



National Transportation Safety Board Aviation Accident Final Report

Location:	LAS VEGAS, NV	Accident Number:	LAX00LA223
Date & Time:	06/12/2000, 1314 PDT	Registration:	N655AW
Aircraft:	Airbus Industrie A320-232	Aircraft Damage:	Substantial
Defining Event:		Injuries:	152 None

Flight Conducted Under: Part 121: Air Carrier - Scheduled

Analysis

During takeoff, as the airplane accelerated through takeoff rotation speed (V_r), the outboard, forward cowl door on the left (number 1) engine separated from the engine nacelle and struck the horizontal stabilizer. The pilot reported there had been an abnormal vibration as the aircraft accelerated through V_r . Several passengers pressed their flight attendant call buttons and alerted the flight attendants who, in turn, reported the cowling separation to the cockpit crew. The return for landing at the departure airport was unremarkable. The cowl door over-center type latches on the inboard door were found latched, however, the hooks were intact and undamaged. Similarly, the latch receptacles on the outboard door were visibly undamaged. The latches were painted red. An "RON-check" (Remain Over Night) had been performed during hours of darkness the previous night, which required that the cowling doors be opened. In the morning, the aircraft was handed over from the maintenance graveyard shift to the day shift. Maintenance items remained to be completed in areas of the aircraft other than the number 1 engine. The takeoff where the cowling separated was the first flight following return to service.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the mechanic to refasten the cowling door prior to returning the aircraft to service.

Findings

Occurrence #1: MISCELLANEOUS/OTHER

Phase of Operation: TAKEOFF

Findings

1. LIGHT CONDITION - NIGHT
2. NACELLE/PYLON
3. DOOR - NOT SECURED
4. (C) PROCEDURES/DIRECTIVES - NOT COMPLIED WITH - COMPANY MAINTENANCE PERSONNEL

Factual Information

On June 12, 2000, at 1314 hours Pacific daylight time, an Airbus A320-232, N655AW, was substantially damaged when the engine cowling separated and struck the horizontal stabilizer during takeoff at McCarran International Airport, Las Vegas, Nevada. The airline transport certificated pilot, the second pilot, 3 flight attendants and 147 passengers were not injured. The aircraft was operated by America West Airlines, Inc., under 14 CFR Part 121 as flight 2747, a regularly scheduled domestic passenger flight, destined for Columbus, Ohio. Visual meteorological conditions prevailed and the flight was operating on an instrument flight plan.

According to the operator, the pilot reported there had been an abnormal vibration as the aircraft accelerated through takeoff rotation speed (Vr). Several passengers pressed their flight attendant call buttons and alerted the flight attendants who, in turn, reported the cowling separation to the cockpit crew. The return for landing at the departure airport at 1331 was unremarkable. The aircraft was taxied to the terminal gate and the passengers deplaned normally.

Postflight inspection revealed that the outboard, forward cowl door on the left (number 1) engine had separated from the engine nacelle. There was a 10-inch cut through the landing gear (strut) door and there were 3 holes in the lower surface of the left horizontal stabilizer, each approximately 2 inches wide and 8 inches long. The cowling door hold-open rod penetrated the lower skin and aft spar web of the horizontal stabilizer. No damage was observed on the wing or wing flap. The opposite (inboard) cowl door and the "bull nose," where the two doors hinge at the 12 o'clock position, were damaged but remained attached to the nacelle. The cowl door over-center type latches on the inboard door were found latched, however, the hooks were intact and undamaged. Similarly, the latch receptacles on the outboard door were visibly undamaged. The latches were painted red.

The operator reported that the aircraft remained overnight in Las Vegas and an "RON-check" (Remain Over Night) had been performed during hours of darkness. The RON-check required that the cowling doors be opened; however, the mechanic performing the work reported that the cowl doors were closed and re-latched about 0530 - 0600 during hours of daylight. In the morning, the aircraft was handed over from the maintenance graveyard shift to the day shift. Maintenance items remained to be completed in areas of the aircraft other than the number 1 engine. The takeoff where the cowling separated was the first flight following return to service.

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	49, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim.	Last Medical Exam:	04/05/2000
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	20300 hours (Total, all aircraft), 8000 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Airbus Industrie	Registration:	N655AW
Model/Series:	A320-232 A320-232	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	1075
Landing Gear Type:	Retractable - Tricycle	Seats:	156
Date/Type of Last Inspection:	05/01/1999, AAIP	Certified Max Gross Wt.:	169750 lbs
Time Since Last Inspection:	3012 Hours	Engines:	2 Turbo Fan
Airframe Total Time:	3012 Hours	Engine Manufacturer:	Int'l Aero En
ELT:	Not installed	Engine Model/Series:	V-2527-A5
Registered Owner:	AMERICA WEST AIRLINES, INC.	Rated Power:	27000 lbs
Operator:	AMERICA WEST AIRLINES, INC.	Air Carrier Operating Certificate:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	AWXA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	LAS, 2179 ft msl	Observation Time:	1256 PDT
Distance from Accident Site:	0 Nautical Miles	Direction from Accident Site:	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	Temperature/Dew Point:	95° C / 43° C
Lowest Ceiling:	Broken / 25000 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	6 knots, Variable	Visibility (RVR):	0 ft
Altimeter Setting:	29 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:	(LAS)	Type of Flight Plan Filed:	IFR
Destination:	COLUMBUS, OH (CMH)	Type of Clearance:	IFR
Departure Time:	1310 PDT	Type of Airspace:	Class B

Airport Information

Airport:	MCCARRAN INTERNATIONAL (LAS)	Runway Surface Type:	Asphalt
Airport Elevation:	2179 ft	Runway Surface Condition:	Dry
Runway Used:	25R	IFR Approach:	
Runway Length/Width:	14505 ft / 150 ft	VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	5 None	Aircraft Damage:	Substantial
Passenger Injuries:	147 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	152 None	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	RICHARD B PARKER	Adopted Date:	08/21/2001
Additional Participating Persons:	WILLIAM F SMITH; LAS VEGAS, NV JACK DRAKE; PHOENIX, AZ		
Publish Date:			
Investigation Docket:	NTSB accident and incident docket serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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