



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	SHELBYVILLE, TX	<b>Accident Number:</b>	FTW99LA059
<b>Date &amp; Time:</b>	01/01/1999, 1705 CST	<b>Registration:</b>	N234CG
<b>Aircraft:</b>	Cessna 421C	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	4 Minor, 1 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

During a precautionary landing following a loss of electrical power, the pilot turned the airplane to avoid colliding with a pickup truck, and the airplane impacted trees. The pilot reported that while IMC, at 14,000 feet msl, he started preparing for ice penetration and turned on the two propeller anti-ice switches. The right propeller anti-icing circuit breaker popped, and when the circuit breaker was reset, the airplane experienced a total electrical failure. The pilot initiated an emergency descent, and entered into VFR conditions at about 1,500 feet. After about 30 minutes of trying to locate an airport, with it getting dark and thunderstorms in the area, the pilot elected to land on a narrow road with trees on both sides. Testing of the alternator system revealed discrepancies with the left alternator, both voltage regulators, and the right alternator out sensor.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The total failure of the aircraft's electrical system. Factors were the thunderstorms, the dusk light condition, and the lack of suitable terrain for the precautionary landing.

## Findings

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Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION  
Phase of Operation: CRUISE - NORMAL

### Findings

1. (C) ELECTRICAL SYSTEM,ALTERNATOR - FAILURE
2. (C) ELECTRICAL SYSTEM,VOLTAGE REGULATOR - FAILURE
3. ANNUNCIATOR PANEL LIGHT(S) - NOT ACTIVATED

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Occurrence #2: IN FLIGHT ENCOUNTER WITH WEATHER  
Phase of Operation: MANEUVERING

### Findings

4. (F) WEATHER CONDITION - THUNDERSTORM
5. (F) LIGHT CONDITION - DUSK
6. PRECAUTIONARY LANDING - INITIATED - PILOT IN COMMAND

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Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT  
Phase of Operation: LANDING

### Findings

7. (F) TERRAIN CONDITION - NONE SUITABLE
8. OBJECT - VEHICLE
9. OBJECT - TREE(S)

## Factual Information

On January 1, 1999, at 1705 central standard time, a Cessna 421C twin-engine airplane, N234CG, was substantially damaged during a precautionary landing near Shelbyville, Texas. The airline transport pilot was not injured and his four passengers sustained minor injuries. The airplane was registered to and operated by Metro Redevelopment, Inc. of Omaha, Nebraska. Visual meteorological conditions (VMC) prevailed, and an IFR flight plan was filed for the 14 Code of Federal Regulations Part 91 personal cross-country flight. The flight originated from the Lakefront Airport, New Orleans, Louisiana, at 1520, with a destination of Omaha, Nebraska.

The pilot reported that while in instrument meteorological conditions, at 14,000 feet msl, he advised Houston Center that "I may have to go up soon, to avoid ice as my thermometer had dropped [to] 6 degrees below zero, and I needed to make it go to below 10 degrees Centigrade BELOW Zero to avoid ice." After about a minute, he started preparing for ice penetration and "flipped" the two propeller anti-ice switches. Turning on the second switch popped the right propeller anti-icing circuit breaker. When he reset the circuit breaker, the airplane experienced a total electrical failure. He then initiated an emergency descent and entered into VMC at about 1,500 feet. The pilot further reported that he flew around about 30 minutes trying to locate an airport; however, with it getting dark and thunderstorms in the area, he elected to land on a road. The pilot stated that he made a few "S" turns to observe traffic, and during the approach to the road, the aircraft "hit several power lines and cables and flew under another double set." During the landing on the narrow road, with trees on both sides, he turned the airplane left to avoid colliding with a pickup truck, and the airplane impacted trees.

Examination of the aircraft by the FAA inspector revealed that both wings were damaged. The right main landing gear, nose landing gear, and 5 feet of the nose area forward of the bulkhead was separated from the aircraft.

On January 22, 1999, the alternator system was tested under the supervision of an FAA inspector. Testing of the alternators revealed that the left alternator was "bad"; however, there was 12 volts at the AUX terminal. The right alternator checked out "okay." "Both the left and right regulators tested bad and they would not regulate the voltage." The alternator out sensors were then tested. "The left sensor checked okay, and the right sensor checked bad." According to the FAA inspector, "the right sensor had an open circuit and would not have turned on the light on the annunciator panel. The left sensor would not have turned on the light on the annunciator panel because the alternator was producing voltage at the AUX terminal, and that would have kept the circuit open on the sensor."

## Pilot Information

<b>Certificate:</b>	Airline Transport; Commercial	<b>Age:</b>	77, 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; Helicopter	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane Single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	06/09/1998
<b>Occupational Pilot:</b>	<b>Last Flight Review or Equivalent:</b>		
<b>Flight Time:</b>	15119 hours (Total, all aircraft), 290 hours (Total, this make and model), 15000 hours (Pilot In Command, all aircraft), 49 hours (Last 90 days, all aircraft), 18 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Cessna	<b>Registration:</b>	N234CG
<b>Model/Series:</b>	421C 421C	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	421C0267
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	8
<b>Date/Type of Last Inspection:</b>	06/20/1998, Annual	<b>Certified Max Gross Wt.:</b>	7450 lbs
<b>Time Since Last Inspection:</b>	97 Hours	<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	2894 Hours	<b>Engine Manufacturer:</b>	Continental
<b>ELT:</b>	Installed, activated, aided in locating accident	<b>Engine Model/Series:</b>	GTSIO-520-L1B
<b>Registered Owner:</b>	METRO REDEVELOPMENT, INC.	<b>Rated Power:</b>	375 hp
<b>Operator:</b>	METRO REDEVELOPMENT, INC.	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Dusk
Observation Facility, Elevation:	OCH, 355 ft msl	Distance from Accident Site:	34 Nautical Miles
Observation Time:	1655 CST	Direction from Accident Site:	250°
Lowest Cloud Condition:	Scattered / 2900 ft agl	Visibility	10 Miles
Lowest Ceiling:	Broken / 3700 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	140°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	18° C / 17° C
Precipitation and Obscuration:			
Departure Point:	NEW ORLEANS, LA (NEW)	Type of Flight Plan Filed:	IFR
Destination:	OMAHA, NE (MLE)	Type of Clearance:	IFR
Departure Time:	1520 CST	Type of Airspace:	Class E

## Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	4 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	4 Minor, 1 None	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	DOUGLAS D WIGINGTON	Report Date:	06/22/2000
Additional Participating Persons:	THOMAS J LATSON, JR.; HOUSTON, TX		
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](#).