

AIRCRAFT ACCIDENT REPORT No 3/2006

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**REPORT ON THE SERIOUS INCIDENT TO
BOEING 737-86N, G-XLAG
AT MANCHESTER AIRPORT
ON 16 JULY 2003**

Registered owner and operator:	Excel Airways Limited
Aircraft Type and Model:	Boeing 737-86N
Registration:	G-XLAG
Location:	Runway 06 Left, Manchester Airport
Date and Time:	16 July 2003 at 1408 hrs All times in this report are UTC (equivalent to local time minus one hour) unless otherwise stated

Synopsis

G-XLAG, a Boeing 737-86N, with seven crew and 190 passengers on board, was undertaking a flight from Manchester Airport to Kos, Greece. Runway 06L was in use but the flight crew were not aware that this runway was being operated at reduced length. This was due to work-in-progress to remove rubber deposits at the far end of the runway, which was out of sight from the 06L threshold end as the runway is built over a slight rise in the ground. Due to a difference in interpretation of information passed between Air Traffic Control (ATC) and the flight crew, the aircraft entered the runway from holding point AG, rather than the expected holding point A, and the takeoff was conducted using a reduced thrust setting calculated for the assumed normal runway length. As the aircraft passed the crest of the runway, the flight crew became aware of vehicles at its far end but, as they were now close to their rotation speed, they continued and carried out a normal takeoff. The aircraft passed within 56 ft of a 14 ft high vehicle.

This serious incident was notified to the AAIB at 1724 hrs on 23 July 2003, seven days after it had occurred. The subsequent investigation revealed further incidents had occurred during the course of the work, the most significant being on the night of 15 July 2003. On this occasion ATC had instructed three commercial passenger aircraft to go-around after they had knowingly positioned them to land on the reduced length runway. The crews of all three aircraft were unaware of the reduced length available and, when informed, stated that it was insufficient for them to be able to land. The closest of the aircraft, a Tristar, was at a range of 2.5 nm when instructed to go-around.

The actions of Manchester Airport plc (MA plc) and National Air Traffic Services (NATS) Manchester, whilst not directly contributing to the event involving G-XLAG, raised additional concerns. In light of this, the scope of the investigation was extended to include the manner in which MA plc and NATS had planned and managed the rubber-removal operation.

The operator, MA plc and NATS have now taken considerable steps to address most of the issues raised in this report.

Six safety recommendations are made.

Causal factors

The crew of G-XLAG did not realise that Runway 06L was operating at reduced length due to work-in-progress at its far end, until their aircraft had accelerated to a speed approaching the rotate speed (V_R), despite:

- Being in possession of a NOTAM concerning the work-in-progress
- The ATIS broadcast relating to the work-in-progress
- ATC passing information on the takeoff distance available

At this point, the aircraft was approaching seven vehicles on the runway and was at a position which precluded an abort within the useable runway length remaining.

Findings

- 1 A classification survey carried out on 25 and 26 June 2003 identified friction levels on portions of Runway 24R touchdown zone exceeding 100 m in length, that were below Minimum Friction Level.
- 2 No NOTAM was published to advise that Runway 06L/24R was slippery when wet whilst portions of the runway were below Minimum Friction Level.
- 3 The airport operator contracted the rubber-removal operator on 2 July 2003.

- 4 The airport operator held the first planning meeting for the rubber-removal operation on 9 July 2003.
- 5 Hazard analysis conducted by the airport operator dated 14 July 2003 did not include all hazards associated with the rubber-removal operation.
- 6 No documented hazard analysis was conducted by Manchester ATC.
- 7 Operational Advice Notice 08/03, relating to the rubber removal operation and published on the morning of 14 July 2003, contained only limited briefing information.
- 8 Manchester ATC did not publish a Temporary Operating Instruction relating to the rubber-removal work.
- 9 The request for NOTAM action was applied for by the airport operator approximately three hours prior to the commencement of the rubber-removal operation on 14 July 2003.
- 10 The CAA confirmed the correct reduced runway distances had been calculated when contacted by the airport operator on the morning of 14 July 2003.
- 11 Rubber-removal operations commenced at 1430 hrs on 14 July 2003 and were completed by 2053 hrs on 17 July 2003.
- 12 No evidence was found that the NOTAM detailing the work had been cancelled by the airport operator when the work had been completed ahead of schedule.

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- 13 There were no markings to delineate the extent of the Take Off Climb Surface whilst Runway 06L was operating at reduced length.
- 14 Commencement of reduced runway operations coincided with the ATC shift change.
- 15 There was no blanking of runway lighting in the work-in-progress area of Runway 06L during reduced runway operations.
- 16 There was confusion between Manchester ATC and the airport operator operations staff over the planning restrictions in force limiting the operating time permitted for Runway 06R/24L.
- 17 There was no access to the planning restrictions in force on the use of Runway 06R/24L in any documents available to Manchester ATC or the airport operator at an operational level.
- 18 On 15 July three aircraft were lined up on the approach to land on Runway 06L by Manchester ATC whilst it was operating at reduced length, a length insufficient for them in which to land.
- 19 Work was in progress at the time of the incident at the end of Runway 06L.
- 20 The work-in-progress was promulgated by NOTAM and transmitted on the ATIS to which the two pilots had access.
- 21 The co-pilot listened to the ATIS broadcast, which contained details about the weather, bird activity and the work-in-progress, but only copied down details about the weather.
- 22 Manchester ATC advised the pilots of the reduced runway distance available for takeoff.
- 23 The pilots were properly licensed to conduct the flight.
- 24 The pilots did not read the NOTAMs relating to Manchester Airport prior to the aircraft's departure.
- 25 The pilots correctly determined the aircraft's takeoff performance for a takeoff from Runway 06L had it been at full length, but this was incorrect at its reduced length.
- 26 The pilots had no means of determining takeoff performance for the aircraft from Runway 06L at reduced length.
- 27 The aircraft was more than nine tonnes overweight to conduct a reduced thrust takeoff from the reduced runway length available.
- 28 The taxi instructions issued to the flight crew by Manchester ATC did not include a specific holding point.
- 29 The version of MATS Part 1 current at the time of the incident did not require a specific holding point to be included in taxiing instructions.
- 30 The captain was handling pilot during the taxi.
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- 31 Radio communications between Manchester ATC and the flight crew regarding the lining up point on Runway 06L were misinterpreted by both parties.
- 32 The aircraft was lined up on Runway 06L via holding point AG using a non-standard technique.
- 33 The co-pilot was the handling pilot during take off.
- 34 The pilots used a non-standard technique to set takeoff power at the commencement of the takeoff roll.
- 35 Seven vehicles associated with the work-in-progress were on Runway 06L at the time of takeoff; closest to the aircraft's point of rotation was a rubber removal vehicle 14 ft high.
- 36 The pilots only became aware of the presence of vehicles as they crested the rise in the runway just prior to the aircraft attaining rotation speed, V_R .
- 37 The aircraft was rotated at the pilots' calculated V_R speed.
- 38 After becoming airborne, the aircraft passed within 56 feet of the vehicle.
- 39 The pilots did not believe they had been involved in a serious incident and so did not make a report to their company, the CAA or the AAIB.

- 40 Both MA plc and Manchester ATC senior management were made aware of the incident on the day of its occurrence, but did not necessarily appreciate its true significance at the time.
- 41 The incident was witnessed by some ATC and airport operations staff.
- 42 No report was made by any members of MA plc or Manchester ATC immediately following the incident.
- 43 The incident was reported seven days after its occurrence to the AAIB by NATS on receipt of a report by Manchester ATC.

Safety Recommendations

The serious incident which triggered this investigation resulted from a non-adherence to established procedures by the flight crew, rather than a failing in the procedures themselves. The operator took early and appropriate action to prevent a reoccurrence by the crew involved.

In investigating the event involving G-XLAG, the planning and management of the rubber removal operation by MA plc and NATS Manchester raised additional concerns. They too, largely centre on non-adherence to established procedures. Since the event, both these organisations have taken considerable action and, as a result, the majority of the issues identified in this report have now been resolved.

The following safety recommendations are made where it is believed further action by these, and other parties, remains necessary.

Safety Recommendation 2006-07

It is recommended that the Civil Aviation Authority review the measures required to protect runway safety surfaces during reduced length runway operations.

Safety Recommendation 2006-08

It is recommended that National Air Traffic Services consider the exclusion of operational staff in direct commercial negotiations where there is the potential for this to result in a conflict of interest between operational best practice and commercial considerations.

Safety Recommendation 2006-11

It is recommended that the Civil Aviation Authority, in conjunction with National Air Traffic Services and other air traffic service providers, jointly review the current risk analysis associated with operations from runways when at reduced length, to ensure that it remains valid.

Safety Recommendation 2006-12

It is recommended that Manchester Airport plc include appropriate guidance in the Airport Operations Manual

on the local authority planning agreements governing the use of Runway 06R/24L.

Safety Recommendation 2006-13

It is recommended that National Air Traffic Services incorporate appropriate guidance in the Manchester Airport Manual of Air Traffic Services (Part 2) on the local authority planning agreements governing the use of Runway 06R/24L.

Safety Recommendation 2006-14

It is recommended that Manchester Airport plc introduce a system which requires the timely dissemination and acknowledgement of any instruction issued containing operational information with safety implications, such as Operations Advice Notices.