



# National Transportation Safety Board

## Aviation Incident Data Summary

<b>Location:</b>	Toledo, OH	<b>Incident Number:</b>	CEN11IA087
<b>Date &amp; Time:</b>	12/01/2010, 1336 EST	<b>Registration:</b>	N607QS
<b>Aircraft:</b>	CESSNA 560XL	<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled		

### Analysis

The Cessna 560XL airplane encountered ground and/or in-flight moisture/rain, that collected in the tailcone stinger and subsequently froze around the rudder cables during flight at an altitude above the freezing level. When the pilot attempted to use the rudder to initiate a crosswind correction during the landing flare, he was unable to move the rudder pedals, but was able to land the airplane uneventfully. In the days and weeks that followed, several other 560XL airplanes encountered the same problem. As a result, the airplane manufacturer issued a service bulletin recommending that drain holes be added in the tailcone stinger. The manufacturer had already added the drain holes in production airplanes, yet some production airplanes had drain holes that were not the indicated size. The manufacturer then issued an alert service letter to modify the stinger drain. However, the alert service letter still did not remedy the problem; another 560XL airplane, modified in accordance with the alert service letter, sustained ice-bound rudder cables. The manufacturer subsequently issued a mandatory service bulletin that required the installation of a seal and drain to improve water drainage from the stinger. The misdrilled holes on production airplanes were not detected by the Federal Aviation Administration (FAA) district office assigned to oversee the incident airplane. The manufacturer has subsequently instituted a specific inspection criteria to verify the drain hole installation on production airplanes, and the FAA has verified engineering requirements, planning changes for technicians to follow, and actual holes, including their dimensions.

### Flight Events

Landing - Flight control sys malf/fail

### Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this incident to be: The manufacturer's inadequate initial design and subsequent modifications of the tailcone, which allowed moisture to collect and freeze around rudder cables during flight levels above the freezing level and resulted in a loss of rudder authority. Contributing to the accident was the lack of oversight of the manufacturer's design and production by the Federal Aviation Administration.

### Findings

Aircraft-Aircraft structures-Empennage structure-Rudder misc structure-Design - C  
Environmental issues-Conditions/weather/phenomena-Ceiling/visibility/precip-Rain-Contributed to outcome  
Organizational issues-Development-Selection/certification/testin-Equip certification/testing-FAA/Regulator - F

## Pilot Information

<b>Certificate:</b>	Airline Transport; Commercial	<b>Age:</b>	51
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Instrument Rating(s):</b>	Airplane
<b>Other Aircraft Rating(s):</b>	None	<b>Instructor Rating(s):</b>	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane
<b>Flight Time:</b>	9889 hours (Total, all aircraft), 4152 hours (Total, this make and model), 7662 hours (Pilot In Command, all aircraft), 102 hours (Last 90 days, all aircraft), 31 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Co-Pilot Information

<b>Certificate:</b>	Airline Transport; Flight Instructor	<b>Age:</b>	50
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Instrument Rating(s):</b>	Airplane
<b>Other Aircraft Rating(s):</b>	None	<b>Instructor Rating(s):</b>	Airplane Single-engine
<b>Flight Time:</b>	8998 hours (Total, all aircraft), 712 hours (Total, this make and model), 7200 hours (Pilot In Command, all aircraft), 71 hours (Last 90 days, all aircraft), 27 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Manufacturer:</b>	CESSNA	<b>Registration:</b>	N607QS
<b>Model/Series:</b>	560XL	<b>Engines:</b>	2 Turbo Fan
<b>Operator:</b>	NETJETS AVIATION INC	<b>Engine Manufacturer:</b>	P&W CANADA
<b>Air Carrier Operating Certificate:</b>	On-demand Air Taxi (135)	<b>Engine Model/Series:</b>	PW545A
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled		

## Meteorological Information and Flight Plan

<b>Observation Facility, Elevation:</b>	TOL, 683 ft msl	<b>Weather Information Source:</b>	Weather Observation Facility
<b>Conditions at Accident Site:</b>	Visual Conditions	<b>Lowest Ceiling:</b>	Broken / 1800 ft agl
<b>Condition of Light:</b>	Day	<b>Wind Speed/Gusts, Direction:</b>	18 knots/ 25 knots, 240°
<b>Temperature:</b>	-2° C / -6° C	<b>Visibility</b>	6 Miles
<b>Precipitation and Obscuration:</b>	Light - Snow; No Obscuration		
<b>Departure Point:</b>	Belmar, NJ (BLM)	<b>Destination:</b>	Toledo, OH (TOL)

## Airport Information

<b>Airport:</b>	Toledo Express Airport (TOL)	<b>Runway Surface Type:</b>	Asphalt
<b>Runway Used:</b>	25	<b>Runway Surface Condition:</b>	Wet
<b>Runway Length/Width:</b>	10599 ft / 150 ft		

## Wreckage and Impact Information

<b>Crew Injuries:</b>	2 None	<b>Aircraft Damage:</b>	None
<b>Passenger Injuries:</b>	1 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None

## Administrative Information

Investigator In Charge (IIC): Edward F Malinowski

Adopted Date: 12/27/2011

Investigation Docket: <http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=77918>

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