National Transportation Safety Board
Aviation Accident Final Report

Location:	Houston, TX	**Accident Number:**	CEN12LA335
Date & Time:	05/17/2012, 0715 CDT	**Registration:**	N617FB
Aircraft:	SHORT BROS SHORTS SD3-60	**Aircraft Damage:**	Substantial
Defining Event:	Miscellaneous/other	**Injuries:**	2 None
Flight Conducted Under:	Part 135: Air Taxi & Commuter - Non-scheduled		

Analysis

The pilots reported that the cargo airplane was about 60 pounds over its maximum takeoff weight. Because their taxi to the assigned runway was long, they decided to reduce weight by using higher-than-normal engine power settings to burn fuel before takeoff while using the wheel brakes to control the airplane's speed while taxiing. During the taxi, a fire ignited in the right wheel housing. The pilots brought the airplane to a stop on the taxiway, evacuated, and attempted to extinguish the fire with two handheld fire extinguishers. Airport firefighting personnel arrived on scene and extinguished the fire using foam suppressant. Although the fire damage was extensive, postaccident examination of the airplane did not show evidence of mechanical malfunctions or failures with the wheel and brake system that could have caused the fire. The right and left main landing gear tires deflated when the fusible plugs in the wheels blew due to overheating. The fusible plugs are designed to "fail" if the wheels overheat, and those plugs functioned as designed. The pilots stated that they had been trained to not ride the brakes while taxiing. However, the captain stated that he did not realize that he was in danger of blowing the tires much less causing a fire, otherwise he would not have attempted to bum off excess fuel while taxiing.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilots' improper decision to burn fuel during the taxi by operating the engines at a higher-than-normal power setting and using the wheel brakes to control taxi speed, which resulted in a wheel fire.

Findings

Aircraft	Brake - Incorrect use/operation (Cause)
Personnel issues	Decision making/judgment - Flight crew (Cause) Incorrect action performance - Flight crew (Cause)

Factual Information

On May 17, 2012, about 0715 central daylight time, a Shorts SD3-60, N617FB, registered to ACC Integrated Services Inc., of Milwaukee, Wisconsin, was substantially damaged following a wheel brake fire during taxi at the George Bush Intercontinental Airport, Houston, Texas. The airline transport pilot and commercial co-pilot were not injured. The airplane was being operated by Air Cargo Carriers LLC of Milwaukee, Wisconsin, as an air cargo flight under the provisions of 14 Code of Regulations Part 135. Visual meteorological conditions prevailed and a flight plan was filed. The airplane was taxiing to position for takeoff from runway 8R and its intended destination was Austin, Texas.

The flight crew reported that the airplane was about 60 pounds over its maximum weight for takeoff. Since their taxi to the assigned runway was long, they decided to reduce weight by using higher-than-normal engine power settings while maintaining some amount of braking to control speed while taxiing in order to burn fuel prior to takeoff. During the taxi, the right and left main landing gear tires deflated when the fusible plugs in the wheels blew out due to over-heating, and a fire ignited in the right wheel housing. The crew reported that they felt the airplane yaw as the tires deflated and were informed via radio by a following airplane that their right wheel was on fire. The crew brought the airplane to a stop on the taxiway, evacuated, and attempted to extinguish the fire with two hand-held fire extinguishers.

Airport fire fighting personnel arrived on scene and extinguished the fire using foam suppressant. The fire resulted in substantial damage to the wing support structures. No injuries were incurred to the flight crew or ground personnel. Although the fire damage was extensive, postaccident examination of the airplane by an FAA inspector, a NTSB investigator, and the operator's maintenance personnel did not show evidence of mechanical malfunction or abnormalities with the wheel and brake system.

The Shorts SD3-60 is a twin turbo-prop, strutted, high-wing airplane. Each of the main wheels are equipped with fusible plugs that are designed to blow out in the event of severe wheel overheating. Inspection of the airplane's wheel and brake systems after the accident showed that the plugs on both main wheels blew out as designed. The fire caused severe damage to the right main gear housing, which was part of the stub wing assembly structure and incorporates the attachment fitting for the wing strut. The operator's maintenance department believed that the fire caused substantial structural damage to the extent that repair was not practical.

The operator submitted in NTSB Form 6120 that both crew members stated that they had been trained to not ride the brakes while taxiing. Additionally, the Captain stated that he did not realize that he was in danger of blowing the tires much less causing a fire, otherwise he would not have attempted to bum off excess fuel while taxiing. The operator revised its training program to highlight the hazards of excessive brake use during all ground operations, including taxi. Additional emphasis will be placed on the purpose of the fusible plugs and photographs of the event will be used in all future training classes where the brake system is taught.

History of Flight

Taxi	Miscellaneous/other (Defining event)

Pilot Information

Certificate:	Airline Transport; Flight Instructor; Commercial; Private	**Age:**	31, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land; Single-engine Sea	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane Single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without Waivers/Limitations	**Last Medical Exam:**	08/19/2011
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	02/08/2012
Flight Time:	(Estimated) 5348 hours (Total, all aircraft), 2305 hours (Total, this make and model)		

Co-Pilot Information

Certificate:	Flight Instructor; Commercial	**Age:**	25, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 With Waivers/Limitations	**Last Medical Exam:**	05/26/2011
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	02/03/2012
Flight Time:	(Estimated) 832 hours (Total, all aircraft), 171 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	SHORT BROS	**Registration:**	N617FB
Model/Series:	SHORTS SD3-60	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Transport	**Serial Number:**	SH3617
Landing Gear Type:	Retractable - Tricycle	**Seats:**	
Date/Type of Last Inspection:	05/09/2012, AAIP	**Certified Max Gross Wt.:**	26500 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo Prop
Airframe Total Time:	27504 Hours	**Engine Manufacturer:**	Pratt & Whitney
ELT:	Installed, not activated	**Engine Model/Series:**	PT6A-65AR
Registered Owner:	ACC INTEGRATED SERVICES INC	**Rated Power:**	1425 hp
Operator:	ACC INTEGRATED SERVICES INC	**Air Carrier Operating Certificate:**	On-demand Air Taxi (135)
Operator Does Business As:	Air Cargo Carriers LLC	**Operator Designator Code:**	DATA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	IAH, 97 ft msl	**Observation Time:**	0718 CDT
Distance from Accident Site:	0 Nautical Miles	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Clear	**Temperature/Dew Point:**	31°C / 22°C
Lowest Ceiling:	None	**Visibility**	10 Miles
Wind Speed/Gusts, Direction:	Light and Variable, Variable	**Visibility (RVR):**	
Altimeter Setting:	29.83 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:			
Departure Point:	Houston, TX (IAH)	**Type of Flight Plan Filed:**	Unknown
Destination:	Austin, TX (AUS)	**Type of Clearance:**	None
Departure Time:	0715 CDT	**Type of Airspace:**	

Airport Information

Airport:	Geotge Bush International (IAH)	**Runway Surface Type:**	
Airport Elevation:	97 ft	**Runway Surface Condition:**	
Runway Used:	N/A	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	On-Ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	29.985278, -95.346944 (est)

Administrative Information

Investigator In Charge (IIC):	Alexander Lemishko	**Adopted Date:**	11/06/2013
Additional Participating Persons:	Glen Longnion; FAA FSDO Houston; Houston, TX		
Publish Date:	11/06/2013		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=83853		