

Wake Turbulence Triggers Control Loss

Challenger pilot could not correct an uncommanded roll during landing.

BY MARK LACAGNINA

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

JETS

Another Jet Departed in Opposite Direction

Canadair CL-600. Substantial damage. No injuries.

The airplane was inbound to land on Runway 15 at Aspen-Pitkin (Colorado, U.S.) County Airport in daytime visual meteorological conditions (VMC) on Feb. 9, 2006. While clearing the flight crew to land, the tower controller said that the winds were calm.

The pilot told investigators that the airplane was 50 ft above ground level (AGL) when it encountered wake vortices from a British Aerospace BAe 146 that had departed from Runway 33. The Challenger rolled into a steep left bank, and the stall-warning horn sounded. The pilot increased power. The airplane then rolled steeply right and pitched nose-down. The pilot said that he was unable to stop the roll, and the right main landing gear struck the runway.

“The right main landing gear strut penetrated the right wing, the leading edge of the right wing was crushed aft, and the right aft wing

spar was bent and buckled,” said the report by the U.S. National Transportation Safety Board (NTSB). The pilot, copilot and passenger were not injured.

NTSB said that the probable cause of the accident was “the flight’s encounter with wake turbulence from the departing airplane, resulting in the pilot’s inability to control the airplane.”

Brake Failure Leads to Ground Accident

Boeing 737-8AS. Minor damage. No injuries.

The aircraft was landed and taxied to a stand at Glasgow-Prestwick (Scotland) Airport on Nov. 26, 2005. Approaching the parked aircraft, the driver of a baggage belt-loading vehicle applied the wheel brakes, but the brake pedal went to the floor without slowing the vehicle. The driver tried unsuccessfully to engage the parking brake. The vehicle struck the aircraft, denting the lower fuselage aft of the front cargo hold and breaking a radar antenna.

The U.K. Air Accidents Investigation Branch (AAIB) report said that the hydraulic brake pipe had fractured, causing a loss of fluid and pressure for the brake cylinder, and a hand-brake cable had seized, rendering the hand brake inoperative. “The impending brake pipe failure and the defective parking brake might have been detected had a daily check, or quarterly service,



together with an effective defect-reporting system been used,” the report said.

AAIB recommended that the U.K. Civil Aviation Authority “remind airport operators that their safety management systems should ensure that safe standards of maintenance and use are applied to all vehicles and mobile ground equipment used in the proximity of aircraft.”

Wet-Runway Overrun

Cessna 525 CJ1. Substantial damage.

One minor injury, two uninjured.

The pilot conducted a go-around after losing sight of the runway during a visual approach to Old Bridge (New Jersey, U.S.) Airport on July 17, 2005. Clouds associated with a nearby thunderstorm had moved into the area, said the NTSB report. The pilot requested and received clearance to conduct a global positioning system (GPS) approach to Runway 24.

An airport 14 nm (26 km) from Old Bridge was reporting surface winds from 160 degrees at 11 kt, gusting to 14 kt, 10 mi (16 km) visibility and a broken ceiling at 1,500 ft.

Performance data in the aircraft flight manual (AFM) indicated that at the airplane’s landing weight of 9,500 lb (4,309 kg), landing distance on a dry runway, with no wind, was 2,770 ft (845 m). However, the report said that the runway was wet, increasing the no-wind landing distance to 3,550 ft (1,083 m). Runway 24, the only runway at the airport, has a 400-ft (122-m) displaced threshold and an available landing length of 3,194 ft (974 m).

Landing reference speed, V_{REF} , was calculated as 107 kt. The airplane was about 0.1 nm (0.2 km) from the runway threshold when its terrain awareness and warning system (TAWS) generated a “SINK RATE” warning. Data obtained from the TAWS indicated that the airplane’s groundspeed was 133 kt and its descent rate was 1,522 fpm.

TAWS data also indicated that the airplane touched down about 815 ft (249 m) beyond the displaced threshold. The pilot attempted to reject the landing when he realized that the airplane could not be stopped on the runway. He

applied full power and retracted the flaps to the takeoff position, but the airplane did not accelerate to flying speed. It overran the runway and struck several objects before coming to a stop 400 ft (122 m) beyond the departure end.

NTSB said that the probable causes of the accident were “the pilot’s improper preflight planning, his failure to consult performance data and his failure to obtain the proper touchdown point.”

Blocked Grease Fitting Causes Nosewheel Jam

BAE Systems Avro RJ85. Substantial damage. No injuries.

Soon after takeoff from the Gothenborg/Landvetter (Sweden) airport in nighttime VMC on March 10, 2006, the flight crew observed an indication that the nose landing gear had not retracted. The crew made several unsuccessful attempts to resolve the problem and then requested and received clearance to return to the departure airport, said the report by the Swedish Accident Investigation Board (SHK).

Air traffic control (ATC) approved the crew’s request to conduct the instrument landing system (ILS) approach to Runway 03 and conduct a low pass near the control tower. After being told that ground personnel believed that the landing gear was extended, the crew landed the aircraft on Runway 03. The report said that the aircraft touched down smoothly on the main landing gear at about 100 kt; however, the nose landing gear collapsed soon after it was lowered onto the runway. “The nose of the aircraft hit the runway and the aircraft slid further, supported by its nose and the main landing gear for about 300 m [984 ft] before it stopped,” the report said. There was no fire. The four crewmembers and 28 passengers were not injured.

The report said that the technical investigation showed that the accident was caused by “seizure of the nosewheel-locking mechanism as a result of a blocked grease nipple, which prevented correct lubrication.”

The report noted that the evacuation of passengers through the left rear door had been difficult because a cabin crewmember had been

Clouds associated with a nearby thunderstorm had moved into the area.

unable to lock the door in its full-open position. “Certification requirements for emergency evacuation from an inclined aircraft do not contain a requirement for the door to be capable of being secured in the open position,” the report said. As a result of this finding, SHK recommended that the European Aviation Safety Agency (EASA) “ensure that physical strength is not a decisive factor for opening and locking emergency exits on aircraft ... even in the case of abnormal tilting angles.”

Learjet Hits Van After Engine Start

Learjet 45. Substantial damage. One serious injury.

The aircraft was at a stand at London Gatwick Airport and was being prepared for a flight to Paris the evening of March 17, 2006. The copilot set the parking brake and started the right engine to provide electrical power and air-conditioning for the cabin. The aircraft was not equipped with an auxiliary power unit. While moving out of his seat, the copilot inadvertently moved the right thrust lever nearly to the detent for maximum cruise power, said the AAIB report.

The report said that the copilot had not activated the auxiliary hydraulic pump before setting the parking brake, and there might not have been sufficient pressure in the accumulator to apply the wheel brakes. If there was sufficient pressure, the wheel brakes likely were overcome by the thrust being produced by the engine. The nosewheel had been chocked with relatively lightweight chocks carried aboard the aircraft, but the chocks were pushed aside when the aircraft began to move forward while accelerating rapidly.

The captain, who was stowing his baggage in the rear of the cabin, observed that the aircraft was moving and called to the copilot, who did not hear him. While moving forward through the cabin, the captain fell out of the aircraft through the open door and was seriously injured. A ramp-handling agent was knocked to the ground by the aircraft.

The left wing struck a parked service van. The aircraft pivoted almost 180 degrees around

the van and came to a stop against it. By then, the copilot had moved back into his seat; he closed the right thrust lever and shut down the engine.

TURBOPROPS

Crew Had ‘No Viable Landing Option’

Beech King Air A100. Substantial damage. No injuries.

The aircraft was on a scheduled flight from Purvirnituk, Quebec, Canada, to Kuujuaq, in northern Quebec, the evening of Dec. 24, 2004. The report by the Transportation Safety Board of Canada (TSB) said that weather conditions at the destination were worse than had been forecast.

The King Air was 97 nm (180 km) from the airport when a Kuujuaq Flight Service Station (FSS) specialist told the flight crew that the winds were from 310 degrees at 28 kt, gusting to 38 kt; visibility was 1/8 mi (200 m); vertical visibility was 200 ft; and Runway 07 RVR (runway visual range) was 2,600 ft (800 m) with moderate snow, heavy blowing snow and drifting snow. The specialist also said that Runway 07 was covered with frost and compacted snow, and that there were 6-in (15-cm) snowdrifts covering almost half of Runway 31.

The crew requested and received information from the FSS specialist on weather conditions at three alternate airports. The crew then advised the company’s dispatch office that they would attempt one approach at Kuujuaq and, if unable to land, proceed to an alternate airport.

The captain, who had 5,500 flight hours, including 1,500 flight hours in type, was the pilot flying. He told the first officer that they would conduct the ILS approach to Runway 07 and land on that runway or on Runway 31 if the winds were still strong.

However, the report said that the crew had no viable landing option at Kuujuaq. During the approach, the pilots were told three times that the winds were from 320 degrees at 30 kt, gusting to 45 kt. The reported ceiling was below the minimum descent altitude for a circling approach to Runway 31. “Regardless, the surface of Runway 31 was 40 percent covered with



The aircraft had a crosswind component of 28 kt to 44 kt and a tailwind component between 10 kt and 15 kt.

six-inch snow drifts,” the report said. Landing on Runway 07, the aircraft had a crosswind component of 28 kt to 44 kt and a tailwind component between 10 kt and 15 kt.

A crosswind and runway-friction-index reference chart in the Canadian *Aeronautical Information Publication* indicates that, with the wind conditions that existed at Kuujjuaq, a landing should be attempted only on a dry runway. “Use of the crosswind chart in preparation for landing on Runway 07 at Kuujjuaq would have clearly shown that a landing [on the contaminated runway] would have little chance of success,” the report said.

The crew said that the drift angle required to maintain the localizer was not excessive, and they obtained visual contact with the runway environment after crossing the final approach fix. The captain decided to land on Runway 07. “Immediately after landing, the aircraft started skidding to the right and departed the landing surface, coming to rest 1,600 ft [488 m] from the threshold and 40 ft [12 m] to the right of the runway,” the report said. “The captain advised the FSS of the runway excursion, and help was sent to assist the four passengers and crew.”

Engine Loses Power During Steep Takeoff

Mitsubishi MU-2B-25. Destroyed. Four fatalities.

Pilots who witnessed the accident said that after the aircraft lifted off the runway at Portland–Hillsboro (Oregon, U.S.) Airport on May 24, 2005, it entered a nose-high pitch attitude of about 40 degrees, climbed to about 1,000 ft AGL, rolled into a steep left bank, pitched nose-down and spun to the ground. The pilot and three passengers were killed.

The NTSB report said that the AFM indicated that the takeoff climb performance described by the witnesses could have been achieved only by maintaining airspeed below 100 kt — the minimum control speed with the critical engine inoperative, V_{MC} — and near 86 kt, the power-off stall speed with flaps extended 5 degrees. Normal climb speed under the existing conditions was 125 kt.

Investigators determined that a partial loss of power from the left engine had occurred. A teardown examination of the engine indicated

that the high-speed pinion bearings in the gearbox had failed after a fatigue-induced failure of an oil-supply tube.

The pilot had purchased the aircraft about a month before the accident occurred. “The pilot had stated to personnel at the place where he purchased the aircraft that he had not received, nor did he need, recurrent training in this aircraft as he had several thousand hours in the aircraft,” the report said. “Flight logs . . . indicated that the pilot had accumulated about [2,170 flight hours, including] 551 hours in a Mitsubishi; however, the last time that the pilot had flown this make and model was 14 years prior to the [purchase of the aircraft]. Logbook entries indicated that only a few hours of flight time had been accumulated in all aircraft during the approximately two years prior to the accident.” The pilot had flown the MU-2 about 11 hours after purchasing it.

NTSB said that the probable cause of the accident was “the pilot’s failure to obtain minimum controllable airspeed during the takeoff climb, which resulted in a loss of aircraft control when the left engine lost partial power.” The board said that the pilot’s failure to follow procedures, his lack of recent experience and recurrent training, and the oil-tube failure were contributing factors.

No Explanation for Control Loss

Reims Cessna F406 Caravan II. Destroyed. One fatality.

The AAIB said that because of extreme fragmentation of the wreckage and the absence of recorded flight and voice data, no conclusions could be made on what might have caused the twin-turboprop aircraft to depart from controlled flight soon after the pilot began a descent in instrument meteorological conditions (IMC) to land at Inverness, Scotland, the morning of Oct. 22, 2004. The aircraft was in a steep spiral dive when it struck the ground at about 350 kt.

The trip had begun at Inverness about five hours earlier, and the pilot, who had 2,735 flight hours, including 510 flight hours in type, had completed four flight segments transporting newspapers and magazines to Scotland’s northern and western islands. There was no

cargo aboard the aircraft for the fifth segment, a positioning flight to Inverness from Stornoway. The last radio transmission received from the pilot was his acknowledgement of clearance to descend from cruise altitude, Flight Level 95 (about 9,500 ft), to FL 75. He did not respond to subsequent calls from ATC.

A mountain rescue team found the wreckage the next day on a 2,500-ft ridge 30 nm (56 km) northwest of Inverness. “The severity of the impact had scattered the aircraft over a wide area and into many pieces,” the report said.

The elevator trim actuators were found to be near their full nose-down positions, which might have been caused by a fault in the electric trim system or in the autopilot, the report said. The trim position also might have been set involuntarily by the pilot, who was 6 ft 4 in tall, if he had become incapacitated after striking his head on the ceiling of the cockpit during an encounter with a vertical gust. “A severe encounter could have rendered him unconscious, and if he started to regain consciousness, any involuntary arm and leg movements might have been sufficient to ‘upset’ the aircraft,” the report said.

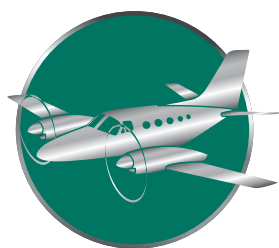
However, there was “insufficient evidence from which to draw a firm conclusion [about] the cause or causal factors for [the] rapid deviation from controlled flight,” the report said. Noting that the installation of flight data recorders in aircraft like the F406 is “impractical and economically unacceptable,” AAIB recommended that EASA “develop standards for appropriate recording equipment that can be practically implemented on small aircraft.”

PISTON AIRPLANES

Aztec Crippled by Ice

Piper PA-23-250. Substantial damage. One serious injury.

Dark nighttime IMC prevailed for the unscheduled cargo flight from Kansas City, Missouri, U.S., to Wichita, Kansas, on March 20, 2006. During his preflight weather briefing, the pilot was told that he could expect icing conditions and that the freezing level was at 1,500 ft AGL.



Soon after takeoff, the aircraft encountered icing conditions at 4,000 ft. The pilot observed that the wing deice boots were shedding the ice, and he requested and received clearance to climb to 6,000 ft. The pilot later told investigators, “After attempting to climb several times, I realized the aircraft could not climb and [had] started to buffet, and the speed was beginning to decrease.” He requested a descent to 3,000 ft and was cleared to descend to 3,200 ft, the minimum en route altitude. The pilot said that while descending, “I realized that I could not hold altitude. I was unable to level; the airplane continued to descend and buffet.”

The air traffic controller, who had lost radar contact with the airplane, asked the pilot if he could conduct a landing at Emporia (Kansas) Airport, which was nearby. The pilot replied, “No, sir. I’m going down.” The airplane struck a tree and came to rest, upright, in a field 4 nm (7 km) from the airport. NTSB said that the probable causes of the accident were “the pilot’s attempted flight into adverse weather conditions and improper in-flight planning, which resulted in loss of control.”

Neither Pilot Looked for ‘Three Green’

Piper PA-31 Navajo. Substantial damage. No injuries.

The pilot, who was receiving instruction for a class endorsement in the aircraft, said that he moved the landing gear selector to the “DOWN” position late on the downwind leg to land at Birdsville (Queensland, Australia) Airport on Nov. 12, 2005. “Both pilots reported that they usually checked for landing-gear-down indications but could not recall whether the three green ‘Down-Locked’ lights or the red ‘Not-Locked’ light were illuminated,” said the report by the Australian Transport Safety Bureau (ATSB).

The instructor said that the approach and landing were normal until the propellers struck the runway. Neither pilot recalled hearing the gear-unsafe warning horn, which sounds when a throttle is reduced below 12 in manifold pressure with the landing gear retracted.

The landing gear selector was found in the “DOWN” position after the aircraft landed

gear-up on the runway. “The pilot’s operating handbook explained that the gear selector moved from the ‘DOWN’ to a neutral position when the landing gear extension cycle was complete,” the report said. “It stated that the gear lights were the primary means of confirming the landing gear status.” The report noted that in most aircraft with retractable landing gear, the selector remains in the “DOWN” position after the gear are extended.

Post-accident tests conducted by a maintenance engineer indicated that the landing gear system operated normally. ATSB said that the investigation did not determine why the landing gear did not extend during the landing at Birdsville. “It was possible that the pilot flying did not fully engage the landing gear selector and used the position of the gear selector as an indication of landing gear extension,” the report said. “More importantly, it appeared that neither pilot confirmed that the landing gear was down and locked by checking that the three green ‘Down-Locked’ lights were illuminated.”

Descent Below Minimums

Piper PA-34-200T Seneca. Destroyed. One fatality.

The automated weather observation at Skagit Regional Airport in Burlington, Washington, U.S., the evening of Jan. 6, 2006, included 5 mi (8 km) visibility, a broken ceiling at 100 ft AGL and an overcast at 800 ft AGL. The pilot, who was inbound on an unscheduled cargo flight from Seattle, requested and was cleared to conduct the NDB (nondirectional beacon) approach. The published minimum descent altitude is 1,240 ft, or 1,096 ft above the runway touchdown zone elevation.

The airport also had two GPS approaches, but the airplane’s GPS receiver was certified only for visual flight rules navigation.

Radio and radar contact were lost soon after the pilot, who had 4,685 flight hours, including 220 flight hours in type, reported that the airplane was inbound on the procedure turn. The wreckage was found the next morning in a heavily wooded area 2,090 ft (637 m) from the runway threshold. The report said that there was

no sign of a preimpact mechanical malfunction or failure.

NTSB said that the probable causes of the accident were “the pilot’s failure to maintain the published minimum descent altitude and not adhering to the published missed approach procedures.”

HELICOPTERS

Engines Fail to Respond on Approach to Glacier

Bell 212HP. Substantial damage. No injuries.

The pilot was conducting heli-skiing operations in the Blue River area of British Columbia, Canada, on Feb. 24, 2005. He departed, alone, from the top of a glacier at 8,000 ft and conducted a downwind approach to a pick-up area at the bottom of another glacier at about 6,100 ft. The helicopter was 150 ft above the ground, and airspeed was about 30 kt, when the pilot increased collective pitch to slow the rate of descent. The engines did not respond, however, and rotor speed decreased.

“The pilot flew the helicopter toward a snow-covered, frozen lake,” said the TSB report. “The sink rate could not be arrested as the rotor rpm [revolutions per minute] had not recovered, and the helicopter landed hard, yawed right about 90 degrees and remained upright. ... After the landing, the rotor rpm appeared to start accelerating, and the pilot shut the engines down immediately.”

Investigators found that the power-turbine governors were not rigged correctly; their control arms were statically positioned at about 74 degrees, rather than the standard 85 degrees or 90 degrees. When the control arms were positioned to 90 degrees, the engines operated normally.

Pilot Loses Control in Low Visibility

Robinson R44 Raven. Destroyed. Two fatalities, one serious injury.

On the morning of July 9, 2005, the pilot telephoned the Waterford (Ireland) Airport control tower to request permission to fly from New Ross to an area over the ocean south of Waterford, so that he and



his passengers could view the beginning of a yacht race. The controller rejected the request because of low visibility and clouds in the Waterford ATC zone, said the report by the Irish Air Accident Investigation Unit (AAIU). The pilot told the controller that he would fly west and would not enter the ATC zone.

The pilot, who had 123 flight hours, including 58 flight hours in type, then filed a visual flight rules flight plan to the helicopter's home base, a heliport near Galway Airport, which is on the west coast of Ireland, about 170 km (92 nm) northwest of New Ross. The pilot estimated 50 minutes en route at 2,000 ft.

About 40 minutes after takeoff, the pilot attempted to establish radio contact with the Galway Airport control tower but received no response. "The duty controller had left the tower for a brief break," the report said. Another helicopter pilot heard the accident pilot's radio transmissions, told him that the tower was "off-air at the moment" and relayed the local altimeter setting.

"Radar tracking indicates that the helicopter slowed down and then made a sharp turn before disappearing off the screen," the report said. The wreckage was found in dense forest on a mountain slope near Derrybrien. One passenger had been killed, and the pilot died that evening in a hospital. The surviving passenger told investigators that the flight had been uneventful before the helicopter suddenly entered cloud. "We seemed to hit something, and I saw [the pilot] struggling with the controls," he said. "I remember that we went chopping through trees before coming to an abrupt halt."

Investigators determined that the pilot likely lost control of the helicopter, which was in a steep descent with a high nose-down pitch attitude when it struck the trees. The engine was producing power and the rotor blades were turning on impact. "The reports of various witnesses indicated that the cloud was sitting on the high ground in the Derrybrien area at the time of the accident and that visibility was poor," the report said.

AAIU said that the probable cause of the accident was "the pilot's loss of spatial orientation resulting from inadequate visual reference with the ground due to limited visibility."

Crosswind Thwarts Vertical Takeoff

Bell 206-L1. Substantial damage. One fatality, three serious injuries.

The pilot landed the emergency medical services helicopter on the front lawn of a residence in Gentry, Arkansas, U.S., on Feb. 21, 2005, to pick up a patient who had been severely injured in a motor vehicle accident.

"The 3,438-hour commercial pilot was unable to determine wind direction; however, he knew the wind was forecast to be out of the north between 330 and 030 degrees between 10–15 knots," the NTSB report said. Another pilot said that winds at the accident site were from 030 to 050 degrees at 10 kt or less.

The helicopter was on a 360-degree heading when the pilot conducted a vertical ascent to avoid striking the residence and 60-ft powerlines that crossed over the property. The report noted that when a helicopter is maneuvered in a high-power, low-air-speed environment, a crosswind or tailwind can cause a loss of tail rotor effectiveness and an uninitiated turn.

The helicopter was just below the level of the powerlines when it began an uncommanded right turn. "The pilot had full left torque pedal applied at the time, and he attempted to gain forward airspeed; [he] also used the cyclic to follow the nose of the aircraft in an attempt to fly out of the turn," the report said "The pilot was unable to gain airspeed, and the helicopter began to spin to the right and descend. The pilot initiated an autorotation by lowering the collective and placing the throttle in the idle position."

The helicopter landed hard in an adjacent field. The patient was killed; the pilot, flight nurse and paramedic were seriously injured. NTSB said that the probable causes of the accident were "the pilot's improper decision to maneuver in an environment conducive to a loss of tail rotor effectiveness and his failure to properly execute an autorotation." ●

The helicopter was just below the level of the powerlines when it began an uncommanded right turn.

Preliminary Reports

Date	Location	Aircraft Type	Aircraft Damage	Injuries
Oct. 2, 2006	Decatur, Illinois, U.S.	Learjet C-21	destroyed	2 none
Winds were from 220 degrees at 17 kt, gusting to 20 kt, when the flight crew was cleared to conduct an "option approach" to Runway 24 during a U.S. Air Force training flight. The airplane, a military version of the Learjet 35, crashed on a taxiway and burned.				
Oct. 3, 2006	Tirana, Albania	Boeing 737-400	none	113 none
Soon after takeoff from Tirana for a scheduled flight to Istanbul, Turkey, the airplane was hijacked by an unarmed man who threatened to blow himself up if the flight was not diverted to Italy. The airplane was landed in Brindisi.				
Oct. 3, 2006	Tarakan, Indonesia	Boeing 737-200	substantial	110 NA
Visibility at the Tarakan–Juwata Airport was about 400 m (1/4 mi) in smoke from nearby forest fires when the airplane overran the 1,845-m (6,053-ft) runway on landing and came to a stop in a swamp. There were no fatalities.				
Oct. 5, 2006	Colville Lake, Northwest Territories, Canada	Bell 206L	substantial	1 minor, 3 none
The pilot conducted an autorotative landing after a loss of engine power occurred during an approach to a remote landing site. One passenger received minor injuries.				
Oct. 5, 2006	Villablard, France	Agusta-Bell AB206A	destroyed	3 serious
The helicopter was in cruise flight in visual meteorological conditions (VMC) when it struck powerlines and terrain.				
Oct. 10, 2006	Stord, Norway	British Aerospace BAe 146	destroyed	4 fatal, 9 minor, 3 none
The airplane caught fire after running off the end of the 1,200-m (3,937-ft) runway while landing in VMC at the Stord–Sørstokken Airport.				
Oct. 11, 2006	Sosua, Dominican Republic	Robinson R44	destroyed	4 fatal
The helicopter was en route from the Playa Grande golf resort to Puerto Plata International Airport when a loss of control occurred while it was being maneuvered in unknown weather conditions. The two pilots and two passengers were killed.				
Oct. 11, 2006	Denver, Colorado, U.S.	McDonnell Douglas MD-90	substantial	145 none
The flight crew heard an unusual noise and observed a nose landing gear "UNSAFE" indication when they extended the landing gear on approach. After attempting unsuccessfully to resolve the problem, the crew landed the airplane on Runway 16R with the nose gear retracted.				
Oct. 15, 2006	Antlers, Oklahoma, U.S.	Aero Commander 690A	destroyed	4 fatal
The airplane broke up in instrument meteorological conditions during a flight from Oklahoma City to Orlando, Florida. Recorded air traffic control radar data indicate that the airplane was cruising at 23,000 ft when it began a 180-degree left turn and a 13,500-fpm descent. Radar contact was lost at 15,100 ft.				
Oct. 18, 2006	Besancon, France	Beech King Air 90	destroyed	4 fatal
The airplane crashed during takeoff in nighttime VMC from La Veze Airport.				
Oct. 18, 2006	Perkinsville, Arizona, U.S.	Piper Cheyenne III	destroyed	5 fatal
The tail section separated from the Cheyenne while it was being maneuvered below a MiG 21. Both airplanes had departed from Prescott for an aerial photography flight. The MiG pilot had a problem retracting the landing gear, and the Cheyenne pilot was visually checking the jet's gear when radio contact between the pilots was lost. The Cheyenne crashed in desert terrain. The MiG was landed uneventfully, and no sign of contact with the Cheyenne was found.				
Oct. 25, 2006	Tulear, Madagascar	Cessna 425 Conquest	destroyed	6 fatal
The airplane struck terrain and burned soon after takeoff in nighttime VMC.				
Oct. 26, 2006	Falsterbokanalen, Sweden	CASA 212-200	destroyed	4 fatal
All four crewmembers were killed when the airplane crashed in a canal and sank in 6 m (20 ft) of water during a research flight conducted by the Swedish Coast Guard.				
Oct. 29, 2006	Abuja, Nigeria	Boeing 737-200	destroyed	104 fatal
The airplane crashed and burned in a corn field soon after takeoff from Abuja International Airport.				

NA = not available

This information, gathered from various government and media sources, is subject to change as the investigations of the accidents and incidents are completed.