

# AIR SHOW ACCIDENT/ INCIDENT REVIEW 2009

By: Des Barker



Oops – Taxiing back after its display during MAKS 2009 on August 15, this Polikarpov I-15's left wheel dropped into an unseen hole causing the aircraft to "nose dive".  
(Photo Dave Jeffreys, Jetphotos.net)

**M**Y APOLOGIES for having to put it so bluntly: "2009 was just another lousy average air show year for accidents and incidents worldwide".

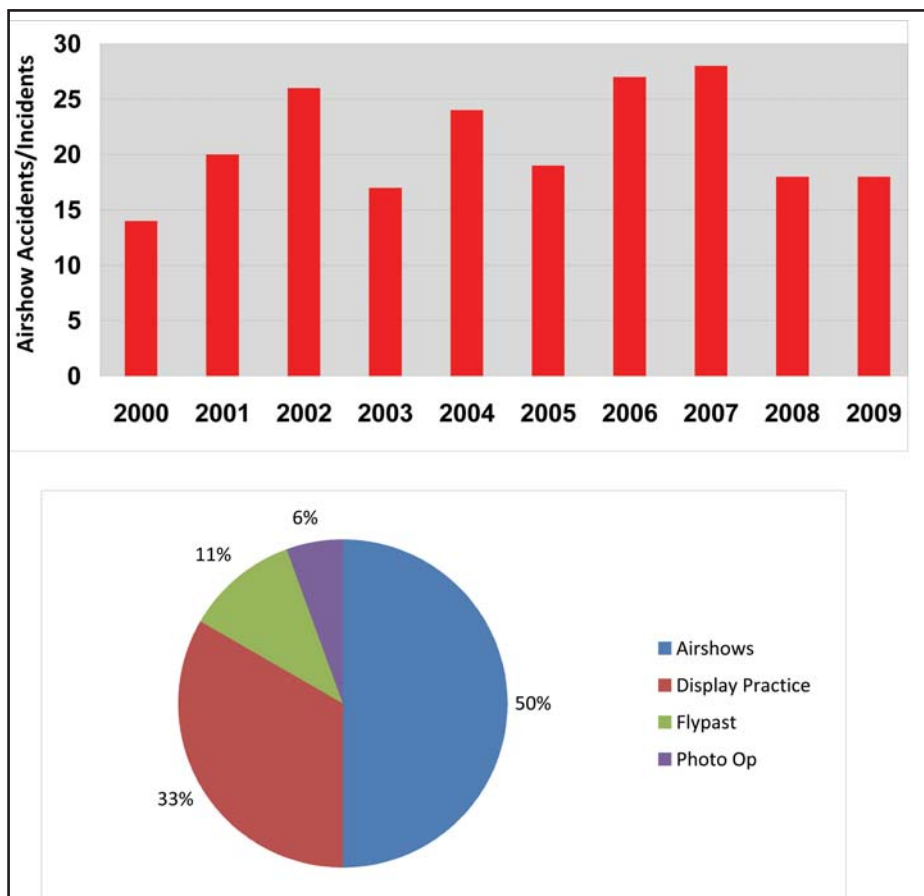
The statistics prove it. This report deals with all accidents and incidents arising from direct or indirect participation in air shows during the past year.

It was a rather bizarre year in which a case of a display pilot's integrity was brought into question and two cases of regulatory non-compliance exposed the display circuit to un-called for hazards and placed the safety of spectators at risk.

The case of an unlicensed Victor crew becoming airborne during a taxi demonstration in the UK; the alleged falsification of a logbook entry and also the unlawful carriage of a passenger during a display, were rather unexpected occurrences for such an august grouping of display pilots and air show safety officers. Also unusual, was the relatively large amount of collateral damage caused by the accidents to both spectators and infrastructure.

During the year there was a total of 18 accidents involving 20 aircraft which resulted in 16 pilots being killed, eight being injured and five crewmembers perishing in an IL-76/F-5E midair collision. Sadly, one security staff member was killed and 13 spectators and members of the public were injured by aircraft debris impacts. The loss of three SU-27 Flankers, two in a midair collision at MAKS 2009 and one flight-into-terrain at Radom, Poland, raised questions about the high accident rate of SU-27s at air shows over the last few years.

Not unexpectedly, there was no significant change to the causal factors for 2009 versus the last 100 years of air show accidents. Flight into terrain (44%) remained the highest contributor, mostly from vertical manoeuvres,



Top diagram: Air show accidents/incidents 2000 to 2009. Average 19.

Diagram above: Causal factors 2009. Sample size: 18 accidents.

while loss of control (22%) was the second.

Flight into terrain, is essentially a form of judgement error, either energy gate or closure/distance estimation, while loss of control is an indication that display pilots have allowed the aircraft to achieve an energy state leading to loss of control, recovery from which is impossible given the height remaining.

Five of the accidents involved military pilots, the other 13, civilian pilots. Nine accidents

occurred at air shows, seven during display practices and two at flypasts/parades.

As is the case every year, those who paid the ultimate sacrifice, were not novices involved in unauthorised low flying, but highly experienced and well trained display pilots; their only mistake, a judgement error – a stark reminder that the low level display arena remains hazardous.

The events at which most of the

accidents/incidents occurred were not necessarily small, “out of the way” airfields, but rather major events organised by highly experienced, professional air show organisers. The fact remains that after actual combat operations, the low-level display arena remains a rather hostile environment in which failures and judgement errors are cruelly rewarded.

Anticipating a further decrease in the number of air show accidents following on from the major improvement in 2008, 2009 did not match up to expectations, rather increasing slightly by one to 18 accidents/incidents; this was slightly less than the ten year average of 19 accidents/incidents per annum though.

■ **FEBRUARY 25: Pitts Samson (Shepparton, Australia)**

Colleagues of Peter “Pip” Borrmann remember him as one of Australia’s most accomplished aerobatic pilots whose personal motto was “*Why be ordinary when you can be extraordinary*”. He had previously flown the Edge in air shows around the country, and in 1999 he received one of only two Ground Level Waivers ever issued in Australia.

As the undisputed aerobatic champion of Australia, his gyroscopic manoeuvres took aerobatics to new heights in Australia. Borrmann, 54, was killed at Shepparton Aerodrome while preparing a new Pitts Samson for its public debut at the upcoming Avalon air show, where he had performed since 1992.

He was doing a photo shoot in preparation for Avalon with one of the Melbourne newspapers when the aircraft suffered a mechanical problem and with limited options, he suffered an unsurvivable accident emanating from a resultant forced landing.

Eyewitnesses said he had completed a loop above the Shepparton Airport, when his plane failed to climb again and crashed into a private paddock and burst into flames, burning three hectares of surrounding grassland. It is believed that the aircraft’s engine may have stopped during the manoeuvre.

■ **MARCH 12: Tucano T Mk.1 (Linton-On-Ouse, Yorkshire, UK)**

The RAF’s 2009 Tucano display pilot, Flt Lt Mike Rutland, ejected and was taken to hospital suffering from back injuries and a broken wrist following an ejection incident while practicing his pre-season display sequence. The AOC 22 Group formally cancelled the Tucano Display for the 2009 season which was obviously disappointing for a great many people. However, the Tucano was present on the circuit as a static display.

An eyewitness reported that the aircraft was recovering from a loop and with insufficient height for recovery, the pilot ejected a



**Top:** *With insufficient height to recover from the vertical, the Zlin-142 impacted within the airport boundary (Index).*

**Centre:** *The Tucano “sans pilot or ejector seat”: It would appear that the ejection activation was very late with the aircraft continuing ahead in a nearly level attitude*

**Above:** *The impact between the undercarriage and the car’s roof, ripped off the undercarriage and flipped the Pitts on to its back.*

few milliseconds before the aircraft impacted bringing back memories of the USAF Thunderbirds soloist ejection at Mountain Home Base in 2003.

■ **APRIL 5: Curtiss Wright P-40N Warhawk (New York, USA)**

It was shortly after midday that a vintage piston fighter, a Curtiss Wright P-40N, manufactured in 1944, impacted the Atlantic Ocean just offshore of Mastic Beach, New York, while practicing for an upcoming air show, killing the pilot, Robert Baranaskas. The pilot held a commercial pilot certificate with approximately 2 300 hours flying hours.

In a written statement, the pilot’s son said that he and his father were an air show “team” and that the purpose of the flight was to practice aerobatics, and that he would act as a ‘safety guide’ from the beach with a handheld radio.

The pilot’s son stated that all communications with the accident airplane were normal. The aircraft entered a “half Cuban-eight” manoeuvre at an estimated 250 mph and when

the aircraft was “in the middle of the half Cuban-eight, it entered a spin.” The pilot’s son estimated the airplane had slowed to 100 mph, which was “too slow,” when the airplane entered the spin, and lacked the height to recover before crashing into the sea.

In a written statement, a former Army pilot described a similar sequence of events, and stated that he thought the pilot was attempting an “Immelman” and added: “I knew he was in trouble when he didn’t complete the Immelman and went off on one wing. The plane made four or five revolutions and augured into the ocean.”

The pilot had been issued an FAA Certificate of Waiver or Authorisation to perform aerobatics in a “box” of defined dimensions off the coast of Mastic Beach. The pilot failed to file a Notice to Airman, and did not notify the controlling air traffic facility to activate the box prior to beginning aerobatic activity, as required by the Certificate of Waiver.

■ **MAY 3: Handley Page Victor: (Bruntingthorpe, UK)**

A UK Civil Aviation Authority investigation into a near-disaster at Bruntingthorpe Aerodrome’s Cold War Jets Day, surprisingly concluded without any legal action being taken against any of the parties involved.

The drama unfolded as the vintage Handley Page Victor bomber, aptly nicknamed “Teasin’ Tina”, gave shocked spectators more than they bargained for when it accidentally got airborne during a taxiing display. The two-man, unlicensed crew were meant only to taxi down the runway and stop for a photo shoot.

The man in the captain’s seat, Bob Prothero, a 70-year-old retired RAF pilot, managed to set the aircraft down safely after his “co-pilot,” the aircraft technician, who had no flying experience, had supposedly set the throttles to full takeoff power.

As the vintage bomber shot towards the air show crowd, Prothero knew he had to act... and fast. The 75-ton Victor was on a collision course with the crowd and a nearby housing estate.

But Prothero, who last flew a Victor in the 1980s and whose flying licence had long since expired, wrestled with the plane’s controls to steer it away from potential disaster. He landed on one wheel and in a cloud of dust, but without a scratch on grass at the end of the runway.

Hailed a hero after an inquiry into the near disaster, he said it was “...the most terrifying nine seconds of my life. I was petrified”, he said. “There wasn’t time to think about anything. Everything was pure instinct on that day.”

“It all happened extremely fast. I was shout-

ing at the co-pilot to pull the throttle back but for some reason he never did and I saw the nose rise into the air. I thought, Oh God here we go, how are we going to get out of this one

So I had to make a snap decision. Do I try to land the plane or do I fly round in a circle and land properly? Although I touched down on the grass, I still managed to keep it under control. All that was left to do was get out and kiss the ground."

The aircraft is designed to use a drag parachute as a brake, but Prothero did not have time to deploy it.

Several questions remain to be answered: Why wasn't there a licensed pilot at the controls in the first place? How was it possible to 'accidentally' open the throttles to full power for a low speed taxi display? Why was the aircraft taxied at, or near to Vr? Why were the flaps in the take-off position?

Conspiracy theorists claimed that both of the occupants of the cockpit were total "turkeys" and not heroes at all and generally, there was a call for the CAA to throw the book at both of them. The potential for a disaster existed and a major tragedy was averted by the Grace of God alone.

The engineer had been drafted in to control the throttles at the air show but then 'froze' at a time of high stress. The CAA launched an investigation because neither was officially licensed to fly, although it was apparently 'fine' for them to taxi along the runway as had been intended.

"This is a recognised state of mind which can affect certain individuals", claimed the CAA.

If there was a potential as the CAA claim for such a situation to exist, surely regulations should not have permitted unqualified personnel to even taxi the aircraft.

An irate official questioned: "This in a country that claims the moral high ground in the application of regulations and air show safety standards. Minimum fuel, no payload, significant cross-wind, unqualified crew and an old pilot who performed brilliantly to correct his mistake but had failed to respond to the screaming engine noise in the six to ten seconds it took to achieve take-off speed.

"If the terrified engineer failed to react to the order to close throttles, the pilot should have immediately closed them himself, long before they got airborne. Did the AIB institute regulations to prevent a reoccurrence?"

#### ■ JULY 4: Aerovodochody L-29 Delfin (California, USA)

In a show of regulatory enforcement, the FAA exercised its mandate by issuing an Emergency Order of Revocation against Douglas Gilliss for falsifying the logbook of



*This Handley Page Victor crescent-wing Cold War era bomber took off while taxiing during a show in the UK last year. Neither of the two people in the pilots' seats were licenced and the incident occurred when the "second pilot" slammed the throttles wide open.*

*"Thankfully, I managed to pitch the plane back towards the runway and avoid any spectators," the other "pilot" said afterwards.*

David Zweigle, saying he had personally checked Zweigle's ability to fly the L-29 Delfin which crashed, killing Zweigle and his passenger, retired air force test and airline pilot, Robert Chamberlain.

The order further stated that Gilliss operated his aircraft in an unsafe manner by overflying a densely populated area below 1 000 feet, and carrying a passenger not required for the operation of the aircraft, all serious FAR violations.

The FAA immediately revoked Gilliss' ATP, Ground Instructor, and "all other airman certificates you may hold", ordering him to surrender them to the FAA immediately or face a \$1 100 per day fine. He was also denied from re-applying for any airman certificate for one year.

Gilliss and Zweigle had been participating in a July 4 flyover in Tehachapi, California, as part of a three-aircraft formation of Aero Vodochody L-29 Delfins. The aircraft owned and flown by Zweigle, dropped out of the formation, passing over a park and several houses before impacting the ground, killing both on-board.

Gilliss had signed Zweigle's logbook saying he had checked Zweigle out in the Delfin, but an investigation found that the check ride had not occurred.

The FAA also cited the FAR conditions of the flyover that prohibit flight below 1 000 feet over a congested area except for the purpose of takeoff or landing, and Gilliss allegedly made two passes below that height.

Since the L-29 was classified as an experimental aircraft, carrying passengers was prohibited during any demonstration of the aircraft's "flight capability, performance, or unusual characteristics" unless the passenger was essential for the purpose of the flight. The FAA claimed that Gilliss violated both of those FARs.

Gilliss, who flew with the Thunder Delfins, a group of L-29 enthusiasts, told the *LA Times*

he would appeal the decision as the flyovers were conducted at an altitude of 1 200-1 500 ft AGL. He also said the planes did not represent a danger to the public as they followed nearby railroad tracks and did not fly directly over the city.

#### ■ JULY 9: North American SNJ/T-6 (Colorado, USA)

A consummate SNJ/T-6 pilot, Gary Miller, went down in "Mystical Powers" while engaged in an aerobatic display practice session in Colorado. Witnesses told NTSB investigators that they saw the plane pull up vertically and perform a roll before it entered a spin that continued until it hit the ground. A fire erupted immediately after impact.

Gary was an ATP who had been flying since 14 years of age and had been taught to fly by his father. He had over 800 hours in the SNJ/T-6 and some 2 500 hours total time. He was Reno race qualified and had raced for several years and was also an ICAS member with a low-level aerobatic waiver.

#### ■ JULY 10: Zivco Edge 540 (Missouri, USA)

News headline: "Tragedy Strikes Two Pilots, Gary Miller and Chandy Clanton, Practicing for Same Air show".

"Hazards can come at all times and in all forms, and few people know that better than those who fly in air shows, if not through their own occasional moments of peril, then from the diminishing ranks of their friends who have gone west", a media report read.

Two outstanding members of the air show community crashed, oddly though, while practicing for the very same air show.

Air show pilot Chandy Clanton, an accomplished 36-year-old air show pilot, was killed while preparing for the 11<sup>th</sup> Tarkio Missouri Air Show. Her Edge 540 went down in a bean field during the practice session for a show planned for the following day.

The aircraft reportedly "went down hard" while performing what her father called "aggressive manoeuvres"; the impact was said to be "Not Survivable" and she was declared dead at the scene. The air show, the 'Wing Nuts Flying Circus Fly-In', continued as scheduled at Gould Peterson Memorial Airport.

Clanton was a much celebrated member of the US Unlimited Aerobatic Team and flew at the 2003 World Championships in Lakeland, Florida, where she was the youngest female participant. Clanton won the 'Programme Q' flight at the 2007 Championships in Granada, Spain, and was also the only woman named to the 2003 "Stars of Tomorrow" programme at EAA AirVenture in Oshkosh; in fact, she was the only "Stars" performer invited back for the 2004 and 2005 shows. →

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## ■ JULY 12: Pitts S-1 (Grossostheim, Germany)

The peace at a rural airfield in Germany was shattered as the Pitts pulled up into the vertical and then pushed over into a four turn spin to the left. Although the pilot recovered the aircraft after four turns, there was insufficient height available to safely affect the recovery pull out. The proverbial extra 'fifty feet' would have been adequate for a safe recovery, but alas, was not available.

During the recovery pull-out, the aircraft undercarriage struck a car which was parked on a road near the airfield; the impact of the collision tore the undercarriage off the aircraft as it crashed inverted in a nearby field.

Amazingly, a couple and their 10-year old daughter who were in the car at the moment of impact, suffered scratches and bruises, but no-one had to be hospitalised, not even the pilot who suffered minor injuries.

Clearly guardian angels had a hand in the outcome.

## ■ JULY 8: Zlin Z-142 (Budapest, Hungary)

A 60-year-old member of the security staff at the Dunakeszi airstrip, five kilometres north of the Hungarian capital, was killed and two others injured when the Zlin-142 crashed during a display.

The 30-year-old pilot of the Zlin-142 was seriously injured but in stable condition. Witnesses said the pilot was attempting a final loop at the end of the show when the accident happened. A child, who was among the spectators at the show, was also air lifted to hospital with serious injuries.

## ■ AUGUST 15: Polikarpov I-15 (Zhukov Sky, Russia)

It was MAKS 2009 and Red 23 had completed his display and landed, but on taxiing back to dispersal, the left wheel entered an unseen hole in the ground, and the aircraft tipped over with the spinning propeller chopping into the ground.

The pilot was unhurt but the left undercarriage leg was damaged, as well as the propeller, but otherwise the aircraft seemed undamaged. It was recovered and towed away after 40 minutes.

## ■ AUGUST 16: Two Sukhoi SU-27 Flanker Russian Knights (Moscow, Russia)

A mid-air collision between a single-seat Su-27 Flanker and a two-seat Su-27UB Flanker, occurred during the team's final rehearsal for Russia's major air show, MAKS 2009, the largest and most important exhibition for Russia's aerospace industry.

The nine-ship formation sequence called for a formation split into two elements, a five-ship and a four-ship. The four-ship pulled up into vertical for the split while the five-ship continued ahead, straight and level.

The intention was for the four-ship to slot back into the formation by show centre, from behind and below.

During the rejoin, the left wingman closed on the lead with excessive closing speed and having lost visual contact, pulled up into the leader, impacting his aircraft in the forward fuselage section causing significant structural damage and causing the leader to lose control of the aircraft.

The three pilots ejected from the jets after the collision and rescuers found two in satisfactory condition, one with a spinal fracture, but the third was dead. The dead pilot was identified as the Russian Knights leader, Colonel Igor Tkachenko. An accident investigator stated that Tkachenko died because his parachute caught fire during the ejection.

Five residents of the village, where flaming aircraft wreckage impacted, were taken to hospital, one woman was seriously injured and four buildings damaged, including two destroyed by fire.

Prosecutors from the Moscow Military District launched a probe into the crash with pilot error cited by a Defence Ministry spokesman as a

possible cause of the crash.

The Russian Knights cancelled their performance at MAKS 2009 although the opening of the MAKS exhibition, continued as scheduled.

■ **AUGUST 22: Zivco Edge 540 (Silverstone, UK)**

Vicki Cruse, a 40-year old world-class aerobatic champion and former member of the US National Aerobatic Team, died in an aircraft accident during the 2009 World Aerobatic Championships in the United Kingdom. Using a borrowed Zivco Edge 540, an aircraft mechanical malfunction apparently occurred during a qualifying flight at Britain's Silverstone motor racing circuit. She lost control of the aircraft and was too low to bail out.

Cruse had previously also competed in the Sport Class at the Reno Air Races and was the President of the International Aerobatics Club, a member of the Ventura County Ninety-Nines, a branch of the International Organisation of Women Pilots and had won the US Unlimited Aerobatics title in 2007.

She had also competed in Spain as a member of the American National Aerobatic Team.

■ **AUGUST 30: Sukhoi SU-27UBM Flanker (Radom, Poland)**

It is not an understatement to say that the biennial Radom Air Show, recognised as one of Europe's leading air shows, has had its fair share of air show accidents over the last two years. The previous event, in 2007, was marred by a fatal mid-air collision involving two Zlin Z-526 aircraft from the Zelazny Aerobatic Team.

In the 2009 event, Belarus, their first ever appearance at a Western European air show, provided a Sukhoi Su-27UBM, as well as a Sukhoi Su-24 and Ilyushin Il-76.

At one point in the routine, as the aircraft climbed, the pilot half-rolled right to the inverted and then into a split "S", then rolling left to a level attitude but he had bled off excessive energy before the roll and simply "fell" into the downward phase, which probably "rattled" the pilot; he ended up with too much workload, poor situational awareness, disorientation combined with task saturation, as a chain reaction of flying the aircraft to the point where he simply had insufficient height and power to climb out and arrest the descent. The aircraft impacted the ground in a forest.

The crash occurred out of sight from the air show's crowds, with a thick plume of black smoke seen rising from behind trees on the other side of the airfield. The aircraft, one of only four Belarusian Air Force SU-27UBs, killed both pilots, Col. Alexander Morfintsky deputy commander of an air force unit in western Be-



**Top:** After been hit by the wingman, significant damage was caused to the forward section of the leader's aircraft. (Dmitry Karpov Pompeya 2009).

**Above:** Mortally wounded and with the pilot ejected, the Su-27 Flanker plunges towards the ground after colliding with the lead aircraft.

(English Russia).

larus and Col. Alexander Zhuravlevich, deputy commander of a fighter base. There were no additional casualties, but the air show flight displays were immediately cancelled.

There was no ejection and thankfully, there was no collateral damage despite the fact that the aircraft crashed only 100 metres from houses; a tragedy was most certainly averted.

Leaks from inside the Ministry of Defence said that low flight hours of the pilots and inexperience in air show protocols were the primary contributing factors.

■ **SEPTEMBER 6: CAP-10B (Montichiari, Italy)**

Pulling out from the vertical at the Brixia Air Show to celebrate the centenary of the first international air show in Brescia in 1909, the pilot entered a positioning turn to the left while the aircraft trajectory was still on the down line and the aircraft had not recovered from the pull-out.

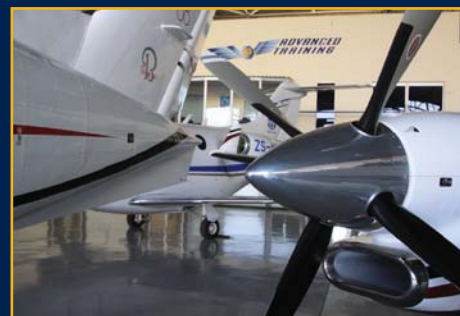
With the lift vector tilted, the vertical contribution to the dive recovery was reduced which meant that the aircraft, a CAP-10B, was unable to avoid impacting the ground. Of the two pilots, Marzio Maccarana, 26, was killed



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and Paolo Castellani, 52, was critically injured.

Two causal hypotheses are still being examined by experts: the first was a loss of engine power at the time of the turn, the second, considered most probable, was that the pilot made a handling error.

■ **SEPTEMBER 7: Experimental Six Chuter SR7 (Hooper, Utah, USA)**

It was about mid-afternoon when an experimental Six Chuter SR7 unregistered powered parachute, was substantially damaged when it impacted the spectator enclosure while manoeuvring near Hooper, Utah. The pilot and his passenger sustained minor injuries but two spectators sustained serious injuries and four people sustained minor injuries.

The pilot and passenger were conducting a flight over the Hooper Tomato Day's annual event to throw candy to a crowd of spectators. The pilot reported that while flying on a westerly heading, he passed over a set of power lines and the passenger "started dumping candy."

The pilot stated that he then "lost lift" and "could not recover." Subsequently, the aircraft impacted the spectator enclosure, and rolled over.

One of the first things drilled into display pilots about operations near any assembly of people is not to operate the aircraft in such a

way as to potentially jeopardise the safety of anyone on the ground. Unfortunately the operator apparently did not heed that missive and sport aviation received a 'black eye' when the 'candy drop' resulted in the aircraft going down into and injuring the spectators.

■ **SEPTEMBER 22: Ilyushin 76-MD "Simorgh" AWACS and Northrop F-5E Tiger (Tehran, Iran)**

Above a big military parade, as the Iranian president declared Iran's armed forces would "chop off the hands" of any power daring to attack his country, two air force aircraft collided in mid-air.

One was Iran's only airborne warning and control system (AWACS) for coordinating long-distance aerial operations, and the other an escorting Northrop F-5E Tiger.

The parade, which included a march-past, a line of Shehab-3 missiles and an air force fly-past, was planned to give Ahmadinejad a dazzling send-off for New York and add steel to his UN Assembly speech.

Dubbed "Simorgh" (a flying creature of Iranian fable which performs wonders in mid-flight), the AWACS' appearance, escorted by fighter jets, was to have been the climax for the Iranian Air force's fly-past over the parade. Instead, it collided with one of the escorting aircraft, a F-5E, and both crashed to the ground in flames.

All seven crewmembers of the IL-75 were killed but the two pilots of the F-5E survived the ejection.

Eye witnesses reported that the flaming planes impacted on the mausoleum burial site of the Islamic revolution's founder, Ruhollah Khomeini, a national shrine. According to Western observers, no distress signals came from either cockpit indicating that the collision was sudden and fast.

■ **OCTOBER 7: Mikoyan MiG-23 (Tripoli, Libya)**

A Libyan Air Force MiG-23 'Flogger' crashed into a house during the third Libyan Aviation Exhibition LAVEX, an international air show, at Ma'atiqa International Airport, killing the pilot and the co-pilot, both colonels in the Libyan Air Force. One of the casualties was believed to be the commanding officer of 1023 Squadron.

Three people on the ground, including two women, were reportedly injured when the MiG-23 crashed into an eastern suburb of Tripoli, about two kilometres from observation platforms at the Libyan Aviation Conference & Exhibition, destroying most of the houses the aircraft hit.

■ **NOVEMBER 14: English Electric P1B Lightning (Western Cape, South Africa)**

Around midday at the South African Air



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The ill-fated English Electric Lightning seen flying its demonstration shortly before the pilot reported hydraulic failure. The fire in the tail pipe (arrowed) which grew rapidly is thought to have caused the total failure of the aircraft's hydraulic systems causing the pilot to lose control. He was unable to eject because of an ejection seat failure (see also Page 71).

Force's Flight Test Centre, the bi-annual 'TFDC Fly-In' was in full swing and the spectators in the process of being enthralled by the brute power of the Cold War era English Electric Lightning being flown by Thunder City display and former SAAF fixed wing test pilot, Dave Stock.

Coming out of a manoeuvre in a steep turn at show centre, the pilot terminated his display with a call to air traffic control that he had indications of Hydraulic 1 failure and stated that he would move to the Overberg Weapons Test Range to burn off fuel before returning for landing.

Very shortly after the first radio call, after having extended the undercarriage as per the emergency procedures, he calmly announced the failure of Hydraulic 2 system and realising that ejection was now the only option, he announced his intentions to eject.

Not long after that announcement and after three ejection attempts, he called: "ejection seat failure".

Nearly simultaneously, the aircraft pitched nose down and entered a steep spiral descent, impacting on the weapons range several seconds later.

Very sadly, realising his impending fate, he once again calmly requested the air traffic controller to inform those close to him, that "he loved them".

The primary cause of the accident was most probably flight control failure as a result of hydraulic failure induced fire (see first report

by the CAA's Accident/Incident Investigation Division on Page 71). Reviewing images taken by spectators, it appeared that a fire had started in the jetpipe, most probably caused by the ignition of the hydraulic fluid that had pooled up in the aft section of the fuselage and in all likelihood, burnt through the elevator control which was subsequently manifested by the loss of pitch control.

It would appear that this was a very similar case to that of the SAAF's Silver Falcon loss during an air show at Stellenbosch in April 1988 when the pilot ejected from the Aermacchi MB-3326M due to a tailpipe fire which burnt so intensely, fuelled by leaked diesel "smoke oil", that the elevator control rods burnt through, making ejection the only possible option.

In this case poor maintenance of a recent repair scheme on the "smoke system" was the direct contributory cause.

#### CONCLUSION

As an international air show community, we seem to have reached a plateau in our ability to reduce accidents and incidents at air shows.

The question is: Can we afford then to just continue and accept an average of 19 accidents/incidents per annum?

Further, can we afford to just accept what the dice have dealt, with the associated loss of life?

Are we doing enough worldwide to reduce the number of air show accidents/incidents? →



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