

CALLBACK

From NASA's Aviation Safety Reporting System



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It's a **BLAST,** but It's Not Fun



During takeoff and some taxi maneuvers, the high thrust levels of modern jet engines can produce exhaust wakes that present a significant hazard to other aircraft operating on or near the airport surface. The jet blast incidents presented in this *CALLBACK* highlight the need for both Pilots and Air Traffic Controllers to be aware of the circumstances where this hazard can occur and take measures to avoid jet blast or prevent it from happening.

The six events below deal with aircraft versus aircraft scenarios that occurred in the runway environment. Jet blast (or prop wash) can also occur in the ramp area where it poses a risk to vehicles and ground personnel as well.

Taxi Versus Landing Scenario #1

Fortunately, the Pilot at the controls of this C172 was experienced enough to handle an unexpected blast from a widebody jet powering through a turn.

■ *During landing roll-out, a taxiing widebody turning left onto a taxiway, jet-blasted the C172 in which I was the CFI. Our aircraft became airborne momentarily and the tail of the aircraft was pushed strongly to the left. I did manage to keep control and prevented any damage to the runway or the aircraft. I believe that if an inexperienced pilot had control of the aircraft, the outcome could have been much worse. I can only imagine what the outcome could have been if we were still airborne.*

ATC did not advise of, nor seem to notice the hazard of this jet blast. The widebody transport was taxiing slowly around the turn and it is possible he was using one engine to taxi with a lot of power in the turn.

I think that the airport should not allow these aircraft to taxi with one engine. ATC should not allow anyone to land near widebody aircraft when this type of hazard is possible. Or they should not let this size of aircraft use those taxiways when the adjacent runway is in use and traffic has clearance to land or takeoff.

Taxi Versus Landing Scenario #2

An alert B737 Captain reported taking precautions to avoid a preceding B747's wake turbulence only to be hit by another B747's jet blast.

■ *I was flying a visual approach...following five miles behind a B747-400. I elected to stay one dot high on the glidepath to avoid his turbulence because there was an eight knot tailwind. I planned and executed a touchdown 2,500 feet down the runway. In the flare, with the plane about one foot above the runway, we were hit by the engine blast from a B747 parked between the parallel runways on Taxiway N. This created a very unsafe situation, but I was so intent on avoiding the preceding plane's wake turbulence and dealing with the tailwind, I just didn't think of the other plane's jet blast. Tower did not advise me of the situation. I called the Tower after landing and they agreed that the situation was not good. The B747 parked between the runways was supposed to be at idle. The situation could have been much worse if the B747 had been at a higher power setting.*

Takeoff Versus Landing Scenario #1

The First Officer of a DHC8 reported being "knocked off the centerline" during landing after encountering the jet blast of a commuter jet.

■ *The Captain was Pilot Flying and landing on Runway 35.... We were cleared to land and just crossing the threshold when Tower cleared a commuter jet for takeoff from Runway 8.... Right after we touched down, we saw grass and dust being blown across our runway from the full-power jet blast of the commuter jet. During our landing roll-out, we went through the jet blast and were knocked quite forcefully off the centerline of the runway. The Captain did a great job of maintaining control of the aircraft and keeping it on the runway. This event could have ended much worse, with our aircraft possibly running off the runway. The*

takeoff clearance was heard and noted by both the Captain and myself. We both saw debris blowing across the runway, but by that point we could only continue the landing.

The event occurred because the proximity of Runway 8 to Runway 35 is close enough to cause jet blast disruptions for aircraft landing on Runway 35. The Captain maintained control of the aircraft even when it was drifting off centerline. I told the Tower that we had been hit by the jet blast, but I never got a response. I believe this could have been avoided if the Tower had waited five seconds for us to clear the blast zone of Runway 8. The Tower should not clear takeoffs from Runway 8 when aircraft are landing Runway 35, until the landing aircraft has cleared past Runway 8. I am disappointed that this procedure is even considered. If it had been a smaller aircraft, I believe it would have been blown off the runway.

Takeoff Versus Landing Scenario #2

As the Captain of an A320 noted, the jet blast of a corporate jet is sufficient to upset a larger aircraft if they are in close proximity.

■ During landing flare on Runway 23, the aircraft suddenly rolled right and shifted right of centerline. The winds were light and there had been no turbulence on the approach so this was totally unexpected. I briefly considered a rejected landing/go-around but was able to roll the airplane level and get back to centerline. After clearing the runway, I queried Ground Control about the situation and learned that a corporate jet had been cleared for takeoff on Runway 18L at Intersection A at the same time we were landing on Runway 23. Due to the very close proximity of Runway 18L intersection A to the touchdown zone of Runway 23, Tower should not be clearing aircraft for takeoff from this point while aircraft are landing on Runway 23.... Encountering jet blast while landing can place the aircraft in an unsafe position very quickly.

Taxi Versus Takeoff Scenario #1

There is no good time to encounter the jet blast of a heavy jet, but as this A319 Captain related, takeoff rotation is a particularly bad time to be "jolted."

■ At takeoff rotation from Runway 28, we were jolted by the jet blast from a B767 that had crossed Runway 28 and was stopped facing south on Taxiway F, just clear of the runway. We believe the B767 might have been powering up to continue taxi, but his engine thrust was pointed directly at our rotation point for takeoff. As we rolled by with our nose wheel off the ground, we got a severe jolt from his jet blast. Fortunately we had flying speed and became airborne immediately; nevertheless this was a close call. This is potentially unsafe and Tower Controllers should hold takeoffs until jet blast can no longer be a factor.

Taxi Versus Takeoff Scenario #2

In another instance of a B747 taxiing between parallel runways, the Captain of an A320 related how a close encounter with jet blast resulted in violent buffeting on takeoff.

■ We were instructed to taxi into position and hold on Runway 1L. Aircraft were taking off on 1L and 1R and were landing and taking off on the intersecting runways. We were cleared for takeoff and started our takeoff roll. Approaching V1 we noticed a B747-400 on Taxiway F between Runway 1L and 1R waiting to cross 1R. We reached Vr right behind the B747 and started our rotation. At liftoff our aircraft started to buffet violently left and right several times. I had to use full flight control deflection to maintain control. Once we reached about 50 feet the aircraft became controllable and everything smoothed out.

The First Officer and I surmised that the B747 was on Ground Control frequency and had been cleared to cross 1R shortly after we started our takeoff roll. Since we were on different frequencies we were not aware of his status or intentions. That aircraft obviously had to use considerable power to get rolling again and probably wanted to expeditiously cross. We just happened to rotate right into his thrust and barely recovered. Since 1L and 1R are so close together you can imagine how close we were to the rear of that aircraft. This is an extremely dangerous scenario and came close to ending tragically. This definitely needs to be addressed with Ground and Tower operations.

ASRS Alerts Issued in October 2012	
Subject of Alert	No. of Alerts
Aircraft or Aircraft Equipment	7
Airport Facility or Procedure	5
ATC Equipment or Procedure	12
Maintenance Procedure	1
TOTAL	25

395
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October 2012 Report Intake	
Air Carrier/Air Taxi Pilots	4136
General Aviation Pilots	1271
Controllers	783
Cabin	255
Mechanics	229
Dispatcher	77
Military/Other	24
TOTAL	6775