



**The Coalition of  
Airline Pilots Associations**

CAPPA

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Honorable Jane F. Garvey  
Administrator, AOA-1  
Federal Aviation Administration (FAA)  
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800 Independence Avenue  
Washington, DC 20591

*Members:*

*Airline  
Professionals  
Association  
Teamsters Local 1224*

Dear Administrator Garvey:

The Coalition of Airline Pilots Associations (CAPA) would like to take this opportunity to address concerns we have regarding the Airbus A300-600. CAPA is a trade association comprised of five professional pilots unions, representing more than 20,000 pilots flying for five air carriers, including Allied Pilots Association (American), Independent Pilots Association (United Parcel Service), National Pilots Association (AirTran), Southwest Pilot's Association (Southwest), and Teamsters Local 1224 (Airborne).

*Allied  
Pilots  
Association*

CAPA is aware of the diligent efforts of both the Federal Aviation Administration and National Transportation Safety Board in the investigation of American Airlines Flight 587, an Airbus A-300-600. However, the information that has emanated from the investigation to the industry is confusing.

*Independent  
Pilots  
Association*

CAPA has concerns regarding several flight safety issues that stem from the investigation of AAL Flt 587. First, based on the circumstances of the accident, the National Transportation Safety Board (NTSB) prompted the Federal Aviation Administration (FAA) to take immediate action to inspect the Airbus A300-600 aircraft to, "...detect and correct reduced structural integrity of the airplane following an extreme loading event...." The FAA subsequently issued an Airworthiness Directive (AD) 2002-06-09 requiring a "detailed" inspection of the airframe, to include the "...fuselage external surface under the vertical stabilizer fuselage fairing, including the side load fittings and lower surface of rib 1 of the vertical stabilizer" and the "...rudder hinge arms and support fitting 1 through 7, and the actuator support fittings of the vertical stabilizer."

*National  
Pilots  
Association*

It is our understanding that the vertical stabilizer consists of manually laid-up skin panels stiffened with stringers that consist of 0.125mm thick, unidirectional carbon fiber epoxy prepegs. These skins, comprised of about 150 prepreg plies, are then mechanically attached to the three carbon fiber spars. Further, the spar is attached to the reinforced metal frames in the upper fuselage, and the skin is attached to the fuselage-mounted clevis fittings on each side of the respective spar by an integral composite lug, extending approximately 12 inches beyond the stabilizer spar.

*Southwest  
Airlines  
Pilots  
Association*



It is evident that based on the construction materials and methods, the "intensive visual examination" defined in the AD may only reveal obvious irregularities in the specified areas, and not reveal internal structural flaws that may exist. Additionally, according to published information, it is well known that deficiencies in composite materials may either originate during the manufacturing process or during in-service use. The internal defects that can severely weaken the structure integrity of the particular composite material part may not reveal "visible" evidence, thus, detecting subsurface flaws using a visual inspection method is impossible.

The only reliable method for detecting defects or "hidden damage" is to perform sophisticated non-destructive type examinations, employing the use of ultrasonics, thermography or holography. Although there are limitations to each of these specific examination methods, they are more viable for the detection of internal flaws that would not be revealed by the "intensive visual examination" required by the AD.

Therefore, CAPA urges the FAA to require immediate comprehensive inspection of the A300-600 and A310 fleet using these composite-industry recommended methods for detecting internal flaws or hidden damage.

Secondly, as a result of information gathered during the course of its ongoing investigation, the NTSB has identified an industry-wide safety issue involving pilot operations and training on transport category aircraft. The NTSB stated in its Safety Recommendation, A-02-01 and -02, that it believes that flightcrew members may not have been informed that under certain conditions, it is possible to induce structural damage or failure of the vertical stabilizer as a result of aggressive rudder input. Although the NTSB has not determined a probable cause of the AAL Flt 587 accident, nor have they concluded that pilot error and/or training was a factor in this accident, it is evident that the flightcrew, and in particular, the first officer (probable pilot flying) may be implicated as the cause for the separation of the vertical stabilizer.

CAPA is concerned because the perception that "pilot input" may have caused or contributed to the in-flight separation of the vertical stabilizer has, and will continue to contribute to a lack of confidence in the aircraft, by the pilots, cabin crew and mechanics. Unfortunately, the issuance of the NTSB Safety Recommendation lends further support to this perception because it implies that pilots should have a more thorough understanding of aircraft flight control operations and 14 CFR Part 25 aircraft certification criteria to safely operate an aircraft. In addition, the Safety Recommendation is confusing because there is a disparity regarding the training and the operational use (in both routine and non-routine situations) of the rudder as either a primary or secondary flight control. The disparity in the message could compromise safety if pilots do not act or react with proper, timely and sufficient rudder inputs under certain flight conditions, i.e., engine failures during takeoff in gusting wind conditions or significant turbulence events at slow airspeeds.



CAPA believes that it is necessary for a pilot to fully understand the mechanical operation of a particular flight control system for a specific aircraft, and have a fundamental understanding of aerodynamics and the effect that flight control operations have at various speeds. However, training a pilot in the criteria necessary to certify a 14 CFR Part 25, transport category aircraft does not have a practical application for a pilot.

Although, the Safety Recommendation emphasizes the implication of using improper rudder inputs, it also suggests the FAA ensure that the recommended training not compromise current (conventional) training programs or alter the "substance and effectiveness of existing training regarding the proper rudder use, such as during engine failure shortly after takeoff or during strong gusty crosswind takeoffs and landings." Unfortunately, the Safety Board's suggestion is not possible, because the "current" training programs likely include maneuvers that require aggressive rudder input to maintain or regain control of the aircraft under certain conditions. Thus, it would be necessary to modify current training programs that incorporate the new information and provide pilots with new techniques to handle adverse situations.

Further, CAPA does support the Safety Board's Recommendation that would, "Require the manufacturers and operators of transport-category airplanes to establish and implement pilot training programs that:...2) explain that a full or nearly full rudder deflection in one direction followed by a full or nearly full rudder deflection in the opposite direction, or certain combinations of sideslip angle and opposite rudder deflection can result in potentially dangerous loads on the vertical stabilizer, even at speeds below the design maneuvering speed; and (3) explain that, on some aircraft, as speed increases, the maximum available rudder deflection can be obtained with comparatively light pedal forces and small pedal deflections." However, CAPA believes that flightcrew training and on-the-line guidance must extend beyond the Safety Board recommendations and focus on useful information that pilots can practically apply. For example, the training program should emphasize to pilots that not only is maximum available rudder deflection obtained with comparatively light pedal forces and small pedal deflections as speed increases in some airplanes, but that rudder deflection is not proportional to rudder pedal input. Thus, moving the rudder pedals only a small percentage of their total travel range will not necessarily give you a small percentage or "graduated" rudder deflection, even at higher speeds and with the limiter engaged.

In addition, the pilot training should also include information regarding in-flight handling qualities that are unique to a specific aircraft. For example, the A300-600 does not have outboard ailerons, but instead, is equipped with outboard spoilers that "inter-connected" with the inboard ailerons. Unlike many other transport category aircraft that are equipped with outboard ailerons, and that provide very good roll qualities at slower airspeeds without the use of supplemental rudder input, the A300-



600 roll response has been characterized as "sluggish" because of the lack of out-board ailerons. Thus, unlike the other transport category airplanes, rudder deflection in concert with aileron input, is necessary to improve the roll qualities of the A300-600.

Lastly, CAPA is concerned because the FAA and the NTSB have addressed training only from the standpoint of pilot education. However, a critical element in the training process is the practical application of the information learned by the pilot. Typically, the simulator is the tool used to demonstrate the practical application of the information, such as "Advance Maneuvers" and/or "special maneuvers" training currently required in many of the transport category aircraft training programs. Some of the techniques utilize aggressive and maximum rudder input to expedite recovery. Unfortunately, simulators cannot simulate the g-forces experienced by the pilot or exerted on the airframe. Thus, the current programs could train or emphasize the use of a particular piloting technique that exceeds the structural integrity of the aircraft. Therefore, CAPA believes that simulator fidelity should be studied to determine methods that manufacturers could incorporate a system to provide realistic feedback to the flightcrew and instructor when the designed structural limits of the aircraft have been exceeded during the execution of training maneuvers.

Finally, CAPA supports a call from the Allied Pilots Association (APA) to update wake vortex studies. Newly developed transport aircraft approaching one million pounds gross weight with attendant increased wing loading, highlight the urgent need for these studies as APA has pointed out.

Your attention to these issues is appreciated and I look forward to your response.

Sincerely,

Capt. Robert M. Miller  
President, CAPA

RMM/bg

cc: Marion Blakey, Chairman, National Transportation Safety Board  
Capt. John Darrah, President, Allied Pilots Assoc.  
Capt. Sean Sullivan, President, National Pilots Assoc.  
Capt. Jon Weaks, President, South West Airlines Pilots Assoc.  
Capt. Rob Boyd, President, Airline Professionals Assoc.