

Colgan Air 3407 Questions, Answers, and Discussion



Much has been made of the Colgan Air / Continental Connection 3407 crash. This crash has served as the pretext for a massive overhaul of the FAA mandated Flight Time / Duty Time regulations and a national debate on pilot fatigue, commuting, and the larger “regional airline” model. Much of the debate has been based in unfounded “conventional wisdom,” such as the crash being caused by pilot fatigue and commuting.

We dispute the overall theme of the ongoing national debate and **wish to clarify the record with indisputable facts from the NTSB’s own report on the incident.**

Please take the time to explore the questions, answers, and discussions. For a true solution to preventable airline crashes crafted by regulatory bodies, the discussion must be factually based, not agenda driven by those who fund political campaigns.

Incorrect distractors are in **RED**, correct answer is in **BLUE/BOLD**. Any emphasis in the DISCUSSION section is that of The Committee¹ and not that of the NTSB, unless otherwise noted.

All references are to the *National Transportation Safety Board, Aircraft Accident Report: Loss of Control on Approach Colgan Air, Inc. Operating as Continental Connection Flight 3407 Bombardier DHC-8-400, N200WQ Clarence Center, New York February 12, 2009. AAR 10-01.* unless otherwise noted.

The NTSB report can be found on the NTSB's website as well as at OPERATIONORANGE.org.

Section 1 - General

1. Which of the following factors did the NTSB NOT cite as a causal or contributing factor in the Colgan Air/Continental Connection 3407 crash?
- A. Inexperience of the flight crew.
 - B. Colgan Air's inadequate procedures for airspeed selection and management during approaches in icing conditions.
 - C. Crewmember fatigue.
 - D. The flight crew's failure to monitor airspeed in relation to the rising position of the low speed cue.
 - E. **Both A and C.**

DISCUSSION: The NTSB issued the following statement in the Executive Summary portion of National Transportation Safety Board, Aircraft Accident Report: Loss of Control on Approach Colgan Air, Inc. Operating as Continental Connection Flight 3407 Bombardier DHC-8-400, N200WQ

¹ The *Committee For The Fair Treatment of Experienced Pilots* maintains the OPERATIONORANGE.org website and exists to implement its legislative draft, designed to remedy the decaying areas of the Part 121 air transportation industry that have developed as a result of airline deregulation and the unhealthy alliance between Part 121 airline management, politicians, and federal regulators. The Committee seeks to use a nationwide shutdown of the air transportation industry, under the protection of the First Amendment, and outside the jurisdiction of the Railway Labor Act, to bring about the necessary political pressure for the implementation of the legislative draft.

Clarence Center, New York February 12, 2009. AAR 10-01.

The National Transportation Safety Board determines that the probable cause of this accident was the captain's inappropriate response to the activation of the stick shaker, which led to an aerodynamic stall from which the airplane did not recover. Contributing to the accident were (1) the flight crew's failure to monitor airspeed in relation to the rising position of the low speed cue, (2) the flight crew's failure to adhere to sterile cockpit procedures, (3) the captain's failure to effectively manage the flight, and (4) Colgan Air's inadequate procedures for airspeed selection and management during approaches in icing conditions.²

The NTSB cited the captain's inappropriate response as the causal factor and listed four additional items as contributory. Many more should have been listed, but absent were crewmember fatigue and inexperience of the flight crew.

The NTSB could not justify adding fatigue as a contributing factor, but spend much time in its findings to imply fatigue was contributory. This was done for purposes of allowing the FAA to pounce on crewmember fatigue in order to divert the discussion away from crewmember inexperience, and a reckless "regional airline" culture, which is a hallmark of the entire "regional airline" model. This allows the FAA to put the onus on pilots for fatigue, while shielding the industry from the disaster of their own making - inexperienced pilots crashing airplanes at the behest of profit. The problem will simply never be fixed until we address the problems of pilot outsourcing. We concur with the official NTSB findings that fatigue was not a contributing factor.

² NTSB, Executive Summary, pg x,

Section 2 - Stall Event

2. At the onset of the initial “stick shaker” (not “stick pusher”), how many knots above stall was the aircraft, in its present configuration (before the flap configuration was changed)?

A. 5-7

B. 10

C. 22

D. 25

E. Aircraft was already stalled. There was nothing the crew could do to recover.

DISCUSSION: Relevant text follows:

*The CVR recorded the activation of the stick shaker about 2216:27, and FDR data showed that the activation occurred at an AOA of about 8°, a load factor of 1 G, and an airspeed of 131 knots, which was consistent with the AOA, airspeed, and low-speed cue during normal operations when the ref speeds switch was selected to the increase position. The airplane was not close to stalling at the time. However, because the ref speeds switch was selected to the increase (icing conditions) position, the stall warning occurred at an airspeed that was 15 knots higher than would be expected for a Q400 in a clean (no ice accretion) configuration. Stick shakers generally provide pilots with a 5- to 7-knot warning of an impending stall; thus, as a result of the 15-knot increase from the ref speeds switch, **the accident flight crew had a 20- to 22-knot warning of a potential stall.**³*

The stall warning was sufficiently high to make the entire evolution a non-event. It was only by the added complications of the improper recovery techniques, borne by inexperience and lack of training, that Colgan Air 3407 occupies its place in aviation history. This stall was completely survivable.

³ NTSB, pg 82

*NTSB postaccident observations in a Q400 flight simulator (with no simulated ice) showed that Colgan's **recovery procedures after initial stick shaker activation did not require exceptional piloting skills or aggressive inputs on the flight controls**, even when full power was applied during the recovery effort.⁴*

3. True or False? Neither crewmember made reference to the airspeed of the aircraft during the entire stall event.

A. True

B. False

DISCUSSION: Any fixed-wing pilot should be familiar with the phrase, "speed is life." It is drilled into the heads of young pilots, but sometimes task saturation and transitory cognitive dissonance causes aircraft instrument cross-checks to drop airspeed (or any other parameter) out of the scan.

That is why transport category aircraft need two experienced pilots to operate safely. If one pilot's cross-check breaks down, the other pilot can prompt the flying pilot to correct the situation, or takeover the flying. All pilots, regardless of experience, have occasional break downs in cross-cross check, and for a variety of reasons. Two pilots having a rich background in instrument flying keeps this phenomenon from resulting in disaster.

It is when you knowingly put two pilots with very limited experience together that disaster invites itself into reality. Colgan Air 3407 exemplifies this.

We are not advocating perfection, as that is unobtainable with the human factor, but we are advocating common-sense when it comes to staffing of the air transportation industry. The pilots of Colgan Air 3407 were neither bad people, nor reckless. They were not cavalier with their responsibilities. The CVRs show that they were largely compliant with their training (some non-sterile conversations not withstanding), and with the exception of the

⁴ NTSB, pg 87

captain's training and qualification history, very little suggests they would not have developed into highly qualified pilots. We only question the entire paradigm of outsourcing pilot experience at the behest of profit motive, as these "code share" agreements present.

*In addition, neither flight crewmember made reference to the airplane's airspeed at any time after the activation of the stick shaker. During the public hearing for this accident, the NASA-Ames Research Center chief scientist for aerospace human factors stated that people under stress might not respond appropriately to events in their environment. In this case, the airplane was in a low-speed, nose-high attitude and was aerodynamically stalled, and **neither pilot responded appropriately to the situation.**⁵*

4. What actions by the crew could impair the ability to recover from a stall?
- A. Increasing angle-of-attack by pulling back on the control column
 - B. G-loading the aircraft by suddenly increasing lift
 - C. Increasing stall speed by raising flaps.
 - D. Not increasing power to the maximum available.
 - E. All of the above.**

DISCUSSION:

*The NTSB is concerned that **the captain pulled against the stick pusher three separate times during the stall event** and that his control inputs fought the stall protection system's attempts to decrease the AOA and reduce the severity of the situation.⁶*

*However, **the raising of the flaps, in addition to the vertical loading at the time, increased the stall speed** and reduced the lift being produced by the wings at a time when the airplane was already stalled.⁷*

⁵ NTSB, pp 88-89

⁶ NTSB, pg 88

⁷ NTSB, pg 88

*The NTSB also evaluated why **the first officer had raised the flaps without being so directed by the captain**. The stick shaker activated within 1 second of the first officer moving the flap handle from 5° to 10°. It is possible that, because of the close timing of these events, the first officer's retraction of the flaps was an attempt to undo her last action. However, after returning the handle to the 5° position, the first officer continued moving the handle to the 0° position.⁸*

*In addition, the captain had not yet called for the landing gear to be raised or for the flaps to be retracted. However, about 7 seconds after the stick shaker activated, the first officer raised the flaps and then told the captain about the action she had just taken. **All of Colgan's procedures pertaining to flap movement required a command from the flying pilot and acknowledgment from the monitoring pilot before the flaps could be moved.**⁹*

*Even though the captain added power in response to the stall warning, **he did not add full power as required.**¹⁰*

*FDR data showed that **the captain advanced the power levers to about 70°, but the rating detent was 80°**. The rating detent was not a physical stop and required tactile feedback to positively identify its location as the power levers were advanced. It is possible that the captain missed this feedback as he advanced the throttles.¹¹*

An aerodynamic stall is a sudden loss of lift on the wings due to excessive angle-of-attack. Lift is a function of airspeed and AOA, and as airspeed is reduced, AOA must be increased to produce the same amount of lift. As weight increases, by either static loading, or dynamic "G-loading," airspeed must increase for a given AOA.

Because airspeed did not increase, increasing AOA (pulling back on the column) was going to exacerbate the stall, because it increased AOA and G-

⁸ NTSB, pg 90

⁹ NTSB, pp 87-88

¹⁰ NTSB, pg 87

¹¹ NTSB, pg 87, footnote 199

loaded the aircraft. Raising flaps increases the airspeed where a given AOA will produce a stall, and not adding sufficient power prevents the aircraft from maintaining altitude, as energy needs to be added to the aircraft for airspeed to increase, so as to bring down AOA, while being able to control altitude loss.

The actions of the crew were a deadly cocktail of confusion, inexperience, and missed training opportunities - not because of commuting, sleeping in a crew room, or having a non-sterile conversation an hour prior.

5. During the stall event, what were the first officer's actions?

- A. Calling out airspeed and altitude for the captain.
- B. Lowering the nose/decreasing angle-of-attack.
- C. Ensuring power was at maximum available.
- D. Raising the flaps to 0 degrees (uncommanded).**
- E. Nothing.

DISCUSSION: It is standard procedure for the non-flying pilot (in this case, the first officer) to call out airspeed and altitude for the flying pilot, so the flying pilot can concentrate on the recovery attitude. It is also standard to assist in setting power, in the event the flying pilot becomes task saturated and fails to fully add maximum power. In the event the flying pilot fails to implement the recovery procedures, the non-flying pilot can take over the flying out of self-preservation. In this case, as is the case with all stalls, lowering the “angle-of-attack” (relationship between the mean aerodynamic chord of the wing and the relative wind or air stream) is essential for proper stall recovery, because all stalls are caused by some form of excessive AOA. Reducing the AOA is accomplished by lowering the pitch (nose) of the aircraft. This builds airspeed at the expense of altitude, which is why maximum power is necessary.

There are two things which will exacerbate an aerodynamic stall: increasing AOA (captain's actions) and increasing stall speed (first officer's actions). Either one is normally sufficient to fully stall the wing. Both are a death sentence at that altitude.

Increasing stall speed is the term used for doing something with the aircraft which increases the speed at which the airplane will stall. This is done in many ways, but chief among them is changing the configuration of the wing away from the slow-flight configuration (flaps extended). As flaps are extended, the aircraft is capable of flying slower without stalling. As flaps are retracted, the aircraft must fly faster to prevent stalling.

This is what the first officer did and did so without being commanded by the captain/flying pilot. It is thought she fell back on her habit patterns of flying small, light, and relatively simple aircraft during her time as a flight instructor in Arizona, as those aircraft are not large, transport category aircraft with complex configuration mechanisms.

We fail to understand why the first officer's actions of raising the flaps during the stall recovery was not listed as a factor in the crash.

Increasing stall speed during a stall recovery attempt is, most certainly, contributory or causal for a full aerodynamic stall. This oversight by the NTSB is bewildering and hopefully not intentional.

About 2216:37, the first officer told the captain that she had put the flaps up. FDR data confirmed that the flaps had begun to retract by 2216:38; at that time, the airplane's airspeed was about 100 knots. FDR data also showed that the roll angle reached 105° right wing down before the airplane began to roll back to the left and the stick pusher activated a second time (about 2216:40).¹²

6. True or False? When the NTSB interviewed the other pilots operating in the vicinity and timeframe of the Colgan Air/Continental Connection 3407 crash, they discovered that other pilots found the icing conditions to be insignificant.

- A. True
- B. False

DISCUSSION: Relevant text follows:

¹² NTSB, pg 5

The National Transportation Safety Board (NTSB) conducted a postaccident survey of pilots operating into BUF about the time of the accident to determine the icing environment at the time. Of the 22 surveys issued, 12 (about 55 percent) were returned. The survey found that varying (trace, light-to-moderate, and moderate) intensities of icing conditions were occurring between 2,000 and 12,000 feet. The surveys indicated that the pilots were aware of the potential for icing conditions and were not surprised by the encounters. None of the pilots indicated that they had formally reported the icing conditions because the pilots did not consider the icing conditions to be significant.¹³

Icing didn't directly complicate the stall. The airline had hired pilots who lacked the experience to instinctively monitor airspeed decay during configuration for landing. This continues to this day to undercut the higher paid pilots at the mainline airlines at the behest of profit and at the expense of the safety of the traveling public.

Blaming icing in any manner is just more cover for the industry and government to obfuscate and redirect the conversation away from the experience level of the pilots staffing the regional airlines.

Section 3 - Commuting and Fatigue

7. How long before the Colgan Air/Continental Connection 3407 did the captain commute to Newark?

- A. 3 hours.
- B. 1 day
- C. 2 days
- D. 3 days**
- E. The captain did not commute. He lived locally.

DISCUSSION: Just to clear any misconceptions about how irresponsible

¹³ NTSB, pg 23

commuting contributed to this crash, we want everyone to know the captain commuted 3 days prior to the crash. **In no way is the captain's commuting responsible for this crash.** Any attempt by the FAA and industry to “crack down” on commuting is just political cover for their countenance of inexperienced pilots flying the public around at the behest of profit borne of outsourcing safety.

On February 9, 2009, the captain traveled aboard a commercial air carrier from his home near Tampa International Airport, Tampa, Florida, to EWR, departing about 1713 and arriving about 2005.¹⁴

The crash occurred on February 12, 2009.

8. How long was the captain's rest period between the end of his crew pairing on February 11 and the scheduled report time for the crew pairing that contained Continental Connection 3407 on February 12?

- A. 8 hours 9 minutes
- B. 14 hours 17 minutes
- C. 17 hours 51 minutes
- D. 21 hours 16 minutes
- E. Over 24 hours.

DISCUSSION: Relevant text follows:

On the day of the accident, the captain was scheduled to report to EWR at 1330. Because his duty period on February 11, 2009, had ended about 1544, he had a 21-hour, 16-minute scheduled rest period before his report time.¹⁵

The captain had more than sufficient rest for a single-leg duty period outside of the window of circadian low (WOCL). The only thing the NTSB can use as justification for proclaiming him fatigued (and giving the ATA/RAA/FAA a pretext to revamp fatigue regulations to put the onus on pilots) is that he

¹⁴ NTSB, pg 8

¹⁵ NTSB, pg 105

used a crew room for the majority of his sleep period. That is all. Commuting or lack of a rest period are clearly not remotely responsible for this proclamation. It was the captain's actions concerning the "stick pusher" that were the primary cause of the crash.

9. How long was the first officer "in domicile" prior to the departure time for Continental Connection 3407 on February 12?

- A. 3 hours 18 minutes
- B. 6 hours 7 minutes
- C. **12 hours 47 minutes**
- D. 17 hours 55 minutes
- E. Unknown

DISCUSSION: Relevant text follows:

On February 12, 2009, the first officer traveled from MEM to EWR aboard another cargo flight that departed about 0418 and arrived about 0623.¹⁶

*The company dispatch release for flight 3407 was issued at 1800 and showed an **estimated departure time of 1910** and an estimated en route time of 53 minutes. The airplane to be used for flight 3407, N200WQ, arrived at EWR at 1854. A first officer whose flight arrived at EWR at 1853 saw, as he exited his airplane, the flight 3407 captain and first officer walking toward the accident airplane. The airplane's aircraft communications addressing and reporting system (ACARS) showed a departure clearance request at 1930 and pushback from the gate at 1945. According to the cockpit voice recorder (CVR) recording, the EWR ground controller provided taxi instructions for the flight at 2030:28,7 which the first officer acknowledged.¹⁷*

¹⁶ NTSB, pg 13

¹⁷ NTSB, pp 1-2

Did commuting really weigh on this flight? The first officer's commute has been the subject of much chatter among people with little familiarity with the airline industry. It is peculiar to someone, who empties inboxes for a living, that someone could live in Seattle and work in Newark, or that someone could ride on a "cargo plane" in relative comfort. This is where the government and industry wish to lay the blame so as to distract from the genuine cause of the crash - outsourcing safety to the lowest bidder.

It is true that the Rochester turn (out and back) was cancelled due to winds, but the point survives that her "in domicile" period between her arrival and her flight was in excess of 12 hours, which is greater than the normal rest period between duty periods or crew pairings. Whether or not the ROC turn was cancelled or never scheduled in the first place, her "in domicile" activities would not have changed.

10. According to the NTSB, how much sleep did the 24 year old first officer receive in the 24 hours prior to the crash of Continental Connection 3407, and how long had she been awake prior to the crash?

- A. 3 hours / 17 hours
- B. 5.5 hours / 12 hours
- C. 6.5 hours / 10 hours
- D. 8 hours / 11 hours
- E. 9 hours / 9 hours

DISCUSSION: Relevant text follows:

During the 24 hours that preceded the accident, the first officer was reported to have slept 3.5 hours on flights and 5.5 hours in the crew room. Although the opportunity for sleep approached the first officer's normal needs, her actual amount of sleep obtained is not known. However, even if the first officer did obtain her normal amount of sleep, its quality would have been diminished because of the manner in which it was obtained (on airplanes and in the crew room). It is not known whether she received additional sleep by

*napping later in the day.*¹⁸

*The first officer had been awake for about 9 hours at the time of the accident, which was about 3 hours before her normal bedtime.*¹⁹

What more can be said? The first officer was reported to have slept 9 hours, which is in excess of the generally accepted length of a “full night’s sleep” of 8 hours. The NTSB has to hide behind the venue for her sleep as justification to beat the drums on pilot induced fatigue. At some point, the square peg just won’t go into the round hole, no matter how hard it gets pounded. Perhaps if the NTSB/FAA had resorted to pounding a round peg into the round hole (lack of crewmember experience and outsourcing via “code share”), they wouldn’t have to resort to the enormity of the mental gymnastics required to attempt to make the facts square with their prejudices.

11. The first officer moved from Norfolk, Virginia to Seattle, Washington for what reasons?
- A. Fear that Colgan Air would close the Norfolk base.
 - B. The longer flights created a more restful commute opportunity.
 - C. To be closer to family.
 - D. More flights were available to EWR from SEA than from ORF.
 - E. All of the above.**

DISCUSSION: The relevant text from the NTSB report follows:

*In late January 2009, the first officer relocated from Norfolk, Virginia, to the Seattle area to be closer to family. (She and her husband were living at her parents’ home at the time of the accident.) She also changed her base from Norfolk International Airport (ORF) to EWR because it was reportedly easier to commute to EWR from Seattle-Tacoma International Airport (SEA) than from ORF.*²⁰

¹⁸ NTSB, pg 106

¹⁹ NTSB, pg 106

²⁰ NTSB, pg 12

According to her mother, the first officer had spoken to two other company pilots who lived in the Seattle area and told her that the commute to EWR was easier from SEA than from ORF because more flights were available and the distance allowed for sleep opportunities during the flights. The first officer's mother also stated that the first officer's decision to move to the Seattle area was also based on her concern that the ORF base would close.²¹

12. The NTSB challenged the first officer's decision to commute from Seattle to Newark based upon what (apparent) NTSB rest standard?
- A. Her sleep was not uninterrupted
 - B. She could not fulfill her obligation to start her trip "as rested as possible."
 - C. She did not have her normal sleep period in the previous 24 hours.
 - D. She did not use an adequate rest facility in domicile, because of lights, lack of isolation, sporadic noise, interruptions, activities, and other factors.
 - E. All of the above**

DISCUSSION: The NTSB put quite a bit of effort into explaining how the pilots were fatigued. The use of the "crew room" seems to be their primary concern, but others were mentioned.

*Although the crew room was supposed to be a quiet area with couches and recliners, **it was not isolated and was subject to interruptions, sporadic noise and activity, lights, and other factors that prevent quality rest.** As a result, neither pilot made use of the opportunity to obtain quality sleep and **be as rested as possible before the flight.**²²*

*In addition, the first officer's decision to begin a transcontinental commute about 15 hours before her scheduled report time without having an adequate rest facility affected her ability to **begin the trip***

²¹ NTSB, footnote 36

²² NTSB, pg 110

*as rested **as possible**. The commute from SEA to MEM and then from MEM to EWR did not afford her an opportunity for an uninterrupted sleep period. Even though the first officer arrived at EWR about 7 hours before her scheduled report time, **this time period was less than her normal sleep period**, and evidence indicates that she could not have used all of that time for sleep.²³*

This is the apparent standard, as far as the NTSB is concerned. If pilots across the industry were to adhere to this new standard, we seriously doubt the air transportation system would be functioning within 72 hours.

Remember, according to the NTSB, for a pilot to obtain adequate sleep, and not be considered fatigued, the pilot must adhere to the following protocols:

1. **Be as rested AS POSSIBLE.** Not “as rested as reasonable,” or “rested as practical” but as rested as **possible**.
2. **Sleep period must be normal.** This would indicate that absent an eight hour period of sleep, the pilot is defined as fatigued.
3. **Sleep period must be uninterrupted.** An interruption of sleep does not change if it comes from a boorish peer in a crew room, crying children at home, telephone calls from the crew desk, garbage collection, police sirens, spouse taking a shower, trips to the bathroom, etc. The captain was defined as fatigued because he checked a company computer in the middle of his major sleep period.
4. **Sleep facility must be isolated.** There is no conceivable way a “crash pad” can satisfy this requirement, as it is often times prone to more interruptions than a crew room. Simply having a “crash pad” rather than a “crew room” is just a legal fig leaf for the company, since it moves the responsibility away from the carrier and onto the pilot.

If a pilot cannot satisfy all these requirements, then by the NTSB’s standard, the pilot is fatigued. If the FAA is going to force pilot certification of being free from fatigue, because of the misinformed public outcry, pilots would be well advised to stick to a very rigid interpretation of this precedent. Should the pilot be involved in a mishap, and survive, he could very well jeopardize

²³ NTSB, pg 110

his license and assets in legal proceedings designed to affix blame onto the pilot and away from the certificate holder and government.

Ask yourself...if you are a pilot, how many times per year do you report for a trip without being rested by this standard? Remember, if you are “adequately” rested, but not as “rested as possible,” you are fatigued. If you didn’t get to bed on time, you are fatigued. If your child woke you in the middle of the night, you are fatigued. If you answered a call from a telemarketer, you are fatigued. If you went to the bathroom in the middle of the night, and didn’t fall back to sleep immediately afterwards, you are fatigued. If you used a crash pad with a roommate, you are fatigued.

Perhaps if the industry and government were to permit the pilot to use judgment and a reasonable standard for self-assessment of fatigue, this wouldn’t be a problem. It is this emerging campaign against pilot commuting, and its implied fatigue consequences, that is concerning. If the FAA is going to act in such a pedantic manner, with a “one size fits all” approach, pilots should respond in kind by using the NTSB’s own words as justification for actions designed to protect the licenses and livelihoods of modern airline pilots.

Keep this standard in mind when the OPERATION ORANGE “SOS” is scheduled.

13. How many aircraft mishaps have been attributed to fatigue, caused by airborne pilot commuting, over the past few decades?

- A. 8
- B. 6
- C. 3
- D. Colgan Air/Continental Connection 3407 was the first.
- E. None, including Colgan Air/Continental Connection 3407

DISCUSSION: Much has been made of the first officer commuting from Seattle to Newark, and many ill-informed have insisted that this commute was, in some form, a contributing factor in the Continental Connection 3407 crash, which killed 50 people. For that leap of logic to work, one would have to show that the commute caused the pilot to be fatigued, and that the

crash resulted from this fatigue. The NTSB could not demonstrate either contention, while at the same time ignoring the first officer's illness.

Regardless, the "army of the misinformed" have made fiction a political reality and the FAA has issued a regulation requiring pilots to certify their fitness for flight, over and above their normal duty to not operate an aircraft while impaired.

The NTSB notes that, although many of the major accidents it has investigated during the last decade involved pilots who commuted, this accident is the first one in which the pilots' rest location has been an issue.²⁴

It is only an "issue" because of the bewilderment of a public that does not have familiarity with pilot commuting. This commute is not considered abnormal within piloting circles. Certainly, there are easier commutes, but the vacillations in the industry over the past 30 years have made long-distance commutes a common occurrence. The NTSB could not link the first officer's commute to fatigue, nor could they link her implied fatigue to the crash.

It is true that other commuting pilots have been involved in major accidents, as half the industry commutes by air. This is no more significant than any other routine facet of pilot life. To ignore blatant illness symptoms and complaints pertaining to that illness, while hammering away on commuting and fatigue, is only rationalized by political pressures, rather than a quest for true aviation safety. Nothing comes out of L'Enfant Plaza that isn't passed through the prism of politics.

²⁴ NTSB, pp 111-112

14. True or False? The NTSB has not attributed surface commuting or “in domicile” commuting (pilots who live in close proximity to their crew base) to crewmember fatigue, resulting in a fatal mishap in the past 20 years.

A. True

B. False

DISCUSSION: What is the difference between a pilot attempting a 5 hour drive from Jacksonville to Atlanta by automobile, through two sets of city traffic and an airport employee parking gauntlet, and another pilot commuting from Pensacola to Atlanta via a one hour plane ride? One pilot is reading a book, or napping, and the other is concentrating on the road and other drivers.

The difference is the public won't be befuddled by someone driving 5 hours between two cities that are relatively close on a map, but they will by another pilot flying 6 hours between two cities on opposite sides of a map. There is no rhyme or reason for the regulations - only an oafish attempt to assuage an intentionally mal-informed public by attempting to regulate pilot commuting by air. It is too invasive to regulate pilot commuting by automobile, so they won't.

Is this justified by the facts? Very little else in this evolution has been, and this is consistent with that sad reality.

However, pilots who do not commute also have a responsibility to be fit for duty, and certain circumstances can affect a noncommuting pilot's ability to obtain adequate rest. For example, in its investigation of the Federal Express flight 1478 accident in Tallahassee, Florida, the NTSB found that the captain (who lived close to MEM, the departure airport) had received interrupted sleep during the two nights that preceded the accident because he had been taking care of the family dog, whose health was deteriorating. The captain described his sleep during that time as “marginal” and “not really good.” The captain reported that he had received 3.5 hours of “pretty good” sleep before reporting about 0200 for the accident flight. The NTSB concluded that the captain was likely impaired by

*fatigue and that the impairment contributed to his degraded performance, especially in the areas of crew coordination and monitoring, during the approach to the airport.*²⁵

In this example used by the NTSB to discuss fatigue and commuting, the accident they listed didn't involve an air-commuting pilot, nor even a surface commuting pilot, but a pilot who lived "in domicile." His day-to-day activities impinged upon his sleep opportunity and an accident resulted.

This doesn't even rise to the level of "making the facts fit the assumptions." The NTSB can't field a set of facts to discuss in the matter. The first officer was not declared fatigued because of her commute, but by use of the crew room, and the implied fatigue was not listed as a causal or contributing factor in the crash. The first officer had at least nine hours of "split sleep" and was only awake for nine hours prior to the crash.

This is clearly a case of political deflection and scapegoat creation and has nothing to do with aviation safety.

15. True or False? Colgan Air's Flight Operations Policies and Procedures Manual required the captain certify on the dispatch release required that the he or she is "physically qualified for this flight" which includes certifying not being fatigued.

- A. True
- B. False

DISCUSSION: The FAA has recently proposed that all flight crews, as a matter of federal law, must certify they are not fatigued and are physically capable of completing the flight as part of the dispatch release.²⁶ This is ostensibly as a result of the Continental Connection 3407 crash, where we are supposed to infer the flight crew showed up fatigued. We are also to infer that an additional layer of "certification" by the flightcrew is going to reduce disasters borne of fatigue.

²⁵ NTSB, pg 111

²⁶ 14 CFR Part 117.5(d)

Colgan Air 3407 had certified they were not fatigued, and we believe they were correct in that certification. The NTSB found no empirical evidence of fatigue in either crewmember, but could only infer fatigue, based upon each crewmember using a less-than-ideal rest facility in the previous 24 hours.

The reason for this has nothing to do with ameliorating fatigue, because the FAA has proposed increasing daily time-on-task, the most potent source of fatigue, 12.5%, at the behest of its handlers at the ATA and RAA. The reason the FAA has proposed this is nothing more than to affix responsibility for fatigue squarely upon the flightcrew. The certificate holder will be able to show that the pilots “affirmed” they were well rested and free from the effects of fatigue, in any court-of-law that may inquire into the matter.

This is nothing more than legal eyewash and will do absolutely nothing to increase aviation safety, as pilots are already prohibited from flying if suffering from any ailments that would prevent them from performing optimally. They are required by federal law to refuse an assignment if fatigued, sick, stressed, intoxicated, etc, even if their company pressures them to the contrary.

It is for this reason that The Committee has written out the required certification in the proposed FAR²⁷ and written in defacto “federal whistleblower” protection in our proposed legislative draft.²⁸

²⁷ DEPARTMENT OF TRANSPORTATION, Federal Aviation Administration, 14 CFR Parts 117 and 121 Docket No. FAA-2009-1093; Notice No. 10-11, RIN 2120-AJ58, *Flightcrew Member Duty and Rest Requirements*, Section 117.5(f), pg 130.

²⁸ OPERATION ORANGE, *Fair Treatment For Experienced Pilots Act - Part 2*, Sections 117.5(b)(h)

16. Which of the following statements is not true?

- A. The [Colgan Air 3407] pilots were conversational and engaged. Neither pilot acted withdrawn or lethargic or made any statements about being tired or receiving inadequate sleep.
- B. Research and accident data have shown that the errors made by the [Colgan Air 3407] flight crewmembers, including their failure to monitor airspeed in relation to the position of the low speed cue, adhere to standard operating and sterile cockpit procedures, and respond appropriately to the stick shaker, have also been observed in other pilots who were not fatigued.
- C. The captain's errors during the flight could be consistent with his pattern of performance failures during testing, which he had experienced throughout his flying career.
- D. The NTSB is concerned about the first officer's reluctance to use Colgan's sick policy before the start of the trip. Company pilots were allowed to remove themselves from flight status, without penalty, if they were sick.
- E. **None of the above.**

DISCUSSION: The reason the NTSB cites for not listing fatigue as a contributing factor is they could not conclusively determine to what degree the crew was impaired by fatigue. The reason they could not conclusively determine impairment was because there were no signs of fatigue, only the assumption of fatigue based upon a sleep venue.

It is important to note that, throughout the flight, the pilots were conversational and engaged. Neither pilot acted withdrawn or lethargic or made any statements about being tired or receiving inadequate sleep.²⁹ However, the errors and decisions made by the pilots cannot be solely attributed to fatigue because of other explanations for their performance. For example, the fundamental monitoring error made by the flight crew (the failure to recognize cues indicating the impending stick shaker onset) was also made 1 month after the accident by another Colgan flight crew. Also, the

²⁹ NTSB, pg 107

captain's errors during the flight could be consistent with his pattern of performance failures during testing, which he had experienced throughout his flying career. In addition, research indicates that errors occur routinely during flight regardless of whether fatigue is present and that errors are typically caught and mitigated by existing systems without serious consequences.³⁰

...research and accident data have shown that the errors made by the flight crewmembers, including their failure to monitor airspeed in relation to the position of the low speed cue, adhere to standard operating and sterile cockpit procedures, and respond appropriately to the stick shaker, have also been observed in other pilots who were not fatigued.³¹

The NTSB, however, is concerned about the first officer's reluctance to use Colgan's sick policy before the start of the trip.³²

17. True or False? The NTSB does approve the use of crew rooms, such as the one used by both the captain and first officer of Continental Connection 3407, for sleep opportunity, provided it does not represent "most of the sleep opportunity."

- A. True
- B. False

DISCUSSION: Relevant text follows:

The NTSB notes that strategic napping in crew rooms during breaks is an effective countermeasure for pilot fatigue and that this type of rest would be appropriate use of a crew room. However, the accident captain used the EWR crew room for all of his sleep opportunity before the flight, and the first officer used the crew room for most of her sleep opportunity.³³

³⁰ NTSB, pg 107

³¹ NTSB, pg 107

³² NTSB, pg 114

³³ NTSB, footnote 245

The NTSB drones on and on about how the captain and first officer were fatigued, to the point they believe it to be an established fact. The primary reason for this is the usage of the “crew room” for that sleep opportunity. Yet, the NTSB states that “napping” is an effective countermeasure for pilot fatigue, even if done in a “crew room.” This crew room admittedly has sporadic interruptions, lights, noise, activity, and is not isolated, yet is “*an effective countermeasure for pilot fatigue.*” The NTSB hides behind the fact the crew used the room as their primary sleep opportunity.

While we would agree that the use of a crew room is not conducive to ideal rest, we wonder why the NTSB splits the difference? Why make an issue of this, rather than being consistent with their horror of crews abating fatigue by using a “crew room.”

It comes from the FAA trying to cram down a new version of rest called “split sleep.” This is where duty periods are capable of being extended because a crew gets “split sleep,” or what normal people call “a nap.”³⁴

The ARC discussed the concept of split sleep with the sleep specialists to assess the value of the type of rest obtained on a split duty trip. The scientists noted that split sleep is an area of intensive work. All other factors being equal, if the total amount of actual sleep is the same, split sleep is theoretically as valuable as continuous sleep. However, the presenters noted that the value of sleep is impacted by where it falls in the circadian cycle. They stated that split sleep with 4 hours sleep during a circadian night is better than 8 hours of continuous sleep during the day. However, the larger portion of split sleep ideally would fall during the WOCL, and they reiterated that split sleep with a component at night is better than consolidated sleep during the day. This is because the ability to sleep effectively is diminished during daytime hours because it is very difficult to get continuous sleep during this time. They also stressed that actual sleep is important, and noted that a 4-hour sleep opportunity may only net 2 hours of actual sleep.

³⁴ 14 CFR Part 117.15

The ARC discussed extending the FDP based on the opportunity for sleep during the duty period and the mitigations needed to extend the FDP. These mitigations would apply to split duty trip pairings (including continuous duty overnights, also known as CDOs), in which a flightcrew member has a downtime of several hours between flights within the same FDP.

***Some members of the ARC rejected the concept of a regulatory credit for split duty sleep, while others noted that it is fully consistent with the concept of extending FDPs based on augmentation.** The ARC considered allowing a certificate holder to extend the FDP up to 50 to 75 percent of time that a flightcrew member spent resting in a suitable accommodation up to a maximum FDP of 12 to 13 hours as long as certain conditions were met. First, the sleep facility should be a single occupancy, temperature controlled facility with sound mitigations that provide a flightcrew member with the undisturbed ability to sleep in a bed and to control light. Second, the flightcrew member must be given an actual, not simply scheduled, sleep opportunity in the suitable accommodation. Some ARC members also suggested that there should be a requirement that the sleep facility be approved by the FAA, there be an employee feedback process to assure the facilities were adequate, and that the opportunity for rest coincide with the flightcrew member's circadian rhythms.*

***The FAA is proposing to permit credit for split duty sleep consistent with the proposal presented by those members of the ARC supporting credit.** A reasonable sleep opportunity must actually be provided (as opposed to simply scheduled), and the sleep facility must be adequate to reasonably allow sleep. **A carrier could extend an FDP by 50 percent of the actual available sleep opportunity if it provides at least 4 hours sleep opportunity.** However, the FDP could not be extended beyond 12 hours.³⁵*

³⁵ DEPARTMENT OF TRANSPORTATION, Federal Aviation Administration, 14 CFR Parts 117 and 121, Docket No. FAA-2009-1093; Notice No. 10-11, RIN 2120-AJ58, *Flightcrew Member Duty and Rest Requirements*, pp 57-59.

Footnotes for the above citation follow:

*However, they also noted that there is an overhead involved in getting to sleep, and that split sleep multiplies that overhead. **Therefore, split sleep with 4 hours at night and 4 hours during the day would, over time, result in a cumulative sleep debt.***

The presenters stated that it is less clear if a split sleep involving a 2-hour sleep segment and a 6-hour sleep segment is equivalent to eight hours of continuous sleep.

The FAA, the enforcement arm of the ATA, wants to be able to extend duty periods if the crew takes a nap. The safer thing to do would be to have a fresh crew continue the flight, but that would be at odds with the air carriers' desires to have more flying done by fewer pilots. While this provision may have some benefit for cargo operations operating during night hours, it has only one benefit for passenger operations - more flying done by fewer pilots. It is preposterous to believe it is safer to extend a duty period via a nap, than replacing the flight crew. This is a prime example of how the FAA is subordinating safety in the interest of lowering crew costs. This is what passes as a serious discussion of how to ameliorate fatigue at the higher levels within the FAA. The members of the ARC couldn't make up their minds if split sleep composed of a 2 hour and 6 hour sleep periods is the same as an 8 hour uninterrupted period, or if that would result in sleep debt. The NTSB and FAA are hammering away on the crew of Colgan Air 3407 for not having ideal sleep, yet they are considering codifying the very behavior and allowing air carriers to extend flight duty periods as a result.

We have lost confidence in the current regulatory paradigm. We believe the public is intentionally manipulated with false data to support political agendas consistent with those who fund political campaigns. It is for this reason that OPERATION ORANGE has been developed.

We have published our response to the FAA's proposed *Flightcrew Member Duty and Rest Requirements*.³⁶

³⁶ OPERATION ORANGE, *Fatigue Response*, OPERATIONORANGE.org

18. True or False? The NTSB could conclusively determine the extent to which the flight crew was impaired by fatigue?

- A. True
- B. False

DISCUSSION: This is the fig leaf the FAA and NTSB are using to hide the fact that crew fatigue was not listed as a contributory factor. They assigned fatigue to the crew without empirical evidence supporting their assertion, and then hide behind the idea they cannot conclusively determine the level of fatigue the crew was experiencing.

*The pilots' performance was **likely** impaired because of fatigue, but the extent of their impairment and the degree to which it contributed to the performance deficiencies that occurred during the flight **cannot be conclusively determined.**³⁷*

19. True or False? Deborah Hersman, Chairman of the NTSB, believes that fatigue should be assigned as a contributing factor to an aviation mishap, provided that the crew could be proclaimed fatigued when they reported for duty, regardless of a lack of evidence that performance was degraded due to fatigue.

- A. True
- B. False

DISCUSSION: Some people just don't know when to quit, and in this case, the Chairman of the NTSB insists on doubling-down on faulty logic to support a preconceived premise. This is clearly a case of Ms Hersman attempting to alter the facts to support her prejudices.

Nonetheless, the Safety Board recognizes that a sterile cockpit violation can be a contributing factor for an accident, as was the case in this accident. In this accident, the crew was not behind in their checklists and had not violated the sterile cockpit rule in the two

³⁷ NTSB, pg 153

*minutes prior to the upset. However the Board did believe that the sterile cockpit violation earlier in the flight created an “environment” where errors were not detected or recognized. Consequently, the sterile cockpit violation was one of four contributing factors to the accident. **The exact same logic should be applied to our determination of fatigue;** we can demonstrate that the crew was fatigued at the time of the accident and consistent with research, data and science, fatigue results in performance deficiencies that were displayed by the crew. Thus, fatigue should be included as a contributing factor.³⁸*

The “exact same logic” would be fine if it were not faulty at its core. Conclusions drawn from faulty logic are faulty conclusions, and Ms Hersman demonstrates this quite aptly.

The entire report could only link the venue for sleep as the cause of fatigue, rather than the amount of sleep or ANY evidence that the flight crew was fatigued and performed sub-standard as a result of that fatigue. This is obsession over a transcontinental commute and sleeping in a crew room, not the objective quest for facts and sound conclusions based upon those facts. The NTSB flatly disregarded the first officer’s illness symptoms when the AIM, and the bulk of aviation medical research flatly state that a pilot should not fly when suffering any illness symptoms. This was disregarded at a time when the larger airlines were engaged in sick-leave “jihad” against an aging and overworked piloting corps.

The omissions and faulty conclusions are certainly convenient to the airline industry and we think these actions and omissions of the NTSB/FAA answer the question of “who benefits?”

We hope the Congress, FAA, and industry understand that if the 40,000 pilots operating Part 121 aircraft in the USA were to dogmatically follow the sleep and rest standards advocated by Ms. Hersman, the entire air transportation system would grind to a halt within 3 days. Pilots would be well advised to keep her admonitions in mind, lest they be faulted for an aviation mishap linked to fatigue.

³⁸ NTSB, *BOARD MEMBER STATEMENTS*, Deborah Hersman, Chairman, pg 3

The new rules on certifying that each crewmember is free from fatigue put the legal responsibility on the pilots.

Pilots should be prepared to engage legal assistance over these matters.

Section 4 - First Officer Illness

20. True or False? The NTSB concluded the first officer was likely impaired due to her illness?

- A. True
- B. False

DISCUSSION: The NTSB insists over and over again that both the captain and first officer were fatigued because of their use of the Colgan Air “crew room.” The NTSB did not cite the amount of sleep the crew had because the amount of sleep, albeit not “ideal,” was likely sufficient to the task at hand. They could not bring themselves to identify fatigue as a contributing factor to the crash, yet spent more time discussing sleeping in the crew room (a NTSB, approved practice, provided it does not comprise “most” of the sleep opportunity)³⁹, than discussing the first officer’s illness symptoms. The first officer gave no indication she was fatigued, yet gave a glaring indication that her illness symptoms were severe enough that it could have weighed upon her performance, along with multiple symptoms recorded on the CVR.

During the ground delay, the first officer stated, “I’m ready to be in the hotel room,” to which the captain replied, “I feel bad for you.” The first officer continued, “this is one of those times that if I felt like this when I was at home there’s no way I would have come all the way out here.” She also stated, “if I call in sick now I’ve got to put myself in a hotel until I feel better ... we’ll see how ... it feels flying. If the pressure’s just too much ... I could always call in tomorrow at least I’m in a hotel on the company’s buck but we’ll see. I’m pretty tough.” The captain responded by stating that the first officer could try an

³⁹ NTSB, footnote 245, pg 110

*over-the-counter herbal supplement, drink orange juice, or take vitamin C.*⁴⁰

This is very clearly referencing the onset of some illness that was powerful enough to impair the first officer enough for her to state that she would not have started her commute if she had felt this bad. The captain also is clearly aware that the first officer is impaired due to illness and gave her the advice of taking some herbal supplement, or OTC medication. One does not suggest OTC medication, or vitamin C for fatigue. The proper response would have been to go back to the gate and change-out first officers.

The fact that the NTSB flatly ignored the direction in the Aeronautical Information Manual regarding “Fitness for Flight” should give reason to believe they are acting out an agenda, rather than objectively fact finding and giving recommendations for safety of flight. The AIM reads thusly on the subject of airman illness:

1. Even a minor illness suffered in day-to-day living can seriously degrade performance of many piloting tasks vital to safe flight.

Illness can produce fever and distracting symptoms that can impair judgment, memory, alertness, and the ability to make calculations. Although symptoms from an illness may be under adequate control with a medication, the medication itself may decrease pilot performance.

2. The safest rule is not to fly while suffering from any illness. If this rule is considered too stringent for a particular illness, the pilot should contact an Aviation Medical Examiner for advice.⁴¹

Please reread that citation, particularly the boldened and underlined text. Reread it three or four times. The FAA is very serious about pilot impairment, not only by fatigue, but by illness. Why would the NTSB flatly ignore a very basic and extremely well known passage in the Federal Aeronautical Information Manual? Given that the members of the NTSB

⁴⁰ NTSB, pg 113

⁴¹ DEPARTMENT OF TRANSPORTATION, Federal Aviation Administration, *Airman Information Manual*, Section 8.1.1.1.b

reviewing this case are educated and well versed in aviation safety, and that they wrote the report that we are reviewing, we cannot reasonably conclude this was an error of accidental omission. **It is unreasonable to conclude that the NTSB, or the policy makers at the FAA, could not connect the dots on the first officer's illness and pilot impairment.**

It is only reasonable to conclude the NTSB and FAA willfully omitted and casually dismissed the connection because of some form of devotion to a political agenda. This agenda aligns very closely with the overarching campaign, by many of the major airlines, against employee sick leave usage. This goes to further bolster out contention that the FAA is nothing more than the enforcement arm of the ATA.

During this time (2009-10), the various management groups at the airlines were conducting, what have been aptly described as “sick leave jihads” against their pilots. Pilots who called in sick, for whatever reason, were singled out as “abusing” sick leave by management. Some instances went to arbitration or legal proceedings, where results were mixed. This was particularly true at United and American, two of the largest carriers in the United States.

It would have been counter-productive for the FAA, which is really just the governmental arm of the ATA, to incite public outcry over carriers pushing pilots to fly while impaired by illness concurrently with its member carriers conducting “sick leave jihads” against pilots. This would have caused the need for pilot manning to expand to cover gaps in the schedules caused by pilots reporting incapacitated due to illness, medication, stress, alcohol, fatigue, or emotional distress, which goes against the 80 year campaign by the airlines to conduct more flying with fewer pilots.

It is much easier to cast blame on the pilots for commuting. The public is bewildered by pilots commuting from one coast to the other, but would readily understand that a sick pilot isn't what they want in the cockpit. The politics of this are very easy to understand, and one would have to be a fool or a partisan to believe the NTSB was not pressured in its conclusions. Our “Fair Treatment For Experienced Pilots Act - Part 2” deals with this issue in a manner that makes pilot pushing very expensive for the industry.

21. The first officer stated, “I’m ready to be in the hotel room,” during the one hour ground delay. To what condition was the first officer referring during that statement?

- A. She was ill.
- B. She was fatigued.
- C. She wanted to watch HBO.
- D. She wanted to call her husband.
- E. She was hungry.

DISCUSSION: The first officer indicated that she was run down because she was sick, not because she was fatigued from commuting or sleeping in a crew room. This is the relevant text from the NTSB report:

About 2041:35, the first officer stated, “I’m ready to be in the hotel room,” to which the captain replied, “I feel bad for you.” She continued, “this is one of those times that if I felt like this when I was at home there’s no way I would have come all the way out here.” She then stated, “if I call in sick now I’ve got to put myself in a hotel until I feel better ... we’ll see how... it feels flying. If the pressure’s just too much ... I could always call in tomorrow at least I’m in a hotel on the company’s buck but we’ll see. I’m pretty tough.” The captain responded by stating that the first officer could try an over-the-counter herbal supplement, drink orange juice, or take vitamin C.⁴²

The popular myth is that the first officer is desiring a hotel room because of her trans-continental commute, not because she is sick.

She is obviously ill enough that she should not be flying, given the statement:

“this is one of those times that if I felt like this when I was at home there’s no way I would have come all the way out here...if I call in sick now I’ve got to put myself in a hotel until I feel better”

⁴² NTSB, pg 2

The NTSB casually dismissed any impairment from the first officer's illness, yet pounds away on implied fatigue.

22. According to the CVR transcript, how many sounds were attributable to yawns, and how many sounds were attributed to sniffles?

- A. 17 / 2
- B. 12 / 6
- C. 8 / 12
- D. 4 / 22
- E. 2 / 55

DISCUSSION: The way the NTSB obsessed over pilot fatigue, despite all evidence to the contrary, but blithely ignored the obvious symptoms of the first officer's illness, should put one on alert for a political agenda. The CVR attributed one yawn to the captain during the prolonged ground delay, and one was attributed to the first officer during the approach. This yawn followed a sound of laughter, attributed to the first officer, which would indicate that she was not fatigued, but may have been trying to clear the pressure differential in her ears during the descent.

How the NTSB could ignore 55 sniffles, the first officer saying that she didn't want to call in sick but wished she was in the hotel, and the captain recommending over-the-counter congestion relief, but obsessed on implied fatigue is simply baffling. The reasonable conclusion is the NTSB was groping for facts to support an existing prejudice, and this prejudice dovetailed well with the existing "sick leave jihads" being conducted by the larger mainline carriers.

Anything originating from L'Enfant Plaza isn't immune from politics.

Section 5 - Non-sterile Conversations

23. The NTSB cited “the flight crew’s failure to adhere to sterile cockpit procedures” as a contributing factor in the crash of Colgan Air/Continental Connection 3407. During what phase of flight did the overwhelming majority of non-pertinent conversation take place?

- A. During climb-out
- B. Immediately prior to the stall event
- C. During a one-hour ground delay
- D. Cruise portion of the flight
- E. Descent

DISCUSSION: The NTSB cited “*the flight crew’s failure to adhere to sterile cockpit procedures, [and] the captain’s failure to effectively manage the flight*” as contributing factors in the Colgan Air/Continental Connection 3407 crash. Nobody can dispute that the crew failed to adhere to FAA mandated “sterile cockpit procedures,” but we think it is illustrative to put the non-sterile conversation in its proper context.

“Sterile cockpit” is the practice of not engaging in non-essential activities, including non-essential conversation, during critical phases of flight, which includes operations below 10,000 feet MSL. Conversations in those phases are to be restricted to that which is needed to safely operate the aircraft.

The “takeoff and climb out” phase included the following “non-essential” conversation:

21:20:13.9

HOT-2 direct COATE.

21:20:14.2

HOT-1 direct COATE.

21:20:19.5

HOT-1 and NAV for me.

21:20:20.2

HOT-2 NAV selected.

21:20:39.9

HOT-1 wee this is fun.

21:20:41.7

HOT-2 yeah.

21:20:43.0

HOT-1 okay almost.^{43 44}

This was the sum total of all “non-essential” conversation after their ground delay. It lasted four seconds. The crew showed that it properly responded and verified an ATC clearance, the proper selection of the flight guidance computer, and flight management panel. It did not distract from any operation of the aircraft.

No reasonable person can justify this four second outburst as remotely jeopardizing aviation safety.

The aircraft climbed through 10,000 feet MSL at 21:23:08.7.⁴⁵

The aircraft was given clearance to descend through 10,000 feet MSL at 22:05:00.6.⁴⁶ The CVR transcript does not give a definitive time the aircraft passed through 10,000 feet MSL, but for purposes of this discussion, the aircraft was at 11,000 feet MSL when cleared to 6,000 feet MSL, and that will suffice as the beginning of a “critical phase” of flight.

The brief conversation about the first officer’s Eustachian congestion at 22:09:26⁴⁷ is not reasonably construed as “non-sterile” since the first officer’s ability to concentrate on her tasks, **free from the effects of flying impaired due to illness**, is essential to the safe operation of the flight.

⁴³ NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pg 228

⁴⁴ “HOT 1” is conversation attributed to the captain. “HOT 2” is conversation attributed to the first officer.

⁴⁵ NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pg 230

⁴⁶ NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pg 270

⁴⁷ NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pg 275

A conversation began at 22:10:22.6⁴⁸ regarding ice formation on the windshield. The beginning of the conversation is absolutely essential to the safe operation of the flight, and the crew was perfectly justified, if not required to discuss the matter.

This conversation morphed into a discussion of how the crew's icing experience was little to nothing, and how that doesn't square with the realities of the rapid upgrading environment of inexperienced pilots at Colgan Air. It can be reasonably stated that this portion of the conversation was "non-essential," but certainly not distracting. This conversation was over by 22:12:17.7.⁴⁹ The crew initiated and completed their approach checks subsequent to the conversation.

The cruise portion of the flight had plenty of "non-essential" conversation, but this is permissible and in no way endangered nor distracted the crew from essential operation of the aircraft.

This leaves the hour long ground delay, for which there were plenty of non-sterile conversation, including a text message.

The ground delay was just under one hour in length (20:15:48 - 21:12:21.7). The aircraft was largely stationary during this time. No reasonable person could say that the crew was compliant with FAA regulations regarding non-sterile conversation, but it remains open to reasonable debate if the crew was truly engaged in a "critical phase of flight" and if their conversations distracted from their duties.

Ground delays are common, especially in the winter months. To expect a crew to sit idle for hours-on-end, and stare blankly into the freezing darkness, is unreasonable. The practice of engaging your flying partner in "non-essential" conversation, during extended ground delays, is almost universal. The actions of the Colgan Air 3407 crew is consistent with industry practice. Monotony is listed as a cause of fatigue in the AIM.

⁴⁸ NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pg 276

⁴⁹ NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pg 278

There is a very large difference between benign, non-sterile conversation during a ground delay, and conversations that distract from a crew from concentrating on checklists and operation of the aircraft during a critical phase of flight. This distinction is important for the rational discussion of Colgan Air 3407.

24. True or False According to the NTSB, non-sterile conversation during the taxi for takeoff event is sufficient to establish that the flight crew's failure to adhere to sterile cockpit procedures and is contributory to an accident that may happen many hours subsequent.

- A. True
- B. False

DISCUSSION: Relevant text follows:

*Another example of the progress we have made during the Safety Board's four decades-long investigations of human factors is adherence to Standard Operating Procedures, such as the sterile cockpit rule (prohibiting extraneous conversation below 10,000 feet). We have made the connection between violating the sterile cockpit rule and creating a lax environment in the cockpit that results in crews not being attentive to the task at hand. Today, **for sterile cockpit violations to be cited in the probable cause, crews do not have to be engaged in a conversation at the time the accident sequence commences; the conversation just has to be present at some point during the flight.**⁵⁰*

This is a tricky area to address. On one hand, tolerance for sloppiness can manifest itself in undesirable ways at later times, because a higher standard is perceived not to be a priority. This has not escaped the attention of those of us who have been involved in safety protocols and standards-evaluation in past flying endeavors, where good leadership comes from setting a good example.

⁵⁰ NTSB, *BOARD MEMBER STATEMENTS*, Deborah Hersman, Chairman, pg 3

Following rules and adhering to standard-operating-procedure creates the foundation for safety - it does not ensure aviation safety. Unreasonable and pedantic demands over SOP has a much higher propensity to create narrow-thinking automotons, than enhancing aviation safety. This narrow-thinking mindset is a feature of more authoritarian aviation cultures, where the accident rate is far higher than more free-thinking Western cultures.

We are left to examine whether or not strict adherence to rule following enhances aviation safety or is merely oppressive rule following for the sake of rule following. We believe that the NTSB's analysis, in the case of Colgan Air 3407, is an example of the latter.

We would not advocate callous disregard for aviation safety and the regulations designed to foster a safer air transportation system for everyone. We have instructed all pilots, sympathetic to OPERATION ORANGE, to strictly "observe sterile" in our "PILOT TO DO LIST."⁵¹ This is for good reason and an area where we agree with the intent of the "sterile cockpit" rule.

Our objection is to bureaucrats obsessing over unrelated rule violations at the expense of disregarding a manifestly more grave threat to aviation safety. To link an undisciplined cockpit to a conversation, held over an hour prior, during a one-hour ground delay, is another example of the NTSB trying to pound a square peg in a round hole. The proper link to a threat to aviation safety, where Colgan Air 3407 was more of an eventuality rather than a wonderment, would be that inexperienced pilots were put in the cockpits of airplanes designed to be camouflaged as airplanes carrying more experienced pilots.

No reasonable person can link a conversation held 90 minutes prior to the sequence of events that led to the crash of Continental Connection 3407. The crash was directly related to the improper control inputs that the captain had demonstrated repeatedly over his brief career, and the training and cultural paradigm at Colgan Air. The first officer lacked the depth of experience to understand what was happening in order to serve as a safety check on the captain.

⁵¹ OPERATION ORANGE, *Pilot To Do List*, OPERATIONORANGE.org

This was done intentionally by both Colgan Air and Continental Airlines, in order to save money, and is present in the remainder of the “regional airline” industry. Yet, the NTSB and FAA do nothing to address this issue.

Such rigid adherence to rule following is certainly swept aside by industry-friendly federal judges, when the subject is pilots holding to strict interpretations of rules at the dismay of their airline’s operational wishes. In those cases, strict rule following will result in a “contempt of court” citation. The bottom line is really very elementary, and every pilot with more than a modest amount of experience in the industry knows the rules are designed by the industry for the benefit of the industry. The rules are not there for the benefit of pilots and whenever strict adherence to rules is attempted, it will be viewed through the prism of what is convenient for those who write and enforce them.

It is this multi-layered double-standard that OPERATION ORANGE is designed to end. Our “Fair Treatment For Experienced Pilots Act - Part 2” fixes these industry-convenient wrinkles in the law.

25. How much time elapsed between the last “non-pertinent” conversation and the onset of the stall event?

- A. Less than 5 seconds
- B. 22 seconds
- C. 56 seconds
- D. 146 seconds
- E. over 4 minutes

DISCUSSION: Transcript from the Colgan Air 3407 CVR:

22:13:58.4

*HOT-2 oh yeah— I'm so glad. I would've— I w— I mean—. I would've been been fine. I would have survived it. there wasn't— we n— never had to make decisions that I wouldn't have been able to make but...now I'm more comfortable.*⁵²

⁵² NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pg 281

[Time elapses with crew performing descent and approach checks.]

22:16:26.6

HOT-2 *uhhh.*

22:16:27.4

CAM *[sound similar to stick shaker lasting 6.7 seconds]*

22:16:27.7

HOT *[sound similar to autopilot disconnect horn repeats until end of recording]*

22:16:27.9

CAM *[sound of click]*

22:16:31.1

CAM *[sound similar to increase in engine power]*

22:16:34.8

HOT-1 *Jesus Christ.*

22:16:35.4

CAM *[sound similar to stick shaker lasting until end of recording]*

22:16:37.1

HOT-2 *I put the flaps up.*⁵³

Just under two and one-half minutes transpired between the last non-essential discussion and the onset of the stall event. Yes, we freely acknowledge the crew was in violation of the sterile cockpit rule, but that conversation did not cause the distraction. The crew was actively engaged in the approach procedures and configuring the aircraft for landing. They simply did not check the instruments for airspeed.

This was wholly consistent with the captain's poor performance during his instrument flying checks and the first officer's lack of experience with transport category aircraft, in addition to Colgan Air's lack of "stick pusher" training. This had nothing to do with being distracted by irrelevant conversation, commuting, fatigue, sleeping in a crew room, what they had for lunch, their favorite color, etc. It may have had something to

⁵³ NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pg 284

do with the first officer's illness, as the CVR records sniffle upon sniffle during this phase of flight, not to mention her desire to "be in the hotel" before the flight ever got clearance for takeoff.

26. The non-pertinent conversation during the descent/approach phase involved what subject matter?

- A. Low pilot pay
- B. Employment opportunities at other airlines
- C. Disparaging company personnel
- D. Icing conditions and icing experiences**
- E. How fatigued the pilots were due to commuting

DISCUSSION: The crew was engaged in an essential conversation about aircraft icing, due to the ice accreting on the aircraft. This conversation eventually devolved into a "non-essential" conversation related to experience (or lack thereof) with icing.⁵⁴

Section 6 - Crew Experience / Hiring Standards

27. How long had the captain been with Colgan Air prior to becoming a captain?

- A. 6 months
- B. 2 years**
- C. 5 years
- D. 10 years
- E. 15 years

DISCUSSION:

The captain applied to Colgan in August 2005 and was hired the next month. At that time, the captain had 618 total flight hours, 290 of which were accumulated while at GIA in a multiengine airplane.

⁵⁴ NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pp 276-281

His total number of flight hours met the company's internal policy requirements at the time, which were a minimum of 600 hours total time, including 100 hours of multiengine time. This minimum was typical for new hires at regional airlines at that time.⁵⁵

The captain began upgrade training on the Saab 340 in October 2007 and attempted a checkride for an FAA airline transport pilot certificate and type rating later in the month, but he was initially disapproved. The check airman indicated that the captain's airspeed was too slow on a second missed approach while attempting to complete a single-engine ILS approach. After another check airman provided further training for the captain, the original check airman conducted the recheck and approved the captain for the certificate and type rating 3 days later.⁵⁶

Two years. The explosive growth of the regional airlines, as mainline carriers outsourced their flying away from their more experienced pilots in the wake of the bankruptcies of the past decade, resulted in pilots having very, very little experience in any type of aviation, much less Part 121 commercial operations. This is very typical of the entire "regional airline" model. The experienced pilots were available, but were handed pink slips by the "mainline" carriers as they contracted out the flying to defacto flight schools. **You are always told there is "one level of safety," and as long as you believe it, you will never have it.** If they cared about your safety, you would not be flown around on airplanes staffed by inexperienced pilots.

⁵⁵ NTSB, pg 116

⁵⁶ NTSB, pg 116

28. What was the experience level of the captain, when he applied for employment with Colgan Air?

- A. 3477 hours, former USAF C-141 pilot, no failed FAA certification checks.
- B. 7533 hours, former corporate pilot, 1 failed FAA certification on his initial instrument rating in 1991.
- C. 1461 hours, University of North Dakota, Failed multi engine-land certification.
- D. 2760 hours, oil pipeline inspection pilot, no failed FAA certifications
- E. 618 hours, Gulfstream Training Academy, failed initial instrument rating, failed single engine-land rating, failed multi engine-land rating, graded “unsatisfactory” on two simulator sessions at GTA covering: approach to stall-landing configuration, unacceptable altitude and airspeed control, with repeated deviations.**

DISCUSSION: Relevant text follows:

*The captain had received several disapprovals and had experienced training problems throughout his flying career. **In October 1991, the captain was disapproved for his initial instrument airplane rating.** The tasks disapproved were partial panel VOR approach, NDB approach, and holding...**In May 2002, the captain was disapproved for his initial commercial single-engine land certificate.** The tasks disapproved were takeoffs, landings, go-arounds, and performance maneuvers...**In March 2004, the captain was disapproved for his initial commercial multiengine land airplane certificate...**The total number of flight hours that the captain had accrued at that time was not recorded, but **his certificate application for the rating showed that he had received 7.1 hours of flight instruction before the test, which is minimal training for a multiengine certificate.***

The captain’s disapproval for a commercial multiengine land airplane certificate was his third successive failure to pass an initial attempt for an FAA certificate or rating, and it appeared that his performance was not improving as he gained experience. In its

September 9, 2005, response to Safety Recommendation A-05-2 (see section 1.18.1.8), the FAA stated that multiple checkride failures showed no correlation with pilots' accident and incident records. **However, the captain's established pattern of first-attempt failures might have indicated that he was slow to absorb information, develop skills, and gain mastery or that the training he received was not adequate.** This pattern might also have indicated that the captain had difficulty performing required skills while under the stress conditions associated with a checkride. The captain attended Gulfstream Training Academy from August 2004 to April 2005 and completed initial training at GIA (which was directly associated with the academy) in December 2004. **Details from his training records, however, revealed his continuing difficulties with aircraft control. During two simulator periods, he was graded unsatisfactory in "approach to stall – landing configuration." During a later simulator period, he demonstrated unacceptable altitude and airspeed control. During the final planned simulator session, the instructor noted basic attitude flying problems and repeated deviations.** Because additional training was required, an extra simulator session occurred the next day. All maneuvers were graded satisfactory at that time. The simulator checkride occurred the same day as the additional training. The captain's GIA training records clearly showed that his flying skills needed improvement, but he had apparently met the minimum standards required for completion of the training. Thus, he began flying the BE-1900D as a fully qualified first officer. **However, the captain's GIA training records should have raised concerns about his suitability for employment at a Part 121 air carrier.** The captain applied to Colgan in August 2005 and was hired the next month. At that time, the captain had 618 total flight hours, 290 of which were accumulated while at GIA in a multiengine airplane. His total number of flight hours met the company's internal policy requirements at the time, which were a minimum of 600 hours total time, including 100 hours of multiengine time.⁵⁷

⁵⁷ NTSB, pg 115-116

The NTSB correctly cites the improper control column inputs for stall recovery as the cause of the crash. What is absent from their findings is that Colgan Air hired a pilot with multiple failures in the area specific to the crash - aircraft control, instrument scan, and stall recovery. Rather than put Colgan Air on the spot for hiring and monitoring standards, the NTSB and FAA focus on irrelevant factors like commuting and crew rooms. This is obviously political as the entire “regional airline” model would have to be abandoned if hiring standards were the focus of FAA regulatory zeal. This is simply swept under the rug by the NTSB stating that the pilots were “properly certified” and then misdirection is brought in to cover for that obvious lax standard.

The bottom line is that the captain was hired with nothing more than a certificate from a flight school that has a powerful financial incentive to not wash out pilots. His record should have attracted attention at Colgan Air, but it did not, until **AFTER** 50 people died.

29. True or False? The NTSB found that the captain’s experience level, upon application with Colgan Air, is typical of new-hires at regional airlines at the time of the Continental Connection 3407 crash.

- A. True
- B. False

DISCUSSION: The FAA and NTSB act as if this were a small quirk in the entire “regional airline” model. The question remains, “Is it a small quirk?”

*His total number of flight hours met the company’s internal policy requirements at the time, which were a minimum of 600 hours total time, including 100 hours of multiengine time. **This minimum was typical for new hires at regional airlines at that time.**⁵⁸*

The entire “regional airline” model serves as a shadow “flight school” for under experienced pilots to gain credentials and experience to eventually work for a more reputable and prestigious airline. That’s tolerable if the

⁵⁸ NTSB, pg 116

public is told their pilots are mere students working as apprentices for a higher paying job, but they are not. Instead, they are told there is “one level of safety” for the airlines. Many of the family members of those who died on Continental Connection 3407 believed they were getting “Continental safety” and “Continental pilots,” but they were not. They were getting very young and under experienced pilots, flying in the Northeastern winter, in and out of the busiest air corridor in the world, but disguised to look like the more experienced and credentialed Continental pilots.

The airlines and FAA have a very powerful incentive to keep this subterfuge going. The political fallout, from being told the entire “regional airline” model is nothing more than a cheap source of outsourcing experience and judgment to a flight school, would be incalculable.

This is precisely what is being done under the guise of “one level of safety.”

30. The first officer’s primary flight experience, prior to her employment with Colgan Air, was:

- A. Former USAF
- B. FAA Certified Flight Instructor in Arizona**
- C. Night-freight with a FEDEX contractor in Seattle
- D. Tour pilot on seaplanes.
- E. Embry-Riddle Aeronautical University

DISCUSSION: The first officer’s experience did not come from the military, freight, tours, or a comprehensive flight school. She came up through the “flight instructor” career path. This is one of the most varied and unstandardized career paths to becoming an airline pilot.

This career path typically has the student pilot complete their ratings at a small airport by using their aircraft and FAA Certified Flight Instructors. Upon graduating from the fairly informal program, the student becomes the instructor, building their experience as they teach new students what they just learned. Their only meaningful experience they bring, as flight instructors, is finishing the school.

Tour and freight pilots get their ratings and then have to earn a living flying in real scenarios on real schedules - learning to adapt to the conditions as they change. A flight instructor only has to teach the program they just finished in an environment that is suitable for a very inexperienced student pilot.

Picture a county hospital conducting a medical school with residents as professors and you start to get the idea.

According to a résumé in her personnel file at Colgan and her application for employment with the company, from August to December 2006, the first officer worked part time as a flight instructor at Sawyer Aviation, Scottsdale, Arizona. From January 2007 to January 2008, the first officer was a flight instructor at Sabena Airline Training Center, Phoenix, Arizona. She was hired by Colgan in January 2008.⁵⁹

FAA records indicated that the first officer received a notice of disapproval, issued on May 7, 2006, for her initial flight instructor certificate. The areas that needed to be reexamined were technical subject areas; performance maneuvers; preflight procedures; airport base operations; and takeoff, landings, and go-arounds. (These areas pertained to her instructional methods and abilities.) She subsequently passed the test and was issued her flight instructor certificate (airplane single-engine land) on May 12, 2006.⁶⁰

The military pipeline typically includes an extremely comprehensive and rigorous flight school with the best equipment taught by instructors who, in addition to having graduated years prior, have three to five years of operational/combat flying. These instructors must first complete another formal instructor training program taught by the most senior instructors prior to ever instructing a student.

⁵⁹ NTSB, pg 11

⁶⁰ NTSB, pg 11

31. How much actual instrument time did the first officer have when she applied for employment with Colgan Air?

- A. None
- B. 6 hours**
- C. 86 hours
- D. 120 hours
- E. 1470 hours

DISCUSSION: The bulk of these six hours almost certainly came at night during the new moon, as no discernable horizon is likely to exist. She did have 86 hours of simulated instrument time, which could come in a simulator or during instructional time where she was not permitted to look outside the aircraft to determine position, attitude, or orientation. Arizona simply does not afford a rich instrument flying environment, such as the Northwest, Northeast, Europe, Asia, Alaska, Canada, etc.

We highlight this experience not to fault the first officer, but to question why Colgan Air would seem to accept such a background for a position to fly in the dense traffic, and adverse weather environments of the Northeast. We further question Continental Airlines' decision to outsource its flying to a company staffed by under experienced pilots.

Perhaps it has something to do with the salaries pilots with thin resumes can command.

The first officer had accumulated 1,470 total flight hours, including 6 hours of actual instrument time, and 86 hours of simulated instrument time before her employment with Colgan.⁶¹

⁶¹ NTSB, pg 11

32. How much experience did the first officer have with turbine powered aircraft prior to her employment with Colgan Air?

- A. None
- B. 737 type rating class for her application to Southwest.
- C. Previous Q-400 experience with Horizon Air.
- D. Beechcraft 1900
- E. EMB-145

DISCUSSION: No experience with turbine powered aircraft prior to employment with Colgan Air.

(The first officer reported no experience with turbine-powered airplanes on her résumé and employment application.)⁶²

How many furloughed Continental, United, Delta, American, and US Airways pilots had extensive experience with complex, turbine powered aircraft at the time of the Colgan Air 3407 crash? Was saving \$5-\$10/ticket, by outsourcing the operation to a company (and industry) that continues to have no problem hiring inexperienced pilots, worth it?

33. How much experience did the first officer have with icing conditions prior to her employment with Colgan Air?

- A. None.
- B. A modest amount.
- C. One full winter in the Northeast
- D. About the same as most new-hires for major/mainline airlines.
- E. Extensive, due to her employment with Alaska Airlines.

DISCUSSION: This is not exaggeration. Colgan Air hired a pilot (and presumably many others) with no appreciable experience with icing. Given that their scope of operations includes the Northeast in the winter, this is not insignificant.

⁶² NTSB, pg 11

*...the captain and the first officer began a conversation that was unrelated to their flying duties. During that conversation, the first officer indicated that she had accumulated more actual flight time in icing conditions on her first day of initial operating experience (IOE) with Colgan than she had before her employment with the company. She also stated that, when other company first officers were “complaining” about not yet having upgraded to captain, she was thinking that she “wouldn’t mind going through a winter in the northeast before [upgrading] to captain.” **The first officer explained that, before IOE, she had “never seen icing conditions ... never deiced ... never experienced any of that.”**⁶³*

We do note that the first officer had the foresight to understand that her professional development would be greatly enhanced by experiencing a full winter in the Northeast prior to becoming a captain. If a 24 year old pilot can appreciate the wisdom of such a prerequisite, we wonder how an airline can hire pilots who lack that kind of experience, yet be expected to operate in such an environment. We are further horrified that the typical expectation of many first officers at Colgan (and presumably other regional airlines) are to upgrade so quickly, that they lack the necessary experience to fulfill that responsibility.

It would seem that at no point are the pilots or the managerial oversight of the operation concerned about the profound lack of experience. This is an area the FAA should be very proactive in eliminating. Airline pilots at mainline operations are expected to have this kind of experience prior to application with the airline, and have already acted as pilot-in-command (PIC) in such an environment.

The entire notion that there is “one level of safety” in the air transportation industry is a fiction, and everyone in the industry and FAA knows it. When you hear such a statement from the industry or government, you are being subjected to a willful deception.

⁶³ NTSB, pg 3

34. How much did the first officer state she made with Colgan Air in her first year of employment?

A. \$154,000

B. \$75,000

C. about \$60,000

D. \$15,800

E. About what her husband makes on drill weekends for the US Army Reserve.

DISCUSSION: We now discover the real reason the entire regional airline industry exists. Pilots will attempt to break into the industry by undercutting the existing wage structure, in order to gain experience, in the hope that they will eventually land a job at a mainline airline where compensation is more reflective of the responsibilities. The airline industry capitalizes on this phenomenon by paying abysmal wages and shifting flying to that sector. Not only do the airlines save money directly by hiring underpaid, under experienced pilots, they also save money by having a mechanism against which to whipsaw the mainline pilots, thus reducing the compensation paradigm a the mainline.

As long as the public allows the industry and government to give the illusion of “one level of safety,” this will continue.

During the recent past, airlines actually would have pilots rebate almost their entire first year’s wages under the guise of “paying for training.” All airlines must train pilots to their operational specifications, regardless of experience, so the entire “pay for training” concept is nothing more than a reduction in wages to skirt the various minimum wage laws. Under such a scenario, it is not uncommon for first officers to make less than \$2000 in their entire first year of employment.

Needless to say, such an arrangement attracts very young and inexperienced pilots to shoddy organizations offering such an environment. This has not come without consequence and, as usual, the industry and government covered up the practice, proclaiming “one level of safety.”

We note that the mainline airlines have never participated in such a program.

The CVR recorded the first officer stating, about 2030:02, that she earned a gross salary of \$15,800 during the previous year (her date of hire with the company was January 16, 2008) and that “I’m just lucky ‘cause I have a husband that’s working.” (The CVR recorded the captain stating that he earned a gross salary of about \$60,000 during the previous year.) About 2103:03, the first officer stated that her husband had earned more in one weekend of military drill exercises than she earned in an entire pay cycle. She added that a recent pay raise would result in an extra \$200 each paycheck.⁶⁴

35. True or False? Colgan Air routinely hired applicants with no previous airline experience.

- A. True
- B. False

DISCUSSION: Relevant text follows:

According to the Colgan vice president of administration, at the time of the accident, the company’s minimum flight time requirement for pilot applicants was 600 hours total flight time with 100 hours multiengine time. This vice president also stated that a pilot with 250 to 300 hours in a Part 121 operation would be a more appealing candidate than a pilot with 1,500 hours in a general aviation airplane. The vice president further stated that, as part of a pilot applicant’s background check, the company checked the paperwork required by the Pilot Records Improvement Act (PRIA) but that many of the pilots that the company had hired did not have previous experience with other airlines.⁶⁵

⁶⁴ NTSB, footnote 37

⁶⁵ NTSB, pp 33-34

Inexperience of the crew is not limited to the accident crew of Colgan Air 3407. Many of these pilots upgrade to captain with no previous experience, and only a year, perhaps two, as a first officer.

When we say the airlines shed experience for compliance, this is what we are talking about. Experience isn't cheap nor is it easy to control, which is why the "regional airline" model persists, despite recurring safety concerns.

Airlines will always shed experience at the expense of safety. The fact the regional airline model exists is testament to that charge.

36. After the Colgan Air/Continental Connection 3407 crash, Colgan Air revised the minimum experience level (total/multi-engine) for new-hires from

- A. 600/100 to 1000/100
- B. 600/100 to 1500/100
- C. 600/100 to 2000/250
- D. 600/100 to 2500/300
- E. Colgan Air did not raise their minimums subsequent to the crash.

DISCUSSION: In reaction to the initial public outcry over the lack of experience of the pilots at regional airlines, Colgan Air revamps its hiring minimums to help deflect criticism.

Colgan indicated that it revised its flight time requirements on April 30, 2009 [eleven weeks subsequent to the crash]. Newly hired pilots are now required to have 1,000 hours total flight time and 100 hours in multiengine aircraft. Q400 captains are now required to have 3,500 hours total flight time and one of the following: 1,000 hours as a PIC at Colgan, 1,500 hours in aircraft type, or 2,000 hours at Colgan. Saab 340 captains are now required to have 2,500 hours total flight time and 1,000 hours at Colgan.⁶⁶

⁶⁶ NTSB, pg 34

This new requirement would have prevented the captain from being hired, since he lacked the 1000 hour total time requirement, but not the first officer. These new minimums conveniently barely preclude the captain from being eligible to command an aircraft at Colgan Air, since the captain had 3379 total hours, and 1030 hours as pilot-in-command.⁶⁷

This is clearly an example of shutting the barn door after the horses have escaped. It may also be conveniently suited to the realities of an airline that is coming out of its era of rapid growth and the projected upgrading opportunities would not be precluded by the growing experience of their first officers as upgrade opportunities start to show relative stagnation. This is conjecture on our part, but the industry would certainly benefit from changing its standards to reject opportunities which are no longer available to them.

Section 7 - Training / Culture

37. Colgan Air's POI (Principal Operating Inspector) said the following about the "safety culture" at Colgan Air.

- A. "Very proactive. No changes needed."
- B. "Serious problems. Total rework is needed."
- C. "Adequately staffed at the monitoring level,"
- D. "More reactive than I'd like ... not quite as proactive."
- E. "In line with industry standard...pilots need to be more proactive in identifying potential safety issues."

DISCUSSION: Here is what the various management personnel said about Colgan Air's safety culture, when interviewed by the NTSB:

*The Colgan **manager of flight safety stated** that the safety culture at the company was good because of programs, such as ASAP and LOSA, that allowed employees to provide feedback and the corrective actions implemented by the company based on the feedback. **This***

⁶⁷ NTSB, pg 7

manager added that pilots have also volunteered other information outside of the programs about the company's operations. **The Q400 fleet manager also stated** that the safety culture at the company was good because of the safety message being conveyed throughout the company by the company president and vice presidents. **The manager of flight standards stated** that the safety road show helped to improve the company's safety culture because it reinforced the importance of safety and the message that everyone needed to work together. **The director of flight standards stated** the following regarding the company's safety culture: "the pilots that are out there every day performing the job flying the airplanes around wouldn't dream of doing anything but keeping it a safe operation for themselves and their passengers and their flight attendants."⁶⁸

Here is what the Colgan Air Principal Operating Inspector said of Colgan Air's safety culture:

*The POI for Colgan stated that the safety culture at the company was "more reactive than I'd like ... not quite as proactive." The POI indicated that the company needed more middle management-level personnel to advance safety programs and conduct additional monitoring.*⁶⁹

One group of individuals is paid and promoted by Colgan Air, and the other is paid and promoted by the FAA. The entire NTSB document shows repeated reaction to what should have been obvious. Safety culture should be proactive, rather than written in blood.

When it comes to management talking about safety, watching what they do is more reliable than listening to what they say. Safety costs money; it always has and always will. The entire premise of OPERATION ORANGE is to stop the outsourcing of safety to the lowest bidder.

If the NTSB documents isn't enough, please take the time to view the PBS FRONTLINE documentary called, "Flying Cheap." You can link to it from

⁶⁸ NTSB, pg 52

⁶⁹ NTSB, pg 52

the OPERATIONORANGE.org website, or do an internet search for “PBS FRONTLINE - FLYING CHEAP.” In this documentary, reporter Miles O’Brien interviews many regional pilots, many of whom were former Colgan Air pilots. These pilots volunteered many instances where Colgan Air either asked them to falsify FAA records, or where pilots falsified records to keep the planes moving. “Move the rig,” is how one pilot described the operating philosophy of Colgan Air, since most regional airline code sharing agreements only allow the regional airline to get paid by the mainline when they complete the flight.

FRONTLINE serves as another source to indicate that safety is not the prime operational value, but profit. There is nothing wrong with profit, as it is necessary to continue to provide quality passenger air transportation, but it should not be pursued at the expense of a reasonable veneration of safety.

38. True or False? Colgan Air incorporated training of the Q-400 “stick pusher” as part of the training syllabus for its Q-400 program prior to the 3407 crash?

- A. True
- B. False

DISCUSSION: Did Colgan Air train its pilots on a major safety system incorporated into their aircraft prior to the issue becoming national news?

Company training personnel and Q400 check airmen stated that demonstration of the airplane’s stick pusher system was not part of the training syllabus for simulator training at the time of the accident.⁷⁰

Apparently not. Since this was directly related to the primary cause of the crash, we can say this cost saving measure was paid for by 50 lives. We find it thoroughly appalling the NTSB cited the crew’s failure to adhere to sterile cockpit procedures as being contributory to the crash yet leaves this glaring fact out of their contributory factors. This dismay is borne out of the

⁷⁰ NTSB, pg 36

NTSB's pedantic concern for regulatory compliance, rather than a manifestly obvious hazard to air transportation. This is juxtaposed against a certificate holder's callous disregard for safety culture and training, knowing they hire pilots with little or no foundation to draw upon when crisis presents itself.

When viewed through the prism of airlines shedding experience and cutting corners at the behest of cost reduction and being protected by a government that refuses to call out the industry on a structural safety flaw in the entire industry paradigm, this outrage is easily explained.

They don't care about your safety - neither the industry nor the government. Pay your taxes; buy your tickets; don't question their "one level of safety" mantra.

39. Which of the following statements is false?

- A. The NTSB discovered that one Colgan Air check airman was demonstrating the Q-400 "stick pusher" during simulator training.
- B. Most pilots at Colgan Air had never seen a demonstration of the Q-400 "stick pusher."
- C. Most pilots, when shown the Q-400 "stick pusher," reacted improperly by attempting to override the "stick pusher."
- D. The "stick pusher" is a design flaw of the Q-400.**
- E. Colgan Air incorporated "stick pusher" training subsequent to the 3407 crash.

DISCUSSION: The "stick pusher" is an intentional safety feature built into many modern transport category airplanes. This is designed to assist in accomplishing the one mandatory objective in stall recoveries - reducing angle-of-attack (AOA). In the hands of a well trained crew, with a large reservoir of experience, the stick pusher is a very useful feature. In the hands of someone who has never seen it before, it would appear as a malfunction, since the actions are counter-intuitive to the novice.

Company training personnel and Q400 check airmen stated that demonstration of the airplane's stick pusher system was not part of

*the training syllabus for simulator training at the time of the accident. Nevertheless, **one check airman** indicated that he demonstrated the stick pusher during initial simulator training. The check airman stated that **most of the pilots who were shown the pusher in the simulator would try to recover by overriding the pusher**. Most of the company pilots interviewed after the accident reported that they had not received a demonstration of or instruction on the stick pusher.*

*At the public hearing for this accident, Colgan's chief Q400 instructor testified that, **after the accident**, pilots began receiving a demonstration of the stick pusher system during simulator training.⁷¹*

We applaud the lone check airman who took it upon himself to demonstrate a major safety feature of the aircraft. His foresight had the potential to save lives. Had the accident captain been paired with this check airman during training, perhaps nobody would be discussing these matters and 50 people would still be alive today.

It is alarming that those pilots who had the feature demonstrated to them, the majority had committed the same error as the captain of Colgan Air 3407. This error was the direct cause of the crash, as stated in the Executive Summary. Overriding the pusher is a fatal endeavor at lower altitudes and in the landing configuration. The fact Colgan Air did not incorporate this into their training, given the experience level of their pilot group, is grossly negligent and borders on the pathological.

The fact most pilots at Colgan Air had not seen the stick pusher, at the time of the crash, is frightening. How many lives were jeopardized by such an oversight?

As we pointed out earlier, a novice is not going to understand what is happening if he or she is not trained in the subject. Startle and confusion would certainly follow. The NTSB said as much in its findings:

⁷¹ NTSB, pg 36

*The NTSB concludes that the captain's response to stick shaker activation should have been automatic, but his improper flight control inputs were **inconsistent with his training** and were instead consistent with startle and confusion. The NTSB further concludes that **the captain did not recognize the stick pusher's action to decrease AOA as a proper step in a stall recovery**, and his improper flight control inputs to override the stick pusher exacerbated the situation.⁷²*

It is true that the captain's response *should* have been automatic. That kind of response is expected of someone with a rich background in basic aircraft maneuvering ("hands-on" flying, vs. autopilot), and who is properly trained. The NTSB said his inputs were "inconsistent with his training." This is manifestly false because the captain **DID NOT RECEIVE TRAINING** in this feature. There was no training to serve as a standard for which to judge his actions. **The better phraseology would be that the captain's actions were consistent with his level of training and experience, but inconsistent with the expected actions of a properly trained and experienced pilot.**

40. True or False? Colgan Air had a formal "pilot monitoring program," to monitor pilots considered to be weak, in place prior to the Continental Connection 3407 crash?

- A. True
- B. False

DISCUSSION: The correct answer is "false." It did not dawn on Colgan Air to monitor pilots with low experience and who have demonstrated weakness consistent with that experience, until after disaster forced their hand.

The chief pilot indicated that, at the time of the accident, the company did not have a formal program for those pilots that were considered to be weak. In August 2009, [six months after the crash] Colgan began a formal pilot monitoring program.⁷³

⁷² NTSB, pg 89

⁷³ NTSB, pg 39

After a new captain completed IOE, Colgan provided no further scheduled oversight of the captain until the annual line check. After the accident, Colgan changed its policy so that all new captains would have a line check after 6 months.⁷⁴

41. Which of the following check rides (was/were) failed by the captain during his 3 years with Colgan Air?

- A. First recurrent check as a first officer on the SAAB 340
- B. Airline Transport Pilot check ride during initial captain upgrade for the SAAB 340.
- C. Initial check ride for the Q-400
- D. All of the above
- E. Both A and B

DISCUSSION: This captain had three certificate disapprovals PRIOR to being hired by Colgan Air. He subsequently failed two more important milestones.

*On October 15, 2007, while a first officer for Colgan, **the captain was disapproved for his airline transport pilot certificate during his initial flight check.** He flew a Saab 340 during the flight test, and the disapproved task was approach and landing with a powerplant failure in a multiengine airplane. He passed the flight check for the certificate on October 18, 2007.⁷⁵*

*On October 17, 2006, the captain received an unsatisfactory grade on his recurrent proficiency check in the Saab 340. **The unsatisfactory tasks were rejected takeoffs, general judgment, landings from a circling approach, oral exam, and no[n] precision approach.** The captain attended recurrent training and completed his prequalification proficiency training on November 1, 2006.⁷⁶*

⁷⁴ NTSB, pg 42

⁷⁵ NTSB, pg 10

⁷⁶ NTSB, pg 10

This is enough to establish a pattern that should concern any organization that traffics in aviation safety. The captain had a difficult time mastering the tasks for which he was seeking responsibility to perform. This is no longer a matter of opinion, but one of established fact. These facts were known to the management of Colgan Air prior to the crash, but were disregarded for reasons that a reasonable inquiry would find disturbing.

“Flying cheap” isn’t very cheap, when measured in human suffering. Yes, the passengers saved \$10 on their ticket to Buffalo, but at what cost? Continental saved money by not having to hire more experienced pilots, and they insulated themselves against the legal blowback by contracting with an organization known for hiring low-time, problematic, under-paid pilots that are pressured into flying beyond what they believe is safe.

42. True or False? Colgan Air was concerned with the captain’s repeated training and proficiency failures and had enrolled him in a pilot monitoring program.

- A. True
- B. False

DISCUSSION: Faced with a known problem, Colgan Air did not institute a program for problematic pilots until AFTER Continental Connection 3407 had crashed. This is consistent with the pattern of Colgan Air attempting to lock the barn door after they know the horses have escaped.

Because of his continued weaknesses in basic aircraft control and attitude instrument flying, the captain would have been a candidate for remedial training. However, at the time of the accident, the company did not have a formal program for pilots who demonstrated ongoing weaknesses. The company’s director of flight standards stated that pilots who were found to be unsatisfactory because of a failed checkride could retrain on the specific failure item and that no further followup would occur if the pilot were found to be satisfactory on the subsequent checkride. This director also stated that, for pilots with multiple unsatisfactory checkrides, he or the flight standards manager would coordinate with the director of crewmember and dispatcher training to assign additional training. (As stated in section

1.17.1.3, Colgan began a formal pilot monitoring program in August 2009.)

Even though the captain had failed two checkrides since beginning work for Colgan (and was graded “train to proficiency” on another checkride), he had received retraining on the specific failure items and then subsequently passed the checkrides. As a result, no additional training or overall review of his skills as a pilot occurred.⁷⁷

We are left to speculate why Colgan Air didn’t monitor its weaker pilots until after the crash of Colgan Air 3407. It probably has quite a bit to do with money.

43. True or False? Prior to the Continental Connection 3407 crash, Colgan Air had an effective monitoring program called “V-V-M” (verbalize, verify, and monitor) to promote effective monitoring of the aircraft.

- A. True
- B. False

DISCUSSION: Colgan Air staffed its airline with inexperienced pilots and then failed to install an effective back up and monitoring system for basic instrument scans and cross-checks. It was only after 50 people died as a direct result of this oversight that they installed a procedure for that type of cross-check.

If Colgan Air had failed to install this safety procedure for its inexperienced pilots, how many other “regional airlines” are also lacking?

Remember, this is the type of operation the “mainline” carriers have contracted for the outsourcing of your safety.

Colgan’s standard operating procedures did not include speed targets during approaches; these targets would have facilitated the detection

⁷⁷ NTSB, pg 117

of speed deviations by the monitoring pilot. Colgan also lacked standardized procedures for setting airspeeds and using the ref speeds switch, which did not promote effective cross-checking between airspeeds and the switch's status. (These issues are discussed in section 2.8.) If such procedures had been in place, then the flight crew might have detected the inconsistency between the 118-knot Vref (a non-icing speed) and the position of the ref speeds switch (icing conditions assumed) and ensured that a Vref of 138 knots (an icing speed) was selected. Further, although company procedures required the flying pilot to make a 1,000-foot callout when changing altitudes, the director of flight standards stated that the callout was not required before the altitude alerter sounded. Such a practice can impede monitoring because flight crews may become passive and wait for an automated backup system to prompt their required callout. After the accident, the company introduced the "VVM" (verbalize, verify, and monitor) program to improve flight crew monitoring.

*The NTSB concludes that Colgan Air's standard operating procedures at the time of the accident did not promote effective monitoring behavior. **The NTSB is concerned that other air carriers' standard operating procedures may also be deficient in this area.**⁷⁸*

44. What "significant content" did Colgan Air's Captain Upgrade classroom training contain, regarding captain responsibilities?

- A. Leadership skills
- B. Management oversight
- C. Administrative duties
- D. Command authority
- E. Scenario-based training

DISCUSSION: Common sense and would dictate that an airline experiencing heavy growth and staffed with new captains with very little experience would take the time and expense to give some classroom

⁷⁸ NTSB, pg 95

instruction on basic leadership skills. After all, they are saving a tremendous amount of money on these young pilots, and with a management team crowing about “safety” every time someone turns on a camera, one would reasonably believe that they would attempt to bridge the experience gap with some genuine leadership training.

It would be a shame if the airline used their captain upgrade training for little more than basic administrative duties (paperwork procedures).

*The captain upgraded in October 2007; at that time, Colgan provided to its upgrading captains a 1-day training course on duties and responsibilities. Although the director of crewmember and dispatcher training stated that the course was designed to help a new captain make the transition to the new role, **the NTSB’s review of the course content showed that it focused on the administrative duties associated with becoming a captain. The upgrade training course did not contain significant content applicable to developing leadership skills, management oversight, and command authority.***⁷⁹

Why would an airline emphasize “administrative duties” rather than genuine leadership skills? It is a function of airlines eschewing experience and judgment for compliance. People with strong leadership traits can be difficult to intimidate and control. If an airline tells a pilot he is a “leader,” but conditions him to be a malleable functionary, it serves their purposes for pilot pushing and labor relations.

Telling someone they are a leader does not make it so. They must know they are a leader, based upon their own traits, values, experience, and moral courage, and having those qualities tested by various forms of conflict. These traits are often at cross-purposes with having a docile labor force.

⁷⁹ NTSB, pp 98-99

45. Which of the following statements is false, regarding Colgan Air's fatigue policies?

- A. In the nine months prior to the Continental Connection 3407 crash, approximately 12 pilots availed themselves to Colgan Air's fatigue policy.
- B. In September 2009, Colgan Air issued a new fatigue policy where pilots would report to the Safety Department, rather than the Flight Operations Department
- C. At the time of the Continental Connection 3407 crash, Colgan Air provided training and education to its pilots in preventing fatigue.**
- D. In December 2009, Colgan Air issued an "Interim Fatigue Policy" detailing how "frivolous" fatigue calls are now the majority and any such calls will be subject to disciplinary action.
- E. In December 2009, Colgan Air issued an "Interim Fatigue Policy" which states, that the crew member cannot use the fatigue policy when returning from days off or after a rest period of 12 hours or greater.

DISCUSSION: Relevant text follows:

*The EWR regional chief pilot stated that, between May 2008 and February 2009, **only about a dozen pilots had called in fatigued.** The regional chief pilot also stated that, if pilots were fatigued, they could call in as such to crew scheduling or use sick leave.⁸⁰*

Given the scope and pace of Colgan Air's operations, it is amazing that one pilot every 3 weeks finds himself fatigued. This is evidence of a culture of pilot pushing, where fatigue is not a consideration in scheduling. Regional airlines are a fatiguing business, on their best days. The days are long, and the time off to recover is short. Acute and chronic fatigue are the norm.

Colgan's September 20, 2009, revision to its Flight Operations Policies and Procedures Manual contained additional information about the company's fatigue policy. According to the manual, Colgan's safety department was the focal point for the company's

⁸⁰ NTSB, pg 48

*fatigue policy to gather information to identify fatigue and scheduling issues. As a result, crewmembers were required to submit fatigue forms to the safety department instead of the chief pilot or duty officer.*⁸¹

In the wake of the Continental Connection 3407 crash, Colgan Air implements a new policy addressing fatigue. It moves the responsibility and reporting from the operations department to the safety department. This is to give the pilots codified assurance their fatigue removals will not be disciplinary opportunities. This is a step in the correct direction, but also leaves an uncomfortable question hanging in the air: were the previous fatigue reports discouraged by management or were pilots intimidated into not removing themselves for fatigue?

When only 12 pilots over 9 months report themselves to be fatigued, one would reasonably conclude pilots were reluctant to remove themselves for fatigue, much like they could be reluctant to use sick leave and fly sick, as the first officer had indicated.

At the time of the accident, Colgan did not provide any information to its pilots about fatigue prevention.⁸²

Why would Colgan provide information to its pilots that would be at cross-purposes with the culture of pilot pushing?

*On December 30, 2009, Colgan's director of operations issued read-and-sign memo 09-12, "Interim Fatigue Policy" to all company pilots and flight attendants. The memo stated that, although Colgan's **nonpunitive fatigue policy had provided helpful information in understanding scheduling issues that created fatigue among crewmembers and had resulted in crewmembers recognizing and declaring true fatigue situations,** abuse of the fatigue policy was increasing. The memo noted the following: "in the last 2 months, the instances of fatigue calls with no valid reason for fatigue have increased to the point **where frivolous fatigue calls are now the***

⁸¹ NTSB, pg 49

⁸² NTSB, pg 49

majority” and “frivolous use of sick policy and fatigue policy at the expense of our customers and our operational reliability is not an acceptable practice.”⁸³

The September 2009 fatigue policy did exactly what it was supposed to do - uncover fatiguing operations for management to reschedule in a less fatiguing way. Crewmembers were properly identifying fatigue.

We are left to wonder what “frivolous” means to an operations manager and how that might differ with how a pilot might define the term. There is little doubt that pilots flying a fatiguing schedule and reporting fatigue would hamper the operations of the carrier, so “frivolous” might very well be in the mind of the beholder. Certainly, if fatigue mitigation were to cause unacceptable changes in the operational schedule, the airline would have an incentive to quash the discovery of fatigue.

*This interim policy, which became effective on December 31, 2009, stated that **fatigue calls would not be accepted if the crewmember had a rest period of at least 12 hours before the start of the duty day, was returning from days off, or wanted to use the policy for a future flight.** The memo noted that the safety department would consider mitigating circumstances preventing a rest period from being fully used when determining whether a fatigue call was acceptable. The memo cautioned, **“any further blatant abuse of the fatigue option will be addressed as a disciplinary action, and fatigue resulting from an improper use of rest periods or personal time off duty will be treated as missed trips.”**⁸⁴*

Fatigue is caused by many things, not all of which are flight operations related. We would agree that it is a professional pilot’s responsibility to use his time off to recuperate from the flying schedule, and report for duty as rested as reasonable, there are other factors that weigh on a pilot’s ability to recuperate.

⁸³ NTSB, pg 50

⁸⁴ NTSB, pg 50

If the flying schedule is such that time at home is very limited and sporadic, the pilot may not have the ability to fully recover. If the previous crew pairings had the pilot off his normal body clock, it may take a day or two to recover. If the subsequent crew pairing has the pilot operating off his normal acclimated rhythms, the pilot may not be able to report as “rested as possible.”

Other pressures take the time of pilots. Not all pilots are single, 23 year old males with no other responsibilities, living within 30 minutes of their primary airport. Many have families who demand their attention. Even a “3 on - 3 off” schedule, which is avuncular by many scheduling paradigms, leaves little room for a pilot to attend to his other responsibilities. If it takes a day to recover from the previous flying, that leaves only one day before the pilot must adjust to flying again. That is little time for families.

Unless we are to declare family responsibilities unbecoming of a professional pilot, there exists a very real possibility that a pilot could be fatigued when reporting after days off. Granted, this should not be the norm, but it is well within the scope of trying to keep a family from disintegrating under the higher productivity requirements of the “new airlines.”

Not all rest periods are conducive to recuperative rest. Even 24 hour rest periods can be the most grueling, as the pilot must attempt to recover from the flying he just completed and then rest for the flying he is about to attempt. The realities of human physiology are not always compatible with airline operations. Sometimes, pilots just can’t fall asleep on command.

Rest looks different to a scheduler 3 months prior than to the pilot having to attempt it.

Colgan Air now makes this ugly incongruence a disciplinary issue, as “blatant abuse” is largely subjective in nature. What looks like abuse to an operations manager in his Newark office may be a night of insomnia for a pilot whose personal life is crumbling because his career is far more taxing than he ever anticipated.

Either way, are pilots supposed to fly fatigued, just because they are starting their duty periods? Fatigue is fatigue, regardless of where it occurs.

46. At the time of the Continental Connection 3407 crash, the Manager of Flight Safety at Colgan Air had developed a pamphlet for pilots on fatigue and industry fatigue trends. The Vice President of Safety and Regulatory Compliance said that it was not implemented because:

- A. It was beyond the scope of the type of flying encountered at Colgan Air.
- B. It was inconsistent with established sleep research used by the FAA.
- C. It was redundant with the Flight Operations Manual fatigue verbiage.
- D. It focused on changing duty times and report periods as a countermeasure to fatigue, which would not have been feasible.**
- E. The pilot union blocked the issuance.

DISCUSSION: It has been our contention that pilot pushing is rampant in the Part 121 airline industry, especially in the “regional airlines” If genuine fatigue abatement measures are implemented, it would necessarily disrupt the productivity airlines need to stay competitive with other airlines engaging in pilot pushing.

This is where the profit motive is at odds with passenger safety. It is not enough to casually and callously dismiss the at-odds relationship with aviation safety and profit by idiotically saying that airlines would not be in business if they keep crashing airplanes. Sometimes government regulations are a good thing, especially when it comes to safety. Safety costs money - it always has and always will.

At the time of the accident, Colgan did not provide any information to its pilots about fatigue prevention. The manager of flight safety stated that he had been developing a pamphlet for pilots that provided information on reasons for fatigue and industry fatigue trends. The vice president of safety and regulatory compliance stated that the document developed by the flight safety manager was not implemented because it focused on changing duty times and report periods as a countermeasure to fatigue, which would not have been feasible.⁸⁵

⁸⁵ NTSB, pg 49

...and there you have it. The education of Colgan's pilots was set aside because it would have required the airline modify its operations. This is tantamount to saying "*safety is our first priority, provided it doesn't interfere with our other priorities.*"

This is how you kill "safety culture." Pilots are not stupid, and they know when they are fatigued. This kind of thing tells pilots that management doesn't care about safety, and the operation flows from this.

Operations, or "moving the rig" is the highest priority because that is how regional airlines get paid. More pilots detracts from the bottom line, even at the prices regional airlines pay for their pilots.

Section 8 - Regional Airline General

47. True or False? The FAA and NTSB are aware that the new "Regional Airline" model is characterized by inexperienced and untested captains being paired with inexperienced and untested first officers and that mentoring and professional development opportunities are sorely lacking in such an environment.

- A. True
- B. False

DISCUSSION: Relevant text follows:

Industry changes (including two-pilot cockpits and the advent of regional carriers) have resulted in opportunities for pilots to upgrade to captain without having accumulated significant experience as a first officer in a Part 121 operation. Without these important opportunities for mentoring and observational learning, which characterize time spent in journeyman pilot positions, it may be difficult for a pilot to acquire effective leadership skills to manage a multicrew airplane. In addition, airlines must instill their leadership values and safety culture in their captains because they are the ones who are ultimately responsible for the safety of each flight.⁸⁶

⁸⁶ NTSB, pg 99

Remember this passage the next time the president of the RAA or a member of the FAA drones on about “one level of safety.”

48. According to NASA, how many “regional pilots” self-reported to have “nodded off” in flight?

- A. Less than 5%
- B. 16%
- C. 21%
- D. 55%
- E. 80%

DISCUSSION: If the NTSB wants an area to explore regarding fatigue, it needs to go no further than investigating the various airlines, especially the “regional airlines,” for pilot pushing. “Pilot pushing” is the practice of an airline pressuring pilots, whether by overt coercion or by cultural factors, to fly when the pilot believes it is not prudent to do so. This “move the rig” mentality is present at almost all airlines. It comes in the form of being coerced to fly in dangerous conditions, such as flying in known icing conditions, or being told to fly in an unsafe manner to skirt FAA legalities, such as flying faster than prudent to come under the 8 hour “hard time” limit for unaugmented crews.

This results in fatigued pilots flying aircraft because, **under the present regulatory paradigm, fatigued pilots are cheaper than rested pilots.** Airlines can reduce staffing and put more flying on the lines of the remaining pilots to save money. This bumps up against the physiological limits of the pilots, and the reality of such spills over into areas the ATA and FAA would rather not address.

In the study on commuter airline safety, the Board found that self-reports from commuter airline pilots indicated that most pilots had flown while fatigued. In the study on aviation in Alaska, the Board concluded that the consecutive, long duty days, permitted by Title 14 Code of Federal Regulations (14 CFR) Part 135.261 for commuter airline and air taxi flight crews in Alaska, can contribute to fatigue and are a detriment to safety. A 1999 NASA study found that 80% of regional airline pilots said they had nodded off during a flight, and

*fatigue continues to show up in reports in NASA's Aviation Safety Reporting System.*⁸⁷

It doesn't matter that a flight operates under Part 135 or Part 121; pilots spending more time on task results in fatigue. These pilots are being told to fly by their employer.

We are concerned that the overall trend of "pilot pushing" is being ignored (at best) or being codified (at worst) by the FAA, at the behest of their handlers at the ATA. Colgan Air 3407 had no "pilot pushing" aspects, as it was the first flown leg of the crew pairing for both pilots, and both were **reasonably rested** for the task-at-hand. The FAA/NTSB are dismissing the entire culture of pilot pushing, which certainly comports with the 80 year objectives of the various airlines, and then attempting to make a "federal case" out of non-existent pilot fatigue in the case of Colgan Air 3407. This latter endeavor serves as the pretext for the FAA to issue regulations putting the onus for fatigue abatement on individual pilots, while codifying the culture of pilot pushing in the airline industry. This essentially results in a *carte blanche* for the industry and a *damned-if-you-do-damned-if-you-don't* for the pilots.

Ask yourself, who benefits from this?

49. Vice-chairman Hart cited what beneficial features of military training for commercial aviation pilots, when compared en-masse, to their civilian trained counterparts?

- A. Effective "weed-out" mechanism
- B. Discipline
- C. Judgment
- D. "World class" training
- E. All of the above.**

DISCUSSION: Relevant text follows:

⁸⁷ NTSB, *BOARD MEMBER STATEMENTS*, Deborah Hersman, Chairman, pp 1-2

*In the sunshine meeting I stated my concern that our commercial aviation system is experiencing a declining percentage of airline pilots who have the benefit of military pilot training, and our system is not adequately responding to the challenges that are being created by that decline. **Not only is military training world-class, but the military has a long history of effectively weeding out those who simply lack “the right stuff.”***⁸⁸

*Moreover, written tests largely measure knowledge, and flight tests largely measure “stick and rudder” skills.” **Other crucial attributes are not generally measured by either of these tests, such as discipline and judgment – two attributes for which the effectiveness of military training is also well known, but that have also been shown lacking in this and other recent commercial aviation accidents and incidents.***⁸⁹

This phenomenon will continue for several reasons. First, the military isn't training pilots in the numbers it did during the Cold War and the amount of military pilots simply isn't enough to staff both the senior ranks of the military and the Part 121 airlines.

Secondly, very few military pilots would leave the military for the abysmal compensation packages offered by the “new airlines.” Few airlines have compensation paradigms sufficient to entice someone to forfeit a full pension at age 42, military retention bonuses, and the fairly lucrative government pay scales of middle and senior officers. It is difficult to convince a Major or Lieutenant Commander to leave the military, where five years hence, he will be commanding a squadron and treated with respect, to spend the holidays in a crash-pad in Queens, being ordered around by a 29 year old crew scheduler, and left to wonder if the plain text of his contract will be violated by stacked arbitrations or bankruptcy proceedings.

The value of military flight training varies according to the audience. Most regard it as a very valuable asset, as we have outlined in our “TO THE

⁸⁸ NTSB, *BOARD MEMBER STATEMENTS*, Christopher Hart, Vice-Chairman, pg 1

⁸⁹ NTSB, *BOARD MEMBER STATEMENTS*, Christopher Hart, Vice-Chairman, pp 1-2

PUBLIC”⁹⁰ message we published in October 2010. The reasons for the value of military flight training are numerous, but among them are the reasons listed by Vice-Chairman Hart: discipline, judgement, world-class training, and an effective “weed-out” mechanism.

The military provides this training for the purposes of having a corps of young adults that can operate complex weapon systems in a chaotic environment, without the pilot being overwhelmed by the task at hand. This foundation of discipline and highly developed aptitude translates well to Part 121 flight operations, and the airlines have been able to tap into this resource in the previous generations.

No more.

Military aviators will avoid the serial dysfunction of most Part 121 operators, the downward spiraling pay scales, and the “what’s good for me?” leadership examples of senior airline management. Rather than military aviators seeking to hone their skills in the military to separate and take those skills to the private sector, those pilots will be doing whatever they can to remain in the military to avoid flying Part 121.

This is just another skill set that will be lost due to short-sightedness and greed of contemporary American corporate leadership.

You get what you pay for.

⁹⁰ OPERATION ORANGE, *To The Public*, OPERATIONORANGE.org

50. Vice-chairman Hart cited two factors that need to be addressed industry wide, as they have industry wide significance, rather than be solely confined to the post-mortem of this accident. These factors are: (select two)

- A. Fatigue
- B. Commuting
- C. Pilot professionalism
- D. Safety concerns regarding code sharing between major and regional airlines.
- E. Pilot pushing

DISCUSSION: Relevant text follows:

*I also commend the staff for recommending that two issues of industry-wide significance be treated in an industry-wide manner, rather than solely in relation to this accident – **(a) pilot professionalism, and (b) the impact upon safety of code-sharing arrangements between major and regional carriers.** In this concurring statement, I would like briefly to address the first of those two issues as well as FOQA.⁹¹*

Vice-Chairman Hart used his letter to address the wide latitude of performance standards in the civil aviation training programs, when compared to the military. He noted that some civil programs could be qualified as “world class,” but concentrated on how there is no effective wash-out mechanism in a pay-for-training paradigm. Since the military pays the pilot to train, they have the ability to discontinue that training without regard to the wishes of the student pilot.

Military training is fast-paced, disciplined, extremely regimented, and there are frequent evaluations to ascertain the ability for the student pilot to continue. One bad week could spell the end of a prospective military aviator’s career. Military pilots are also very tough on themselves and their peers; standards, whether self-imposed or peer based, are very high.

⁹¹ NTSB, *BOARD MEMBER STATEMENTS*, Christopher Hart, Vice-Chairman, pg 1

We do not seek to use this space to extol the virtues of military training, as its history speaks for itself. We simply would like to acknowledge that Vice-Chairman Hart's remarks are spot-on and address a trend that portends a dramatic change in the next-generation Part 121 pilot profile. The discipline, judgment, training, and honing of future Part 121 pilots will have to come from another source. Anyone who looks at the situation dispassionately will conclude that a integral part of Part 121 professionalism will be absent. It isn't that civil training can't provide those aspects of pilot professionalism, just that the dominant flavor of such will not be present.

Similarly, there is no distinction in our civilian system between those who pass flight tests the first time versus those, such as the captain in this accident, who failed the first attempt in several different flight tests.

*Moreover, written tests largely measure knowledge, and flight tests largely measure "stick and rudder" skills. **Other crucial attributes are not generally measured by either of these tests, such as discipline and judgment – two attributes for which the effectiveness of military training is also well known, but that have also been shown lacking in this and other recent commercial aviation accidents and incidents.***

Our civilian system needs to address the challenge of systematically continuing to provide the worldclass pilot training that the military has provided for so many years, and the system particularly needs a better way to keep out those who should not begin or continue flying passengers for hire.⁹²

Things will be different. Whether or not that is good or bad will be left for those who follow to decide.

The second concern Vice-Chairman Hart shared is shared by us. Code-sharing agreements between "mainline" and "regional" airlines needs to be addressed by proper regulatory authority. We have serious reservations as to the willingness of policy-makers to make meaningful changes, as they are

⁹² NTSB, *BOARD MEMBER STATEMENTS*, Christopher Hart, Vice-Chairman, pp 2-3

funded by the very industry they seek to regulate. Witness the “carve out” for Part 121 cargo operators from the FAA’s new Flight Time-Duty Time regulations. With enough money, just about any “carve out” can be achieved in Washington. This is nothing new.

Code sharing is nothing more than outsourcing safety and experience to cut costs. Many modern airline managers seek to become nothing more than big-name travel agencies, where they earn a fee for booking flights on other airlines. There are no messy things like fuel hedging, aircraft acquisitions, employee relations, legal quagmires, etc. They can simply use their “legacy” name to book flights on contractor airlines. Those contractor airlines get whip-sawed against one another, and the employees end up footing the bill for their passengers.

Beggar thy neighbor.

We brought this up in our small hypothetical scenario called “IMAGINE.”⁹³

Code sharing is designed to be transparent to the customer. They book a ticket with a reputable airline, such as Continental (now United), and believe they are getting “Continental pilots” and “Continental safety.” In reality, they are being switched onto the network of smaller carriers, such as Colgan Air, who hire inexperienced and problematic pilots, push them to the legal limit (and beyond), and then insulate the booking airline from the legal blowback. This is done to save money for the larger carrier, by using cheaper and more inexperienced labor, and also serving as an effective cudgel to hammer the mainline employees during protracted, decade-long contract talks.

If you are an airline executive, what’s not to like?

As long as there is a powerful financial incentive to outsource safety, Congress will allow airline management to do exactly that. Every few years they will mop up the bodies, sweep the mess under the rug, and issue new regulations that they say will stop the problems associated with the practice. In reality, they will just issue misdirection and legal cover at the behest of

⁹³ OPERATION ORANGE, *Imagine*, OPERATIONORANGE.org

the industry, and affix the responsibility to the pilots that are opposed to the problem in the first place.

The various pilot associations either don't see it, are in on the game, or are impotent to affect change. The largest and most powerful pilot association represents the bulk of the "regional airline" pilots, so they have little incentive to put their dues paying members out of work. The smaller associations are ignored on Capitol Hill, where the money from the airlines drowns them out.

Meanwhile, the families of those killed in these outsourcing operations are told it is pilot fatigue and commuting that are responsible, and if they will just make enough noise on Capitol Hill on those issues, the system will improve. They are told to ignore the blatant outsourcing of experience and safety, because it was "fatigue" that killed their family members.

Section 9 - Conclusions

The text of the NTSB and FAA's own publications show that the popular conclusions and conventional wisdom of the Colgan Air / Continental Connection 3407 crash are largely wrong. We have shown that fatigue, while a problem that plagues the industry, was not a factor in Colgan Air 3407 - just as the NTSB noted. Our objection was the insinuation that fatigue and commuting contributed to this disaster, and how the industry was attempting to shield themselves from the political fallout of the true causes. We have rewritten the NTSB's conclusions to support the facts.

The second paragraph of the "Executive Summary" should read as follows:

The National Transportation Safety Board determines that the probable cause of this accident was the captain's inappropriate response to the activation of the stick shaker, which led to an aerodynamic stall from which the airplane did not recover. Contributing to the accident were (1) the flight crew's failure to monitor airspeed in relation to the rising position of the low speed cue, (2) the flight crew's failure to adhere to sterile cockpit procedures, (3) the captain's failure to effectively manage the flight, (2) the first officer's uncommanded change of aircraft configuration

during the stall, (3) the first officer's impairment due to illness, (4) Colgan Air's inadequate procedures for airspeed selection and management during approaches in icing conditions, (5) Colgan Air's failure to train crewmembers in the safety features of the DHC-8-400 stick pusher, (6) Colgan Air's failure to monitor crewmembers who have multiple training failures, (7) Colgan Air's hiring of pilots with little or no experience in transport category aircraft, (8) Colgan Air's hiring of pilots with little or no experience in instrument flying and adverse weather flying conditions, and (8) Continental Airlines' outsourcing of flying to poorly run airlines staffed with inexperienced pilots.

We agree with the NTSB that fatigue is not a contributing factor in the crash of Continental Connection 3407. We disagree with the NTSB members that the crew of Colgan Air 3407 was fatigued, as no evidence exists to suggest fatigue. There is ample evidence to suggest the first officer was ill, and likely impaired by such. The captain's history of training failures is discussed by the NTSB but ignored regarding its conclusions. This is particularly disturbing due to the specific areas of training deficiencies in the captain's career and Colgan Air's training regimen.

Fatigue is a disturbing facet of Part 121 operations and, as such, merits regulatory overhaul of the entire industry along those lines. The latest FAA overhaul of fatigue is not adequate to address the majority of pilot fatigue, as it actually expands the "time on task" allowed by FAA regulations. In most other areas, it only is sufficient to transfer legal culpability away from airlines and onto individual pilots.

The trend to more fatiguing scheduling is in full bloom, with airlines competing along crew utilization efficiencies. As long as airlines can show a higher profit by pushing pilots to fly more, over a given period, airlines will continue to schedule pilots up to the regulatory limit. If the limits are raised, airlines will respond by scheduling more flying for its existing pilots.

Younger pilots, seeking to establish themselves in the industry, will offer to fly more hours and on more onerous schedules, so as to "build time." This phenomenon was evident in the Colgan Air 3407's first officer's remarks. She was at Colgan Air to pad her resume' so as to market herself to a larger

and more reputable carrier, such as Alaska Airlines.⁹⁴ The CVR transcript accurately portrays the realities of the entire “regional airline” model and how the younger pilots are anticipating “upgrading” to captain, long before a reasonable amount of experience can be attained.

These Part 121 “regional airlines” should not be flight schools, nor apprenticeships for aspiring pilots. They are serious operations that are responsible for millions of lives. Industry leaders and policy makers should take this seriously, but they do not.

If an airline believes a market is not economically served by a 737, DC-9, or A-319, then it can use smaller airplanes staffed by pilots with the same experience level and training standards as the larger markets. If a market doesn’t “pencil out” with more experienced pilots, then it should not be flown. The entire “regional airline” model has little to do with thin markets, but mostly to do with outsourcing to lower paid employees.

This is confirmed by Gordon Bethune, former CEO of Continental Airlines, in an interview with PBS FRONTLINE:

GORDON BETHUNE: *It's a different kind of business. It's regional jet flying, and small airplanes aren't big airplanes, and the different employees, different labor standards, different wage rates, right?*

MILES O'BRIEN: *It's still airplanes, transportation, moving passengers safely. How does the distance traveled and the size of the airplane make it a different business, from your perspective?*

GORDON BETHUNE: *They're all flying airplanes, but they're not flying the kind of airplanes you are, with the same kind of standards that you're flying. And so you let that operate as it's an independent business because other people are in that business, but you can't afford to have a lot of excess cost and still win a contract. So it makes the management be cost-effective.⁹⁵*

⁹⁴ NTSB, APPENDIX B, *Cockpit Voice Recorder Transcript*, pp 251-252

⁹⁵ PBS FRONTLINE, *Flying Cheap*, by Miles O’Brien, February 9, 2010

Bethune's view of the "regional airlines" mirrors that of his peers, which the "regional airlines" provide a convenient way to do an end-run around the contract of his mainline pilots and the generally accepted safety standards of Part 121 operations.

The "mainline" airlines are equally culpable for pilot pushing. As airlines have waltzed freely in and out of bankruptcy, pilots have been forced to work more hours and more days per month for substantially less compensation. Scheduling paradigms, such as "preferential bidding" squeeze every bit of productivity from the pilots, and make a mockery of the intent of federally mandated rest time. Some pilots at airlines with "preferential bidding" end up working almost every calendar day in the course of a month, with FAA mandated 24 hours off per 7 days done on extended mid-sequence layovers.

We note that most of these concessions came either during bankruptcy proceedings, competitive pressures from airlines who used bankruptcy, mainline pilots attempting to recapture flying that was outsourced to the regional airlines, or by flagrant managerial abuse of the Railway Labor Act "perpetual contract" provisions and the "status quo."

Often times, pilot families must make up the financial shortfall in spouses taking second jobs, or the pilot moonlighting on what few days off he gets. This increases fatigue for pilots when they return to their airline job, whether or not the industry and government wish to admit it. The human toll is increased divorce, depression, chronic illness, and suicide in the piloting corps. These stresses are obviously experienced day-to-day by the flying pilot, but he internalizes the issue until his human side is completely devastated.

This is the price of "productivity." Nobody at the regulatory level pays the slightest attention to the problem, just as they seem to be unconcerned that the executives that bankrupted the industry take home millions upon millions of dollars in executive bonuses.

The issue will resolve, one way or another.

Pilots will do what they are known to do and “compartmentalize” the problems until their health (physical or mental) deteriorates to the point where they are forced out, or quit. This will leave the industry staffed by a rotating group of young, inexperienced pilots that will move on to another industry, as they broaden their non-flying skills. Soon, individuals with the high aptitude necessary for Part 121 operations will flatly refuse to entertain a career in aviation, leaving only marginally capable and problematic pilots in the cockpits. This is still a few years off, as those pilots who invested in their flying aptitudes up through the turn of the century are essentially “trapped” between the abysmal career of the modern Part 121 pilot, and the realities of being too old to retrain for another career suited to their aptitudes.

We doubt the industry or government can look beyond the next election cycle, so they don’t see this problem developing.

The other option will be a massive display of civil disobedience to change the regulatory paradigm that has created this problem. Many pilots can’t bring themselves to disobey authority, so they will likely not participate. But there are enough of those who are eager to change the laws that govern us, just as the Constitution says we are allowed to do. Not all pilots are scared of soulless executives, shallow thinking politicians, or agenda driven judges. It will only take a determined minority of pilots to ground the air transportation system.

Those pilots are the ones that will change the industry, and their numbers are growing. When they get a “critical mass” of pilots willing to shut down the entire air transportation system, they will. It won’t take much. OPERATION ORANGE addresses all the issues outlined in this study of Colgan Air 3407, as well as the traditional laments of pilots across the industry. As soon as the pilots can create unity across corporate lines, the game is theirs, but not a day before.

Please visit OPERATIONORANGE.org for more information.

The career you save may be your own.
The life you save may be your own.