

Brake Anomaly Causes Overrun

Business jet was slow to accelerate for takeoff, then could not be stopped.

BY MARK LACAGNINA

The following information provides an awareness of problems that might be avoided in the future. The information is based on final reports by official investigative authorities on aircraft accidents and incidents.

JETS

'Massive Overheating'

Cessna Citation CJ1. Substantial damage. No injuries.

Unadvertent application of the parking brake or binding of the wheel brakes during the initial takeoff roll likely caused the brakes to overheat and disintegrate, resulting in the pilot's inability to safely reject the takeoff from Leeds Bradford International Airport in West Yorkshire, England, the afternoon of June 7, 2010, said the report by the U.K. Air Accidents Investigation Branch (AAIB).

The Citation overran the 2,113-m (6,933-ft) runway, rolled down an 83-m (272-ft) slope, crossed a road, slid sideways through the airport perimeter fence and came to a stop against trees. The aircraft's nose landing gear detached, the right main landing gear collapsed, and substantial damage to the wings and nose occurred during the accident. The pilot and his passenger, who owned the Citation, escaped injury.

The aircraft was departing for a flight to Cannes, France. Visual meteorological conditions (VMC) prevailed, with light and variable winds from the north, when the airport traffic controller told the pilot to line up and wait on Runway 14.

"After stopping on the runway, the pilot applied the parking brake," the report said. The pilot later told investigators that he could not recall if he released the parking brake after receiving takeoff clearance.

As the aircraft reached 80 kt, the pilot checked that the two airspeed indications agreed but sensed that the aircraft was not accelerating normally. He told the passenger, "Something's not quite right," and attempted to reject the takeoff.

He closed the throttles, applied maximum wheel braking, extended the speed brakes and radioed, "Abort, abort, abort." The controller asked if he needed assistance, and the pilot replied, "Stand by." The aircraft began to veer left and reacted slowly to the pilot's application of full right rudder.

The airport's airside safety coordinator, who was in a stationary vehicle near the runway, saw flames emerge from the right main landing gear about two seconds after the pilot reported that he was aborting the takeoff.

The controller also saw a burst of flame and radioed, "You've got a fire on the right-hand side."

"The pilot reported that, by that stage, the brakes were totally ineffective," the report said. "As the aircraft approached the end of the paved surface, the pilot attempted to pull the emergency brake handle, but he accidentally pulled the auxiliary gear [extension] handle instead, which was immediately to its right. When he managed to pull the emergency brake handle, it had no effect, and the aircraft ran off the end of the



runway. ... As the aircraft left the hard surface, the owner moved the throttles to the 'OFF' position to shut down the engines."

Examination of the right wheel brake assembly revealed "massive overheating," the report said. "The right brake ... and most elastomeric seals had disintegrated. The left brake had not broken up, but similar ... overheating had caused some melting and distortion of friction pads and stators."

A trail of hydraulic fluid was found on the runway. "The trail of hydraulic fluid and the fire reported by witnesses were consistent with hydraulic fluid coming into contact with very hot components of the right brake," the report said.

The report concluded that "both brakes overheated due to their being on, at least partially, during the takeoff roll and also possibly during taxi to the runway." However, there was insufficient evidence to support or discount any of the three likely scenarios considered during the investigation: that the parking brake had not been disengaged before takeoff; that toe braking inadvertently was applied during the takeoff roll; or that the brakes were binding.

The parking brake is engaged by pressing the toe brakes and pulling the handle to trap hydraulic pressure in the brake lines. If sufficient pressure is applied to the toe brakes before the handle is pulled, the system is designed to trap enough brake pressure to prevent the aircraft from moving even if full thrust is applied. However, if the handle is pulled after the toe brakes are pressed just enough to bring the aircraft to a stop from taxiing speed, the trapped pressure likely is not sufficient to lock the wheels against takeoff thrust.

Although the pilot could not recall whether he released the parking brake before takeoff, initial postaccident examination of the aircraft by airport personnel revealed that the parking brake handle was in the disengaged position. However, the report said there was insufficient evidence to corroborate that the parking brake was released fully before takeoff.

The possibility that one or both occupants applied the toe brakes "seemed unlikely, especially as equal pressure would have to have been

applied to both brake pedals, but the possibility could not be discounted," the report said.

A review of brake-related incidents involving Citation CJ1s could not corroborate "anecdotal evidence" that the brakes are prone to binding, the report said. It cited a takeoff that was rejected successfully at Jersey, Channel Islands, in September 2008 after the flight crew sensed slow acceleration and were told that smoke was emerging from the right brake assembly. The air safety report subsequently filed by the operator said, "There is a known problem with binding brakes on the CJ series, whereby if the parking brake is applied when the brakes are hot, the brake discs can sometimes bind."

Although Cessna told the AAIB that its records showed that binding brakes are not a common problem in CJ1s, "this possibility also could not be discounted" as a factor in the accident at the Leeds Bradford airport, the report said.

Adrift in the Clouds

Boeing 737-400. No damage. No injuries.

Miscommunication and neglect of standard operating procedure (SOP) were among the factors that caused the 737 to stray beyond the confines of a nonprecision approach while descending in instrument meteorological conditions (IMC) to land in Darwin the morning of Dec. 17, 2008, according to the Australian Transport Safety Bureau (ATSB).

When the aircraft broke through the clouds about 700 ft above ground level (AGL), the airport traffic controller saw that it was not aligned with the runway and told the flight crew to go around. The crew complied and subsequently landed the aircraft without further incident.

The ATSB's final report on the incident, issued in March 2011, said that the aircraft was inbound on a scheduled passenger flight to Darwin from Denpasar, Indonesia. The estimated time of arrival was 0500 local. There were widespread rain showers in the Darwin area; visibility at the airport was 4,000 m (2 1/2 mi) in moderate rain, and the ceiling was broken at 500 to 700 ft.

The 737 was over the Timor Sea, about 200 km (108 nm) northwest of Darwin, when the

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crew diverted 40 km (22 nm) north of course to avoid thunderstorms. An approach controller subsequently told the crew that when they were clear of the weather, they could expect clearance to fly directly to NASUX, the initial approach fix for the VHF omnidirectional radio (VOR) approach to Runway 11. NASUX is 17.6 km (9.5 nm) northwest of the runway threshold.

The aircraft was almost directly north of the airport when the crew reported that they were clear of the hazardous weather. “The approach controller asked the flight crew if they could accept a clearance to track to NASUX,” the report said. The crew replied that they could intercept the final approach course, 105 degrees, about 12 km (6 nm) from the runway threshold — that is, inside NASUX.

“The approach controller then instructed the flight crew to maneuver west of NASUX as required to track direct to NASUX for a straight-in approach to Runway 11 via the Runway 11 VOR approach and to contact the tower when established on final,” the report said. “In response, the flight crew correctly read back the tower frequency and included the phrase ‘straight-in approach Runway 11’ in their transmission [but did not read back] the approach controller’s instruction to track via NASUX for the Runway 11 VOR approach.”

The controller repeated the clearance for a “straight-in-approach via NASUX,” but the crew’s reply indicated only that they understood they were cleared for a straight-in-approach. The crew then initiated a descent below 3,000 ft, the initial approach altitude, without clearance. The 737 was nearing 2,000 ft when the controller reminded the crew that the initial approach altitude was 3,000 ft. “The flight crew responded that they were at 2,000 ft to ‘intercept ... runway course,’” the report said.

The aircraft was 12 km northwest of the airport when the crew requested clearance to descend to 1,500 ft. The controller cleared them to descend to 1,600 ft, the published minimum safe altitude. After leveling at 1,600 ft, the crew turned left 8 km (4 nm) from the runway threshold to track the final approach course, 105 degrees.

The 737 was not established on the VOR approach, however. Contrary to company SOP that requires crews to monitor raw data from the approach aids — in this case, the VOR and the distance measuring equipment — the crew was using as their primary means of navigation the electronic flight instrument system’s map mode, which was displaying data provided by the inertial reference system (IRS). Because of drift, or the tendency for IRS positioning accuracy to deteriorate during long overwater flights, the IRS data were not suitable for an instrument approach. As a result, the aircraft was unknowingly being flown parallel to, and 600 m (1,969 ft) north of the VOR final approach course as the crew continued the descent toward 500 ft, the minimum descent altitude.

“In consequence, the aircraft was below the minimum [safe] altitude in IMC without being on an instrument approach, increasing the risk of collision with terrain,” the report said.

As the crew complied with the airport traffic controller’s instruction to go around, the aircraft reached a minimum altitude of 513 ft, or about 417 ft AGL, abeam the runway threshold. The crew then conducted the VOR approach via NASUX and landed the 737 on Runway 11.

The aircraft was of Indonesian registry, but the report did not specify the nationality of the pilots. Nevertheless, it said, “There was no evidence that language proficiency or comprehension of spoken English were factors in the incident.”

Communication, however, was a contributing factor. The crew’s incomplete readbacks of their clearances should have prompted the approach controller to seek correct readbacks, the report said, noting that the absence of challenges to their readbacks “likely confirmed for the flight crew that their erroneous interpretation of the controller’s instructions was, in fact, the controller’s intent.”

Damage Undetected Before Takeoff

Bombardier Challenger 604. Substantial damage. No injuries.

Visibility was 1 1/4 mi (2,000 m) in heavy rain, the ceiling was broken at 400 ft, and surface winds were from 120 degrees at 16

The IRS data were not suitable for an instrument approach.

kt, gusting to 23 kt, at Vineyard Haven, Massachusetts, U.S., the afternoon of Sept. 27, 2009. Nearing the airport, the pilot-in-command (PIC) elected to use an approach speed of 135 kt and a flap setting of 30 degrees for the instrument landing system (ILS) approach to Runway 24.

Although the airplane operating manual (AOM) recommended selection of the minimum flap setting appropriate for the runway when wind shear is expected, “the airplane was certified for normal landings with the flap system at 45 degrees, only,” said the report by the U.S. National Transportation Safety Board (NTSB). “The manufacturer did not provide for a flap setting of 30 degrees except for a flap system malfunction.”

Both pilots said the approach was stabilized until the Challenger encountered wind shear when the PIC began the landing flare 15–20 ft above the runway. The airplane touched down hard at about 150 kt, bounced about 20 ft off the runway, touched down again nose-wheel-first and bounced about 10 ft before being landed.

After the two passengers deplaned, the pilots inspected the airplane but found no abnormalities. During departure about 15 minutes later, the nose landing gear light remained illuminated when the crew attempted to retract the landing gear. The PIC decided to divert the flight to Windsor Locks, Connecticut, where the airplane was landed safely.

“Subsequent inspection of the airplane by a Federal Aviation Administration inspector revealed substantial damage to the nose section of the airplane, which included wrinkling at the forward pressure bulkhead,” the report said.

Data downloaded from the enhanced ground-proximity warning system (EGPWS) indicated that a “TOO LOW, FLAPS” warning had been generated at about 300 ft AGL during the approach to the Vineyard Haven airport and that a “SINK RATE” warning had been generated at about 50 ft AGL. “There were no wind shear alerts generated by the EGPWS,” the report said.

The report noted that the AOM reference about using the minimum flap setting when wind shear is expected was deleted by the manufacturer after the accident.

‘Dust’ Factors in CB Panel Fire

Airbus A319-131. Minor damage. No injuries.

The commander’s primary flight display and navigation display went blank when the no. 1 generator was engaged after the no. 1 engine was started in preparation for departure from London Heathrow Airport the night of March 15, 2009. The flight crew conducted the relevant checklists and, after resetting the generator, heard a loud noise that emanated from the right circuit breaker (CB) panel. The pilots detected the odor of an electrical fire but saw no smoke.

The flight crew shut down the engines and instructed the ground crew to tow the A319 back to the stand, where the 87 passengers and six crewmembers deplaned normally.

“Subsequent investigation revealed evidence of a significant electrical overheat in the area behind the right CB panel,” the AAIB report said. “The initiation of the electrical fault and subsequent overheating could not be fully established but was considered to be most likely due to the presence of a loose article. The presence of ‘dust’ [fibrous material] in the area was also considered a contributory factor.”

The loose article “could have come from a number of sources, and it is likely that it vaporized ... due to the fire,” the report said. It noted that Airbus in 2007 introduced requirements for periodic inspection and cleaning of electrical wiring interconnection systems (EWIS). The requirements were to be incorporated by operators no later than March 2011.

The introduction of the new EWIS requirements into scheduled maintenance “should reduce the recurrence of electrical faults from foreign objects and debris,” the report said.

TURBOPROPS

Overrun on Short, Wet Runway

Beech King Air A200. Substantial damage. No injuries.

The pilot’s decision to land with a slight tail wind on a short, wet, ungrooved and down-sloping runway resulted in a long landing and an overrun during a functional check flight at Bridgewater (Virginia, U.S.) Air



Park the afternoon of Sept. 25, 2008, according to NTSB.

The pilot told investigators that he had planned a “quick, around-the-pattern” post-maintenance flight to check the pressurization system. Surface winds at a local airport were from 070 degrees at 5 kt when the pilot took off, with a maintenance technician aboard, from Bridgewater’s Runway 33. The runway is 2,745 ft (837 m) long, with 2,377 ft (725 m) available for landing due to approach obstructions and a displaced threshold.

After performing the pressurization checks, the pilot attempted to land on Runway 33. “The pilot executed a go-around after touchdown on his first landing attempt, stating that something did not feel right,” the NTSB report said.

On the second attempt, the King Air touched down more than 300 ft (91 m) beyond the displaced threshold. The pilot applied wheel braking and reverse thrust, but “because the runway was wet, the braking action was poor, and he realized that he was probably going to overrun the end of the runway,” the report said. “However, he elected not to go around due to the airplane’s low indicated airspeed, the configuration of the airplane, the remaining runway, the rising terrain, and the presence of houses.”

Wet grass off the end of the runway further decreased braking action. The King Air rolled down a steep embankment and into a river, sustaining substantial wing damage. The pilot and maintenance technician escaped injury.

The report said that a contributing factor in the accident was the absence of guidance by the airplane operator for conducting functional check flights.

Access Door Separates on Takeoff

Bombardier Dash 8-402. Substantial damage. No injuries.

Unscheduled maintenance and a daily inspection had been performed by maintenance personnel before the flight crew began preparations for an early morning departure with 40 passengers and four crewmembers from Southampton (England) Airport

on April 22, 2010. Neither the flight crew nor the ground crew who deiced the aircraft noticed any abnormalities.

“A pilot sitting in a parked aircraft saw a panel thrown upwards from [the Dash 8] during its takeoff roll,” the AAIB report said. “He reported this to ATC [air traffic control], who passed the information to the flight crew.” The crew returned to the airport and landed the aircraft without further incident.

Examination of the Dash 8 revealed that the inboard forward access door on the no. 2 engine had separated and struck the leading edge of the right wing during takeoff. “The lower latches of the door were found in the fully open position, indicating that the door had not been secured following maintenance,” the report said.

Aquaplaning Report Not Relayed

ATR 72-500. Substantial damage. No injuries.

A notice to airmen advised that only 1,703 m (5,588 ft) of Runway 27 was available for takeoff and landing because of runway maintenance at Mumbai (India) Airport on Nov. 10, 2009. Light rain was falling and there was standing water on the runway when the flight crew of an Airbus A319, which preceded the ATR 72 on approach, told the airport traffic controller that their aircraft had aquaplaned and struck two runway edge lights during the landing roll.

The controller acknowledged the report and sent airport personnel to inspect the runway. “The [controller] was not familiar with the terminology of ‘aquaplaning’ and, not realizing the seriousness of it, cleared [the ATR 72 crew] for landing” without relaying the A319 crew’s aquaplaning report, said the Air Safety Directorate of India in its final report on the accident. The controller told the ATR crew that the runway was wet but did not mention that there were patches of water on the surface.

The ATR 72’s approach was not stabilized; the aircraft was substantially above the required glide path. The PIC disengaged the autopilot and increased the aircraft’s nose-down pitch attitude. The report said that although the EGPWS

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generated continuous “SINK RATE” warnings, the crew did not perform a go-around.

The aircraft touched down at an abnormally high airspeed with about 1,000 m (3,281 ft) of runway remaining. The tires aquaplaned on the wet runway, and the aircraft did not decelerate adequately although full reverse thrust and maximum wheel braking were applied by the pilots.

The aircraft was skidding left and nearing the end of the runway when the PIC initiated a right turn. The aircraft veered off the right side of the runway, rolled over several exposed drainage pipes and struck a ditch before coming to a stop. The 38 passengers and four crewmembers were not hurt, but the aircraft was substantially damaged.



PISTON AIRPLANES

Self-Induced Pressure to Land

Partenavia P68C. Destroyed. Three fatalities.

A charter operator based in Key West, Florida, U.S., received a late-night call from a person who was on a kidney-transplant waiting list. “The individual stated that an organ was available in Gainesville [Florida] and that he’d have to get there quickly for surgery the following morning,” the NTSB report said.

The Partenavia departed from Key West at 0037 local time on Nov. 7, 2008, with the individual and his wife aboard. The airplane was nearing Gainesville when a flight service specialist told the pilot that the airport had 1/4 mi (400 m) visibility in fog and an indefinite ceiling with vertical visibility of 100 ft.

The pilot conducted the ILS approach to Runway 29 and descended below the published decision height. The airplane struck 100-ft trees about 4,150 ft (1,265 m) from the runway at 0246.

“Given that the pilot was aware of the weather conditions before and during the approach, it is possible that the pilot’s goal of expeditiously transporting a patient to a hospital for an organ transplant may have affected his decision to initiate and continue an instrument approach while the weather conditions were

below the published minimum requirements for the approach,” the report said, noting that better weather conditions prevailed at nearby airports.

Simulated Engine Failure

Piper Twin Comanche. Destroyed. Two fatalities.

Two private pilots were aboard the PA-39 when it took off from Vannes (France) Meucon Aerodrome the afternoon of Aug. 25, 2007. The pilot in the right seat owned the aircraft; he had a current multiengine rating but did not have a flight instructor certificate. The pilot in the left seat likely was the pilot flying; she held a multiengine rating that had expired five years earlier, according to the report by the Bureau d’Enquêtes et d’Analyses.

Surface winds were from 060 degrees at 10 kt when the Twin Comanche took off from Runway 04, which is 1,530 m (5,020 ft) long. Witnesses told investigators that the takeoff roll was abnormally long and the groundspeed seemed low when the aircraft lifted off the runway. It then rolled right and struck the ground.

Examination of the wreckage revealed that the right engine was producing low power on impact. “No technical faults with this engine or the corresponding fuel supply system were found,” the report said. “It is therefore likely that the reduced power of the right engine was the result of a deliberate action by one of the two pilots, conducted as part of an engine-failure-during-takeoff exercise. ... The decision to perform training flights outside the formal framework of instruction and the lack of the requisite qualifications were major contributing factors in this accident.”

Mallard Penetrates Windshield

Beech B55 Baron. Substantial damage. One serious injury.

The public-use airplane was being used for an instrument instructional flight from Bismarck to Hazen, both in North Dakota, U.S., the night of April 6, 2010. VMC prevailed, and the pilot flying was wearing a view-limiting device when the Baron struck several mallards while descending through 4,200 ft over Center, North Dakota.

The pilot later told NTSB investigators that he heard a loud pop and felt a “violent rush of air” when the bird strike occurred. “The flight instructor, seated in the right seat, sustained serious injuries when one duck penetrated the right cockpit windshield and struck his face,” the report said.

The pilot declared an emergency, turned back to Bismarck and landed the Baron without further incident. Examination of the airplane revealed that the leading edge of the right wing and the nose cone also had been damaged during the bird strike.

HELICOPTERS

Tail Strike on Ship Deck

Bell 222B. Substantial damage. No injuries.

Crewmembers of a ship anchored in the Gulf of Mexico, about 71 nm (131 km) from Galveston, Texas, U.S., were directing the pilot to land on a “winch only” area of the ship’s deck the afternoon of April 8, 2009, the NTSB report said.

The tail rotor struck a valve assembly protruding from the deck, and the helicopter yawed about 60 degrees right. The tail then struck the ship’s side rail, and the helicopter came to rest upright on the deck. None of the five occupants of the helicopter and no one aboard the ship was hurt. Examination of the helicopter revealed substantial damage to the fuselage, tail boom, horizontal stabilizer and the tail rotor blades, rotor hub and gearbox.

In his accident report, the pilot wrote, “Pilots need to use extreme caution when conducting confined-area shipboard landings. Be especially vigilant for obstacles that are painted the same color as the deck.”

Windsock Cited in Control Loss

Bell 206L-3. Substantial damage. Two serious injuries, one minor injury.

An improperly installed windsock was a factor in the LongRanger’s loss of tail rotor effectiveness while landing at a private helipad in Mysore, India, the morning of Jan. 18, 2008, said the report by the Air Safety Directorate of India.

The windsock had been installed close to a wall and to trees that obstructed the free flow of air around it, the report said. The pilot, who was making his first landing at the helipad, told investigators that the windsock was indicating winds from 050 degrees at 3 kt, so he conducted the initial approach on a 050-degree heading.

The pilot said that he was establishing a hover at 10 ft over the center of the helipad when the helicopter began to yaw right. “He immediately lowered the collective lever and applied left rudder pedal; however, the helicopter continued to turn right until it contacted the ground,” the report said. The left landing skid separated, and the LongRanger rolled over. Two passengers were seriously injured; one passenger and the pilot sustained minor injuries; and one passenger escaped injury.

The report said that rather than the head wind indicated by the windsock, the helicopter likely encountered a tail wind or left crosswind while at high power and in low-speed flight, which resulted in loss of tail rotor effectiveness.

Wires Struck During Autorotation

Schweizer 269C-1. Destroyed. Two fatalities.

The helicopter departed from Weston Executive Airport in Dublin, Ireland, for an instructional flight the afternoon of April 1, 2009. ATC received no further radio transmissions from the helicopter after it was flown into uncontrolled airspace, said the report by the Irish Air Accident Investigation Unit.

A search was launched the next morning, after family members reported that the pilot and flight instructor were missing. A coast guard helicopter crew found the wreckage of the Schweizer near Kilshanchoe.

Witnesses said that the helicopter had disappeared after making a steep descent. Investigators concluded that the Schweizer likely had struck disused electrical power lines while transitioning from a practice autorotative landing. “The external surface of the cables had oxidized over time from bright aluminum to a dull gray color,” the report said. 🌀



Preliminary Reports, February 2011				
Date	Location	Aircraft Type	Loss Type	Injuries
Feb. 3	British Columbia, Canada	Eurocopter AS 350	major	1 minor/none
After dropping off skiers about 160 nm (296 km) northwest of Smithers, the helicopter encountered clouds and struck snow-covered terrain. The pilot released his seat belt and was ejected as the helicopter rolled down the mountain.				
Feb. 5	Sulaimaniya, Iraq	Hawker Beechcraft Hawker 850XP	total	7 fatal
The aircraft crashed after the right engine apparently failed during a night takeoff with 1,500 m (about 7/8 mi) visibility in snow and mist.				
Feb. 8	Fragagnano, Italy	Breda-Nardi 369 (MDD 500)	major	2 minor/none
The helicopter rolled over and floated inverted after it was ditched in a reservoir following a loss of power.				
Feb. 8	Robberg, South Africa	Pilatus PC-12	total	9 fatal
The aircraft crashed in Plettenberg Bay during a go-around in thick fog.				
Feb. 9	Kasabonika, Ontario, Canada	Beech 1900	major	15 minor/none
Winds were from 300 degrees at 10 kt, gusting to 18 kt, when the aircraft touched down on Runway 30, a gravel strip that was covered with packed snow and patches of ice. The 1900 veered off the left side of the runway, and the flight crew shut down the engines before it struck a snowbank.				
Feb. 10	Cork, Ireland	Fairchild (Swearingen) Metro	total	6 fatal, 6 serious
Visibility was 400 m (1/4 mi) and there was a broken ceiling at 100 ft when the Metro rolled inverted and crashed on the runway during an attempted go-around. The flight crew had conducted two previous ILS approaches and missed approaches.				
Feb. 12	Bintan Island, Indonesia	Indonesian Aerospace 212	total	5 fatal
The aircraft crashed during a reportedly unauthorized functional check flight following replacement of an engine.				
Feb. 13	Port-au-Prince, Haiti	BAE Systems Jetstream 31	total	21 minor/none
The flight crew was unable to extend the left main landing gear, and the aircraft veered off the left side of the runway during the landing roll.				
Feb. 14	Muhinga, Democratic Republic of Congo	Let 410 Turbolet	total	2 fatal
The aircraft struck a mountain shortly after departing from Kavumu for a cargo flight.				
Feb. 14	Las Mesitas, Honduras	Let 410 Turbolet	total	14 fatal
Visibility was reduced by fog when the aircraft struck terrain about 5 km (3 nm) from the runway during a nonprecision approach to Tegucigalpa.				
Feb. 14	Appleton, Wisconsin, U.S.	Gulfstream Aerospace G-550	major	3 minor/none
The aircraft was on a functional check flight when it overran a dry, 6,501-ft (1,982-m) runway on landing.				
Feb. 16	Medina, Saudi Arabia	Boeing 747	major	265 minor/none
The left main landing gear collapsed after the 747 veered off the runway during a night landing.				
Feb. 16	Grenchen, Switzerland	Cessna Citation CJ1	major	2 minor/none
The aircraft became airborne after overrunning the runway on takeoff and striking several obstructions. The pilots then diverted to Zurich for an uneventful emergency landing.				
Feb. 17	Valais, Switzerland	Eurocopter AS 350	total	4 serious, 2 minor/none
The helicopter crashed about 50 ft below its intended landing site while transporting skiers to a mountain glacier.				
Feb. 18	Rionegro, Colombia	Bell 206	total	4 fatal
Adverse weather conditions prevailed when the helicopter crashed in an area of high ground.				
Feb. 18	Pachuca, Mexico	Learjet 24	total	2 fatal
The Learjet crashed into a building after the pilots apparently lost control on approach.				
Feb. 21	Altamira, Brazil	ATR 72	major	52 minor/none
The aircraft veered off the runway after its left main landing gear collapsed on landing.				
Feb. 23	Jeju Island, South Korea	Agusta Westland 139	total	5 fatal
The helicopter crashed in the Yellow Sea about 93 km (50 nm) west of Jeju Island after picking up a patient from a coast guard vessel.				
Feb. 27	Al Ain, United Arab Emirates	Grumman Goose	total	4 fatal
The amphibious aircraft struck terrain during a night takeoff from a runway.				

This information is subject to change as the investigations of the accidents and incidents are completed.
 Source: Ascend