



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: November 8, 2006

In reply refer to: A-06-66 through -69

Honorable Marion C. Blakey
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On February 2, 2005, about 0718 eastern standard time, a Bombardier Challenger CL-600-1A11, N370V, ran off the departure end of runway 6 at Teterboro Airport (TEB), Teterboro, New Jersey, at a ground speed of about 110 knots; through an airport perimeter fence; across a six-lane highway (where it struck a vehicle); and into a parking lot before impacting a building. The two pilots were seriously injured, as were two occupants in the vehicle. The cabin aide,¹ eight passengers, and one person in the building received minor injuries. The airplane was destroyed by impact forces and postimpact fire. The accident flight was an on-demand passenger charter flight from TEB to Chicago Midway Airport, Chicago, Illinois. The flight was subject to the provisions of 14 *Code of Federal Regulations* (CFR) Part 135, and operated by Platinum Jet Management, LLC (PJM), Fort Lauderdale, Florida, under the auspices of a charter management agreement with Darby Aviation (Darby), Muscle Shoals, Alabama. Visual meteorological conditions prevailed for the flight, which operated on an instrument flight rules flight plan.

The National Transportation Safety Board determined that the probable cause of the accident was the pilots' failure to ensure the airplane was loaded within weight-and-balance limits and their attempt to take off with the center of gravity (CG) well forward of the forward takeoff limit, which prevented the airplane from rotating at the intended rotation speed.²

Contributing to the accident were: 1) PJM's conduct of charter flights (using PJM pilots and airplanes) without proper Federal Aviation Administration (FAA) certification and its failure to ensure that all for-hire flights were conducted in accordance with 14 CFR Part 135 requirements; 2) Darby Aviation's failure to maintain operational control³ over 14 CFR Part 135

¹ Title 14 *Code of Federal Regulations* 135.107 does not require a qualified flight attendant for airplanes with 19 or fewer passenger seats, like the accident airplane.

² Neither pilot attempted to ensure the airplane's CG would be within limits with the intended loading of eight passengers and full fuel, despite Federal regulations requiring them to do so and the pilots' familiarity with the airplane and its loading characteristics.

³ Title 14 CFR 1.1 defines operational control as the exercise of authority over the initiation, conduct, and termination of a flight, and FAA Order 8400.10, Air Transportation Operations Inspectors Handbook, specifies that providing adequate oversight of flight operations is an integral part of the exercise of operational control.

flights being conducted under its certificate by PJM, which resulted in an environment conducive to the development of systemic patterns of flight crew performance deficiencies like those observed in this accident; 3) the failure of the Birmingham, Alabama, FAA Flight Standards District Office (FSDO) to provide adequate surveillance and oversight of operations conducted under Darby's Part 135 certificate; and 4) the FAA's tacit approval of arrangements such as that between Darby and PJM.

Operational Control and Noncertificated (Unauthorized) Carrier Issues

Title 14 CFR Part 135 charter operations comprise a growing segment of air transportation for the public. The FAA expects on-demand Part 135 charter operations to increase by about 3 percent per year from 2006 to 2017.⁴ However, this investigation revealed a common practice in the aviation industry that undermines the safety of Part 135 operations and the FAA's ability to oversee them. Specifically, noncertificated (unauthorized) charter operators advertise and provide charter flight services to the public, under the auspices of an FAA-certificated Part 135 operator, through the use of charter management agreements. However, these noncertificated operators are not subject to FAA certification requirements or the ongoing FAA oversight processes that are applied to a Part 135-certificated operator. Under charter management agreements, oversight and operational control of the noncertificated operator is the responsibility of the Part 135 certificate holder. As a result, the oversight and operational control of such operations is performed with varying degrees of diligence.

The accident flight was arranged through a broker agency as an on-demand charter flight, carrying eight passengers for revenue. The charter customer contacted the broker agency, which, in turn, booked the flight with PJM, who advertised in the "Air Charter Guide"⁵ as a Part 135 operator. Although PJM did not hold a Part 135 operating certificate, it had entered into a charter management agreement with a Part 135 certificate holder, Darby Aviation, which allowed PJM to operate under Darby's certificate and operations specifications. The agreement between PJM and Darby designated Darby as the "exclusive agent" for managing on-demand charter flights conducted in PJM's airplanes and stated that Darby would monitor the flight crews and airplanes used and provide operational control for all such flights. In exchange, PJM would pay Darby a "certificate fee." The certificate fee was a flat monthly fee; therefore, Darby received no additional funds for monitoring the daily flights and operations of PJM. PJM had been conducting on-demand charter flight operations based on its agreement with Darby (with tacit approval from the Birmingham, Alabama, FAA FSDO) since November 2003.

During this investigation, the Safety Board identified operational control deficiencies in the organizational policies and procedures of both PJM and Darby Aviation. PJM was using Darby Aviation's operating certificate to represent PJM (on its Web site, business cards, and brochures) to the public as a Part 135 carrier conducting on-demand charter flights for compensation. Because PJM had not met the FAA requirements for obtaining its own certificate, the FAA was relying on Darby to maintain operational control of PJM's operations. However, Darby was purportedly unaware of the accident flight and others. The Safety Board's review of

⁴ For additional information, see the FAA's General Aviation and Air Taxi Activity and Avionics Survey, CY2004 at <http://www.faa.gov/data_statistics/aviation_data_statistics/general_aviation/CY2004>.

⁵ For additional information, see <<http://www.aircharterguide.com>>.

documentation that Darby maintained on its oversight of PJM indicated that its operational control over flights conducted by PJM was minimal at best. For example, Darby was not properly monitoring the training and certification of pilots used in PJM's on-demand charter flight operations, as illustrated by the accident flight crew.

The Safety Board also noted that PJM was not listed in Darby's operations specifications, as required. Further, Darby did not possess/maintain the required maintenance and/or pilot records related to PJM operations and was not properly evaluating the documentation that it did receive from PJM. Additionally, Darby did not recognize that the airplane had not been weighed within the previous 3 years, as required for Part 135 operations.⁶ Also, PJM was required to fax an airplane manifest and weight-and-balance calculation forms to Darby before each on-demand charter flight it conducted. However, there was no requirement for Darby to confirm or to authorize the manifest and weight-and-balance calculation forms before a flight. Because no preflight review was required, Darby Aviation did not recognize instances in which the weight-and-balance calculation forms submitted by PJM pilots showed inaccurate, modified airplane empty weights, which resulted in lower-than-actual total weights and farther-aft-than-actual CGs. If Darby were exercising proper operational control, it would have recognized these inaccuracies.

The Safety Board noted that Darby Aviation and PJM seemed to have accepted responsibility for varying aspects of operational control, depending on the flight, despite the fact that a certificated Part 135 operator must exercise full operational control over all maintenance and flight operations being conducted under its certificate and have the full-time personnel (for example, a director of operations and a chief pilot), policies, and practices to detect the routine violations of airplane weight-and-balance limits, inadequate documentation and record-keeping, and incomplete pilot training that the Board easily discovered during this investigation. Lack of full operational control resulted in a diffusion of responsibility between the two companies regarding the performance of oversight functions that normally serve to ensure the safety of a flight. This lack of clarity in organizational policies and practices led to a lax safety environment in which charter flights were conducted without the safety protections expected by passengers and required under Part 135. On the basis of the many errors and lapses in operational control identified during this investigation, the Safety Board concludes that Darby failed to maintain operational control over on-demand charter flights conducted by PJM under Darby's Part 135 certificate, as required by Federal regulations.

The Safety Board concludes that, because neither Darby nor PJM was rigorous about enforcing the Federal requirement for operational control, PJM pilots operated in an environment in which pilot errors and/or omissions during preflight preparation were less likely to be detected before departure.

Postaccident interviews revealed that personnel at the FAA's Birmingham FSDO were aware of the charter management agreement between Darby Aviation and PJM and did not object to the details of that agreement. Although Darby Aviation's operations specifications and the charter management agreement stated that Darby would maintain operational control over all charter flights (similar to most Part 135 operations specifications), Birmingham FSDO personnel

⁶ Although PJM personnel told investigators that the airplane had been more recently reweighed, neither PJM nor Darby were able to provide documentation of a more-recent weighing.

stated that they were unaware of the lack of compliance with the charter management agreement and that, in practice, the arrangement enabled PJM to operate virtually independently, without meaningful operational control from Darby, the certificate holder. A postaccident FAA survey of Part 135 operators revealed that lack of compliance with the operational control aspects of charter management agreements between certificated and noncertificated entities was not uncommon at the time of the accident. Further, like the Birmingham FSDO inspectors in this case, FSDO inspectors, in general, had not recognized the situation.

In this case, although FAA personnel reviewed Darby's records, they did not ensure that PJM's airplanes were operated and maintained in accordance with Darby's company requirements or that Darby controlled charter trips flown by PJM. The process of developing a structure and operating practices sufficient to qualify for an air carrier certificate demonstrates an operator's ability to provide safe transportation. Based on information obtained during this investigation, PJM was never required to demonstrate to the FAA that it was capable of providing the level of safety and service expected of certificated on-demand carriers, which led to the lapses in airmanship directly related to this accident. Additionally, the arms-length relationship with Darby shielded PJM from appropriate FAA oversight. The Safety Board concludes that the FAA's inadequate oversight of the Part 135 charter management agreement between PJM and Darby permitted management failures and a lack of operational control to exist. In effect, this allowed PJM to operate virtually independently as an on-demand air carrier while maintaining little of the structure of a certificated carrier and without demonstrating fitness to conduct such operations.

FAA principal inspectors for Darby Aviation told investigators that, despite their responsibility for managing Darby's Part 135 certificate, they did not oversee PJM's operations (which were conducted under that certificate), in part, because of budget issues and the geographical distance between the Birmingham FSDO and Fort Lauderdale-based PJM. Although Fort Lauderdale FSDO personnel could have assisted in overseeing PJM's operations, Darby's principal inspectors never requested such assistance. Therefore, the Safety Board concludes that Darby's Birmingham, Alabama-based FSDO principal inspectors should have requested assistance from a FSDO more conveniently located to PJM's Fort Lauderdale-based operations to ensure proper oversight of the operations conducted by PJM under the auspices of Darby's certificate.

Title 14 CFR 119.5 requires an operator to hold an appropriate certificate to advertise its services to the public for compensation or hire. However, PJM routinely advertised for, accepted, and conducted on-demand revenue flights as if it were a Part 135-certificated operator, without appropriate certification or oversight to do so; circumstances of which Birmingham FSDO personnel were unaware. The Safety Board concludes that the FAA failed to perform adequate charter operator surveillance and, therefore, did not recognize that PJM operated as a de facto Part 135 carrier, despite the lack of personnel required under 14 CFR Part 135 (for example, a director of operations, a chief pilot); policies; procedures; and FAA approvals, certification, and oversight that would normally be associated with such operations.

On June 10, 2005, the FAA issued a notice to its principal inspectors and, on October 25, 2005, issued a public notice in the *Federal Register* (70 FR 61684); both of which reiterated existing regulations regarding Part 135 certificate management and advised that

operations conducted under arrangements similar to that between Darby Aviation and PJM are not permissible. The results of an FAA postaccident review of 85 on-demand operators indicated that numerous other charter management agreements likely existed that are similar to the agreement between Darby and PJM. According to the FAA, the initial purpose of its postaccident review of on-demand operators was to understand existing business practices and operations of Part 135 operators. FAA personnel told Safety Board investigators that the contracts and lease agreements they examined during this review varied significantly in size and complexity, but that many were similar to the agreement between Darby Aviation and PJM because they also failed to ensure operational control by the certificate holder. FAA personnel further stated that several of the operators that were reviewed were modifying their charter management agreements as a result of that review; however, the FAA could not provide more specific details regarding the number and nature of those modifications.

FAA personnel used the information gathered during their review to develop a series of 10 educational seminars explaining the concepts of operational control to principal inspectors and charter industry representatives; the FAA conducted these seminars between March and June 2006. Also, on the basis of its review, the FAA is revising FAA Order 8400.10, "Air Transportation Operations Inspectors Handbook," and the standard language for Operations Specifications A-008, which addresses operational control. Although the Safety Board has reviewed several draft revisions and final changes were due on October 31, 2006, no changes have been finalized.

The Safety Board acknowledges that the FAA's educational seminars regarding operational control should assist FAA inspectors and Part 135 certificate holders in ensuring that operational control is maintained. However, this education will only be successful if all inspectors and certificate holders participate, and the FAA has no plans to hold additional seminars. Further, attendance at these one-time seminars was strictly voluntary for FAA principal inspectors and industry personnel, and no additional detailed training is planned for FAA principal inspectors. Therefore, the seminars did not reach all inspectors, certificate holders, or other entities.

The Safety Board also agrees that the increased specificity contained in the proposed revisions will assist FAA inspectors and Part 135 certificate holders in modifying or removing charter management arrangements that allow, in effect, an unauthorized entity to act as an on-demand charter operator (similar to the arrangement between Darby and PJM). However, the Board is concerned that the FAA does not have a clear assessment of the extent to which impermissible charter arrangements exist. Without such an assessment, FAA is unable to ensure that these arrangements are terminated. Further, the Board is concerned that the proposed revisions to FAA Order 8400.10 and Operations Specifications A-008 have not yet been completed.

The Safety Board concludes that, without clear and specific guidance on appropriate agreements between certificate holders and other entities that provide airplanes and/or flight crews for charter flights, unauthorized entities could still be performing most, if not all, of the functions of an on-demand charter operator without the controls, oversight, and demonstration of fitness imposed by a Part 135 certificate. Therefore, the Safety Board believes that the FAA should disseminate to all principal inspectors of Part 135 certificate holders and to all Part 135

certificate holders guidance that includes specific procedures, such as those contained in the draft revisions to Operations Specifications A-008, that detail appropriate methods by which a certificate holder can demonstrate to the FAA that it is maintaining adequate operational control over all on-demand charter flights conducted under the authority of its certificate. This guidance should address operations based at locations geographically distant from the certificate holder's base, should be included in all Part 135 certificate holders' operations specifications, and should be required as periodic inspection items for principal inspectors.

Further, the Safety Board is concerned that, as indicated by the results of the FAA's postaccident review of on-demand operators, arrangements similar to that between Darby and PJM may still be common among other companies. By requiring Part 135 operators to maintain full operational control of all of their flights, the FAA will help to ensure that, when customers contract with a Part 135 carrier, they are flying with a carrier that has exhibited a level of safety that has been approved by the FAA. Therefore, the Safety Board believes that the FAA should review all charter management, lease, and other agreements between 14 CFR Part 135 certificate holders and other entities to identify those agreements that permit and/or enable a loss of operational control by the certificate holder and require revisions of any such arrangements.

Cabin Aide Actions, Performance, and Training

The Safety Board evaluated the cabin aide's actions, performance, and training during its investigation. PJM documentation and guidance regarding cabin aide and flight crew responsibilities were unclear; however, the cabin aide told investigators that she ensured that the cabin was "secure," implying that seatbelts were in use before the takeoff roll. Physical evidence and passenger statements indicated that this was not the case.

Postaccident interviews indicated that at least four of the eight passengers were unrestrained when the takeoff roll began. Two passengers located and fastened their seatbelts during the takeoff roll; however, the other two (both seated on the side-facing divan seat) were unable to locate their seatbelts and were, therefore, unrestrained during the rejected takeoff. The two unrestrained passengers were thrown to the cabin floor during the accident sequence. Postaccident examinations revealed that the seatbelts at the three divan seats would not have been visible to the passengers because they had been intentionally placed beneath the seatback cushions. Postaccident examination of another PJM CL-600 revealed that its divan seatbelts had also been intentionally placed beneath the seatback cushions. Positioning the seatbelts beneath the seatback cushions resulted in a tidier passenger cabin and was reportedly not uncommon among operators of corporate and charter airplanes. However, with the seatbelts stowed in this position, passengers would have had either to reach blindly between the seatback cushions or to remove the cushions to locate the seatbelts.

The Safety Board concludes that the cabin aide did not perform a seatbelt compliance check before the accident flight, which resulted in two passengers being unrestrained during the accident sequence. Further, the Safety Board concludes that the intentional positioning of the seatbelts out of the passengers' sight made them difficult to locate and use and resulted in reduced compliance with passenger seatbelt usage requirements. Therefore, the Safety Board believes that the FAA should require all 14 CFR Part 135 certificate holders to ensure that seatbelts at all seat positions are visible and accessible to passengers before each flight.

According to Federal regulations, no person may serve as a “flight attendant” on a Part 135 flight unless that person is knowledgeable and competent in the areas of crewmember functions and responsibilities during ditching and evacuation, briefing of passengers, the location and operation of all normal and emergency exits, portable fire extinguishers, and other items of emergency equipment. Additionally, regulations require that passengers on airplanes certificated to carry 19 passengers or less must be briefed on, among other things, the use of safety belts⁷ and the location and operation of the main cabin door and emergency exits.⁸

The cabin aide for the accident flight was not required to receive any safety-related training because she was not a required crewmember (flight attendant). Nonetheless, PJM did provide its cabin aides with some training. The accident cabin aide stated that she had received verbal instruction on operating the main cabin door in an emergency and had operated the main cabin door handle and electric toggle switch in a simulated emergency scenario during her training. Her description of her efforts to operate the door after the accident was consistent with the training she reported that she had received; however, it revealed that her training had not provided her with an adequate understanding of the door mechanism/operation. The cabin aide told investigators that she was not familiar with the arm/disarm handle and that she tried to use the electric switch at the top of the bulkhead to operate the door; however, this switch is not needed (nor should it be used) during emergency operations.

The Safety Board is concerned that Part 135 operators and/or certificate holders may delegate important safety functions to cabin aides/customer service representatives who are not properly trained and qualified to perform those functions. For example, although PJM policy required one of the pilots to provide passengers with a safety briefing before each flight, the captain believed that the cabin aide was responsible for the preflight safety briefing.⁹ Further, the Board is concerned that passengers might mistakenly believe that a cabin aide/customer service representative on board an on-demand charter flight had received safety training equivalent to that received by qualified flight attendants when, in fact, that aide/representative might have received minimal or no safety training. Providing those individuals with basic safety training could provide valuable safety results in an emergency, especially in the event of flight crew injury.

On the basis of the cabin aide’s performance during this accident sequence, including the lack of a seatbelt compliance check and her inability to open the main cabin door and conduct a professional evacuation, the Safety Board concludes that the cabin aide’s training did not adequately prepare her to perform the duties with which she was tasked, including opening the main cabin door during emergencies. Therefore, the Safety Board believes that the FAA should require that any cabin personnel on board 14 CFR Part 135 flights who could be perceived by passengers as equivalent to a qualified flight attendant receive basic FAA-approved safety training in at least the following areas: preflight briefing and safety checks; emergency exit

⁷ Title 14 CFR 135.128 states, “each person on board an aircraft operated under this part shall occupy an approved seat or berth with a separate safety belt properly secured about him or her during movement on surface, takeoff, and landing.”

⁸ For additional information, see 14 CFR 135.295, 135.117, 135.122, and 135.128.

⁹ The captain had not yet received PJM policy training.

operation; and emergency equipment usage. This training should be documented and recorded by the Part 135 certificate holder.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Disseminate to all principal inspectors of 14 *Code of Federal Regulations* Part 135 certificate holders and to all Part 135 certificate holders guidance that includes specific procedures, such as those contained in the draft revisions to Operations Specifications A-008, that detail appropriate methods by which a certificate holder can demonstrate to the Federal Aviation Administration that it is maintaining adequate operational control over all on-demand charter flights conducted under the authority of its certificate. This guidance should address operations based at locations geographically distant from the certificate holder's base, should be included in all Part 135 certificate holders' operations specifications, and should be required as periodic inspection items for principal inspectors. (A-06-66)

Review all charter management, lease, and other agreements between 14 *Code of Federal Regulations* Part 135 certificate holders and other entities to identify those agreements that permit and/or enable a loss of operational control by the certificate holder and require revisions of any such arrangements. (A-06-67)

Require all 14 *Code of Federal Regulations* Part 135 certificate holders to ensure that seatbelts at all seat positions are visible and accessible to passengers before each flight. (A-06-68)

Require that any cabin personnel on board 14 *Code of Federal Regulations* Part 135 flights who could be perceived by passengers as equivalent to a qualified flight attendant receive basic FAA-approved safety training in at least the following areas: preflight briefing and safety checks; emergency exit operation; and emergency equipment usage. This training should be documented and recorded by the Part 135 certificate holder. (A-06-69)

Chairman ROSENKER, Vice Chairman SUMWALT, and Members HERSMAN and HIGGINS concurred with these recommendations.

[Original Signed]

By: Mark V. Rosenker
Chairman