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# ***AAIB Bulletin***

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***6/2015***

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**CONTENTS****SPECIAL BULLETINS / INTERIM REPORTS**

None

**SUMMARIES OF AIRCRAFT ACCIDENT ('FORMAL') REPORTS**

None

**AAIB FIELD INVESTIGATIONS****COMMERCIAL AIR TRANSPORT****FIXED WING**

None

**ROTORCRAFT**

None

**GENERAL AVIATION****FIXED WING**

None

**ROTORCRAFT**

None

**SPORT AVIATION / BALLOONS**

None

**AAIB CORRESPONDENCE INVESTIGATIONS****COMMERCIAL AIR TRANSPORT**

DHC-8-402 Dash 8	G-JECI	30-Dec-14	3
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**GENERAL AVIATION**

Cessna U206C Super Skywagon	G-BPGE	17-Jan-15	6
Reims Cessna F152	G-CHIK	28-Oct-14	8
Robinson R22 Beta	G-ECMC	12-Feb-15	10
Robinson R22 Beta	G-THLA	13-Feb-15	11
TL 2000UK Sting Carbon S4	G-ZIZY	18-Mar-15	14
Vans RV-6	G-RVAW	17-Dec-11	15

**SPORT AVIATION / BALLOONS**

Jabiru UL-450	G-CNAB	16-Mar-15	17
Magni M24C Orion	G-YROD	30-Mar-15	19
Pegasus Quantum 15	G-MYZK	20-Mar-15	21

## CONTENTS Cont

### MISCELLANEOUS

#### ADDENDA and CORRECTIONS

CZAW SportCruiser	G-EWZZ	09-Aug-14	25
Extract from AAIB Annual Safety Report 2014			27

List of recent aircraft accident reports issued by the AAIB

**(ALL TIMES IN THIS BULLETIN ARE UTC)**

## **AAIB Correspondence Reports**

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

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

The accuracy of the information provided cannot be assured.



**SERIOUS INCIDENT**

<b>Aircraft Type and Registration:</b>	DHC-8-402 Dash 8, G-JECI
<b>No &amp; Type of Engines:</b>	2 Pratt & Whitney Canada PW150A turboprop engines
<b>Year of Manufacture:</b>	2005 (Serial no: 4105)
<b>Date &amp; Time (UTC):</b>	30 December 2014 at 1748 hrs
<b>Location:</b>	On approach to Belfast City Airport
<b>Type of Flight:</b>	Commercial Air Transport (Passenger)
<b>Persons on Board:</b>	Crew - 4                      Passengers - 69
<b>Injuries:</b>	Crew - None                      Passengers - None
<b>Nature of Damage:</b>	None
<b>Commander's Licence:</b>	Airline Transport Pilot's Licence
<b>Commander's Age:</b>	36 years
<b>Commander's Flying Experience:</b>	9,250 hours (of which 9,000 were on type) Last 90 days - 131 hours Last 28 days - 82 hours
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot, occurrence reports by the aircraft operator and ATC, and aircraft technical data

**Synopsis**

As the aircraft descended towards its destination, the flight crew received a number of SMOKE warnings relating to the aft baggage compartment; there were no signs of smoke or fumes in the passenger or crew compartments. The crew brought the aircraft to a stop on the runway after landing and all occupants vacated the aircraft expeditiously. There was no evidence of fire or smoke damage, but an examination of components in the fire detection system revealed corrosion on a smoke detector connection pin. This was identified as the probable cause of the smoke warnings.

**History of the flight**

The aircraft was being operated on a scheduled passenger service between Southampton Airport and Belfast City Airport. There were 69 passengers and 4 crew on board. As the aircraft descended through FL150, the SMOKE<sup>1</sup> caption illuminated briefly on the flight deck Caution and Warning Panel.

The commander directed the first officer to don his oxygen mask. As the first officer did so, the SMOKE warning reappeared. The commander made a PAN-PAN call to alert ATC

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**Footnote**

<sup>1</sup> The SMOKE caption indicated that smoke was sensed in the forward or aft baggage compartment.

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to the situation, and warned the cabin crew that a potential emergency situation existed. Shortly afterwards, the first officer noticed the EXTG (Extinguisher) light had illuminated in the SMOKE/EXTG switchlight related to the aft baggage compartment. The flight crew completed the appropriate actions, during which the switchlight was pressed, discharging fire extinguishant into the compartment.

The commander made a MAYDAY call and requested expeditious routing. He also informed the senior cabin crew member of the situation and instructed her to secure the cabin. She told the commander at this time that there was no smoke present in the passenger cabin. Communications between crew members were made difficult by the fact that both flight deck crew were wearing oxygen masks by this time.

The SMOKE warning extinguished. With the cabin secure, the commander briefed the senior cabin crew member, warning her that a passenger evacuation after landing was a possibility but also emphasising the need to await a positive command in case the situation changed. Then, shortly before landing, the SMOKE warning reoccurred, although again without any visible smoke in the cabin or flight deck. On short finals, believing that the Airport Fire and Rescue Service may have had a better view of the baggage compartment door, the commander tried to contact them on frequency 121.6 MHz but received no response. He brought the aircraft to a stop on the runway after landing and shut down the engines. The crew were informed by ATC that there were no external signs of smoke or fire. With this information, and with no signs of smoke in the cabin, the commander ordered a rapid disembarkation<sup>2</sup>.

The aircraft had been dispatched on the flight with unserviceabilities affecting the public address (PA) system; the system was unserviceable at the senior cabin crew member's station and the emergency system was also unserviceable. This meant that the rapid disembarkation PA had to be given from the aft cabin crew station, with the senior cabin crew member using a megaphone to inform and control the disembarkation from her station forward. Dispatch in this condition was permitted under the regulations governing the flight, and the crew had earlier discussed the implications for just such an occurrence. The rapid disembarkation was successful and there were no reported injuries.

Subsequent examination of the aircraft by the operator's engineering department showed no evidence of fire or smoke damage. No fault could be found with the fire detection system, although the smoke detectors and fire detection control amplifier were changed as a precautionary measure. A strip examination of the smoke detectors identified corrosion on one of the electrical connector pins. Similar examination of the fire detection control amplifier revealed no defects.

The corrosion on the connector pin was identified as the probable cause of the indications reported by the flight crew. The aircraft operator shared its findings with the aircraft

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**Footnote**

<sup>2</sup> A rapid disembarkation is a recognised procedure to clear the aircraft of passengers and crew in as short a time as possible without resorting to a full evacuation. Normal entry/exit doors and steps are used.



manufacturer's own investigation and raised the possibility of routine maintenance care of the smoke detector connections being included in the aircraft's scheduled maintenance programme.

## ACCIDENT

<b>Aircraft Type and Registration:</b>	Cessna U206C Super Skywagon, G-BPGE	
<b>No &amp; Type of Engines:</b>	1 Continental Motors Corp IO-520-F piston engine	
<b>Year of Manufacture:</b>	1968 (Serial no: U206-1013)	
<b>Date &amp; Time (UTC):</b>	17 January 2015 at 1200 hrs	
<b>Location:</b>	Strathallen Airfield, Perthshire	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - 5
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	Lower front cowling, propeller, strut fairings, left side tailplane leading edge	
<b>Commander's Licence:</b>	Commercial Pilot's Licence	
<b>Commander's Age:</b>	55 years	
<b>Commander's Flying Experience:</b>	666 hours (of which 132 were on type) Last 90 days - 30 hours Last 28 days - 5 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

## Synopsis

Whilst climbing in preparation to drop five parachutists, the engine failed at a height of 3,000 ft. The pilot landed back on Runway 28 at Strathallen Airfield, but the aircraft overran the end of the runway, travelling through a fence and hedge before coming to a stop. The pilot and parachutists were uninjured. The number five and six piston connecting rods were found to have failed and damaged the crankcase allowing engine oil to escape.

## History of the flight

The aircraft was operating a parachute drop at Strathallen Airfield, with five parachutists onboard.

The takeoff from grass Runway 28 appeared normal, and having climbed to 2,000 ft above the airfield, a wind drift indicator (WDI) was released from the aircraft. The pilot continued the climb whilst remaining in close proximity with the airfield to observe the WDI, with the airspeed stabilised at 100 kt, the propeller rpm adjusted to 2,500 rpm and 25 inches manifold pressure set.

As the aircraft reached 3,000 ft, there was a sudden loss of engine power and increase in vibration, which was followed by oil appearing on the windscreen. With vision still possible through the left side of the windscreen and having adopted a glide approach for a power-off

landing back on Runway 28, the pilot advised the parachutists to remain onboard as he considered this the safest option considering their relatively low height. The aircraft touched down approximately halfway along its length, with about 320 m remaining. Realising that he may have difficulty in stopping the aircraft on the damp runway, the pilot turned the aircraft right onto a strip of longer grass adjacent to the runway in an attempt to increase the deceleration. However it overran the end of the runway and went through a fence and hedge before coming to a stop. The pilot and passengers were uninjured and exited the aircraft without assistance through the main door. The lower front cowling, propeller, strut fairings and left side tailplane leading edge were damaged.

An inspection of the engine revealed that the number five and six piston connecting rods had failed, with holes created in both the upper and lower crankcase, which had allowed engine oil to escape.

**ACCIDENT**

<b>Aircraft Type and Registration:</b>	Reims Cessna F152, G-CHIK	
<b>No &amp; Type of Engines:</b>	1 Lycoming O-235-L2C piston engine	
<b>Year of Manufacture:</b>	1979 (Serial no: 1628)	
<b>Date &amp; Time (UTC):</b>	28 October 2014 at 1340 hrs	
<b>Location:</b>	Earls Colne Airfield, Essex	
<b>Type of Flight:</b>	Training	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Substantial, aircraft damaged beyond economic repair	
<b>Commander's Licence:</b>	Student	
<b>Commander's Age:</b>	47 years	
<b>Commander's Flying Experience:</b>	35 hours (of which 35 were on type) Last 90 days - 21 hours Last 28 days - 3 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and subsequent AAIB enquiries	

The student pilot was on a solo navigation exercise from Stapleford to Earls Colne. As the flight progressed, radio communications became progressively more difficult and, on attempting to contact Earls Colne, it appeared that the radio had failed. The pilot orbited in the Earls Colne overhead and attempted to resolve the situation by switch selections without success, before selecting the radio failure code on the transponder. She waited ten minutes for this squawk to be observed and for ATC to communicate her presence to Earls Colne by telephone, before joining the circuit to land.

The first approach to Runway 24 was slightly high and fast and resulted in a go-around. On the second approach, a gust of wind caused the aircraft to roll to the right close to the ground.



**Figure 1**

This precipitated a loss of control, and the aircraft impacted hard on the nose landing gear, which collapsed (Figure 1). Airfield staff, observing the windsock, estimated the wind was from 190° at 12 kt.

Although the aircraft was fitted with two communications radios, they were of different design, and the pilot had not been shown how to use the second one; she was unaware it was a communication radio.

**ACCIDENT**

<b>Aircraft Type and Registration:</b>	Robinson R22 Beta, G-ECMC	
<b>No &amp; Type of Engines:</b>	1 Lycoming O-360-J2A piston engine	
<b>Year of Manufacture:</b>	2004 (Serial no: 3671)	
<b>Date &amp; Time (UTC):</b>	12 February 2015 at 1510 hrs	
<b>Location:</b>	Goodwood Aerodrome, West Sussex	
<b>Type of Flight:</b>	Training	
<b>Persons on Board:</b>	Crew - 2	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Damaged beyond economic repair	
<b>Commander's Licence:</b>	Commercial Pilot's Licence	
<b>Commander's Age:</b>	47 years	
<b>Commander's Flying Experience:</b>	4,268 hours (of which 2,775 were on type) Last 90 days - 37 hours Last 28 days - 26 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

**Synopsis**

The instructor intended to demonstrate recovery from a tail rotor failure in the hover which he simulated by relaxing pressure on the yaw pedals. The subsequent spin was faster than he expected but, as he attempted to recover using the yaw pedals, his foot slipped off the right pedal. As he attempted to regain control, the helicopter struck the ground and rolled over.

**History of the flight**

The helicopter was engaged on a routine training flight of about one hour's duration. The instructor planned to practise various emergencies including tail rotor failures in the hover, taxi and forward flight to his student. He started by demonstrating a tail rotor failure in the hover, which he states he normally performs by relaxing pressure on the yaw pedals to allow the helicopter to start to spin. The next action would be to adjust the throttle demand to reduce the yaw and cushion the landing.

The rate of yaw to the right was faster than the instructor had expected so he decided not to roll off the throttle in favour of using left pedal input to stop the rotation. He stated that at this juncture, his right foot slipped off the pedal, causing him to input too much left pedal. He then hooked his left foot under the pedal and used it to pull back the left pedal but this caused the helicopter to increase the yaw to the right. He did not consider it safe to reduce throttle and, as he attempted to regain both feet on the pedals, the helicopter struck the ground and rolled over onto its left side. There were no injuries to either occupant, both of whom exited through the right door.

**ACCIDENT**

<b>Aircraft Type and Registration:</b>	Robinson R22 Beta, G-THLA	
<b>No &amp; Type of Engines:</b>	1 Lycoming O-360-J2A piston engine	
<b>Year of Manufacture:</b>	2003 (Serial no: 3462)	
<b>Date &amp; Time (UTC):</b>	13 February 2015 at 1113 hrs	
<b>Location:</b>	In a field off Snargate Lane, Romney Marsh, Kent	
<b>Type of Flight:</b>	Training	
<b>Persons on Board:</b>	Crew - 1	Passengers - 1
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	Substantial damage to rotor system and tailboom	
<b>Commander's Licence:</b>	Commercial Pilot's Licence	
<b>Commander's Age:</b>	37 years	
<b>Commander's Flying Experience:</b>	960 hours (of which 857 were on type) Last 90 days - 14 hours Last 28 days - 6 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

**Synopsis**

After the instructor demonstrated a 360° autorotation exercise, his student attempted a similar manoeuvre. At some point during the turn the 'low rotor rpm' warning sounded and, although the student further lowered the collective control, the airspeed and height reduced to the point where the instructor intervened by applying power. However the aircraft continued to descend, so he applied full power and pushed the nose down to gain speed. When it appeared that a landing was inevitable he attempted a flare at a height of around 40 ft with the intention of conducting a low speed landing. The landing area was a ploughed field and the skids dug in, causing the rotors to strike the ground, with the helicopter ending up on its right side. The instructor considered that, with a 25-30 kt wind blowing over the area, he had encountered severe windshear in the final stages of the autorotation.

**History of the flight**

The purpose of the flight was to focus on autorotation techniques in preparation for the student's General Flying Test. The instructor stated that the wind over the Romney Marsh area was from 150/160° at 25-30 kt, a cloud base in excess of 2,000 ft and hazy visibility. The sortie commenced with two gentle autorotations, which were conducted satisfactorily, before moving onto advanced exercises that included constant attitude, standard (ie 60 kt) range and extended range autorotations. The instructor then demonstrated a 360° autorotation,

which is used when the desired landing area is directly below the helicopter. During the demonstration the instructor explained how the 30 kt headwind would tend to push the helicopter back and that during the turn there would be a reduction in airspeed and rotor rpm. The instructor completed the manoeuvre with a flared recovery at around 55 kt.

The student initiated her autorotation in the correct position for the chosen landing area (which was different from that used for the instructor's demonstration) and then entered a left turn, losing airspeed as predicted. At some point during the turn, the 'low rotor rpm' warning horn sounded, indicating that rotor rpm was below 96%. The student adjusted the collective pitch control downwards to bring the rpm indicating needle back into the green sector. On lining up for the landing field the instructor noted that the airspeed was a little slow and the height was now around 250 ft. He 'joined' the engine and rotor rpm needles together by applying power and asked the student to go around. After 2-3 seconds he further assisted by applying considerably more power. However, the helicopter was now at around 150 ft, so he applied full power and pushed forward on the cyclic control in order to gain airspeed. The machine continued to fall and the instructor attempted a flare at around 40 ft with the intention of conducting a landing at as low an airspeed as possible due to the ploughed surface of the field. Despite landing on the rear of the skids, the nose pitched down, causing the front of the skids to dig in. The main rotors cut into the ground and the helicopter rolled over onto its right side. The instructor turned off the fuel and electrics and, whilst doing so, noted that fuel was escaping from the cowling around the rotor head. The occupants helped each other out of the aircraft.

The instructor subsequently stated that he considered that the helicopter had experienced severe windshear in the final stage of the autorotation, causing a loss of lift that prevented a recovery/go-around.

## **Discussion**

The instructor's report on the accident indicates that a high rate of descent developed in comparison with the demonstrated autorotation; this may have had its origin in the reduction in collective pitch that was required following the low rotor rpm warning. The reported reduction in airspeed may have been the result of windshear but, with the height rapidly reducing, the instructor was forced to lower the nose in order to increase airspeed, further increasing the rate of descent.

The cloud base, at 2,000 ft, would have permitted a higher entry to the autorotation manoeuvre, which would have given the student additional time and space in which to choose a more suitable landing area. However, the instructor subsequently commented that although this was true, the student had been performing well in previous sessions and was thus capable of conducting something more advanced. In the event, several potential landing areas were missed whilst the instructor was attempting to explain which field the student was to aim for. This resulted in the helicopter lining up on the ploughed field but, whilst it is possible the instructor underestimated the depth of the furrows, he had in any case intended to go around from approximately 300 ft.



It is noteworthy that the flight conditions may have been conducive to the formation of 'vortex ring' state, in which a 'doughnut' of recirculating air forms around the rotor blade tips. A helicopter needs three conditions to enter vortex ring state, namely a high rate of descent (typically more than 300 ft/min), applied power and low airspeed. The incipient stage results in symptoms that include random yawing, pitching and rolling and an increase in the rate of descent. The instructor, having thought further about the event, stated that he was confident the go-around was initiated at 45 kt, with the helicopter accelerating towards 60 kt, which was the ideal point on the power curve to arrest the descent. He therefore concluded that vortex ring did not contribute to the accident.

**ACCIDENT**

<b>Aircraft Type and Registration:</b>	TL 2000UK Sting Carbon S4, G-ZIZY	
<b>No &amp; Type of Engines:</b>	1 Rotax 912iS piston engine	
<b>Year of Manufacture:</b>	2013 (Serial no: LAA 347A-15201)	
<b>Date &amp; Time (UTC):</b>	18 March 2015 at 1700 hrs	
<b>Location:</b>	Dunkeswell Aerodrome, Devon	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - 1
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	Nose gear leg, nose gear fuselage attachment	
<b>Commander's Licence:</b>	National Private Pilot's Licence	
<b>Commander's Age:</b>	70 years	
<b>Commander's Flying Experience:</b>	677 hours (of which 56 were on type) Last 90 days - 6 hours Last 28 days - 2 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

The pilot reported that, during the approach to land on Runway 05, the wind was from 050° at about 5 kt. As he started to flare the aircraft for landing, its pitch attitude increased beyond that intended due to a gust of wind. Sensing the aircraft was stalling, the pilot pitched nose-down and applied full throttle. Before he was able to arrest the descent, the aircraft landed heavily nosewheel first. Whilst taxiing from the runway, the pilot had to use differential braking to maintain directional control as the aircraft continued to turn to the right even when full left nose steering was applied. The pilot and passenger were uninjured and vacated the aircraft normally. Upon inspection, the nose gear leg and fuselage attachment were found to be damaged, with the leg canted to the left.

The pilot considered the reason for the accident was that he had allowed the airspeed to decay too much during the initial flare which, in combination with the unexpected gust, reduced the margin for maintaining a safe flying speed.

**ACCIDENT**

<b>Aircraft Type and Registration:</b>	Vans RV-6, G-RVAW	
<b>No &amp; Type of Engines:</b>	1 Lycoming O-320-A1A piston engine	
<b>Year of Manufacture:</b>	2000 (Serial no: PFA 181-13234)	
<b>Date &amp; Time (UTC):</b>	17 December 2011 at 1100 hrs	
<b>Location:</b>	Wickenby Aerodrome, Lincolnshire	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Damage to right wing, engine cowl and propeller	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	43 years	
<b>Commander's Flying Experience:</b>	193 hours (of which 55 were on type) Last 90 days - 11 hours Last 28 days - 2 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

**Explanatory note**

The accident occurred on 17 December 2011 but was not reported to the AAIB at the time due to a misunderstanding of the reporting requirements for ground collisions.

**Synopsis**

The pilot experienced difficulty starting the aircraft's engine. He left the cockpit to move the propeller by hand but inadvertently left the magneto switches ON. When he moved the propeller, the engine started and the aircraft moved forward. Its left wing struck the pilot, causing the aircraft to turn left and collide with an adjacent aircraft. There were no reported injuries.

**Description of the accident**

The pilot of G-RVAW reported that he had flown two short flights in the aircraft that day and that, immediately prior to the accident, it was parked on the grass parking area at Wickenby Aerodrome. The pilot had met with a number of friends during the day and together they had made arrangements to depart Wickenby at the same time.

The air temperature at the time was low (Humberside Airport, 15 nm north of Wickenby, reported a temperature of 3°C at 1050 hrs). The aircraft's engine had been slow to start before its first flight but had started normally before its second. However, when the pilot

attempted to start the engine at Wickenby, it would not turn over. He thought that the engine (which was still warm) had stopped at top dead centre and just required turning by hand beyond this point for it to start normally. He therefore switched off the aircraft's electrics and left the cockpit to turn the propeller. As he began to turn it, the engine started and the aircraft began to move forward. The pilot ran out of its way but was caught by the left wing tip. This caused the aircraft to turn to the left and collide with a Vans RV-7, which was stationary alongside with its engine running and one person on board, about to taxi. Both aircraft were damaged but there were no reported injuries.

The pilot explained that he had inadvertently left the magneto switches ON when he left the cockpit to turn the engine by hand. He attributed his mistake to a combination of low experience, the adverse effect of the cold weather on his own performance and a certain amount of time pressure to keep up with the planned joint departure.

## ACCIDENT

<b>Aircraft Type and Registration:</b>	Jabiru UL-450, G-CNAB	
<b>No &amp; Type of Engines:</b>	1 Jabiru 2200A piston engine	
<b>Year of Manufacture:</b>	2001 (Serial no: PFA 274-13651)	
<b>Date &amp; Time (UTC):</b>	16 March 2015 at 1245 hrs	
<b>Location:</b>	Near Hucknall Aerodrome, Nottinghamshire	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Damage to propeller, landing gear, engine cowling, nose landing gear, left lift strut, pitot static tube and elevator hinges	
<b>Commander's Licence:</b>	National Private Pilot's Licence	
<b>Commander's Age:</b>	49 years	
<b>Commander's Flying Experience:</b>	345 hours (of which 7 were on type) Last 90 days - 1.5 hours Last 28 days - 1.5 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

## Synopsis

The pilot was conducting circuit practice at a grass airstrip. After the second landing, the aircraft was to the left side of the strip and deviating further left. The pilot attempted to correct the deviation with rudder and nosewheel steering but, with the additional need to brake firmly, was unable to prevent the aircraft running off the left side of the airstrip where it encountered soft ground and overturned.

## History of the flight

The aircraft was based at a private farm airstrip to the north east of Nottingham. There was a single grass airstrip, orientated approximately 15/33 and about 320 m long. On the day of the accident, the pilot travelled to the airstrip to rig the aircraft with the intention of conducting a local flight to practise general handling and circuits.

The weather report for East Midlands Airport (10 nm away) showed marginal conditions for the intended flight but the weather at the airstrip was seen to improve while the pilot rigged the aircraft. At about 1140 hrs, the pilot estimated that the broken cloudbase was above 1,500 ft, with a surface wind of about 7 kt from the east and a visibility of about 7 km. He was satisfied that conditions were suitable for his flight.

Pre-flight checks were completed normally and the pilot taxied the aircraft for the north-westerly runway. He considered this preferable in the prevailing wind conditions due to the possibility of local wind turbulence effects from nearby trees when taking off in the south-easterly direction.

About 10 minutes after takeoff, the pilot returned to the airstrip for circuit practice, again using the strip in the north-westerly direction. On the first approach, the pilot judged the aircraft to be too high and flew a go-around from about 200 ft. The second approach was acceptable, with the easterly wind in evidence. The pilot continued to a safe landing, although it was slightly firmer and further along the strip than intended.

The pilot flew a further takeoff and approach. The approach and touchdown appeared normal, with the main wheels touching down first. As the nosewheel settled, it became apparent that the aircraft was closer to the left side of the strip than intended and tracking towards the left edge at about three quarters the distance along the strip. The pilot believed he could correct the deviation with rudder and nosewheel steering but, as he braked heavily, he found that he was unable to prevent the left wheel running off the edge of the airstrip and onto soft ground. This caused the aircraft to turn left into the adjacent field where the nosewheel dug in, causing the aircraft to pitch nose down and then to fully invert.

The pilot, who was uninjured, remained secured in his seat by his harness. He was able to release himself quickly. He switched off the master switch and fuel tap and exited the aircraft by the left side door.

## **Discussion**

The pilot had gained most of his flying experience on 3-axis microlights but considered that his lack of experience and currency on type were factors contributing to the accident. Although he had initially believed he could steer the aircraft to safety, this had not been possible due to the heavy braking that had also been necessary. He acknowledged that an early go-around would have been the safest course of action but, when it became apparent that the situation was not correctable, there was insufficient distance remaining to do so.

## ACCIDENT

<b>Aircraft Type and Registration:</b>	Magni M24C Orion, G-YROD	
<b>No &amp; Type of Engines:</b>	1 Rotax 914-UL piston engine	
<b>Year of Manufacture:</b>	2014 (Serial no: 24-14-8714)	
<b>Date &amp; Time (UTC):</b>	30 March 2015 at 0921 hrs	
<b>Location:</b>	Old Warden Airfield, Bedfordshire	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Extensive damage to rotor system, propeller, fuselage, tail assembly and landing gear	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	54 years	
<b>Commander's Flying Experience:</b>	348 hours (of which 35 were on type) Last 90 days - 22 hours Last 28 days - 14 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

## Synopsis

During an approach to Old Warden Airfield, the pilot encountered an unexpectedly strong gusty crosswind. As he attempted a go-around, he lost control of the gyroplane and it struck the ground, rolling onto its right side.

## History of the flight

The gyroplane had departed Fairoaks Airport for a flight to Old Warden Airfield. As it arrived overhead Old Warden after a flight of about one hour, the pilot noticed that the wind was blowing from about 290°, having veered from 260-270° when he had taken off. The weather was clear and bright and the windsocks at both ends of Runway 21 he assessed as indicating a steady 10-15 kt, compared with the 7 kt when he departed Fairoaks.

After a normal circuit, whilst the aircraft was on finals, the pilot experienced significant crosswind gusts which led to lateral yawing, so he extended finals in order to align the landing gear wheels before landing long. However, before touchdown, he experienced a severe gust which led him to apply power and attempt a go-around. At this point, the gust reduced in strength, resulting in the gyroplane yawing left and departing the runway towards a fence alongside the runway. The pilot raised the nose to avoid the fence but this caused a significant loss of airspeed such that the machine could no longer maintain

flight. It also reduced rudder authority and the pilot lowered the nose to regain control but the aircraft impacted the ground and the rotor blades struck the grass. The helicopter fell onto its right side and came to rest with the pilot exiting uninjured through the left door.

The pilot is of the opinion that the wind on finals, at 15 gusting 25 kt, was stronger than he had assessed or was expecting. He supplied a series of photographs taken shortly after the accident which showed the windsock varying between hanging near vertically down to about 20° below horizontal. He acknowledges, however, that he should have gone around earlier in the approach.



**ACCIDENT**

<b>Aircraft Type and Registration:</b>	Pegasus Quantum 15, G-MYZK
<b>No &amp; Type of Engines:</b>	1 Rotax 582-40 piston engine
<b>Year of Manufacture:</b>	1996 (Serial no: 7157)
<b>Date &amp; Time (UTC):</b>	20 March 2015 at 1212 hrs
<b>Location:</b>	Durham Tees Valley Airport, Darlington
<b>Type of Flight:</b>	Training
<b>Persons on Board:</b>	Crew - 1                      Passengers - 1
<b>Injuries:</b>	Crew - 1 (Minor)          Passengers - 1 (Minor)
<b>Nature of Damage:</b>	Damaged beyond economic repair
<b>Commander's Licence:</b>	Private Pilot's Licence
<b>Commander's Age:</b>	52 years
<b>Commander's Flying Experience:</b>	897 hours (of which 897 were on type) Last 90 days - 31 hours Last 28 days - 20 hours
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot

The aircraft was landing on Runway 23 at Durham Tees Valley Airport when the accident occurred. The surface wind was from 280° at 10 to 12 kt and described by the pilot as "blustery". Shortly before landing the aircraft encountered turbulent air, possibly generated by the presence of large buildings upwind of the landing zone, lost height and struck the runway in a nose-down attitude.

The pilot considered that probably the approach speed had been too low for the prevailing conditions, such that the aircraft's performance was compromised when it encountered the turbulence at a critical stage of flight.



## **Miscellaneous**

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

The complete reports can be downloaded from the AAIB website ([www.aaib.gov.uk](http://www.aaib.gov.uk)).



**BULLETIN CORRECTION**

<b>AAIB File:</b>	EW/C2014/08/01
<b>Aircraft Type and Registration:</b>	CZAW SportCruiser, G-EWZZ
<b>Date &amp; Time (UTC):</b>	9 August 2014 at 1440 hrs
<b>Location:</b>	Kingarth, Isle of Bute, Scotland
<b>Information Source:</b>	Aircraft Accident Report Form

**AAIB Bulletin No 5/2015, page 14 refers**

The date of the accident was incorrectly stated as 9 September 2014; the accident occurred on **9 August 2014**.

The Bulletin was corrected online prior to publication.



## Extract from the AAIB Annual Safety Report 2014

The complete report can be downloaded from the AAIB Website ([www.aaib.gov.uk](http://www.aaib.gov.uk))

### Statistics

The following pages provide the statistics for 2013, 2012 and 2011, for accidents and serious incidents involving the Air Accidents Investigation Branch.

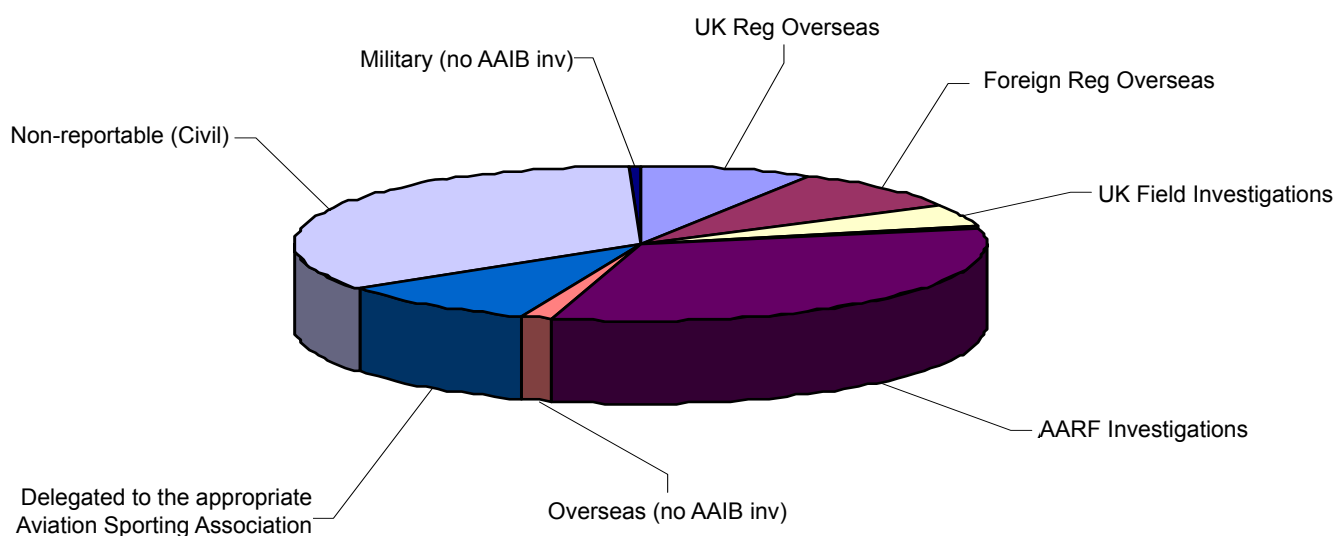
The statistics for 2014 will be published in the Annual Safety Report 2015 which will be available in the autumn.

An explanation of the categories is as follows:

Category	Definition
UK Aircraft overseas	Investigations involving UK registered aircraft, or aircraft registered in one of the UK Overseas Territories or Crown Dependencies, occurring in a Foreign State where the AAIB has participated in the capacity as the Accredited Representative representing the State of Registry in accordance with ICAO Annex 13.
Foreign Aircraft overseas	Accidents and serious incident investigations to Foreign registered aircraft occurring in a Foreign State where the AAIB have participated in the capacity as the Accredited Representative.
UK Field Investigations	Investigations involving the deployment of a 'Field' team within the UK or to one of the UK Overseas Territories or Crown Dependencies and those investigations where a team have not been deployed but Safety Recommendations are made. Also includes investigations which have been delegated to the AAIB by another State.
Military with AAIB Assistance	Where an MoD Service Inquiry is convened following an accident / serious incident to a Military aircraft and an AAIB Inspector is appointed to assist.
AARF Investigations	Investigations conducted by correspondence only using an Aircraft Accident Report Form (AARF) completed by the aircraft commander.
Overseas (no AAIB)	Notifications to the AAIB of an overseas event which has no AAIB involvement.
Delegations to Sporting Associations	Investigations delegated to the relevant UK Sporting Associations.
Non-reportable (Civil)	Occurrences notified to the AAIB involving civil registered aircraft which do not satisfy the criteria of a reportable accident or serious incident in accordance with the Regulations.
Military (no AAIB inv)	Notifications to the AAIB concerning Military aircraft with no AAIB involvement.

## AAIB Notifications 2013

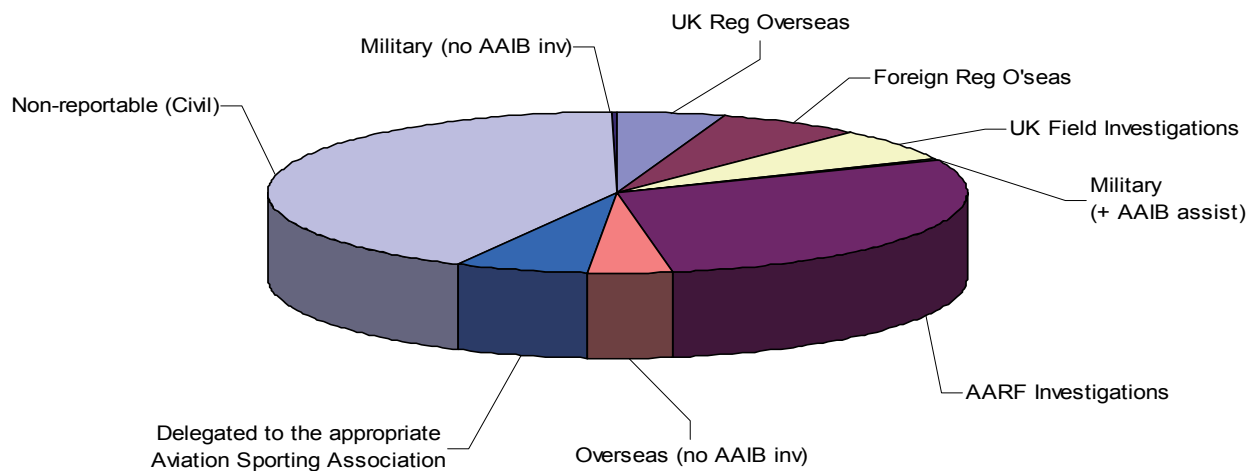
	J	F	M	A	M	J	J	A	S	O	N	D	Total
UK Aircraft Overseas	2	1	3	4	10	6	7	7	5	3	2	2	<b>53</b>
Foreign Aircraft Overseas	1	7	5	1	9	3	6	4	7	6	3	4	<b>56</b>
UK Field Investigations	3	0	1	2	3	2	3	5	2	3	5	3	<b>32</b>
Military (+ AAIB assist)	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
AARF Investigations	8	11	10	17	20	23	33	37	15	19	11	9	<b>213</b>
Overseas (no AAIB inv)	2	0	3	0	0	0	0	0	1	3	0	0	<b>9</b>
Delegated to the appropriate Aviation Sporting Association	2	4	3	4	11	8	6	11	7	3	0	3	<b>62</b>
Non-reportable (Civil)	18	15	13	26	25	20	21	19	19	16	10	24	<b>226</b>
Military (no AAIB inv)	1	0	0	0	0	0	0	1	0	1	0	0	<b>3</b>
<b>Total</b>	<b>37</b>	<b>38</b>	<b>38</b>	<b>55</b>	<b>78</b>	<b>62</b>	<b>76</b>	<b>84</b>	<b>56</b>	<b>54</b>	<b>31</b>	<b>45</b>	<b>654</b>
<b>UK FATAL ACCIDENTS</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>13</b>
<b>No of DEATHS</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>7</b>	<b>3</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>30</b>





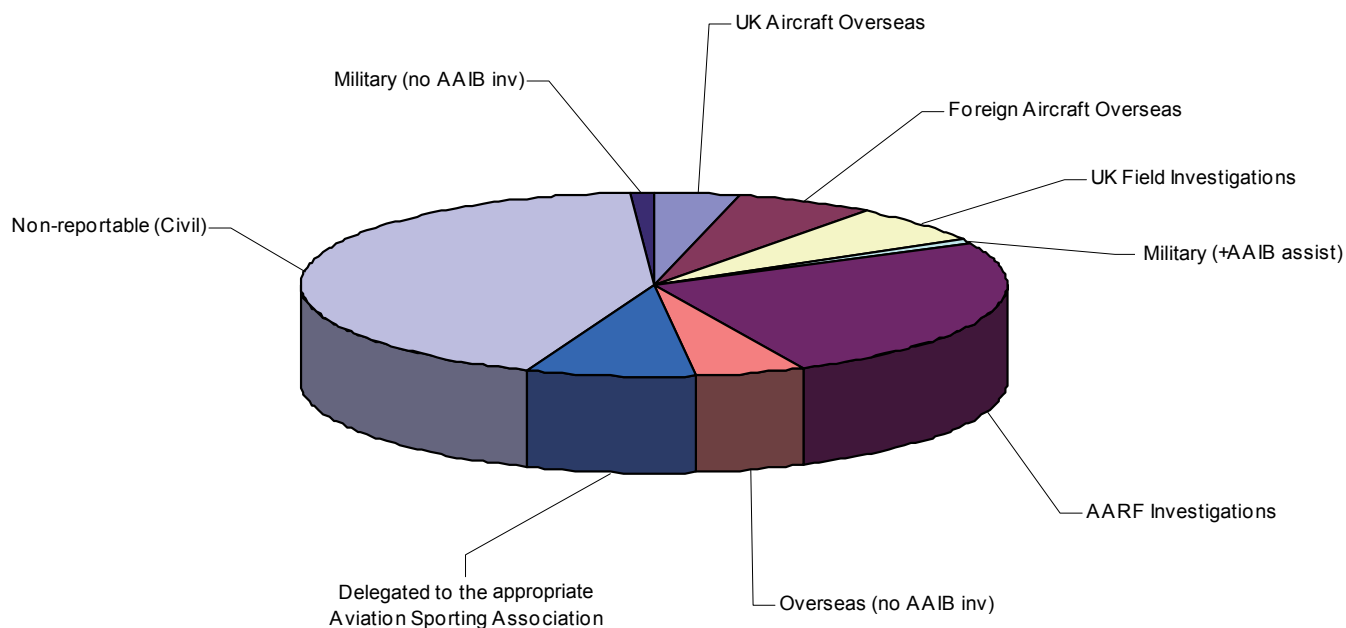
## AAIB Notifications 2012

	J	F	M	A	M	J	J	A	S	O	N	D	Total
UK Aircraft Overseas	2	0	2	2	4	8	4	6	2	3	1	3	37
Foreign Aircraft Overseas	2	2	3	4	3	4	5	4	7	9	3	4	50
UK Field Investigations	3	4	5	7	5	1	6	8	3	3	1	1	47
Military (+ AAIB assist)	1	0	0	0	0	0	1	0	0	0	0	0	2
AARF Investigations	11	15	19	14	28	13	29	26	26	16	10	10	217
Overseas (no AAIB inv)	6	2	2	4	6	2	2	2	0	2	2	0	30
Delegated to the appropriate Aviation Sporting Association	3	3	2	5	6	2	6	9	2	5	1	0	44
Non-reportable (Civil)	23	21	35	26	39	26	40	25	30	22	19	8	314
Military (no AAIB inv)	1	0	0	1	0	0	0	0	0	1	0	0	3
<b>Total</b>	<b>52</b>	<b>47</b>	<b>68</b>	<b>63</b>	<b>91</b>	<b>56</b>	<b>93</b>	<b>80</b>	<b>70</b>	<b>61</b>	<b>37</b>	<b>26</b>	<b>744</b>
<b>UK FATAL ACCIDENTS</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>13</b>
<b>No of DEATHS</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>16</b>



## AAIB Notifications 2011

	J	F	M	A	M	J	J	A	S	O	N	D	Total
UK Aircraft Overseas	0	2	0	1	5	4	5	3	2	2	4	3	31
Foreign Aircraft Overseas	5	8	2	3	7	3	9	3	4	3	2	2	51
UK Field Investigations	6	3	5	6	4	5	10	1	4	2	3	3	52
Military (+ AAIB assist)	1	1	0	0	0	0	1	1	1	0	1	0	6
AARF Investigations	6	11	21	21	14	21	34	20	24	15	10	2	199
Overseas (no AAIB inv)	1	7	3	0	2	2	7	3	1	3	3	8	40
Delegated to the appropriate Aviation Sporting Association	2	1	2	6	7	11	8	7	7	8	1	1	61
Non-reportable (Civil)	13	26	22	42	33	34	38	40	24	30	23	15	340
Military (no AAIB inv)	0	0	0	0	0	1	0	0	1	2	4	0	8
<b>Total</b>	<b>34</b>	<b>59</b>	<b>55</b>	<b>79</b>	<b>72</b>	<b>81</b>	<b>112</b>	<b>78</b>	<b>68</b>	<b>65</b>	<b>51</b>	<b>34</b>	<b>788</b>
<b>UK FATAL ACCIDENTS</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>14</b>
<b>No of DEATHS</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>16</b>



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

- |   |  |
|---|--|
| 4/2010 Boeing 777-236, G-VIIR<br>at Robert L Bradshaw Int Airport<br>St Kitts, West Indies<br>on 26 September 2009.<br><br>Published September 2010.  | 2/2011 Aerospatiale (Eurocopter) AS332 L2<br>Super Puma, G-REDL<br>11 nm NE of Peterhead, Scotland<br>on 1 April 2009.<br><br>Published November 2011.   |
| 5/2010 Grob G115E (Tutor), G-BYXR<br>and Standard Cirrus Glider, G-CKHT<br>Drayton, Oxfordshire<br>on 14 June 2009.<br><br>Published September 2010.  | 1/2014 Airbus A330-343, G-VSXY<br>at London Gatwick Airport<br>on 16 April 2012.<br><br>Published February 2014.   |
| 6/2010 Grob G115E Tutor, G-BYUT<br>and Grob G115E Tutor, G-BYVN<br>near Porthcawl, South Wales<br>on 11 February 2009.<br><br>Published November 2010.  | 2/2014 Eurocopter EC225 LP Super Puma<br>G-REDW, 34 nm east of Aberdeen,<br>Scotland on 10 May 2012<br>and<br>G-CHCN, 32 nm southwest of<br>Sumburgh, Shetland Islands<br>on 22 October 2012<br><br>Published June 2014. |
| 7/2010 Aerospatiale (Eurocopter) AS 332L<br>Super Puma, G-PUMI<br>at Aberdeen Airport, Scotland<br>on 13 October 2006.<br><br>Published November 2010.  | 3/2014 Agusta A109E, G-CRST<br>Near Vauxhall Bridge,<br>Central London<br>on 16 January 2013.<br><br>Published September 2014.   |
| 8/2010 Cessna 402C, G-EYES and<br>Rand KR-2, G-BOLZ<br>near Coventry Airport<br>on 17 August 2008.<br><br>Published December 2010.  |  |
| 1/2011 Eurocopter EC225 LP Super<br>Puma, G-REDU<br>near the Eastern Trough Area<br>Project Central Production Facility<br>Platform in the North Sea<br>on 18 February 2009.<br><br>Published September 2011. |  |

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

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



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## GLOSSARY OF ABBREVIATIONS

aal	above airfield level	lb	pound(s)
ACAS	Airborne Collision Avoidance System	LP	low pressure
ACARS	Automatic Communications And Reporting System	LAA	Light Aircraft Association
ADF	Automatic Direction Finding equipment	LDA	Landing Distance Available
AFIS(O)	Aerodrome Flight Information Service (Officer)	LPC	Licence Proficiency Check
agl	above ground level	m	metre(s)
AIC	Aeronautical Information Circular	mb	millibar(s)
amsl	above mean sea level	MDA	Minimum Descent Altitude
AOM	Aerodrome Operating Minima	METAR	a timed aerodrome meteorological report
APU	Auxiliary Power Unit	min	minutes
ASI	airspeed indicator	mm	millimetre(s)
ATC(C)(O)	Air Traffic Control (Centre)( Officer)	mph	miles per hour
ATIS	Automatic Terminal Information System	MTWA	Maximum Total Weight Authorised
ATPL	Airline Transport Pilot's Licence	N	Newtons
BMAA	British Microlight Aircraft Association	N <sub>R</sub>	Main rotor rotation speed (rotorcraft)
BGA	British Gliding Association	N <sub>g</sub>	Gas generator rotation speed (rotorcraft)
BBAC	British Balloon and Airship Club	N <sub>i</sub>	engine fan or LP compressor speed
BHPA	British Hang Gliding & Paragliding Association	NDB	Non-Directional radio Beacon
CAA	Civil Aviation Authority	nm	nautical mile(s)
CAVOK	Ceiling And Visibility OK (for VFR flight)	NOTAM	Notice to Airmen
CAS	calibrated airspeed	OAT	Outside Air Temperature
cc	cubic centimetres	OPC	Operator Proficiency Check
CG	Centre of Gravity	PAPI	Precision Approach Path Indicator
cm	centimetre(s)	PF	Pilot Flying
CPL	Commercial Pilot's Licence	PIC	Pilot in Command
°C,F,M,T	Celsius, Fahrenheit, magnetic, true	PNF	Pilot Not Flying
CVR	Cockpit Voice Recorder	POH	Pilot's Operating Handbook
DFDR	Digital Flight Data Recorder	PPL	Private Pilot's Licence
DME	Distance Measuring Equipment	psi	pounds per square inch
EAS	equivalent airspeed	QFE	altimeter pressure setting to indicate height above aerodrome
EASA	European Aviation Safety Agency	QNH	altimeter pressure setting to indicate elevation amsl
ECAM	Electronic Centralised Aircraft Monitoring	RA	Resolution Advisory
EGPWS	Enhanced GPWS	RFFS	Rescue and Fire Fighting Service
EGT	Exhaust Gas Temperature	rpm	revolutions per minute
EICAS	Engine Indication and Crew Alerting System	RTF	radiotelephony
EPR	Engine Pressure Ratio	RVR	Runway Visual Range
ETA	Estimated Time of Arrival	SAR	Search and Rescue
ETD	Estimated Time of Departure	SB	Service Bulletin
FAA	Federal Aviation Administration (USA)	SSR	Secondary Surveillance Radar
FIR	Flight Information Region	TA	Traffic Advisory
FL	Flight Level	TAF	Terminal Aerodrome Forecast
ft	feet	TAS	true airspeed
ft/min	feet per minute	TAWS	Terrain Awareness and Warning System
g	acceleration due to Earth's gravity	TCAS	Traffic Collision Avoidance System
GPS	Global Positioning System	TGT	Turbine Gas Temperature
GPWS	Ground Proximity Warning System	TODA	Takeoff Distance Available
hrs	hours (clock time as in 1200 hrs)	UHF	Ultra High Frequency
HP	high pressure	USG	US gallons
hPa	hectopascal (equivalent unit to mb)	UTC	Co-ordinated Universal Time (GMT)
IAS	indicated airspeed	V	Volt(s)
IFR	Instrument Flight Rules	V <sub>1</sub>	Takeoff decision speed
ILS	Instrument Landing System	V <sub>2</sub>	Takeoff safety speed
IMC	Instrument Meteorological Conditions	V <sub>R</sub>	Rotation speed
IP	Intermediate Pressure	V <sub>REF</sub>	Reference airspeed (approach)
IR	Instrument Rating	V <sub>NE</sub>	Never Exceed airspeed
ISA	International Standard Atmosphere	VASI	Visual Approach Slope Indicator
kg	kilogram(s)	VFR	Visual Flight Rules
KCAS	knots calibrated airspeed	VHF	Very High Frequency
KIAS	knots indicated airspeed	VMC	Visual Meteorological Conditions
KTAS	knots true airspeed	VOR	VHF Omnidirectional radio Range
km	kilometre(s)		
kt	knot(s)		

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