

Summary

On 25 April 2011, shortly after take-off, a Ryanair Boeing 737-800 received an indication that one of the aircraft's two electrical systems had lost electrical power. This had been preceded by one of the two generators that supply electrical power to the aircraft being disconnected, upon which redistribution took place so that the other generator supplied power to both electrical systems. An electronic monitoring and control unit automatically ensured that this took place.

The pilots followed the checklist and attempted to reconnect the generator. They also attempted to connect the generator from the Auxiliary Power Unit (APU). Either during the attempt to reconnect the disconnected generator or the connection of the auxiliary power unit's generator, the connection between the two systems was broken, with the consequence that one of the systems lost electrical power.

The pilots made a further attempt to reconnect a power source but were unsuccessful. The decision was therefore made to return and land at Skavsta Airport. Flying with one of the electrical systems not having power meant among other things losing the display of flight instruments on the affected side. Flap indication and pitot heating were among the systems which lost their power supply and stopped working during the incident.

The electronic monitoring and control units are intended to ensure that both electrical systems are always supplied with power as long as there is at least one power source available. They are also intended to prevent electrical interconnection of the electrical systems when each subsystem is supplied by its own power source. The control units' commands are based on status signals from relays, among other things.

The incident was caused by the system logic for the Generator Control Unit (GCU) and the Bus Power Control Unit (BPCU) enabling erroneous status signals from the breaker (Generator Control Breaker, GCB) to lead to a transfer bus losing power.

Safety recommendations

The FAA/EASA are recommended to:

- Ensure that Boeing introduces measures so that the logic in the electrical system prevents an X-bus from losing power as a result of an erroneous status signal from GCB. *(RL 2012:20 R1)*
- Ensure that Boeing investigates whether a revision of the procedure in QRH for reconnecting IDG can rectify erroneous status signals from GCB. *(RL 2012:20 R2)*