



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	Fairbanks, AK	<b>Accident Number:</b>	ANC13LA063
<b>Date &amp; Time:</b>	07/02/2013, 1600 AKD	<b>Registration:</b>	N1837M
<b>Aircraft:</b>	CURTISS WRIGHT C-46F	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>	Comm system malf/failure	<b>Injuries:</b>	2 None
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Flight Test		

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## Analysis

During the maintenance test flight, the flight crew moved the landing gear handle to the “down” position but did not observe the three green landing gear down-and-locked lights illuminate. After cycling the landing gear “several” times they observed a gear down-and-locked indication in the cockpit. After landing, while taxiing to parking, the right main landing gear collapsed, and the right wing and aileron struck the ground and sustained substantial damage.

The right landing gear side brace fractured near the fuselage attach forging due to fatigue, which initiated near the weld between the large end fuselage attach forging and the outer tube. No obvious discontinuities such as porosity or undercutting were visually noted in the weld adjacent to the fracture.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the right main landing gear side brace due to fatigue, which resulted in a collapse of the right main landing gear.

## Findings

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<b>Aircraft</b>	Main landing gear attach sec - Fatigue/wear/corrosion (Cause)
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## Factual Information

On July 2, 2013, about 1600 Alaska daylight time, a twin-engine Curtiss Wright, C-46F airplane, N1837M, sustained substantial damage while taxiing to parking at the Fairbanks International Airport, Fairbanks, Alaska. The commercial certificated captain and the airline transport certificated first officer were not injured. The airplane was registered to and operated by Evert's Air Fuel, under the provisions of Title 14 Code of Federal regulations Part 91, as a visual flight rules (VFR) maintenance test flight. Visual meteorological conditions prevailed, and no flight plan had been filed.

The operator reported that during the maintenance test flight, the flight crew moved the landing gear handle to the "down" position, but did not observe the three green landing gear down-and-lock lights illuminate. After cycling the landing gear "several" times they observed a gear down-and-locked indication in the cockpit. After landing, while taxiing to parking, the right main landing gear collapsed, and the right wing and aileron sustained substantial damage.

A postaccident examination, of the landing gear system revealed that both inner and outer tubes of the right landing gear side brace, separated near the fuselage attach forging. The fractured main landing gear side brace assembly was sent to the NTSB's Materials Laboratory in Washington, D.C. for examination.

A senior Safety Board metallurgist reported that a magnified optical examination of the landing gear side brace assembly fracture surfaces revealed ratchet marks, arrest lines, and flat fracture regions consistent with fatigue propagation. No obvious discontinuities such as porosity or undercutting were visually noted in the weld adjacent to the fracture. A complete copy of the NTSB's materials laboratory factual report is included in the public docket for this accident.

In the recommendation section of the NTSB Accident/Incident Reporting Form 6120.1, the operator stated that the accident may have been prevented if the flight crew would have shut down the airplane clear of the runway, and had the landing gear inspected before taxiing to parking. They also noted, that three green down-and-lock lights illuminated is the normal indication for a positive lock.

## History of Flight

Taxi-from runway	Comm system malf/failure (Defining event) Landing gear collapse
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## Pilot Information

<b>Certificate:</b>	Commercial; Flight Engineer	<b>Age:</b>	55
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land; Single-engine Sea	<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>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With Waivers/Limitations	<b>Last Medical Exam:</b>	09/04/2012
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	04/29/2013
<b>Flight Time:</b>	20100 hours (Total, all aircraft), 3000 hours (Total, this make and model), 20000 hours (Pilot In Command, all aircraft)		

## Co-Pilot Information

<b>Certificate:</b>	Airline Transport	<b>Age:</b>	38
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Right
<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>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 With Waivers/Limitations	<b>Last Medical Exam:</b>	03/25/2013
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	05/06/2013
<b>Flight Time:</b>	2100 hours (Total, all aircraft), 95 hours (Total, this make and model), 1700 hours (Pilot In Command, all aircraft), 130 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Manufacturer:</b>	CURTISS WRIGHT	<b>Registration:</b>	N1837M
<b>Model/Series:</b>	C-46F	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	22388
<b>Landing Gear Type:</b>	Retractable - Tailwheel	<b>Seats:</b>	65
<b>Date/Type of Last Inspection:</b>	07/01/2013, AAIP	<b>Certified Max Gross Wt.:</b>	48000 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	2 Reciprocating
<b>Airframe Total Time:</b>	35183 Hours	<b>Engine Manufacturer:</b>	P & W
<b>ELT:</b>	C126 installed, not activated	<b>Engine Model/Series:</b>	R-2800 SERIES
<b>Registered Owner:</b>	EVERTS AIR FUEL INC	<b>Rated Power:</b>	2000 hp
<b>Operator:</b>	EVERTS AIR FUEL INC	<b>Air Carrier Operating Certificate:</b>	Other Operator of Large Aircraft

## Meteorological Information and Flight Plan

Observation Facility, Elevation:	PAFA, 439 ft msl	Observation Time:	1553 ADT
Distance from Accident Site:		Condition of Light:	Day
Direction from Accident Site:		Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Few / 3000 ft agl	Temperature/Dew Point:	22 °C / 4 °C
Lowest Ceiling:	Broken / 7000 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	7 knots, 250°	Visibility (RVR):	
Altimeter Setting:	29.6 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fairbanks, AK (PAFA)	Type of Flight Plan Filed:	None
Destination:	Fairbanks, AK (PAFA)	Type of Clearance:	VFR
Departure Time:	1500 ADT	Type of Airspace:	

## Airport Information

Airport:	Fairbanks International Airpor (PAFA)	Runway Surface Type:	Asphalt
Airport Elevation:	439 ft	Runway Surface Condition:	Dry
Runway Used:	20R	IFR Approach:	None
Runway Length/Width:	11800 ft / 150 ft	VFR Approach/Landing:	Full Stop; Traffic Pattern

## Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None		

## Administrative Information

Investigator In Charge (IIC):	David B Banning	Adopted Date:	06/02/2014
Additional Participating Persons:	; Federal Aviation Administration; Fairbanks, AK		
Publish Date:	06/02/2014		
Investigation Docket:	<a href="http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=87452">http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=87452</a>		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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.