# National Transportation Safety Board
# Aviation Accident Data Summary

| | | | |
|---|---|---|---|
| **Location:** | Santa Fe, NM | **Accident Number:** | DEN05FA002 |
| **Date & Time:** | 10/02/2004, 1327 MDT | **Registration:** | N92CG |
| **Aircraft:** | Sukhoi SU-29 | **Injuries:** | 1 Fatal |
| **Flight Conducted Under:** | Part 91: General Aviation - Air Race/Show | | |

## Analysis

The Russian-built aerobatic airplane had taken off just prior to the start of the air show. The airplane held outside the show area for a T-33 jet, which was the show's first performance. The pilot then went into his routine. The airplane was approximately 1,500 feet above ground level (agl) when the pilot entered his second maneuver, a torque roll. On reaching its maximum height, the airplane was observed to tail slide and enter an inverted spin. A witness said, "The pilot attempted to recover but didn't make it. The airplane struck the ground upright, in a slight right bank and nose down attitude. On contact with the ground, the airplane exploded and was engulfed in a fireball." Another witness, also one of the air show's performers, described the torque roll. He said that in this maneuver, the airplane pulls up into a vertical climb at full throttle. As the airplane runs out of airspeed, torque from the engine and propeller turns the airplane. The airplane then falls off one direction or the other, nose down, and the pilot flies the airplane out of the dive. The witness said he saw the airplane come out the bottom of the smoke and enter an inverted flat spin. The witness said he saw the airplane make three revolutions. The witness said he thought the pilot had gone too far. "He came off the throttle, the rotation stopped, then the airplane yawed. I heard the engine come in. The airplane came around in a positive attitude. He was getting low. He was upright in a spin. He went to full power. He made a turn and a half and then hit [the ground]." An examination of the airplane revealed no anomalies. A former importer and dealer of SU-29's, who was also a pilot and mechanic who had flown and maintained SU-29's, stated that at the altitude the accident airplane was operating, the pilot cannot reduce power at all during the torque roll maneuver. He said," that if you do reduce power, the airplane will fall off wrong and you will not have enough altitude to recover." Examination of recorded video/images taken of the flight sequence through the ground impact showed the airplane come out of the torque roll into an inverted spin with full left rudder and slight upward elevator controls. The airplane descends in an inverted spin attitude for 3 revolutions before the airplane makes a clockwise roll around its longitudinal axis, placing it in an upright, nose down attitude. About 3.4 seconds prior to the airplane coming out of the inverted attitude, the rudder moves toward neutral. The airplane enters a left downward spiral. At this point, the airplane is less than 600 feet agl. The airplane makes 1.5 left-turning spirals. On completion of the first spiral, the rudder is deflected left and the elevator is deflected upward. At the end of 1.5 spirals, the airplane is approximately 150 feet agl. At this point, the airplane stops its spiral motion and falls straight down to the ground in a 47-degree nose down pitch attitude. On impact, the airplane's rudder shows full right deflection. The elevator is full up (full aft stick deflection).

## Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
the pilot's failure to maintain aircraft control resulting in the inverted spin, spiral, and subsequent impact with terrain. Factors contributing to the accident were the inadvertent stall spin, the spiral, low altitude, and the pilot's delayed attempt to recover from the spin and spiral.

## Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
1. AEROBATICS - PERFORMED
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
3. (F) STALL/SPIN - INADVERTENT - PILOT IN COMMAND
4. (F) SPIRAL - ENCOUNTERED - PILOT IN COMMAND
5. (F) REMEDIAL ACTION - DELAYED - PILOT IN COMMAND
6. ALTITUDE - LOW - PILOT IN COMMAND
---

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
7. TERRAIN CONDITION - GROUND

## Pilot Information

| | | | |
|---|---|---|---|
| **Certificate:** | Airline Transport; Flight Instructor; Commercial | **Age:** | 47 |
| **Airplane Rating(s):** | Multi-engine Land; Single-engine Land; Single-engine Sea | **Instrument Rating(s):** | Airplane |
| **Other Aircraft Rating(s):** | Glider | **Instructor Rating(s):** | Airplane Multi-engine; Airplane Single-engine; Instrument Airplane |
| **Flight Time:** | 11550 hours (Total, all aircraft), 222 hours (Total, this make and model), 8000 hours (Pilot In Command, all aircraft), 196 hours (Last 90 days, all aircraft), 70 hours (Last 30 days, all aircraft) | | |

## Aircraft and Owner/Operator Information

| | | | |
|---|---|---|---|
| **Aircraft Make:** | Sukhoi | **Registration:** | N92CG |
| **Model/Series:** | SU-29 | **Engines:** | 1 Reciprocating |
| **Operator:** | Richard Brien Bobbitt | **Engine Manufacturer:** | unknown |
| **Operating Certificate(s) Held:** | None | **Engine Model/Series:** | MP-14P |
| **Flight Conducted Under:** | Part 91: General Aviation - Air Race/Show | | |

## Meteorological Information and Flight Plan

| | | | |
|---|---|---|---|
| **Conditions at Accident Site:** | Visual Conditions | **Condition of Light:** | Day |
| **Observation Facility, Elevation:** | SAF, 6348 ft msl | **Weather Information Source:** | Weather Observation Facility |
| **Lowest Ceiling:** | None | **Wind Speed/Gusts, Direction:** | 4 knots / , 100° |
| **Temperature:** | 18°C | **Visibility** | 10 Miles |
| **Precipitation and Obscuration:** | | | |
| **Departure Point:** | Santa Fe, NM (SAF) | **Destination:** | |

## Airport Information

| | | | |
|---|---|---|---|
| **Airport:** | Santa Fe Municipal Airport (SAF) | **Runway Surface Type:** | |
| **Runway Used:** | NA | **Runway Surface Condition:** | |
| **Runway Length/Width:** | | | |

## Wreckage and Impact Information

| | | | |
|---|---|---|---|
| **Crew Injuries:** | 1 Fatal | **Aircraft Damage:** | Destroyed |
| **Passenger Injuries:** | N/A | **Aircraft Fire:** | On-Ground |
| **Ground Injuries:** | N/A | **Aircraft Explosion:** | On-Ground |
| **Latitude, Longitude:** | 35.620833, -106.089167 | | |

## Administrative Information

| | | | |
|---|---|---|---|
| **Investigator In Charge (IIC):** | David Bowling | **Adopted Date:** | 10/27/2005 |
| **Investigation Docket:** | NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/. | | |

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.