National Transportation Safety Board
Aviation Incident Final Report

Location:	Santa Maria, CA	**Incident Number:**	LAX06IA076
Date & Time:	01/02/2006, 1439 PST	**Registration:**	N390AE
Aircraft:	Saab-Scania AB (Saab) SF340B+	**Aircraft Damage:**	None
Defining Event:		**Injuries:**	28 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

After departure and during the cruise climb phase, the flight encountered airframe ice and departed from controlled flight.

The flight crew encountered light rime icing on the inbound leg while descending from 9,000 to 5,000 feet. Before the incident takeoff, they reviewed the dispatch package weather and noted two AIRMET (airmen's meteorological information) reports for icing in clouds. The captain decided to perform the departure and turn control of the airplane over to the first officer after completing the climb checklist at the acceleration altitude. In accordance with the operator's minimum equipment list (MEL), the airplane was dispatched with the continuous mode of the boot deice system inoperable, which would require the crew to manually operate the deice boots. Company procedures require activation of the deice system at the first sign of ice accretion, and operation of the deice boots continually thereafter while in icing conditions. The departure was into level 2 weather conditions (defined as 10 degree Celsius or colder with visible moisture).

The airline's Airplane Operating manual (AOM) for the airplane calls for computation of a minimum speed (Vcln+15) in icing conditions, which for this flight was 141 KIAS. The limitations section stipulates that Indicated Air Speed (IAS) is the only authorized flight director/autopilot mode while climbing when ice accretion is occurring or with residual ice on the airframe. In IAS mode, the flight control computer gives pitch commands to maintain the selected indicated airspeed as opposed to the Vertical Speed (VS) mode where the autopilot sacrifices airspeed to maintain climb rate. Even though the crew had encountered icing on the inbound leg and the dispatch weather reports predicted an icing encounter during the climb on the outbound leg, the captain engaged the autopilot in the medium (M) climb mode and shortly after taking the controls at 2,500 feet, the first officer changed the autopilot to VS mode.

As the airplane climbed through 11,700 feet, the captain noted light rime ice accumulating on the windshield wiper blades and about a 1/2-inch-wide area of ice on the left wing. During this time, the crew failed to detect a decaying indicated airspeed due to the ice that was accumulating. As he began to activate the manual deice boot system, he felt a heavy vibration

in the airframe and the windscreen immediately turned white with ice. The airplane's nose and left wing dropped and the autopilot disconnected. As he was grabbing the yoke, the clacker sounded (indicating an imminent stall), the stick shaker activated, and the ground proximity warning system emitted a "bank angle" aural warning. Digital Flight Data Recorder (DFDR) data showed that the indicated airspeed went from 144 to 130 KIAS over the 26 seconds before the upset, and that the rate of airspeed decay accelerated in the final 10 seconds before the autopilot disconnected. The airplane departed controlled flight at an indicated airspeed of 130 knots, and before the stall warning activated. The data establishes that the airplane went through a series of roll and pitch excursions, reaching maximum values of 86 degrees left wing down, 140 degrees right wing down, 23 degrees nose up, and 40 degrees nose down before the flight crew recovered control. The data also revealed that about 26 seconds before the stall while the airplane was at a speed of 144 KIAS, the airplane began to experience a likely ice-induced slight rolling anomaly that was counter to the direction of the aileron input. Aileron input from the autopilot arrested this slight rolling motion.

The DFDR data also disclosed that 14 seconds after the initial stall, both ailerons simultaneously traveled to the full up position for approximately 14 seconds. The Safety Board believes that the initial stall that occurred prior to stall warning, the upset, and the aileron upward deflections were caused by ice accreted on the wing in supercooled liquid droplets (SLD) conditions. Furthermore, the period of simultaneous upward deflection of the ailerons were caused by airflow separations over the ailerons, and not by opposite control wheel inputs by the captain and first officer (FO). This conclusion was based on the similar nature of past experience in accidents and incidents involving modification of aileron forces by SLD ice accretions, the higher airspeed and dynamic nature of the initiating events, the captain's and FO's statements, and the captain removing one hand from the control wheel to reduce the power. Also contributing to this conclusion was extrapolation of aileron and control wheel force measurements obtained in high speed taxi testing with a simulated ice shape in front of one aileron, and the development of airflow separation over the ailerons into a complete full wing stall.

Recommendations

The Safety Board issued several recommendations as a result of the investigation.

Urgent recommendation A-06-48 asked the FAA to require all operators of Saab SF340 series airplanes to instruct pilots to maintain a minimum operating airspeed of 1.45xVs during icing encounters and before entering known or forecast icing conditions and to exit icing conditions as soon as performance degradations prevent the airplane from maintaining 1.45xVs.

Recommendation A-06-49 and A-06-50 asked the FAA to require the installation of modified stall protection logic in Saab SF340 series airplanes certified for flight into known icing conditions and to require the installation of an icing detection system on Saab SF340 series airplanes.

Recommendation A-06-51 asked the FAA to require all operators of turbo propeller-driven airplanes to instruct pilots, to disengage the autopilot and fly the airplane manually when operating in icing conditions.

The Safety Board also reiterated the following prior recommendations to the FAA.

Recommendation A-03-53 and A-03-54 asked the FAA to convene a panel of airplane design, operations, and aviation human factors specialists to determine whether a requirement for the installation of low-airspeed alert systems in airplanes engaged in commercial operations under 14 Code of Federal Regulations Parts 121 and 135 would be feasible, and if the panel determined that such feasibility exists, establish requirements for low-airspeed alert systems.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: An in-flight loss of control due to ice accreted in supercooled liquid droplets (SLD) conditions, and the flight crew's failure to maintain the specified minimum airspeed in icing conditions. Contributing to the accident was the flight crew's decision to climb the airplane in known and forecast icing conditions using an autopilot mode contrary to that specified in the operator's Airplane Operations Manual for climbs during periods of ice accretion or when ice was present on the airframe.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CLIMB - TO CRUISE

Findings
1. WEATHER CONDITION - ICING CONDITIONS

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CLIMB - TO CRUISE

Findings
2. (F) AUTOPILOT - IMPROPER USE OF - FLIGHTCREW
3. (C) AIRSPEED - NOT MAINTAINED - OTHER PERSON
4. (C) STALL - ENCOUNTERED

Factual Information

HISTORY OF FLIGHT

On January 2, 2006, at 1439 Pacific standard time, a Saab-Scania AB SF340B+, N390AE, operated by American Eagle Airlines, Inc., as flight 3008, encountered icing conditions during the en route climb over Santa Maria, California. The airplane was at 11,700 feet mean sea level (msl) when it departed controlled flight, and descended to an altitude of about 6,500 feet msl. The pilots recovered control of the airplane, and continued to their scheduled destination of Los Angeles International Airport (LAX), Los Angeles California, where they landed at 1540 without further incident. The 2 flight crew members, 1 flight attendant, and 25 passengers were uninjured, and the airplane did not sustain substantial damage. Instrument meteorological conditions prevailed for the 14 Code of Federal Regulations (CFR) Part 121 scheduled domestic passenger flight that was operating on an instrument flight rules (IFR) flight plan. The flight originated from San Luis County Regional Airport (SBP), San Luis Obispo, California, at 1414.

A review of the American Eagle Airlines, Inc., flight log disclosed that the accident flight was scheduled to be the flight crew's fifth trip of the day, and their second trip in the accident airplane. The 1 hour 26 minute accident flight was scheduled to depart from Santa Barbara at 1408, and terminate in Los Angeles at 1513.

The flight crew members stated in post incident interviews that before the incident flight, they had encountered light rime icing and moderate turbulence on the inbound leg to San Luis Obispo as they were descending from 9,000 to 5,000 feet. The pilots stated that, while preparing for the return flight to Los Angeles, they reviewed the weather conditions for the intended route of flight. The operator's dispatch package noted two AIRMET (airmen's meteorological information) reports for icing in clouds and two PIREPs (pilot weather reports) for turbulence. The pilots discussed the conditions that they had encountered on the way in, as well as the conditions for the intended route of flight outbound. Because of the gusty wind conditions and the short runway at San Luis Obispo, the captain decided to perform the departure. He was going to turn control of the airplane over to the first officer after completing the climb checklist at the acceleration altitude.

In accordance with American Eagle's minimum equipment list (MEL), the incident airplane was dispatched with the continuous mode of the boot deice system inoperable for the inbound flight and the return incident flight. The flight crew reported that they performed the manual test of the deicer boots as called for in the MEL, and observed the operation of the inboard and outboard wing boot segments. However, they could not see the stabilizer segments, and did not have qualified ground personnel available to observe the test as required by the MEL. The pilots reported that they did confirm illumination of the green boot inflation lights on the overhead panel when they pressed the manual buttons.

In accordance with company procedures that require flight crews to activate the deice system at the first sign of ice accretion and operate the deice boots continually, the crew stated that they were prepared to operate the deice boots in manual mode as needed during the flight. They departed in level 2 weather conditions (defined as 10 degree Celsius or colder with visible moisture) and with the engine anti-ice on.

The pilots stated that the weather radar was on, and they did not observe any activity on it. The

captain had the autopilot engaged in the medium (M) climb mode. Shortly after taking the controls about 2,500 feet, the first officer changed the autopilot to vertical speed (VS) mode, which gave pitch attitude commands to maintain the vertical speed existing at the time of mode engagement.

As the airplane climbed through 11,000 feet, the captain noted light rime ice accumulating on the windshield wiper blades and about a 1/2-inch-wide area of ice on the left wing.

The captain reported that, as he began to reach up to activate the manual deice boot system, he felt a heavy vibration in the airframe. He said that the windscreen immediately turned white. Immediately thereafter, the airplane's nose dropped, the left wing dropped, and the autopilot disconnected. He grabbed the yoke to take control of the airplane. He said that the clacker sounded (indicating an imminent stall), the stick shaker activated, and the ground proximity warning system emitted a "bank angle" aural warning.

The flight crew reported that the airplane vibrated again, but less violently than the first episode. The captain leveled the wings, and began pulling up on the control yoke. At this point, he instructed the first officer to manually operate the deice boots. The captain stated that he pushed the condition levers to the maximum position, and brought the power levers to idle. The airplane stabilized in roll, and he could hear chunks of ice shedding off and hitting the fuselage. He kept the airplane in a nose-down attitude, maintaining a 500 feet per minute rate of descent until the airplane was below the freezing level.

PERSONNEL INFORMATION

Captain

The operator reported that the 34-year-old captain held an airline transport pilot (ATP) certificate with a rating for airplane multi-engine land. He held a commercial pilot certificate with ratings for airplane single-engine land and instrument airplane. He had a type rating in the SF340.

The captain held a first-class medical certificate issued on September 21, 2005. It had no limitations or waivers.

The captain had a total flight time of 6,764.08 hours, with 3,981.87 hours accumulated in Saab 340 airplanes, of which 2,519.46 hours was as the pilot-in-command (PIC). He had a total of 970 hours of instrument experience and between 1,700 and 1,900 hours of night flight. During the preceding 90 days, 30 days, and 24 hours, he reported that he had flown in both the capacity of PIC and second-in-command (SIC) approximately 172, 47, and 7 hours, respectively. He added that he had acquired numerous hours of aerobatic flight time in a Cessna 150 Aerobat airplane.

First Officer (FO)

The operator reported that the 32-year-old FO held a commercial pilot certificate with airplane instrument and multi-engine land ratings. He additionally held an SF340 Type Rating, with the limitations of SF340 SIC privileges only and circling approaches to be completed only in visual meteorological conditions (VMC). The FO was also a certified flight instructor (CFI) for instrument and multi-engine land airplane.

The FO's second-class medical certificate was issued on May 25, 2005, with the limitation that he must wear corrective lenses.

The FO had a total flight time of 1,367.48 hours, with 132.48 hours accumulated in Saab 340 airplanes. He had a total of 94 hours of instrument experience and 185 hours of night flight. During the preceding 90 days, 30 days, and 24 hours, he reported that he had flown approximately 120, 71, and 5 hours, respectively.

AIRCRAFT INFORMATION

The airplane was a Saab SF340B+, serial number 340B-390. The airplane had a total airframe time of 17,291 hours at the examination following the incident.

Systems

National Transportation Safety Board investigators reviewed the airplane's maintenance records and logbooks. The day prior to the incident, a flight crew reported that during an en route deice boot check, the timer light illuminated. The deicer timer failure light was later deferred in accordance with the operator's MEL. The deferral procedures required a placard to be placed adjacent to the deicer timer switch and the auto cycling switch to remain in the "off" position. Investigators did observe an MEL placard (sticker) next to the deice system controls in the cockpit.

Initial examinations revealed that the airplane's deice systems were operational; the deicer timer failure light illuminated.

Aileron Interconnect

The airplane was equipped with an Aileron Spring Unit. This would allow the flight crew to initially maintain authority in the roll axis if one aileron seized, until the aileron disconnect handle in the cockpit was pulled by a pilot. In the event an aileron seized, the pilot would have to overpower a preloaded spring unit to manipulate an aileron. When the pilot reduced control input pressure, the unit would close allowing the ailerons to be normally coupled. The FO stated that he believed that he did not have his hands on the controls after the captain assumed authority. The roll disconnect handle was not pulled during this incident.

WEATHER

A Safety Board meteorologist prepared a factual report, which is part of the public docket. AIRMET Zulu Update 4 for icing (SFOZ WA 022045) was issued on January 2, 2006, at 1345, and valid until 2000. It noted occasional moderate rime/mixed icing in clouds and in precipitation between the freezing level and FL220. The freezing level in central California was 6,000 to 8,000 feet; the freezing level in southern California was 7,000 to 11,000 feet.

The specialist reviewed San Joaquin Valley, California (HNX) Level II Doppler weather radar Base Reflectivity Images. At 1437:38 at the location of the icing encounter, the HNX beam center was about 16,500 feet with a beam width of about 8,000 feet. The top of the beam was about 20,500 feet, and the bottom of the beam was about 12,500 feet.

At 1442:36 at the location of the icing encounter, the HNX beam center was about 7,500 feet with a beam width of about 8,000 feet. The top of the beam was about 11,500 feet, and the bottom of the beam was about 3,500 feet.

A GOES-10 infrared image at 1441 PST at the location of the icing incident recorded a radiative temperature of 244 degrees K (-29 degrees C). Using NAM12 upper air data, this temperature corresponded to a cloud top of about 21,000 feet.

The report contained experimental Current Icing Potential (CIP) plots that a scientist at the National Center for Atmospheric Research in Boulder, Colorado, provided. It noted that the CIP product (Supercooled Liquid Droplets (SLD) and Ice) combines sensor and numerical model data to provide a three-dimensional diagnosis of the icing environment. The current CIP output consists of a likelihood field ranging from 0 (no icing) to 100 (certain icing). While this is not yet calibrated as a true probability value, CIP has value in pointing out real differences in the likelihood of encountering icing at a given location.

The plots were: icing severity category composite, maximum SLD potential in the column, maximum potential in column for experiencing icing field, icing severity at 12,000 feet, potential for SLD ice at 12,000 feet, potential for experiencing ice at 12,000 feet, icing severity at 9,000 feet, potential for experiencing ice at 9,000 feet, potential for SLD ice at 9,000 feet, and current icing potential.

DIGITAL FLIGHT DATA RECORDER (DFDR)

A Safety Board specialist examined the DFDR data, and the factual report is part of the public docket.

About 6 minutes after takeoff, the airplane was passing through 9,200 feet. The airspeed began to decline from 180 knots, and the pitch angle began to increase. Around 2 minutes later, at 1439:36, the pitch of the airplane was 14 degrees up and the roll was neutral. One second later, the altitude reached a maximum recorded value of 11,712 feet, and the airplane was in a 16-degree left roll. During the next second, the autopilot disconnected, and the airspeed registered 118 knots.

The rate of airspeed decay accelerated in the final 10 seconds before the autopilot disconnected. The airplane departed controlled flight at an airspeed of 130 knots indicated airspeed (KIAS), and before the stall warning activated. The DFDR data also revealed that about 26 seconds before the stall roll departure, while the airplane was at a speed of 144 KIAS, the airplane began to experience a slight rolling anomaly that was counter to the direction of the aileron input. Aileron input from the autopilot arrested this slight rolling motion.

The airplane rolled to 86 degrees left wing down, and then went through a series of roll and pitch movements. It reached 140 degrees of right roll, and a maximum pitch down angle of 48 degrees. It rolled to 75 degrees left wing down, and a pitch of 31 degrees nose down. It then rolled to 94 degrees right wing down, followed by a pitch angle to 40 degrees nose down. Starting at 1440, the altitude and outside air temperature parameters stopped recording valid data for a period of 15 seconds. At 1440:06, the airplane's pitch angle began to increase. It passed through 0 degrees about 6 seconds later at an airspeed of 219 knots, and a recorded maximum vertical acceleration of 2.5 g's. The pitch reached 23 degrees nose up at 1440:24; the minimum recorded airspeed value of 105 knots occurred 11 seconds later while the airplane was at an altitude of 7,840 feet. The parameters began to stabilize after this time.

The DFDR data disclosed that 14 seconds after the initial stall, both ailerons simultaneously traveled to the full up position for approximately 14 seconds.

DFDR Study

The DFDR specialist participated in a ground test to validate the control wheel and aileron position data recorded on the event flight and gather additional data related to a breakout scenario. The test did demonstrate that, under a normal scenario, the control wheel being

manipulated would lead the control wheel not being manipulated. Also, it showed that moving the control wheel would drive the ailerons to their maximum range values, but moving the ailerons would not drive the control wheels to full range. Additionally, in manually manipulating the ailerons, the left one did not reach its full upwards range.

TESTS AND RESEARCH

Performance Study

A Safety Board specialist conducted a vehicle performance study, which is a part of the public docket. It showed that the airplane's aerodynamics degraded with time until the airplane stalled. This stall occurred at a lower angle of attack than would be expected for an uncontaminated airframe. The study concluded that the aerodynamic degradation and early stall was consistent with airframe icing.

ADDITIONAL INFORMATION

Training

American Eagle had a recurrent and requalification simulator training syllabus for captains and first officers. It included approach to stalls in the takeoff, clean, and landing configurations. It also included unusual attitudes recoveries from nose low and nose high positions. One section dealt with normal and abnormal emergency situations operations including anti-icing and deicing systems, stall warning, and stick pusher.

American Eagle's advanced aircraft maneuvering program (AAMP) includes a review of phenomena that cause upset events and unusual attitude recovery procedures.

The Operations Group chairperson interviewed several American Eagle pilots. All the pilots interviewed, including the incident captain and first officer, stated that they never practiced encountering a stall in icing conditions as part of their simulator training. Additionally, the pilots could not recall ever having the opportunity to practice a complete stall in the simulator, as they were always instructed to recover at the first indication of an impending stall.

Minimum Airspeeds for Flight in Icing Conditions

American Eagle's 340B+ Airplane Operating manual (AOM) calls for flight crews to compute a final clean airplane climb speed, or Vcln, and to add 15 knots to that value to determine the minimum speed (Vcln+15) in icing conditions. For the incident flight, Vcln was computed to be 126 knots indicated airspeed (KIAS), and the minimum speed in icing conditions was 141 KIAS.

Use of Autopilot in Icing Conditions

The limitations section of the American Eagle 340B+ AOM stipulates that the indicated airspeed (IAS) mode is the only authorized flight director/autopilot mode if an airplane is climbing when ice accretion is occurring, or with residual ice on the airframe. In IAS mode, the flight control computer gives pitch attitude commands to maintain the indicated airspeed existing at the time of mode engagement. In the vertical speed (VS) mode of the incident flight, the autopilot would sacrifice airspeed to maintain climb rate.

Recommendations

The Safety Board issued several recommendations as a result of the investigation.

Urgent recommendation A-06-48 asked the FAA to require all operators of Saab SF340 series airplanes to instruct pilots to maintain a minimum operating airspeed of 1.45xVs during icing encounters and before entering known or forecast icing conditions and to exit icing conditions as soon as performance degradations prevent the airplane from maintaining 1.45xVs.

Recommendation A-06-49 asked the FAA to require the installation of modified stall protection logic in Saab SF340 series airplanes certified for flight into known icing conditions.

Recommendation A-06-50 asked the FAA to require the installation of an icing detection system on Saab SF340 series airplanes.

Recommendation A-06-51 asked the FAA to require all operators of turbo propeller-driven airplanes to instruct pilots, except during intermittent periods of high workload, to disengage the autopilot and fly the airplane manually when operating in icing conditions.

The Safety Board also reiterated the following recommendations to the FAA.

Recommendation A-03-53 asked the FAA to convene a panel of airplane design, aviation operations, and aviation human factors specialists, including representatives from the National Aeronautics and Space Administration, to determine whether a requirement for the installation of low-airspeed alert systems in airplanes engaged in commercial operations under 14 Code of Federal Regulations Parts 121 and 135 would be feasible, and submit a report of the panel's findings.

Recommendation A-03-54 asked that if the panel requested in Safety Recommendation A-03-53 determines that a requirement for the installation of low-airspeed alert systems in airplanes engaged in commercial operations under 14 Code of Federal Regulations Part 121 and 135 is feasible, establish requirements for low-airspeed alert systems, based on the findings of the panel.

Pilot Information

Certificate:	Airline Transport	**Age:**	34, 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 Without Waivers/Limitations	**Last FAA Medical Exam:**	09/01/2005
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	6765 hours (Total, all aircraft), 3982 hours (Total, this make and model), 172 hours (Last 90 days, all aircraft), 47 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Co-Pilot Information

Certificate:	Flight Instructor; Commercial	**Age:**	32, 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:**	Yes
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 2 With Waivers/Limitations	**Last FAA Medical Exam:**	05/01/2005
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	1368 hours (Total, all aircraft), 133 hours (Total, this make and model), 90 hours (Last 90 days, all aircraft), 24 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Saab-Scania AB (Saab)	**Registration:**	N390AE
Model/Series:	SF340B+	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Transport	**Serial Number:**	340B-390
Landing Gear Type:	Retractable - Tricycle	**Seats:**	37
Date/Type of Last Inspection:	Continuous Airworthiness	**Certified Max Gross Wt.:**	29000 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo Prop
Airframe Total Time:	17291 Hours at time of accident	**Engine Manufacturer:**	General Electric
ELT:	Installed, not activated	**Engine Model/Series:**	CT7-9B
Registered Owner:	WELLS FARGO BANK NORTHWEST NA TRUSTEE	**Rated Power:**	1870 hp
Operator:	American Eagle Airlines, Inc.	**Operating Certificate(s) Held:**	Flag carrier (121)
Operator Does Business As:		**Operator Designator Code:**	AEAA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	SMX, 261 ft msl	**Distance from Accident Site:**	20 Nautical Miles
Observation Time:	1451 PST	**Direction from Accident Site:**	220°
Lowest Cloud Condition:	Scattered / 2100 ft agl	**Visibility**	9 Miles
Lowest Ceiling:	Broken / 2700 ft agl	**Visibility (RVR):**	
Wind Speed/Gusts:	16 knots / 27 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	230°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.8 inches Hg	**Temperature/Dew Point:**	13°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	San Luis Obispo, CA (SBP)	**Type of Flight Plan Filed:**	IFR
Destination:	Los Angeles, CA (LAX)	**Type of Clearance:**	IFR
Departure Time:	1414 PST	**Type of Airspace:**	

Airport Information

Airport:	San Luis County Regional (SBP)	**Runway Surface Type:**	
Airport Elevation:	212 ft	**Runway Surface Condition:**	
Runway Used:	N/A	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	3 None	**Aircraft Damage:**	None
Passenger Injuries:	25 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	28 None	**Latitude, Longitude:**	35.052500, -120.121667 (est)

Administrative Information

Investigator In Charge (IIC):	Howard D Plagens	**Adopted Date:**	04/30/2009
Additional Participating Persons:	Dave Keenan; Federal Aviation Administration; Washington, DC Matt Wise; American Eagle; Fort Worth, TX Bo-Göran Windoff; Saab Aircraft AB; Stockholm, Sweden, Paul Brady; Air Line Pilots Association; Medway, MA Stefan Christensen; Swedish Accident Investigation Board (SAIB); Stockholm, Sweden,		
Publish Date:	04/30/2009		
Investigation Docket:	NTSB accident and incident dockets 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.ntsb.gov/pubdms/.		