National Transportation Safety Board

Investigation of

Emery Worldwide Airlines Flight 017 Accident
February 16, 2000, Sacramento, California
NTSB Identification: DCA00MA026

EMERY WORLDWIDE AIRLINES RESPONSE TO OTHER PARTY SUBMISSIONS

Submitted February 7, 2003

EWA RESPONSE TO OTHER PARTY SUBMISSIONS
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1. BACKGROUND

On February 16, 2000, at approximately 19:51 Pacific Standard Time, an Emery Worldwide Airlines (EWA) Douglas DC-8-71F, Registration N8079U, operating under 14 C.F.R. Part 121 of the Federal Aviation Regulations (FAR) as Flight 017, crashed near Sacramento Mather airport (MHR) in Rancho Cordova, California. The NTSB initiated an accident investigation and designated several entities to assist as parties to that investigation. Parties that have actively participated in the investigation include the Federal Aviation Administration (FAA), EWA, the Boeing Company (Boeing), the Air Line Pilots Association (ALPA), and Tennessee Technical Services (TTS).

In keeping with 49 C.F.R. §§ 831.14 and 845.27, several parties, including EWA, ALPA, TTS, and Boeing, submitted documents to the NTSB that purported to analyze the factual evidence developed during the NTSB investigation and propose findings, a probable cause, and/or recommendations for the NTSB's consideration (Party Submissions).[1] By electronic mail dated January 7, 2003, 4:21 p.m., the Investigator-In-Charge advised EWA and the other parties that the NTSB would accept responses from each party to Party Submissions by other parties. This document (EWA's Response) responds to certain issues raised in the ALPA, TTS, and Boeing Party Submissions.

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[1] On December 27, 2002, EWA submitted its Proposed Findings to be Drawn From the Evidence Produced in the Course of the Investigation, and Proposed Probable Cause ("EWA's Party Submission") to the NTSB. By letter dated December 20, 2002, TTS submitted to the NTSB the Party Submission of Tennessee Technical Services, L.L.C. of Proposed Findings, Probable Cause and Safety Recommendations ("TTS Party Submission"). By letter dated December 27, 2002, the Air Line Pilots Association, International submitted its "comments" concerning this accident ("ALPA Party Submission"). In addition, Boeing submitted, on an unknown date, an eleven-page document that included Boeing's evidence assessment and summary of knowledge gained during the investigation ("Boeing Party Submission"). In EWA's Party Submission, EWA noted that FAA-certificated airframe and powerplant mechanics are formally trained that any castellated nut or bolt with a drilled hole in it should be secured with a cotter pin to ensure that the component is in an airworthy condition. EWA Party Submission at 57 (referring to Advisory Circular 65-9A). EWA included excerpts from AC 65-9A as an attachment to the EWA Party Submission. A helpful page from this AC is attached to this document, as Attachment A.

2. ISSUES RAISED BY OTHER PARTIES

2.1 General Response to Allegations in Other Party Submissions

Both the EWA and the Boeing Party Submissions sought primarily to address issues relevant to this accident investigation. The discussion, proposed findings, probable cause, and/or recommendations in these two documents were based on the evidence developed during the course of the NTSB investigation. The Party Submissions by ALPA and TTS, however, contain statements that are highly speculative, not based on the evidence developed during the course of the investigation, and, in some cases, are not even remotely related to the accident at issue.

EWA does not intend to refute each and every unsubstantiated, irrelevant, and/or erroneous allegation and issue raised in the ALPA and TTS Party Submissions. EWA's Response will instead attempt to confine itself only to: (i) a general response to the allegations in ALPA's and TTS's Party Submissions, (ii) issues raised in other Party Submissions that are so offensive that they warrant specific comment, and (iii) issues that are relevant to the accident at issue, have been newly raised by other parties, and were not addressed in EWA's original submission.

2.1.1 General Response to Allegations in ALPA's Party Submission

ALPA's Party Submission should be read with an understanding that ALPA is in an adversarial relationship with EWA in connection with ALPA's labor disputes with EWA and private litigation involving former EWA pilots.[2] EWA believes that the tone and much of the substance of ALPA's Party Submission, including the detailing of unsupported, irrelevant and/or erroneous allegations, are inappropriate in the context of an NTSB investigation. Many of the issues raised by ALPA in its Party Submission are political statements or statements aimed at advancing its partisan interests in pending private litigation on issues entirely separate from this accident. These statements are wholly unrelated to this accident.

From ALPA's inclusion of information wholly irrelevant to this accident, to its frequent recitation of unfounded speculation, ALPA's Party Submission starts with a bare shred of truth and stretches it to the ridiculous. ALPA's Party Submission contains for its "facts" virtually no citations to the factual record developed in connection with this accident, to exhibits used in the Public Hearing, or to documents in the NTSB docket. In fact, much of ALPA's Party

[2] While EWA is aware that ALPA has not taken a position with respect to each and every lawsuit involving EWA that includes former EWA pilots, nevertheless, ALPA is involved in adversarial positions with EWA in multiple matters.

Submission is a random diatribe that can be distilled to the following: "ALPA thinks lowly of EWA, therefore EWA must be at fault in this accident."

While EWA disagrees vehemently with the tone and much of the content of the ALPA Party Submission, EWA believes that most of the issues raised are so speculative or so unrelated to this accident as not to warrant a specific response. However, EWA is particularly offended by several parts of ALPA's Party Submission that are so inappropriate and offensive as to raise a concern that they may be prejudicial to the NTSB's efforts to investigate this accident rationally. Particularly egregious are ALPA's allegations (i) that there was "pencil whipping" involved in this accident, (ii) that EWA mechanics changed their testimony regarding maintenance performed on the accident aircraft, and (iii) that the corporate structure of EWA contributed to this accident. These allegations are addressed below in sections 2.2, 2.3, and 2.7.

In sum, ALPA's Party Submission reflects no an attempt by ALPA to provide the NTSB with a relevant analysis of the facts developed during this NTSB accident investigation, but rather an effort to inject irrelevant information, rank speculation, and political statements into this NTSB investigation in an attempt to advance ALPA's political or adversarial positions in other forums. In doing this, ALPA has demeaned the NTSB accident investigation process and mission.

2.1.2 General Response to Allegations in TTS's Party Submission

TTS's Party Submission also should be read in light of the fact that TTS is in active litigation with EWA over this very accident. TTS's Party Submission includes statements and proposed findings that are wholly unsubstantiated or clearly wrong. For instance, TTS proposes a finding that N8079U was in an airworthy condition when it was flown from TTS by the EWA test crew on November 17, 1999, at the completion of the D-Check.[3] TTS proposes this finding even though it does not contest that the elevator dampers were installed backwards at the time N8079U was flown from TTS, making the aircraft unairworthy. On this basis alone, the proposed TTS finding that N8079U was airworthy at the completion of the D-Check is clearly incorrect.

Another example of TTS's using its Party Submission to advance its private litigation interests rather than genuinely seeking an accurate analysis of this accident is its insistence that EWA failed to detect the incorrect attachment when it did not remove the Control Tab Fairing during the B-Check that immediately preceded the accident, "thereby nullifying the last clear chance to detect this discrepancy and prevent the accident."[4] TTS's use of the "last clear chance" argument seems squarely designed to promote its position in private

[3] TTS Party Submission, at 22 (finding 15).

[4] TTS Party Submission, at 4.

litigation and is clearly inappropriate in an NTSB investigation. Virtually all of the evidence developed during the investigation, including the statements of the mechanics involved, the air carrier, and the manufacturer, has uniformly indicated that the Control Tab Fairing was not, and should not have been, removed during the B-Check. Furthermore, EWA strongly believes that it would be contrary to the Maintenance Manual for the Control Tab Fairing to have been removed during the B-Check. Boeing has confirmed this position.[5]

2.2 Allegations of "Pencil Whipping" are Unfounded and Irrelevant to the Accident

One section of ALPA's Party Submission is entitled "Pencil Whipping."[6] In this section, ALPA defines "pencil whipping" as the intentional falsification of aircraft maintenance records.[7] However, nowhere in the "Pencil Whipping" section of ALPA's Party Submission does ALPA directly allege that there was any "pencil whipping" in connection with this accident.

The only example cited by ALPA in the "pencil whipping" section claims only that there was a "maintenance difficulty" related to a landing gear malfunction on an EWA aircraft (not the accident aircraft) on April 26, 2001 (the Nashville Incident). The example identifies no document as having been intentionally falsified. As part of its example, ALPA points to (i) a tag on a part that shows "an incorrect factory specification number", and (ii) a notation in the maintenance records of a satisfactory "ops test." ALPA then notes that the NTSB's probable cause determination in that incident was a "failure of company maintenance personnel to install the correct hydraulic landing gear extension component, and the failure of company maintenance inspection personnel to comply with proper post maintenance test procedures."[8] ALPA fails to connect the dots to show why this example is listed under a section entitled "pencil whipping."

In fact, the tag documentation cited by ALPA had been created by another airline years before the incorrect part even came into EWA's possession. The NTSB, in its probable cause determination, said only that there was an incorrect "identification tag marking on the replacement component."[9] The NTSB

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[5] Doc. No. 195 at Enclosure page 1.

[6] ALPA Party Submission, at 10.

[7] ALPA Party Submission, at 10.

[8] ALPA Party Submission, at 10.

[9] The NTSB's probable cause determination said that "[a] factor in the accident was the improper identification tag marking on the replacement component, and no marking on the component, itself." NTSB Final Report, NTSB Identification: MIA01IA129.

did not suggest any intentional falsification, either by EWA, or at the time the tag was created years before it came into EWA's possession. Thus, there could have been no intentional falsification on the part of any EWA employee in connection with this tag.

Further, ALPA does not, and cannot, explicitly state that the EWA inspector intentionally falsified any document when signing off the maintenance performed on the aircraft. The quote from the NTSB's probable cause indicates at most only that the testing that was performed failed to comply fully with proper test procedures. There is no suggestion in the NTSB's report that the EWA inspector intentionally falsified any documents.

The FAA also investigated the Nashville Incident. As a result of its investigation, the FAA initiated several enforcement matters. However, in none of the enforcement matters did the FAA allege any intentional falsification. This is despite the fact that the FAA is charged with enforcing FAR § 43.12, which specifically addresses intentional falsification. Simply put, neither the NTSB, nor the FAA, nor EWA, found any evidence of any intentional falsification in connection with the Nashville Incident.

In sum, the Nashville Incident does not support ALPA's completely unfounded and highly offensive suggestion that there was any "pencil whipping" at EWA. The incident was fully investigated by the NTSB, the FAA, and EWA, and none of them concluded that there had been any intentional falsification by EWA or any EWA employee.

ALPA's Party Submission thus does not, and cannot, support any allegation of "pencil whipping" involving any EWA employee, and yet it seeks to create a cloud of suspicion by entitling a section of the Submission "Pencil Whipping" and referring to a bogus example in the hopes that the NTSB will not take the time to check the facts about the incident.

It is clear that, while avoiding an explicit charge that would easily be refutable as false, ALPA has intentionally tried to inject into its Party Submission a very damaging suggestion of improper conduct by EWA which has absolutely no basis in fact. Again, while this may serve ALPA's private labor dispute and litigation interests, it is reprehensible for ALPA to clutter an NTSB investigation with this completely unfounded charge.

2.3 Allegations that EWA Mechanics Changed Their Testimony are Contrary to the Record and Incorrect

In connection with the work performed on the elevator damper, ALPA alleges that the mechanics involved in the elevator damper maintenance actually

changed their story during the course of the investigation.[10] As with its discussion of the Nashville Incident, ALPA alleges conduct that borders on criminal, with absolutely no basis for such an allegation.

Any allegation that EWA mechanics changed their story is flatly wrong. All of the mechanics are uniform in their testimony that the Control Tab Fairing was not removed during the maintenance performed on the elevator damper. The mechanics have been interviewed or made statements several times, including during in person interviews with a panel of NTSB investigators on April 4, 2000, during the telephonic interviews two years later with a single NTSB Investigator, in April 2002, and in signed statements by the mechanics, dated October 2002. Through all this, the mechanics have never said anything other than this in their testimony.

ALPA apparently relies on an NTSB investigator's inaccurate recollection of the April 2002 telephonic interviews of the mechanics as the basis for its allegation that the mechanics' testimony had been "changed." The differences between the investigator's recollection of the telephone interviews and the recollection of the mechanics have already been addressed in the letters from Captain Dick Hagquist to Mr. Frank Hilldrup, dated November 15, 2002, and from Mr. Jerry Trimarco to Acting Chairman Carol Carmody and the other NTSB Members, dated January 14, 2003. The allegation that any mechanic changed his testimony is absolutely baseless and intended to be inflammatory and to cause damage to EWA merely by being raised as an issue. The mechanics involved submitted to the docket signed, written statements providing both their statements of what they had said in their interviews and their views on the inaccuracies of the NTSB investigator's summaries. As a result, there is overwhelming evidence that the mechanics did not change their testimony.

2.4 Allegations that EWA Performed Undocumented Maintenance on the Elevator System Are Unfounded and Incorrect

In its Party Submission, TTS alleges that EWA performed some unspecified, undocumented maintenance on N8079U's elevator system, either at the time that EWA performed maintenance to correct the elevator dampers that TTS had installed incorrectly[11] or at some other time.[12] TTS bases this allegation on the

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[10] ALPA Party Submission, at 8. ALPA's allegation follows a statement that "the specific maintenance actions accomplished for that activity are unknown." This is also incorrect, since the interviews of several EWA employees and the maintenance documentation detail exactly the steps that were taken in response to the pilot write-up. See EWA Party Submission, at 16 and 55.

[11] TTS Party Submission, at 22 (finding 19).

[12] TTS Party Submission, at 13.

belief that the swapping of the reversed dampers could not have resolved the discrepancy because the DC-8 troubleshooting guide does not list reversed elevator dampers as a step in troubleshooting. TTS's conclusion appears to be based on the following faulty assumptions:

- The pilot's discrepancy report could only have been resolved by completing a step in the DC-8 troubleshooting guide.
- Since the pilot's discrepancy report was not repeated on subsequent flights, the discrepancy must have been resolved by some step taken by EWA maintenance personnel.

The assumption that the discrepancy could only have been resolved by completing a step in the DC-8 troubleshooting guide ignores the fact that the troubleshooting guide is not a mandatory document to be used in performing maintenance or troubleshooting a discrepancy on an aircraft. As its name implies, it is simply a guide to troubleshooting the aircraft. Mechanics are free to explore other possible causes of a discrepancy, even if those possible causes are not specifically delineated in the troubleshooting guide.

The section of the troubleshooting guide that TTS suggests could have been used is the section dealing with the troubleshooting for elevator control binding and roughness. With respect to the use of that section, TTS's Party Submission said:

> The correct troubleshooting procedure for this discrepancy is contained in the United Airline's Maintenance Manual (UAL OV 23-27-00-23), which logically breaks down isolation of the elevator system in six clearly defined steps. This procedure inspects the following: cable lubrication and cleanliness, binding and roughness, elevator control cable tension, autopilot servo drive binding or damage, elevator trailing edges for contour outboard of the control tab and inspection of all elevator tabs. To properly inspect for binding and roughness, a mechanic must systematically isolate areas of the mechanical linkage to determine the existence and location of binding. This procedure will eventually lead to the disconnection of the control tab input rod from the clevis attach point to determine serviceability of the attach point bearing. This entire sequence must be followed to identify the problem. [13]

There are several fallacies in TTS's statements. First, the troubleshooting guide does not say that the "entire sequence must be followed to

[13] TTS Party Submission, at 7.

identify the problem" as TTS claims.[14] The TTS Party Submission says that there are "six clearly defined steps" and summarizes those "steps" as: "(1) cable lubrication and cleanliness, (2) binding and roughness, (3) elevator control cable tension, (4) autopilot servo drive binding or damage, (5) elevator trailing edges for contour outboard of the control tab and (6) inspections of all elevator tabs."[15] These six items correspond to checks (1) through (6) of Part 1 of the troubleshooting procedures for mechanical controls, porpoising on autopilot.[16] However, nowhere in the excerpted provisions of the troubleshooting guide does it say that the entire sequence must be followed. TTS has alleged this only to imply that substantial undocumented maintenance was performed on the accident aircraft.

Further, the provision cited by TTS would not likely have been followed, even by a mechanic using the guide. TTS refers to the second check in Part 1, which provides troubleshooting guidance where there is binding or roughness in the elevator controls.[17] However, it is likely that a mechanic, even if he used the troubleshooting guide, would not have used this particular check, since the pilot discrepancy related to excessive back pressure rather than a "roughness or binding," which is what that particular check is designed to troubleshoot.

Even if a mechanic had used the troubleshooting guide to check for binding or roughness, the guide says only that the "[c]ause of any roughness or binding is to be located," and that the "tab torque tube bearings inside the elevator inboard hinge fitting are very susceptible to binding and rough operation."[18] Therefore, even if a mechanic had used this particular check, the troubleshooting guide would have pointed the mechanic to the "elevator inboard hinge fitting" and the tab torque tube bearings rather than to the control tab area and the elevator pushrod. Thus, even the full use of Part 1 of the troubleshooting guide would not indicate that the mechanic should have removed the Control Tab Fairing.

TTS does not allege that any troubleshooting by EWA should have progressed beyond Part 1 of the troubleshooting guide. As pointed out in the general instructions for the troubleshooting guide, Part 1 stops short of disturbing any flight control rigging, which would not occur unless Part 3 was used. Even then, use of Part 3 would not lead to the removal of the Control Tab Fairing, since Part 3 addresses only the disconnecting of the "control tab pushrods from tab torque tubes at the elevator inboard end."[19] Therefore, even Part 3 does not call for any

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[14] TTS Party Submission, at 8.

[15] TTS Party Submission, at 7-8 (numbering added).

[16] Exhibit 7R, at 1.

[17] NTSB Exhibit 7R, at 1.

[18] NTSB Exhibit 7R, at 1.

[19] NTSB Exhibit 7R, at 2.

maintenance to the control tab pushrod at the elevator control tab crank fitting, which is the fitting at issue in this accident,

Finally, mechanics are permitted to discontinue use of the troubleshooting process when they believe that the source of the problem has been identified and the discrepancy resolved. As indicated by the uniform testimony of all of the mechanics involved in this incident, this was the case when the incorrectly installed dampers were discovered and reinstalled in their correct position by EWA.

Under the circumstances, it was very reasonable for the maintenance personnel that performed the elevator damper swap to believe that they had resolved the pilot's discrepancy. To suggest that they knew, or should have known at the time, that the swapping of the elevator dampers might not have resolved the discrepancy is an unfair use of hindsight based on months of post-flight engineering analysis. It was not until considerably into the accident investigation that the NTSB suggested that the reversed elevator dampers might not have caused the discrepancy. Until that time, there had been no suggestion that the mechanics had not resolved the discrepancy by swapping the dampers to their correct position. Even TTS acknowledges this, since it issued a Maintenance Alert[20] just days after the swapping of the elevator damper on N8079U to alert TTS employees to the problem of reversed dampers.

In its Maintenance Alert, TTS said that reversed dampers would only be noticed upon flaring the aircraft.[21] Specifically, TTS said that the problem of reversed dampers "is undetectable when doing throw checks and will only be noticed when the aircraft is being flaired [sic] in flight, when it takes undo [sic] force to pull the stick back."[22] Even with the opportunity of post-flight analysis, TTS had concluded, as had the EWA mechanics that performed the maintenance, that reversed dampers could lead to increased forces when flaring the aircraft for landing. In fact, even as late as the time of the visit of the investigation team to TTS on February 27-28, 2001, the NTSB Investigator, Kevin Pudwill, indicated that Boeing was not aware of the effect of a reversed damper set. It was only when the NTSB developed a CAD model of the damper and its surrounding structure, almost two years after the accident, that it was considered possible that a reversed damper should produce a reduced resistance to the elevator movement.

The assumption that the discrepancy must have been resolved by some step taken by EWA maintenance personnel other than the installation of the dampers also ignores key facts. It ignores the fact that some discrepancies simply do not repeat themselves for a myriad of often unexplainable reasons. This is

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[20] A copy of this Maintenance Alert was used as NTSB Exhibit 7P.

[21] NTSB Exhibit 7P, at 4.

[22] NTSB Exhibit 7P, at 4.

obviously true when the discrepancy is based on the highly subjective "feel" of the controls. The subjective "feel" of the aircraft controls in flight is dependent upon many factors, including (i) the aircraft center of gravity, (ii) the use of stabilizer trim, (iii) the aircraft's airspeed, (iv), the flap setting, (v) the pilot's flying technique, and (vi) other possible circumstances.

Pilot discrepancy reports based upon the "feel" of the control forces are entirely subjective, and therefore extremely difficult to troubleshoot unless maintenance personnel are able to reproduce this condition. Not infrequently, when such reports involve such subjective issues as an elevator that "requires more back pressure than normal to flare the aircraft," they cannot be reproduced by mechanics on the ground and do not reoccur on succeeding flights.

TTS's theory requires either (i) that maintenance had been performed that mechanics do not recall and that the maintenance was entirely undocumented, or (ii) that the mechanics performed, months before an aircraft accident, maintenance on a critical component that was involved in an accident, that they did not document that maintenance, or later managed to obscure any documentation that the maintenance had been performed, and that they conspired not to disclose the undocumented maintenance in their testimony. The truth is far simpler, and is based on eyewitness accounts, signed mechanics statements, documentary evidence that includes the pilot reports, and the maintenance manual sign-offs.

The pilot felt that the pressure required to flare the aircraft on this particular flight was more than he had experienced on other flights. He entered the discrepancy into the logbook. After the pilot de-brief and logbook review, the mechanic tried to verify the subjective pilot complaint by actuating the system and comparing it to another aircraft. The mechanic was unable to verify the complaint. The Line Supervisor was called in for assistance. The Line Supervisor performed a visual check of the elevator system during a ground walk-around. During this ground walk-around, the Line Supervisor noted that the dampers had been installed incorrectly. The Line Supervisor alerted the Lead Mechanic, who assigned the work necessary to correct the problem. After the completion of the maintenance, the system was checked again to verify no binding or friction was present, and the aircraft was signed off. The mechanics did not perform any additional maintenance or troubleshooting on the elevator system because they could not reproduce or confirm the initial pilot report after the maintenance had been performed. There were no further pilot reports indicating that the elevators required more than normal back pressure.

In sum, TTS has tried to explain a non-recurring gripe by constructing a scenario that involves extensive undocumented maintenance performed by EWA months before the aircraft accident, even though that scenario contradicts the explicit testimony of each and every mechanic involved in the maintenance. It is much more likely that the discrepancy did not repeat itself on subsequent flights simply because the pilot making the initial report had experienced some dynamic

flight characteristic that gave the elevators the "feeling" of requiring more than the usual pressure to flare.

2.5 Maintenance Performed on the Pitch Trim Compensator ("PTC") on N8079U Was Irrelevant to the Accident

In the TTS Party Submission, TTS raises for the first time an issue related to maintenance performed by EWA on the Pitch Trim Compensator aboard N8079U.[23] EWA believes that this issue should have been raised in the Group factual reports, at the Public Hearing, or at the Technical Review Meeting. In addition, EWA believes that this issue has no merit.

According to the TTS Party Submission, over a period of twenty-two days, EWA employees recorded various discrepancies related to the PTC system. The discrepancies outlined by TTS include: (i) illumination of the PTC Fail light, (ii) illumination of Auto Trim Caution and Auto Pilot Off & Master Warning lights, and (iii) illumination of the PTC Extend/Fail light.

The TTS Party Submission says that:

> The approved maintenance manual states that for <u>inadequate PTC</u> the elevator system adjustment and test is to be verified.[24]

However, neither the pilot reports quoted in the TTS Party Submission nor any information revealed in a review of the logbook, indicate that any pilot reported an "inadequate PTC" condition. The pilots reported that the PTC Fail Light came on and that, in some cases, the actuator fully extended. These types of failures are associated with one of two things:

- Failure of the sensor, pitot or static line blockage or leakage, or internal failure of the sensing circuitry.
- A disagreement between the PTC computer and the PTC actuator.

Both of these indicate an electrical, rather than a mechanical cause. In other words, <u>in no case would a rigging of the PTC or elevator system be a proper maintenance action</u>. All of TTS's references to EWA's maintenance manual relate to a discrepancy that would involve an inadequate PTC.

What ultimately fixed the PTC system was a second change in the PTC computer. This confirms that the cause was electrical, rather than mechanical, and

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[23] TTS Party Submission, at 9-13.

[24] TTS Party Submission, at 12 (emphasis added).

demonstrates that the resolution of the PTC issue had absolutely nothing to do with the elevator system.

TTS also raises an issue with the deferral of maintenance on the PTC while the autopilot was also deferred. TTS does not, however, explain the significance of this deferral to the investigation of N8079U. EWA procedures allow the autopilot and PTC to be deferred at the same time if the proper limitations are observed. Such limitations were observed by EWA.

TTS also raises a concern related to multiple changes of the PTC computer. Multiple changes of a component such as the PTC computer are not uncommon for the DC-8. Due to the age of the components, they have a higher than normal failure rate. This makes the DC-8 and other aircraft of similar vintage difficult to maintain. Nevertheless, the maintenance associated with the changes is well documented, as evidenced by TTS's exhaustive review. In the end, there is no support for an allegation that EWA mechanics performed undocumented maintenance that involved the opening of the Control Tab Fairing in connection with work performed on the PTC. No such work was, or should have been, performed by EWA.

2.6 Allegations That Improper Maintenance Was Performed on N8079U Based on a Belief that Improper Maintenance Was Performed on N796FT are Unfounded and Irrelevant to the Accident

In the TTS Party Submission, TTS alleges, through a statement by Mr. Ron Alverado, that improper maintenance was performed on a sister aircraft (N796FT) to the accident aircraft.[25] The maintenance relates to a separate pilot discrepancy for the aileron flight control system and the involvement of a TTS Quality Assurance Inspector in that separate discrepancy. TTS does not explain why this is significant to the investigation being conducted by the NTSB. In fact, it is not.

TTS's argument that improper maintenance was performed on N796FT relies on a single alleged comment by a Dayton mechanic indicating that EWA routinely re-rigged aircraft that had been rigged by TTS. From this single alleged comment, TTS constructs a plot that appears to suggest that EWA undertook a widespread and completely undocumented system of re-rigging aircraft previously rigged by TTS. TTS apparently seeks to infer that such undocumented maintenance may have been performed on N8079U. This inference is unfounded, for several reasons.

First, EWA had no policy to automatically re-rig aircraft following maintenance performed by TTS. Had there been such a policy, EWA officials would

[25] TTS Party Submission, at 15-16, and Attachment 6.

obviously have informed TTS and reached an agreement with TTS on how TTS was to rig aircraft to EWA's specifications.

Second, even if EWA had had such a policy to re-rig aircraft following TTS maintenance, such re-rigging would most certainly have been documented. It is sheer conspiracy theory/"grassy-knoll" type thinking to suggest that EWA not only re-rigged numerous aircraft, but also did not tell TTS that it was doing the re-rigging, while failing to document any such re-rigging. There is no evidence in the maintenance records for N796FT indicating that the aircraft had been re-rigged.[26]

Finally, EWA's maintenance records show only a single write-up for N796FT in June 2001 that could involve the alleged maintenance referred to by Mr. Alverado. This involved a signed-off entry on June 8, 2001, indicating that no defects had been noted.[27] There were not two such entries, as claimed by Mr. Alverado.

2.7 EWA's Relationship with CNF Was Typical of Relationships Between Airlines and Their Holding Companies and Did Not Adversely Affect the Safety of the Airline

In its Party Submission, ALPA questions EWA's relationship with CNF and suggests that the relationship adversely affected the safety of the aircraft in EWA's fleet.[28] Again, ALPA has made an allegation that it does not support with any evidence in the factual record.

The relationship between CNF and EWA was typical of that between many air carriers and their holding companies.[29] CNF and EWA are separate and

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[26] EWA has reviewed the maintenance logbook entries for N796FT, as those entries are recorded in EWA's Merit system. All flight control entries for the month of June, 2001, which is the month noted by Mr. Alverado, were reviewed. There were no write-ups indicating that the ailerons had been re-rigged at any time during that month. The Merit system is the only means currently available to EWA to review the maintenance performed on N796FT, since the maintenance logbooks have been returned with the aircraft at the completion of EWA's leasing of the aircraft.

[27] See maintenance logbook entry, as indicated by the Merit System Report for N796FT, attached as Attachment B (showing signed off maintenance as "Checked aileron and aileron trim tab control cables and pullies and controllers. Checked rigging and tensions, no defects noted. System ops normal on ground operation. OK for continued flight iaw 27-00 and 27-10-0".).

[28] ALPA Party Submission, at 2-3 and 27 (findings 7 and 8).

[29] For instance, both United Airlines and American Airlines have a similar relationship with a holding company, UAL and AMR, respectively.

distinct corporate entities. Throughout the affiliation between CNF and EWA, EWA retained ultimate responsibility for, and operational control over, all of its air carrier operations. Even though the relationship between CNF and EWA involved the typical elements of holding company corporate control and financial involvement, there was never any question about which entity had sole responsibility for aviation safety. EWA retained that responsibility and had unfettered discretion to exercise it.

EWA management, just like all airline managements, had to live within its financial resources. But that financial reality in no way impeded safety. All EWA aircraft were required to be airworthy before each flight.

2.8 The Second Officer's Preflight of N8079U Was Adequate Under the Circumstances

In its Party Submission, Boeing suggests that the right elevator control tab was out of alignment with the left elevator control tab during the preflight immediately preceding the accident flight and that the second officer should have detected this condition during his preflight inspection.[30] Boeing speculates that the elevator control tabs went out of alignment as soon as there was no dynamic pressure to keep the tabs in the faired position.

Boeing bases this speculation on the results of a test conducted using a sister aircraft of the accident aircraft. In that test, the bolt connecting the control tab pushrod to the control tab crank was removed. Within seconds, the tab went to an extreme trailing edge down position. Boeing speculates that the same thing occurred on the accident aircraft.

However, the test that Boeing relies upon does not confirm that the circumstances would have been the same on the accident aircraft. Boeing recognizes that the test was "not conclusive" and only indicated a "possible" change in the relationship between the control column and the elevator.[31] In fact, any split may have been considerably less on the accident aircraft and may not have been noticeable during a preflight.

For instance, Boeing appears not to have considered a scenario in which there was sufficient friction between the push rod and clevis to keep the tab faired. Likewise, Boeing may not have considered the possible effect of a jammed push rod on whether an elevator control tab would move to a fully deflected position. The Boeing report also does not include information to determine the amount of force required to move the push rod out of the clevis. Finally, the Boeing

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[30] Boeing Party Submission, at 2, 6, 7, and 9.

[31] Boeing Party Submission, at 5.

speculation does not take into account the effects of various winds hitting the control surface.

The actual condition of the bolt, push rod and clevis at the time of the walk-around inspection is unknown. It is not at all clear from the test performed on the sister aircraft that identical results would have been found on the accident aircraft. Depending on a number of variables, at the time of the second officer's preflight inspection, the elevator tabs could have been considerably more aligned than indicated by Boeing's speculative assessment.

The Boeing Party Submission does not consider whether an airman could detect any position of the control tab other than extreme trailing edge down. A control tab that is neither full up nor full down might not have been distinguishable to a preflighting flightcrew member, who would have been 25 feet or more below the elevator.

3. CONCLUSIONS

EWA reiterates the factual circumstances in its Party Submission, and the analysis, and proposed findings and probable cause drawn from them.

3.1 Proposed Findings

EWA reiterates its request that the NTSB adopt the findings proposed in EWA's Party Submission, which were based on the extensive record developed in this investigation.

3.2 Proposed Probable Cause

EWA continues to believe that the NTSB should adopt the following statement of probable cause, which is based on the record developed in this investigation:

The National Transportation Safety Board determines that the probable cause of the accident was the loss of elevator control that resulted from the loss of the bolt connecting the right-hand elevator pushrod to the elevator control tab crank fitting. The loss of the bolt was due to the failure of the TTS mechanics conducting the D Check to install the cotter pin, or the nut and cotter pin, to safety the bolt properly.

Contributing to the accident was the failure of the TTS Inspector to identify the missing hardware at the time that the work on the elevator control tab installation was completed during the D Check.