



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	GUTHRIE, OK	<b>Accident Number:</b>	FTW95FA114
<b>Date &amp; Time:</b>	02/12/1995, 1721 CST	<b>Registration:</b>	N69TM
<b>Aircraft:</b>	Rockwell 690A	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

THE AIRPLANE IMPACTED TERRAIN APPROX 14 MILES FROM THE DESTINATION DURING A DESCENT. ACCORDING TO RADAR DATA AND METEOROLOGICAL INFORMATION, THE AIRPLANE DESCENDED FROM 16,700 FEET TO 3,700 FEET AGL THROUGH CLOUDS AND ICING CONDITIONS. DURING THE DESCENT, THE AIRPLANE DECELERATED FROM 268 KTS TO 92 KTS GROUND SPEED. THE PILOT REPORTED TO APPROACH THAT HE 'BROKE OUT' OF THE CLOUDS AT 5,400 FEET. HE SUBSEQUENTLY INFORMED APPROACH THAT HE HAD ACCUMULATED 'SOME CLEAR AND RIME ICE' DURING THE DESCENT. 13 SECONDS LATER THE PILOT MADE A DISTRESS CALL AND STATED, 'WE'RE IN TROUBLE, WE'RE GOING DOWN.' THE LAST RADAR TRACK SHOWED THE AIRPLANE DESCENDING THROUGH 3,700 FEET AT A GROUND SPEED OF 92 KTS. A WITNESS REPORTED HE OBSERVED THAT THE AIRPLANE 'APPEARED TO BE DOING TRICKS', AND 'THEN HEADED STRAIGHT DOWN IN A SPIN.' AN AIRMET FOR ICING CONDITIONS WAS IN EFFECT ALONG THE AIRPLANE'S ROUTE OF FLIGHT. ALSO, THERE WERE SEVERAL PILOT REPORTS OF ICING ENCOUNTERED IN THE AREA OF THE ACCIDENT. THE PILOT DID NOT REQUEST A WEATHER BRIEFING PRIOR TO, OR DURING THE FLIGHT.

## 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 ADEQUATE AIRSPEED DUE TO AIRFRAME ICE, WHICH RESULTED IN A LOSS OF CONTROL. FACTORS CONTRIBUTING TO THE ACCIDENT WERE THE PILOT'S CONTINUED FLIGHT INTO ADVERSE WEATHER, HIS FAILURE TO OBTAIN WEATHER INFORMATION EITHER BEFORE OR DURING THE FLIGHT, AND THE ICING CONDITIONS.

## Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER

Phase of Operation: DESCENT

### Findings

1. (F) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND
2. (F) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND
3. (F) WEATHER CONDITION - ICING CONDITIONS
4. (F) FLIGHT INTO ADVERSE WEATHER - CONTINUED - PILOT IN COMMAND

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Occurrence #2: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: DESCENT

### Findings

5. (C) AIRFRAME - ICE
6. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
7. STALL/SPIN - INADVERTENT - PILOT IN COMMAND

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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

## Factual Information

### HISTORY OF FLIGHT

On February 12, 1995, at 1721 central standard time (all times in this report will remain central standard time), a Rockwell International 690A, N69TM, was destroyed after impacting terrain during an approach to Wiley Post Municipal Airport, near Guthrie, Oklahoma. The commercial pilot and passenger were fatally injured. The airplane, owned by the pilot's company, was being operated under 14 CFR Part 91 when the accident occurred. The flight originated at Colonel James Jabara Airport, Wichita, Kansas at 1643 and was en route to Wiley Post. An Instrument Flight Rules (IFR) flight plan was filed and instrument meteorological conditions (IMC) prevailed at the time of the accident.

The aircraft was en route to Wiley Post for planned maintenance which was to be conducted at the Gulfstream Aerospace Technologies Service Center. Additionally, Flight Safety, also located at Wiley Post, reported that the pilot was scheduled for flight simulator refresher training at their Learning Center.

At 1626, the pilot telephoned the Wichita Automated Flight Service Station (AFSS) and filed an IFR flight plan from Wichita to Wiley Post and did not request a weather brief. The airplane departed Wichita at 1643. Two minutes after departure, the pilot reported that he "lost" his autopilot and flight director. Wichita Air Traffic Control Tower (ATCT) asked him if he wanted to continue the flight, or return to Wichita. The pilot advised Wichita ATCT that he was "headed for maintenance right now anyway" and would continue the flight to Wiley Post. He remained on Wichita ATCT frequency until 2251 at which time he was passed to the Kansas City Air Route Traffic Control Center (ARTCC) frequency. According to Federal Aviation Administration (FAA) records, no further in-flight problems were reported by the pilot to Wichita ATCT or to Kansas City ARTCC.

The pilot contacted Oklahoma City Approach Control approximately 1715 and according to radar data, the airplane was descending through 12,800 feet above mean sea level (MSL). Approach control then advised the pilot to "descend at pilot's discretion" to 3,000 feet. After the pilot informed approach that he "broke out" of the clouds at 5,400 feet, the airplane continued to descend to join the localizer approach to Wiley Post. Approximately 1720, the pilot informed approach that he accumulated "some clear and rime" ice during the descent. Thirteen seconds later the pilot made a distress call and stated, "we're in trouble, we're going down." A female voice also transmitting from the airplane stated, "we are in trouble, we are in severe trouble, we're going down."

According to Oklahoma approach radar track data, during the time period from 1712:19 to 1720:10, the airplane descended from 16,700 to 3,700 MSL. During the descent, the airplane decelerated from 268 to 92 knots ground speed. The last radar information, 14 miles southwest of the accident site, at 1720:10, showed the airplane descending through 3,700 feet MSL, at a ground speed of 92 knots, heading 200 degrees.

An eye witness, Randy Erickson, Oklahoma City, Oklahoma, reported that he observed the airplane descending prior to ground impact. He stated that the airplane "appeared to be doing tricks." He further stated that "the plane was going up [and] then headed straight down in a spin [and] it appeared that it was trying to pull out when it slammed into the ground."

Another witness, Patty Humphrey, Guthrie, Oklahoma, reported that she "heard a large roar

like a plane buzzing right over her house" and "then nothing." She then looked outside and "saw fire and smoke" in a nearby field.

#### PERSONNEL INFORMATION

The pilot's logbooks were not recovered; however, an estimate of his total flight time was derived from FAA records.

#### AIRCRAFT INFORMATION

A review of the available maintenance records did not reveal any pre-existing anomalies, discrepancies, or defects. The airplane was equipped with an IMC avionics package which included an autopilot with a flight director system. When the airplane was manufactured, equipment required for flight into known icing conditions was installed and certified. Pneumatic boots were installed on the wing and empennage leading edges.

Estimates indicate that the airplane was within the prescribed limits for weight and center of gravity at the time of the accident.

#### METEOROLOGICAL INFORMATION

Geostationary Operational Environmental Satellite (GEOS) images showed cloud cover along the airplane's route of flight and in the area of the accident. Temperatures in the clouds varied between -2 degrees C to about -9 degrees C. Additionally, an AIRMET for light to moderate rime icing in clouds below 9,000 feet was in effect for the time and area of the accident. The AIRMET indicated icing below 15,000 feet north of the accident site which included the route of flight of the airplane.

In addition to the pilot's report of clear and rime ice to approach control just prior to the accident, the following Pilot Weather Reports are evidence that icing conditions were present in the area of the accident:

Muskogee, Oklahoma (MKO) to Tulsa, Oklahoma (TUL) / time 1700 CST / during descent / type aircraft C-172 / icing moderate to severe 9,000 to 5,000 feet / 1/4 inch accumulation.

TUL is located about 85 nautical miles east-northeast of the accident site.

090 degrees at 30 nautical miles from OKC / time 1717 CST / flight level 8,000 feet / type aircraft PA-34 / icing light mixed 8,000 to 8,500 feet.

Oklahoma City (OKC) is located 21 nautical miles south of the accident site.

A detailed National Transportation Safety Board (NTSB) Meteorological Factual Report is attached to this document.

#### COMMUNICATIONS

The following are the transcribed radio transmissions between the airplane and approach control from 1719 to 1720:

1719:23 N69TM "Six nine tango mike we just broke out at uh fifty four hundred."

1719:29 Approach "Nine tango mike thank you and there's nothing underneath ya."

1719:33 N69TM "Just dirt and roads."

1719:36 Approach "Ok advise when you get the airport nine tango mike."

1719:40 N69TM "Ok are we supposed to are we cleared for the approach or what."

1719:45 Approach "Uh well you're going to join uh I can turn you further right to join the localizer your present heading is taking you to about three north it's your choice."

1719:54 N69TM "Ok we'll just present heading is fine."

1719:56 Approach "Ok uh maintain three thousand nine tango mike did you get any icing in the descent."

1920:01 N69TM "Yeah we got some clear some rime."

1920:04 Approach "Ok how would you classify it uh light trace or what."

1920:13 N69TM "(unintelligible) (pilot) in trouble we're in trouble we're going down" .. (female voice) "we are in trouble we are in severe trouble we are going down."

Copies of the transcribed radio communications between the pilot and Air Traffic Control facilities along the route of flight are attached to this report.

#### WRECKAGE AND IMPACT INFORMATION

The airplane came to rest in the initial ground scar on a measured heading of 091 degrees magnetic approximately 70 degrees nose down relative to the terrain. The entire cockpit and cabin section rearward to the empennage was destroyed by postimpact fire. The leading edge of the left wing displayed crushing aft along the span from the wingtip inboard to the nacelle. The right wing's leading edge was crushed aft along the span similar to the left wing with the outboard 4 feet of the aileron folded upward. Both wings were damaged by fire from their roots outboard to the nacelles. The tail cone was found folded forward and twisted left, and the left horizontal stabilizer and elevator was folded forward and left. Control cable continuity to the flight control surfaces could not be established due to fire and impact damage.

Both engines were found embedded into the ground approximately 18 inches with their respective propeller assemblies attached. The thrust levers on the Power Control Quadrant were found in the full forward position. The autopilot/flight director, and aircraft ice protection systems were destroyed by impact forces and fire; therefore, determination of their functionality was not possible. Additionally, airspeed sensing and indicating system functionality could not be determined due to damage by fire and impact forces.

Examination of the propeller assemblies did not reveal any anomalies or defects. The following propeller blade damage was observed on the right engine: One propeller blade was found separated from the hub and was bent rearward. The other two blades were found attached to the hub and exhibited forward bending. One of the attached blades was gouged on the leading edge from the de-ice boot outboard to the middle of the blade. The other blade exhibited leading edge damage and scratches along the chord.

The following blade damage was observed on the left engine: One blade was found separated from the hub and bent rearward. The other two blades were found attached to the hub and both exhibited forward bending and scratches along the chord.

Examination of both engines revealed evidence of rotation in the compressor and power

turbine sections. Additionally, no anomalies or defects were discovered that would effect normal operation.

Detailed reports for the engines and propeller assemblies are attached to this document.

#### MEDICAL AND PATHOLOGICAL INFORMATION

Autopsies were performed on the pilot and passenger by Chai S. Choi, M.D., of the Office of the Chief Medical Examiner, Oklahoma City, Oklahoma. According to Dr. Choi, the cause of death for both occupants was "multiple traumatic injuries." Toxicological tests for drugs and alcohol were negative for both occupants. Carbon Monoxide tests for the pilot were negative.

#### FIRE

The cabin and cockpit were destroyed by a postimpact fire. Review of ATC voice communications with the pilot did not reveal any indications that the aircraft was on fire prior to impact. Additionally, detailed examination of the wreckage revealed no evidence of an in-flight fire.

#### TESTS AND RESEARCH

A flight profile simulation for N69TM, was conducted on May 30, 1995, at Flight Safety, Gulfstream Commander Learning Center, Wiley Post Airport, Bethany, Oklahoma. Radar track data from Oklahoma City ATCT Northwest Radar position for the time period 1710 to 1731 on February 12, 1995, was utilized to simulate the aircraft's terminal descent to Wiley Post Airport.

Two simulated descents were flown by an experienced 690A instructor pilot under the following parameters:

Estimated Gross Weight.....9520*	OAT.....0 degrees C
Power Setting.....Flight Idle	Rate of Descent.....1650** FPM

*The gross weight of the airplane was estimated using the following criteria:			Aircraft
empty weight.....7000 lbs	Fuel (full tanks).....2500 lbs	Pilot + 1	
Passenger..... 320 lbs	Luggage..... 100 lbs	Total takeoff	
weight.....9920 lbs	Fuel burn from Wichita.... 400 lbs	Total Gross	
Weight.....9520 lbs			

\*\*Estimated rate of descent from the accident aircraft's final 2 minutes of flight as derived from radar data.

In accordance with the manufacturer's flight manual, the stall speeds of the Rockwell Commander 690A (without wing ice) are:

Bank angle (degrees)	0	45	60	Vs (KCAS)	78	94	112
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The simulation showed a deceleration of airspeed and corresponding loss of altitude that closely matched the accident aircraft's radar track, which showed the airplane's ground speed at 92 knots, passing through 2,400 feet AGL. Both simulations were flown to an imminent stall, which resulted in 1,200 to 1,500 feet of uncontrolled flight.

The accident site elevation was approximately 1,300 feet MSL. The pilot of the accident aircraft made the emergency radio call when radar showed the airplane to be approximately 2,400 feet AGL.

Although the simulator was unable to add icing conditions to the test parameters, the manufacturer stated that stall speeds would generally increase if ice accumulates on the airplane's aerodynamic surfaces. Additionally, the addition of structural ice would increase drag on the airplane.

#### ADDITIONAL DATA

The wreckage was released to the owner's representative.

#### Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	58, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 3 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	04/29/1994
<b>Occupational Pilot:</b>	<b>Last Flight Review or Equivalent:</b>		
<b>Flight Time:</b>	2870 hours (Total, all aircraft), 1 hours (Last 24 hours, all aircraft)		

#### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Rockwell	<b>Registration:</b>	N69TM
<b>Model/Series:</b>	690A 690A	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	11322
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	11
<b>Date/Type of Last Inspection:</b>	Unknown	<b>Certified Max Gross Wt.:</b>	10300 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Turbo Prop
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	GARRETT
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	TPE-331-5-251
<b>Registered Owner:</b>	MC MULLEN, THOMAS M.	<b>Rated Power:</b>	717 hp
<b>Operator:</b>	MC MULLEN, THOMAS M.	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	PWA, 1299 ft msl	Distance from Accident Site:	26 Nautical Miles
Observation Time:	1745 CST	Direction from Accident Site:	180°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	12 Miles
Lowest Ceiling:	Overcast / 3400 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	90°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	-3° C / -15° C
Precipitation and Obscuration:			
Departure Point:	WICHITA, KS (3KM)	Type of Flight Plan Filed:	IFR
Destination:	OKLAHOMA CITY, OK (PWA)	Type of Clearance:	IFR
Departure Time:	1643 CST	Type of Airspace:	Class E

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	ALEXANDER LEMISHKO	Report Date:	01/19/1996
Additional Participating Persons:	JAMES R KELLN; OKLAHOMA CITY, OK		
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 <a href="mailto:pubinquiry@ntsb.gov">pubinquiry@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		



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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](#).