AIRCRAFT ACCIDENT REPORT No 3/2008

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REPORT ON THE ACCIDENT TO BRITISH AEROSPACE JETSTREAM 3202, G-BUVC AT WICK AIRPORT, CAITHNESS, SCOTLAND ON 3 OCTOBER 2006

Registered Owner and Operator:	Eastern Airways
Aircraft Type:	British Aerospace Jetstream 3202
Nationality:	British
Registration:	G-BUVC
Place of Accident:	Wick Airport, Caithness, Scotland
Date and Time:	3 October 2006 at 1621 hrs

Synopsis

The accident was notified to the Air Accidents Investigation Branch (AAIB) by Wick Air Traffic Control at 1800 hrs on 3 October 2006. The AAIB investigation team consisted of:

Mr A Simmons	Investigator-in-Charge
Mr M Ford	Flight Recorders
Mr P Hannant	Operations
Mr B McDermid	Engineering

The aircraft was on a scheduled flight from Aberdeen to Wick. It was the fourth sector of a six-sector day for the crew, during which there had been no significant delays. The crew flew the VOR/DME procedure for Runway 31, and became visual with the runway during the latter stages of the arc portion of the procedure. They configured the aircraft with the landing gear selected 'DOWN' and flaps set as required for the approach and landing. The commander, who was the Pilot Flying, flared the aircraft for touchdown at the normal height but as the aircraft continued to sink, he realised that the landing gear was not down. He carried out a go-around and, following a recycling of the landing gear, flew past the control tower. The controller confirmed that the landing gear was down and the aircraft diverted back to Aberdeen Airport where a safe landing was made. It was subsequently found that, during the go-around, the underside of the fuselage and the tips of the right propeller had contacted the runway surface.

The investigation found that contamination of the landing gear selector switch points had acted as an electrical insulator preventing current flow to the landing gear lowering system and audible warning systems. The three green landing gear indicator lights, which are independent of this circuit, had functioned correctly. The crew had not checked the indication prior to landing and were therefore unaware that the landing gear was retracted.

The investigation identified the following causal factors:

1. Mechanical wear and arcing across one of the poles in the gear selection switch resulted in a piece of cupric oxide acting as an insulator across the pole which should have energised the gear extension circuit.

2. The flight crew did not identify that the landing gear was not down and locked by visually checking the landing gear green indicator lights.

3. Due to the failures associated with the gear selection switch, the flight crew received no audible warnings of the landing gear not being in the 'DOWN' position.

As a result of the investigation, four Safety Recommendations have been made. Two of these were made at an early stage of the investigation to the US Federal Aviation Administration.

Findings

1. The operating flight crew members were correctly licenced and qualified to conduct the flight.

2. The Company SOPs, which were based on the manufacturer's Flight Manual procedures, did not require monitoring or cross-checking of the gear position by the PF. This deficiency has been subsequently rectified.

3. The failure of the landing gear to extend and the indicator lights to illuminate was not observed by the crew, and no audible warning was received.

4. The PF sensed that the aircraft was descending below the normal gear down position during the landing and expeditiously initiated a go-around minimising the damage to the aircraft.

5. The cabin attendant heard a scraping noise as the aircraft touched down at Wick, but this information was not passed to the flight crew. The briefing procedure has been amended to require the flight crew to question the cabin crew regarding any observed anomalies.

6. The crew were unaware of any damage to the aircraft when they decided to return to Aberdeen.

7. The landing gear did not extend because of damage to the contacts of one pole of the selector switch, caused by electrical arcing.

8. The remaining poles of the landing gear selector switch functioned correctly, inhibiting the warning horn and the TAWS audible warning.

9. The Radio Altimeter type had been incorrectly set in the TAWS, causing an incorrect predictive response from this system. However this had no bearing on this accident.

Safety Recommendations

The following Safety Recommendations were made to the FAA during the investigation:

Safety Recommendation 2006-135

It is recommended that the US Federal Aviation Administration review the technical data supporting

STC SA3020AT for the introduction of the Sandel ST3400 TAWS to ensure that the post installation test is sufficient to validate the full range of inputs into the system.

Response: The FAA responded that EMTEQ had changed the ground test procedure to fully test the system for proper configuration and had implemented corrective action to retest aircraft in service for possible configuration errors. EMTEQ issued mandatory Service Letter No 2-25975-1-1 on 1 January 2007 to require these corrective actions.

Safety Recommendation 2006-136

It is recommended that the US Federal Aviation Administration take immediate action to ensure that aircraft equipped with the Sandel ST3400 TAWS have the correct radio altimeter type set and that the system is tested to ensure that the radio altimeter signal is correct over the operating range specified in the Sandel ST3400 installation manual.

Response: The FAA responded that a programme of testing seventy five modified Jetstream 3202 aircraft was under way and that, at that time, no other incorrectly configured aircraft had been found.

The following additional Safety Recommendations are made:

Safety Recommendation 2007-079

It is recommended that BAE Systems amend the generic procedures contained in the manufacturer's Flight Manual to include confirmation by both PF and PNF that the landing gear handle is selected down and that three green indicator lights are illuminated. They should encourage operators of the Jetstream aircraft to adopt the revised procedure in their own Standard Operating Procedures.

Safety Recommendation 2007-080

It is recommended that BAE Systems should review the safety analysis for the Jetstream 32 landing gear system to include cases where the gear selector lever can be moved to the 'DOWN' position with the landing gear remaining retracted and the audible warning inhibited.