



# National Transportation Safety Board Aviation Accident Final Report

<b>Location:</b>	Reno, NV	<b>Accident Number:</b>	WPR11MA454
<b>Date &amp; Time:</b>	09/16/2011, 1626 PDT	<b>Registration:</b>	N79111
<b>Aircraft:</b>	NORTH AMERICAN/AERO CLASSICS P-51D	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Aircraft structural failure	<b>Injuries:</b>	11 Fatal, 66 Serious
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Air Race/Show		

## Analysis

The Safety Board's full report is available at <http://www.ntsb.gov/investigations/reports.html>. The Aircraft Accident Report number is NTSB/AAB-12/01.

On September 16, 2011, about 1625 Pacific daylight time, an experimental, single-seat North American P-51D, N79111, collided with the airport ramp in the spectator box seating area following a loss of control during the National Championship Air Races unlimited class gold race at the Reno/Stead Airport (RTS), Reno, Nevada. The airplane was registered to Aero-Trans Corp (dba Leeward Aeronautical Sales), Ocala, Florida, and operated by the commercial pilot as Race 177, The Galloping Ghost, under the provisions of 14 Code of Federal Regulations Part 91. The pilot and 10 people on the ground sustained fatal injuries, and at least 64 people on the ground were injured (at least 16 of whom were reported to have sustained serious injuries). The airplane sustained substantial damage, fragmenting upon collision with the ramp. Visual meteorological conditions prevailed, and no flight plan had been filed for the local air race flight, which departed RTS about 10 minutes before the accident.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The reduced stiffness of the elevator trim tab system that allowed aerodynamic flutter to occur at racing speeds. The reduced stiffness was a result of deteriorated locknut inserts that allowed the trim tab attachment screws to become loose and to initiate fatigue cracking in one screw sometime before the accident flight. Aerodynamic flutter of the trim tabs resulted in a failure of the left trim tab link assembly, elevator movement, high flight loads, and a loss of control. Contributing to the accident were the undocumented and untested major modifications to the airplane and the pilot's operation of the airplane in the unique air racing environment without adequate flight testing.

## Findings

<b>Aircraft</b>	Tab structure (on elevator) - Failure (Cause) Elevator/tab attach fitting - Fatigue/wear/corrosion (Cause) Performance/control parameters - Not specified (Factor)
<b>Personnel issues</b>	Action - Pilot (Factor)

## Factual Information

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## History of Flight

<b>Prior to flight</b>	Aircraft maintenance event
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Maneuvering-low-alt flying	Aircraft structural failure (Defining event) Loss of control in flight
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## Pilot Information

Certificate:	Commercial	Age:	74, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	Seat Occupied:	Front
Other Aircraft Rating(s):	Glider; Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	
Medical Certification:	Class 2 With Waivers/Limitations	Last FAA Medical Exam:	03/02/2010
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	
Flight Time:			

## Aircraft and Owner/Operator Information

Aircraft Make:	NORTH AMERICAN/AERO CLASSICS	Registration:	N79111
Model/Series:	P-51D	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Experimental	Serial Number:	44-15651
Landing Gear Type:	Retractable - Tailwheel	Seats:	1
Date/Type of Last Inspection:		Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	AMA/EXPR
ELT:	Not installed	Engine Model/Series:	UNKNOWN ENG
Registered Owner:	AERO-TRANS CORP DBA	Rated Power:	
Operator:	James K Leeward	Operating Certificate(s) Held:	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	KRTS	Distance from Accident Site:	
Observation Time:	1630 PDT	Direction from Accident Site:	
Lowest Cloud Condition:	Clear / 8500 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 11000 ft agl	Visibility (RVR):	
Wind Speed/Gusts:	15 knots / 20 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	260°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.99 inches Hg	Temperature/Dew Point:	22° C / 0° C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Reno, NV (KRTS)	Type of Flight Plan Filed:	Unknown
Destination:	Reno, NV (KRTS)	Type of Clearance:	
Departure Time:	PDT	Type of Airspace:	

## Airport Information

Airport:	Reno/Stead Airport (KRTS)	Runway Surface Type:	
Airport Elevation:	5050 ft	Runway Surface Condition:	
Runway Used:	N/A	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

## Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	On-Ground
Ground Injuries:	10 Fatal, 66 Serious	Aircraft Explosion:	
Total Injuries:	11 Fatal, 66 Serious	Latitude, Longitude:	39.668056, -119.876389 (est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Howard D Plagens	<b>Report Date:</b>	07/15/2013
<b>Additional Participating Persons:</b>	Christine Soucy; FAA AVP - 100; Washington, DC		
<b>Publish Date:</b>	03/17/2014		
<b>Investigation Docket:</b>	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=81814">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=81814</a>		

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