
Jammed stabilizer trim, Boeing 737-700, October 10, 2001

Micro-summary: This Boeing 737-700 experienced a jammed stabilizer trim actuator during initial climb.


Event Date: 2001-10-10 at 1627 PDT


Investigative Body: National Transportation Safety Board (NTSB), USA


Investigative Body's Web Site: <http://www.nts.gov/>

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		NTSB ID: LAX021A002		Aircraft Registration Number: N615AS	
		Occurrence Date: 10/10/2001		Most Critical Injury: None	
		Occurrence Type: Incident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Santa Ana		State CA	Zip Code 92707	Local Time 1627	Time Zone PDT
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer Boeing		Model/Series 737-700		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>On October 10, 2001, at 1627 hours Pacific daylight time, Alaska Airlines flight 497, a Boeing 737-700, N615AS, experienced a jammed horizontal stabilizer trim actuator during the takeoff initial climb from the John Wayne Airport-Orange County, Santa Ana, California. The flight was destined for Seattle, Washington; however, the flight crew diverted to, and landed at, Los Angeles International Airport, Los Angeles, California, at 1658. The airline transport certificated pilot, the remaining 4 crewmembers, and 82 passengers were not injured, and the airplane was not damaged. The flight was operated by Alaska Airlines, Inc., under 14 CFR Part 121, as flight 497, a regularly scheduled domestic passenger flight. The flight was operating on a instrument flight plan and visual meteorological conditions prevailed.</p> <p>The pilot reported that after takeoff, during climb out, the "STAB OUT OF TRIM" annunciator light illuminated. The crew disengaged the autopilot and found the electric trim control inoperative at both the pilot and co-pilot controls and the manual trim control was jammed and immovable. The crew leveled the airplane at 13,000 feet and accomplished the "Stabilizer Out of Trim" and "Jammed Stabilizer" checklists to no avail. After conferring by radio with their company maintenance personnel at Los Angeles, the decision was made to land there. The crew declared an emergency with air traffic control and made an otherwise uneventful landing at Los Angeles. According to the pilot, maintenance personnel who met the airplane on arrival could not move the stabilizer control either and believed the actuator gearbox was jammed. In a subsequent company interview, on November 13, 2001, the pilot reiterated that the trim manual control had been jammed and immobile; neither he, the first officer (co-pilot) or the mechanics who met the flight, were able to force it to move. The pilot said he had trained for the jammed stabilizer emergency in the simulator; however, in the incident at hand he had applied "a lot more force" than was required in the simulator and was still unable to move the manual control.</p> <p>Post flight examination revealed the horizontal stabilizer trim actuator motor was seized. The actuator motor was replaced with a serviceable unit and the aircraft was ferried to Seattle for inspection. No other faults were found in the pitch trim system and the airplane was returned to service. Further examination of the actuator motor revealed that the motor was mechanically seized. According to a representative of Boeing Aircraft Company, with the motor seized, in order to manually trim the stabilizer, it would have been necessary for the flight crew to have exerted sufficient force on the trim wheel to cause the motor clutch to slip in addition to the force necessary to overcome normal system friction.</p>					
FACTUAL REPORT - AVIATION					
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 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: LAX021A002				
		Occurrence Date: 10/10/2001				
		Occurrence Type: Incident				
Landing Facility/Approach Information						
Airport Name		Airport ID:	Airport Elevation Ft. MSL	Runway Used NA	Runway Length	Runway Width
Runway Surface Type:						
Runway Surface Condition:						
Type Instrument Approach: NONE						
VFR Approach/Landing: None						
Aircraft Information						
Aircraft Manufacturer Boeing		Model/Series 737-700		Serial Number 30344		
Airworthiness Certificate(s): Transport						
Landing Gear Type: Retractable - Tricycle						
Homebuilt Aircraft? No		Number of Seats: 129	Certified Max Gross Wt. 154500 LBS		Number of Engines: 2	
Engine Type: Turbo Fan		Engine Manufacturer: CFM International		Model/Series: CFM 56-7B24	Rated Power: 24000 LBS	
- Aircraft Inspection Information						
Type of Last Inspection Continuous Airworthiness		Date of Last Inspection 10/2001	Time Since Last Inspection 50 Hours		Airframe Total Time 6250 Hours	
- Emergency Locator Transmitter (ELT) Information						
ELT Installed? No		ELT Operated? No		ELT Aided in Locating Accident Site?		
Owner/Operator Information						
Registered Aircraft Owner Alaska Airlines, Inc.		Street Address 19300 International Blvd.				
		City Seattle		State WA	Zip Code 98188	
Operator of Aircraft Same as Reg'd Aircraft Owner		Street Address Same as Reg'd Aircraft Owner				
		City		State	Zip Code	
Operator Does Business As:				Operator Designator Code: ASAA		
- Type of U.S. Certificate(s) Held:						
Air Carrier Operating Certificate(s): Flag Carrier/Domestic						
Operating Certificate:			Operator Certificate:			
Regulation Flight Conducted Under: Part 121: Air Carrier						
Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only						

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: LAX02IA002
	Occurrence Date: 10/10/2001
	Occurrence Type: Incident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 42
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Sex: M	Seat Occupied: Left	Principal Profession: Occupational Pilot	Certificate Number: On File
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Certificate(s): Airline Transport; Flight Instructor

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): Airplane Multi-engine; Airplane Single-engine; Instrument Airplane

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review?
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Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--no waivers/lim.	Date of Last Medical Exam: 07/2001
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- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	7317									
Pilot In Command(PIC)										
Instructor										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? No	Second Pilot? Yes
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Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point Same as Accident/Incident Location	State	Airport Identifier SNA	Departure Time 1625	Time Zone PDT
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Destination Seattle	State WA	Airport Identifier SEA	
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Type of Clearance: IFR

Type of Airspace: Class E

Weather Information

Source of Briefing: Company

Method of Briefing: Teletype

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: LAX02IA002
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Weather Information

WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
SNA	1653	PST	58 Ft. MSL	NM	Deg. Mag.

Sky/Lowest Cloud Condition: Few 20000 Ft. AGL Condition of Light: Day

Lowest Ceiling: None Ft. AGL Visibility: 7 SM Altimeter: 29.97 "Hg

Temperature: 21 °C Dew Point: 16 °C Wind Direction: 240 Density Altitude: Ft.

Wind Speed: 6 Gusts: Weather Conditions at Accident Site: Visual Conditions

Visibility (RVR): Ft. Visibility (RVV) SM Intensity of Precipitation:

Restrictions to Visibility: No Obscuration; No Precipitation

Type of Precipitation:

Accident Information

Aircraft Damage: None Aircraft Fire: None Aircraft Explosion: None

Classification: U.S. Registered/U.S. Soil

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants				3	3
Other Crew					
Passengers				82	82
- TOTAL ABOARD -				87	87
Other Ground					
- GRAND TOTAL -				87	87

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: LAX02IA002

Occurrence Date: 10/10/2001

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

RICHARD B. PARKER

Additional Persons Participating in This Accident/Incident Investigation:

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