



National Transportation Safety Board Aviation Incident Data Summary

Location:	Chicago, IL	Incident Number:	CEN11IA369
Date & Time:	06/03/2011, 0605 CDT	Registration:	N607AE
Aircraft:	EMBRAER EMB-145	Injuries:	52 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

The pilots reported that they felt one brake pedal fully release and then reapply during the landing roll. Air traffic control tower personnel saw a puff of smoke and asked the flight crew if a tire had blown on landing. The pilots taxied the airplane to a hold pad for further examination; however, the emergency brake would not hold the airplane stationary. The pilots also received caution messages for the brakes, and hydraulic fluid was observed on the tires and ground. An examination revealed the brake pressure plate and rotor failed. Separated brake parts were also found on the landing runway. Further examination of the incident brake and four other brakes revealed that they all contained varying levels of oxidation development.

The brake manufacturer had previously provided the operator with a maintenance procedure which involved using a fingernail or a specified plastic tool to check brakes for oxidation. The operator developed and provided related training to its maintenance personnel based on the manufacturer's procedures. However, interviews with airline and contract maintenance personnel revealed that they were not familiar with the inspection and were not issued the plastic tool. Subsequently, the brake manufacturer and operator provided additional related training to the operator's maintenance personnel, and the operator stocked their maintenance system with the specified tool.

Flight Events

Prior to flight - Aircraft maintenance event
Landing-landing roll - Sys/Comp malf/fail (non-power)
Landing-landing roll - Part(s) separation from AC

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this incident to be: The overheat and failure the brake during landing due to oxidation of the brake rotors, which went undetected by maintenance personnel. Contributing to the accident was maintenance personnel's lack of familiarity with detailed brake oxidation inspection procedures.

Findings

Aircraft-Aircraft systems-Landing gear system-Brake-Damaged/degraded - C
Aircraft-Aircraft systems-Landing gear system-Brake-Failure - C
Aircraft-Aircraft systems-Landing gear system-Brake-Inadequate inspection - C
Personnel issues-Experience/knowledge-Knowledge-Knowledge of procedures-Maintenance personnel - F
Personnel issues-Experience/knowledge-Training-Training with equipment-Maintenance personnel - F
Organizational issues-Support/oversight/monitoring-Oversight-Parts/tools tracking-Operator

Pilot Information

Certificate:	Airline Transport	Age:	53
Airplane Rating(s):	Multi-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):		Instructor Rating(s):	
Flight Time:	20691 hours (Total, all aircraft), 9911 hours (Pilot In Command, all aircraft)		

Co-Pilot Information

Certificate:	Commercial	Age:	30
Airplane Rating(s):	Multi-engine Land	Instrument Rating(s):	Airplane
Other Aircraft Rating(s):		Instructor Rating(s):	
Flight Time:	4820 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	EMBRAER	Registration:	N607AE
Model/Series:	EMB-145	Engines:	2 Turbo Jet
Operator:	AMERICAN EAGLE AIRLINES INC	Engine Manufacturer:	ALLISON
Air Carrier Operating Certificate:	Flag carrier (121)	Engine Model/Series:	AE3007C SER
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	ORD, 672 ft msl	Weather Information Source:	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	Lowest Ceiling:	None
Condition of Light:	Day	Wind Speed/Gusts, Direction:	13 knots, 170°
Temperature:	26° C / 17° C	Visibility	10 Miles
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Columbus, OH (CMH)	Destination:	Chicago, IL (ORD)

Airport Information

Airport:	Chicago O'Hare IAP (ORD)	Runway Surface Type:	Asphalt
Runway Used:	22R	Runway Surface Condition:	Unknown
Runway Length/Width:	7500 ft / 150 ft		

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	None
Passenger Injuries:	49 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None

Administrative Information

Investigator In Charge (IIC): Edward F Malinowski

Adopted Date: 11/07/2012

Investigation Docket: <http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=79293>

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