

Captain, Pilot Monitoring (PM)

3,500 hours PIC in B737 / 3,500 hours Time in Type / 25,000 total time approximation

This was the second day of a three day sequence and second leg of the day. I reported fit for duty that morning in MIA after a long layover in MIA. We had one leg from BOS to MIA the day prior, arriving approximately at 1030am. The layover was a long 21 hour layover and I felt well rested the next day for the pickup time around 8am the next morning.

I flew (PF) the leg out from MIA, both the aircraft and the flight were uneventful, departing and arriving on time. No mechanical deficiencies were noted. The inbound aircraft was the same aircraft for the planned flight back to MIA. The preflight was normal and I did not feel rushed in the 1 hour turn for the return leg outbound. The FO and I discussed the performance data, noting fuel load, the hot temperatures and aircraft weight. We checked the current ATIS winds. They were favoring runway 08. We briefed the taxi path out to rwy 08 for a bleeds-off max thrust take off. We recognized this was right at the limit of the aircraft performance. It is a relatively short taxi time, therefore I elected to start both engines, anticipating a quick departure from DEN. The taxi out was normal, nothing seemed unusual with the brakes or the steering.

We arrived at the runway ready for departure and were cleared onto the runway for takeoff but the tower was now calling winds that included a tailwind component. The winds were different than what ATIS reported and what we had expected. I had the FO pass the information to tower, we could not takeoff with the tailwind and needed to exit the runway. The winds were approximately 220/9 and favoring a south departure. The DEN airport was departing south so the tower gave us taxi instructions to rwy 17L. We now had to reload the FMS box with the new runway and double check our TPS performance data. We accomplished the before takeoff checklist during the taxi. It was a relatively short taxi, with the expectation again for quick departure. We kept both engines running and proceeded to rwy 17L.

Approaching the departure end of rwy 17L we noted the winds had shifted further and now showing a tailwind for 17L. We also heard reports of windshear on tower frequency, with an aircraft executing a go around. The winds were now out of the north. ATC instructed us they were in the process of turning the airport around to a north flow. The controller asked if we

could accept departing rwy 35R. We checked our TPS performance data but it was not available. We asked for rwy 34L. Ground gave us taxi clearance through the ramp area with the direct route to the west side runway. Again, we had to re-accomplish the before takeoff checklist after reloading and briefing the new runways and departure waypoints. I elected to keep both engines running to minimize the workload on the FO and myself.

Arriving at the new departure runway, we were instructed it might be a delay based on the numerous aircraft in the pattern being vectored to land north. During that time, we did notice a dust devil west of the airport. We were now getting close to our duty time limits for the flight and notified AA dispatch. Later the controller mentioned they were aware of our duty time limitation and were working to get us out as quick as possible. We were now seeing winds that supported our departure and processed valid takeoff data for rwy 34L. I estimate it took around 25 minutes before we started taxiing again after arriving at rwy 34L. There was a United 737 in front of us and they departed first. We were given takeoff clearance soon after. It was the FO's takeoff and I taxied the aircraft onto the runway. I did not notice any grabbing or anything unusual with the brakes. I transferred control to the FO and the FO advance the throttles normally for takeoff. I made the 80kt call at 80 kts with confirmation from the FO. At approximately 90-100kts, I heard a sound like a pop and felt a slight bump to the aircraft. We were above 80kts and was anticipated we would continue the takeoff. The FO called out something followed by "abort, abort ... Your aircraft." When I took the aircraft, I noticed the plane was now leaning over and it seemed like we had lost more than a tire. The plane was drifting or lurching left. I now felt what the FO felt and realized in an instant the plane was not flyable in this condition. I called out "reject, my aircraft" and brought the throttles back to idle. The aircraft was a handful to control; I had to use differential braking and rudder to keep the aircraft on centerline. I did not pull the thrust reversers because I was having a hard time steering and did not want to possibly make it any worse. It felt like the left engine might be dragging on the pavement. I felt I had enough runway to stop the aircraft without reversers. I brought the aircraft to a stop on as close to centerline as I could.

After coming to a stop, tower had called out they has seen smoke and called again that they could see fire under our wing. The plane was leaning over to the left considerably. I made the PA to remain seated per our SOPs. The FO and I evaluated the situation. We also started to notice smoke entering into the cockpit. I directed the FO to call for the ARFF to respond. The FO called the tower and confirmed that the fire trucks were on the way. We then concluded, after about 30-45 seconds from the remain seated call, to initiate an evacuation. The decision was based on the smoke present int the cockpit and the tower reports of "you are on fire" under your wing. I did not notice any doors open at this time and did not hear any calls from the cabin. But I do remember it was a busy time with many distractions. We ran the evacuation checklist and I commanded the evacuation over the PA. To ensure all items on the evacuation checklist had

been accomplished, we read it aloud a second time. After securing the aircraft we got out of our seats. When we opened the cockpit door, we were surprised to see everyone was already off the plane. I was planning on grabbing the megaphone but did not, as the plane was empty. I did walk all the way to the back of the plane and check all the seats and lavs for anyone left on the plane. After that I exited the aircraft from the rear of the plane. On the ground we worked to assemble the passengers away from the plane and in a group. I did not notice any injuries to the passengers. I called the accident hotline to notify them of the incident. I spoke to the person in the operations vehicle to ask where and when the busses would arrive to pick up our passengers. After around 20 minutes the buses arrived and we loaded the passengers up to return to the terminal.

First Officer, Pilot Flying (PF)

540 hours Time in Type / 7900 hours total time approximation

This incident was part of a 3 day trip that began Friday July 25th. I had previously flown with the captain on several other occasions which facilitated an effective use of CRM. The first day was an easy single leg operating a 07:20am flight from BOS-MIA. Hotel accommodations were very suitable and ready upon our arrival. We had a long layover for a 08:56am sign-in the next day with ample rest to begin our duty.

We were scheduled to operate 2 legs on the day of the event, MIA-DEN with a one hour turn time to operate DEN-MIA. We were scheduled to keep the same airplane for both legs and the flight out to DEN was uneventful with a block-in time a few minutes earlier than scheduled. The weather in DEN was hot but otherwise good for our arrival, with a south flow landing 17R. The landing was set for Flaps 30 Autobrake 3. The landing and taxi on arrival was uneventful. Once gated in I went outside for a walk around which did not reveal any issues anywhere on the aircraft.

I was the PF for AAL 3023 DEN-MIA. With ATIS showing winds of 160 degrees 11kts we expected departure off RWY 08. The TPS Data required a 28K TO Bleeds Off Improved Performance takeoff based on the temperature and passenger manifest. Our fuel load was suitable for the flight to MIA without much excess over MIN Fuel. Once we closed up with final load numbers we were 100lbs over MAX which with a taxi to the runway would put us right at the MAX weight for takeoff based on our IMP Perf data. The taxi from our gate to RWY8 was standard without anything notable. Once at RWY 8, tower gave us instruction to enter the runway for departure, however along with the clearance they advised tower winds of 220 or 200 at 9 kts. which resulted in a tailwind component. As a result, we told tower we couldn't accept that and would need a few minutes to look at the numbers. The Captain and I had a short discussion and decided that 17L would be suitable for the changed wind conditions. We notified tower of our intentions and received taxi instructions for 17L. The turn time between legs was approximately 1 hour.

I set up the aircraft for our revised departure and completed the normal checklists during the taxi to 17L. As we approached 17L, tower gave an updated wind advisory that resulted in a tailwind component for 17L. As a result, we incurred a second runway change. We had a short discussion and informed tower that we could not accept a tailwind component. Tower mentioned we would have been the last plane utilizing 17L as they were turning the airport to a north flow. During this discussion an aircraft performed a GO-Around. Tower also advised us that they were getting windshear alerts over the runway. An aircraft that had departed from 08

also gave a pirep of a 20kt loss on takeoff/climb. From our observations it seemed as though the winds were shifting up to 180 degrees in any direction from South, West to North with speeds varying from under to over 10kts. At this point 17L was not an option for anyone and tower said we would need to use 35R. I requested TPS Data for 35R and we got a "Could Not Compute" message in return. The Captain noted that our initial TPS Data did however list 34L as a viable runway so we informed tower we could use 34L.

I pulled TPS Data for 34L with what was now going to be a 35C temperature takeoff. I reloaded and briefed the performance data, set up the panel, and checked the departure legs as we taxied uneventfully across the airport to RWY34L. By the time we got to 34L, the airport had been turned around and we were notified that we would have a delay due to departures ahead of us and multiple go-arounds that were being routed back in. We were parked behind a United 737 at 34L as we waited for our departure sequencing. I realized we were approaching MOT as well as MIN FUEL for takeoff. As close as we were it seemed likely we would reach MOT before MIN fuel and after a brief discussion with the Captain I sent an ACARS Message to Dispatch advising of our time constraint. While this was transpiring tower also observed a very large dust devil that looked like a small tornado west of RWY34L. The wind was still shifting around a bit as tower gave a wind readout from 200 degrees. Once the dust devil dissipated, United got its sequence with a wind readout of 330 or 300 degrees. Tower advised us that they would get us out before MOT and shortly after we received a clearance to enter 34L for departure with a tower wind readout of Winds Calm.

It was my takeoff as PF. After transfer of controls and takeoff clearance, I advanced the thrust levers to approximately 40% N1, waited for both engines to stabilize, and selected TOGA. The engines advanced as I would have expected and Thrust Lever Control was transferred to the Captain for the remainder of the takeoff sequence. I paid attention to our rate of acceleration as we began rolling and observed it to be slower than what you would get at sea level but not outside of expectations given our current conditions High/Hot/Heavy. We were almost 1000lbs under MAX weight for takeoff but obviously still over MIN FUEL. As we crossed the 80kt callout everything checked and the takeoff continued. Several seconds later the aircraft quite dramatically listed left as if the left main gear partially collapsed. It felt like the left side of the aircraft just fell. The perspective appeared as though the aircraft was banked left and we were dragging the left wing or engine. As the PF this immediately checked the box for "Fear the aircraft won't fly" abort criteria. There was absolutely no way the aircraft was going to continue accelerating to rotation speed, maintain control and get airborne dragging whatever it was with whatever potential damage had just occurred. The listing to the left resembled a boat in a swell. While I understand SOP is to only have the Captain call the reject, this was a situation where I naturally and almost involuntarily could not just remain silent waiting to see what happened

from the left seat, so I called out Abort, Abort and the Captain came to the same conclusion. I transferred control of the aircraft and the Captain initiated the reject. As he was rejecting the takeoff I keyed up to ATC and announced 3023 is aborting on the runway. Tower then responded that we had a lot of smoke and fire. I asked the Captain if he wanted the trucks, he quickly confirmed and told tower to get the fire trucks. We came to a stop facing straight ahead just left of centerline on the runway.

I can't remember if I asked how the fire looked or if tower offered the information first, but tower said that we were still on fire. The fire trucks were on the way but not there yet. In that moment the cockpit also had smoke penetration. I asked the Captain if he wanted to EVAC and the decision was made to evacuate. I selected flaps 40, the spoilers were stowed and I grabbed the Evacuation QRC from the glareshield. I ran through the evacuation checklist and I could hear the noise from the back as the evacuation was in progress. Once complete, we took a pause to collect ourselves. We then re-read through the Evac checklist one more time and confirmed it was completed. We exited the flight deck and miraculously just about everyone was already off and to the east side of the runway. I checked the forward LAV and we cleared the rest of the aircraft and were the last ones off exiting on the aft slide.