Submission of the

US Airline Pilots Association

To the

National Transportation Safety Board

Regarding

USAirways Flight 1549

New York City

January 15, 2009

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Executive Summary

On January 15, 2009, at 1530 Eastern Standard Time, US Airways flight 1549, an Airbus A320, registration N106US, struck a flock of Canadian geese, and lost engine thrust, following take off from New York's LaGuardia Airport (LGA). The flight crew accomplished a successful forced landing in the Hudson River, followed by an evacuation. All one hundred fifty passengers and five crewmembers were rescued by ferry boats operating in the area. One flight attendant was injured. The scheduled, domestic passenger flight, operated under the provisions of Title 14 CFR Part 121, was en route to Charlotte Douglas International Airport (CLT) in Charlotte, North Carolina.

Findings

Shortly after departure from New York's LaGuardia airport, flight 1549 encountered a flock of Canadian geese. The geese were described by the flight crew as dark and filling the windscreen.

Immediately after striking the geese, the crew reported a sudden and dramatic loss of thrust. Flight data also indicates an almost simultaneous loss of thrust on both engines to sub-idle conditions.

During the investigation, it was revealed that both engines suffered severe damage and that bird remains were discovered in both engines.

The Captain chose a landing in the Hudson River, as close as possible to boat traffic.

Simulator testing during the investigation resulted in numerous unsuccessful attempts to land at LGA. The decision to land in the river clearly proved to be the safest course of action, saving many lives.

Following the dual engine failure, the flight crew accessed and began the proper checklist procedure located in the QRH. Although they demonstrated great proficiency and poise, there was not enough time to complete the lengthy procedure.

The forced landing, with little or no thrust available, in the Hudson River was survivable, however, both cargo doors were found open and there was substantial damage to the rear pressure bulk head including surrounding fuselage area. Flight data indicates a firm, but not hard touchdown at 13.5 feet per second.

Aircraft certification data for ditching is based upon a glide path of .5 degrees. This was not communicated to the flight operations personnel within the manufacturer or to the airline operators, and specifically the flight crew.

Due to the damage, the aircraft took on water and was in a tail low attitude, beginning to sink within minutes of touchdown.

The Captain's "mayday" call was blocked by another transmission.

A transmission from the ARFF personnel questioned who "cactus" was.

The aircraft involved was equipped and certified for "extended overwater operations." This equipment included four life rafts and life vests for all occupants.

Two life rafts in the rear of the aircraft were unusable due to the exits being below water, leaving two usable rafts for all on board.

Following an orderly, successful evacuation many passengers remained on the wings of the aircraft as it began to sink.

In cold waters, such as the Hudson River on this date, exposure for any more than thirty minutes is generally not survivable.

Due to their proximity, numerous rescue crafts responded immediately resulting in a very timely rescue of all souls on board.

Probable Cause

The probable cause of this accident was an encounter with Canadian geese shortly after takeoff. The result of the encounter was loss of thrust on both engines, which would not allow for sustained flight. Contributing to the outcome was the flight crew's decision to land in the Hudson River in a location where there is significant ferry boat traffic. Additional factors were the professionalism of the cabin crew in safely evacuating an aircraft with two floor level exits unusable, and the rapid response of the boats operating in the area.

USAPA believes the following issues should be addressed in order to advance aviation safety.

Avian Hazards

There are currently few flight crew procedures for avoiding contact with birds. The guidance available includes utilizing landing lights and climbing when possible, which the flight crew had accomplished. The limited guidance also suggests where encounters are possible. Although, the time and place of flight 1549 would not generally rank high on the list of probabilities, there was an encounter just the same.
The LaGuardia airport has in place an industry standard bird mitigation procedure as detailed during the investigation. Although a robust procedure is no doubt useful in preventing many encounters, it does not prevent encounters with migratory birds or birds that are overflying the airfield.
Due to the above issues this submission will not focus on this area.
However, evidence presented at the public hearing[1] indicates that this is a growing threat to aviation safety; therefore we propose the following recommendation.

To the FAA, airport authorities, aircraft and engine manufacturers: Continually review avian hazards, and where technologies permit, increase safety by mandating and employing such technology. This should include airframe and powerplant protection, as well as, mitigating encounters with all wildlife.

Aircraft Engines

Flight 1549 encountered a large flock of very large birds at a critical time in the flight. The two engines suffered catastrophic damage. Although the engines met the certification standards, these encounters were well beyond those standards. Today's technology does not appear capable of producing engines that can sustain that level of impact and still function. However, details of the investigation reveal that the threat of future encounters may increase both in frequency and severity. Based on the above, we will further discuss the details of the investigation relative to engine design and certification.

In order to enhance safety, higher standards must be required for engine design and certification. This will foster research and development of new and better technologies. In the case of engine design, this appears to have occurred in the past with FAA amending engine certification standards in the late 1980s when they felt that the regulations were not meeting the safety requirements.[2] Testimony at the public hearing also highlighted the extensive length of time that FAA rulemaking takes. In response to questioning at the public hearing,[3] it was established that prior rulemaking on engine certification took greater than seven years. The FAA deserves credit for recognizing the increased bird threat and reacting quite appropriately; however, the length of time for rulemaking

[1] public hearing testimony p.158-160 (Dr. Dolbeer testimony)
[2] Public hearing transcript p. 494,495 (Bouthillier testimony)
[3] Public hearing transcript p. 536-538 (Bouthillier and McVey testimony)

appears to be unrealistic and unacceptable. Should rulemaking be undertaken today it would take a minimum of five years to establish a new regulation. Furthermore, this new regulation would not affect engines already in the certification pipeline. Therefore it would be more than a decade before any new certification standards would produce the desired safety benefits. Based on this, we offer the following recommendations to the FAA.

Review the engine certification standards for bird ingestion to include today's greater threat from heavier migratory birds. If such a review indicates a need to address the certification standards, convene an ARC and utilize a streamlined process for FAR amendment.

Streamline the rulemaking process, especially the lengthy legal review that has resulted in delays as much as five years or greater for important regulations. These regulations would include engine and ditching certification standards.

Operational Procedures and Checklist Design for a Total Loss of Thrust

The flight crew of flight 1549 acted very professionally in all respects. This was not only limited to the Captain's decision making and handling of the aircraft, but was also reflected in the First Officer's accomplishment of numerous tasks; not the least of which was attempting relights of both engines in accordance with the quick reference handbook (QRH). In spite of the crews performance Dr. Burian, a noted human factors expert, testified at the public hearing[4] that this flight was not handled well due to a failure in procedural and checklist design. Her reasoning indicated that the procedures and checklist design failed the crew in that they did not allow completion in a timely manner, or "opt out points" when obvious that other priorities superseded their importance. Because of the experience of the First Officer and the use of crew resource management by both pilots, the First Officer was able to terminate the checklist at an appropriate time and assist the Captain during the most critical time in the flight. As Dr. Burian pointed out, this particular crew did not need the help of these opt out points.

The design of the QRH engine dual failure checklist was well thought out and was improved as a result of a very serious accident involving another Airbus model. Unfortunately, this checklist was not designed for a low altitude failure and a resultant ditching or forced landing. Even in Dr. Burian's testimony, she acknowledges that "one stop shopping," as it applies to this checklist, has many advantages. Since the only drawback is the length of the procedure, the solution seems to be the "opt out" points previously discussed, or the development of an additional checklist to be used for a time critical forced landing whether on water or land. The advantages and disadvantages of creating another checklist dealing with forced landings vs. amending the current checklist with "opt out" points can be debated. Both the manufacturer and USAirways have experts

4 public hearing testimony p.133-134 (Burian testimony)

in the field of checklist design, along with the ability to test the procedures in simulators. Based on this, we will not offer an opinion on which method should be adopted, except to make the recommendations following this section requesting that this issue be addressed by those experts. It is hoped that union safety committee members would also be included in the development process in order to provide line pilot input.

The A-320 has an electronic centralized aircraft monitor (ECAM) installed in order to identify emergency or abnormal failures (warnings and cautions) that affect a flight. The ECAM displays the malfunction and an electronic "checklist" that can be used to handle the anomaly. In a paper published in October 2006[5], Dr. Burian acknowledged that this type of automated system can be very effective. However, due to software inadequacies the ECAM on the A-320 aircraft is incapable of directing the flight crew to properly execute the required steps of several failures including the "Engine Dual Failure." In order to deal with this, Airbus and several carriers including USAirways publish ECAM exceptions in the QRH. This results in an additional step which requires the crew to confirm whether a given failure is an ECAM exception. Once identified as an exception, the QRH must be used in lieu of the ECAM. Because an ECAM exception requires an additional step in an already complex and time critical situation, elimination of this step during any emergency would enhance safety. Although current technology can not eliminate all ECAM exceptions, there are several which can be removed. The recommendation below reflects our endorsement of improving the ECAM and eliminating these exceptions where possible.

During the flight crew interview with the operations group[6], the Captain indicated that the USAirways QRH was re-issued with the elimination of numbered tabs on each page. He felt that this hindered the timeliness of their response. It should also be noted that the quality of the paper was reduced. The poor quality of paper can be a factor as the pages tend to stick together. This change accompanied by the elimination of tabs makes a given procedure more difficult to find. In a paper presented in October 2006[7] Dr. Burian discussed the physical properties relevant to checklist design, specifically the importance of high quality material and index tabs. Therefore we offer the recommendation below for USAirways to return to the better quality format previously issued. This new format could include tabs on each chapter and on time critical procedures. This would mean that the section for immediate action items would have a tab on the chapter and a tab on each procedure, i.e. engine dual failure.

USAPA recommends the following based on the above section**:**

To Airbus and USAirways: Amend QRH procedures on all fleets for engine dual failure to include "opt out" points in the checklist appropriate to time limited

[5] Burian, B. 2006 "Design guidance for emergency and abnormal checklists in aviation" Human Factors and Ergonomics Society
[6] Docket 5-32 Exhibit 2B attachment 1 P.30
[7] Burian, B. 2006 "Design guidance for emergency and abnormal checklists in aviation" Human Factors and Ergonomics Society

scenarios, or the development of an additional checklist which would address a forced landing from low altitude or a time critical situation.

To Airbus: Continue work to eliminate ECAM exceptions on A-320 aircraft.

To Airbus and US Airways: Develop procedures on all fleets for a forced landing following the loss of all thrust. These procedures must be concise such that they can be accomplished at a very low altitude with limited time available. These procedures should include guidance for touchdown which can easily be recalled by the crew.

To the FAA: Require all air carriers to review their operational procedures for total loss of thrust, ensuring that the procedures have "opt out" points appropriate to time limited scenarios. All carriers must also have in place procedures for a forced landing following the loss of all thrust. These procedures must be concise such that they can be accomplished at a very low altitude with limited time available.

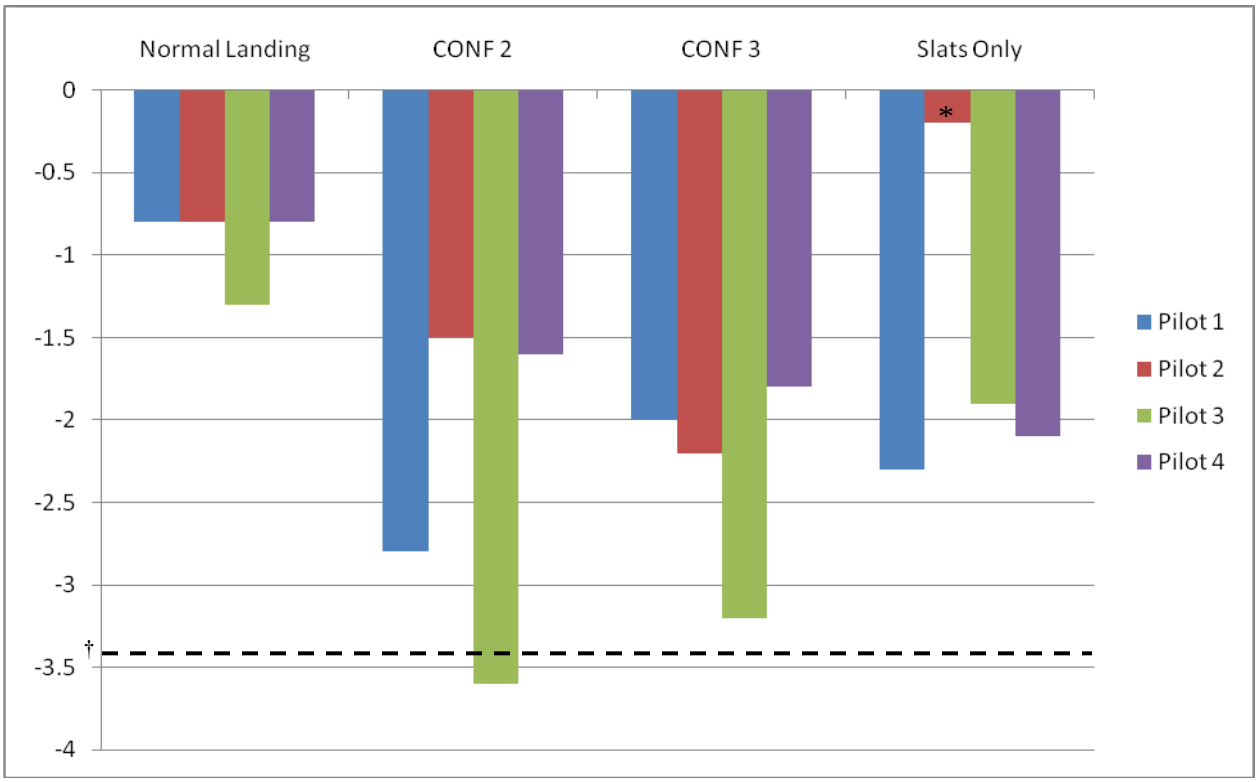
To USAirways: Return to a QRH format with better quality paper including tabs to locate the immediate action items in a more timely fashion.

Operational Procedures for Ditching or Forced Landings on Water

The analysis used to comply with the ditching certification regulations for the Airbus 320 assumes a glide path of .5 degrees just prior to touchdown. This requirement does not appear in the guidance provided by the manufacturer or the carrier to the flight crews. Further research has yet to find any carrier that has such guidance. The analysis also states that the descent rate on touchdown should not exceed 3.5 feet per second. Again this requirement does not appear in any flight guidance, either from the manufacturer or any carrier. Due to the low altitude, and therefore, the limited time that the flight crew had to deal with the dual engine failure, they did not have time to get to the point in the QRH procedure where the guidance for touchdown was located. Even had they reached this guidance, it is unlikely the touchdown would have been much different. The QRH guidance [8] states that the target pitch for touchdown is 11 degrees. In this case the crew achieved a pitch attitude of 9.5 degrees, and although the Captain was trying to arrest the descent by increasing the pitch further, the aircraft did not respond. The reasons for this are explained below with the issue of flight control authority. In either case, the crew achieved a pitch attitude very close to optimum. Further, the touchdown was very close to the minimum speed achievable. During the investigation, simulator testing was completed to evaluate ditching using various configurations. The data collected is from four A-320 rated pilots and is reflected in figure 1 below.

8 Docket sa-532 exhibit 2-k p.3

Figure 1. Flight path angles (in degrees) for a normal landing and different airplane configurations for ditching



Flight path angle calculated by "alpha - theta (deg)"; * Landing technique flown to achieve lowest vertical descent rate possible at touchdown; † Flight path angle (-3.4 degrees) of flight 1549

It should be highlighted that only one landing achieved the .5 degree (or less) glide path. This is in spite of the fact that this pilot was aware of the requirement and was attempting to achieve this flight path. Also noteworthy, is the fact that all of the normal landings, which were made to a runway at LGA with normal thrust and configuration, exceeded the .5 degree glide path immediately prior to touchdown. Regarding the descent rate, it is also not clear that the 3.5 feet per second is reasonable for ditching, especially with limited thrust available. Based on the simulator data mentioned above, it does not look reasonable whatsoever. Some of the considerations that occur in an actual ditching would include sea conditions and sight picture/depth perception issues. It only seems prudent to consider a design based on a more realistic "real world" descent rate and glide path.

In any case, aircraft certification requirements or limitations must be communicated to flight operations personnel within the manufacturer, and to the flight operations departments of the air carriers. These limitations must be incorporated into flight

operations procedures that meet the criteria such that certification standards will not be compromised. In the case of flight 1549, if the standard of a .5 degree glide path and the 3.5 feet per second descent rate had been attainable and communicated to the crew, the structure of the aircraft could have been protected. The results would have been an aircraft that would have remained in the proper attitude; leaving all exits and rafts usable, keeping the occupants dry, and protecting them from hypothermia.

In the case of flight 1549, we do not believe that these certification standards are reasonable, and attainable. We therefore favor a more realistic approach of using an achievable flight path in which to evaluate the structure. We, therefore, issue the following recommendations to Airbus, FAA, and EASA.

Convene an engineering evaluation board to review the certification standards for ditching the A-320 series aircraft. This should include a review of the .5 degree glide path and the 3.5 feet per minute decent rate. Should this prove to be unacceptable, amend the above parameters to ensure structural integrity following a ditching or forced landing on water.

Ensure that the assumptions of the aircraft certification procedures are incorporated into flight operations procedures for that aircraft. This will help to protect the structure following a ditching or forced landing on water.

Airbus-320 Flight Control Authority

The Airbus A-320 has several "protections" built into the flight control system. These protections are designed to limit pilot input to protect the flight envelope. One of these protections is known as "Alpha floor," which is designed to prevent the aircraft from exceeding it's critical angle of attack and stalling. In a case with little or no thrust, this is done exclusively by limiting pitch. Although the aircraft never reached the flight envelope protection "Alpha floor," the pitch did not respond to the Captain's command during the last several seconds of the flight. Although unknown to the crew or the carrier, there are additional limitations included while in "Alpha Protection" that prevented the crew from achieving a higher pitch attitude. This additional control law is said to prevent phugoid oscillations from forcing the airplane into a stall. The additional pitch called for by the Captain would have limited the rate of descent, possibly limiting the damage to the aft fuselage, allowing the use of the rear exits and rafts. Flight crews are trained extensively in the use of the flight control system and their limitations; however, this additional restriction is outside of the guidance provided by the manufacturer. At the critical point in time where the Captain was arresting the descent during the final seconds, there is no way that he could anticipate the point where the flight controls would stop responding other than the normal monitoring of airspeed. Airspeed is the only indication that the crew would have regarding "Alpha protection" and "Alpha floor." It is clear from the flight data that the crew had a margin in airspeed and would not be able to anticipate limited control authority at this point. During the investigation the safety board undertook a study on this issue. Much of the information is proprietary, therefore was not released, however, it seems clear that there are questions concerning the performance of

the control system in this accident. We therefore submit the following recommendation to the FAA and Airbus.

Convene an engineering evaluation board to review the A-320 flight control laws to ensure that the flight crew will have full control of pitch during landing operations, whether on land or water.

Airbus and USAirways develop procedures on all fleets for a forced landing following the loss of all thrust. These procedures must be concise such that they can be accomplished at a very low altitude with limited time available. These procedures should include guidance for touchdown which can easily be recalled by the crew.

Aircraft Certification standards for ditching

FAR 25.801 is extremely general in nature, addressing only the behavior of the aircraft following a ditching. The lack of detail in the regulation leaves much up to the manufacturer to determine the means of compliance. Flight 1549 is an example of the problems with this lack of detail. This flight was flown in a profile reasonably close to a normal approach and landing, yet far different than the profile that the manufacturer used in evaluating the ditching characteristics of the aircraft. One problem, as stated above, is that this difference was not communicated to the flight crews. Based on the testing undertaken by the operations group (figure 1 above), it also appears that the profile selected was unreasonable and not realistically attainable. It seems clear that an objective, obtainable flight path and descent rate be mandated. Furthermore, a standard used for all aircraft certificated under this part will make for an objective yet even playing field for all manufacturers. USAPA, therefore, issues the following recommendations.

To the FAA: Amend FAR 25.801 to include standard descent rates and flight path to evaluate ditching characteristics.

Streamline the rulemaking process, especially the lengthy legal review that has resulted in delays as much as five years or greater for important regulations. These regulations would include engine and ditching certification standards.

Convene an ARC to ensure timely regulatory changes to the ditching requirements.

Airbus-320 structural integrity

Both cargo doors of the aircraft were found open when the aircraft was lifted from the water. According to the structures group factual report[9], the first recovery diver and underwater video documentation confirmed that the forward cargo door was open. FAR 25.801 (e) states that unless the effects of the collapse of external doors and windows are accounted for in the investigation of the probable behavior of the airplane in a water

[9] Structures Group Factual report 6.12

landing, the external doors and windows must be designed to withstand the probable maximum local pressures. Since the certification did not account for the collapse of the cargo doors, the following recommendation addresses this issue.

To Airbus, FAA, and EASA: Convene an engineering evaluation board to review the cargo doors to ensure compliance with certification standards relative to ditching or forced landings on water.

The rear pressure bulkhead is a critical component for many reasons. In the case of flight 1549, the failure of the rear pressure bulkhead lead to the aircraft taking on an excessive amount of water. This further resulted in a tail low attitude making the rear emergency exits and life rafts unusable. Although the descent rate at touchdown exceeded the assumptions that Airbus used when evaluating the ditching requirements for certification, it is also clear that the touchdown was not extreme. Although this might be classified as a hard landing, it is not a touchdown where one would expect substantial damage. There is also anecdotal evidence from numerous tail-strike incidents that this structure is prone to failure. USAPA offers the following to determine whether a problem exists, and to identify solutions.

To Airbus, FAA, and EASA: Convene an engineering evaluation board to review the design and structural integrity of the rear pressure bulkhead.

Equipment Requirements for Flight over Significant Bodies of Water

Flight 1549 was not scheduled as an extended overwater flight per FAR Part 121. In spite of that fact, the aircraft happened to be one of the carrier's aircraft equipped for extended overwater operations. This fact was critical as it ended up in the frigid waters of the Hudson River. The importance of the "overwater" equipment- particularly life rafts- to the survival of the passengers and crew can not be overstated. The water temperature at the time was approximately 36F (2C). In these conditions it is very unlikely that survival in the water would be possible beyond thirty minutes. In fact, immersion much beyond fifteen minutes would be questionable for many passengers, depending on individual physiology. Although only two of the four rafts were usable, having two rafts available made it possible to keep all of the passengers out of the water for the majority of the time prior to rescue. This was possible only by utilizing the wings which meant a limited time of safety as the aircraft sank. Had the rafts not been installed, there would not have been room on the wings for all occupants, forcing many into the frigid water. Not only would this have resulted in significant risk of hypothermia, but the resultant panic may have complicated the evacuation and rescue. In this particular accident, the amazingly fast rescue was the overriding reason for its success; however, when evaluating considerations for the future, we must look at several factors. As cited in the "Transport Water Impact and Ditching Performance" paper[10] 81.7 percent of U.S. airport operations

[10] Docket sa-532 exhibit 2-z

involving 82.7 percent of U.S. passengers operated at airports with at least one approach over a significant body of water. Further, numerous flights operate a great distance off shore without being considered "extended" overwater per the regulations. In the case of non-overwater flights the only requirement for flotation is the seat back cushion. For the purpose of the regulations, "extended overwater" is defined as fifty miles or greater from shore. Many carriers also take advantage of waivers which allow flights up to one hundred sixty two miles in southern latitudes, and one hundred miles in the north. At distances as great as this, it is clear that rescue is not generally possible in a timely manner. Even those flights operating primarily over land that have arrivals or departures over significant bodies of water have significant exposure due to the fact that there may not be any available water craft for rescue. This is especially true during the winter months, when water temperatures can be critical. Flight 1549 would have had a far different outcome had it landed in a different part of the river or on Long Island Sound. With no boats available for immediate rescue even those on the wings would have been susceptible to hypothermia. Another consideration would be that panic could be a factor. As passengers assembled on the wings, and in the rafts, rescue craft were seen speeding to the scene. Absent this confirmation of impending rescue, it is likely that the situation would not have remained as orderly. Yet another factor in this accident is that very few of those who evacuated had taken a seat cushion with them. Although the crew distributed many after the fact, it is clear that many would not have had the benefit of even a seat cushion. Hypothermia is a prime concern; however, even warm waters hold the danger of drowning as well as threatening marine life such as sharks. Seat cushions would be of limited value should there be a shark attack, or if the seas were extremely rough.

Based on the above it should be clear that in order to advance safety, the equipment requirements for non extended overwater operations should be reviewed. We, therefore, offer the following recommendations to the FAA.

Require all future aircraft certificated under FAR part 25 to meet the equipment requirements of FAR 121.339 for all operations.

Require all air carriers who have aircraft in their fleets that meet current FAR 121.339 requirements for "extended overwater" operations to maintain those qualifications until such time as amended regulations requiring compliance takes place.

Require all air carriers to comply with the current FAR 121.339 requirements for "extended overwater" operations by January 1, 2015 for all aircraft in their fleet.

Communication Difficulties for Aircraft under Distress

Following the loss of thrust, the Captain made a "mayday" transmission to air traffic control attempting to declare an emergency. This transmission was blocked by another transmission; however, it became clear to the controller shortly thereafter that there was indeed an emergency. Because of the experience of the controller, this communication difficulty did not result in a substantial problem; yet this could have easily become a major distraction. It also could have been critical in alerting crash, fire and rescue personnel. On a daily basis, blocked radio transmissions affect the safety of thousands of flights. The results vary from altitude deviations to navigation errors, and numerous other critical elements of flight safety. Technology now exists to eliminate this hazard. We therefore offer the recommendation below to the FAA

Move forward on the project to use anti-blocking technology on VHF radio frequencies such that ATC frequencies will no longer be susceptible to blocked communications.

Much liked blocked transmissions; missed radio calls due to incorrect or confused call signs also plague the ATC system on a daily basis. As described above, they lead to numerous safety problems, any of which could be catastrophic. Elements leading to these problems are call signs as well as identifiers that can easily be confused. More complicated is the case where the call sign does not match the livery of the aircraft. Obviously, this can be critical when told to visually follow an aircraft, whether in flight or on the ground. Following the merger between USAirways and America West, a decision was made to use the call sign of the former America West, "Cactus." This resulted in a call sign that does not match the livery. As seen in attachment 1, air traffic controllers had great difficulty with this change. To eliminate confusion with one aspect, the three letter identifier for the airline was changed to AWE from USA. Attachment 2 further highlights the difficulties presented on a national level when flights having a difference in livery and call sign operate in the same airspace. Obviously the FAA and the companies involved have gone to great lengths to avoid problems in the case of the Delta and Northwest merger. It should be clear that air traffic control has experienced difficulties. A further example is a recent incident on a USAirways international flight that highlights a problem not normally anticipated. Since the controller was not familiar with the airline, he attempted to use a phonetic version of the three letter code. When the flight failed to respond to the call sign "Aywee," the controller assumed that they were no longer in radio contact. Eventually an armed fighter escort was ordered. Another unanticipated problem occurred on flight 1549. An emergency call from the LGA tower cab coordinator to the New York Port Authority emergency response unit[11] reveals that the controller had to explain who "Cactus" was. In this case the difficulty proved to be not critical, as other watercraft responded first. The confusion, however, could be critical

[11] ATC transcript LGA tower cab coordinator position at 2030:24

in cases like the above example where the controller was neither familiar with the airline or the airline code. It would be easy to see that rescue personnel may not be aware of what type of aircraft or the magnitude of the emergency that they may be responding to. Although this problem also exists with regional carriers who often code share for several major carriers, these operations by design are normally limited geographically, resulting in less confusion. Regardless, we feel that this can also be eliminated by allowing the code share carrier to use the call sign matching the livery. In the case of USAirways, this problem can be fixed immediately for approximately 3,000 flights per day. USAPA recommends the following to address the above concerns.

To the FAA: Require all certificate management offices to follow advisory circular 120-26J (Att. 3) guidance regarding call signs matching the name of the operator.

To USAirways: Change the company call sign from "Cactus" to "USAir" in order to match the livery of the aircraft, minimizing communication difficulties.

Safety Recommendations

USAPA makes the following recommendations to the specified parties to further aviation safety. For convenience, these recommendations are reprinted from the above sections.

To FAA:

Ensure that airport authorities, aircraft and engine manufacturers continually review avian hazards, and where technologies permit, increase safety by mandating the use of such technology. This should include airframe and powerplant protection, as well as, mitigating encounters with all wildlife.

Review the engine certification standards for bird ingestion to include today's greater threat from heavier migratory birds. If such a review indicates a need to address the certification standards, convene an ARC and utilize a streamlined process for FAR amendment.

Streamline the rulemaking process, especially the lengthy legal review that has resulted in delays as much as five years or greater for important regulations. These regulations would include engine and ditching certification standards.

Require all air carriers to review their operational procedures for total loss of thrust, ensuring that the procedures have "opt out" points appropriate to time limited scenarios. All carriers must also have in place procedures for a forced landing following the loss of all thrust. These procedures must be concise such that they can be accomplished at a very low altitude with limited time available.

Amend FAR 25.801 to include standard descent rates and flight path to evaluate ditching characteristics.

Convene an ARC to ensure timely regulatory changes to the ditching requirements.

Require all future aircraft certificated under FAR part 25 to meet the equipment requirements of FAR 121.339 for all operations.

Require all air carriers who have aircraft in their fleets that meet current FAR 121.339 requirements for "extended overwater" operations to maintain those qualifications until such time as amended regulations requiring compliance takes place.

Require all air carriers to comply with the current FAR 121.339 requirements for "extended overwater" operations by January 1, 2015 for all aircraft in their fleet.

Move forward on the project to use anti-blocking technology on VHF radio frequencies such that ATC frequencies will no longer be susceptible to blocked communications.

Require all certificate management offices to follow advisory circular 120-26J guidance regarding call signs matching the name of the operator.

To Airbus:

Amend QRH procedures on all fleets for engine dual failure to include "opt out" points in the checklist appropriate to time limited scenarios, or the development of an additional checklist which would address a forced landing from low altitude or a time critical situation.

Continue work to eliminate ECAM exceptions on A-320 aircraft

Convene an engineering evaluation board to review the certification standards for ditching the A-320 series aircraft. This should include a review of the .5 degree glide path and the 3.5 feet per minute decent rate. Should this prove to be unacceptable, amend the above parameters to ensure structural integrity following a ditching or forced landing on water.

Ensure that the assumptions of the aircraft certification procedures are incorporated into flight operations procedures for that aircraft. This will help to protect the structure following a ditching or forced landing on water.

Convene an engineering evaluation board to review the A-320 flight control laws to ensure that the flight crew will have full control of pitch during landing operations, whether on land or water.

Develop procedures on all fleets for a forced landing following the loss of all thrust. These procedures must be concise such that they can be accomplished at a very lower altitude with limited time available. These procedures should include guidance for touchdown which can easily be recalled by the crew.

Convene an engineering evaluation board to review the cargo doors to ensure compliance with certification standards relative to ditching or forced landings on water.

Convene an engineering evaluation board to review the design and structural integrity of the rear pressure bulkhead.

To USAirways:

Amend QRH procedures on all fleets for dual engine failures to include "opt out" points in the checklist appropriate to time limited scenarios, or the development of an additional checklist which would address a forced landing from low altitude or a time critical situation.

Develop procedures on all fleets for a forced landing following the loss of all thrust. These procedures must be concise such that they can be accomplished at a very low altitude with limited time available. These procedures should include guidance for touchdown which can easily be recalled by the crew.

Return to a QRH format with better quality paper including tabs to locate the immediate action items in a more timely fashion.

Change the company call sign from "Cactus" to "USAir" in order to match the livery of the aircraft, minimizing communication difficulties.

Attachment 1

A Big Safety Win for NATCA

- Main
- Press Releases
  - Subscribe to Press Releases
- Resources
  - Advertisements
  - Publications
  - Speech Archive
  - Photography Library
  - Letters to the Editor
- Interactive Features
- Archie League Medal of Safety

The Safety and Technology Department received word at the end of August that US Airways' callsign would change on September 1st to Cactus, due to the merger between US Airways and America West. The three letter identifier was going to remain USA even though America West had AWE approved for Cactus. Letters were sent to ATO-Enroute and ATO-Terminal about this being a safety issue – about how such a change was causing trouble and confusion for controllers. NATCA also discussed the issue with USAPA safety officials.

Complaints from controllers and facility representatives were forwarded to ATO-System Operations. After one week the FAA said the problem was greater than they anticipated and communication was set up with US Airways. Though NATCA was not part of the direct communications with US Airways management our input was available.

In the end the agency and US Airways agreed to change the three letter identifier to AWE so it would be no change to the controllers when using the Cactus callsign. This change is effective on September 19th. The Safety and Technology Department appreciates the input and concerns received from the membership on this issue. Controllers proved NATCA's point about the safety issue with this action and the outcome was exactly what was suggested in NATCA's letters to the FAA.

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- Friday, November 20, 2009 -- FAMILIAR FAA MODERNIZATION FAILURES EXPOSED IN THURSDAY TRAVEL MESS
- Thursday, November 19, 2009 -- MAJOR ATC COMPUTER OUTAGE RESULTING IN DELAYED FLIGHTS
- Thursday, November 12, 2009 -- NATCA PRAISES SENATORS WHO ARE PUSHING FOR PASSAGE OF FAA FUNDING BILL "WITHOUT FURTHER DELAY"

Highlighted Links

- Links
- Frequently Asked Questions
- Region X Information
- Learn about NATCA Critical Incident Stress Management Team

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Attachment 2

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION **N JO 7110.493**
Air Traffic Organization Policy
Effective Date:
December 14, 2008
Cancellation Date:
December 13, 2009
SUBJ: Identification of Northwest Airlines Aircraft Painted with Delta Colors
1. Purpose of This Notice. Phraseology is required to avoid confusion when Delta Air Lines and
Northwest Airlines aircraft are communicating with air traffic control but are not painted in the colors of
the airline matching the call sign they are using.
2. Audience. This notice applies to the Terminal Services organization and all associated air traffic
control facilities.
3. Where Can I Find This Notice? The notice is available on the MYFAA employee Web site at
https://employees.faa.gov/tools_resources/orders_notices/ and on the air traffic publications Web site
at http://www.faa.gov/airports_airtraffic/air_traffic/publications.
4. Procedures. Use the following phraseology to describe aircraft using Northwest Airlines call signs
but painted with a Delta Air Lines color scheme:
a. On departure, the phraseology "Delta colors" will be used by Northwest flightcrews on initial
contact with ramp control (where applicable), on initial contact with ground control, and on initial
contact with local control.
EXAMPLE-
"Detroit Ground, Northwest two twenty-two with you, Delta colors."
b. On arrival, the phraseology "Delta colors" will be used by Northwest flightcrews on initial
contact with the approach control, on initial contact with the tower (local control), and on initial contact
with ground control.
EXAMPLE-
"Potomac Approach, Northwest two twenty-two, one zero thousand with Alpha, Delta colors."
"Dulles Tower, Northwest two twenty-two, at the marker, Delta colors."

NOTE*Inboth the departure and arrival cases, read back of the words "Delta colors" by air traffic personnel is notmandatory.*

c. The words "Delta colors" will be filed with the aircraft's flight plan and will be displayed in the remarks section of the flight progress strip. This will be done to the maximum extent possible, but because of the limited size of the remarks section, it may not be possible in all cases, especially with international flights.

5. Distribution. This notice is distributed to the Air Traffic Organization Terminal and Safety Service Units; the service center offices; the Air Traffic Safety Oversight Service; and all terminal air traffic control facilities.

6. Background. As a result of the recent joining of Northwest Airlines and Delta Air Lines, beginning mid-December 2008, Northwest aircraft will begin to be painted with the Delta color scheme. Since over 350 aircraft will need to be repainted, it is expected the job will take 12 to 14 months to fully complete. Additionally, until the merging of the airlines operating certification process is completed, Northwest Airlines will continue to use the "Northwest" aircraft call sign and the "NWA" three-letter identifier in its flight plan. This will be the case regardless of the paint scheme of the aircraft.

Nancy B. Kalinowski
Vice President, System Operations Services
Air Traffic Organization

Provisions for the use of radiotelephony call signs are contained in Annex 10, Volume II, Chapter 5. ICAO designators and telephony designators for aircraft operating agencies are contained in Doc 8585 - Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

Attachment 3

U.S. Department of Transportation

Federal Aviation Administration

Advisory Circular

Subject: **INTERNATIONAL CIVIL AVIATION ORGANIZATION THREE-LETTER DESIGNATOR AND TELEPHONY DESIGNATOR**

Date: **1/1/05** **AC No: 120-26J**
Initiated by: **OPERATIONAL PROCEDURES**

1. PURPOSE.
Advisory Circular 120-26J defines the criteria and procedures for obtaining an International Civil Aviation Organization (ICAO) three-letter and/or telephony designator assignment.

2. CANCELLATION.
Advisory Circular No. 120-26H, dated 6/21/91, is canceled.

3. EXPLANATION OF CHANGES.

a. All references to the Federal Aviation Administration (FAA), Airspace-Rules and Aeronautical Information Division, Air Traffic Publications Branch (ATP-210), have been changed to FAA Headquarters. FAA Headquarters, Flight Services Division is referred to as ATP-300. Air Traffic Planning and Procedures Service is referred to as ATP. Effective 1/1/05, all of the references above are changed to Headquarters, Flight Services Safety and Operations Support.

b. Editorial and grammatical changes have been made to improve the clarity of this advisory circular.

c. All references to radiotelephony have been changed to telephony, as radiotelephone operator licenses are no longer required.

d. ICAO will not approve telephonies that are either numbers or letters. (Par.6.b)

e. The round trip and minimum aircraft requirements for a three-letter and/or telephony designator have been modified. (Par. 6c)

f. In accordance with Presidential Proclamation 5928, United States domestic airspace extends to 12 nautical miles from the coast of the United States (U.S.).

g. Regional Air Traffic Division (ATD) responsibilities have been redefined (Par.14), and redesignated as Service Area Directors.

4. RELATED READING MATERIAL.
Additional information on three-letter telephony, local telephony and special telephony designators, may be found in FAA Order 7340.1, Contractions; FAA Order 7210.3, Facility Operation and Administration; FAA Order 7110.65, Air Traffic Control; Title 47 of the Code of Federal Regulation (CFR), section 87.107; and ICAO Document 8585, Designators for Aircraft Operating Agencies, Aeronautical Authorities, and Services.

5. DEFINITIONS.

a. Three-Letter Designator – A three-letter designator is used in conjunction with the flight number and serves as the aircraft identification in the air traffic control system.

The authorized designator and flight/trip number are used for company business in lieu of the aircraft registration number.

b. Telephony Designator – (CALLSIGN)
Normally the aircraft operating company and/or servicing agency name or a pronounceable abbreviation of the name is used in combination with the flight number. The telephony designator is normally assigned simultaneously with the three-letter designator and becomes the aircraft identification for all voice communications with air traffic control facilities and operating services.

6. CRITERIA.

a. A three-letter designator is registered with the FAA for aircraft operating agencies and companies that, in the opinion of the State of jurisdiction (U.S.), require a specific three-letter designator. Three-letter designators are assigned by ICAO on a worldwide basis to an aircraft operating or servicing company conducting commercial domestic and/or international operations. ICAO three-letter designators may be used on the international telecommunications service when deemed advantageous for air traffic control and operational purposes.

b. A telephony designator is approved by ICAO and should be pronounceable and suitable phonetically in at least one of the following languages: English, French, or Spanish. The telephony designator, consisting of not more than two words and three syllables, should preferably resemble the name of the aircraft company, operating authority, or servicing organization. This reduces the amount of verbiage created on-line, contributing to similar sounding telephony designator confusion. Letters and numbers are not assigned as telephony designators. However, companies that have previously been assigned letters and numbers as telephony designators will retain those telephony designators.

c. The award of a three-letter designator and telephony designator is for the improvement of Air Traffic Control (ATC) communications, and the reduction of frequency congestion. The requestor should show that award would have a significant impact on the ATC system (defined as affecting three or more aircraft). A three-letter designator or telephony designator may be awarded to; (1) an aircraft operating company and/or servicing agency that operate or service 15 or more scheduled non-seasonal international round trip air operations per week, and generate appropriate flight movement messages over the National Aviation Data Inter-change Network (NADIN); or, (2) at least 20 scheduled non-seasonal domestic commercial round trip air operations per week. Aircraft operating companies and/or servicing agencies, that do not demonstrate minimum criteria, may apply for a waiver of these criteria with Headquarters, Flight Services Safety and Operations Support, and still be awarded a three-letter designator or telephony designator. The waiver must be deemed advantageous to the U.S. Air Traffic Control (ATC) system and operationally appropriate by the FAA. Waivers are authorized on an individual basis.

d. ICAO Document 8585 states that the three-letter designator of an entity may be used as part of the address indication for the Aeronautical Fixed Telecommunications Network (AFTN). Aircraft operating companies and/or servicing agencies desiring to send and/or receive communications via AFTN, must complete a Memorandum of Agreement on usage, prior to being allowed to connect to NADIN for international and

domestic telecommunications services. NADIN is an integrated worldwide system of aeronautical fixed circuits (including AFTN) providing exchange of messages between aeronautical fixed stations within the network. NADIN telecommunication service provides an electronic media for transmission of international flight movement messages and flight plans.

e. NADIN connections are authorized for aircraft operators and/or servicing agencies to introduce aircraft movement data into the air navigation system, and for the exchange of permissible information, in accordance with ICAO Annex 10, and Title 19 of 14 CFR, Part 189.

f. NADIN authorized users must have a Memorandum of Agreement (MOA) with the FAA to access the NADIN, and for transmitting non-ICAO (domestic) flight movement messages. The use of the assigned designator will not be approved until the MOA has been finalized. For additional information concerning MOA's, contact Headquarters, Flight Services Safety and Operations Support.

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g. Companies that pay a service-fee company to input data, must assure that the service-fee company has a MOA on file with the FAA. Those companies that will input data solely through FAA facilities must state in their request that the company does not require a NADIN connection, they have not hired a service fee company for data entry, and that they will be responsible for entering all data through FAA facilities.

7. PROCEDURES FOR APPLICATION.

Requests for ICAO three-letter designator and/or telephony designators should be addressed to the Service Area Directors, at the appropriate FAA Service Area Office. The regional office will approve, deny, or request information from the applicant/requestor. The regional office will then forward an acceptance recommendation, to Headquarters, Flight Services Safety and Operations Support.

b. The Service Area Director will ensure all documentation submitted by the applicant is validated before data is forwarded. It is the Service Area's responsibility to review the application and determine if the applicant meets the Headquarters, Flight Services Safety and Operations Support, ICAO and AC120-26 criteria, before submitting recommendations to Headquarters. Upon that determination, the request is either denied by the region or submitted to FAA Headquarters, Operational Procedures, with recommendations supporting the approval.

c. Three-letter and telephony designators are assigned by Headquarters, Flight Services Safety and Operations Support, with approval of ICAO. Assignments are made on a worldwide basis, for commercial domestic/international air traffic control operations, and use in the NADIN system. When ICAO officially approves the application, it will be returned to the region. The Service Area Director will notify its ATC facilities, and Headquarters, Flight Services Safety and Operations Support, will notify the other facilities and assure publication in FAA Order 7340.1, Contractions.

8. DOCUMENTATION.

To determine eligibility for an ICAO three-letter and/or telephony designator, the following information is necessary:

a. Name and address of the company, contact personnel and telephone numbers.

b. The number and type of aircraft operation or service provided. (minimum 3 aircraft; a list of operators served is required for servicing operations.)

c. The method of data entry into the NADIN system. (Is NADIN connection needed by applicant? Was a service fee company hired? Is applicant filing through FAA facilities?)
d. The number and type of NADIN messages generated on a daily basis, if connected.
e. A copy of the company/operator flight schedule.
Not required for servicing agencies.
f. A copy of the FAA Certificate that authorizes the company operations, stating the Title 14 CFR Part under which operations are to be conducted, i.e., 14 CFR Parts 121, 125 and 135.
NOTE: *Company operations under Title 14 CFR,* ***Part 91 solely, do not make a company eligible for an ICAO three-letter and/or telephony designator (s).***
g**.** Provide at least five (5) suggested three-letter designators and telephony designators, in order desired.
NOTE: *The required administrative period for approval of a company three-letter and/or telephony designator is approximately 90 calendar days. Failure to submit proper documentation may delay designator assignment*

9. BASIS FOR ASSIGNMENT.

a. ICAO approved three-letter and/or telephony designator assignments are supported by the FAA, if deemed advantageous to the U.S. Air Traffic Control (ATC) system.
b. Approved ICAO three-letter designator
be included in the remarks section of flight or telephony designators will not be assigned to eliminate problems resolvable by changing registration numbers, or similar sounding company names.
c. Title 14 CFR 91.169 (d) requires when a flight plan has been activated, the pilot in command shall notify a Flight Service Station or ATC facility upon canceling or completing the flight under the flight plan. This will avoid the FAA implementing search and rescue procedures.

10. CHANGES IN COMPANY STATUS.

Headquarters, Flight Services Safety and Operations Support, should be notified in writing immediately, when an assigned three-letter and/or telephony designator is no longer required, or upon a change in the name, address, or physical location of the company. Any designator released will not be reassigned for at least 60 calendar days. Exceptions will be considered on an individual basis. Listed below are some reasons for the notification of release:
a. Operations are permanently suspended or canceled for any reason; or,
b. Company names holding more than one three-letter and/or telephony designator.

11. USE OF AIRCRAFT COMPANY THREE-LETTER AND/OR TELEPHONY DESIGNATOR.

a. Authorized three-letter designators and/or telephony designators are valid when aircraft are flown according to provisions of the CFR under which an operating certificate was obtained from the FAA.
b. A new or changed three-letter designator and/or telephony designator should
(1) commemorative flights;

plans for at least 60 days following the effective date.

c. Headquarters, Flight Services Safety and Operations Support, reserves the right to revise or cancel any three-letter and/or telephony designator assignment, should confusion result within the United States. ICAO Document 8585 states in the interest of safety, simple procedures should be developed and maintained by states and aircraft operating companies/agencies for detecting, reporting and eliminating similar sounding radiotelephonies that may cause confusion or mistakes in identification.

12. PUBLICATION OF AIRCRAFT COMPANY THREE-LETTER DESIGNATORS AND/OR TELEPHONY DESIGNATORS.

Effective dates of aircraft company three-letter and/or telephony designators will be timely to permit entry into FAA Order 7340.1, Contractions, and the Stored Flight Plan Program. Affected FAA facilities will be advised of the authorized three-letter designator and/or telephony designator pending publication in appropriate FAA and ICAO documents

13. SPECIAL TELEPHONY DESIGNATOR ASSIGNMENTS.

a. Special telephony designators may be temporarily authorized only when their assignment will identify special handling required by air traffic control.

b. Special telephony designators are approved by the FAA.

c. Special telephony designators may be authorized for the following categories:
plans.

(2) large number of aircraft participating in an organized race;

(3) aircraft operating during an emergency or disaster condition; or,

(4) aircraft requiring special handling for test purposes.

d. Requests should be made to Headquarters, Flight Services Safety and Operations Support, and include the following:

(1) type of flight;

(2) handling required;

(3) type and number of aircraft; and

(4) routes and duration of operation.

14. LOCAL TELEPHONY DESIGNATOR ASSIGNMENTS

a. The Service Area Director issues local telephony designators, according to FAA Order 7210.3, Facility Operation and Administration.

b. Local telephony designators are used only for communications with local airport traffic control towers and/or air traffic facilities for VFR (VMC) operations. A Letter Of Agreement (LOA) is required between the local tower/facility and the requesting company/applicant. The LOA will contain provisions to ensure that local telephony is used only with facilities that are signatories to the agreement.

c. When a LOA expires, the local tower/facility will notify the company/ applicant for renewal. Local telephony designators are not to be used for filing flight

d. The Service Area Directors shall coordinate with bordering Service Areas, to assure that telephonies do not overlap. The Service Area Directors shall maintain a regional master database for local telephony.

e. The Service Area Directors shall forward copies of all approved telephonies to Headquarters, Flight Services Safety and Operations Support, for inclusion in the national database.