

SERIOUS INCIDENT

Aircraft Type and Registration:	Airbus A319-111, G-EZBD
No & Type of Engines:	2 CFM CFM56-5B5/P turbofan engines
Year of Manufacture:	2006 (Serial no: 2873)
Date & Time (UTC):	13 July 2021 at 1048 hrs
Location:	London Luton Airport
Type of Flight:	Commercial Air Transport (Non-Revenue)
Persons on Board:	Crew - 2 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	None
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	32 years
Commander's Flying Experience:	4,412 hours (of which 4,272 were on type) Last 90 days - 16 hours Last 28 days - 1 hour
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The aircraft carried out a high speed rejected takeoff above V_1 speed due to a discrepancy between the commander and co-pilot's airspeed indications. The discrepancy occurred because of a blockage in a pitot tube following a long period on the ground.

History of the flight

The aircraft had last operated a commercial sector on 14 June 2021 when it had flown from Edinburgh Airport to Luton Airport. The aircraft was then parked at Luton until 13 July 2021, when it was scheduled for a non-revenue flight after a period of long-term parking.

The pilots were aware that the aircraft had been parked for a protracted period and had heard of aircraft suffering issues with blocked pitot tubes in similar circumstances. During their briefing they discussed crosschecking the airspeed indications at 80 kt and emphasised the need to make any discrepancy of more than 20 kt clear to each other.

The pushback, engine start and taxi out were uneventful and there were no indications of any instrument malfunctions. The aircraft positioned for a departure from intersection H on Runway 07 at Luton (Figure 1).

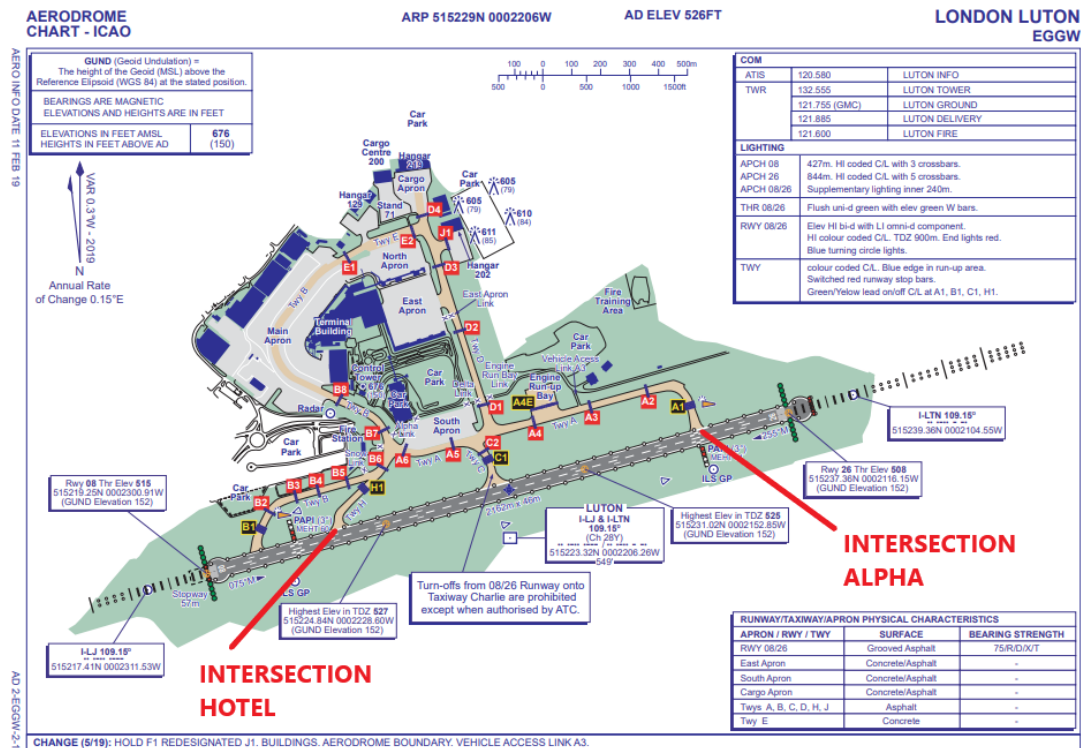


Figure 1
 Luton Airport Diagram

Once lined up on the runway centreline abeam the H holding point, the commander set 50% thrust and stated that the engines took longer to spool up than normal, especially engine No 1. Once 50% thrust was set, the commander set takeoff thrust and read out the Flight Mode Annunciators. He noted the aircraft was already travelling at approximately 55 kt before the co-pilot had confirmed the thrust was set. During the acceleration the co-pilot cross checked his airspeed indications with the Integrated Standby Instrument system (ISIS), something which the crew had discussed during their briefing. When he first checked the ISIS it showed approximately 60 kt. He checked the Primary Flight Display (PFD) and noted it still indicated 40 kt. He immediately rechecked the ISIS and it had increased to approximately 80 kt. At 80 to 90 kt, the co-pilot told the commander that his airspeed indication was still reading 40 kt. The commander then checked the co-pilot’s PFD to confirm that the speed was still at 40 kt and not increasing. The minimum airspeed indicated on the PFD is 40kt.

The commander glanced outside to check they were still on the centreline and how much runway remained before checking his own PFD, which was now above 100 kt and accelerating very quickly. V_1 had been calculated as 109 kt so the commander “made a very quick decision to reject and at V_1 called STOP and initiated the rejected take off procedure moments later”. The RTO was carried out in accordance with SOP, except the co-pilot was unable to make a call at 70 kt due to his inoperative airspeed indication. The aircraft came to a stop abeam the A taxiway (Figure 1), approximately 350 m from the end of the runway. After confirming an evacuation was not required, the aircraft was taxied off the runway and back to stand.

Personnel information

Both pilots had done relatively little flying in the three months preceding the event. The commander had flown 12 hours 31 minutes in the preceding 90 days and only 37 minutes in the preceding 28 days. The co-pilot had flown 14 hours 45 minutes in the preceding 90 days and 12 hours 31 minutes in the preceding 28 days. The co-pilot stated in interview that he felt the lack of recency had been a factor in the event. The commander, however, felt that the lack of recency had not been a significant issue. Both pilots were aware of an Operational Engineering Bulletin which had been published concerning other blocked pitot events.

Recorded information

The operator provided the AAIB with a download of the FDR, CVR and Direct Access Recorder. The recorded data showed that after the thrust levers were advanced to the FLEX position, both engines accelerated symmetrically to the target thrust setting. As the aircraft accelerated, the CVR recorded the co-pilot stating that his airspeed was 40 kt. The takeoff was rejected at an indicated airspeed of 120 kt which was the same as the groundspeed. The aircraft decelerated and came to a halt approximately 350 m from the end of the runway.

Operator's examination of aircraft

The aircraft pitot systems were examined after the event and all appeared to be satisfactory. All three pitot systems were flushed in accordance with Aircraft Maintenance Manual (AMM) procedures. During the flush some debris was seen to be removed from the co-pilot's pitot system. The material was not recovered so the quantity and constituent of the debris could not be determined. Following the flush procedure, all the aircraft pitot systems were leak checked in accordance with AMM procedures and all were satisfactory.

The operator had maintenance procedures in place for placing aircraft into long term parking and recovering them from it. The procedures varied dependant on the length of the parking period but all the procedures required that pitot covers be fitted. The aircraft was parked on 14 June 2021 and the '*Parking Less Than One Month*' checks were carried out, recording the fitting of pitot covers. The aircraft was then subject to '*7 Day Checks*' on 21 June 2021, 27 June 2021, 3 July 2021 and 10 July 2021. Each of these required the removal of the pitot covers to allow the aircraft to be ground run and then for the covers to be installed at the end of the check.

Aircraft performance

The aircraft's takeoff weight was 41,000 kg, well below the maximum of 66,000 kg. Although the RTO was initiated 11 kt above V_1 , due to the light weight the aircraft was within the field length limited performance and stopped with 350 m of runway remaining.

The flight data was reviewed by the engine manufacturer in light of the flight crew comments regarding engine acceleration. The manufacture concluded that the engine performance was within the expected parameters.

Meteorology

The Luton ATIS for the time of the event gave the following weather conditions:

Wind 360° at 6 kt, visibility greater than 10 km, no significant weather, cloudbase 3,000 ft agl and temperature 14°C.

Analysis

The aircraft suffered a discrepancy between airspeed systems, which was identified during the takeoff roll through routine flight crew cross checks. Prior to the flight the crew had discussed company documentation relating to previous airspeed discrepancy events on other aircraft and so they were alert to the possibility. The co-pilot noticed a discrepancy between his PFD and the ISIS at approximately 60 kt. He rechecked the indications and confirmed that the PFD indications had remained at 40 kt and informed the commander by which point the ISIS was indicating between 80 and 90 kt. The aircraft was light and therefore accelerating very rapidly. The commander looked briefly across the cockpit to confirm the situation and then called "Stop." The aircraft airspeed was above 100 kt and increasing rapidly. As a result of the rapid acceleration, by the time the commander was able to articulate his order, the RTO was initiated at 120 kt, 11 kt above the calculated V_1 . However, due to the light weight the aircraft was within the field length limited performance and stopped safely on the runway.

The debris from the pitot probe was not recovered, so it was not possible to determine the source of the material that obstructed the co-pilot's pitot probe. Recorded data showed that the calculated airspeed on the co-pilot's system remained at 0 kt throughout the event and so it is likely that the system was significantly blocked.

The engineering checks carried out on the aircraft before and during the parked period all recorded that pitot covers were fitted. It was not possible to determine when the pitot blockage occurred.

Conclusion

The aircraft suffered an airspeed discrepancy resulting from a blocked pitot probe. The crew recognised the fault and the takeoff was rejected.