Aviation Investigation Final Report

Location:	Houston, Texas	**Accident Number:**	CEN13LA408
Date & Time:	July 10, 2013, 15:00 Local	**Registration:**	N56FT
Aircraft:	CIRRUS DESIGN CORP SR22	**Aircraft Damage:**	Substantial
Defining Event:	Fire/smoke (non-impact)	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

Following a full-stop landing, the pilot taxied the airplane from the runway toward a fixed-base operator (FBO) and then reported to the FBO that the airplane's brakes were hot before getting to his parking spot. Several FBO personnel reported to the control tower operator that the airplane appeared to be on fire. The pilot exited the airplane, and the fire subsequently consumed portions of the fuselage and cockpit.

Data extracted from the airplane revealed that the airplane taxied about 3.7 miles with the engine operating between 1,200 and 1,600 rpm. The airplane's pilot operating handbook warns that, if the 1,000 rpm taxi power limit and proper braking techniques are not used, the brake system may overheat, which could result in a brake fire. It is likely that the pilot's operation of the engine at a higher-than-recommended rpm level during a long taxi resulted in the brake system overheating and a subsequent fire.

Probable Cause and Findings

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

The pilot's failure to use the proper taxi procedure, which resulted in a brake system fire.

Findings

Aircraft	Brake - Capability exceeded
Personnel issues	Use of equip/system - Pilot
Personnel issues	Use of policy/procedure - Pilot

Factual Information

History of Flight

Taxi-from runway	Fire/smoke (non-impact) (Defining event)

On July 10, 2013, about 1500 central daylight time, a Cirrus SR22 airplane, N56FT, experienced a brake fire while taxiing after landing at George Bush Intercontinental Airport (KIAH), Houston, Texas. The airline transport rated pilot was not injured. The airplane was substantially damaged. The airplane was registered to Cirrus Uno LLC and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Visual meteorological conditions prevailed for the flight, which operated on an instrument flight rules flight plan. The flight originated from Garner Field Airport (KUVA), Uvalde, Texas, about 1310.

Information collected by the responding Federal Aviation Administration inspectors, revealed that after landing on runway 27, the pilot taxied the airplane toward a fixed base operator (FBO) when he reported that the airplane had hot brakes. FBO employees reported to air traffic control tower personnel that the airplane appeared to be on fire. The pilot exited the airplane and the fire consumed portions of the fuselage and cockpit.

Data from the airplane's Avidyne Entegra Primary Flight Display and Multi-Function Display was downloaded by the NTSB laboratories. The data revealed that the airplane landed at KIAH about 1447 while travelling about 100 knots and brakes were applied shortly after landing. The airplane exited the runway using the high speed taxiway at sierra golf and then turned on to taxiway sierra alpha. The airplane taxied west on sierra alpha at 10-30 knots ground speed and 1,000-1,500 engine rpm. The airplane was then slowed to below 10 knots to make a right turn on taxiway sierra charlie at 1450:18. The airplane proceeded north on sierra charlie at 5-10 knots before turning left at taxiway romeo alpha at 1451:42. The airplane proceeded west on taxiway romeo alpha while making several 45-degree turns at speeds ranging from 3-24 knots with the engine operating from 1,200-1,550 rpm. At 14:55:12 the airplane turned left on taxiway whiskey bravo. The airplane proceeded southeast on whiskey bravo between 10-30 knots with the engine operating from 1,400-1,600 rpm before slowing and reaching a stop at 1458:40 off the southwest side of taxi whiskey bravo between taxiways whiskey lima and whiskey mike. The PFD stopped recording data at 1459:18. The airplane had travelled about 3.7 miles from the approximate first point of brake application. The outside air temperature at the time of the accident was approximately 95 degrees and the wind about 3 knots.

The pilot operating handbook "Taxiing" section reads, "When taxiing, directional control is accomplished with rudder deflection and intermittent braking (toe taps) as necessary. Use only as much power as is necessary to achieve forward movement." The section contained a warning:

Maximum continuous engine speed for taxiing is 1,000 rpm on flat, smooth, hard surfaces. Power settings slightly above 1,000 rpm are permissible to start motion, for turf, soft surfaces, and on inclines. Use minimum power to maintain taxi speed. If the 1,000 rpm taxi power limit and proper braking procedures are not observed, the brake system may overheat and result in brake damage or brake fire.

Pilot Information

Certificate:	Airline transport; Commercial; Flight engineer; Flight instructor	**Age:**	63
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	August 28, 2012
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	25578 hours (Total, all aircraft), 26.6 hours (Total, this make and model), 17667 hours (Pilot In Command, all aircraft), 37.7 hours (Last 90 days, all aircraft), 16.6 hours (Last 30 days, all aircraft), 1.6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CIRRUS DESIGN CORP	**Registration:**	N56FT
Model/Series:	SR22	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	0026
Landing Gear Type:		**Seats:**	4
Date/Type of Last Inspection:	July 10, 2013 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	1.8 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2257.8 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	IO-550 SERIES
Registered Owner:	On file	**Rated Power:**	300 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KIAH,96 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	14:53 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Few / 5500 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	35°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	UVALDE, TX (KUVA)	**Type of Flight Plan Filed:**	IFR
Destination:	Houston, TX (IAH)	**Type of Clearance:**	IFR
Departure Time:	13:10 Local	**Type of Airspace:**	

Airport Information

Airport:	George Bush Intercontinental IAH	**Runway Surface Type:**	Concrete
Airport Elevation:	96 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	27	**IFR Approach:**	Unknown
Runway Length/Width:	10000 ft / 150 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	29.984443,-95.341392(est)

Administrative Information

Investigator In Charge (IIC):	Aguilera, Jason
Additional Participating Persons:	Del Scott; FAA; Houston, TX Brad Miller; Cirrus Aircraft Corporation; Duluth, MN
Original Publish Date:	September 29, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=87464