



National Transportation Safety Board Aviation Accident Final Report

Location:	Teterboro, NJ	Accident Number:	NYC05FA026
Date & Time:	12/01/2004, 1623 EST	Registration:	G-GMAC
Aircraft:	Gulfstream Aerospace G-IV	Aircraft Damage:	Substantial
Defining Event:		Injuries:	9 None
Flight Conducted Under:	Non-U.S., Commercial		

Analysis

The flight was cleared for the ILS Runway 19 approach, circle-to-land on Runway 24; a 6,013-foot-long, 150-foot wide, asphalt runway. The auto throttle and autopilot were disengaged during the approach, about 800 feet agl. However, the auto throttle reengaged just prior to touchdown, about 35 feet agl. The flightcrew did not recall reengaging the auto throttle, and were not aware of the autothrottle reengagement. According to the auto throttle computers, the reengagement was commanded through one of the Engage/Disengage paddle switches located on each power lever. The target airspeed set for the auto throttle system was 138 knots. After touchdown, as the airplane decelerated below 138 knots, the auto throttle system gradually increased the power levers in an attempt to maintain the target airspeed. Without the power levers in the idle position, the ground spoilers and thrust reversers would not deploy. While the flightcrew was pulling up on the thrust reverser levers, they may not have initially provided enough aft force on the power levers (15 to 32 lbs.) to override and disconnect the auto throttle system. The flight data recorder indicated that the autothrottle system disengaged 16 seconds after the weight-on-wheels switches were activated in ground mode. As the airplane neared the end of the runway, the pilot engaged the emergency brake, and the airplane departed the right side of the runway. The auto throttle Engage/Disengage paddle switches were not equipped with switch guards. Although the autothrottle system provided an audible tone when disengaged, it did not provide a tone when engaged. The reported wind about the time of the accident was from 290 degrees at 16 knots, gusting to 25 knots, with a peak wind from 300 degrees at 32 knots.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flightcrew's inadvertent engagement of the autothrottle system, and their failure to recognize the engagement during landing, which resulted in a runway excursion. Factors were the lack of autothrottle switch guards, lack of an autothrottle engagement audible tone, and gusty winds.

Findings

Occurrence #1: MISCELLANEOUS/OTHER

Phase of Operation: APPROACH - VFR PATTERN - FINAL APPROACH

Findings

1. (F) AUTOPILOT/FLIGHT DIRECTOR,AUTO THROTTLE - OTHER
2. (C) THROTTLE/POWER CONTROL - INADVERTENT ACTIVATION - FLIGHTCREW
3. (F) AUTOPILOT/FLIGHT DIRECTOR,AUTO THROTTLE - OTHER
4. (C) THROTTLE/POWER CONTROL - NOT RECOGNIZED - FLIGHTCREW
5. (F) WEATHER CONDITION - GUSTS

Occurrence #2: LOSS OF CONTROL - ON GROUND/WATER

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

6. LANDING GEAR,EMERGENCY BRAKE SYSTEM - ACTIVATED

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: LANDING - ROLL

Findings

7. OBJECT - TREE(S)

Factual Information

HISTORY OF FLIGHT

On December 1, 2004, at 1623 eastern standard time, a Gulfstream Aerospace G-IV, G-GMAC, was substantially damaged while landing at Teterboro Airport (TEB), Teterboro, New Jersey. The certificated airline transport flightcrew, one flight attendant, and six passengers were not injured. Visual meteorological conditions prevailed for the flight that departed from London Luton Airport (EGGW), Luton, United Kingdom. An instrument flight rules (IFR) flight plan was filed for the foreign operated charter flight.

The flightcrew reported that they originally departed Farnborough Airport (EGLF), Farnborough, United Kingdom; and flew uneventfully to Luton, United Kingdom. They then boarded passengers and departed for Teterboro, New Jersey. Upon arrival in the Teterboro area, air traffic control (ATC) cleared the flight for the ILS Runway 19 approach, circle-to-land on Runway 24; a 6,013-foot-long, 150-foot-wide, asphalt runway.

The pilot stated that a strong crosswind prevailed, and the planned landing speed was V_{ref} (128 knots) plus 10 to 15 knots for wind gusts. During the last 200 feet of the approach, the pilot felt like the airplane was perfectly controllable, and not subject to any strong wind gusts. The airplane was at a normal touchdown point, on centerline, at V_{ref} to V_{ref} plus 5 knots. The pilot then attempted to apply reverse thrust, but could not lift the thrust reverser levers (piggybacks). He alerted the copilot and concentrated on braking. The pilot did not recall any cockpit crew advisory message (CAS) of incorrect spoiler operation, and felt the brakes were not working properly or achieving the desired result. The pilot subsequently applied the emergency brake and felt the right wing drop slightly, presumably from tire bursts. The airplane then veered right uncontrollably, and departed the right side of the runway.

The copilot added the airplane was fully configured for the ILS Runway 19 approach, with the autopilot on and the auto throttles engaged. At the outer marker, the flightcrew disengaged the auto throttles and autopilot, and circled to Runway 24. Once the airplane was established on a final approach for Runway 24, he confirmed the landing configuration. The airplane was in a stabilized descent, and touched down at the 1,000 foot markers, at approximately V_{ref} plus 5 knots (133 knots). When the pilot remarked about the thrust reversers, the copilot reached over to assist, but was unsuccessful. At that time, the copilot extended the speedbrakes and assisted with the brake pedals.

The pilot then applied the emergency brakes and the airplane departed the right side of the runway about 5,500 feet beyond the approach end. The airplane traveled over a grassy area, struck trees, and came to rest upright. All nine occupants were able to egress through the forward left, number five, emergency window exit.

The accident occurred during the hours of night; located about 40 degrees, 50.01 minutes north latitude, and 74 degrees, 03.65 minutes west longitude.

PILOT INFORMATION

The pilot held a foreign airline transport pilot certificate, with a rating for multiengine land airplanes. He also held a type rating for the Gulfstream IV. The pilot reported a total flight experience of approximately 10,000 hours; of which, about 1,000 hours were in a Gulfstream IV. In addition, the pilot had accumulated approximately 120 hours of flight time in a

Gulfstream IV within the 90 days preceding the accident.

The pilot's first class medical certificate was issued on July 5, 2004.

The copilot held a foreign airline transport pilot certificate, with a rating for multiengine land airplanes. He also held a type rating for the Gulfstream IV. The copilot reported a total flight experience of approximately 8,000 hours; of which, about 2,000 hours were in a Gulfstream IV. In addition, the copilot had accumulated approximately 60 hours of flight time in a Gulfstream IV within the 90 days preceding the accident.

The copilot's first class medical certificate was issued in January 2004.

AIRCRAFT INFORMATION

The airplane, serial number 1058, was manufactured in 1988.

The airplane was maintained under a continuous airworthiness maintenance program. The most recent phase inspection was completed on July 14, 2004. At that time, the airplane had accumulated 7,207.10 hours of operation. At the time of the accident, the airplane had accumulated 7,452.58 hours of operation.

METEOROLOGICAL INFORMATION

The weather reported at TEB, at 1651, was: wind from 290 degrees at 16 knots, gusting to 25 knots, with a peak wind from 300 degrees at 32 knots; visibility 10 miles; few clouds at 6,000 feet; temperature 52 degrees F.; dew point 34 degrees F.; altimeter 29.62 inches Hg.

FLIGHT RECORDERS

Cockpit Voice Recorder

The airplane was equipped with a Fairchild model A-100 cockpit voice recorder (CVR). The CVR was transported to the NTSB Office of Research and Engineering on December 6, 2004. A CVR group convened on December 8, 2004, and a transcript was prepared of 7 minutes 44 seconds of the approximate 33-minute recording. The transcript started as the aircraft was being vectored for the approach, and continued until the accident.

The CVR was not damaged during the accident. The recording consisted of two channels of "fair to good" quality audio information.

The data on the CVR was consistent with the flightcrew's recollection of the approach up to the point of touchdown.

The CVR revealed that during the approach, at 1622:20, a "cavalry charge" sound was recorded, consistent with an auto throttle disconnect tone.

At 1623:17, the CVR recorded a sound consistent with aircraft touchdown.

At 1623:21, the CVR recorded a "triple chime" sound consistent with a configuration master warning.

During the landing roll, the CVR recorded several "double chime" and "triple chime" sounds.

At 1623:43, the CVR recorded a sound consistent with an impact, followed by another impact at 1623:53.

Flight Data Recorder

The airplane was equipped with a L3-Communications (Fairchild) Model FA2100 flight data recorder (FDR). The FDR was transported to the NTSB Office of Research and Engineering on December 6, 2004, and a readout was performed.

The FDR recorded data in a digital format using solid-state Flash Memory as the recording medium. The FDR was not damaged in the accident, and the timing of the data was correlated to air traffic control and CVR timing. A total of 127.4 hours was recorded.

The FDR data revealed that the airplane's auto throttle and autopilot were disengaged during the approach. Specifically, the auto throttle disengaged about 570 feet agl, at a calibrated airspeed of approximately 140 knots. Prior to touchdown, the auto throttle re-engaged about 38 feet agl, at a calibrated airspeed of approximately 150 knots. The auto throttle remained engaged for approximately 22 seconds. After a majority of the landing roll, the auto throttle eventually disengaged at a calibrated airspeed of approximately 110 knots. At touchdown, a red and amber configuration warning activated.

After touchdown, the engine pressure ratio (EPR) increased to about 1.3, then 1.35 during the landing roll. The ground spoilers and outboard spoilers deployed approximately 13 seconds after the weight on wheels (WOW) switches were in the ground mode. The auto-throttle disengaged about 3 seconds after the spoilers deployed.

The FDR did not record power lever angle.

WRECKAGE INFORMATION

During the impact, the outboard one-third of the left wing was severed, and the nose section was crushed inward approximately 7 feet. A Federal Aviation Administration (FAA) inspector followed the tire marks from the accident airplane, to the approach end of Runway 24. He observed that tire marks originated about 1,900 feet beyond the approach end of the runway, consistent with the left main gear touching down about 12 feet right of runway centerline. About 2,900 feet, the tire marks were consistent with anti-skid action. All four main gear tire marks were observed at 3,504 feet, and heavier marks at 4,550 feet. The inspector also observed wavy tire marks and metal, consistent with a blown right main tire at 4,756 feet. About 5,072 feet, the nose gear tire marks crossed the right main gear tire marks, and both main gear tire marks then veered right. The tire marks departed the right side of the runway about 5,450 feet.

Examination of the wreckage revealed that the right main gear inboard tire had partially separated, and the left main gear inboard tire completely separated. The flaps were in the full-extended position, and the emergency brake was pulled to its limit. The ground spoilers were selected to "ARM," and the speed-brake handle was near the fully extended position. Further examination of the wreckage revealed that the right side number five and six emergency window exits had been unlatched, but could not be removed.

TESTS AND RESEARCH

Airplane

Review of the aircraft system logic revealed that upon touchdown, thrust reverser and ground spoiler deployment required the power levers (throttle levers) in the idle position, and the main landing gear WOW switches to be in the ground mode.

Auto throttle System

The airplane was equipped with an auto throttle system controlled by an auto throttle ARM pushbutton located on the GP-820 Flight Guidance Controller. The system included two auto throttle Engage/Disengage paddle switches, located on the aft side, about 4 inches below the top of each power lever. The paddle switches were not equipped with any switch guard. The Engage/Disengage paddle switches were designed to remain in the down (resting) position. An upward force was required to move either switch up, engaging the auto throttle, and a spring would return the switch to its resting position. The switch would then have to be pushed up again to disengage the auto throttle. In addition, the system included two auto throttle Quick Disconnect switches, located on the front of each power lever handle. A Takeoff/Go-around button was located on the side of each power lever handle.

The following was required to engage the auto throttle in the air:

Auto throttle armed

A speed target displayed in the GP-820 speed window (for speed mode only)

An EPR limit rating selected for display on the Display Controller

Bleed air isolation valve must be closed

N1 cannot be split by more than 20 percent

No engine out condition

A valid preselector

There were several ways to disconnect the auto throttle:

Pressing either Quick Disconnect switch

Pressing either Engage/Disengage paddle switch

Moving the power levers (15 to 32 pounds of applied force)

If a fault was detected in the auto throttle system or a system providing required inputs

Auto throttle disengagement provided and audible tone. Auto throttle engagement did not provide a tone, but displayed a CAS message.

The auto throttle system utilized two identical Honeywell PZ-800 performance auto throttle computers. Although the FDR did not record power lever angle, the auto throttle computers did. On March 24, 2005, the non volatile memory was downloaded from both computers at a Honeywell facility in Arizona, under the supervision of two FAA inspectors. The computers recorded the last nine engagement/disengagement events (not flights). The non volatile memory data revealed that the last auto throttle engagement occurred about 57 feet agl, and was a commanded engagement through one of the Engage/Disengage paddle switches. At the time, the airplane's speed was approximately 151 knots, with a selected target speed of 138 knots, and the power levers were near idle. The last auto throttle disengagement occurred on the ground, and was uncommanded, but possibly the result of force applied to the power levers. At the time, the airplane's speed was approximately 123 knots, with a selected target speed of 138 knots. The power levers were near the mid-range position at the time of auto throttle disengagement.

Testing of the auto throttle computers revealed that one computer had no failures, while the other computer had four separate failures. The computer with four failures was equipped with

three separate batteries. The first failure was recorded as one of the three batteries was not providing power, but the batteries served no purpose when the aircraft was powered. The second failure occurred during the Monitor Valid Test. The test called for the voltage to be in the range of 2.5 volts, plus or minus .038 volts. The measured value was 2.463 volts. The value was within range, on the lower threshold limit, and could not be determined why it was identified as a failure. The third failure occurred during the D/A (digital to analog) Calibration Check. During the check, the D/A was tested at several points along a range of positive 10 volts to negative 10 volts. At two points the calibration was off by .002 volts and .0001 volts. The fourth failure occurred during the Battery Load test, as a result of the dead battery. There was no evidence that the failures affected the accident flight.

Thrust Reversers and Ground Spoilers

A re-examination of the wreckage was conducted on December 21, 2005. During the re-examination, the electrical continuity of the power levers, thrust reverser levers, and ground spoilers was checked with an ohmmeter. The test did not reveal any discrepancies.

A flight demonstration was conducted in a Gulfstream IV simulator on January 20, 2005. During the simulation, the auto throttles were engaged prior to touchdown, while the power levers were near idle and the airplane was approximately 150 knots. After touchdown, as the airplane decelerated, the power levers slowly advanced to maintain the pre-selected target airspeed of 138 knots. Attempts to pull up on the thrust reverser levers created an upward force on the power levers, but did not create enough rearward force (15 to 32 pounds) to move the power levers aft and disengage the auto throttle. In addition, without the power levers at the idle stop, the upward force on the thrust reverser levers did not deploy the thrust reversers.

Auto Throttle Switches

Further examination of the wreckage was conducted on January 21, 2005. During the examination, all cockpit pedal switches were checked, including the auto throttle switches. The check was successfully conducted with an ohmmeter and "break-out-box." One minor discrepancy was noted as the left thrust reverser switch "S4" was slightly out-of-adjustment; however, the "S4" switch controlled the thrust reverser stowing, not deploying.

During the examination, the two fault warning computers were downloaded. The data revealed that the computers had stopped recording on July 30, 2004, and September 24, 2004.

The auto throttle Engage/Disengage paddle switches were then removed from the airplane and forwarded to the Safety Board's Materials Laboratory for further examination. The examination included an electrical continuity check, disassembly, and a visual inspection. The examination did not reveal any discrepancies with either of the two switches.

SURVIVAL ASPECTS

The airplane was equipped with four emergency window exits, with two on the right side and two on the left side. The forward window exits were located at the number five windows on each side, and the aft window exits were located at the number six windows on each side. Each window exit was designed to be released, pulled into the cabin, and allow a portal for egress.

The airplane came to rest with trees against the main cabin door. The copilot reported that he was unable to open the main door. The copilot then went aft, and attempted to open the right forward window exit. The exit release handle moved, and the exit became loose in the opening, but would not free from the airplane. The copilot attempted the aft right window exit with the

same result. The exit release handle moved, and the exit became loose in the opening, but would not free from the airplane. The copilot then went to the left forward window exit, and with the help of passengers, was able to remove the exit.

Examination of the wreckage revealed that all three remaining window exit release handles had been pulled. The three remaining windows were loose in the openings, but could not be removed. The rectangular decorative interior trim panels attached to the exit hatches, extended behind the passenger service unit (PSU) panels that ran longitudinally down the fuselage, above the window exit panels, and prevented normal operation of the three window exits. The examination did not reveal any evidence of distortion or displacement of the cabin as a result of the impact.

The accident airplane underwent various modifications to the passenger cabin, including installation of the PSU, side panels, and decorative panels on the window exits during July 2004. Savannah Air Center (SAC), an FAA-certificated repair station in Savannah, Georgia, performed the work. At the time the interior was installed, the airplane's registration was held in Bermuda, and following the refurbishment, the airplane's registration was transferred to the United Kingdom. A representative of the British Civil Aviation Authority (CAA) examined the completed airplane at SAC prior to the issuance of a CAA certificate of airworthiness.

On June 14, 2004, prior to the work being performed, FAA Form 8110-3, Statement of Compliance was issued, which approved the master drawing list (MDL) for the proposed work. On July 17, 2004, FAA Form 337, Major Repair and Alteration was completed, signifying that all work was done in accordance with the MDL, and that the airplane was approved to return to service. Savannah Air Center records indicated that on July 19, 2004, a successful operational test of the emergency windows was accomplished. On a June 9, 2005 a representative of the British CAA stated that he observed a successful operational test of the window exits during an inspection of the airplane at SAC prior to transferring the airplane to U.K. registration.

A representative of Savannah Air Center stated that the interior installed on the accident airplane was the "only one of its kind;" SAC had not installed a similar PSU/decorative panel combination on any other airplane. He stated that he knew of no guidance that specified the sizes of the decorative panels, and that he did not know whether Gulfstream provided guidance to interior shops regarding tolerances around the exits. He also said that operational tests of window exits "are always done" following installation of new interior components. He added that employees who were familiar with the operation of the exits typically performed the operational tests.

In a May 3, 2005 email message to the Survival Factors Group Chairman, the Chief of Quality at Savannah Air Center stated:

"The PSU design used on G-IV-1058 will no longer be used by Savannah Air Center."

In a June 2, 2005 email message, the SAC Chief of Quality stated:

"Savannah Air Center has implemented a policy that all emergency window release operational checks be performed by personnel unfamiliar with the procedure, using the manufactures maintenance procedures under the supervision of an A&P mechanic and Quality Control Inspector. Savannah Air Center will ensure a sufficient minimum gap of a quarter of inch (1/4") is provided between the bottom of the PSU and top of emergency window close out panel. All PSU clearance around emergency window exits will be checked on installation."

Gulfstream document GIV-GER-023, Outfitting Interface Specification, provided guidance to airplane owners and maintenance facilities regarding installation of equipment and furnishings into Gulfstream airplanes. The document stated:

"Owners who choose to have their Gulfstream IV's outfitted by a non-Gulfstream facility must ensure that the said facility achieves compliance with the requirements contained in this document when performing outfitting of the airplane. Failure to do so could adversely impact systems provided by Gulfstream with the basic airplane and affect warranty responsibility on them."

Section 8.17 of GIV-GER-023, Emergency Exit Access, stated:

"The Gulfstream IV is equipped with one forward auxiliary and four (two on each side) overwing Type IV emergency exits. It is the outfitter's responsibility to provide for access to these emergency exits that are in compliance with FAR's 25.813 and 25.815. It is also the outfitter's responsibility to install emergency exit markings, exit signs, and emergency lighting that are in compliance with FAR's 25.811, 25.812, and 25.813. The outfitter must not perform any modifications that interfere with the operation of these emergency exits from both inside and outside the airplane."

In May of 2005, Gulfstream amended Section 8.17, adding the following sentence:

"The guidelines set forth in these paragraphs must be followed to achieve ease of removal in an emergency situation for an untrained passenger."

The Gulfstream Computerized Maintenance Program (CMP), Chapter 56, Windows, calls for an operational test of the window exits to be conducted every 24 months.

ADDITIONAL INFORMATION

The wreckage was released to a representative of the owner on December 4, 2004.

Pilot Information

Certificate:	Airline Transport	Age:	55, Male
Airplane Rating(s):	Multi-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 With Waivers/Limitations	Last Medical Exam:	07/01/2004
Occupational Pilot:		Last Flight Review or Equivalent:	08/01/2004
Flight Time:	10000 hours (Total, all aircraft), 1000 hours (Total, this make and model)		

Co-Pilot Information

Certificate:	Airline Transport	Age:	36, Male
Airplane Rating(s):	Multi-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Helicopter; Instrument Helicopter	Toxicology Performed:	No
Medical Certification:	Class 1 Without Waivers/Limitations	Last Medical Exam:	01/01/2004
Occupational Pilot:		Last Flight Review or Equivalent:	06/01/2004
Flight Time:	8000 hours (Total, all aircraft), 2000 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Gulfstream Aerospace	Registration:	G-GMAC
Model/Series:	G-IV	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Transport	Serial Number:	1058
Landing Gear Type:	Retractable - Tricycle	Seats:	18
Date/Type of Last Inspection:	07/01/2004, Continuous Airworthiness	Certified Max Gross Wt.:	75000 lbs
Time Since Last Inspection:	245 Hours	Engines:	2 Turbo Fan
Airframe Total Time:	7452 Hours	Engine Manufacturer:	Rolls-Royce
ELT:	Not installed	Engine Model/Series:	TAY 611R
Registered Owner:	Gama Aviation Ltd.	Rated Power:	12850 lbs
Operator:	Gama Aviation Ltd.	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	TEB, 9 ft msl	Observation Time:	1651 EST
Distance from Accident Site:	0 Nautical Miles	Direction from Accident Site:	0°
Lowest Cloud Condition:	Few / 6000 ft agl	Temperature/Dew Point:	11 °C / 1 °C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	16 knots/ 25 knots, 290°	Visibility (RVR):	
Altimeter Setting:	29.62 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Luton (EGGW)	Type of Flight Plan Filed:	IFR
Destination:	Teterboro, NJ (TEB)	Type of Clearance:	IFR
Departure Time:	0823 EST	Type of Airspace:	

Airport Information

Airport:	Teterboro Airport (TEB)	Runway Surface Type:	Asphalt
Airport Elevation:	9 ft	Runway Surface Condition:	Dry
Runway Used:	24	IFR Approach:	Circling; ILS
Runway Length/Width:	6013 ft / 150 ft	VFR Approach/Landing:	Straight-in

Wreckage and Impact Information

Crew Injuries:	3 None	Aircraft Damage:	Substantial
Passenger Injuries:	6 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	9 None	Latitude, Longitude:	40.850000, -74.060833

Administrative Information

Investigator In Charge (IIC):	Robert J Gretz	Adopted Date:	05/30/2006
Additional Participating Persons:	Tony Acosta; FAA FSDO-25; Teterboro, NJ Jerry Runyon; Gulfstream Aerospace; Savannah, GA Hoss Motlagh; Savannah Air Center; Savannah, GA Paul Hannant; Air Accidents Investigation Branch; United Kingdom,		
Publish Date:			
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.nts.gov/pubdms/ .		

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