Corporate Communications
External Information Services

19 February 2015
Reference: F0002205

Dear XXXX

I am writing in respect of your recent request of 26 January 2015, for the release of information held by the Civil Aviation Authority (CAA).

Your request:

Please could you send me any information (reports) regarding tyre burst on commercial aircraft when landing, recovery of commercial aircraft, how tyre burst effect passengers, delays, airline costs, closing of airport/runway.

Any information you can provide me would be very helpful and much appreciated.

Our response:

Having considered your request in line with the provisions of the Freedom of Information Act 2000 (FOIA), we are able to provide the information below.

Incident reports are provided to the CAA under the terms of the Mandatory Occurrence Reporting (MOR) scheme, as described under Article 226 of the Air Navigation Order 2009 (ANO). Each incident report is reviewed and, where appropriate, further investigation carried out and action taken.

We have carried out a search of the UK CAA database for any report involving tyres during the landing phase of flight for any fixed wing aircraft above 5701kg regardless of operation, nationality or location and provided a summary which encompasses the reporting period from 1 January 1976 to 11 February 2015. The majority of the reports involve commercial operations.

Information relating to the effective costs and delays incurred as a result are not provided to the CAA as a matter of routine and therefore this information is not held.

We have not included identifying information in these summary reports as this information is exempt from disclosure under Section 44(1)(a) of the FOIA.

Civil Aviation Authority
Aviation House Gatwick Airport South Gatwick RH6 0YR www.caa.co.uk
Telephone 01293 768512 foi.requests@caa.co.uk

Section 44(1)(a) of the FOIA provides that information is exempt information if its disclosure is prohibited by, or under, any enactment. Under Section 23 of the Civil Aviation Act 1982, information which relates to a particular person (which includes a company or organisation) and has been supplied to the CAA pursuant to an Air Navigation Order is prohibited from disclosure (a copy of this exemption can be found below).

For more information about the Mandatory Occurrence Reporting scheme, please refer to CAP382 which can be found at: www.caa.co.uk/cap382 .

If you are not satisfied with how we have dealt with your request in the first instance you should approach the CAA in writing at:-

Caroline Chalk
Head of External Information Services
Civil Aviation Authority
Aviation House
Gatwick Airport South
Gatwick
RH6 0YR

caroline.chalk@caa.co.uk

The CAA has a formal internal review process for dealing with appeals or complaints in connection with Freedom of Information requests. The key steps in this process are set in the attachment.

Should you remain dissatisfied with the outcome you have a right under Section 50 of the FOIA to appeal against the decision by contacting the Information Commissioner at:-

Information Commissioner's Office
FOI/EIR Complaints Resolution
Wycliffe House
Water Lane
Wilmslow
SK9 5AF
www.ico.gov.uk/complaints.aspx

If you wish to request further information from the CAA, please use the form on the CAA website at http://www.caa.co.uk/application.aspx?catid=286&pagetype=65&appid=24.

Yours sincerely

William Pounder
Information Rights Officer

CAA INTERNAL REVIEW & COMPLAINTS PROCEDURE

- The original case to which the appeal or complaint relates is identified and the case file is made available;
- The appeal or complaint is allocated to an Appeal Manager, the appeal is acknowledged and the details of the Appeal Manager are provided to the applicant;
- The Appeal Manager reviews the case to understand the nature of the appeal or complaint, reviews the actions and decisions taken in connection with the original case and takes account of any new information that may have been received. This will typically require contact with those persons involved in the original case and consultation with the CAA Legal Department;
- The Appeal Manager concludes the review and, after consultation with those involved with the case, and with the CAA Legal Department, agrees on the course of action to be taken;
- The Appeal Manager prepares the necessary response and collates any information to be provided to the applicant;
- The response and any necessary information is sent to the applicant, together with information about further rights of appeal to the Information Commissioners Office, including full contact details.

Freedom of Information Act: Section 44

(1) Information is exempt information if its disclosure (otherwise than under this Act) by the public authority holding it-

(a) is prohibited by or under any enactment,
(b) is incompatible with any Community obligation, or
(c) would constitute or be punishable as a contempt of court.

(2) The duty to confirm or deny does not arise if the confirmation or denial that would have to be given to comply with section 1(1)(a) would (apart from this Act) fall within any of paragraphs (a) to (c) of subsection (1).

File number	UTC date	Aircraft category	Headline	Narrative text
201306192	30/05/2013	Airplane	Nosewheel tyre found damaged on arrival.	Ramp agent advised the dispatcher that he could see metal wires on one of the tyres. Both tyres were replaced.
201304694	30/04/2013	Airplane	Tyre deflated on taxi in.	'Hot brakes' light illuminated during taxi in, a/c continued the short distance to stand. On walk round, Captain noticed nr3 main tyre had deflated. There was no damage to the tyre, suspected fusible plug blown. Engineering assistance requested and Ops informed.
201205841	29/05/2012	Airplane	PAN declared due to deflated tyre. Pilot advised that a/cmay have to stop on runway.	Wheel nr7 showed zero tyre pressure in flight (slow leak). A/c landed normally apart from auto brakes not used and spoilers not armed. Emergency services were in attendance, a/c taxied off runway and was towed to stand. Engineers inspection showed TPIS connection was loose, contributing to tyre pressure loss. Main wheels nr7 and nr8 replaced and TPIS replaced.
201310959	28/08/2013	Airplane	DHC8 taxiing in ran over debris from a tow bar and burst a tyre. Aircraft continued to taxi onto stand. AGI initiated and stood down 6mins later.	Debris originated from a tow bar, which had been attached to a tug. Support fin on the towbar sheared off whilst the tug was proceeding across an uncontrolled crossing in the Taxiway M cul-de-sac. Tug driver became aware of the detached fin and attempted to give an emergency stop signal to the DHC8 flight crew without success.
201306137	28/05/2013	Airplane	Stone embedded in tyre.	A stone was found to be embedded in the LH inboard tyre causing damage. Aircraft declared AOG awaiting spare wheel.
201205904	28/05/2012	Airplane	Damage to nosewheel tyre.	On arrival an incision was seen on the nosewheel tyre with metal showing through. Nosewheel replaced.
201202091	27/02/2012	Airplane	Two tyres damaged by FOD.	
201215472	26/12/2012	Airplane	On take-off roll just before rotation, a loud bang heard from nose wheel. No abnormal indications seen and take-off continued normally.	Following a normal landing it was reported that the LH nose wheel tyre had detached at the outer rim. CAA Closure: On investigation it was noted the tyre did not detach from the rim. The tyre had burst on rotation out of Amsterdam but it was still attached to the rim when the engineers inspected the nosewheel on arrival. The rim showed signs of impact damage and there was a tear in the sidewall of the tyre. It was confirmed there was no pushback carried out in Amsterdam, so no towbar attached, but confirmed a pushback was carried out on the preceeding flight departing Southampton. It is most probable the towbar impacted the nosewheel whilst it was being attached for the pushback.
201309259	25/07/2013	Airplane	After pushback from Stand 49, ground crew informed GMC that the EMB195 had struck a tow bar that had been left on the taxiway. EMB195 returned to stand for inspection and was found to have sustained damage to the	Information indicates that unbeknown to the tug driver, the tow bar had become detached as the tug was being driven away and had been left on the taxiway in front of the aircraft. Tow bar also sustained damage.
201202014	25/02/2012	Airplane	A/c experienced LH puncture on landing and slewed round 220deg, coming to rest on southern hard shoulder of	

201210172	24/08/2012	Airplane	Nr3 wheel came off during taxi.	First indications felt through the controls. Taxi halted and a visual inspection by fire crews was carried out. The inspection revealed an issue with the nr3 tyre. Passengers disembarked on to a bus and a/c removed from service for repair. CAA Closure: Investigations found that the outer wheel half was found fractured in two places and beach marks at the cracked location evident on the inside of the outer wheel were visible on several spokes. Normal fretting at the mating faces of the wheel halves were observed and the bearing cones and grease seals were inspected with no damage observed. Torque values for each of the tie bolts were recorded during disassembly process and all but one were normal. Conductivity testing was accomplished on both wheel halves, resulting between 36 and 37.5 % which indicates the wheels had not been subject to overheating. Almen strips were reviewed to prove shot peening process and forging records reviewed with no anomalies noted. Examination of the fractures of the failed hub under magnification identified the origin of the fractures at the middle of the spokes on the inner side of the outer wheel half and there were no surface or material defects evident in this area. Fracture propagation indicated service loads in this area to have been low. Surface laps from a poor shot peening process were evident along with some evidence of inter-granular corrosion and a finite element analysis model was used to try and determine the loads involved. The initiation site, combined with the symmetry of the cracks, indicate they started at the same time and propagated simultaneously and suggests some unknown condition initiated the failure. The OEM has yet to issue any recommendation or preventative actions. Main wheel and brake replaced. The operator has initiated NDT eddy current inspections which are accomplished on all spokes at each tyre change and have since detected a number of wheels with single spoke cracks. These wheels are currently with the OEM for further investigation.
201315201	23/11/2013	Airplane	Aircraft taxied over raised runway threshold lights.	During a 180deg turn after backtracking, the aircraft was stopped too close to the runway end. During the turn, the nosewheel struck the raised runway lights. EICAS 'Tyre press' message showing low pressure in RH nosewheel. Aircraft returned to stand to have nosewheel replaced. Runway inspection carried out.
201212899	22/10/2012	Airplane	FOD on runway. PA42 struck a fuel cap on landing and sustained tyre damage. ATC informed.	A departing a/c lost its fuel cap on rotation, which went un-noticed by the crew and a landing PA42 stuck the fuel cap on landing roll causing a slow deflation of the tyre. This occurred between scheduled runway inspections. The en-route radar providers were informed, as was the final destination airport of the departing a/c. It is possible that the worn fuel cap may have had a locking mechanism problem. CAA Closure: Runway inspection carried out to ensure no more FOD was present.
201312104	21/09/2013	Airplane	A380 taxied over pushback tug towing pin and sustained damage to main gear tyre.	The towing pin on the back of the tug had not been placed back in the towing hitch so, as the tug moved off, it fell onto the taxiway and was not noticed by the push team or the engineer. As the aircraft taxied away, it rolled over the pin and caused a tear in a main gear tyre. One tyre was replaced prior to departure.
201306018	20/05/2013	Airplane	Split in tyre found out of limits on the RH wheel of the LH	Tyre replaced.
201205374	20/05/2012	Airplane	LH main gear left runway surface whilst turning for backtrack.	While completing a 180deg manoeuvre, the a/c was close tothe edge of the runway and as it turned, the LH gear partially left the runway surface. Mud was observed on the tyres by ground staff during inspection. No engineers were onsite so AOG while new parts were couriered in overnight.
201301790	20/02/2013	Airplane	Tyre detached from wheel hub during taxi in.	Tyre had completely detached from the main wheel nr4 and was eventually located on the grass, 200m east of the delta taxiway. Hydraulic fluid found on taxiway. Wheel rim damaged.
201300546	20/01/2013	Airplane	Nr8 main wheel tyre deflated during climb reaching 0psi.	Engineering confirmed the tyre was deflated but still intact and on the rim. There was no damage and no risk of fire so emergency services stood down. On replacement of tyre TIPS sensor was found to be loose. New wheel assembly fitted.
201304181	19/04/2013	Airplane	Tyre deflated on arrival.	'Hot brakes' indication illuminated on arrival to stand as engines were being shut down. Inner LH tyre found to be deflated. Tyre was replaced and a/c flown back. On arrival, the same tyre was noted to be warmer than the others so engineer investigating brake system. Investigation under 201304694

201206737	18/06/2012	Airplane	Nosewheel tyre deflated and detached from rim of wheel.	A slight vibration was felt when retracting gear after take-off. The landing run was uneventful until brakes were applied and vibration was felt which worsened as the a/c continued down the runway. The a/c was brought to a halt and an inspection made which confirmed the damage. Wheel changed on the runway. Wheel assembly inspected, no defects noted. Tyre examined, no specific cause for the deflation identified. Tyre suffered excessive damage and was scraped. Last recorded fleet incident of a/c type nose wheel deflation on landing was in March 2011.This incident has been classed as an isolated occurrence.
201304086	18/04/2013	Airplane	Burst tyre on landing caused a/c to veer off runway and breaking a runway edge light.	On touchdown over braking led to a LH main tyre burst. Directional control was established and a/c brought safely to a stop. Fire services attended. A/c taxied to a parking area and passengers safely disembarked.
201208149	17/07/2012	Airplane	Tyre blow-out during taxi check.	Crew were carrying out a taxi check to assist engineers in resolving a problem with the rudder pedals juddering during braking. The thrust would be set manually allowing thea/c to reach 80kts, at which point the SFO would call 80kts and the Captain would apply firm manual braking. If juddering was experienced the Captain would instruct the SFO to select the anti-skid 'OFF'. A low speed brake check carried out which was satisfactory. Thrust was applied to both engines and the a/c accelerated up to 80kts. '80kts' called by SFO and the thrust levers were closed and firm manual braking was applied by the Captain. Almost instantly a strong juddering was felt through the pedals and at approx65kts the Captain instructed the SFO to switch off the anti-skid. The juddering continued and the a/c was slowed tobelow taxi speed with the intention to vacate the runway.ATC then reported that they had heard a loud bang and that the two RH main wheel tyres had burst. The a/c was taxied clear of the runway and brought to a halt. Airport fire services attended to inspect the undercarriage.
201205584	16/05/2012	Airplane	Anti-skid failed and wheel locked up on landing run causing the a/c tyre to burst. The a/c remained under	A/c moved onto emergency runway and passengers disembarked and ferried to terminal by coach.
201202791	16/03/2012	Airplane	Nr4 main wheel rolled over edge of grass on apex of taxiway.	Vacating the runway a 150° turn was required. During the walk round the nr4 main wheel tyre was observed to be muddy so airfield operations were informed and it was confirmed that the a/c had taxied over a short section of grass. No damage was caused to the taxiway or the tyre.
201313319	15/10/2013	Airplane	Large cut in nosewheel sidewall.	
201202732	13/03/2012	Airplane	Tyre burst on landing, a/c possibly touched down with brakes on.	On landing, smoke was observed from port main wheel whichthen ceased before the a/c came to a halt, obstructing runway at intersection. The a/c was resting on its LH mainwheel rim.
201300266	13/01/2013	Airplane	Red indication on tyre nr1. Fire services attended and checked wheels for heat.	Fire services reported that there did not appear to be any heat coming from the wheel and they remained in position whilst passengers disembarked.
201214918	11/12/2012	Airplane	A321 disconnected from towbarless tug during pushback from Stand 503. A321 rolled forward making contact with the tug. Engineers attended and discovered A321 had	A321 was towed to Stand 567. Both nose wheel tyres were replaced.
201305423	11/05/2013	Airplane	Tread detached from nr9 main wheel on take-off roll causing damage to LH inboard flap.	All indications normal and no unusual noises heard on take-off. Flight continued where inspection revealed detached tread upon arrival.
201203744	10/04/2012	Airplane	During pushback headset man noticed a small metal object in the nose wheel tyre. A/c taxied back to stand where nose wheel tyre damage was discovered due to FOD.	Nose wheel tyre changed and a/c departed. The origin of the FOD was not able to be determined by the either the airline, the handling agent or operations. CAA Closure: TheAirport continues to actively promote the dangers of FOD to a/c safety through communication of Safety Notices, meetings, turnround audits etc.

201204895	09/05/2012	Airplane	On turning off runway a/c suffered a deflated nose wheel and loss of steering. A/c bought to a stop and passengers disembarked using steps. There were no injuries.	Initial investigation has identified that the LH nosewheel has deflated. The torque link attachment bolt appears tohave sheared allowing the torque link to come into contact with the nose wheel causing deflation. Reporter mentionsthat the a/c vacated the runway which was not rushed and speed sufficiently low to accommodate the high speed turn off. CAA Closure: The damage noticed on the apex pin is the rupture which occurred on the thread of the pin near the beginning of the thread. As per the maintenance company's experience, this kind of damage is explained by one of the 2 reasons highlighted in Ai TFU 32.21.27.002: 1) Contact with towbarless tractor doors, 2) Overtorquing of the apex pin nut during installation of the apex pin system. Following this analysis, maintenance confirm this issue is well known and recommend the operator to follow the AMM/CMM tasks regarding towbarless towing and apex pin system installation. Technical Follow Up (TFU) 32.21.27.002 states that the OEM have developed a new apex pin design with the overall length of the apex pin being reduced by 7mm to decrease the exposure to towbarless tractor impacts. It also states that given the feedback from customers about the complexity of the washer machining during line maintenance, the new apex pin design will not require washer re-work andshould ensure a correct functional play achievement via a'foolproof'' system'. This new design will be made available via SB A320-32-1400 scheduled for release around the 2nd QTR 2012.
201306726	07/06/2013	Airplane	Shear pin failure on aircraft towbar during towing.	During pushback, the aircraft was being towed forward when the shear pin failed on the towbar. The tow was stopped and relevant checks were carried out by engineers. The aircraft returned to stand and received a nose wheel change due to a slight nick on the tyre.
201303622	07/04/2013	Airplane	Tyre burst after landing.	Tyre pressure on EICAS indicated zero on landing. A/c stopped after exiting runway and ATC contacted to advise of possible runway debris. A/c towed to stand and engineers confirmed nr10 tyre had burst. Nr9 and nr10 wheels replaced and conditional inspection carried out.
201306552	06/06/2013	Airplane	LH engine failure, MAYDAY and return.	LH engine torque sensor had been replaced earlier in the day of this report. Normal take-off and climb to 2000ft. LH torque gauge starting giving erratic readings fluctuating in the range 90% to 30%. A/c levelled off at 4000ft. Problem thought to be with EEC. Flight crew elected to return. A/c cleared to descend to 2000ft with manual control of engine. As LH power reduced LH engine torque reduced dramatically and a/c yawed to left. Engine shut down and MAYDAY declared for single engine approach and landing. Fire services escorted to stand where it was discovered that both LH main landing gear tyres had deflated due to brake temperatures reaching 400deg c.
201311714	05/09/2013	Airplane	Bounced landing resulted in a go-around.	Final speed was 65kts and the aircraft touched down on three wheels. After touching down the nose lifted rapidly and then bounced down onto the runway. This was repeated four times before the pilot pushed full throttle and called a go-around. After landing he discovered that the front wheel tyre was punctured. On further inspection it was discovered that the firewall and base plate were damaged. Action taken to repair the damage.
201213251	02/10/2012	Airplane	Concerns around stones/gravel found embedded in main wheel tyres on three B737s. Airfield Operations alerted. Similar occurrence reported 30 Aug 2012.	Following an inspection of the runway and taxiways, the larger stones that were observed on the grass verge were removed. The normal sweeping plan is for the runway and Taxiway A to be swept with large brushes and blowers. This procedure was conducted several times in conjunction with winter operations training and preparation. It was not possible to establish whether the small stones/gravel were from this or another airport. CAA Closure: To supplement existing plans, additional FOD removal equipment has been procured. This equipment will ensure that FOD and the very small stones are removed. Its use will be implemented into the sweeping plan. Additionally, all operators using this airport confirmed their satisfaction with the FOD management at the airport's November flight safety meeting.
201208985	01/08/2012	Airplane	Following normal approach and flare it was found that RH main undercarriage tyre deflated on landing. Difficulties encountered with directional control and rapid speed loss.	

201303484	01/04/2013	Airplane	Nr4 main tyre deflated and wheel damaged during landing.	Upon arrival at stand, flight crew were alerted to a flat tyre on nr4 wheel. Upon visual inspection, it could be seen that the oleo was leaking oil and some broken wheel bolt parts were visible. It is believed the damage could have occurred during landing as the CCM had reported hearing and feeling something unusual at the time.