Accident Case Studies

Tim LeBaron, IIC / US Acc Rep
Washington, DC
Incident Summary

- September 2011
- Bombardier CRJ-200
- Baton Rouge, LA
- Landed with left main landing gear retracted
Incident

- No injuries
- No substantial damage
So why investigate?

- December 2008
- Bombardier CRJ-200
- Philadelphia, PA
- Landed with left main landing gear retracted
Bolt not fitted through uplock upper lugs

NOTE
Right proximity sensor identification shown in brackets.

MOUNTING BRACKET (REF)

0.035 – 0.045 in. (0.9 – 1.14 mm)
Safety payback

• Airline - “Alert Bulletin”

• Manufacture - “Service Letter”
Probable Cause

• The improperly installed upper attachment bolt in the left main landing gear uplock assembly, which led to the failure of the left main landing gear to extend before landing. Contributing to the accident was maintenance personnel's lack of training on the installation and inspection of the uplock assembly.
Accident Summary

- Nov 2009
- Burnet, TX
- Sonex
- 1 fatal
- Loss of engine power
- Crashed during forced landing
Probable Cause

• The pilot’s failure to maintain aircraft control, resulting in an aerodynamic stall. Contributing to the accident was the loss of engine power due to a clogged fuel screen that resulted in fuel starvation caused by the builder's inappropriate use of a fuel tank sealant in a plastic tank.
Accident Summary

- March, 2006
- Patterson, LA
- Bell 206
- 2 fatal, 2 minor
Accident Summary

• Takeoff appeared normal and they departed south from the airport at an approximate altitude of 500-700 feet above ground level.

• The helicopter "dropped" several times. Each time the helicopter regained the lost altitude; however, it appeared to do so slowly as if "he, [the pilot], didn't have the power to keep it up."
Accident Summary

• The pilot then made a descending right turn, of approximately 90 degrees, to an open field. As they approached the ground, the pilot brought the nose of the helicopter up as if he was attempting to "slow down." The helicopter impacted the ground on the front left side and came to an abrupt stop in an upright position.
Accident Summary

• Log entry revealed that a 50-hour fuel nozzle inspection had been performed the night before

• The mechanic reinstalled the fuel nozzle into the engine combustion chamber, “torqued it and lockwired it”

• Engine run-up was not performed

• The inspector stated that he performed a visual inspection of the fuel nozzle installation
Probable Cause

• The improper installation of an engine fuel line by maintenance personnel, which resulted in a loss of engine power during cruise flight. Factors associated with the accident are a tailwind, and the lack of a suitable site for a forced landing.
Accident Summary

- July, 2006
- Petal, MS
- Cessna 172
- fatal
- Impacted trees on takeoff
Probable Cause

• The pilot's improper use of flaps, which resulted in an impact with trees during takeoff-initial climb
Accident Summary

• Aug, 2004
• Port Angeles, WA
• Cessna 182
• VFR flight
• Dark night conditions
• Rain, clouds and fog
• 1 fatal 2 minor
Probable Cause

- The pilot's VFR flight into IMC and his failure to maintain clearance from trees. Trees, mountainous terrain, dark night conditions, clouds and VFR flight into IMC were factors.
Accident Summary

- June 2010
- Broomfield, CO
- P2V-5 air tanker
- Drop retardant drop on Fire.
- Following retardant drop, crew noticed flaps did not retract
Accident Summary

- Hydraulic systems had lost fluid and pressure
- Pilot declared an emergency and returned to land
LANDING GEAR EMERGENCY EXTENSION

1. NORMAL LANDING GEAR CIRCUIT BREAKER 
   PULL
2. AIRSPEED 
   BELOW 155 KTS
3. GEAR HANDLE 
   DOWN
4. EMERGENCY NOSE GEAR SWITCH 
   DOWN
5. NOSE GEAR PIN 
   INSTALL
6. EMERGENCY NOSE GEAR SWITCH 
   OFF
7. MLG EMERGENCY RELEASE 
   PULLED

PROPELLER SYNCHRONIZING PROCEDURE
1. ENGINE TEMPERATURE 
   ABOVE MINIMUM
Pilot used accumulator brake pressure to slow and turn off the Runway.
Upon arriving at the end of A-13 the pilot pulled the emergency brake with no result.
• Checklist was for different model of airplane
Findings

- Flight Manual – “Placing the nose gear emergency extension switch in “bypass” will result in loss of hydraulics to the emergency brakes”
- Emergency landing gear selector was placed in “bypass”, resulting in loss of pressure to the emergency brakes
- Company policy – Stay on runway until stopped
Loss of Hydraulic Pressure
Probable Cause

- The pilot’s failure to follow published emergency procedures by taxiing to the parking ramp with a known hydraulic system failure. Contributing to the accident was the co-pilot’s improper selection of the bypass position on the emergency nose gear extension system, which shut off emergency hydraulic system pressure to the brakes, and a ruptured hydraulic line, which resulted in a total loss of the main hydraulic system pressure.
Accident Summary

- Dec 3, 2011
- Silverton, CO
- Socata TB21
- 4 fatal
Accident Summary

- Pilot contacted ATC while at 20,000 feet and requested visual flight rules (VFR) flight following.
- Reported that he could not descend below his altitude and maintain VFR.
- Moments later, the airplane disappeared from radar and contact with the pilot was lost.
Media Briefing

- War Story
Probable Cause

The non-instrument-rated pilot’s decision to embark on a flight through forecasted instrument meteorological conditions (IMC), and his subsequent flight into IMC, which resulted in the pilot’s spatial disorientation and subsequent maneuvering of the airplane in a manner that exceeded the airplane’s structural limits.
Accident Summary

- March 4, 2008
- Oklahoma City, OK
- Cessna 500
- 5 fatal
Flight Sequence

- Cleared for takeoff about 1512
- Crew reported 2,000 for 3,000 feet
- Controller acknowledged, provided further clearance
- No response from flight crew
- Crash reported about 1515
Splatter residue
American White Pelicans
American White Pelican

- Common in Oklahoma
- Weight: about 8 to 20 lbs
- Length: about 4 to 5 feet
- Wingspan: about 8 to 10 feet
Findings

• Right engine not producing power
• Cockpit voice recorder inoperative
• Airplane wing damage sustained during collision with American white pelicans
Probable Cause

• Airplane wing-structure damage sustained during impact with one or more large birds (American white pelicans), which resulted in a loss of control of the airplane.
Accident Summary

- March, 2004
- Vail, Washington
- Van’s RV-4
- 1 fatal
- Complete loss of engine power
- Nose over during forced landing
Probable Cause

• A loss of engine power due to the pilot's inadequate in-flight decision by failing to refuel while en route, resulting in fuel exhaustion. Contributing factors were the non-operating (vandalized) runway lights, the pilot's delayed departure to his destination, dusk light conditions, rough/uneven terrain and high vegetation.
Accident Summary

- August 2011,
- Alpine, Texas
- Piper Aerostar
- Emergency landing due to a vibration in the tail
Probable Cause

• The pilot’s improper flare which resulted in a hard landing. Contributing to the accident was the pilot’s improper decision to fly the airplane with a known mechanical deficiency
Accident Summary

- July 2006
- Owasso, OK
- Cessna 180
- 1 fatal
- 1 serious
Probable Cause

• The pilot's selection of unsuitable terrain, a residential street, for both takeoff and landing, which resulted in a collision with a static wire and terrain during takeoff-initial climb
Short Investigation – No travel

- Landing rollout
- Hard braking
- Airplane nosed over
- Substantial damage
- No injuries
- Known circumstances with little no safety payback
Probable Cause

• The pilot's excessive use of brakes during the landing
Questions?