National Transportation Safety Board
Aviation Accident Final Report

Location:	Santa Fe, NM	**Accident Number:**	DEN05FA002
Date & Time:	10/02/2004, 1327 MDT	**Registration:**	N92CG
Aircraft:	Sukhoi SU-29	**Aircraft Damage:**	Destroyed
Defining Event:		**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 and Findings

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

Factual Information

HISTORY OF FLIGHT

On October 2, 2004, at 1327 mountain daylight time, a Sukhoi, SU-29 aerobatic stunt airplane, N92CG, piloted by an airline transport pilot, was destroyed when it impacted terrain 500 feet west of runway 20 at the Santa Fe Municipal Airport (SAF), Santa Fe, New Mexico. A post-crash fire ensued. Visual meteorological conditions prevailed at the time of the accident. The aerobatic flight was being conducted under the provisions of Title 14 CFR Part 91 without a flight plan. The pilot was fatally injured. The local flight was the second performance in the 2004 Santa Fe Air Show. The flight originated at 1255.

A Federal Aviation Administration (FAA) inspector spoke to the pilot before he took off. The inspector reviewed his certificates and his records. The inspector said the pilot looked fine, was talking, upbeat, and very cooperative. "He was willing to show us anything we wanted to see."

The inspector was in the SAF Air Traffic Control Tower when the air show began. The inspector said that the airplane took off early and held outside the show area for a T-33 jet, which was the show's first performance. The inspector said the pilot then went into his routine. He said the airplane was really high, approximately 1,500 feet above ground level (agl), when he entered his second maneuver, an "inverted spin." He said, "The pilot attempted to recover but didn't make it. The wreckage struck flat in an upright, nose down attitude, and was engulfed in a fireball."

A witness, also one of the air show's performers, said the pilot was performing a torque roll. 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 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]."

PERSONNEL INFORMATION

The pilot held an airline transport pilot certificate dated May 14, 2004. The certificate listed privileges for airplane multi-engine land and type ratings for Boeing B-757 and B-767 airplanes. The certificate also listed commercial privileges for airplane single-engine land and sea, and L-188, and private privileges for gliders. The pilot was employed as a pilot for United Airlines.

The pilot held a flight instructor certificate dated April 4, 2004. The certificate listed privileges for instruction in single and multi-engine land, and instrument airplanes.

The pilot held a first-class medical certificate dated November 11, 2003. The pilot's medical certificate listed as limitations, "None" and "Not valid for any class after November 20, 2004."

The pilot also possessed a Statement of Acrobatic Competency dated August 29, 2004, authorizing solo aerobatics in a SU-29 airplane and an altitude limitation [minimum floor] of 800 feet above ground level.

According to the his logbook, as of September 27, 2004, the pilot had logged 11,550.4 total flying hours. Of that time, 222.2 hours were in the SU-29 airplane.

According to United Airlines, the pilot completed a pilot proficiency checkride on July 28, 2004. His logbook also showed an entry for a "biennial flight review" dated June 23, 2003. The logbook entry for that day shows the pilot performed the flight review in an Extra 300L airplane. The flight duration was 1.0 hours, and covered the following areas: preflight, start, takeoff, traffic pattern entry and exit, 45-degree climbs, steep turns, multiple rolls, unusual attitudes, and landings.

AIRCRAFT INFORMATION

The airplane, serial number 74-02, was a tandem 2-seat training and aerobatic airplane manufactured by the Sukhoi Company at Omsk, Russia, in 1993. The airplane was one of several SU-29s exported to the United States, reassembled and sold to individual owners. The airplane was registered to the pilot on February 11, 2002, and was operating on an experimental airworthiness certificate. The airplane was owned and operated by the pilot and used for aerobatic competition and aerial demonstration at air shows.

According to the airplane logbooks, the airplane underwent a conditional inspection on February 9, 2004. The engine tachometer time recorded at the annual inspection was 333.0 hours. Based on pilot records, the airplane's total airframe time at the accident was estimated as 388.5 hours.

METEOROLOGICAL INFORMATION

The Routine Aviation Weather Report for SAF at 1353, was clear skies, 10 miles visibility, temperature 64 degrees Fahrenheit (F), dew point 37 degrees F, winds of 100 degrees magnetic at 4 knots, and an altimeter of 30.38 inches. The density altitude was calculated as 7,771 feet.

WRECKAGE AND IMPACT INFORMATION

The National Transportation Safety Board's on scene investigation began October 2, 2004, at 2100.

The accident site was located on the Santa Fe Municipal Airport, in flat desert terrain, approximately 500 feet west-northwest of runway 02-20 (8,342 feet by 150 feet, dry asphalt) and approximately 4,100 feet from the approach end of runway 20.

The accident site consisted of the airplane main wreckage and a debris field that extended west from the main wreckage approximately 70 feet.

The airplane main wreckage rested upright on its fuselage and right wing, and was oriented on a 333-degree magnetic heading. The airplane main wreckage consisted of the engine and propeller, the remains of the header fuel tank, the main landing gear, the left and right wings, the remains of the forward and aft cockpits, the remains of the aft fuselage, the empennage, and the tail wheel.

The airplane's engine and cowlings were canted downward at a measured 47 degrees. The top

cowling showed charring and paint blistering. The spinner was crushed and broken aft. One of the three propeller blades was broken aft at the hub and showed chordwise scratches. One propeller blade showed no damage. The bottom cowling was crushed upward. The engine was intact and showed some heat damage.

The right main landing gear was bent aft and left underneath the front cockpit. The left main landing gear was broken aft. The left main wheel was broken aft at the wheel hub and brakes.

The header tank was broken open, charred and melted. The forward cockpit floor was crushed upward. The metal tubing making up the walls and canopy frame was bent upward and twisted clockwise approximately 20 degrees. The fabric skin was charred and consumed. The front pilot seat was charred and consumed. The glare shield was crushed aft, charred, and melted. The front windscreen was broken out. The front cockpit instrument panel was broken to the right, crushed aft, charred, melted, and consumed. The front control stick was broken off near the base.

The rear cockpit frame was twisted clockwise 50 degrees. The fabric skin was charred and consumed. The rear seat, instrument panel and aft cockpit glare shield were charred and consumed. The rear seat control stick was charred.

The aft fuselage frame was bent downward. The fabric skin was charred and consumed aft to the empennage.

The empennage was intact and broken downward just forward of the leading edge of the horizontal stabilizers. The vertical stabilizer and rudder were charred and showed paint blistering. The bottom fabric skin of the left horizontal stabilizer and left elevator was charred. The right horizontal stabilizer and elevator were intact. The bottom fabric skin of the horizontal stabilizer at the leading edge showed paint blistering. The tail wheel was undamaged. Flight control continuity to the elevator and rudder was confirmed.

The airplane's left wing was intact but showed cracks in the top composite skin, cracks along the bottom leading edge, and upward crushing of the bottom wing skin near the root. The wing was broken downward 15 degrees. The outboard 14 inches of the wing at the tip was broken upward 3 degrees. The front inboard 15 inches of the wing leading edge was charred. The trailing portion of the left wing was partially separated from the fuselage. The left aileron was broken upward at the hinges. Flight control continuity to the left aileron was confirmed.

The airplane's right wing was broken aft and upward approximately 15 degrees at the root. The wing tank was broken along the front. The top wing skin was charred and consumed. The bottom skin was crushed upward. The right aileron was charred and consumed. The smell of fuel prevailed in the area forward of the right wing, and front cockpit. Flight control continuity to the right aileron was confirmed.

An impact crater, approximately 11 feet long, 11 feet wide, and 12 inches at its deepest point was located beneath the engine and front cockpit. Soil along the front of the right wing was pushed upward and forward.

A debris field extended east from the main wreckage for approximately 70 feet. Within the debris field and approximately 55 feet east of the main wreckage was the canopy. The front seat portion of the canopy Plexiglas was broken out. The right forward canopy bottom frame was bent outward. The locking bayonets were extended. The canopy handles were in the open position. The remainder of the canopy was intact. Also within the debris field were pieces of

broken clear Plexiglas, the pilot's headset, the aerobatic site, and small paint chips.

An examination of the airplane's engine controls showed the following:

Front Cockpit Throttle:	Mid range
Front Propeller Control:	Destroyed
Aft Cockpit Throttle:	Mid range
Aft Propeller Control:	Full increase
Aft Cockpit Mixture:	Rich
Magnetos (Aft Cockpit):	Both

An examination of the airplane's engine instruments showed the following:

Left fuel gauge:	Zero
Right fuel gauge:	Zero
Oil temperature	Zero
Oil pressure	Zero
Cylinder head temperature:	Zero
Digital tachometer	Destroyed

An examination of the airplane's flight instruments showed the following:

Altimeter:	6,800 feet
Kollsman window:	30.30 inches
Airspeed:	Zero

An examination of the airplane's navigation instruments showed the following:

Transponder:	Destroyed
Magnetic compass	Destroyed
Comm/Nav radio	Destroyed

An examination of the airplane's systems showed no anomalies. The airplane's engine was retained for further examination.

MEDICAL AND PATHOLOGICAL INFORMATION

The New Mexico Office of the Medical Investigator, Albuquerque, New Mexico, conducted a post-mortem medical examination of the pilot on October 5, 2004. The results of the examination revealed no pre-existing medical conditions that could have contributed to the accident.

FAA toxicology tests of specimens from the pilot were negative for all tests conducted.

TESTS AND RESEARCH

The airplane's engine was examined at Edgewood, New Mexico, on November 8, 2004. The propeller was still attached. On raising the engine, the bottom two of the engine's nine cylinders were broken aft. The bottom front of the engine housing at the sealing ring bushing

and thrust bearing cover was broken aft. Rotational scoring was noted on the "airscrew shaft" at the broken housing. Rotational scoring was also observed on the rear side of the propeller flange. The accessory drive plate on the back of the engine was removed, An examination of the supercharger showed rotational scoring on the aft plate and the walls of the mixture collector. Rubs were observed on the leading edges of the impeller splines.

A former importer and dealer of SU-29's, also a pilot and mechanic who had flown and maintained SU-29 airplanes stated that at the altitude the accident airplane was operating at, 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.

An aerobatic instructor in SU-29 airplanes for the International Aerobatics Club (IAC) described the torque roll maneuver as basically a "roll and tail slide." He stated the airplane is flown into a vertical climb until the airplane runs out of airspeed. During the vertical climb aileron inputs opposite to the direction of engine torque is applied. At the top of the maneuver the airspeed will be zero. The airplane will hang in the air under the propeller like a helicopter, and then begin to roll, because of the engine torque, around the engine crankshaft, hence where the maneuver gets its name, "torque roll". The airplane will then slide backwards because of gravity. As the airplane slides backwards, reverse airflow will cross the ailerons. The pilot will want to freeze the control stick either forward, neutral, or full aft to prevent a violent movement when the elevators begin to take effect. As airflow crosses the ailerons, the pilot will reverse his aileron input to get the airplane to roll and pitch over. When the airplane is pointing at the ground, the pilot recovers from the dive and continues on to set up for the next maneuver. Is critical that the airplane is flown perfectly vertical up the line. This requires small rudder adjustments and aileron opposing the engine torque. Once the airplane comes off the vertical line, it can fall any direction.

To set up the maneuver, the pilot will accelerate the airplane at full power to gain much airspeed as possible. In the SU-29 airplane, this can be up to 300 knots. This entry allows the observing crowd to experience the airplane's speed, power, and noise generated. The pilot will fly the airplane down show center at roughly 250 to 300 feet agl. Then the pilot pulls the airplane up to the vertical and begins to roll opposite the torque in the vertical climb. The entry airspeed should put the airplane at least 2,000 feet agl when it reaches the top of the maneuver. At the top, engine torque turns the airplane. The pilot will look out to the horizon to determine the airplane's position and altitude. The airplane slides aft. The pilot puts in reverse aileron. After 2 to 3 turns, the airplane pitches over. The airplane should be at approximately 1,500 feet agl with the nose pointing at the ground. At this point, the maneuver is complete and the pilot recovers from the dive.

Falling off into an inverted spin is not an uncommon occurrence when sliding backwards and rolling. When the airplane is on its back; however, the pilot needs to turn the airplane around quickly. The airplane is in a flat attitude and losing approximately 400 feet per second. The pilot needs to reduce power to idle, release back pressure on the stick, apply rudder opposite of the turn, and neutralize the ailerons. The airplane will recover in 2-1/2 turns. When the spin recovery is complete, the nose of the airplane will be about 60 degrees nose down and losing altitude fast. The airplane can recover on its own, if the pilot reduces the power to idle and releases the back pressure. The airplane will fly itself out, but will use about 2,500 feet to do so.

A density altitude of 8,000 to 10,000 feet could make the maneuver recovery more

disorienting.

The Investigator-In-Charge (IIC) received two separate video recordings, a series of six digital images all taken from one digital still camera, and one digital image from another still camera, all of which captured the accident airplane during the accident and preceding maneuvers.

The first videotape was recorded by hand held Digtial-8 format digital video camera. The tape contained approximately 06:28 (minutes: seconds) of recorded video and audio, of which about 01:10 was of the accident airplane. The video segment of the accident airplane was recorded continuously from the first time the airplane is visible until the accident occurs.

The second videotape was recorded by a hand held Mini-DV format digital video camera. The tape contained approximately 02:37 of recorded video and audio, of which about 01:10 was of the accident airplane. The video segment of the accident airplane was recorded continuously. This segment was similar in content to that of the first videotape.

A series of six unique still photographs were taken with a Nikon model D70 digital still camera. This is a 6.1 megapixel digital SLR type camera, set to capture images at a size of 3008x2000 pixels in JPEG image format. The photographs were of the accident airplane at various times during its series of maneuvers prior to and including impact with the ground.

One still photograph taken with a FUJIFILM FinePix 3800 digital still camera was also received. This is a 3.2 megapixel camera, set to capture images at a size of 2048x1536 pixels in JPEG image format. This photograph is of the accident airplane during its last descent.

Both of the digital still cameras store a record of several parameters of information embedded in the digital file, along with the image. This data is commonly referred to as metadata or Exchangeable Image Format (EXIF) data and commonly include time of day as well as image capture information such as shutter speed and aperture setting (See NTSB Recorded Video/Image Study, August 8, 2005).

The video begins showing a Lockheed T-33 jet aircraft making a low pass down runway 02. The airplane is seen approaching from the southwest. The camera follows the airplane from its approach, through the pass abeam the crowd and its continuation away from the camera to the northeast. The video then jumps to the T-33 approaching from the northeast to land. The camera follows the airplane from its approach, through the landing until the airplane is just southwest of abeam the crowd.

The video then jumps to the Sukhoi SU-29 (the accident airplane) at altitude approaching from the northeast. The first video frame shows the airplane with show smoke already trailing the airplane. Based on witness statements, the airplane's altitude is estimated at approximately 1,500 feet above ground level (AGL) at this time.

The video segment on the (mini-DV format recording) showing the Sukhoi, beginning with the first frame, through the sequence of maneuvers to ground impact, was determined to be 1 minute and 9.7 seconds in duration. For sequence and event description purposes, the first video frame featuring the Sukhoi will be referred to as time zero [0]. The time reference for the digital still images from the Nikon Camera (Figures 4,5,7-11 and 14 below) was synchronized to the video using the time of the impact as a common event. Both video cameras and the Nikon digital still camera recorded the moment of impact. Elapsed time for the video recordings is easily established with the playback VCR, and time of day is recorded along with the digital still

images within the image files. Only one picture was received from the FUJIFILM digital still camera. As a result an accurate time synchronization was not performed. The elapsed time for this image was estimated based on the content of the image and comparison to the video recordings.

From the first video frame, the airplane can be seen in level flight approaching the camera from the northeast. As the airplane approaches a point northeast of abeam the camera, the airplane makes a slight climb then a slight descent.

At 0+08 seconds, the airplane begins a vertical pull up into an Immelman maneuver

At the top of the maneuver, the pilot initiates a counter-clockwise aileron roll from inverted to an upright attitude. After completing the Immelman maneuver, the airplane continues to roll around its longitudinal axis for an additional 360 degrees, completing the maneuver in an upright attitude.

At 0+19 seconds, shortly after completion of the aileron roll coming out of the Immelman maneuver, the airplane pulls up into a 1/2-Cuban Eight maneuver. The airplane is seen executing a half loop and continuing the circle to approximately 225 degrees, at which point the airplane rolls counter-clockwise around the longitudinal axis to upright, and then continues the roll for an additional 360 degrees finishing in an upright attitude.

At 0+35 seconds, shortly after completion of the 1/2 Cuban Eight , the airplane is seen making a pull up into a vertical climb.

At 0+37 seconds, the airplane is in the vertical climb portion of a torque roll maneuver and perpendicular to the ground and horizon.

At 0+40 seconds, the airplane begins making the first of a series of five counter-clockwise 180-degree rolls around the longitudinal axis. The first roll is a gradual one taking approximately 1 second to complete. The second roll is faster. The third roll was slower that the first two, taking a little over 1 second to complete. The forth roll observed was when the airplane was no longer climbing on the vertical line.

The last roll cannot be completely seen and occurs as the airplane begins sliding backwards and becomes obscured by smoke. The airplane remained suspended at the top of the vertical line for approximately 2 seconds, then began to tail slide and yaw to the right. At this point, the airplane was estimated to be approximately 1,800 feet above the ground.

The airplane's show smoke obscures the view of the airplane as it begins its tail slide. At 0+52 seconds, the airplane begins to slide right and descend through the smoke. When the airplane is seen again, it is yawing to the right and the control surfaces show to be neutral.

The airplane continues to descend and rolls counter-clockwise to the left as the tail turns upward, placing the airplane into an inverted spin attitude.

A detailed examination of the still photograph showing the airplane as it begins the inverted spin shows the rudder deflected full left. The left aileron is deflected upward approximately 5 degrees. The right aileron is deflected downward approximately 5 degrees. The elevator shows slight upward deflection from neutral.

The airplane descends in an inverted spin toward the ground making approximately 3 full 360-degree counter-clockwise revolutions (with the pitch attitude varying) before the airplane is seen making a 90-degree clockwise roll around the longitudinal axis of the aircraft, placing it in

a nose down, upright attitude.

About 3.4 seconds before the end of the inverted spins, the airplane's ailerons are neutral. The elevator shows slight aft deflection. The rudder has moved from full left deflection toward neutral, but still shows slight left deflection.

Subsequent frames show the airplane's rudder move through neutral then to right deflection.

At 1 minute and 04 seconds, the airplane, now upright, begins a left counter-clockwise downward spiral. At this point, the airplane's altitude was estimated to be less than 600 feet AGL.

The airplane then makes 1.5 left-turning spirals. A still photograph depicting the bottom of the airplane during the first spiral shows left rudder deflection and increased aft elevator.

At approximately 150 feet AGL the airplane stops its spiral motion (the heading is no longer changing) and falls straight down to the ground in a nose-down attitude, an approximate 10-degree right bank and a 5-10-degree left yaw. The nose-down pitch attitude during this last segment of flight remains relatively constant until impact, and post-accident measurements taken of the airplane's left wing and forward fuselage/cowling are consistent with a nose down pitch attitude of approximately 47 degrees at the time of impact.

The airplane impacts the ground at 1 minute 09.7 seconds from the first video frame showing the Sukhoi. On impact, dirt, dust, and debris are seen thrown up in the air followed immediately by flames.

Detailed examination of the still photograph at impact shows the airplane rudder fully deflected to the right. The elevator is in the full aft stick position. The left aileron is deflected downward approximately 10 degrees. The right aileron is deflected upward approximately 10 degrees.

The remaining video depicts the ensuing fire and emergency response to the accident scene. The Digital 8 recording ends after a total duration of 6 minutes, 28 seconds, the mini DV recording ends after a total duration of 2 minutes, 37 seconds (See NTSB Recorded Video/Image Study, August 8, 2005).

ADDITIONAL INFORMATION

A party to the investigation was the FAA Flight Standards District Office, Albuquerque, New Mexico.

The airplane wreckage was returned and released to the pilot's insurance company.

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial	**Age:**	47, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	Glider	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 None	**Last FAA Medical Exam:**	11/11/2003
Occupational Pilot:		**Last Flight Review or Equivalent:**	07/28/2004
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	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Aerobatic	**Serial Number:**	74-02
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	02/09/2004, Condition	**Certified Max Gross Wt.:**	2617 lbs
Time Since Last Inspection:	55.5 Hours	**Engines:**	1 Reciprocating
Airframe Total Time:	388.5 Hours at time of accident	**Engine Manufacturer:**	unknown
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	MP-14P
Registered Owner:	Richard Brien Bobbitt	**Rated Power:**	360 hp
Operator:	Richard Brien Bobbitt	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	SAF, 6348 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	1353 MDT	**Direction from Accident Site:**	155°
Lowest Cloud Condition:	Clear	**Visibility**	10 Miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	100°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.38 inches Hg	**Temperature/Dew Point:**	18°C / 3°C
Precipitation and Obscuration:			
Departure Point:	Santa Fe, NM (SAF)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	1255 MDT	**Type of Airspace:**	Class D

Airport Information

Airport:	Santa Fe Municipal Airport (SAF)	**Runway Surface Type:**	
Airport Elevation:	6348 ft	**Runway Surface Condition:**	
Runway Used:	NA	**IFR Approach:**	Unknown
Runway Length/Width:		**VFR Approach/Landing:**	Unknown

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
Total Injuries:	1 Fatal	**Latitude, Longitude:**	35.620833, -106.089167

Administrative Information

Investigator In Charge (IIC):	David Bowling	**Report Date:**	10/27/2005
Additional Participating Persons:	Richard Peyton; Federal Aviation Administration; Albuquerque, NM		
Publish Date:			
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/.		

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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. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available here.