



National Transportation Safety Board Aviation Accident Final Report

Location:	Las Vegas, NV	Accident Number:	DCA14CA034
Date & Time:	01/03/2014, 1720 PST	Registration:	N8327A
Aircraft:	BOEING 737	Aircraft Damage:	Substantial
Defining Event:	Tailstrike	Injuries:	180 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

On January 3, 2014, at approximately 1930 pacific standard time, Southwest Airlines flight 2516, a Boeing 737-800, N8327A, experienced a tail strike during landing at McCarran International Airport (KLAS), Las Vegas, Nevada. There were no injuries to the 180 passengers and crew onboard and the airplane was substantially damaged. The flight was operating as a regularly scheduled passenger flight and originated from Orlando International Airport (KMCO), Orlando, Florida.

According to the operator, the captain was the pilot flying and the first officer (FO) was the pilot monitoring. The accident flight was the first and only scheduled flight for the day for both crew members. Both pilots indicated that takeoff through the initial descent was uneventful. The aircraft was configured for a flaps 30 landing. During the ILS approach to runway 25L, the captain used the Heads-up Guidance System (HGS) in the IMC mode.

During the decent below 100 feet, the FO indicated that the runway environment was dark and sensed the runway was "coming close fast". He noted a slightly increased descent rate and before he could make a callout, the captain had begun to take corrective action.

During the descent, the captain stated he was hand flying the airplane (autopilot and autothrottles were off) and used the localizer, glideslope and flare cues from the HGS. At approximately 30 feet, he transitioned from the HGS to the runway environment, noting it appeared "pitch black." He then noticed the runway edge lights and what appeared to be an increased sink rate.

Both pilots indicated the airplane touched down firm, then bounced, and the second touch down was harder than the first. Neither were aware that they had struck the tail. The captain did not recall seeing a tail strike warning indication from the HGS.

Post flight inspection revealed that the tail strike indicator was compressed and deep scrapes and wear damage to the lower aft fuselage skin. Further investigation revealed multiple fractured frames and buckled stringers, shear ties and straps.

Probable Cause and Findings

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

the captain's over rotation during the bounced landing.

Findings

Personnel issues	Incorrect action performance - Pilot (Cause)
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Factual Information

History of Flight

Landing-flare/touchdown	Tailstrike (Defining event)
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Pilot Information

Certificate:	Airline Transport	Age:	54, Male
Airplane Rating(s):	Multi-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 With Waivers/Limitations	Last FAA Medical Exam:	08/13/2013
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	03/20/2013
Flight Time:	(Estimated) 14111 hours (Total, all aircraft), 9200 hours (Total, this make and model), 2197 hours (Pilot In Command, all aircraft), 140 hours (Last 90 days, all aircraft), 45 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Airline Transport	Age:	43, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	None	Restraint Used:	4-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 1 Without Waivers/Limitations	Last FAA Medical Exam:	10/28/2013
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	04/30/2013
Flight Time:	(Estimated) 8000 hours (Total, all aircraft), 3200 hours (Total, this make and model), 3500 hours (Pilot In Command, all aircraft), 145 hours (Last 90 days, all aircraft), 5 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	BOEING	Registration:	N8327A
Model/Series:	737 8H4	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	38818
Landing Gear Type:	Retractable - Tricycle	Seats:	
Date/Type of Last Inspection:		Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	2 Turbo Fan
Airframe Total Time:		Engine Manufacturer:	CFM
ELT:	Installed, not activated	Engine Model/Series:	CFM56-7
Registered Owner:	SOUTHWEST AIRLINES CO	Rated Power:	
Operator:	SOUTHWEST AIRLINES CO	Operating Certificate(s) Held:	Flag carrier (121)
Operator Does Business As:		Operator Designator Code:	SWAA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night
Observation Facility, Elevation:	KLAS	Observation Time:	0215 UTC
Distance from Accident Site:		Direction from Accident Site:	
Lowest Cloud Condition:		Temperature/Dew Point:	12° C / 15° C
Lowest Ceiling:	Broken / 25000 ft agl	Visibility	10 Miles
Wind Speed/Gusts, Direction:	7 knots, 190°	Visibility (RVR):	
Altimeter Setting:	29.91 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:			
Departure Point:	ORLANDO, FL (MCO)	Type of Flight Plan Filed:	
Destination:	Las Vegas, NV (LAS)	Type of Clearance:	IFR
Departure Time:		Type of Airspace:	Class B

Airport Information

Airport:	MC CARRAN INTL (LAS)	Runway Surface Type:	Concrete
Airport Elevation:	2181 ft	Runway Surface Condition:	Dry
Runway Used:	25L	IFR Approach:	ILS; Visual
Runway Length/Width:	10525 ft / 150 ft	VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	6 None	Aircraft Damage:	Substantial
Passenger Injuries:	174 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	180 None	Latitude, Longitude:	36.080000, -115.152222 (est)

Administrative Information

Investigator In Charge (IIC): Dennis L Jones Adopted Date: 03/09/2018

Additional Participating Persons:

Publish Date: 03/09/2018

Note: This accident report documents the factual circumstances of this accident as described to the NTSB.

Investigation Docket: <http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=88654>

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