

SERIOUS INCIDENT

Aircraft Type and Registration:	Airbus A320, EI-CVB	
No & Type of Engines:	2 CFM56-5B4/P turbofan engines	
Year of Manufacture:	2001 (Serial no: 1394)	
Date & Time (UTC):	3 February 2018 at 1110 hrs	
Location:	Gatwick Airport	
Type of Flight:	Commercial Air Transport (Passenger)	
Persons on Board:	Crew - 6	Passengers - 164
Injuries:	Crew - None	Passengers - None
Nature of Damage:	None	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	46 years	
Commander's Flying Experience:	12,000 hours (of which 8,800 were on type) Last 90 days - 182 hours Last 28 days - 48 hours	
Information Source:	AAIB Field Investigation	

Synopsis

A vehicle carrying out a runway inspection was cleared onto the active runway ahead of an aircraft decelerating after landing. The investigation identified shortcomings in runway inspection procedures and the management of the internal review conducted after the incident. One Safety Recommendation is made.

History of the flight

The aircraft, callsign EIN4211, was operating a scheduled flight to Gatwick Airport and, as cleared, landed on Runway 26L. There was light rain at the time and a tailwind of about 3 kt. At the time the aircraft landed, two airport operations staff members were waiting in their vehicle, callsign Leader 6, at Hold G1 towards the end of Runway 26L to conduct a runway inspection (Figure 1).

About 12 seconds after touchdown, with the aircraft decelerating on the runway, the following transmissions were made:

ATC: EIN4211 ARE YOU MAKING FOXTROT ROMEO?
 EIN4211: ER WE'RE MAKING THE SECOND ONE EIN4211
 ATC: THANK YOU THAT'S FOXTROT ROMEO BREAK LEADER 6 ENTER 26
 LEFT AT GOLF VACATE BEHIND THE XXXXXX (AIRLINE NAME) AT
 FOXTROT ROMEO
 LEADER 6: LEADER 6 CLEARED TO ENTER 26 LEFT AT GOLF AND VACATE BEHIND
 THE AIRCRAFT AT FOXTROT ROMEO WILCO LEADER 6

The aircraft commander had been surprised to see the vehicle entering the runway and believed the vehicle's clearance had been conditional on the aircraft vacating first. As a result the commander submitted a safety report.

ATC investigation

As the commander had stated he would be submitting a safety report, the ATC provider for Gatwick Airport conducted its own investigation. This included comments from the airfield operations staff who had been driving the vehicle involved in the incident and who had subsequently spoken with the aircraft commander. The operations staff stated that the aircraft commander had told them he was *'concerned that after he had landed he could see a vehicle on the runway'* and that *'due to the wet weather he could have missed the exit (that he already confirmed with ATC that he would be vacating at).'*

The report commented that the aircraft had slowed and moved off the centreline towards RET Foxtrot Romeo at the time the Leader vehicle had entered the runway.

The ATC investigation concluded that:

- the crew had misunderstood the clearance to the airport operations staff which had not been conditional on the aircraft vacating the runway before they could enter
- the crew were not familiar with the airport and runway exits available *'which suggests they were also not aware of the standard runway inspection procedures at the unit'*
- *'there were no issues with the runway inspection process at Gatwick in general, or with this particular event'*
- the runway inspection had been *'conducted appropriately by the ATCO and Ops vehicle, and so the investigation is therefore closed.'*

Although it was not mentioned in the ATC report, a senior ATC manager explained at a subsequent interview with the AAIB that the controller involved in the incident had considered that, as a result of the transmissions after touchdown, the aircraft's landing clearance had been amended for it to vacate the runway at RET Foxtrot Romeo. It was considered that this then allowed the operations vehicle to enter the runway ahead of the aircraft as the aircraft was not now cleared beyond the RET. The manager, however, further explained that the transmissions had not contained the necessary phraseology for the clearance to have been effective, nor for the pilot to have understood that the vehicle would be appearing ahead of the aircraft.

Airport investigation

After the incident a verbal instruction was issued by the Head of Airside Operations that operations vehicles were not to enter the runway ahead of a landing aircraft, regardless of their clearance, unless the aircraft was seen to be fully committed to vacating the runway.

In addition, a further report was completed by the airport's Airside Operations Department on the incident. This largely reflected the ATC report with the 'root cause' section only quoting the ATC report findings. It included the same conclusions and also noted that the investigation was closed. However, the report then continued under a final section entitled 'Preventative and Corrective Measures' to state that a joint review of inspection procedures between airside operations and the ATC services provider would be conducted, to explore potential opportunities for improvements to the safety and efficiency of runway inspections.

Recent appointments in relevant senior management positions resulted in a reduced level of experience in some areas, leading to the management of the review falling to the duty manager who had previously investigated a vehicle incursion incident on 12 November 2017. Whilst he had considerable experience in other roles at the airport, he had only been a duty manager for a short time and had no formal training in investigating. There was no evidence of how this task was allocated nor any formal instruction provided of who should be on the working group or the scope of its activities.

An initial meeting was held on 19 April 2018 with the stated objectives of creating a collaborative working group between the airport and ATC to understand each other's issues, improve the safety and quality of runway inspections and to feed improvement suggestions and plans into the Local Runway Safety Team¹.

The main output from the meeting was an agreement for the airside duty team to provide 15 minutes notice to ATC before attempting to undertake a normal runway inspection. ATC also agreed to review the phraseology used by controllers to prevent pressuring the duty teams to expedite their inspections. These changes were then to be incorporated into a revised airport Standard Operating Procedure (SOP) to be compared against the ATC SOP to ensure compatibility.

A number of other suggestions were raised for further consideration at later meetings, which it was agreed would take place monthly. The next meeting was held on 18 May 2018, however, there was only one further meeting in 2018, which took place on 25 September 2018. The record from this last meeting indicates there had been an improvement in the coordination of runway inspections between the duty teams and ATC. The working group also discussed making use of the increased gap in traffic behind super-heavy aircraft (ie A380) in order to carry out inspections.

The reduced frequency of the meetings was due to difficulty in finding times when the relevant people were available. In particular, the duty manager leading the work, due to his shift pattern, had only five days each month coinciding with the working hours of the non-shift members of the group.

Footnote

¹ Also referred to as the Local Runway Safety Group – see section on Airside Management and Safety Oversight.

Other work reported between January and March 2019 included:

- The creation of training material for use in ATC refresher training (January-March 2019).
- ATC refresher training focussing on conducting runway inspections, with inclusion of Airside Operations Controllers.
- Trialling of runway lighting inspections on first illumination each day rather than in the middle of the night.
- Established timings for each runway intersection of runway to assist ATC create appropriate gaps in traffic.
- Created a poster for ATC and operations staff advising of best practice.

Airport runway inspection procedure

UK Civil Aviation Publication (CAP) 168 - 'Licencing of Aerodromes' required a minimum of four runway inspections at London Gatwick Airport per day. The change to EASA regulations in 2014 required a minimum of only two runway inspections per day, but the airport chose to continue with four.

The Aerodrome Manual, published by Gatwick Airport's Compliance Department on 1 July 2014, contained information on the runway checking requirements. Version 3 of this document was in force at the time. Part E, Section 9.2 contained the following information:

'Runways - Inspection teams will check the following:

- *the general condition of the runway strip, RESA, and CGA*
- *the general runway condition including cleanliness, rubber build up and pit/ drain covers*
- *no FOD² is present, if found removed immediately or close runway*
- *damage to the friction course particularly cracking, spalling and loose joint seal*
- *runway signs and paint markings for damage, wear and conspicuity*
- *the physical condition of all PAPI units and Runway Guard Bars*
- *the general security of runway lights and flush wing bars*
- *the general drainage on and around the runway particularly any standing water*
- *any obstructions infringing the runway strips and its safeguarded surfaces are marked/lit*
- *work in progress is safely controlled and at the correct distances from runway centrelines*
- *the condition and conspicuity of all windsleeves for day/night operations*

Footnote

² Foreign object damage or debris.

Inspections are carried out to a minimum of four times per day typically:

- *a first light inspection prior to daytime operations*
- *a mid-morning inspection*
- *a mid-afternoon inspection*
- *a last light inspection prior to night operations*

In addition to the above inspections, Airside Operations also carry out the following checks:

- *an evening runway lighting inspection*
- *a midnight multi - vehicle surface inspection*
- *a mid-morning observation check by bird controller*
- *a mid-afternoon observation check by bird controller'*

Further information was contained in a SOP entitled '*Standard Operating Procedure for Level 1 08R/26L Runway Inspection by Vehicle*' published by the airport's Standards Department. The version in force at the time of the incident had been issued in November 2016. No SOP existed for Runway 08L/26R. Among its other requirements, the SOP imposed a maximum speed of 40 mph whilst on the runway.

At the time of the incident there was no liaison between airport operations and ATC to arrange suitable times for the runway inspections. Instead, operations staff wishing to conduct an inspection would contact ATC by radio from their vehicle at the time they required clearance to enter the runway. ATC would, if necessary, then attempt to adjust air traffic movements to create sufficient time for the inspection to take place. It was apparent from AAIB interviews that under this system both airport operations and ATC staff felt under pressure to complete runway checks in existing gaps between movements. They commented on increasing traffic volumes and similarly increasing pressure, with both sides considering they were having to be flexible to accommodate the other's demands. They described the existing inspection regime as fitting in runway checks around aircraft movements rather than managing movements at certain times to accommodate the checks.

The runway inspection SOPs gave no instructions on the direction in which the inspections should occur (i.e. with or against the traffic flow), but on Runway 26L inspections were routinely conducted with the traffic flow from the threshold (entering at M1) up to RET Foxtrot Romeo. The remainder of the runway inspection was conducted against the flow, with the vehicle entering at Juliet 1 and exiting at RET Foxtrot Romeo. This meant that for runway lighting inspections, whilst the driver looked ahead, the other operations staff member in the vehicle was having to check the serviceability of lights between Juliet 1 and Foxtrot Romeo by looking at the lights behind the vehicle rather than in front.

Due to the limited time available between movements, it was often not possible to conduct the inspection in one pass, but instead multiple entries and exits from the runway would need to be made between movements, as cleared by ATC. A survey carried out by the Airfield Operations Department during April and May 2018 recorded that an average time of

18 minutes was required to conduct a complete runway visual inspection, with the longest time recorded of 39 minutes and the shortest 3 minutes (consistent with a single pass down the runway at 40 mph).

ATC runway inspection procedure

The air traffic service provider at Gatwick Airport provided information on runway inspections in its Manual of Air Traffic Services, Part 2, Chapter 10, a copy of which was held by the Airfield Operations Department. This included a statement that inspections should not be unduly delayed and that it may be necessary to increase spacing between aircraft on final approach to accommodate them. It also stated that there was no reason for the whole runway length to be inspected in one run and that it may be more convenient to inspect one section of the runway at a time, with airfield operations teams able to vacate the runway at short notice.

As a result of the runway inspection review, ATC published a Temporary Operating Instruction, TOI 028, which became effective on 23 July 2018. This provided procedures for the conduct of runway inspections and placed responsibility on the tower controller, when necessary, for managing suitable gaps in air traffic movements to allow inspections to take place. It included advice that a runway inspection carried out in one run was preferable, but where this was not possible that shorter runs were acceptable, with preferably no more than three short runs taking place. It further advised that to complete a full run took four minutes, roughly equating to a 10 nm gap in inbound traffic, dependant on the prevailing wind.³

TOI 028 gave no instruction on the direction of the runway inspection but stated that where an inspection was done in more than one run, the final section may be done against the flow of traffic. Where this happened, it stated that:

'vacating aircraft must be notified about the against traffic inspection plan and must clearly be established in the turn off the runway-centreline into the runway exit before the ops vehicle is instructed to enter the runway.'

As part of producing TOI 028 a hazard analysis and risk assessment was conducted which identified two hazards:

- attempting to conduct an inspection in an inappropriate gap size
- a vehicle entering the runway ahead of an aircraft before the aircraft was established on a turn into a runway exit.

The frequency of each event and the potential severity of the outcome led to the hazards being deemed acceptable by ATC.

The hazard analysis did not consider the implications of an aircraft failing to exit the runway at its stated or cleared exit point, for whatever reason, and continuing on the remaining

Footnote

³ The minimum distance between landing aircraft on approach is 4 nm.

runway. However, senior ATC staff interviewed by the AAIB believed that sufficient distance would remain between an aircraft and vehicle in such circumstances that, again, any hazard would be deemed acceptable.

TOI 028 was adopted as Supplementary Instruction (SI) 021 with effect from 1 December 2018 with the intention of adding it as additional information to Chapter 10 in MATS⁴ Part 2 when the latter was next revised.

Declared runway capacity⁵

London Gatwick Airport had a declared runway capacity on its single runway of 55 movements per hour with plans to increase this further.

Foreign Objects Debris recovered

Runway inspections between 1 January 2018 and the time of the incident had resulted in the following items being recovered:

- A metal retaining clip from a vehicle towing pin
- Two spanners
- A small piece of rubber seal
- An aircraft fuselage panel

A panel from a PAPI runway light was also recovered from the runway after having been seen and reported by a landing aircraft.

Previous occurrences

In the twelve months prior to the incident, there had been three other runway incursion events involving vehicles, one on 12 November 2017 involving a runway lighting inspection. This resulted in an operations vehicle occupying the far end of the runway as an aircraft touched down.

An internal report conducted by the airport's operations department into the incident on 12 November highlighted a number of issues. These included checks being done at excessive speed (in excess of 70 mph), poor communications between the airport operations staff and ATC, and ATC clearances including phrases such as 'as fast as possible' and 'as quick as you can'. The investigation determined the immediate cause of the incident to be the inspection being performed *'with the next arrival in mind rather than the task at hand.'*

The internal report also identified that the risk assessment for runway inspections on 08R/26L, carried out on 18 April 2012, should have been reviewed by the Airside Standards Department every three years but that this had not been done.

Footnote

⁴ Manual of Air Traffic Services.

⁵ The maximum traffic flow an airport declares it is able to accept.

The report recommended a number of actions, including a review of the way runway lighting inspections were performed and a review of the risk assessments for all runway inspections and operations. Neither review had been completed at the time of the incident on 3 February 2018.

Airside management and safety oversight

Airside operations are conducted by several departments, details of which are included in the Aerodrome Manual which is openly published on the internet. The heads of these departments reported to the Head of Airside Operations and included the Airside Operations Lead, who managed the airside operations teams responsible for conducting runway inspections. It also included the Head of Airside Compliance who was responsible for ensuring compliance, standards and procedures were effectively managed in accordance with the Aerodrome Certification requirements. The Head of Airside Operations had about four years operational experience of airports, all at a senior management level. The Airside Operations Lead had been in post for about eight months at the time of the incident and had an airport security background. The Head of Airside Compliance had 28 years of operational airport experience.

An organogram in the Aerodrome Manual of the senior management of airside operations at the airport included an Airside Improvements Lead and an Airside Standards Lead. The functions and responsibilities of these roles are not described in the Aerodrome Manual.

The airport operates several safety committees at various levels within the management structure, details of which are listed in Part B of the Aerodrome Manual. These include the Flight Operations Performance and Safety Committee (FLOPSC) and Local Runway Safety Group (LRSRG).

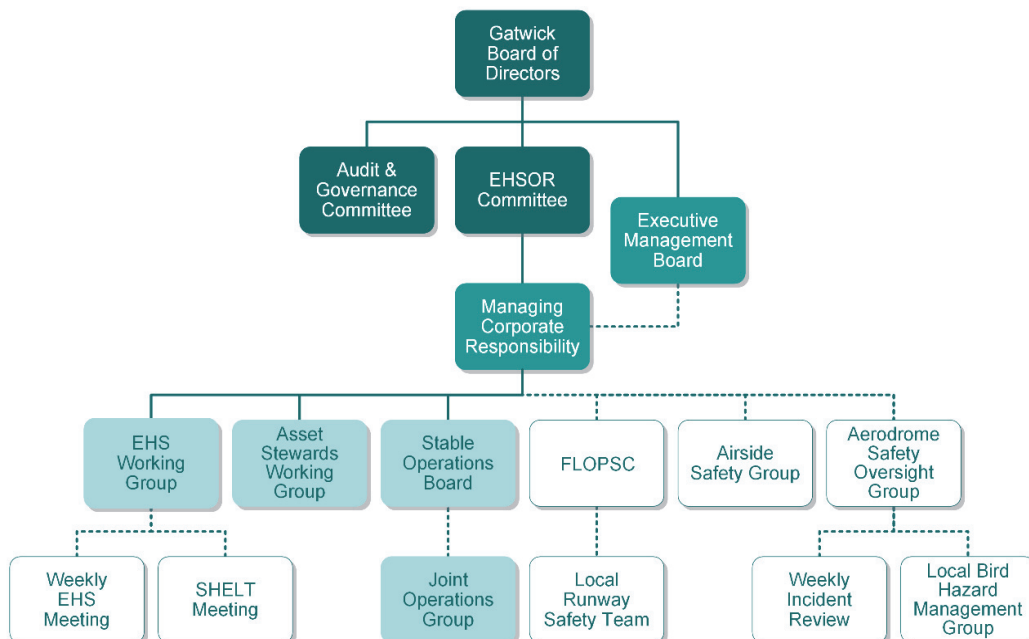


Figure 2
Gatwick Airport Safety Groups

The FLOPSC is chaired by the Head of Airside Operations and meets every two months with the purpose of discussing, reviewing and monitoring airline operational and safety performance at Gatwick Airport, adherence to noise and track-keeping rules, and to share best practice. Its membership includes various airport operational departments and other representatives, including those from airlines based at Gatwick Airport, ATC and the CAA. Among its stated safety duties is the review and monitoring of runway incursions and to track all agreed actions to completion. It is not apparent what, if any, role the FLOPSC played in the runway inspection review although much of its membership also sits on the LRSG which had some involvement.

The LRSG is jointly chaired by the Head of Airside Compliance and the Head of Safety, Security and Quality (ATC) and meets six times a year. Its membership again includes various airport operational departments and other representatives, including those from airlines, ATC and the CAA. Its listed safety duties are:

- To review and monitor runway safety;
- To agree and prioritise any required runway safety management actions;
- To track all agreed actions and audit recommendations to completion.

Minutes for the LRSG meeting held on 31 January 2018 included discussion of the incursion incident on 12 November 2017 and it was agreed to '*consider reviewing how airside operations plan the daily runway inspections*'. The same minutes included a comment that a review was now being undertaken of the runway lighting inspection procedure, with a recommendation from the group that the use of a runway slot for the inspection should be considered.

Section 2.2.8 of the Aerodrome Manual covers safety reporting and states:

'2.2.8 Safety Reporting

Airside incidents and near misses are recorded on the PRIME database. They are then reviewed at a weekly incident meeting, chaired by the Airside Standards Improvement Lead. All incidents are investigated and closed out, with any learning points shared with relevant parties. In some cases a Safety Alert will be issued to raise awareness of specific safety related issues.'

Incidents requiring the filing of a Mandatory Occurrence Report (MOR) were handled by the Head of Airside Compliance who would allocate incidents to the most appropriate staff member for investigation and follow-up action. This was recorded on a spreadsheet, which included the status of the MOR. Minutes of various airside operational meetings were also recorded in a number of different formats.

Gatwick based airline operators

The crew involved in the incident was not based at Gatwick Airport and comments made in the ATC internal report suggested they were therefore not aware of the '*standard runway inspection procedures at the unit*'.

Senior pilot managers of two airlines based at Gatwick both confirmed to the AAIB that their pilots would also not be aware of runway inspection procedures at the airport as the information was not published in any normally available official documents. They also confirmed that they would not consider it acceptable for vehicles to enter a runway ahead of an aircraft until the aircraft was physically vacating the runway. They pointed out that although a crew may have nominated the exit they would be using, and may appear to be turning off the runway, they may choose to continue past the exit at any time due to a technical failure or operational issue.

The managers commented on the issue of receiving ATC instructions to expedite arrivals and departures, with such instructions often given at the critical phases of preparing to take off or land. This included transmissions to crews after touchdown enquiring which exits they would use; such transmissions being considered both distracting and applying unnecessary pressure. The situation was not helped by the relatively high number of new pilots these operators were training and the extra demands these training flights imposed on crews. This matter had been raised at LRSG meetings in the past by one of the airlines spoken to.

Neither manager had been invited to participate in the runway inspection review. Gatwick Airport Management commented that any revised procedure would be presented at the LRSG, where there was pilot attendance.

European Action Plan for the Prevention of Runway Incursions

The European Action Plan for the Prevention of Runway Incursions was released in 2003 as a product of the European Runway Safety Initiative and was updated in both 2011 and 2017. The ATC provider for Gatwick Airport was an active participant in its production. The plan is intended to help reduce the incidence of runway incursions, which the latest version stated occur within the European region '*at least twice every day*'.

The plan covers a range of airport operations including information on the conduct of runway inspections.

CAA oversight

The UK CAA provided oversight of operations at Gatwick Airport to ensure effective safety regulation. This was achieved by four inspectors, two responsible for overseeing different elements of the airport's operation and two for air traffic control.

The inspector responsible for overseeing the airport's safety management system and operational matters, such as runway inspection, also had responsibility for overseeing a further 20 airports, including two other major airports. The focus on oversight of Gatwick Airport since 2014 had centred on ensuring compliance with EASA aerodrome regulations. These had superseded the previous UK regulations and were more complex, including additional elements previously not covered.

Because of the limited time available, the inspector had only managed to attend one FLOPSC meeting in 2018. The inspector had been aware of the runway inspection issues and had been invited to attend the review meetings but had not had the opportunity to do

so. The inspector did however hold regular compliance meetings with the Head of Airside Compliance, which gave an opportunity for specific issues to be raised.

There was a further observation about a runway inspection included as part of the audit in which the inspection team had to vacate and re-enter the runway three times and were cleared to enter the runway whilst an aircraft was still rolling out after landing. As a result, the CAA suggested that the airport reviewed the process to ensure that the possibility for a degradation in safety was reduced as far as reasonably practicable.

The CAA received feedback for Gatwick Airport on 30 September 2018, resulting from the findings relating to runway inspections in their audit of 8-10 May 2018. This stated that standard phraseology had been introduced by ATC. It also stated that liaison was now in place between the ATC watch manager and airport duty manager to plan times for the inspections to occur and for ATC to create suitable gaps in the air traffic arriving and departing the airport for the inspections to be carried out. On this basis the finding was closed.

A meeting between the CAA and Gatwick Airport on 20 December 2017 raised concerns about the high ATC workload created by the complex and consistent intensity of the air traffic schedule, exacerbated by staffing problems within the ATC provider.

Analysis

The importance of effective runway inspection is borne out by the number of foreign objects found over a relatively short period at Gatwick Airport and the potential safety risk these pose to aircraft. Whilst this problem is not unique to Gatwick Airport, in its drive to maximise the use of its single runway, the airport has created an intensity of operations that makes the task of runway inspection more difficult to achieve.

It is apparent from the investigation that both ATC and the airside operations teams were striving to carry out runway inspections under the prevailing working environment. There was, however, evidence of a lack of understanding of how each discipline's work impacted on others operating at the airport and had potentially normalised procedures that would otherwise have been considered undesirable, or at worst unacceptable. The ATC and airport investigations were triggered by the pilot declaring his intention to file a safety report. The ATC report, subsequently adopted by the airport operations department, saw nothing wrong in what happened. This was reinforced by subsequent interviews with ATC staff and was in direct contrast to the opinion of the airline operator involved and of other airline operators, when asked.

The ATC report justified the actions of the controller and operations staff as it considered the aircraft was committed to vacating at RET Foxtrot Romeo. This was based on the radio transmissions during the landing roll and ground radar recordings showing the aircraft moving off the centreline towards the exit as the operations vehicle entered the runway. The report, however, gave no consideration to the fact the aircraft appeared to be still on the centreline at the time the instructions were issued to the operations vehicle, the speed of the aircraft, the wet state of the runway and the implications had the aircraft, for whatever

reason, needed to continue on the runway past RET Foxtrot Romeo. There was also no apparent understanding of the potential distraction caused by asking the crew questions at a time of high workload.

These conclusions were inconsistent with the comments of the ATC manager who justified the actions based on the aircraft having been re-cleared, after it touched down, to vacate at RET Foxtrot Romeo: in effect an instruction during the landing to stop short of a particular position on the runway. It is not clear that this is in accordance with any recognised ATC procedure.

In confirming the procedure to be adopted, SI 021 made no reference to re-clearing aircraft, but specified the need to ensure an aircraft '*must clearly be established in the turn off the runway-centreline into the runway exit*' before a vehicle can be cleared onto the runway ahead of it. This statement leaves the risk, as already outlined, of an aircraft subsequently turning again to continue along the runway past the exit. In addition, SI 021 contains no information on the direction runway inspections should be performed.

The guidance available to the controllers both in SI 021 and MATS Part 2 lacks relevant information published in the airport's runway inspection SOP, such as communication procedures and actions in the event of a vehicle breakdown on the runway. There was also a lack of consistency between the existing guidance in MATS Part 2 and SI 021 on the desirability of conducting the runway inspection in one run.

Safety Recommendation 2019-003

It is recommended that Air Navigation Solutions Ltd amend the wording of the Gatwick Airport Manual of Air Traffic Services Part 2, Chapter 10 and Supplementary Instruction 021 to specify how an aircraft is determined to have fully committed to vacating the runway, and ensure a vehicle cannot be cleared onto the runway ahead of an aircraft until the aircraft has done so.

From the airport operator's perspective, the Aerodrome Manual lists a comprehensive safety management structure; information that has been made widely available, not least by publishing it openly on the internet. Some of the descriptions of the relevant management positions are however incomplete, making it difficult to determine the division of responsibility for certain tasks related to this incident. The published reporting chain for the various airside safety groups also appeared to lack a focal point with groups reporting in parallel, creating the potential for safety issues to be treated in isolation.

Although the airport operated a safety database, the incident reporting system did not appear to provide a means of properly managing and recording the progress and outcomes of investigations of airside incidents and any subsequent actions determined necessary. Consequently, it remains unclear how the allocation of the review of runway inspection procedures was achieved. Whilst the duty manager was deemed by the Head of Airside Operations to be sufficiently senior to carry out the review it was conceded that the task more properly fell to the Airside Operations Lead. As it was, the incumbent had difficulty in organising meetings, not helped by the review having been given no scope or formal list

of participants. The review would have benefitted from the input of an operator, none of whom were invited to participate. It might also be necessary to seek clarification on some operational aspects from the relevant CAA Inspectors. Finally, the outcome from each meeting was hard to determine in the absence of a proper means of recording progress from each meeting.

Gatwick Airport is now seeking a new system which will track incidents, audits and actions with the intention of introducing it during the 2019/2020 financial year. In addition, the review will continue to be managed by the same airside duty manager, but with oversight from the Airside Operations Lead.

Despite the issues highlighted, the output from the working group has been positive in providing better coordination between the operations teams and ATC in conducting the inspections. By providing notice before carrying out a runway inspection, ATC has a better opportunity to build a sufficient gap in air traffic to accommodate it. This remains a complex task when operating at high flow rates and often means inspections still cannot be done in one run.

A new runway inspection SOP became operational in January 2019. The SOP is detailed and now incorporates runway inspections on both the main and standby runways, although it still does not include details on the direction the runway inspections are to be performed. It also requires lighting inspections to be done with the driver looking forward and the additional vehicle occupant having to look behind the vehicle. This is currently being reviewed with the intention of carrying out lighting inspections in both directions, however proposed trials due to take place over the winter of 2018 have been delayed.

The SOP also now incorporates the instruction that vehicles should not enter the runway ahead of a landing aircraft until the aircraft has '*fully committed to the exit*', although the verbal instruction that this is irrespective of any ATC clearance has not been included. The document does not define '*fully committed to the exit*.'

The scope for the issues affecting runway inspections to be picked up and addressed as part of the general oversight of the airport was affected by the workloads of those whose task it was. The Head of Airside Compliance was the most experienced member of the airside management team and this experience was often called upon for tasks not under his immediate area of responsibility. Since 2014, CAA oversight had had to incorporate the additional elements brought about by the introduction of EASA regulations. This had created more demands on inspector workloads which had led to a reduction in time available to pick up on more routine operational issues. This is reflected in the non-attendance at routine meetings where the CAA inspector might otherwise have hoped to be able to attend. Doing so was considered an important means of identifying areas requiring further review or needing inclusion in future audits. Whilst inspectors were able to receive and review copies of the relevant meeting minutes, the standard of the minutes did not always allow a proper understanding of the items discussed or the outcomes agreed.

Whilst the CAA's annual audit did identify and address relevant issues relating to ATC and runway inspections, the latter were identified only after this incident had occurred. It remains important to ensure individual airport inspector workload is commensurate with providing adequate oversight of a major complex airport.

Conclusion

Gatwick Airport operates at high intensity to maximise the use of its single runway. This demands that airport operations, ATC and aircraft all operate as efficiently as possible if the declared runway capacity is to be attained. This capacity is not imposed but is set by the airport itself.

In setting the capacity it is important to balance maximising the number of aircraft operating to the airport with the safety of the operation itself. This investigation indicates that the pressure of meeting the operating targets has had a direct effect on undertaking runway inspections both safely and effectively.

Many of the measures taken to redress the issues outlined in this report have yet to be completed and continued oversight and regular reviews in this area at all levels should be maintained.

Published 22 August 2019.