one of the passengers was injured. She later discovered her knee suffered a fracture in the landing. Two Safety Recommendations have been made.

History of the flight

Prior to the flight the pilot stated that he briefed all the passengers on the correct takeoff and landing positions to be adopted, which included a visual demonstration by him, in the basket. He added that as five of the passengers were not English speakers he ensured that their group leader, who was an English speaker, checked that they all understood the briefing.

After an uneventful flight and about 10 mins before landing, the passengers practised the landing position. As he prepared for the landing in a field of stubble, the pilot instructed the passengers to adopt the landing position. He normally has a ' cursory glance ' of the passengers to check that they are in the correct position but does not remember if he did so on this occasion.

After a firm landing, at approximately 8 kt¹ groundspeed, the balloon bounced twice before coming to rest on its side. The pilot noticed that a lady, in a compartment of three passengers, appeared to be injured. The lady was

Footnote

¹ As measured on the pilot's GPS.

lifted out of the basket and her leg was inspected by the pilot and another passenger, who was a nurse. The nurse was unable to determine if her leg was broken but advised her to get it x-rayed as a precaution. After the injured lady had been taken back to her car at the launch site, her husband drove her to hospital where it was discovered that she had a fracture to her left knee and tissue damage to her right leg.

Injured passenger's comments

The injured passenger stated that one of the foreign passengers, who was in her compartment, failed to adopt the correct landing position, as she was only holding onto the rope with one hand. She believed this caused the foreign passenger to fall onto her causing her to lose her balance.

CAA Paper 2006/06; Evaluation of Possible Improvements to Current Measures for Protecting Hot Air Balloon Passengers During Landings

During the period January 1993 to January 2003 there were 31 UK hot air balloon landing accidents reported to the CAA. As a result the CAA commissioned an independent scientific study into improving the protection offered to hot air balloon passengers during landing. The study considered a variety of landing basket configurations and passenger landing positions, including having the passengers sit on dense foam blocks. The testing involved a combination of physical tests and detailed computer simulations.

This report was summarised in Balloon Notice to Balloon AOC holders 1/2007, issued in February 2007, which included several recommendations. The notice states the following:

'Foam Seating Blocks

Dense foam seating blocks can offer benefits especially if used in conjunction with additional padding to reduce the effect of head impact with the basket structure. Their use is recommended where practicable.'

Discussion

During the landing a lady was dislodged from the correct landing position and subsequently suffered a fracture of her knee. A study has shown that there may be improved protection from leg injuries by using dense foam blocks in baskets that are large enough to take them. The use of these blocks may have prevented the passenger from being dislodged from the correct landing position.

A similar accident involving the balloon G-CDDC, reference EW/C2008/07/06, is also published in this bulletin. The AAIB has therefore made the following Safety Recommendations:

Safety Recommendation 2009-011

It is recommended that the Civil Aviation Authority, in conjunction with the British Balloon and Airship Club require balloon baskets certified for Public Transport flights, where practicable, to contain dense foam seating blocks and additional padding to reduce the effect of impact with the basket structure.

Safety Recommendation 2009-012

It is recommended that European Aviation Safety Agency require new balloon baskets certified for Public Transport flights, to contain dense foam seating blocks and additional padding to reduce the effect of impact with the basket structure.

ACCIDENT

Aircraft Type and Registration:	Cameron Z-275 balloon, G-CDDC	
No & Type of Engines:	Not applicable	
Year of Manufacture:	2005	
Date & Time (UTC):	15 July 2008 at 0600 hrs	
Location:	2 miles north of Lenham, Kent	
Type of Flight:	Commercial Air Transport (Passenger)	
Persons on Board:	Crew – None	Passengers - 12
Injuries:	Crew – None	Passengers – 1 (serious)
Nature of Damage:	Balloon undamaged	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	47 years	
Commander's Flying Experience:	1,924 hours Last 90 days - 47 hours Last 28 days - 16 hours	
Information Source:	AAIB Field Investigation	

Synopsis

During the landing the balloon was deliberately flown through a hedge in an attempt to slow it down. One of the passengers became dislodged from the correct landing position and broke both her legs in the ensuing landing.

A report on a similar accident involving another balloon, registration G-SNIF, is also published in this bulletin. Two Safety Recommendations which have been made in that report are reproduced.

History of the flight

Early in the morning 12 passengers arrived for a 'Sunrise' balloon flight from Leeds Castle, Kent; for most of them this was their first flight in a balloon. The weather was assessed by the pilot as suitable for the flight. However, the prevailing wind direction would take a flight that launched from Leeds Castle towards the North Downs, an area not considered ideal for landings, and it was decided to drive to a remote launching site and fly back in the general direction of Leeds Castle. The passengers were given a safety brief, which included the landing phase, and were briefed on the correct landing position. They were also told that they could expect three different types of landing: in a slow landing the basket would remain upright; in a slightly faster landing the basket

would lean over then straighten up again; on the third type of landing the basket would lie on its side and be dragged for a short distance.

The passengers entered the basket unaided, except for one lady who required assistance. The launch and subsequent flight were described as normal. After a flight time of approximately one hour, the pilot selected a field to the north of Lenham, which appeared to him to be suitable for landing, and descended the balloon. He was aware that the wind speed had increased, to an estimated 12 kt, so he decided to fly the basket through a hedge in order to slow it down; the pilot regarded this as a recognised ballooning technique. He also briefed the passengers that during the landing they could expect the basket to be dragged along, on its side, with the passengers lying down. The passengers then adopted their briefed landing positions.

The pilot descended the balloon so that the basket drifted into a hedge immediately prior to the field. The impact with the hedge was quite firm, and the pilot subsequently reported that the basket entered the hedge a little lower than he intended. Some of the passengers misinterpreted this impact as the landing and one of the passengers straightened up from her landing position. The basket then landed in a manner that was described by the pilot as 'firm and bumpy but not heavy' and, after being dragged on its side for a short distance, it came to a halt. The pilot vacated the balloon and, using the passenger's cameras, took pictures of the passengers lying in the basket. The pilot then asked the passengers to disembark. The lady who had been helped into the basket prior to the launch complained that her knees hurt and she required further assistance to get out of the basket and, not wanting to make a fuss, was content to sit on a 'cool' box. The pilot believed that she had probably aggravated an old injury and that she would quickly recover, so he continued

packing the canopy and stowing the basket.

When the balloon was packed the passengers boarded the vehicle for the return journey to Leeds Castle. The passenger with the injured legs was carried to the vehicle. On arrival at Leeds Castle she was again placed on the 'cool' box, and given cold drink cans to hold against her legs in an attempt to reduce any swelling. She was later carried to her car and her husband drove her home. The pain in her legs did not subside so her husband took her to the local hospital where she was admitted; it was subsequently determined that she had broken both legs.

Post accident actions

The accident was not reported to the AAIB for 13 days because the operator was initially unaware of the lady's injuries and was then uncertain as to whether injuries that occurred during what they perceived to be a normal landing constituted a reportable occurrence.

The Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 1996 requires the commander of an aircraft involved in an accident to notify the AAIB of the accident by the quickest means available. The definition of a reportable accident includes; '*where a person suffers a fatal or serious injury as a result of being in or upon the aircraft*'. Any injury which requires hospitalisation for more than 48 hours, commencing within seven days from the date of the injury, or which results in, *inter alia*, the fracture of any bone (except simple fractures of fingers, toes or the nose) is defined as a serious injury.

The operator has since reviewed its accident reporting procedures.

CAA Paper 2006/06 - 'Evaluation of Possible Improvements to Current Measures for Protecting Hot Air Balloon Passengers During Landings'

During the period from January 1993 to January 2003, 31 UK hot air balloon landing accidents were reported to the CAA. As a result, the CAA commissioned an independent study into improving the protection offered to hot air balloon passengers during landing. The study considered a variety of landing basket configurations and passenger landing positions, and also looked at the benefits of dense foam seating blocks. The testing involved a combination of physical tests and detailed computer simulations.

This report was summarised in Notice to Balloon AOC holders 1/2007. The notice included several recommendations, one of which related to the use of dense foam seating blocks. The notice stated:

'Dense foam seating blocks can offer benefits, especially if used in conjunction with additional padding to reduce the effect of head impact with the basket structure. Their use is recommended if practicable.'

Conclusion

During a firm landing a passenger was dislodged from the correct landing position and broke both her legs. A study commissioned by the CAA determined that better protection for passenger's legs, during the landing phase,

is afforded by the use of dense foam blocks in baskets, and that additional padding can reduce the effect of impact with the structure of the basket.

A report into a similar accident involving the balloon registered as G-SNIF, reference EW/G2008/08/08, is also published in this bulletin. Two Safety Recommendations are made in that report. They are repeated below, for information.

Safety Recommendation 2009-011

It is recommended that the Civil Aviation Authority, in conjunction with the British Balloon and Airship Club require balloon baskets certified for Public Transport flights, where practicable, to contain dense foam seating blocks and additional padding to reduce the effect of impact with the basket structure.

Safety Recommendation 2009-012

It is recommended that European Aviation Safety Agency require new balloon baskets certified for Public Transport flights, to contain dense foam seating blocks and additional padding to reduce the effect of impact with the basket structure.

ACCIDENT

Aircraft Type and Registration:	Fournier RF5B, G-SSWV	
No & Type of Engines:	1 Limbach L 2000-EO piston engine	
Year of Manufacture:	1973	
Date & Time (UTC):	6 June 2008 at 1413 hrs	
Location:	Camphill Airfield, Great Hucklow, Derbyshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Tail wheel assembly damaged	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	49 years	
Commander's Flying Experience:	255 hours (of which 48 were on type) Last 90 days - 4 hours Last 28 days - 4 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The surface wind was from the west at 10 to 15 kt and the aircraft was landing on a heading which was about 30° to the left of that. During the latter stages of the flare, with the pilot holding the control column almost fully aft, the aircraft dropped from a height of between 4 and 5 feet onto the runway. G-SSWV bounced once before touching down again and stopping. The hard landing damaged the tail wheel assembly, which prevented the aircraft from being taxied.

The pilot considered it possible that the wind had varied during the flare, when the aircraft was over the landing area, and may have become a tailwind. He also concluded that insufficient monitoring of the decaying airspeed and lack of currency in the prevailing conditions contributed to the accident.

ACCIDENT

Aircraft Type and Registration:	Ikarus C42 FB80, G-RODJ	
No & Type of Engines:	1 Rotax 912-UL piston engine	
Year of Manufacture:	2007	
Date & Time (UTC):	28 August 2008 at 1107 hrs	
Location:	Swansea Airport	
Type of Flight:	Training	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to landing gear	
Commander's Licence:	Student	
Commander's Age:	40 years	
Commander's Flying Experience:	57 hours (not known how many on type) Last 90 days - not known Last 28 days - not known	
Information Source:	Aircraft Accident Report Form submitted by the owner of the flying school	

History of the flight

According to an incomplete report provided by the owner of the flying school, the aircraft departed the side of the runway on landing, because of a "wrong rudder input". The air traffic control officer on duty observed the accident and also submitted a report. He stated that the pilot was a student pilot on his first solo flight and that he appeared to flare too soon for landing. A heavy bounced landing occurred, after which directional control was lost and the aircraft departed the side of the runway.

The initial notification to the AAIB stated that the nose landing gear wheel and one main wheel were damaged; the report from the owner of the flying school stated that only '*light nose wheel*' damage occurred.

Attempts by the AAIB to contact the owner of the school were unsuccessful.

ACCIDENT

Aircraft Type and Registration:	Jabiru UL, G-UJAB
No & Type of Engines:	1 Jabiru Aircraft Pty 2200A piston engine
Year of Manufacture:	1999
Date & Time (UTC):	18 September 2008 at 1040 hrs
Location:	Newnham airstrip, near Ashwell, Baldock, Hertfordshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Left main landing gear collapsed, nose leg housing damaged, underside of fuselage and elevator horn scuffed
Commander's Licence:	Private Pilot's Licence
Commander's Age:	59 years
Commander's Flying Experience:	650 hours (of which 370 were on type) Last 90 days - 8 hours Last 28 days - 4 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

Whilst taking off from a grass airstrip, a swing to the right developed which the pilot was unable to counter. The aircraft 'ground-looped' and the left main landing gear collapsed.

History of the flight

The aircraft was taking off from the grass strip in an easterly direction with the wind reported as "less than 8 km/hr from 120°". The pilot applied full power but, after travelling approximately 30 yards, a swing to the right developed which he initially corrected with nosewheel steering. Shortly afterwards the aircraft again swung to the right but this time the pilot could

not correct it and the aircraft left the runway, running into a small ditch at the side. It came to rest having turned through nearly 180° with the left main landing gear collapsed. The pilot vacated the aircraft normally, having shut the aircraft down and closed the fuel valve.

The pilot is at a loss to explain the swing to the right, since inspection did not show any ruts or holes in the runway but he suspects he may have had the right mainwheel in some long grass at the side of the runway which increased drag on that side as speed built up.

ACCIDENT

Aircraft Type and Registration:	Paraglider, Gradient Golden II (26)	
No & Type of Engines:	Not applicable	
Year of Manufacture:	2007	
Date & Time (UTC):	2 May 2008 at 1609 hrs	
Location:	Near Bretton, Eyam, The Peak District	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - 1 (Fatal)	Passengers - N/A
Nature of Damage:	Four broken lines, sustained in the ground impact	
Commander's Licence:	British Hang Gliding and Paragliding Association (BHPA) pilot rating and a Federation Aeronautique International Licence	
Commander's Age:	33 years	
Commander's Flying Experience:	Approximately 250 hours (of which 30 were on a Gradient Golden II) Last 90 days - approx 30 hours Last 28 days - approx 5 hours	
Information Source:	AAIB Field Investigation	

Synopsis

The paraglider launched with one of its risers twisted and was later seen to suffer an asymmetric collapse of its canopy when at a height of about 150 feet. It descended rapidly in a left spiral and the pilot was unable to recover to normal flight or to successfully deploy his emergency parachute before impacting the ground. The pilot was fatally injured.

History of the flight

On 2 May 2008 the weather conditions at Eyam Edge, a soaring site in the Peak District, were suitable for paragliding, with a southerly wind of approximately 10 kt, and, throughout the afternoon, three or four

paragliders were airborne simultaneously. At about 1555 hrs, the pilot of a Gradient Golden II paraglider arrived and prepared his equipment for flight. This pilot was well known to the other paraglider pilots and had previously flown from that site.

The Golden II was observed to make a stable takeoff at 1606 hrs, and commenced flying around the site; photographs were taken of the launch. Approximately 3 minutes later, when at a height of about 150 feet, the paraglider was seen to suffer a significant asymmetric collapse of the canopy and it entered a tight descending spiral to the left. Several witnesses reported that the lower

tip of the wing remained deflated, and one witness saw lines over the top of the collapsed tip which prevented the wing from re-inflating.

The paraglider continued in a descending spiral to the left until it struck the ground. The witnesses ran to the scene and, on arrival, they found the pilot at the bottom of a rocky outcrop. His emergency parachute was on the ground beside him but it was still packed and it was not clear to the witnesses whether he had made a very late attempt to deploy the emergency parachute, or it had become dislodged in the accident.

The emergency services were called at 1611 hrs. When the witnesses reached him the pilot was unconscious and shortly afterwards he stopped breathing. Attempts to resuscitate him were unsuccessful.

Pilot information

The pilot commenced paragliding in 1997, but in 1999 his membership of the British Hang Gliding and Paragliding Association (BHPA) lapsed and it is believed that he stopped paragliding. In 2005 the pilot rejoined the BHPA and completed a refresher course prior to resuming regular flying. He held a BHPA pilot rating and a Federation Aeronautique International licence, which allowed him to participate in international paragliding competitions. He was in regular paragliding practise, flying around 60 hours a year. He had flown approximately 30 hours on his Gradient Golden II paraglider and last flew nine days before the accident.

Gradient Golden II

The pilot purchased the paraglider on 22 October 2007 and it appeared to be in good condition. The Gradient Golden II is classified by the manufacturer as:

'an intermediate paraglider, which is suitable for pilots whose abilities range from relative beginners to long-time experts.'

Following the accident, the manufacturer's UK representative inspected the equipment under the supervision of the AAIB. Four broken lines were identified on the paraglider: on the left side a central A and B line had failed approximately 3 ft above the pilot, and on the right side a stabilo and a central B line had failed where the lines joined the risers. He confirmed that, apart from this damage, which appeared to have been sustained in the ground impact, the equipment seemed to be in good order and unmodified. He noted that the chest harness setting was wider than that which had been used by the Deutsche Hangeleiterverband (DHV) (see below) when they certified the paraglider; however, the manufacturer and the DHV confirmed that the chest harness setting would not have been a significant factor in this accident.

Paragliding terms

Asymmetric canopy collapse

An asymmetric canopy collapse occurs when airflow over part of the canopy is disrupted, causing that part of the wing to stall and collapse, and normally results in the canopy turning towards the collapsed side. It is possible to recover the situation by maintaining directional control and, if necessary, pumping smoothly on the controls on the collapsed side, taking care not to stall the remaining canopy. The BHPA pilot's handbook warns that recovery from the worst situations often requires a great deal of height, with highly experienced test pilots having been known to fall thousands of feet whilst attempting to recover from such situations. It advises that pilots should monitor their height and, if necessary, deploy their emergency

parachute. It has not been possible to determine accurately the minimum height for deploying such an emergency parachute, but it would require, at least, a few seconds for it to deploy and become effective. There have been many occasions, however, when the late deployment of the emergency parachute has prevented injuries.

Cravat

A 'Cravat' is the term used when a collapsed wingtip becomes trapped in the lines. The effect of this is to increase drag on the side of the 'Cravat', which induces a turn in that direction. This can then rapidly develop into a fast spiral descent. The pilot can attempt to correct the turn by shifting his weight and rapidly applying the brake controls on the opposing side. Should the 'Cravat' progress into a spiral, then a significant amount of height will be required to recover. It is therefore imperative that the pilot monitors his height and, if there is insufficient height to effect a recovery, then he should immediately deploy the emergency parachute.

Spiral

A spiral descent occurs when the paraglider progresses from a fast turn, to a nose-down diving turn with a high rate of descent. If the spiral is not intentional, or is a result of a 'Cravat', then recovery will require the use of brake controls on the opposite side to the direction of the spiral. Due to the high wing loading in a spiral, it may be necessary to use both hands to apply the opposite brake control.

Paraglider information

The sport of paragliding is unregulated in the United Kingdom; consequently, there are no legal requirements for paragliders to be registered, or to conform to any standards, or for paraglider pilots to undergo training and hold any formal qualification. Nevertheless, the majority

of paragliding activity in the United Kingdom occurs under the auspices of the BHPA. Most paragliding clubs and schools are affiliated to the BHPA (although they are not required to be) and training courses at such schools conform to a BHPA approved syllabus, which leads to internationally recognised paragliding qualifications. The BHPA also operates a mandatory reporting scheme for paragliding accidents and incidents, and either conducts its own investigations or provides technical assistance to investigations carried out by the AAIB.

The BHPA requires that all paragliders flown by their members complete an acceptable certification process. This demonstrates that the paraglider has been subject to stringent safety tests and classified, according to its flying characteristics, against standards agreed by the major paragliding federations and associations in Europe. The largest and most widely accepted of these federations is the DHV. Approximately 75% of all paragliders sold worldwide are tested and certified by the DHV.

DHV certify paragliders on a scale of 1 to 3, with 1 being the most suitable paraglider for beginners and 3 being a paraglider suitable only for very experienced pilots. The Gradient Golden II was certified by the DHV as a DHV 1-2. In the event that a DHV 1-2 paraglider suffers an asymmetric collapse, the canopy has been demonstrated to re-inflate before the paraglider has turned through 180°; such testing is carried out in smooth air, with experienced pilots, and without additional complications such as a 'Cravat' or a twisted riser.

The DHV provided technical assistance to the AAIB during this investigation. Initially they examined the possibility that the broken lines could have failed in flight, perhaps during the reinflation of the canopy after the collapse. They tested lines adjacent to the failed lines from the remaining canopy and were able to confirm

that there was no indication of any problems with the suitability of these lines. Furthermore, marks on the broken lines indicated that they had come into contact with a solid object. If the lines had failed in flight it is likely that the canopy would have been badly distorted, and it is probable that one of the experienced paraglider pilots who witnessed the accident would have noticed this. None of the numerous witnesses reported any distortion to the canopy.

The DHV observed that it was clear from a photograph taken just after the paraglider had launched that the right riser was twisted near to its attachment to the harness. An examination of the right riser showed evidence of friction burn marks which may have been caused by the pilot applying the right brake control, with some force, whilst flying with the riser twisted.

The Eyam Edge site

Eyam Edge is described in the Derbyshire Soaring Club's site guide as:

'not a great soaring site, at 300 ft from top to bottom, and needing a moderate wind strength to be soarable.'

The site is flyable when the wind direction is from south to south-west, with 205° being the best wind direction.

Pilots who regularly fly from the site describe it as one which provides a turbulent flight; the small thermals are often disrupted by the moderate wind conditions that are necessary to soar at the site.

Conditions at the site on 2 May 2008 were described, by those who had flown, as typically turbulent. Variometer readings taken from pilots who had flown during the afternoon confirmed these conditions.

Safety equipment

The RAF Centre of Aviation Medicine assisted the AAIB investigation by examining the pilot's helmet. The pilot was wearing a Kiwi Sports Evolution helmet, which was a full face helmet with a chin bar, but no visor, and was specifically designed for paragliding. It was not possible to establish whether or not the helmet would conform to the current industry standard *EN 966 – Specification for Helmets for Airborne Sports*, but it was considered that the helmet was generally fit for purpose. The emergency parachute was considered to be suitable, had it been deployed with sufficient time for it to inflate.

Pathology

The post-mortem report concluded that the pilot's death was the result of multiple severe injuries which occurred during the ground impact.

Analysis

The pilot arrived at the Eyam Edge site and then launched, in a relatively short period of time, with a twisted right riser. A twist in the right riser would have had the effect of increasing friction on the brake control line and making the canopy more difficult to control. It is possible that, shortly after getting airborne, the pilot became aware of this twist but was unable to correct it in flight. Having subsequently suffered an asymmetric canopy collapse and 'Cravat', leading to a descending spiral to the left, he would have needed to apply the right brake to recover. Friction burn marks on the twisted riser indicated that the pilot was using a great deal of force with the right brake but, demonstrably, he had insufficient height to affect a recovery.

If a pilot experiences a canopy collapse which provokes a high rate of descent, at heights of 300 feet or less, then the guidance from both the BHPA and the DHV is to use the emergency parachute immediately.

ACCIDENT

Aircraft Type and Registration:	Pegasus GT450 Quik, G-PVSS	
No & Type of Engines:	1 Rotax 912-UL piston engine	
Year of Manufacture:	2007	
Date & Time (UTC):	20 September 2008 at 1730 hrs	
Location:	Croughton farmstrip, near Brackley	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Wing fabric torn and trike hang bracket distorted	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	70 years	
Commander's Flying Experience:	843 hours (of which 74 were on type) Last 90 days - 36 hours Last 28 days - 10 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The aircraft overran the runway and was slightly damaged.

the grass runway than expected. The pilot described the grass on the runway as being "longer than usual" and "very wet with an unexpected early evening dew".

History of the flight

The pilot had completed an uneventful flight from Oakley airfield. As he approached Croughton farmstrip he noted that the windsock indicated a light wind from the north-west. Based on this observation the pilot elected to land on the grass Runway 27. Following a tight left-hand circuit the pilot turned onto final approach, but he overshot the runway centreline. Whilst turning back onto the centreline the speed of the aircraft increased to about 10 mph greater than the usual approach speed and this resulted in the aircraft touching down further down

On the ground the pilot became aware that the aircraft was not going to stop in the available runway distance and, to avoid contact with a hedgerow that ran across the end of the runway, he attempted to turn the aircraft to the right onto the adjoining Runway 36. As he carried out the manoeuvre the left wheel struck a rut, causing the aircraft to tip to the left. The left wing contacted the hedge whilst the trike continued to roll over onto its side. The right wing trailing edge fabric was then torn as it contacted the propeller. The pilot was uninjured.

The pilot later commented that he should have abandoned the landing when it became clear that he would be landing long.

ACCIDENT

Aircraft Type and Registration:	Pegasus Quik, G-CDML	
No & Type of Engines:	1 Rotax 912ULS piston engine	
Year of Manufacture:	2005	
Date & Time (UTC):	1 November 2008 at 1200 hrs	
Location:	Glas Maol, Glenshee	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Aircraft severely damaged	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	56 years	
Commander's Flying Experience:	300 hours (of which 260 were on type) Last 90 days - 28 hours Last 28 days - 8 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

Whilst flying low over the top of a flat topped, snow-covered mountain the aircraft crossed the wake vortex of another aircraft, which resulted in G-CDML flying into the mountain. Whilst the aircraft was extensively damaged, the soft snow protected the pilot from serious injury.

History of the flight

The pilot regularly flew from the airfield at Perth and was aware of the dangers involved in flying over mountainous terrain. He stated that on the day of the accident the weather conditions were perfect, with snow on the mountains, almost no wind and excellent visibility. He therefore planned a local flight with two other aircraft, one a flex-wing and the other a fixed-wing.

Approximately 40 minutes into the flight the pilots of the three aircraft decided to fly low across the top of Glas Maol, a 3,800 ft snow-covered mountain. G-CDML followed the other flex-wing aircraft and in order to maintain a distance of approximately 40 m between the aircraft the pilot of G-CDML had to fly at a relatively low speed, for this flex-wing type, of 55 kt. He estimates that he was approximately 20 ft above the top of the mountain when he flew into the wake of the aircraft in front of him and described the turbulence as kicking him to the left towards the mountain. Whilst attempting to manoeuvre his aircraft away from the mountain the left wheel dug into the snow, causing the aircraft to cartwheel onto the mountain. Whilst the aircraft was severely damaged, the deep, soft snow protected the pilot from injury. Two

hill walkers who witnessed the accident came to the pilot's assistance and subsequently escorted him off the mountain.

The walkers reported that the aircraft crashed on a plateau on the top of Glas Maol which was covered in a deep layer of soft snow. At the time of the accident there was no wind, little cloud and the visibility was excellent.

Comment

The pilot gave an honest account of the accident and believes that it occurred because he was flying too low, slow and close to the aircraft in front of him. Consequently, when he hit the wake vortex he had insufficient time in which to prevent his aircraft colliding with the mountain.

ACCIDENT

Aircraft Type and Registration:	Pegasus XL-R, G-MTDI	
No & Type of Engines:	1 Rotax 447 piston engine	
Year of Manufacture:	1987	
Date & Time (UTC):	12 November 2008 at 1500 hrs	
Location:	Long Marston Airfield, Warwickshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Fibreglass pod cracked, monopole broken, damage to wing fabric and to front tyre	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	44 years	
Commander's Flying Experience:	45 hours (of which 8 were on type) Last 90 days - 9 hours Last 28 days - 6 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The pilot applied the brake while taxiing, the front wheel locked up and the aircraft tipped forwards.

History of the flight

The pilot landed on Runway 22 which has an asphalt surface. After landing he continued to taxi ahead and then applied the brake. The front tyre deformed and contacted the brake bar causing the nosewheel to lock up. The aircraft tipped forwards causing damage to the pod and the wing structure. The pilot was not injured and was able to free himself from the aircraft.

This aircraft has a simple foot operated brake acting

on the front wheel tyre. The mechanism consists of a spring return, foot-operated lever, which pivots on the left fork and applies frictional force via a metal tubular arch to the top of the front tyre. The brake is considered to be an aid to be used for taxiing and for engine run-ups. The operator's handbook contains operating limitations for use of the brake, two of which are:

'OPERATING LIMITATIONS: TAXIING

- (i) The foot brake should not be applied at speeds above 15 mph.*

(ii) To avoid the possibility of tipping the aircraft over, do not apply the foot brake when the aircraft is being turned during taxiing. The foot

brake should only be applied whilst the aircraft is travelling in a straight line.'

ACCIDENT

Aircraft Type and Registration:	Team Aircraft Mini-MAX, G-BYJE	
No & Type of Engines:	1 Rotax 447 piston engine	
Year of Manufacture:	2002	
Date & Time (UTC):	15 July 2008 at 1930 hrs	
Location:	Close to Waterbeach, Cambridgeshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Moderate canopy damage	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	41 years	
Commander's Flying Experience:	490 hours (of which 111 were on type) Last 90 days - 38 hours Last 28 days - 6 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

While in descending flight, and passing through 3,800 ft, the canopy opened. During an attempt to close and lock it, the canopy detached from the aircraft and struck the tailplane. The control column was pulled from the pilot's grip and came to rest on the 'full forward' stop, causing the aircraft rapidly to adopt a steep nose-down attitude. The pilot struggled to regain full control of the aircraft which he did at approximately 400 ft agl. The canopy secondary lock mechanism was unserviceable on the accident flight. Retrospectively the pilot thinks that he may have inadvertently knocked the canopy lock handle with his map.

History of the flight

The accident flight, piloted by the owner, was the second flight of the day. After an uneventful takeoff the pilot climbed the aircraft to 5,500 ft and overflew two active RAF airfields. Once clear of the airfields' control he initiated a descent. During the descent the pilot referred to his map and entered co-ordinates into the GPS. At approximately 3,800 ft the canopy, which was hinged on the right, suddenly opened. The pilot attempted to reach it with his left hand, his right hand was holding the control column, but found that he could not. He swapped hands but before he could reach it the canopy departed from the aircraft and hit the tailplane. The pilot thinks that this impact on the tailplane induced a force on the elevator which

“jerked” the control column from his hand and onto the forward stop. The aircraft adopted a sudden steep nose-down attitude, forcing the pilot up into the shoulder straps of his harness. The pilot reports that he struggled to regain control of the aircraft, eventually levelling it at 800 ft agl but it descended another 400 ft before he was in full control. Once under control the pilot kept the airspeed at around 55 mph and conducted a safe landing on a small section of a disused airfield approximately 6 to 8 miles north of Cambridge.

Other information

The canopy was later found with no evidence of a component failure. The aircraft was fitted with a secondary canopy lock mechanism (Figure 1) but this was unserviceable and not in use on the accident flight.

In retrospect the pilot thinks that he may have inadvertently caught the canopy lock handle with his map whilst entering co-ordinates into his GPS.

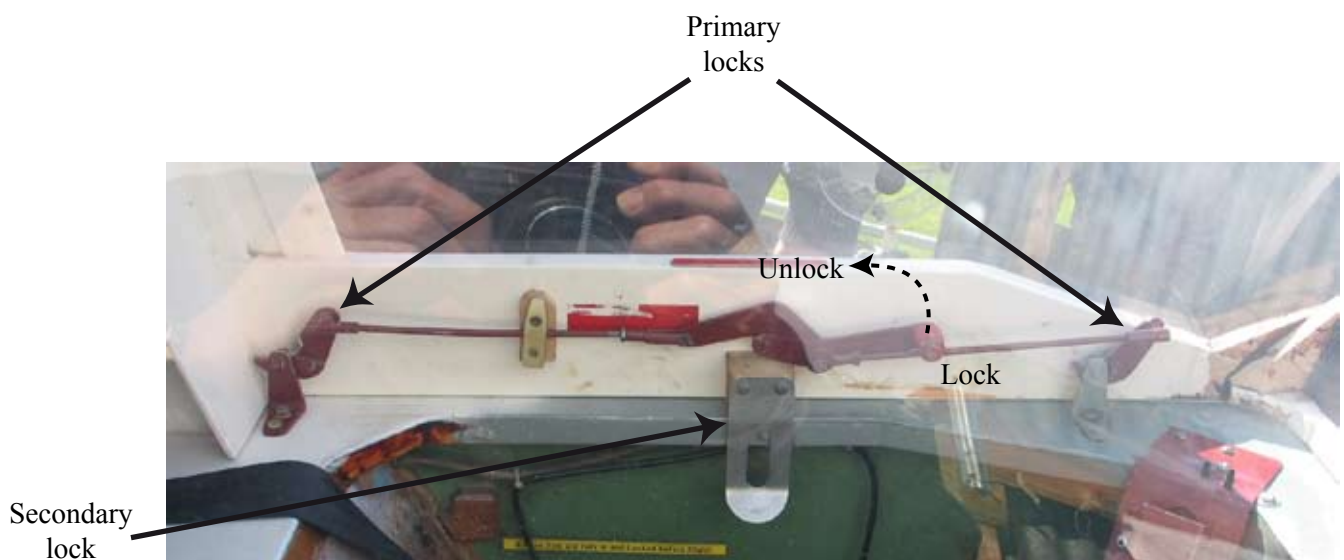


Figure 1

Primary and secondary canopy lock mechanisms
(photograph of a similar aircraft)

FORMAL AIRCRAFT ACCIDENT REPORTS ISSUED BY THE AIR ACCIDENTS INVESTIGATION BRANCH

2008

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|--------|---|--------|---|
| 1/2008 | Bombardier CL600-2B16 Challenger 604, VP-BJM
8 nm west of Midhurst VOR, West Sussex
on 11 November 2005.
Published January 2008. | 5/2008 | Boeing 737-300, OO-TND
at Nottingham East Midlands Airport
on 15 June 2006.
Published April 2008. |
| 2/2008 | Airbus A319-131, G-EUOB
during the climb after departure from
London Heathrow Airport
on 22 October 2005.
Published January 2008. | 6/2008 | Hawker Siddeley HS 748 Series 2A,
G-BVOV
at Guernsey Airport, Channel Islands
on 8 March 2006.
Published August 2008. |
| 3/2008 | British Aerospace Jetstream 3202,
G-BUVC
at Wick Aerodrome, Caithness, Scotland
on 3 October 2006.
Published February 2008. | 7/2008 | Aerospatiale SA365N, G-BLUN
near the North Morecambe gas platform,
Morecambe Bay
on 27 December 2006.
Published October 2008. |
| 4/2008 | Airbus A320-214, G-BXKD
at Runway 09, Bristol Airport
on 15 November 2006.
Published February 2008. | | |

2009

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|--------|---|--|--|
| 1/2009 | Boeing 737-81Q, G-XLAC,
Avions de Transport Regional
ATR-72-202, G-BWDA, and
Embraer EMB-145EU, G-EMBO
at Runway 27, Bristol International Airport
on 29 December 2006 and
3 January 2007.
Published January 2009. | | |
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