

## Accident: Emirates A345 at Melbourne on Mar 20th 2009, tail strike and overrun on takeoff

An Emirates Airlines Airbus A340-500, registration A6-ERG performing flight EK-407 from Melbourne, VI (Australia) to Dubai (United Arab Emirates) with 257 passengers and 18 crew, experienced a tail strike on takeoff from Melbourne's runway 16 (length 3657 meters/12000 feet) at around 22:30 local (11:30Z), hit the

runway end lights and the localizer antenna past the end of runway 16. The airplane climbed out safely, went to dump fuel overhead the ocean at Port Phillip Bay but returned for an immediate emergency landing when smoke started to fill the cabin about 30 minutes after takeoff. The airplane landed heavily on Melbourne's runway 34 and was able to taxi to the apron after being checked out by emergency services.

Severe abrasions occurred to the tail skin and several access panels were ripped off during the tailstrike, the landing reportedly caused additional damage to the gear.

In daylight it was established, that the airplane was still on the ground when it passed the runway end during takeoff, according gear tracks were found in the soft ground past the runway end.



The Australian Transportation Safety Board have released their **preliminary factual report** stating, that the main gear uncompressed and left ground 115 meters **past** the runway end and the tail of the airplane struck the ground **past** the end of the runway. **The crew subsequently noticed, that the aircraft weight entered into the laptop for takeoff computations was 100 tonnes less than the actual takeoff weight of 362900 kg (799400 lbs).**

Visibility was more than 10km that night, temperature was 17 degrees Celsius, winds came from 250 degrees at 5 knots, no significant weather was around.

The first officer was pilot flying for the leg, the captain was pilot monitoring for the reduced power takeoff on runway 16. The airplane reached V1 (143 knots) 1118 meters before the runway end. The captain called rotate, the first officer attempted to rotate the aircraft when the aircraft was 964 meters before the runway end, which however did not respond. The captain called again "rotate", the first officer applied more backpressure resulting in the nose lifting (886 meters before runway end) and the tail struck the runway surface 229 meters before the runway end, but the airplane did not begin to climb. The captain applied maximum thrust by moving the throttles into the TOGA detent at the runway end and the airplane



eventually commenced a climb with the main gear uncompressing 115 meters past the runway end. "During the take-off, the aircraft's tail contacted the ground beyond the end of the runway and a number of airport landing aids came into contact with the aircraft." The airplane subsequently impacted approach lighting, the instrument landing system monitoring antenna and struck the localizer antenna with its left main gear disabling the localizer function. A positive rate of climb was established 292 meters past the runway end.

The tailstrike indication illuminated in the cockpit, so that the crew requested to return to Melbourne. The airplane climbed to 7000 feet and dumped fuel over Port Philip Bay for 36 minutes. While reviewing the documentation for landing computations the crew noticed, that they had entered a weight into the laptop for takeoff computations which was 100 tonnes less than the actual takeoff weight. The wrong weight had been used to

compute the takeoff performance resulting in lower engine thrust settings and lower takeoff speeds than required.

After the fuel dump was completed and the flight crew was configuring the airplane for the landing, the cabin crew reported smoke in the cabin. The crew requested an immediate landing. The airplane landed safely on runway 34 9 minutes after the smoke report and 45 minutes after commencing the takeoff roll, rolled to the runway end and was examined by emergency services, who established no imminent danger. The airplane was able to taxi to the gate, where passengers disembarked normally.

The aircraft received abrasions at the rear lower fuselage skin, a dislodged service panel, several deformations of fuselage frames and stringers, several of which contained cracks, and cracks and deformation of the rear pressure bulkhead. A contact mark was in the inner rear tyre of the left main gear.

Damage also occurred to fixed approach lights, instrument landing system monitoring antennas and the localizer antenna.

According to a report by "The Herald Sun" (Australia) the airplane was just about 70cm above ground, when it wiped out runway approach lights about 170 meters from the end of the runway. After taking the localizer antenna out the airplane barely made it over the airport fence, 2.44 meters high.

