

SERIOUS INCIDENT

Aircraft Type and Registration:	Airbus A340-313, G-VAIR
No & Type of Engines:	4 CFM56-5C4 turbofan engines
Year of Manufacture:	1997
Date & Time (UTC):	27 April 2008 at 0218 hrs
Location:	Nairobi Airport, Kenya
Type of Flight:	Commercial Air Transport (Passenger)
Persons on Board:	Crew - 14 Passengers - 108
Injuries:	Crew - None Passengers - None
Nature of Damage:	Minor scratches to left aft lower fuselage
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	50 years
Commander's Flying Experience:	14,250 hours (of which 9,667 were on type) Last 90 days - 108 hours Last 28 days - 41 hours
Information Source:	AAIB Field Investigation

The investigation

The Air Accidents Investigation Branch (AAIB) was informed of this serious incident at 0808 hrs on the 27 April 2008. Following consultation with the Air Accident Investigation Department (AAID) of the Kenyan Ministry of Transport it was agreed that the UK AAIB would conduct the investigation under the provisions of ICAO Annex 13 with Kenya appointing an Accredited Representative. The UK investigation commenced on the 28 April 2008 with the return of the aircraft and pilots to the United Kingdom. The Chief Inspector of Air Accidents has ordered an Inspector's Investigation to be conducted into the circumstances of this event under the provisions of The Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 1996.

In accordance with established international arrangements, the Bureau d'Enquêtes et d'Analyses (BEA) of France, representing the State of Design and Manufacture of the aircraft, has appointed an Accredited Representative to participate fully in the investigation. The BEA Accredited Representative is supported by advisors from Airbus the aircraft manufacturer, and the operator is also providing assistance as required.

History of the flight

G-VAIR was scheduled to operate a London Heathrow (LHR) to Nairobi (NBO) passenger flight. The crew reported for duty at 1745 hrs at London Heathrow and the flight was uneventful until the landing.

The 0100 GMT ATIS obtained for Nairobi before the top of descent reported the wind to be from 040° at 3 kt with 7 km visibility, broken cloud at 1,600 ft, temperature and dewpoint 15°C and QNH 1020. The crew carried out an RNAV (Area Navigation) approach for Runway 06 at Nairobi. The ATIS weather was confirmed with ATC during the early part of the approach. Later during the approach ATC passed information to G-VAIR that an aircraft ahead had reported the landing visibility as 3,000 m with a cloudbase of 300 ft agl. The first officer, who was pilot flying (PF), rebriefed the initial go-around actions and the approach was continued with the autopilot and autothrottle engaged.

The crew stated that they became visual with the runway at a height of between 300 ft and 200 ft. At the decision height of 200 ft, both pilots could see all the approach lights and a good section of runway lights. The autopilot was disconnected at 100 ft radio altitude and the PF began to flare the aircraft between 75 ft and 50 ft radio altitude. The aircraft floated at around 20 ft for a few seconds before it entered an area of fog and the PF lost sight of the right side of the runway and the runway lights. The commander also lost sight of the right side of the runway. The aircraft touched down normally on the main gear only; the body and nose gear did not contact the ground throughout the event. The commander became aware of the left runway edge lights moving rapidly closer to him before he lost the lights completely and was only aware of their position by the glow of the lights illuminating the fog. The commander called "GO AROUND" and the PF immediately advanced the thrust levers from idle to full thrust within one second. G-VAIR became airborne after a period of just under five seconds on the ground. The gear retracted normally and the crew continued with the go-around, climbing to 9,000 ft to enter the hold. The crew suspected that the aircraft might have departed the left side of the runway. An inspection by airport

staff confirmed the presence of a single set of landing gear marks off to the left of the paved surface. With the first officer remaining as PF, the crew carried out an uneventful diversion at FL230 to Mombasa followed by a normal, day VMC landing.

Ground marks

Nairobi Airport staff measured a set of ground marks, believed to be from G-VAIR's main gear, which started 800 m from the threshold of Runway 06. They continued on the runway for 160 m before the left set of marks passed over a runway light and then continued off the paved surface before running approximately parallel with the runway for 180 m. The right set of marks did not leave the paved surface although they were off the declared runway surface on the paved shoulder; these marks stopped 5 cm from the edge of the paved surface.

Airfield information

Runway 06 at Nairobi is declared as 4,117 m long by 45 m wide. It consists of a grooved asphalt surface 45 m wide with 7.5 m asphalt shoulders either side to give a total paved width of 60 m. An AAIB inspector in conjunction with the Kenyan Accredited Representative conducted a visual inspection of the runway condition. The touchdown zone area of Runway 06 appeared heavily contaminated with rubber deposits, partially obscuring the runway centreline markings. It is considered that these rubber deposits may reduce the available friction and braking action for landing aircraft on Runway 06, whilst aircraft conducting a rejected takeoff on Runway 24 in wet conditions could suffer a significant loss of braking capability.

The Runway 06 edge lighting is set at the edge of the paved area, a distance of 7.5 m from the declared runway strip. This appears to be at variance with the ICAO Annex 14 standard which requires a maximum

of 3 m from the edge of the runway. The runway had no centreline lighting, nor was it required by ICAO Annex 14.

Damage to aircraft and infrastructure

Aircraft inspections were carried out in accordance with the aircraft Approved Maintenance Manual (AMM). During initial inspections mud spray was noted on the fuselage and left horizontal stabiliser. After washing the aircraft, minor scratches were discovered on the lower left fuselage. These were assessed as paint chips and minor abrasions within the limits laid down in the AMM. The outboard left aft wheel on the left main gear had slight damage to the sidewall but was within AMM limits; as a precaution this wheel assembly was replaced on return to London Heathrow.

One runway edge light was destroyed.

Weather reporting

An Automated Weather Observation System (AWOS) is installed at Nairobi. This system has the capability to provide instant Runway Visual Range (RVR) to the ATC tower as well as other weather information. It operates from a single sensor located near the touchdown zone of Runway 06. Following this event the memory of this system was downloaded. The system recorded a minimum RVR of 550 m at the time of arrival of G-VAIR.

Recorded data

Flight Data Recorder and Quick Access Recorder data was successfully recovered from G-VAIR and is

currently being analysed. Despite a request by the AAIB and attempts by the operator to preserve the recording of the event on the Cockpit Voice Recorder (CVR), information from the incident landing was overwritten.

Background information

The AAIB is aware of the recent Safety Recommendation made by the National Transportation Safety Board (NTSB) to the Federal Aviation Administration regarding the training of pilots for rejected landings below 50 ft following rapid reduction in visual cues. (NTSB: A-08-16)

Continuing investigation

The investigation will continue towards establishing the runway surface condition, the visibility of the markings and condition of the lighting to quantify what, if any, contribution they may have made to this incident. Further enquiries will be made regarding the difference between the RVR recorded by the AWOS and that passed to the crew of G-VAIR, and the effect on RVR of light luminescence of the runway edge lighting for Runway 06. The investigation will also consider the effect on flight crew of a loss of visual references at a critical phase of flight including the ability of crew to conduct rejected landings from very low heights in degraded visual environments. Reasons for the loss of the CVR recording will also be assessed.