

From:
To:
CC:
Sent: 2/26/2013 12:48:44 PM
Subject: RE: Synthetic Airspeed
Attachments: 737 Unreliable airspeed version 25 .pdf

Boeing Employee

Boeing Employees

[REDACTED]

This is the latest draft; however, we are far from validating this as the final version of the Airspeed Unreliable checklist.

As I pointed out in the telecon today, an introduction of synthetic airspeed to the MAX would drastically alter this Critical Action, Memory Item Non-Normal Checklist. If synthetic airspeed is standard as opposed to an option, it would likely jeopardize the Program directive to maintain Level B training for our customers.

I've included [REDACTED] who is the lead Tech Pilot for the MAX.

[REDACTED]

I was on the MAX Systems SAM call today, to listen to the proposal for the new I-ADIRU for the MAX, and synthetic airspeed was brought up. First I had heard of it, so I mentioned the above to the group.

Thank you,

[REDACTED]

[REDACTED]

737 Technical Pilot

[REDACTED] ~ Desk

[REDACTED] ~ Mobile



From: Boeing Employee
Sent: Tuesday, February 26, 2013 10:36 AM
To: Boeing Employee
Subject: Synthetic Airspeed

[REDACTED]

Do you have a copy of what the 737's Airspeed Unreliable checklist will be as a result of the SRP? I don't think I've seen that one yet.

It will be a challenge to implement synthetic airspeed on the 737, particularly since it doesn't have [REDACTED] so the implementation will need to be different from the 787.

[REDACTED]

Flight Deck Crew Operations

[REDACTED]

From: [redacted] Boeing Employee
To: [redacted] Boeing Employees
CC: [redacted] Boeing Employee
Sent: 11/21/2014 10:30:18 AM
Subject:
Attachments: Debriefing Questions Boeing Only.docx; Debriefing Questions.docx

Hi all,

Here are the demographics questions that I plan to start the debrief with. This is considered the minimum set, and I plan to follow up for more details on their answers, depending on what they say.

The first document shows an outline of what questions are to be asked of each condition. For the no-RCAS condition, we plan on showing them details of RCAS after their flight and ask about their perceptions of its design and intended function.

The doc marked Boeing Only has questions that we plan to ask of the no-RCAS group about their expectations for any alerting that they feel might have helped in the events. It is Boeing Only because the answers they provide might show a significant deviation from the current RCAS design, and we don't want to indicate to the FAA that our design conflicts with pilot expectations (esp since the pilot responses are naïve and our design has been vetted in a number of demos).

Let me know of any additional questions you think should be asked,

- [redacted]

[redacted]
Flight Deck Human Factors and Ergonomics
Boeing Commercial Airplanes

[redacted] (office)
[redacted] (work cell)

From: Boeing Employee
To: Boeing Employee
Sent: 7/23/2014 7:43:31 PM
Subject: RE: RCAS testing of training

Probably true, but it's the box we're painted into with the Level B training requirements. Remember, this is just the manufacturer's min training required. Operators can elect to make the training more robust.

A bad excuse, but what I'm being pressured into complying with.

737 Chief Technical Pilot

~ Desk

~ Mobile



From: Boeing Employee
Sent: Wednesday, July 23, 2014 7:11 AM
To: Boeing Employee
Subject: RE: RCAS testing of training

Thanks. I fear that skill is not very intuitive any more with the younger pilots and those who have become too reliant on automation.

From: Boeing Employee
Sent: Tuesday, July 22, 2014 8:27 PM
To: Boeing Employee
Subject: RE: RCAS testing of training

Doesn't help our strategy with Level B, and the ROLL/YAW ASYMETRY will most likely be seen frequently during engine out operations as people don't have the plane in trim when coupling the autopilot and make speed/config changes. The path forward we determined in flt tech was to only have a condition statement, with the training pointing the crews to the FCTM guidance regarding proper trim technique. This is the path with the least risk to Level B. We need to sell this as very intuitive basic pilot skill. That the alert is just drawing your attention to the mistrim condition. That's our only chance of Level B.

thanks,

737 Chief Technical Pilot

~ Desk

~ Mobile



From: Boeing Employee

Sent: Tuesday, July 22, 2014 1:46 PM

To: Boeing Employee

Subject: RE: RCAS testing of training

I would think that the NNCs should provide some guidance to the pilots. Many will need to be told to enter rudder trim or aileron input to correct the condition of which they have been informed.

From: Boeing Employee

Sent: Thursday, July 17, 2014 4:11 PM

To: Boeing Employee

Subject: RE: RCAS testing of training

Here's the RCAS NNCs. Let me know if you need them cleaned up to look exactly as they will in the QRH.

We're a month or so away from the FCOM maneuvers guidance, if we give any. Still need to sort that out.

We need to point out that the autopilot saturation alerts means you should do trim the airplane per the FCTM guidance.

For the roll arrow, I think we just include it as systems information, it won't be part of the upset recovery just an extra tool to do it correctly.

Thanks,

737 Chief Technical Pilot

~ Desk

~ Mobile



From: Boeing Employee

Sent: Wednesday, July 16, 2014 1:43 PM

To: Boeing Employee

Subject: RE: RCAS testing of training

We have set a goal of having a preliminary version of the CBT available at the end of October. We will take the checklists and the FCTM guidance materials at your convenience.

[redacted]
Flight Training Development
Boeing Flight Services
Seattle Campus
Phone: [redacted]
[redacted]

SCIENTIA EST VIRTUS

From: Boeing Employee
Sent: Thursday, July 10, 2014 11:22 AM
To: Boeing Employee
Subject: RCAS testing of training
Importance: High

[redacted]

If I get your guys the 2 checklists for autopilot saturation (ROLL/YAW ASYMMETRY and ROLL AUTHORITY), and the FCTM guidance we expect pilots to know for use of rudder/aileron trim, and you get access to the NG CAB with that functionality, what is the shortest possible time from both of those happening that a basic version of the CBT could be produced for use in a human factors study/evaluation of the effectiveness of the training? It doesn't have to be perfect, but fairly representative of the training we expect to provide for these 2 alerts.

I'm ramping up the engineers and human factors folks to do a study to prove to the FAA that no greater than level B is needed for RCAS. We already have the data for the roll arrow, just need these 2 other pieces of RCAS.

Please let me know ASAP.

thanks,

[redacted]
737 Chief Technical Pilot
[redacted] ~ Desk
[redacted] ~ Mobile
[redacted]



From:

Boeing Employee

To:

Boeing Employee

Sent:

12/18/2014 12:28:37 PM

Subject:

RE: Tomorrow

Except of course if we lose Level B which will be thrown squarely on my shoulders. It was ☐ yes ☐! Who cost Boeing tens of millions of dollars! Burn him at the stake! Oh well, someone will have to pay....

And if they hire ☐ that will drastically cripple our group, especially for the FCOM/QRH development work. I would be happy for ☐ and it would be great to have him as our boss, but we'll be hurting..... to lose ☐ and ☐ in less than a year would SERIOUSLY suck.

Oh well, we'll get through whatever challenges we face. GET 'ER DONE!

737 Chief Technical Pilot

☐ ~ Desk

☐ ~ Mobile



From: **Boeing Employee**

Sent: Thursday, December 18, 2014 12:24 PM

To: **Boeing Employee**

Subject: Re: Tomorrow

Cool, the bribes we paid to keep you in the group worked!
After the MAX is done you'll be able to write your own ticket.

Sent from my BlackBerry 10 smartphone.

From: **Boeing Employee**

Sent: Thursday, December 18, 2014 12:03 PM

To: **Boeing Employee**

Subject: RE: Tomorrow

Sounds good, cya tomorrow.

FYI, I'm not getting the 2nd interview, so you're stuck with me....

737 Chief Technical Pilot

☐ ~ Desk

☐ ~ Mobile



From: Boeing Employee
Sent: Thursday, December 18, 2014 10:52 AM
To: Boeing Employee
Subject: Tomorrow

Printed more SEA 16L charts.
Taking a few vacation hours to bang out some Christmas shopping.
See you in the morning.

[Redacted]
737 MAX Procedures Manager
Flight Technical & Safety

[Redacted] Desk
[Redacted] Mobile

[Redacted]



From: Boeing Employee
To: Boeing Employee
Sent: 5/1/2015 7:08:53 AM
Subject: RE: Concerns with Training Development proposal for MAX

After listening in on the discussion with TD and the larger team, I am fine with the path their on. Everyone acknowledged there is some risk to the new style of training, but it shouldn't be a show stopper. My concerns with the flat panel trainer are alleviated, only by the fact that they must develop some sort of device for the full transition course. As that is unavoidable, it is a risk we must live with for level B differences course for NG to MAX.

Thank you,

737 Chief Technical Pilot

~ Desk
 ~ Mobile



From: Boeing Employee
Sent: Tuesday, April 21, 2015 11:00 AM
To: Boeing Employee
Subject: Re: Concerns with Training Development proposal for MAX

Thanks,

Please let me know what you think after you visit with

Best,

Chief Pilot - Boeing Flight Services
Mobile |
Executive Assistant |

From: Boeing Employee
Sent: Tuesday, April 21, 2015 11:50 AM
To: Boeing Employee
Subject: RE: Concerns with Training Development proposal for MAX

and I had a good chat. I think we'll just sit and listen to the latest pitch tomorrow from There's no way around them building some sort of flat panel trainer for the full transition course, we'll just have to accept the risk of

the AEG potentially trying to force us to use it as part of the NG to MAX differences course. There's no rational argument for them to do so, but that doesn't mean they won't try.

Thank you,

[redacted]

[redacted]

737 Chief Technical Pilot

[redacted]

~ Desk

~ Mobile

[redacted]



From: Boeing Employee
Sent: Friday, April 17, 2015 6:07 PM
To: Boeing Employee
Subject: RE: Concerns with Training Development proposal for MAX

[redacted]

As you would expect, [redacted] paints this in a very positive light, so he didn't really do much to highlight your concerns.

What I would like would be for you to get together with [redacted] and probably [redacted] and/or [redacted] to make sure that all of us in Flight are speaking with a common voice. Please include [redacted] if you can.

Once you've got a common point of view from that group for Flight, feel free to run with that message.

Thanks,

[redacted]

From: Boeing Employee
Sent: Friday, April 17, 2015 1:56 PM
To: Boeing Employee
Subject: Concerns with Training Development proposal for MAX

[redacted]

[redacted] wanted me to coordinate with you and make sure you're ok with me highlighting my concerns with regards to Training Development's desired plan for Code 1 customer MAX training. I believe [redacted] has already shared my concerns with you, but I want to make sure you are ok with me bringing them up at next Wednesday's meeting to discuss this topic.

My concerns are two-fold.

First, I have concerns with moving away from a predominantly CBT-based training course, which has been the Boeing standard for many years, back to an Instructor-led course. While I agree with this in principle, the fact is, we're dealing with new regulators in both the AEG and the Miami TCPM offices, so attempting to certify the MAX course for initial type certification carries with it unnecessary risk. The AEG in particular has been very difficult to deal with thus far as you know.

Second, I am concerned with the development of these DTTs for the training. I know [redacted] is selling these as only required for the Code 1 full transition course, but I fear the old Field of Dreams adage of, "If you build it, they will come". In other words, I fear the AEG will find out we have these great interactive desk top trainers and try and mandate them for use in the NG to MAX differences course, which we have a contractual obligation to [redacted] to ensure the training does not exceed greater than 2 days of Level B (CBT) differences training. While this argument has no logical basis from the AEG's perspective, thus far in our negotiations we have seen many instances where logic and reason do not prevail with the AEG.

I intend on raising this with the group at next Wednesday's meeting, unless you would like me to stay silent on the topic. I realize the training development is outside my swim lane, but it certainly can impact my negotiations with the regulators.

Thank you,

[redacted]

[redacted]

737 Chief Technical Pilot

[redacted]

~ Desk

~ Mobile

[redacted]



[redacted]@boeing.com>

Subject: RE: MAX Differences Training approved at Level B!!!!

The training is running under 3 hours. We will make some minor tweaks to it, but not enough to bust through 3 hours (call it less than 4 if you want to be conservative). No special currency issues or formal checks of any sort were identified by the regulators. That's the whole point of Level B.

[redacted]
737 Chief Technical Pilot
[redacted]
[redacted]



From: Boeing Employee

Sent: Tuesday, August 16, 2016 3:43 PM

To: [redacted]@boeing.com>; [redacted]@boeing.com>

Cc: [redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>

Subject: RE: MAX Differences Training approved at Level B!!!!

Hey [redacted]

RIGHT ON!! So the devil is in the details: Do we have 1-day of CBT endorsed and in stone by FAA (AEG)? And, just to confirm, there are absolutely no formal checks? And, no functional currency issues between NG and MAX . . . you can be away from an NG for 30-years and still be able to jump into a MAX? LOVE IT!!

Yep, those are the details us product marketing twits need to know! LOL.

CONGRATS to you and your MAX team, [redacted]. . . I remember us 757-300, 767-400, and 777-200LR team bros from flight training, technical, & standards (as we were called in those days) went out and got really DRUNK when the FAA had come down with their provisional approvals. Call me if you bros need cabs tonight!! Haha.

THEN, we got really DRUNK when the JAA (now EASA) approvals came in!!

GOOD on you all!!

CONGRATS!!

[redacted] and the BCA Product Marketing Team

From: Boeing Employee

Sent: Tuesday, August 16, 2016 2:48 PM

To: [redacted]@boeing.com>; [redacted]@boeing.com>;

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com> [redacted]@boeing.com> [redacted]
[redacted]@boeing.com> [redacted]@boeing.com> [redacted]
[redacted]@boeing.com> [redacted]@boeing.com> [redacted]
[redacted]@boeing.com> [redacted]@boeing.com> [redacted]
[redacted]@boeing.com> [redacted]@boeing.com> [redacted]
Cc: [redacted]@boeing.com> [redacted]@boeing.com> [redacted]
[redacted]@boeing.com> [redacted]@boeing.com> [redacted]
[redacted]@boeing.com> [redacted]@boeing.com> [redacted]
[redacted]@boeing.com> [redacted]@boeing.com> [redacted]
[redacted]@boeing.com> [redacted]@boeing.com> [redacted]
[redacted]@boeing.com> [redacted]@boeing.com> [redacted]

Subject: MAX Differences Training approved at Level B!!!!
Importance: High

All,

I'm happy to inform you that we successfully passed the T-3 Differences Training Validation Flight today, establishing the 737MAX as the same type rating as the 737NG, and requiring no greater than Level B (Computer Based Training, CBT) differences training between the two!

This is provisional approval, pending final Part 25 Type Certification, and assuming no significant systems changes to the airplane. The FAA will be sending us a Provisional Approval letter within the next 2 weeks, documenting the Joint Flight Operations Evaluation Board acceptance of this finding. FAA, Transport Canada, and EASA are now considered to have accepted this Level B determination.

This culminates more than 3 years of tireless and collaborative efforts across many business units. Flight Technical, Flight Technical Data, Training Development, Flight Deck Crew Ops, All MAX engineering teams, Flight Test Engineering and of course [redacted]'s Engineering Test Pilot team all should be commended for their efforts in getting us to the finish line.

CAS Communications and 737 Program Communications are jointly crafting a BNN article to be released upon receipt of the FAA's provisional approval letter.

Thank you again for all your collective support.

[redacted]

737 Chief Technical Pilot

[redacted]

[redacted]



Boeing Employees

To: [redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

Why are you still working at 8pm???? STOP!!!

[redacted]
737 Chief Technical Pilot



From: Boeing Employee

Sent: Monday, June 05, 2017 7:57 PM

To: [redacted]@boeing.com>; [redacted]@boeing.com>

Cc: [redacted]@boeing.com>; [redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

Thank you [redacted]

From: Boeing Employee

Sent: Monday, June 05, 2017 7:56 PM

To: [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>

Cc: [redacted]@boeing.com>; [redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

The 230pm time tomorrow you sent via calendar invite works for me. I accepted.

[redacted]
737 Chief Technical Pilot



From: Boeing Employee

Sent: Monday, June 05, 2017 5:13 PM

To: [redacted]@boeing.com>; [redacted]@boeing.com>

Cc: [redacted]@boeing.com>; [redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

Hello [redacted]

I am looking at scheduling a meeting between you, [redacted] some Aero staff and some Floe Staff as we speak. We have reviewed the bulletin, and have questions, that are best discussed in a meeting situation.

I have a hard time finding an opening in [redacted]'s schedule, maybe [redacted] wants to delegate? Since Flight Technical is essential to this discussion I would like to schedule around [redacted]'s (or delegate) availability...

Hello [redacted]

When would be the best time for you to talk to Floe about this draft FOTB?

Thank you,

From: Boeing Employee

Sent: Monday, June 05, 2017 5:01 PM

To: [redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

[redacted]

How is your FOTB review coming? Do you have an estimate as to when you will have a response? There are several people on the distribution list from [redacted]'s email, and he asked everyone review it, but does it make more sense for you to coordinate with and speak for all of the other FLOE people? Or do you think they will all want to do their own mark-up versions?

[redacted]

From: Boeing Employee

Sent: Friday, June 02, 2017 3:43 PM

To: [redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>

Cc: [redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

[redacted]

I have reviewed and made comments in the attached copy of the draft, some of which should address the CS-AWO 2.5% gradient implication that [redacted] and I realized earlier today. We still have some other people needing to review it, so this isn't necessarily a final Aero markup. It might help to accept most of the large changes and send a new draft out for everyone to review, as I think we are all OK with the main points of the FOTB and are trying to focus on the details at this point. And they are a bit hard to see in this current markup form.

[redacted]

From: Boeing Employee

Sent: Friday, June 02, 2017 3:33 PM

To: [redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>

Cc: [redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

So Should I take that whole part out, or are you saying you're ok with it as written?

[redacted]
737 Chief Technical Pilot
[redacted]
[redacted]



From: Boeing Employee

Sent: Friday, June 02, 2017 12:34 PM

To: [redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>

Cc: [redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

Another note from my perspective after a recent chat with [redacted]

What might not be clear here is what OPT is actually checking with our go-around check on the enroute landing page. The go-around check is an optional one that was implemented to satisfy the EU-OPS (once again renamed to some other name I can't remember right now) requirement that operators ensure that airplanes can meet a minimum of 2.5% go-around gradient or a higher value if published by the airport authorities. This option sits on top of the already existing check of approach and landing climb limits and, as you can imagine, is more limiting. Note that this would mainly affect those operators that have adopted EU-OPS requirements, but note that we most likely have some FAA operators also using this check, as it's the only way then can check go-around performance at those airports that are more challenging.

For those operators that elect not to implement the go-around check, they would be unaffected by the above go-around issue, but would still have their normal approach and landing climb limits checked.

[redacted]

From: Boeing Employee

Sent: Friday, June 02, 2017 6:49 AM

To: [redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>

Cc: [redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

Hi [redacted]

I'm okay with it, including your recommendation to delete the sentence "None of these additional steps are required when using OPT."

[redacted]
From: Boeing Employee

Sent: Thursday, June 01, 2017 4:09 PM

To: [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]

Cc: [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>

Subject: RE: 737 MAX ATB/RTL FOTB

Ok, latest and greatest iteration of the RTL FOTB, based on what I understand [redacted] have all agreed to, based on Flight Technical's recommendations. It assumes that we elect to hold off on publishing this (at least with EASA MAX customers) until we have both the 15/1 and 30/5 SPs approved with EASA. If we decide we need to get it to EASA customers sooner, we can revisit and edit this as needed (i.e. remove reference to the 30/5 procedure until we get that approved, or maybe send out 2 separate FOTBs, one for EASA, one for everyone else).

I have many comments/questions that need reviewed/answered, and please do review the deletions and additions and let me know what if any you disagree with. Please everyone in the TO and CC line do this review.

I'll let [redacted] determine when he wants to have this review done by. Obviously the sooner the better.

Thanks all.

[redacted]
[redacted]
737 Chief Technical Pilot
[redacted]
[redacted]



From: Boeing Employee

Sent: Thursday, June 01, 2017 11:05 AM

To: [redacted]@boeing.com>; [redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>

Cc: [redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>;

[redacted]@boeing.com>

Subject: 737 MAX ATB/RTL FOTB

Attached are meeting minutes from yesterday's ATB/RTL discussion between Aero and Flight Technical. I have already talked to [redacted] and [redacted] per the action items; I will send a follow-on note with more info.

[redacted]
Airplane Performance Certification
[redacted]

From: **Boeing Employee**
To: [redacted]@faa.gov; [redacted]@faa.gov
Sent: 2/9/2018 8:59:20 AM
Subject: RE: Template question

Maybe [redacted] can spearhead that effort on the 787-10!!!! Go [redacted] Go!

[redacted]
737 Chief Technical Pilot



From: [redacted]@faa.gov [mailto:[redacted]@faa.gov]
Sent: Friday, February 09, 2018 8:52 AM
To: [redacted]@boeing.com>; [redacted]@faa.gov
Subject: RE: Template question

Hmm, I don't know if I have the skills to jedi mind trick 280 until we have a lull in revision timing. I think until the MAX evaluations are complete, we don't have a dog in that fight due to the precedence we have set already.

[redacted]
Aviation Safety Inspector, Operations Specialist
FSB/FOEB Chair B-737
Seattle Aircraft Evaluation Group



We value your feedback and seek to improve the services we provide. Please take a few moments to visit the website shown below to let us know how we did.

Select Large Transport Aircraft Seattle AEG from the pull-down menu before writing your comments. Thank you.

https://www.faa.gov/about/office_org/headquarters_offices/avs/stakeholder_feedback/afx/afs100/

We will be moving to a new building on Feb. 26th. As of Feb. 26th please use the following information to contact me:



From: [redacted]@boeing.com
Sent: Friday, February 09, 2018 8:48 AM
To: [redacted]@faa.gov>; [redacted]@faa.gov>
Subject: RE: Template question

I'm all for pulling them out altogether if you guys can jedi mind trick 280 into doing what they let Brand A get away

with (i.e. not publishing them)

[redacted]
737 Chief Technical Pilot

[redacted]



From: [redacted]@faa.gov [mailto:[redacted]@faa.gov]

Sent: Friday, February 09, 2018 8:46 AM

To: [redacted]@faa.gov

Cc: [redacted]@boeing.com>

Subject: RE: Template question

[redacted] to expand on the conversation of DT's...there has been a recent push back from OEM's regarding the inclusion of DT table all together. Some OEM's are saying they do not want any DT's included because they are proprietary. 280 let one FSB report post without any DT's and now the negotiation is open for discussion.

[redacted]

Aviation Safety Inspector, Operations Specialist

FSB FOEB Chair B-737

Seattle Aircraft Evaluation Group

[redacted]

We value your feedback and seek to improve the services we provide. Please take a few moments to visit the website shown below to let us know how we did.

Select Large Transport Aircraft Seattle AEG from the pull-down menu before writing your comments. Thank you.

https://www.faa.gov/about/office_org/headquarters_offices/avs/stakeholder_feedback/afx/afs100/

We will be moving to a new building on Feb. 26th. As of Feb. 26th please use the following information to contact me:

[redacted]

From: FAA Employee (FAA)

Sent: Friday, February 09, 2018 8:30 AM

To: [redacted]@faa.gov>

Cc: [redacted]@boeing.com>

Subject: RE: Template question

Funny you ask. I have not submitted a -10 787 FSB report yet. I will not do that until they publish the rewrite one first. I do not want to muddy the waters what we are "negotiating" about. I am keeping a record of the many hours spent dealing with a simple template revision. When I submit the -10 report it will not have a new DT. I will hold tight to that until told otherwise.

[redacted]

Aviation Safety Inspector, Operations Specialist
FSB/FOEB Chair B-777/787
Seattle Aircraft Evaluation Group

We value your feedback and seek to improve the services we provide. Please take a few moments to visit the website shown below to let us know how we did. Select Large Transport Aircraft Seattle AEG from the pull-down menu before writing your comments. Thank you.
https://www.faa.gov/about/office_org/headquarters_offices/avs/stakeholder_feedback/afx/afs100/

From: FAA Employee (FAA)
Sent: Thursday, February 08, 2018 3:07 PM
To: @faa.gov>
Cc: @boeing.com>
Subject: FW: Template question

what say you?

Aviation Safety Inspector, Operations Specialist
FSB/FOEB Chair B-737
Seattle Aircraft Evaluation Group

We value your feedback and seek to improve the services we provide. Please take a few moments to visit the website shown below to let us know how we did.

Select Large Transport Aircraft Seattle AEG from the pull-down menu before writing your comments. Thank you.

https://www.faa.gov/about/office_org/headquarters_offices/avs/stakeholder_feedback/afx/afs100/

We will be moving to a new building on Feb. 26th. As of Feb. 26th please use the following information to contact me:

From: @boeing.com]
Sent: Thursday, February 08, 2018 1:38 PM
To: @faa.gov>
Subject: Template question

Hi

Can you ask if 280 asked him to update the DT for the 787-10 from the 777, to itemize each individual change and its training level, like made you do in the MAX? It's curious that she allowed it to go to public comment with something that resembled this as I understand it? Attached.

Thanks

737 Chief Technical Pilot



From: **Boeing Employee**
To: **Boeing Employees**
Sent: 4/24/2018 8:24:12 AM
Subject: RE: BBJ 8 flight test update

They are on the hook for making the training level determination for each new sub-model. Usually they require us to give them the proposed differences training, then go fly the airplane to prove to themselves the minimum training we propose is acceptable IAW AC 120-53B. I was able to Jedi mind trick them that there is enough commonality with the -8, and the -800 BBJ, that they could just do the -8 BBJ by analysis. Same for EASA and TCCA. It's all good! J

[Redacted]
737 Chief Technical Pilot

[Redacted]



From: **Boeing Employee**
Sent: Tuesday, April 24, 2018 8:20 AM

To: [Redacted]@boeing.com>; [Redacted]
[Redacted]@boeing.com>

Subject: RE: BBJ 8 flight test update

It was busy, no doubt. What did AEG want to flight test??

From: **Boeing Employee**
Sent: Tuesday, April 24, 2018 8:18 AM

To: [Redacted]@boeing.com>; [Redacted]
[Redacted]@boeing.com>

Subject: RE: BBJ 8 flight test update

Wow! You guys jammed on that bird! Nice job! I convinced the AEG to do the Operational/Training approval by analysis, along with the -7 and -8200. So there shouldn't be an AEG flight test need on your bird.

Thanks for the update.

[Redacted]

[Redacted]
737 Chief Technical Pilot

[Redacted]



From: **Boeing Employee**
Sent: Tuesday, April 24, 2018 8:15 AM

To: [redacted]@boeing.com> [redacted]

[redacted]@boeing.com>

Subject: RE: BBJ 8 flight test update

Hi [redacted]

1C001, first BBJ MAX 8, completed all B and C flights as well as Ground and Flight Test. It's currently in KGED for aux tank STC and we will flight test in July.

Completed the following in flight test here at KBFI -

C5.04.AAJ – FMCS Polar Region Demo

C5.15.ABA – Airstair Flight Deck Indication

C5.08.AAE – ISFD with ANAV Demo

C5.15.AAZ – Advisory Ice Detection System

[redacted]

From: Boeing Employee

Sent: Monday, April 23, 2018 3:49 PM

To: [redacted]@boeing.com> [redacted]

[redacted]@boeing.com>

Subject: BBJ 8 flight test update

Hey guys, haven't heard anything about the -8 BBJ flight test lately. Did you guys have first flight? Program on track? When is the flight test supposed to finish for it?

Thanks,

[redacted]

[redacted]
737 Chief Technical Pilot

[redacted]



From: **Boeing Employee**
To: **Boeing Employees**
CC:
Sent: 6/12/2015 4:42:02 PM
Subject: RE: Slide For RCAS Training Wording

All that was correct. The training is the important thing, and that it is on at least one of their NGs, this establishes there isn't a difference between what they're trained for on the NG and the MAX, regardless of how many NGs have the system. I know it sounds hokie, but that's the game we have to play with the regulators.

[Redacted]
737 Chief Technical Pilot

[Redacted]



From: Boeing Employee
Sent: Friday, June 12, 2015 4:38 PM
To: **Boeing Employees**
Cc:
Subject: RE: Slide For RCAS Training Wording

Hi [Redacted]

I am a bit slow.

So CBT is planned for in 2016 for NG pilots taking 737 MAX in 2017 to eliminate differences training, correct?

Why only 1 NG is required for RCAS active and not an entire in-service NG fleet before taking their 1st MAX with RCAS?

Regards,

[Redacted]
[Business Development](#)
[Modification Services](#)
[Boeing Commercial Airplane](#)

[Redacted]

www.boeing.com/modservices

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From: Boeing Employee
Sent: Friday, June 12, 2015 3:43 PM

To: **Boeing Employees**
Cc:
Subject: RE: Slide For RCAS Training Wording

The point of that bullet is that we need to have retrofit available, and preferably free, to get our customers to take the option as soon as possible. Realize the only real time constrained NG operators are those with 2017 MAX deliveries, as they'll need all of 2016 to get their pilots trained on RCAS prior to turning the system on, on at least one of their NGs, in early 2017 ahead of their first MAX delivery. So whether they take it in production or retrofit, they can't turn it on until their pilots are all trained.


737 Chief Technical Pilot




From: **Boeing Employee**
Sent: Friday, June 12, 2015 3:39 PM
To: **Boeing Employees**
Cc:
Subject: RE: Slide For RCAS Training Wording

Wording looks good.

However, it does bring up scheduling concerns with the statement that all MAX/NG customers need to be trained to avoid differences and some customers will not be getting an NG delivery after RCAS certification.

I do not have any follow on slides to address any schedule impact questions for retrofit that might be posed.

Is there a schedule challenge for retrofit?


Business Development
Modification Services
Boeing Commercial Airplane



www.boeing.com/modservices

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From: **Boeing Employee**
Sent: Friday, June 12, 2015 3:25 PM
To: **Boeing Employees**
Cc:
Subject: RE: Slide For RCAS Training Wording

How's this ?

[Redacted]

[Redacted]

737 Chief Technical Pilot

[Redacted]



From: Boeing Employee
Sent: Friday, June 12, 2015 10:48 AM
To: Boeing Employee
Subject: Slide For RCAS Training Wording

Hi [Redacted]

Attached is the slide for the subject wording.

Regards,

[Redacted]

Business Development
Modification Services
Boeing Commercial Airplane

[Redacted]

www.boeing.com/modservices

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From:
To:
CC:
Sent: 3/28/2017 9:00:58 AM
Subject: RE: Flight Transition costs

Boeing Employee

Boeing Employees

I want to stress the importance of holding firm that there will not be any type of simulator training required to transition from NG to MAX. Boeing will not allow that to happen. We'll go face to face with any regulator who tries to make that a requirement. If a particular customer wants to add additional training due to concerns with their particular experience level of their pilot group, then that is an internal issue to that airline. But in actuality that additional training should be limited to perhaps requiring the first officers first flight on the MAX to be with a captain who's already flown it once, or maybe like what [redacted] is doing. [redacted] is requiring their new hire first officers to get 100 hours on the NG after they're type rated before they have them take the MAX differences CBT and start flying the MAX with the NG. Those are both reasonable options that are based on an airline's internal issues, NOT that the MAX is so different from the NG. To be offering this airplane with any other training requirement other than the approved CBT is doing a disservice to the MAX.

[redacted]
737 Chief Technical Pilot



From: **Boeing Employee**
Sent: Friday, March 24, 2017 2:41 PM

To:
Cc:
Subject: RE: Flight Transition costs

Boeing Employees

[redacted]
I think we should hold firm at \$0.
Let's keep offering to broker a meeting between our Flight Tech group ([redacted] and co) and TTCAA, to get them on board with the guidance from the FAA (ie. no Check needed).
FAA is pretty powerful and most countries defer to what the FAA does (except for the National Authorities that are stuck in the stone ages. Eg. JCAB, ANAC)

Thanks, [redacted]

From: **Boeing Employee**
Sent: Friday, March 24, 2017 2:36 PM

To:
Cc:
Subject: RE: Flight Transition costs

Boeing Employees

Thanks [redacted]

The only risk is that they will ask us to provide financial support to cover the worse case scenario... As you know, Airbus is throwing money at the flip, so might a good strategy be to hold firm on the logic of the lower end scenario?

Thoughts appreciated

[redacted]

From: **Boeing Employee**

Sent: Friday, March 24, 2017 2:34 PM

To: [redacted]
Cc: [redacted] **Boeing Employees**

Subject: RE: Flight Transition costs

Thank [redacted]

Your files really clear up my questions. J

It's probably a good idea to provide a cost range, as we do not know how the regulatory discussions will turn out.

On the low end: [redacted] crew sets training at home with CBT (no Check required). [redacted]

On the medium end: [redacted] crew sets training at MIA with CBT (no Check required). [redacted]

On the high end: [redacted] crews training on CBT for one day in MIA. Then one day in the FFS (4 hours) for a "proficiency check" in the device: [redacted]

This is a "worst case" as Level B training doesn't require a "check ride" but regulators can be quite conservative.

[redacted] can you coordinate with [redacted] to see how many licenses of NG-MAX differences CBT [redacted] will receive? Can they take one CD-R and load it to 20 computers?

Thanks, [redacted]

From: **Boeing Employee**

Sent: Friday, March 24, 2017 2:17 PM

To: [redacted]
Cc: [redacted] **Boeing Employees**

Subject: RE: Flight Transition costs

Hi [redacted]

Hope my math was correct, but the assumption is that [redacted] crews = [redacted] persons

[redacted] and [redacted] did a deeper dive with them back in September of 2016 (see trip report attached, WORD document). This was when the issue of TT CAA Sim session first came up.

I have re-attached the proposed PDF file again.

[redacted]

From: **Boeing Employee**

Sent: Friday, March 24, 2017 2:10 PM

To: [redacted]
Cc: [redacted] **Boeing Employees**

Boeing Employees

Subject: FW: Flight Transition costs

Hello [redacted]

I have the same concerns as you.

Here are my questions/clarification we need from [redacted]

- 1) [redacted] crews = [redacted] pilots?
- 2) The NG to MAX course is 2 Hours... they can train in their own base and not require a "Sim Session" in MIA. I got confirmation from [redacted] that the course is only 2 hours. There's no need to allocate "2 days duration" of hotel+perdiem for offline time.
- 3) We're almost at the point we can say it will be zero dollars in crew salary cost for offline time. If they want us to do the math for them, I'd need to know how much their daily crew hourly cost is, and I'll multiply that $\$xxx/HR \times 2 \text{ hours} \times [redacted] \text{ pilots}$.

Thanks, [redacted]

From: Boeing Employee

Sent: Friday, March 24, 2017 1:55 PM

To:

Cc:

Boeing Employees

Subject: RE: Flight Transition costs

[redacted]

Adding [redacted] just in case [redacted] can't get to it while on travel.

[redacted]

Your thoughts?

[redacted]

From: Boeing Employee

Sent: Friday, March 24, 2017 1:51 PM

To:

Boeing Employees

Subject: Flight Transition costs

[redacted]

Our customer [redacted] provided us with the EXCEL sheet below, with the simple ask of providing the data highlighted in yellow. They are asking Airbus to do the same.

Transition Costs		
Flight Crew	Cost	Assumptions
Initial Training		
Sim Session		crews
Hotel + Perdiem		2 days duration
Total		Hotel: \$150 per night
		Per Diem: \$50 per day

My concern is the 2 day + Sim Session request shown above.

Since the transition costs should be based around the FAA approved training (which is Course C, 4 hour CBT-only training, or 1 day), my thought was to provide the attached PDF file (Flight Transition Concept), as part of our response.

Please review and let me know if you agree or see any concerns.

Thanks

Sales Director, Africa & Caribbean | Boeing Commercial Airplanes

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P Please consider the environment before printing this email

From: Boeing Employee
To: Boeing Employees
Sent: 6/7/2017 3:47:26 PM
Subject: RE: MAX LEVEL B DIFFERNCES SOLUTION

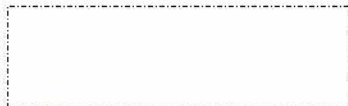
Haha, I'll send you to negotiate piece in the Middle East next. Goes to show what a little bit a accurate info can do to sway an operator in the right direction...

From: Boeing Employee
Sent: Wednesday, June 7, 2017 10:01:41 AM
To: Boeing Employees
Subject: FW: MAX LEVEL B DIFFERNCES SOLUTION

Looks like my jedi mind trick worked again!

These are not the droids you're looking for....

737 Chief Technical Pilot



From:
Sent: Wednesday, June 07, 2017 12:12 AM
To: @boeing.com>
Cc:
Subject: Re: MAX LEVEL B DIFFERNCES SOLUTION

Dear

I have received the presentations and I accept and agree the training requirement for Boeing Max as CBT is source for transition training from B737800 to Boeing Max.

Those presentations you send me was very helpfull.

Regarding CAT II/ CAT III and ETOP B 737 training materials can i have it for free or any sugestion to have those training material ?

Will call or email you if i have further question ,we will keep in touch.

Thank you..

Best regards



[redacted]

On Jun 7, 2017, at 11:23 AM, [redacted]@boeing.com> wrote:

[redacted]

Please see email I sent to [redacted] yesterday. We had a good phone conversation. I am concerned that if [redacted] chooses to require a MAX simulator for its pilots beyond what all other regulators are requiring that it will be creating a difficult and unnecessary training burden for your airline, as well as potentially establish a precedent in your region for other MAX customers. I have suggested some alternatives to requiring a MAX simulator below. Please review with your team and let me know if you would like to discuss further. I also attached a few presentations showing just how similar the MAX is to the NG.

Thank you,

[redacted]

737 Chief Technical Pilot

[redacted]



From: Boeing Employee
Sent: Monday, June 05, 2017 10:59 PM
To: [redacted]@boeing.com>
Cc: [redacted]
Subject: RE: MAX LEVEL B DIFFERNCES SOLUTION

[redacted]

Thank you for the call. I have attached the technical and operational differences presentations here for your team. Please keep in mind that the supplementary and non-normal procedure differences are considered Level A, or Handout differences only, as they are read-and-do procedural differences. I would be happy to present these briefings to your team if you would like, or you can review them and if you have any questions please do not hesitate to ask.

Rather than require a simulator event, you may want to consider what other airlines have thought about, such as requiring a minimum hours requirement on the 737NG before doing the MAX differences training, or perhaps requiring the first flight on the MAX be with another pilot who has already flown it. I believe, based on other operator inputs, that you will find any of these solutions to be acceptable. A simulator training requirement would be quite burdensome to your operation.

I look forward to working with your team as you prepare to bring the 737 MAX into your operation.

Regards,

[redacted]
737 Chief Technical Pilot



From: [redacted]
Sent: Monday, June 05, 2017 9:33 PM
To: [redacted]@boeing.com>; [redacted]@boeing.com>
Cc: [redacted]
Subject: RE: MAX LEVEL B DIFFERENCES SOLUTION

Dear [redacted]

Thank you for the explanation.
I will discuss further with my team.

Regards

[redacted]
Deputy Training B 737

From: [redacted]@boeing.com>
Sent: Tuesday, June 6, 2017 11:01:40 AM
To: [redacted] Boeing Employee
Cc: [redacted]
Subject: RE: MAX LEVEL B DIFFERENCES SOLUTION

[redacted]

There is absolutely no reason to require your pilots to require a MAX simulator to begin flying the MAX. Once the engines are started, there is only one difference between NG and MAX procedurally, and that is that there is no OFF position of the gear handle. Boeing does not understand what is to be gained by a 3 hour simulator session, when the procedures are essentially the same.

Perhaps we should discuss at your earliest opportunity. The FAA, EASA, Transport Canada, China, Malaysia, and Argentina authorities have all accepted the CBT requirement as the only training needed to begin flying the MAX. I'd be happy to share the operational differences presentation with you, to help you understand that a MAX simulator is both impractical and unnecessary for your pilots.

Please let me know when would be the best time to have a webex discussion.

Thank you

[redacted]
[redacted]
737 Chief Technical Pilot



From: [redacted]
Sent: Monday, June 05, 2017 8:42 PM
To: [redacted]@boeing.com>; [redacted]@boeing.com>
Cc: [redacted]
Subject: RE: MAX LEVEL B DIFFERNCES SOLUTION

[redacted]

I'm still on going with the team .
The syllabus still on progress .On my side i decide to gave the transition pilot with 1 sim familirization.
And also gave them 24 hours ground class room including CBT that Boeing gave us and flight technique compile with company guidance procedure.

Actually i have question regarding ETOP for Boeing 737 MAX

[redacted] as a Technical Pilot B 737 at [redacted] will intouch with you

I will give you a call after I discuss with my team on syllaby.

Best regards

[redacted]
Deputy Training B 737

[redacted]

From: [redacted]@boeing.com>
Sent: Tuesday, June 6, 2017 10:29:27 AM
To: [redacted] Boeing Employee
Subject: RE: MAX LEVEL B DIFFERNCES SOLUTION

[redacted]

I would like to discuss what if any requirements beyond the Level B CBT the DGCA has required of you, or if your airline has determined any additional training is required. Please call me today on my cell phone, at your earliest convenience. Do not worry about what time it is here for me.

My cell is [redacted]

Thank you,

[redacted]

[redacted]
737 Chief Technical Pilot
[redacted]



From: [redacted]
Sent: Monday, June 05, 2017 8:26 PM

To: [redacted]@boeing.com>; [redacted]@boeing.com>

Subject: Re: MAX LEVEL B DIFFERENCES SOLUTION

Dear [redacted]

Updating my cell no is [redacted]

Thanks

[redacted]
Deputy Training B 737
[redacted]

From: [redacted]@boeing.com>

Sent: Tuesday, June 6, 2017 10:21:06 AM

To: Boeing Employee

Cc: [redacted]

Subject: MAX LEVEL B DIFFERENCES SOLUTION

[redacted],

I just spoke with [redacted] at his mobile # below. Currently in FFS and busy rest of day. He welcomes you call him this time tomorrow at number below (and attached). The number shall be:

[redacted]

This would be 11:00 AM Jakarta time.

Best Regards,

[redacted] | Boeing Flight Services | Regional Sales Manager | APAC
[redacted] Singapore | UTC/GMT + 8 hours

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<Procedural Differences.pdf>

<NG to MAX Differences.pdf>

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From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 12/10/2014 2:39:47 PM
Subject: Missed conversation with [redacted] Boeing Employee

[redacted] [2:13 PM]:

how'd IPT go?

[redacted] [2:14 PM]:

no real surprises. Sounds like TD is planning on using NG T1 plus MAX differences for the manufacturer's minimum course, as [redacted] mentioned to us the other day

[redacted] [2:15 PM]:

that's going to be a pretty ugly set of CBTs, but if it meets minimum, that's fine. No one is going to buy that training (I hope!)

[redacted] [2:18 PM]:

yeah, I assume that the AEG will be okay with going about the transition course this way ...

[redacted] [2:19 PM]:

I hope

I'm still in shock about that got blurring out an FTD is needed....

oops, guy not got

[redacted] [2:20 PM]:

that was pretty much a turd in the punchbowl

[redacted] [2:20 PM]:

big stinky one

and I know [redacted] going to latch onto that like a starving dog to a milk bone

[redacted] [2:21 PM]:

[redacted] wanted an update on the T-1 DOORS thing, I sent an email to the [redacted] asked to take care of it.

[redacted] [2:22 PM]:

I'm still not grasping what the DOORS thing is...

[redacted] [2:23 PM]:

Getting on the BT&E schedule to do the T2 test.

[redacted] [2:24 PM]:

they already know about T2/T3 for the -8 and T1s for the -9 and -7????

[redacted] [2:24 PM]:

Will send [redacted] an email reminding him that he promised a Task Analysis briefing to the AEG in January. I hope they are making progress on that.

Yeah they should know about it, but my understanding is that we still need to apply to have it on their schedule. Details to follow

[redacted] [2:25 PM]:

after we get thru this RCAS stuff, we're going to have to immediately start up on RSAT, to try and get the training level determination

[redacted] [2:25 PM]:

agree

[redacted] [2:26 PM]:

just got an email from an NP PMP, who's working the pitch to [redacted] for both. I told her she needs to wait until late Jan early Feb for the RCAS training level, and it will be months before we get it for RSAT

[redacted] [2:37 PM]:

oops, I meant NG PMP (Program Mgr)

From:

Boeing Employee

To:

Boeing Employees

CC:

Sent:

2/26/2013 1:29:13 PM

Subject:

RE: Synthetic Airspeed

Unfortunately , we need the trade study to authorize work for us to figure out what the recommended presentation would be. The goal of course would be to keep differences training to a minimum, but without a format we can only speculate.

Using source selection switches would simplify the implementation logic by relying on the crew to select synthetic airspeed when flagged, but that drives changes to the non-memory items in the NNC and would be more difficult to retrofit.

But we'll definitely be asking for your input as we do that work.

From: **Boeing Employee**

Sent: Tuesday, February 26, 2013 12:51 PM

To:

Boeing Employees

Cc:

Subject: Re: Synthetic Airspeed

Let me see what implications would be, if only in NNC and not affecting memory items, it could be ok.

Kind regards,

737/737 MAX Chief Technical Pilot
Chief Pilot Regulatory Affairs

The Boeing Company

From: **Boeing Employee**

Sent: Tuesday, February 26, 2013 12:48 PM

To:

Boeing Employees

Cc:

Subject: RE: Synthetic Airspeed

[REDACTED]

This is the latest draft; however, we are far from validating this as the final version of the Airspeed Unreliable checklist.

As I pointed out in the telecon today, an introduction of synthetic airspeed to the MAX would drastically alter this Critical Action, Memory Item Non-Normal Checklist. If synthetic airspeed is standard as opposed to an option, it would likely jeopardize the Program directive to maintain Level B training for our customers.

I've included [REDACTED] who is the lead Tech Pilot for the MAX.

[REDACTED]

I was on the MAX Systems SAM call today, to listen to the proposal for the new I-ADIRU for the MAX, and synthetic airspeed was brought up. First I had heard of it, so I mentioned the above to the group.

Thank you,

[REDACTED]

[REDACTED]

737 Technical Pilot

[REDACTED]



From: Boeing Employee

Sent: Tuesday, February 26, 2013 10:36 AM

To: Boeing Employee

Subject: Synthetic Airspeed

[REDACTED]

Do you have a copy of what the 737's Airspeed Unreliable checklist will be as a result of the SRP? I don't think I've seen that one yet.

It will be a challenge to implement synthetic airspeed on the 737, particularly since it doesn't have [REDACTED] so the implementation will need to be different from the 787.

[REDACTED]

Flight Deck Crew Operations

[REDACTED]

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 7/7/2016 4:52:38 PM
Subject: Conversation with [redacted]

[redacted] 8:59 AM:
hey

[redacted] 8:59 AM:
yeah

[redacted] 8:59 AM:
has [redacted] seen the standard NG to MAX pitch? They are coming here 7/25-26 for a Ecab demo

[redacted] 8:59 AM:
I don't remember
who from [redacted]?

[redacted] W 9:00 AM:

[redacted]
[redacted] 9:00 AM:
don't know the name

[redacted] 9:01 AM:
His title says Director-Boeing. Not sure what that means [redacted] is putting together the agenda, I will have him put in time for the pitch before going to the cab

[redacted] 9:02 AM:
sure

[redacted] 9:39 AM:
Remember to prod [redacted] about [redacted] and [redacted] working Aug 13 and 14, We want to get this schedule out asap.
Thanks

[redacted] 9:40 AM:
and ILS only, anything else?
I feel like we had another IOU from them to consider

[redacted] 9:41 AM:
an IOU for the deicing stuff that we won't have in time for the T3

[redacted] 9:41 AM:
can you check your notes from our last mtg plz?
right
looks like we won't have the 120 min limit, which is huge

[redacted] 9:42 AM:
that's it from my notes

[redacted] 9:42 AM:
just a run-up every 60 min instead of of 30 min
I'll downplay that this run up is mandatory, so they don't think of it as a memorized limitation

[redacted] 9:44 AM:
new topic, COPA meeting 7/21. For the tailstrike discussion, we want you, [redacted] from [redacted] Anyone else?

[redacted] 9:46 AM:
maybe ask [redacted] if he can attend to discuss how our IPs train rotation and landing?

[redacted] 9:46 AM:
okay
will ask him to attend

[redacted] 9:47 AM:
cool

[redacted] 3:16 PM:

hey

3:17 PM:

hey

is it too early to start drinking?

3:17 PM:

never. how'd it go?

3:19 PM:

she insists on being able to "feel" the handling characteristics of the DLC for inadvertent actuation. So she's going to bully her way onto the cert flight with [redacted] But that won't be until AFTER the T-tests....

3:20 PM:

u huh

but that is one person (her) opinion, not exactly a validation process

3:21 PM:

I know, but still presents a post-T-test risk

how do we handle this?

3:21 PM:

do we have a date for that flight?

3:22 PM:

run it by [redacted] and his team first, then elevate to [redacted] to see if we can get the flight done as early as possible? I know they're in the process of re-working the system a bit after the engineering flight a few weeks ago

do you recall if there is proof the 787 doing a T2 and T3 on the server by chance? Now I have a flight test guy questioning us about T1 vs T2/T3, etc. Trying to blow up our whole plan

3:23 PM:

Good to go to [redacted] I think the way to go is to challenge the process of her alone making the decision, and on a cert flight I can look for the 787 tests

3:24 PM:

I'm not too worried about her. She knows damn well that if her and her alone makes this call that this stupid NNC requires sim training that she'll get crucified. She just wants to say she "evaluated" it.

just like she rolled over on RCAS

3:25 PM:

As long as she comes up with the right answer. What's the flight test guy's beef?

3:25 PM:

I'll fwd

I think I'll just call him, I don't feel like wasting that time and energy on an email if I don't have to. I just want to be able to tell him T2/T3 was done, not T1

3:26 PM:

okay. Talked/Webex'd with [redacted] Nice guy. He has a family reunion in Iowa Sat the 6th, would like the early sim on the 5th so he can get out of town. What if we pair him with [redacted] for the sims?

3:28 PM:

ugh. I'm ok if [redacted] is

I didn't see the STAR course email til after I left [redacted] Can you send her an email?

3:30 PM:

Sure.

3:34 PM:

If we have the [redacted] guy in the sim with a TCCA guy, then we need [redacted] watching the TCCA guy and [redacted] watching the [redacted] guy.

I got that wrong

The [redacted] EASA pairing would need [redacted] and you watching. The TCCA/FAA would require [redacted] watching

3:36 PM:

oh you're right, we can't mix them otherwise I can't be there to evaluate, for consistency purposes

3:41 PM:

or, we move the [redacted] guy to do sims with the bunch 7/31-8/2. That would mix him with the T3 guys, which probably isn't that big a deal

3:41 PM:

sure, let's do that
as long as it doesn't create a big break in training for anyonee

3:43 PM:

Lemme do this, I'll contact [] and offer that up to him. He was bidding his schedule today. If he is okay with that, then I will ask the ASA and AAL guy if one of them will switch groups

3:47 PM:

ok cool
I'll cover the rest of our mtg today with you tomorrow in person. lots of stuff to go over

3:47 PM:

talking to him now

4:04 PM:

he can catch a 5:45 flight to Atlanta after his sim on the 5th. I told him we would drive him from sim to terminal. No change to the schedule.

4:05 PM:

ok cool

4:06 PM:

It sounds like he isn't getting (or asking for) support to drop trips. I told him we would be glad to intercede for him if he asks us. He asked about hotel, I told him he should ask [] to put him up, probably at the usual layover hotel. I didn't get into [] covering per diem

4:07 PM:

oh jeez
damn cheap []

4:08 PM:

He sounds a little timid to ask. We may want to put a bug in there ear to take care of him

4:12 PM:

do you know if CAS funds the T-test WSRD flights?

4:13 PM:

dunno, is there a line on the WSRD request for CAS to sign off?

4:14 PM:

yes
who's the CAS guy again?

4:15 PM:

[] is the top man, although he would probably delegate any question you send him. Are we looking for additional \$\$, or verifying what we have?

4:16 PM:

we need 4 hours for each T2 and T3 right?
have this guy from Flt Test Integration asking who pays for it

4:17 PM:

yes, at least. Reading the email trail on this right now

4:17 PM:

he's the WSRD coordinator

4:19 PM:

drawing a comparison between the MAX and 787-9 doesn't work.

4:19 PM:

is that the T1 he was referring to?
I didn't look close at it

4:20 PM:

yes, he said that the 787-9 only needed a T-1, so why does the MAX need a T2 and T3?

4:20 PM:

I did find the T-2 and T-3 stuff in the server
ah, I missed that

4:23 PM:

[]

OMG, this process is so messed up

I've got 3 emails about the t-tests from 3 different groups today

4:24 PM:

We Boeing elected to forego the T-1 because we thought it was a little too risky to send guys into the MAX with no training

4:24 PM:

no one knows who is doing what!

4:29 PM:

The AC is clear that no training can be given for a T1. We thought that was a stretch, and a waste of time to go through the motions

4:30 PM:

yeah I'll talk to him tomorrow and smooth it out

4:32 PM:

was gung ho to go and give it a shot, but with the AEG's attitude at the time (and the slow progress of things, due to his lack of response) it was decided to not go through the pain of busting a T-1

4:37 PM:

what did say about the other 2 FAA guys working on the weekend?

4:41 PM:

she said she'd get back to us tomorrow, no word back yet
promised answer on ILS vs RNAV tomorrow too, they're torn amongst themselves

4:47 PM:

see you tomorrow, I'm probably bugging out about 2:00

4:49 PM:

ok later

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 6/16/2016 8:29:41 AM
Subject: Conversation with [redacted]

[redacted] 7:49 AM:

this has me a little concerned

[redacted] 7:50 AM:

I guess the proof is in the pudding. Sounds to me like #2 is better because it doesn't mess with roll feel

[redacted] 7:51 AM:

agree

[redacted] 7:51 AM:

I assume there is no sig impact to landing distance if it is only a small deployment rate change

[redacted] 7:52 AM:

you would think

I'm just worried about the lack of de-rotation, given how much tailstrike is a concern to our customers

[redacted] 7:54 AM:

sounds to me like the T-tests are going to have the current schedule?

[redacted] 7:56 AM:

looking at the schedule, won't make the T test

[redacted] 7:57 AM:

keep our fingers crossed no one notices it, and if they do, worst case we say there will be a fix for it coming

[redacted] 7:58 AM:

maybe chat w/the flight test bubbas and see how noticeable this really is

[redacted] 7:58 AM:

well they've said in our meetings it's definitely noticeable, but [redacted] and I didn't feel it
maybe only to test pilots it's noticeable?

[redacted] 7:59 AM:

it may be transparent to the average bear

[redacted] 8:01 AM:

that's what I'm hoping

[redacted] 8:12 AM:

there's a handy new feature, flashing MC!

[redacted] 8:13 AM:

no extra charge. Just sent you comments on the [redacted] MAX CBT topic

[redacted] 8:16 AM:

saw it, I agree. so should we ask [redacted] to give us a name at [redacted] campus to start working this with us?

[redacted] 8:17 AM:

yep, maybe also find a Boeing body that works with [redacted] locally to orchestrate this with him and the regulators

From:

Boeing Employee

To:

Boeing Employees

Sent:

3/17/2016 1:49:33 PM

Subject:

Conversation with

[1:35 PM]:

how's it goin there?

[1:37 PM]:

good. gave my spiel before lunch. No big objections. One question to send to [] about how well LMS will play with the E learning

[1:37 PM]:

I deleted your comment about the track up vs hdg up on the PFD compass, because we're trying to get that changed due to an issue that came up with IRS alignment, and then I told them it was a threat to Level B because of the difference in V1 cut training. I love my magic "level B" wand!!!!

[1:38 PM]:

Have a question if we would have a STAR course. Said no, not for now.

[1:38 PM]:

I think we're going to have to look at building the STAR

[1:38 PM]:

so heading up will be standard for the rose on the MAX?

[1:38 PM]:

that's what [] is going to push for

with track up, if you have to go into ATT mode, you can never get a hdg displayed on the PFD compass rose if it's track up

[1:39 PM]:

agree on the STAR, but TD will have to gin up the footprint. I'll send that comment to TD. Was asked about reverse differences during a break. [] thinks that is a good idea.

[1:40 PM]:

I think the bigger issue is for engine out V1 cut maneuvering, and the ability to fly the correct ground track in a big crosswind

cool

[1:40 PM]:

having [] actually say they want reverse differences help to get the funding from CAS

[1:40 PM]:

[] has CL and NG in [] is buying MAX 200s. I'll ask them about their fleet plan tomorrow at the cab demo we're giving them

huge win for us to not have to deal with CL/MAX til AFTER Level B determination!

[1:42 PM]:

agree. nobody asked me about CL to MAX, or what the confidence level was on level B.

[1:42 PM]:

sweet

you can't lie if you don't have to talk!

[1:42 PM]:

[] gave the big picture spiel at the beginning, then left

how are we doing with the differences modules?

[1:43 PM]:

I'm looking at your now

I should be able to send 2 of them back in about an hour

[1:45 PM]:

good, that will passify them. We really don't need them getting in our chili about deadlines

[1:45 PM]:

I know

this damn RSAT fiasco really screwed up myⁿ ability to work on these this week

[1:45 PM]:

no question there

[1:45 PM]:

I got that put to bed, at least for now, so now I'm on the training

[1:45 PM]:

cool

[1:46 PM]:

now there is a skewed flap position indication issue

the engineers are trying to find a fix

it just never stops!

[1:47 PM]:

agree

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 1/5/2016 9:08:26 AM
Subject: Conversation with [redacted]

[redacted] [7:47 AM]:

yo

[redacted] [7:48 AM]:

yo

[redacted] [7:48 AM]:

what days/times are we with the regulators?

[redacted] [7:48 AM]:

Tues/Wed Jan 19/20. Meetings in the a.m., ecab in the afternoon

[redacted] [7:49 AM]:

any evening commitments with them?

Sales wants me to hang out with [redacted] Wed night

and I'm supposed to give them a cab session too

I need to figure out when they want the cab

[redacted] [7:51 AM]:

no evening commitments, was thinking of going out for a beer with them on Tues after the cab. Will be a small group.

[redacted] (TCCA), [redacted] (MIA FAA) on Wed only

I'm thinking a debrief after the Wed pm cab session.

Depending on what we come up with for cab show and tell, we may not need a whole 4 hours on Wed

[redacted] [7:52 AM]:

ok cool

gonna be an interesting juggling act for me that week

[redacted] [7:53 AM]:

you could do cab on Tuesday after we are in there with the regulators, or same time on Wed

[redacted] [7:55 AM]:

yeah, let's see if we can come up with a 2 hour cab plan for Wed, so I can use the last 2 for [redacted]

[redacted] [7:57 AM]:

It will be interesting for the cab sessions in that [redacted] aren't 737 qualified. That leaves [redacted] as the ones that have the understanding of the differences between the NG and MAX. [redacted] hasn't gone to 737 school yet.

[redacted] [7:58 AM]:

dogs watching TV.....

[redacted] [7:59 AM]:

Funny, I was going to say the same. I think we make our money at this meeting by getting them to buy into the training and evaluation plans. Unfortunate that [redacted] won't be here, he can corral [redacted] and guide her. [redacted] can to some extent.

[redacted] [8:00 AM]:

well, I think with all the inexperience present, we should be able to gang up on them and steer it the direction we want. We just need to figure out what that direction is

[redacted] [8:00 AM]:

agree

[redacted] [8:33 AM]:

whatcha think of the ORW AFM verbiage I came up with?

[redacted] [8:55 AM]:

working on it, keep getting tapped for other stuff

[redacted] [8:55 AM]:

I hear ya

I'm heading for the MAX gen fam briefing in a few, I'll be in after that

BTW: [redacted] wants to meet b4 our reg mtg
I'm trying to set something up for end of this week
he wants to give us some guidance based on their convos with AEG

[redacted] [8:58 AM]:

I talked to [redacted] about sliding the diffs course left, told him we need an answer nlt 2 weeks. Hinted that the request from program is low key now, but will most likely be more formal and involve our bosses. Like the idea of the [redacted] meeting, will give us more understanding/ammo for dealing with AEG

[redacted] [9:01 AM]:

yup
get us to ask all the right questions next week

From: Boeing Employee
To: Boeing Employees
Sent: 8/25/2015 1:42:49 PM
Subject: Conversation with Boeing Employee

[redacted] [11:42 AM]:

hey

[redacted] will send you a link to the pptx that we updated in this meeting.

[redacted] [11:50 AM]:

ok

[redacted] [11:51 AM]:

basically explained the inbound CRI on the Roll Arrow, and FAA IP on the ORW. I added that we met with AEG on the CBTs and updated the TIA date

[redacted] [11:55 AM]:

[redacted] is probably going to push for removing ARSA as cert requirement

[redacted] [11:59 AM]:

cert requirement for the MAX?

[redacted] [12:00 PM]:

yes

they're going over to look at an IAN issue right now for U12, perhaps give it a thumbs down, which will delay cert of U12, and take this opportunity to push for removing ARSA as MAX cert requirement

[redacted] [12:02 PM]:

do we/she have a strong enough case to convince SACO ARSA isn't required?

[redacted] [12:02 PM]:

[redacted] thinks so, and so do I

our AP only has 1/3 roll authority, so it can't get in the conditions the latest amndt is trying to protect for

[redacted] [12:03 PM]:

that makes things easier for the MAX. Lots of hours and \$\$ spent on that thing.

[redacted] [12:10 PM]:

i know, but massive risk reduction

[redacted] [1:25 PM]:

[redacted] flies the NG more than the tech pilots do. How wrong is that?

[redacted] [1:26 PM]:

on a number of levels

[redacted] [1:29 PM]:

I'm hoping we can kill RCAS

waiting to hear back from [redacted]

[redacted] [1:30 PM]:

That would be a hoot if after AEG approves the CBT, we come back to them and say "nevermind . . ."

[redacted] [1:30 PM]:

lol

I know

but this is what these regulators get when they try and get in the way. they impede progressw

From: Boeing Employee
To: Boeing Employees
Sent: 5/29/2015 8:31:54 AM
Subject: Conversation with

[redacted] [7:57 AM]:

webex sliding until 0830

[redacted] [7:57 AM]:

copy

what are we going over on this?

[redacted] [7:58 AM]:

building the pitch for the Regulators for June meeting on jammed elevator/DLC and how we will do the MCAB session.

[redacted] and I were in the MCAB on Wednesday

[redacted] [7:59 AM]:

ok cool, how did that go? any big surprises?

[redacted] [7:59 AM]:

I suck at flying jammed elevator without DLC

[redacted] [7:59 AM]:

it's tough huh?

I crashed big time my first few times, that's what scares me about showing any of this to them

you can get decent at it after 3-4 tries, but the first few are ugly

[redacted] [8:00 AM]:

they are going to tweak the elevator effectiveness a little. Yeah we talked about using a reasonable cg to make it doable without dlc. We want them to succeed without DLC

it is easy to start chasing pitch and power and get in a PIO

[redacted] [8:03 AM]:

ultimately you have to have it trimmed up pretty well when you start your appr descent, and the thrust coupling is way more effective than the DLC, at least that's what I found

you of course have to pretty much disregard your airspeed :)

[redacted] [8:05 AM]:

agree. The profiles we were flying gave you the plane 10 mile final, level on speed at F15. Pretty stable start. [redacted] yesterday was talking about starting at altitude. That is going to be a bag of worms and a waste of time.

[redacted] [8:05 AM]:

that is irrelevant, since the DLC doesn't work until the flaps are extended

[redacted] [8:06 AM]:

agree. didn't want to get into it with her, told her we were still building the profile

[redacted] [8:06 AM]:

we don't have time to show them multiple scenarios from altitude thru landing, that's stupid

[redacted] [8:07 AM]:

yep [redacted] put together a sequence that we will go over. We will also pull some of the slides from the pitch [redacted] and [redacted] gave last May to the AEG. Were you there for that pitch?

[redacted] [8:08 AM]:

yes

it was like dogs watching TV for the AEG (and me too)

curves, slopes, graphs, blah blah blah, stuff non-engineers and test pilots can't really understand

other than the lines all line up between max and NG, which is supposed to prove they fly the same

[redacted] [8:10 AM]:

[redacted] sent me that pptx, yeah a little too technical. I think that didn't sit well with [redacted] as she wants to experience it. And we talked about that yesterday, in that we are moving from the chalk talk to the practical demos to win their confidence

[8:11 AM]:

unfortunately I think she is going to suck so bad at flying them, she's going to demand this be trained in the sim
I started thinking last night, what if we mandated the training in the NG starting in 2016, so everyone was trained on it
ahead of MAX, (like RCAS)?
if there real concern is being trained on it in general, than it should be sufficient to get everyone trained on the NG
the theory again being if you can do it in the NG, you can do it on the MAX

[8:15 AM]:

agree that is the risk. [] well understands that. One reason the proposed sequence includes a normal F15 as a warm
up and the scenario builds from there. Mandate training jammed elev? Not a bad idea if you like practicing bleeding. We
can recommend adding that into 2016 recurrent, but that would be admitting the difficulty of flying it in a model that has
already been certified

[8:17 AM]:

I understand that, but if that's going to be there position, then that may be only option
I would prefer we just go fight all these battles at once in DC and be done with it
we're going to have to sit back and wait for their latest IP and then tear it apart with a logical argument [] or whoever
can take to DC to end this

[8:19 AM]:

agree. Need to call [] this morning and find out more about this EASA/OSD meeting June 9-11 she talked about
yesterday. I can't find anyone here that knows about it. Maybe [] has more details. Will ask her about an ETA on the
IP

[8:20 AM]:

I saw that email traffic
interesting that no one in Boeing knows about it

[8:21 AM]:

Getting the info second hand from the AEG may be the problem. Will clarify with her. Will also see her this afternoon at
[] retirement party

[8:23 AM]:

Ok cool

From: Boeing Employee
To: Boeing Employees
Sent: 4/12/2016 9:04:14 PM
Subject: RE: MAX Recurring meeting 4-12-16
Attachments: NG to MAX Differences.docx

Started an NG to MAX differences document to outline all of the large and small changes on the MAX (see last bullet in email below). The concern is that sum of all of these small changes could potentially jeopardize level B training.

Please take a look and add/delete as you see fit. Once it has made the rounds within our group then we need to send to the cert pilots.

Thanks,

[Redacted]
Flight Technical & Safety
[Redacted] ~ Desk
[Redacted] ~ Mobile
[Redacted]

From: Boeing Employee
Sent: Tuesday, April 12, 2016 3:42 PM
To: [Redacted]@boeing.com>; [Redacted]@boeing.com>; [Redacted]@boeing.com>; [Redacted]@boeing.com>
Subject: MAX Recurring meeting 4-12-16

FYI,

From the MAX recurring meeting:

- Amber ANTI-ICE annunciator panel light illuminating in flight without a known cause.
 - Looking to add an additional camera to capture overhead panel lights to track reason
 - Could take time to get camera
 - Joined meeting late so no more information.
- Amber ENG ANTI-ICE light latching on battery starts
 - Also latches on standby power if in flight
- ECS would like to increase the time the amber L/R VALVE WAI light can remain illuminated before setting the MC light
 - This is to reduce a lot of the nuisance alerts that are being seen in flight tests
- Amber COWL ANTI-ICE light illumination when engine thrust is suddenly increased.
 - Example, descent followed by level off when EAI is on
- [Redacted] and [Redacted] expressed a BIG CONCERN that all of the small changes are really starting to add up.
 - Could be a threat to level B
 - A lot of small changes in systems that were not supposed to have any changes from NG
 - § Electrical - 3 or so second delay to engage generators after start
 - § Longer transition times in EAI/WAI valves
 - § Longer engine start times
 - § Etc.
 - [Redacted] and [Redacted] would like to start a list of all of the changes, big and small.
 - § I will start working on this list. Will send around internally to compile and then will send to the pilots for comments.

Thanks,

[Redacted]

Flight Technical & Safety

[Redacted] ~ Desk

[Redacted] ~ Mobile

[Redacted]

5

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 9/20/2016 4:45:27 PM
Subject: Conversation with: [redacted]

[redacted] 3:24 PM:

did I miss the 2 issues we want to talk about?

[redacted] 3:24 PM:

nope

This is the dual weather radar config not working for 20 seconds each time you switch between the systems

[redacted] 3:26 PM:

oh sweet Jesus

H 3:26 PM:

and guess who one of the 3 affected customers would be????

[redacted] 4:12 PM:

this is a joke

this airplane is ridiculous

[redacted] 4:12 PM:

getting better and better

what havent they told us yet???

Whats next?

[redacted] 4:13 PM:

who knows...

[redacted] 4:13 PM:

We are having issues with every update we do

[redacted] 4:14 PM:

it seems like they'll never get it right

fix one thing, break 3 others

[redacted] 4:21 PM:

OMG!!!!

What the hell

[redacted] 4:42 PM:

ugh

I need a cold one after that

Gustavsson, Patrik H 4:42 PM:

me too

This is just ridiculous

[redacted] 4:42 PM:

too bad I have to go coach

[redacted] 4:42 PM:

no one wants to fix anything

Have fun!

[redacted] 4:43 PM:

you too. later!

[redacted] 4:43 PM:

later

From: **Boeing Employee**
To: **Boeing Employees**
Sent: 8/17/2017 7:16:15 PM
Subject: RE: [redacted] QRH Procedure for MCP LOCKUP

You guys rock! Awesome. Great stuff.

From: **Boeing Employee**
Sent: Thursday, August 17, 2017 2:16 PM
To: [redacted]@boeing.com>; [redacted]
[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]
[redacted]@boeing.com>
Subject: RE: [redacted] QRH Procedure for MCP LOCKUP

Sweet! You're jedi mind tricks serve you well....

[redacted]
737 Chief Technical Pilot
[redacted]



From: **Boeing Employee**
Sent: Thursday, August 17, 2017 2:15 PM
To: [redacted]@boeing.com>; [redacted]@boeing.com>;
[redacted]@boeing.com>; [redacted]@boeing.com>
Subject: RE: [redacted] QRH Procedure for MCP LOCKUP

Done. [redacted] will tell [redacted] he has no objection to the checklist.

From: [redacted]
Sent: Thursday, August 17, 2017 12:23 PM
To: [redacted]@boeing.com>; [redacted]
[redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]
[redacted]@boeing.com>
Subject: Re: [redacted] QRH Procedure for MCP LOCKUP

I suggest a phone call back to [redacted] telling that while in general we don't support cycling CBs we realize this has been an effective customized [redacted] NNC and would hate to see them lose it, especially since it's worked well for them.

[redacted] isn't asking our opinion, he's asking for [redacted] So let's give him enough ammo to pull the trigger.

Sent via the Samsung Galaxy S7 active, an AT&T 4G LTE smartphone

----- Original message -----

From: [redacted]@boeing.com>

Date: 8/17/17 1:48 PM (GMT-05:00)

To: [redacted]@boeing.com>, [redacted]

[redacted]@boeing.com>, [redacted]

[redacted]@boeing.com>, [redacted]

[redacted]@boeing.com>

Subject: RE: [redacted] QRH Procedure for MCP LOCKUP

[redacted] seems to be getting hung up on the conversion from [redacted] making their own manuals to Boeing.

The MCP LOCKUP NNC is only in the [redacted] COC book, no other operators get this NNC.

I don't see that we need to justify whether or not it complies with our definition of troubleshooting.

This is in their book by COC, not by NTO. We didn't approve the checklist, just published it.

I looked through my archives and don't see any discussion other than documentation in 2005 of inflight service experience.

We do have a FOTB, attached, that directs to cycle the FD switches. That same content is in the FCTM.

Comments?

From: **Boeing Employee**

Sent: Thursday, August 17, 2017 8:48 AM

To: [redacted]r@boeing.com>; [redacted]

[redacted]@boeing.com>; [redacted]

[redacted]@boeing.com>

Subject: FW: [redacted] QRH Procedure for MCP LOCKUP

Ross is looking at this

From: [redacted]@faa.gov [mailto:[redacted]@faa.gov]

Sent: Thursday, August 17, 2017 8:38 AM

To: [redacted]@boeing.com>; [redacted]@boeing.com>

Subject: FW: [redacted] QRH Procedure for MCP LOCKUP

Would love to hear your thoughts before I respond. Many thanks.

[redacted]
AEG Pilot, FSB & FOEB Chairman
ERJ-170, ERJ-190, BAE-146
Seattle Aircraft Evaluation Group (AEG)
[redacted]

We value your feedback.

[Flight Standards Service Feedback Form](#)

From: [redacted] (FAA)

Sent: Wednesday, August 16, 2017 8:30 AM

To: [redacted] (FAA)

Cc: [redacted] (FAA); [redacted] (FAA); [redacted] (FAA); [redacted] (FAA); [redacted] (FAA)

Subject: [redacted] QRH Procedure for MCP LOCKUP

[redacted]
I am the APM for the B-737-800 fleet at the [redacted] CMO. In coordination with the Seattle AEG for the past 11 years, I have been involved in the approval process on several versions of the [redacted] QRH.

Prior to 2014, [redacted] had their own stylized QRH, which provided Non-Normal procedures on the right-hand page,

and detailed instructions and information for the crew, on the facing page. This QRH was in use for many years' even prior to my arrival at this CMO in 2006. In 2008, at the POI's request, another APM, [redacted] and I met with Inspector [redacted] B-737 AEG. Inspector [redacted] conducted a review of the [redacted] QRHs and provided an e-mail on his findings. This e-mail and samples of that stylized QRH are contained in attachment #1.

In 2014, [redacted] petitioned the SEA B-737 AEG, [redacted] for approval to use the Boeing QRH and Quick Reference Cards (QRC). This request was also approved, however, due to the incapability between [redacted] needs and the rigid Boeing publication schedule, [redacted] is now printing their own QRHs, but continuing to follow the Boeing procedures and format. Attachment #2 contains the current QRH version.

The B-737NG MCP LOCKUP procedure directs the crew to pull and reset selected circuit breakers on the P-6 and P-18 panels. Discussion within the office made us question whether there was any conflict between this QRH procedure and the general Boeing guidance that directs crews to avoid troubleshooting. This [redacted] QRH procedure has been approved for many years, and it is the opinion of [redacted] and the B-737 APMs in this office, that the procedure remains acceptable. Would you please provide us your concurrence on this matter so that [redacted] can continue use of this non-normal procedure?

Thank you for your help,

[redacted]
Aircrew Program Manager – B737-800
[redacted] Certificate Management Office

Any comments you may have on service provided are appreciated. Please email feedback to http://www.faa.gov/about/office_org/headquarters_offices/avs/stakeholder_feedback/afs/field/

From: **Boeing Employee**
To:
CC:
Sent: 6/6/2017 9:21:51 PM
Subject: FW: MAX LEVEL B DIFFERNCES SOLUTION
Attachments: NG to MAX Differences.pdf; Procedural Differences.pdf

Please see email I sent to
 yesterday. We had a good phone conversation. I am concerned that if
 chooses to require a MAX simulator for its pilots beyond what all other regulators are requiring that it will be creating a difficult and unnecessary training burden for your airline, as well as potentially establish a precedent in your region for other MAX customers. I have suggested some alternatives to requiring a MAX simulator below. Please review with your team and let me know if you would like to discuss further. I also attached a few presentations showing just how similar the MAX is to the NG.

Thank you,

737 Chief Technical Pilot



From: Boeing Employee
Sent: Monday, June 05, 2017 10:59 PM
To: **Boeing Employee**
Cc:
Subject: RE: MAX LEVEL B DIFFERNCES SOLUTION

Thank you for the call. I have attached the technical and operational differences presentations here for your team. Please keep in mind that the supplementary and non-normal procedure differences are considered Level A, or Handout differences only, as they are read-and-do procedural differences. I would be happy to present these briefings to your team if you would like, or you can review them and if you have any questions please do not hesitate to ask.

Rather than require a simulator event, you may want to consider what other airlines have thought about, such as requiring a minimum hours requirement on the 737NG before doing the MAX differences training, or perhaps requiring the first flight on the MAX be with another pilot who has already flown it. I believe, based on other operator inputs, that you will find any of these solutions to be acceptable. A simulator training requirement would be quite burdensome to your operation.

I look forward to working with your team as you prepare to bring the 737 MAX into your operation.

Regards,

737 Chief Technical Pilot



From:
Sent: Monday, June 05, 2017 9:33 PM
To: [@boeing.com>](mailto:); [@boeing.com>](mailto:)
Cc:

Subject: RE: MAX LEVEL B DIFFERENCES SOLUTION

Dear [redacted]

Thank you for the explanation.
I will discuss further with my team.

Regards

[redacted]
Deputy Training B 737

From: [redacted]@boeing.com>

Sent: Tuesday, June 6, 2017 11:01:40 AM

To: [redacted] **Boeing Employee**

Cc: [redacted]

Subject: RE: MAX LEVEL B DIFFERENCES SOLUTION

[redacted]
There is absolutely no reason to require your pilots to require a MAX simulator to begin flying the MAX. Once the engines are started, there is only one difference between NG and MAX procedurally, and that is that there is no OFF position of the gear handle. Boeing does not understand what is to be gained by a 3 hour simulator session, when the procedures are essentially the same.

Perhaps we should discuss at your earliest opportunity. The FAA, EASA, Transport Canada, China, Malaysia, and Argentina authorities have all accepted the CBT requirement as the only training needed to begin flying the MAX. I'd be happy to share the operational differences presentation with you, to help you understand that a MAX simulator is both impractical and unnecessary for your pilots.

Please let me know when would be the best time to have a webex discussion.

Thank you

[redacted]
737 Chief Technical Pilot



From: [redacted]

Sent: Monday, June 05, 2017 8:42 PM

To: [redacted]@boeing.com>; [redacted]@boeing.com>

Cc: [redacted]

Subject: RE: MAX LEVEL B DIFFERENCES SOLUTION

[redacted]
I'm still on going with the team .

The syllabus still on progress .On my side i decide to gave the transition pilot with 1 sim familiarization.

And also gave them 24 hours ground class room including CBT that Boeing gave us and flight technique compile with company guidance procedure.

Actually i have question regarding ETOP for Boeing 737 MAX

[redacted] as a Technical Pilot B 737 at [redacted] will intouch with you

I will give you a call after I discuss with my team on syllaby.

Best regards

[REDACTED]

From: [REDACTED] <[REDACTED]@boeing.com>
Sent: Tuesday, June 6, 2017 10:29:27 AM
To: [REDACTED] **Boeing Employee**
Subject: RE: MAX LEVEL B DIFFERNCES SOLUTION

[REDACTED]

I would like to discuss what if any requirements beyond the Level B CBT the DGCA has required of you, or if your airline has determined any additional training is required. Please call me today on my cell phone, at your earliest convenience. Do not worry about what time it is here for me.

My cell is [REDACTED]

Thank you

[REDACTED]

737 Chief Technical Pilot

[REDACTED]



From: [REDACTED]
Sent: Monday, June 05, 2017 8:26 PM
To: [REDACTED] <[REDACTED]@boeing.com>; [REDACTED] <[REDACTED]@boeing.com>
Subject: Re: MAX LEVEL B DIFFERNCES SOLUTION

Dear [REDACTED]

Updating my cell no is [REDACTED]

Thanks

[REDACTED]

Deputy Training B 737

[REDACTED]

From: [REDACTED] <[REDACTED]@boeing.com>
Sent: Tuesday, June 6, 2017 10:21:06 AM
To: **Boeing Employee**
Cc: [REDACTED]
Subject: MAX LEVEL B DIFFERNCES SOLUTION

[REDACTED]

I just spoke with [REDACTED] at his mobile # below. Currently in FFS and busy rest of day. He welcomes you call him this time tomorrow at number below (and attached). The number shall be:

Mobile [REDACTED]

This would be 11:00 AM [REDACTED] time.

Best Regards,

[REDACTED] Boeing Flight Services | Regional Sales Manager | APAC
[REDACTED] Singapore | UTC/GMT + 8 hours

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From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 5/18/2018 10:38:43 AM
Subject: tomorrow and upcoming weeks

[redacted] 10:20 AM:

I can't believe how they are yanking your chain. Sorry man

[redacted] 10:20 AM:

It's such a shit show

[redacted] 10:20 AM:

totally

I'll be shocked if the FAA passes this turd

[redacted] 10:20 AM:

They are doing all this last minute shit. I really do need to be there to make sure they haven't screwed things up too badly

[redacted] 10:21 AM:

you know they did

[redacted] 10:21 AM:

EASA expressed their concerns yesterday with the high DR count for SIN. Not going to be easy

[redacted] 10:21 AM:

not surprising

[redacted] 10:22 AM:

Nope. Not looking forward to the next few weeks

I was going to take today off, now I'm making travel changes, and emails. It'll be a lot of overtime this pay period!

[redacted] 10:23 AM:

well take care of your family, be there as much as you can

dump anything you need to on me or the other guys. I leave for my [redacted] trip next Fri for a week

[redacted] 10:26 AM:

I will. hope you have a good trip around Europe!

[redacted] 10:32 AM:

thanks, should be fun. 2 new pins in the map for me

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 5/18/2018 9:18:56 AM
Subject: MAX Level D

[redacted] 8:48 AM:

Morning [redacted]
Your badge still worked this morning? :)

[redacted] 8:50 AM:

lol
morning sir
it worked in my computer...but working from home today so who knows about the office entrance lol!

[redacted] 8:51 AM:

lol
Same thing here

[redacted] 8:51 AM:

haha

[redacted] 8:51 AM:

Just got a request from [redacted] to go down to Miami on Sunday...
Not happy. I have spent way more time on this project than I should. And I was because they failed to listen to me in the first place!!!!
Arghhhhh

[redacted] 8:52 AM:

:|
yeah i think they wanted an extra day with you just in case
cause they love you :)

[redacted] 8:52 AM:

Either way, not much of a response from [redacted]

[redacted] 8:52 AM:

haha yeah i saw that

[redacted] 8:52 AM:

Didn't really say much

[redacted] 8:52 AM:

i think he's overall unimpressed

[redacted] 8:53 AM:

He should be. It hasn't been an impressive performance

[redacted] 8:53 AM:

pretty sure he has a sour taste in his mouth about this team

[redacted] 8:53 AM:

The only reason we just about scraped through to a yes vote is because of YOUR work. And hugely because of [redacted] tireless work

The sim group has created a culture of "good enough"

And that is an incredibly low bar.

It just doesn't cut it anymore. The cozy days with regulators are behind us

[redacted] 8:54 AM:

yeah i'll look to get some recognition for [redacted]
yeah things gotta change with that sim group
i saw cut the beast at the head and start fresh

[redacted] 8:55 AM:

Yes, he deserves it more than anyone. BY A MILE

[redacted] 8:55 AM:

that team just continues to piss me off
always want recognition, never accountability

[redacted] 8:55 AM:

It can't be how we do things at Boeing anymore. Out with the old, in with the new I say

Not necessarily people, but attitude!

8:56 AM:

yeah but the quickest way to change a 20 year attitude is to rid the people that drive the attitude
not sure your relationship with [] but i've not been impressed

8:59 AM:

I really like [] as a person. But to say that using the AMM was very in depth testing??? WTF. The AMM only describes how the system works. What is the benefit to coding the software to a different behavior than the actual system and AMM?

It's a culture issue. It takes 5-12 years (ish) to change culture. Better not waste any time making changes.

9:00 AM:

it is a culture issue for sure
if there's one thing boeing does well is waste time
lol!
that's the whole company in general not just T&PS

9:02 AM:

Yes, that is true
We have wasted so much time and money on this. And it was completely avoidable
I have used the words "misleading" and "mischaracterization" a lot over the last two years in relation to his program. I could be even more honest as use other synonyms that even better describe what has been going on.
[] needs to make changes here before 777X

9:06 AM:

i feel like [] cares less about this stuff
his vision is all about more business development
not the operational side
operational side in his mind will take care of itself
my opinion at least

9:12 AM:

probably true. Hope [] sees things differently
This must cost an arm and a leg though

9:15 AM:

yeah we'll see
nearly impossible to capture the true cost of all this
imagine the enormous OT, travel, etc

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 5/15/2018 1:36:27 PM
Subject: Conversation with [redacted]

[redacted] 9:02 AM:

you on a call?

[redacted] 9:02 AM:

Yes but it isn't important
Just TRB

[redacted] 9:02 AM:

Ok, need to chat with you

[redacted] 9:03 AM:

Did you accept the Yaw Damper runaway malfunction in it's entirety?

OK - do you want me to call your mobile?

[redacted] says he doesn't have to change the release notes that said the issue wasn't on offer but has issued a closure statement in your name saying that the issue that wasn't on offer was accepted in the load it wasn't meant to be checked with

[redacted] 9:58 AM:

In summary, no go for the following from my opinion:

Number of outstanding DRs - quantity touching almost every aircraft system. Failure to meet targets, duration of open DR that demonstrate slow rate of closure, ECDs for certain systems being pushed to late 2018 or 2019

Unknowns -

Tiller control loading - requires another software update to an already frozen load and the best it does it restore the tiller to the known underperforming state

Air conditioning - now compromising sound QTGs - these tests form one of the two critical elements of the Level D update

Model crash, EGPWS TERR FAIL or major model overrun

Visual - models, aliasing, and lens movement

QTG issues - FAA have raised concerns over the resource data for 1b3 and provided a list containing other failures

Resource Constraints - do all parties have sufficient resources going forward to prioritize Boeing issues?

[redacted] 10:03 AM:

My guess, the vote will be 5-3
or 6-2

[redacted] 10:19 AM:

did I get a hold of you?

[redacted] 10:22 AM:

Yes - basically have been thrown to the wolves

His vote is deferring to me

Final list:

Number of outstanding DRs - quantity touching almost every aircraft system. Failure to meet targets, duration of open DR that demonstrate slow rate of closure, ECDs for certain systems being pushed to late 2018 or 2019

Unknowns -

Tiller control loading - requires another software update to an already frozen load and the best it does it restore the tiller to the known underperforming state

Air conditioning - now compromising sound QTGs - these tests form one of the two critical elements of the Level D update

Model crash, EGPWS TERR FAIL or major model overrun

Visual - models, aliasing, and lens movement

QTG issues - FAA have raised concerns over the resource data for 1b3 and provided a list containing other failures

All the time the sound / tiller are being worked is time that the TRU QTG specialist is not resolving QTG issues

Training - IPSS indicates no training scheduled on this device for some time so what is driving the requirement at this time?

Resource Constraints - do all parties have sufficient resources going forward to prioritize Boeing issues?

10:24 AM:

yep

10:36 AM:

have you talked to [redacted] he seems to be the only other pilot on the call

10:36 AM:

I have not

I doubt [redacted] will call in

10:36 AM:

Nor I - [redacted] works for [redacted] that is why I was asking

10:37 AM:

Let's see how they do this

10:37 AM:

ok

10:37 AM:

I wonder if [redacted] is just listening in

listening

10:37 AM:

maybe

10:55 AM:

We know where [redacted] vote is going

10:55 AM:

I know

Are you wavering?

i just forwarded [redacted] the meeting notice as he asked if SM were on the call - didn't realise it went to all

I'm doomed

10:56 AM:

Nope, not wavering

It's a no

10:57 AM:

ok - me too

10:57 AM:

If it's a yes they would have 48 hours to fix the master caution and tiller for F&S to be signed

I really would struggle to defend the sim in front of the FAA next week

10:58 AM:

And what if somebody books training next friday?

10:59 AM:

Exactly, when it's qualified it is ready as far as I am concerned

11:00 AM:

They are not looking at it like that - just like no external customers use NG#1

11:02 AM:

ok so no problem then!

11:02 AM:

ye olde magician trick

11:02 AM:

If they nearly walked off last year, then they will probably be very happy to see it again I'm sure!

11:02 AM:

of course

And some of the older issues too

11:10 AM:

Is that correct?

11:10 AM:

They are not declared on any of the other visuals

11:10 AM:

same on all our devices?

[] 11:10 AM:
simulators even

[] 11:19 AM:
They are desperate for a go

[] 11:19 AM:
No kidding

[] 11:19 AM:
Every system is impacted by DRs - how do you work around all DRs?

[] 11:20 AM:
I got it from him about 6 weeks ago
I agree
Thank you []

[] 11:21 AM:
He will be picking up the pieces

[] 11:21 AM:
yep

[] 11:25 AM:
Got your night vision goggles? You'll have to do qual with the lights switched off

[] 11:26 AM:
haha

[] 11:27 AM:
this isn't a true statement - the campuses declined the newer loads

[] 11:27 AM:
Yes, I still haven't been forgiven by god for the covering up I did last year

[] 11:27 AM:
None of this changes my mind

[] 11:27 AM:
Can't do it one more time. the Pearly gates will be closed...

[] 11:27 AM:
I just received a shovel to start my journey to the hotter place....

[] 11:28 AM:
I'll end up there either way. There is no way anyone involved in iLC does not end up there...
(facepalm)

[] 11:28 AM:
Better invest in a bigger spade then

[] 11:31 AM:
ok then. We are good
No problem then

[] 11:32 AM:
so the reported count is 120 but we have closed 20 on this call
Damn, we are good
What about the 60 P4?
And he hasn't worked there since 1990
1995

[] 11:33 AM:
Ok then
It's a go!

[] 11:34 AM:
I will still vote no - but [] has just pulled the rug

[] 11:34 AM:
Sounds like he is a no too

[] 11:35 AM:
He was meant to be backing me...

[] 11:35 AM:
sounds like he is???

[] 11:35 AM:
Not sure... Hope he does

[] 11:36 AM:

it sounds like it to me

11:37 AM:

that's system checking isn't it?

11:37 AM:

yes it is

11:38 AM:

So qualified or not qualified makes no difference

11:38 AM:

I'm not sure, but it wouldn't be hard to check

11:39 AM:

What of the irreparable damage to the Boeing name if it fails?

11:39 AM:

exactly

11:39 AM:

Binary could be dead in the water

11:40 AM:

good shape for QTG?

11:41 AM:

not as good as people think

And certainly not for CAAS

So it was a turd but now it is slightly polished

11:48 AM:

I believe them. They did get everything fixed between each iLC qual last year. Right?!?!?!?

11:48 AM:

Of course they did - it's all documentation

Bold claim

11:48 AM:

of course!

Not issues here

11:49 AM:

Imagine now that it fails for a Binary reason...

11:49 AM:

That was bold

At least they delivered on 0 DRs a week ago

Wait a minute...

11:53 AM:

And that was the official answer - we are going

11:53 AM:

lol

This is just a waste time. going through the motion. Let's see how the campus votes

what. The product is high quality!!!

The binary group just confirmed it

11:55 AM:

it all relative

11:56 AM:

lol

11:56 AM:

And now the backside covering happens

11:59 AM:

hmm, did not see that coming

11:59 AM:

Money

1:15 PM:

Let's see what happens over the next two days

There's going to be a lot of pressure on us to say yes

1:15 PM:

Indeed - won't be on the call on Thursday

will say yes - has said the tiller is back the way it was, calibrated, and QTGs passing

[redacted] 1:16 PM:

ok

[redacted] 1:16 PM:

So it comes down to air conditioning - but [redacted] still may say no

[redacted] 1:16 PM:

Will you still vote no?

If they fix it, will you say yes?

[redacted] 1:16 PM:

If [redacted] thinks there is a regulatory issue, the answer will be no

[redacted] 1:17 PM:

I will have to talk to him before then

[redacted] 1:19 PM:

Yes - but you are in a quandary. [redacted] asked if there were any other issues that prevented a Go beyond tiller/sound/master caution

[redacted] 1:21 PM:

That's true from a pilot perspective, but there are other issues too, like the QTGs, blanking screen etc

[redacted] 1:22 PM:

I know - that is what people aren't considering

[redacted] 1:23 PM:

It's the overall simulator. I could be "happy" from the pilots perspective, even if I am on the edge, but the issues that don't affect pilots are still significant

[redacted]
Exactly - people have acquired tunnel vision - they are concentrating on two issues when there are hundreds more

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 5/14/2018 4:50:02 PM
Subject: Conversation with Boeing Employee

[redacted] 3:20 PM:

can you forward this meeting notice?
My outlook doesn't work
need to use my ipad, but the meeting notice is not there

[redacted] 3:21 PM:

Sent

[redacted] 3:22 PM:

so weird, it does not show in my calendar on the ipad

[redacted] 3:23 PM:

STrange - [redacted] sent it twice - I'll try the other one

[redacted] 3:24 PM:

It shows up on my company phone, but not on ipad. And my outlook asks me to sign in but does not accpet my sign in

[redacted] 3:24 PM:

I have had that since the last Windows update
Try quitting outlook and restarting
I find now I have to do that if I switch networks

[redacted] 3:25 PM:

I did

[redacted] 3:25 PM:

Ahhh

[redacted] 3:25 PM:

I even shut down the computer

[redacted] 3:25 PM:

That isn't good

[redacted] 3:25 PM:

Let me try different network

[redacted] 3:29 PM:

still not working

[redacted] 3:29 PM:

That's strange
Might need IT to help

[redacted] 3:29 PM:

Yep

3:31 PM This message wasn't sent to [redacted]

Yep

[redacted] 3:35 PM:

hmm
lets see

[redacted] 3:35 PM:

What do you mean - it is a YES

[redacted] 3:35 PM:

haha

[redacted] 3:35 PM:

There is one group and we aren't it

[redacted] 3:36 PM:

your vote is the same as [redacted]

[redacted] 3:36 PM:

The fact that it has taken 6 hours to review the outstanding DRs speaks volumes to the state of the device

3:39 PM:

No and No

3:39 PM:

yes

3:39 PM:

NOOOO

3:39 PM:

I am concerned on both

...

3:39 PM:

So am I - more SDSRs need to be raised on the QTG

Not sure if they can be turned around in time

You better start drinking the koolade

3:40 PM:

hmmm

Let's talk tomorrow morning before the call

40 PM:

So get ready to lift the carpet, break out the brooms and start sweeping

3:41 PM:

The fact that this call took this long kind of proves where we are

3:41 PM:

Exacty

3:42 PM:

what???

sound fails?

3:42 PM:

And there goes the final nail into the coffin

3:42 PM:

final?

3:42 PM:

I have some spares

43 PM:

I think there will be more. At this point there are more nails than wood in the coffin

3:45 PM:

Get silencer, put on end of gun, place adjacent to temple, and pull trigger - the problems stop

At this point, how can they consider continuing?

3:50 PM:

(facepalm)

3:50 PM:

(facepalm) (facepalm) (facepalm) (facepalm) (facepalm) (facepalm) (facepalm) (facepalm) (facepalm) (facepalm)

(facepalm) (facepalm) (facepalm) (facepalm) (facepalm) (facepalm) (facepalm) (facepalm)

3:51 PM:

(lalala)

3:56 PM:

That pretty much settles it then

3:56 PM:

It does in my view

3:57 PM:

Do you know what the final DR count is for tomorrow?

3:57 PM:

1 minute

total is 178

P1 = 0

P2 = 9

P3 = 107

P4 = 62

Now you have to factor in failing sound, unnecessarily high ambient noise etc.

May be 7-12 RFRs/RFIs which I can check on Saturday when I arrive

Tiller unknown and only being checked after Go/No Go

I can fix 5-6 more with the malfunction descriptions

[REDACTED] 4:07 PM:

A new load has to be taken at this point anyway to deal with the calibration of the tillers

[REDACTED] 4:07 PM:

just talking to [REDACTED]

[REDACTED] 4:08 PM:

How is that working out?

[REDACTED] 4:10 PM:

Hmm, same as always

Not going to get anywhere

just getting a history lesson in URT

Same as every other time

[REDACTED] 4:14 PM:

Oh - not good and no progress

[REDACTED] was right on the call though - whether the FAA express verbally that they want a dynamic scenario, if they do not demand it in the regulations, there is no need for it to be supplied

I'm calling it a night - only an 18 hour day today

Must be slacking

Speak to you tomorrow

[REDACTED] 4:38 PM:

haha, tha's disappointing. I just did a 19 hour day (if I count the sleeping I did last night!)

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 3/22/2018 9:25:37 AM
Subject: Conversation with Boeing Employee

[redacted] 2:31 PM:

Are you dialling in to the meeting?

[redacted] 2:32 PM:

Yes - 2 minutes

[redacted] 2:32 PM:

cool

[redacted] 2:33 PM:

I'm on

[redacted] 2:35 PM:

This is weird

I'm not 100% sure what to do with

[redacted] 2:36 PM:

Try it on the airplane - leave the DR open awaiting data

Satisfy yourself that it is right before allowing it to be closed

We can downgrade the priority if need be

[redacted] 2:38 PM:

Ok, sure

[redacted] 2:38 PM:

But leave it open

Just so we have a backup if a regulator spots it again - EASA and UK CAA will likely test it

[redacted] 2:45 PM:

You ok with that?

[redacted] 2:45 PM:

I'll check it but they are just dispositioning DRs again - will take the video and send it to all parties

[redacted] 2:57 PM:

Seriously?

[redacted] 2:57 PM:

Its a bloody joke

[redacted] 8:01 AM:

Just tried to call you, wanted to see how discussion ended yesterday

[redacted] 8:04 AM:

I hung up and blamed a poor connection - as soon as you dropped off line [redacted] started stating you had accepted it all in November

I just lost my temper with the whole thing - they fail to understand that the pilots subjective feedback is as important as providing solitary test conditions that pass or do not show the full picture

I'll charge my phone during this meeting

[redacted] 8:07 AM:

I didn't quite catch what you were saying yesterday about the complaint from LGW in regards to go-arounds, what is their concern?

[redacted] 8:08 AM:

Pitch oscillation during flap retraction

FD commanding descent

Autopilot descending

[redacted] 8:09 AM:

ok

[redacted] 8:09 AM:

But they are pilots so what could they possibly know

[redacted] 8:23 AM:

Hope that came across clearly

8:24 AM:

It did but they don't understand they will be getting this from every customer of the Binary
They are not equipped to deal with this product in their current capacity
They will not just be dealing with TDMs but operators

8:31 AM:

This call is a waste of time
It has digressed from what was planned and turned into the same old blame game and ego fluffer for [] in the
CAE-glory days
[] hasn't worked there for 15 years

8:35 AM:

So frustrating

8:35 AM:

I know - [] fails to realise that having engine malfunctions insertable at low power is not an improvement, it is a
requirement
Most engine malfunctions need to be inserted at high power - therefore they have no use in the training environment

8:36 AM:

Exactly, that's why their prioritization is important.

8:36 AM:

The risk is by not declaring this as such, the FAA will raise each failing malfunction as a NQT

8:36 AM:

exactly

8:37 AM:

[] has never ever worked for an airline or training centre
So has no understanding beyond initial device qualification

8:54 AM:

Jesus!!!

8:55 AM:

[] on the call :)

8:55 AM:

who is?

8:55 AM:

They do not understand the liability we as a company are taking on
Jesus

8:55 AM:

haha!!!!

9:10 AM:

That was a complete waste of bloody time
How is a lack of sim support and Binary resources our problem?

9:10 AM:

It was, except I'm glad I got my points across. I think they are getting to target fixated, can't the forest for all the trees
It really isn't. Staffing levels is someone else's fault

9:11 AM:

Why are they only listening to you now?

9:11 AM:

and problem

I don't know. Better late than never I guess. they apparently like to live on the edge!

9:12 AM:

Not sure if I will be returning in April given this - am not lying to the FAA
Will leave that to people who have no integrity

9:13 AM:

I'm sorry, that is not acceptable. Your integrity is a priority 4.

;))

9:13 AM:

;))

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 12/12/2017 8:43:40 PM
Subject: Conversation with [redacted]

[redacted] 8:35 PM:

dude why are you online. Go enjoy your family

[redacted] 8:35 PM:

Just went to shut the computer down!
What the hell are you doing on this late?

[redacted] 8:35 PM:

ok good

[redacted] 8:35 PM:

who are [redacted]

[redacted] 8:35 PM:

I have a call with [redacted] to discuss MAX

they're idiots

[redacted] 8:36 PM:

Ah...the HUD stuff.

[redacted] 8:36 PM:

the morons who took HUD on MAX
yes, and the DGCA in India is apparently even stupider
if that's a workd
work
word
I'm drinking obviously

[redacted] 8:36 PM:

Sounds about right!

[redacted] 8:37 PM:

and I do this again Thurs night with [redacted] in India

[redacted] 8:37 PM:

Did you see we got the slot at midnight on thursday evening for landings?

[redacted] 8:37 PM:

more stupidity

yes

we'll just do landings, no instruments right?

[redacted] 8:37 PM:

At least you won't have to actually travel to India...

[redacted] 8:37 PM:

me you and [redacted] apparentl

[redacted] 8:37 PM:

No instrument

[redacted] 8:37 PM:

y

ok good

EFF that

so stupid

[redacted] 8:38 PM:

[redacted] will do it too. You can do you landings and get out

I'll stay for [redacted] landings

[redacted] 8:38 PM:

u sure?

I don't mind staying

[redacted] 8:39 PM:

Absolutely. You work 1000% harder than me, and anyone each and every day. I think I can hang around another few minutes!

Let me know if you need help with -10 estimate. I don't mind doing it. I can do it tomorrow

8:40 PM:

not true, but thanks. OK, I'll bail after my landings, which will be terrible as you know

I was supposed to do the -10 estimate today, apparently I way over added to it accidentally, so now I need to un-screw that

I don't like PM crap

I just like airplanes, football, chicks and vodka, not in that order

8:41 PM:

Nope, PM sucks. At least I didn't do one this summer! First one for a whole year!

haha, make sure you the order right!

8:41 PM:

No I meant Project Management

not our stupid end of year PM

I don't care about that crap

8:42 PM:

Ahh. yes. Same here. Hate, hate, hate it. So glad we had

8:42 PM:

I work hard and let it play out

it's garbage

8:42 PM:

Again, let me know if you need help

8:42 PM:

will do

8:42 PM:

Signing off. Have fun with

See you tomorrow

8:42 PM:

now go drink with your wife and play with your boys

and kick the dog

just kidding

8:43 PM:

haha, kick the wife and play with the dog!

8:43 PM:

NO!

divorces are too expensive!

see ya tomorrow

cheers1

!

8:43 PM:

See you!

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 6/5/2017 11:19:13 AM
Subject: Conversation with [redacted]

[redacted] 6:54 PM:

Morning, just got to Gatwick. First day in sim tomorrow

[redacted] 6:55 PM:

how were the flights?

[redacted] 6:55 PM:

Copy me in on emails if you dont mind, so that i can keep up to speed with what is going on at home, in particular RTL and wind additive

Flight was good, but weird business seat layout on [redacted]

[redacted] 6:55 PM:

do you know if MAX sim in MIA has the overrun and speedbrake warnings activated, or capable of being activated?

[redacted] 6:56 PM:

Not bad, but i would probably choose another airline over their 787

I don't know. But I will fire of an email right now to find out

[redacted] 6:56 PM:

I already sent one to [redacted]

[redacted] 6:57 PM:

Good

[redacted] 6:57 PM:

Now friggin [redacted] might need a sim to fly the MAX, and maybe because of their own stupidity. I'm scrambling trying to figure out how to unscrew this now!
idiots

[redacted] 6:58 PM:

WHAT THE F%\$&!!!!

But their sister airline is already flying it!

[redacted] 6:58 PM:

I know

I've asked for a webex so we can thru this with the DGCA
not sure if this is Lion's fault or DGCA yet

[redacted] 6:59 PM:

Let me know if you need me to go down for a day while im there, not ideal but if we have to we have to

[redacted] 7:00 PM:

one of the DGCA guys is coming for the delivery so we can always get him there
but supposedly they're making a training determination on Wed, so that's why I'm trying to jump on this tonight with them

[redacted] 7:01 PM:

You definitely want to be in front of that one!

Unbelievable, when will these curve balls stop coming...

[redacted] 7:01 PM:

its unreal man

if we can make it thru summer we'll be ok, in theory

[redacted] 7:02 PM:

haha, I do recall saying and hearing the same thing at the end of last summer!!

[redacted] 7:02 PM:

ha! good point

little did we know

who should I send a VNAV and Flight Director question from [redacted] to?

[redacted] 7:03 PM:

Prbably [redacted] he has helped me out recently

Or if it is more FMC then [redacted]

Or both

[redacted] 7:04 PM:

ok, [redacted] is claiming they're having level off issues with the split cue FD now that they've switched to it

[redacted] 7:04 PM:

What??? No, I've never had an issue.

[redacted] 7:06 PM:

I'll fwd

[redacted] 7:07 PM:

ok

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 5/1/2017 3:38:16 PM
Subject: Conversation with [redacted]

[redacted] 9:04 AM:
operationally, what would be the big impact for a customer to move from EASA AFM rules to FAA AFM rules?
any big show stoppers

[redacted] 9:04 AM:
Not that I know of

[redacted] 9:04 AM:
some autoflight rule changes for MUH
the perf be a bit less conservative,

[redacted] 9:05 AM:
Yes, seems less restrictive in FAA

[redacted] 9:05 AM:
anything else?

[redacted] 9:05 AM:
The maneuver margins in the FMC is only 0.2 g instead of 0.3 g
with FAA rules

[redacted] 9:05 AM:
is that in the AFM?

[redacted] 9:06 AM:
I'm not familiar enough with the AFM, I'd say run it by [redacted]

[redacted] 9:06 AM:
I am now, he's not really chiming in

[redacted] 9:06 AM:
Ok, If you want, I can review them. Contrast and compare

[redacted] 9:09 AM:
ok i'm going to need you to do that. I'll have [redacted] send you
data
we'll chat about it at the 10am

[redacted] 9:09 AM:
Please do, I'll look at it as soon as I get it
Also, I am working on wording for the [redacted] U13 issue, we need to agree on what to add

[redacted] 9:11 AM:
we need to break down the pure operational impacts/limitations differences specifically for [redacted] it looks like
we're going to need to convince them to convert to FAA rules to simplify AFM approval by their GCAA. It's really
complicated, I'll explain on the 10am call
[redacted] will get someone else the performance differences

[redacted] 9:18 AM:
Ok, sounds good

[redacted] 9:21 AM:
thx sorry. but with me traveling to MIA tomorrow for the week I just won't have the time

[redacted] 9:25 AM:
Hey you are taking more one for the team at the moment!!!

[redacted] 9:26 AM:
we all are

[redacted] 12:05 PM:
I forget, did you book the ecab for [redacted] on the 9th?

[redacted] 12:16 PM:
I did

[redacted] 12:16 PM:
cool thx

12:26 PM:

check out the pics of the pilots in that [] brochure [] sent! They look like 12 years old! JESUS!!!! They don't look old enough to drive, or drink!

12:58 PM:

are you going to fly the [] sim week of the 8th afterall or no?
I think you said it needed to be June right??

1:06 PM:

its in june, still waiting to hear from []

1:06 PM:

ok
when will you be doing the Gatwick cert again?

1:48 PM:

Sorry, had to take puppy for a walk. She was going crazy!
Gatwick is June 19-23

I
I'll go there straight from Singapore

1:57 PM:

welcome to puppy ownership!

H 2:00 PM:

[] that's why i had stay home. I will catch up now

2:00 PM:

never a dull moment....

2:22 PM:

I find it hard to believe that [] claims he's never felt the "deadband" on rotation don't you?

2:23 PM:

I really do, it is definitely something you mention in training. Almost everyone gets stuck in the deadband on the first few rotations, you gets used to it real quick though and can easily achieve an even rate
I just hope all these courses get approved...

2:24 PM:

I do too, although part of me wants to see it fail so we can say, "WE TOLD YOU SO!"
that's kinda sick of me, huh?

2:24 PM:

I will probably meet the minimum requirements though...

2:26 PM:

we'll see
it's a complete S#IT course, they should have stayed with CBT
and I'm going to MIA to supposedly help brag about our "new and innovative" training course. BARF!

2:27 PM:

Yep, they bought the toys and then tried to fit some sort of training into it. Completely backasswards...
It sucks selling shit!

2:28 PM:

fortunately I have all the skills of a used car salesman, and I have the ability to use the jedi mind trick....

2:30 PM:

Does the last sentence that I added make any sense?

CRZ DES provides the means of initiating step descents to a new cruise altitude during cruise.
During VNAV operation, execution initiates a descent at 1,000 feet per minute and cruise target speed to the new altitude.

The FMC software allows a CRZ DES to the normal Descent Path capture if the normal path is encountered during the Cruise Descent and prior to reaching the new cruise altitude.

the Descent phase will be entered from a Cruise Descent at the time the extended descent path is captured. **Note: CRZ DES will not capture an extended descent path if the CRZ altitude and descent altitude constraint are the same**

or this:

Note: CRZ DES will not capture the normal Descent Path if the CRZ altitude and descent altitude constraint are the same.

2:32 PM:

I like the 2nd one

2:32 PM:

Do you think it's clear to pilots? The FCOM is such a mess, they are confusing CRZ DES with the new [] function in so many places...

2:33 PM:

does it say anywhere how you actually do the CRZ DES?

2:34 PM:

That is the whole section right there!

2:34 PM:

it doesn't mention use of []?

what does it say about that switch? Did they cross reference them?

2:34 PM:

No, they put that in 3 other places though!!!

I'm telling you, no wonder pilots are having problems reading the FCOM, we scatter stuff around in so many places They actually describe CRZ DES in the early descent section....

when you use []

2:48 PM:

egads

2:49 PM:

MESS!!!

2:57 PM:

go ahead and bounce your proposed fcom update off [] in reply to his email see if he thinks that makes sense

3:08 PM:

I just want to float it internally and clean it up for them first

3:10 PM:

ok

3:23 PM:

Let me know when you want to talk AFM

3:23 PM:

ugh, I'm leaving soon, I may have to call you on the way home, will that be ok?

3:23 PM:

Absolutely

3:24 PM:

ok thx

we're going to buy a bed first, but I'll call after that, probably like 430ish. If I haven't called by 5pm call me ok?

3:24 PM:

Will do, I can take a call at any time this pm/evening.

Get a good one though, I'm so sick of all these beds sold as the best thing ever actually ending up with big dips in them! Cheaper beds are better for my back...

3:27 PM:

we're gonna try the sleep #. Every other bed has sucked

3:28 PM:

Let me know how that works, I'm in the same boat. It messes my back up. I sometimes have to sleep in the guest bed just for my back

3:28 PM:

will do

although I won't be sleeping in it til June at the rate I'm travelling

3:29 PM:

true...

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 4/26/2017 12:03:48 PM
Subject: Conversation with [redacted]

[redacted] 11:06 AM:

I'm going to bed now, leave in 8 hours for airport. I'll land around 1230 Thurs. Anything before I sign off til then?

[redacted] 11:06 AM:

Nothing on fire!

Try to get some shut eye before the flight

[redacted] 11:07 AM:

except [redacted]

and my [redacted] shit

[redacted] 11:07 AM:

true

[redacted] 11:07 AM:

and all the bulletins that need published

[redacted] 11:07 AM:

That and a million other small issues

[redacted] 11:07 AM:

and lord knows whatever else I've dropped the ball on

[redacted] 11:07 AM:

[redacted] is working with standards since the T5 test should all have been done a class 1 airports, Moses lake is class 2
Let's see how that goes

[redacted] 11:08 AM:

what? Then how do we get away with only using MWH in our type rating course, cuz it's 142?

[redacted] 11:08 AM:

Because 142 is different from what she is looking at. I don;t understand the details. [redacted] is "working" with [redacted] too

[redacted] 11:10 AM:

WHAT A MESS

[redacted] 11:11 AM:

Anything TD touches...

[redacted] 11:17 AM:

think of the \$\$\$ wasted on those useless bags of #\$\$@% the last 3 years
you and I would have put together a killer perfect course if that was all we had to do
and done it in like 3 months

[redacted] 11:18 AM:

It kills me knowing the waste of time, effort and money that was completely avoidable!
I agree, a fraction of the cost and time

[redacted] 11:18 AM:

ridiculous

[redacted] 11:39 AM:

OMG, as if I wasn't confused enough. [redacted] is trying to say it works per design!

[redacted] 11:39 AM:

Sounds like a sucky design if that is the case

[redacted] 11:39 AM:

why the hell would they build a cruise descent that only works form the initial VNAV path!

[redacted] 11:39 AM:

doesnt make sense to me

I'm pulling some FMC related FCOM pages for them to review

[redacted] 11:41 AM:

terrible design, and there's no way the FCOM covers this only applies to the initial path. This needs to get fixed if that's the case. Which means we need to tell crews NOT to use this via yet ANOTHER OMB
if you agree go ahead and stress that on the next 50 emails that ensure. I need to go to bed, I'm running on like 28 hours

sleep in last 30 or so

11:42 AM:

Get some rest!

11:42 AM:

I'm just praying the musical porn show doesn't start up again at 3am

11:43 AM:

LMAO!!! Hey, its free porn!

11:45 AM:

who cares when you're exhausted

I'm friggin delirious dude

between this FMC crap, the [] issue, and everything else I'm spent

11:47 AM:

I bet, you need some time off!

11:50 AM:

uh yeah! we all do!

by we, meaning the 737 group. the rest of the slackers can pick up our work!

11:50 AM:

The FMC ignores the altitude????? WTF!

Agree! We should get them to do CS3s for us

11:51 AM:

right?

nice find in Vol 2!

this airplane is designed by clowns, who in turn are supervised by monkeys

11:52 AM:

Sounds like they are implying that the description is correct, unless you get a change to clearance!

11:52 AM:

piss poor design

11:52 AM:

This FMC shit must get much better

11:52 AM:

just like you said, if I enter a new altitude or AS constraint, I expect the cruise descent to figure out the new path to it

oh I'm sure it'll get better when Boeing engineers design a whole new one

wait? Who is left to do such a thing?

11:53 AM:

no one!

Just got a call on it this morning, they expect to do only two sets of 1 weeks airplane testing!!!!

11:54 AM:

[] can do it, I'm sure he's bored now

11:54 AM:

Normally the FMC is tested during an entire flight test program, like the 787 or 737 MAX

11:54 AM:

jesus, it's doomed

any cab testing like we asked for?

11:54 AM:

I said that we must do much more than that,

We need lots of operationally simulated testing

using the FMC the way pilots do, not engineers and engineering pilots flying between BFI and moses

11:55 AM:

so now we're going to pursue airplane design changes to the -9 to add poor man's tailstrike protection. expect to see a

mtg notice on it for tomorrow

this for the [] issue

Patrik H 11:55 AM:

haha, just what we need!

Let's just patch the leaky boat...

11:56 AM:

of the 4 options, the one that I felt sucked the least, and had the least potential for full sim training was using the [] functionality.

His input from [] pilots was very limited. The 4 we tentatively brought forward to [] include Spoiler Pitch Augmentation, Elevator Feel Shift, TSP Annunciation, and Flare Guidance.

[redacted] 11:56 AM:

We have to go with the least impact option. Doing nothing doesn't seem to be an option

[redacted] 11:57 AM:

[redacted] 11:58 AM:

[redacted] 11:58 AM:

I don't see any of these flare assist options won't trigger sim training by [redacted]

[redacted] 11:58 AM:

I agree

[redacted] 11:58 AM:

that's for these smart engineers to figure out

[redacted] 11:59 AM:

Yep

[redacted] 12:01 PM:

alright, I can't keep my eyes open. 11pm here, 6am wake up. chat with you Thurs.

[redacted] 12:01 PM:

nite, nite!

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 1/31/2018 9:38:16 AM
Subject: Conversation with [redacted]

[redacted] 9:16 AM:

[redacted] said [redacted] coordinated it on the way to Russia. I asked him for any email trail

[redacted] 9:17 AM:

I also asked him but did not know if there was an AR pilot

[redacted] 9:22 AM:

from [redacted]

[redacted] told me that he didn't believe there was any discussions with the cert pilots on this.

(tmi)

I guess we had to mess up at least one thing during this whole process

[redacted] 9:24 AM:

not good, but thinking, why this is a big impact?

[redacted] 9:27 AM:

if the cert pilots were never told this was coming, they didn't properly evaluate if for cert purposes, to keep with our alerting philosophy for engine indications, that turning the oil temp amber for 31C and below is required.

so we "snuck" it into the FCOM without them knowing. you know they don't actually review the FCOM and on a personal note, I kind of belittled [redacted] on that call yesterday stating we did coordinate it with the Model ARs pilots, when now it looks like we didn't probably the only one we missed.

[redacted] 9:30 AM:

but remember the whole issue about the engine instruments not indicating a green range? somehow that was certified on the NG and MAX. that i believe is a bigger issue than this one

[redacted] 9:37 AM:

[redacted] didn't have it on the Tues agenda

[redacted] 9:38 AM:

ck email in a minute, have some info on why only white ranges is acceptable

From: [redacted]@boeing.com]
Sent: 12/12/2017 9:44:16 PM
To: [redacted]@boeing.com]; [redacted]@boeing.com]
Subject: Conversation with **Boeing Employee**

[redacted] 9:17 PM:

jesus, get off the computer and go drink with your wife!!!!

[redacted] 9:17 PM:

been there done that

taking some time off late next week

[redacted] 9:19 PM:

good

this is garbage that 3 of us are online right now, and I had to boot [redacted] off 30 min ago

flex or OT

garbage that we're working this hard

[redacted] 9:19 PM:

that is the story of the 737 group

[redacted] 9:20 PM:

i know but we need to be able to justify replacing [redacted]

not that we can

[redacted] 9:20 PM:

agree and agree

its a fine line

[redacted] 9:22 PM:

no it's a BS line

[redacted] 9:22 PM:

yeap

[redacted] 9:28 PM:

grey goose is yummy

[redacted] 9:28 PM:

are you just starting? or just going?

[redacted] 9:29 PM:

half way

[redacted] 9:29 PM:

funny, i was having some Bowmore Scotch, very good

[redacted] 9:29 PM:

also tasty

I just jedi mind tricked this fools.

I should be given \$1000 every time I take one of these calls

I save this company a sick amount of \$\$\$\$

8:31 PM:

what did you convince them of?

8:31 PM:

to simply produce an email from me to the DGCA that states all the airlines and regulators that accept only the MAX CBT

to make them feel stupid about trying to require any additional training requirements

8:33 PM:

well done, i give you a raise. all you need to do is go to [] and accept it.

8:33 PM:

sweet, and I give you the same!

8:33 PM:

yeah

8:35 PM:

now go sign off

8:36 PM:

i will soon

8:36 PM:

NOW!!!!

8:36 PM:

kids and the wife are watching a show that i am not interest in

8:36 PM:

unless it will help you flex with the kids next week

8:37 PM:

yeah, Thur off next week

A 9:37 PM:

sweet

I'm doing smae

same

From: Boeing Employee
To: Boeing Employees
Sent: 2/25/2016 7:57:28 AM
Subject: RE: For 2pm

There were multiple issues that led to the crisis in confidence –
Strict FAA management on previous programs (747-8, 787-8)
We are earlier than we typically would be (people are used to a “firm” aero config at TIA)
The instructions in the order relative to TIA (states/implies strict transition from company testing to FAA) don't handle our blended approach well which leads to different interpretations
The D6 document for TIA instructions/requirements are too vague. Because of that there is no plan laid out to really describe what we are doing relative to the airplane configuration after TIA and getting to certification. You see that in how different systems groups are addressing the issue. Some just say they will address post TIA changes with absolutely no details of what they are doing to support their certification tests. Others went to great detail to list what they were doing. A clean story of what we are really doing to get from TIA to cert tests to cert would have helped resolve this. **Thus there is no confidence that the FAA is understanding what they are accepting (or rejecting). No confidence in how to interpret what is acceptable and not acceptable for post TIA configuration changes and thus no confidence that ARs are doing the right thing in “concurring”.**

[Redacted]
Aero-Stability&Control, 737MAX & AR Advisor

[Redacted]
if you can't get a hold of me, please contact [Redacted]

From: Boeing Employee
Sent: Thursday, February 25, 2016 7:35 AM
To: Boeing Employees
Subject: for 2pm

[Redacted]
Project Administrator
Boeing Regulatory Administration

[Redacted]

From: Boeing Employee
To: Boeing Employee
Sent: 11/22/2015 9:32:44 PM
Subject: FW: !!! Important Help Needed!!!EASA RSAT/RCAS ECD dates



From: Boeing Employee
Sent: Tuesday, November 17, 2015 2:21 PM
To: Boeing Employees
Cc: Boeing Employees
Subject: RE: !!! Important Help Needed!!!EASA RSAT/RCAS ECD dates



The FAA AEG refuses to negotiate the training level determination for either RSAT or RCAS until the TIA is submitted and they review it with the SACO pilots. We've got their preliminary approval of the RCAS CBT, based on their inputs. That CBT is currently being revised. Now that we know the scope of the RSAT alerts that will be certified, we can work to finalize the RSAT CBT. As we understand it now, the RSAT functionalities to be certified along with RCAS are ORW (in air and on ground), PRW, and the SPEEDBRAKE alert. If this is not correct, someone needs to let us know that.

To be clear, just because the AEG approved the RCAS CBT, that does not mean they approved the CBT as the only training required. I'm fairly sure they will push to have at least the ROLL AUTHORITY alert trained in a simulator. We are going to push back very hard on this, and will likely need support at the highest levels when it comes time for the final negotiation. [Redacted] has already pledged his support for us obtaining Level B (CBT) as the min training required for RCAS. Failure to obtain Level B training for RCAS is a planet-killer for the MAX.

We can also expect the AEG to push for simulator training for some or all of RSAT. We will also be fighting against this as well.

We are well prepared to have this training level discussion with the AEG for both RSAT and RCAS.

If you need more information, please let me know.

Thank you,



[Redacted signature box]

737 Chief Technical Pilot



From: Boeing Employee
Sent: Tuesday, November 17, 2015 2:02 PM
To: Boeing Employees
Cc: Boeing Employees
Subject: RE: !!! Important Help Needed!!!EASA RSAT/RCAS ECD dates

[redacted]
How are we doing with the [redacted] flight crew training requirements?

From: Boeing Employee
Sent: Monday, November 16, 2015 10:58 AM
To: Boeing Employees
Cc: Boeing Employees
Subject: RE: !!! Important Help Needed!!!EASA RSAT/RCAS ECD dates

Great news!

[redacted]
Boeing Commercial Airplane Group
737 Systems Chief Engineer
Blackberry: [redacted]
Fax: [redacted]
M/S 9W-18

From: Boeing Employee
Sent: Monday, November 16, 2015 9:21 AM
To: Boeing Employees
Subject: FW: !!! Important Help Needed!!!EASA RSAT/RCAS ECD dates

This is great news!!!! See below!

[redacted]
Senior Leader -
Avionics (Displays, Navigation, Inertials, RSAT, Software/AEH)
Boeing Commercial Airplanes
Tel. [redacted] (Desk)
Text/Cell [redacted]
Email [redacted]@boeing.com
FAA Authorized Representative Areas: IMA, Displays

From: Boeing Employee
Sent: Monday, November 16, 2015 2:54 AM
To: Boeing Employee
Cc: Boeing Employees
Boeing Employees
Subject: Re: !!! Important Help Needed!!!EASA RSAT/RCAS ECD dates

We met with EASA this morning. Based on conversations with [redacted] last week and his review of the FAA IP, [redacted] does not believe EASA will issue a CRI for differences to the FAA cert basis for⁹¹

RSAT/RCAS . He did indicate the a 'cover' CRI would be required.

Sent from my BlackBerry 10 smartphone.

From: Boeing Employee
Sent: Friday, November 13, 2015 6:43 PM
To: Boeing Employee
Cc: Boeing Employees
Subject: !!! Important Help Needed!!!EASA RSAT/RCAS ECD dates

[Redacted]
Please let us know if you had a chance to talk to EASA team to have an ECD date for us for the meeting with them, or understanding if there will be a spate CRI for ORW and/or RCAS. We would greatly appreciate your help in this matter.

Thank You,

[Redacted]
Avinonics Management
Cell [Redacted]

From: [redacted]@ussevm18.cs.boeing.com [redacted]@ussevm18.cs.boeing.com]
Sent: 6/7/2013 9:13:10 PM
To: [redacted]@boeing.com
Subject: PRG - 37MAXFCI-PDR_AI22 - MCAS/Speed Trim

+-----+
| You are identified as requiring notification of any progress on this item. |
| Progress has been added or modified since 06-JUN-2013 21:12:47 (US Pac) |
+-----+
| The following is a summary of the item info and the new progress data |
| For full text of item, select the link below or use itracs |
+-----+

To view and/or edit the ITRACS item, select this item number link [37MAXFCI-PDR_AI22](#)

Item No: 37MAXFCI-PDR_AI22
Title: MCAS/Speed Trim

Category:
Model: 737 MAX -8
Phase: COMPLETE
Effort:
Need Date: JUL-01-2013 00:00:00
ECD:
Next Phase Due:

Coordination Responsibility:

Company: Boeing
Resp_1: [redacted]
Resp_2: [redacted]

+-----+
| when what who (by who when added/updated) |
| (US Pacific Time) |
+-----+

07-JUN-2013 ANALYSIS [redacted] [redacted] 07-JUN-2013 08:29:23
6/7/13 Meeting Minutes:

- 1) GTTA left the name as MCAS but treated as analogous function as a speed trim type function.
- 2) If we emphasize MCAS is a new function there may be a greater certification and training impact.
- 3) Treat as an addition to Speed Trim.
- 4) Externally we would communicate it is an addition to Speed Trim.
- 5) Internally continue using the acronym MCAS (within variable names etc).
- 6) Work with AR on certification perspective to ensure this strategy is acceptable.
- 7) Make sure EASA Fam Tech presentation is consistent with intent that MCAS is an addition to Speed Trim.

07-JUN-2013 PROP_RES [redacted] [redacted] 07-JUN-2013 12:18:39

After speaking with the Autoflight AR, concurrence was provided that we can continue to use the MCAS nomenclature internally (variable names, etc) while still considering MCAS to be an addition to the Speed Trim function. This will allow us to maintain the MCAS nomenclature while not driving additional work due to training impacts and maintenance manual expansions.

From: [redacted]@boeing.com>
To: **Boeing Employees**
Sent: 5/23/2018 1:49:51 PM
Subject: Conversation with **Boeing Employee**

[redacted] 21:05:

Cue Darth Vader's music?

[redacted] 21:12:

Somebody's head will roll

Now the TERR FAIL [also TRU issue] has occurred - not going well for them when the blame game starts to be played

[redacted] 21:14:

Any of the Binary issues popped up?

[redacted] 21:14:

None

[redacted] 21:14:

Because [redacted] voodoo?

[redacted] 21:14:

Two motion failures due to one of the door interlocks tripping4

[redacted] is here - he probably sabotaged it

[redacted] 21:16:

Well, I told them back in January

If the sim fails, it best not be their fault

[redacted] 21:17:

It looks like they didn't listen

I'm just not hopeful - the FAA inspector was briefed by [redacted] and was negative from the get go

Whining about the number of DRs, not Boeing 'quality' etc....

But this is what happens when people fold when they should stand firm - integrity should not be cast aside when pressured

All of these issues are the 'intermittent' ones I said could kill us

[redacted] 21:20:

That [redacted] said wouldn't ever happen during eval

[redacted] was briefing the FAA on the Binary, surely

[redacted] 21:21:

Binary is now going to get their first NQT/unacceptable but this will be blamed on TRU integration

[redacted] 21:21:

And I don't disagree with the inspector at all: 115 declared DRs is unacceptable

[redacted] 21:21:

Yes but are they fully aware of which issues reside with whom?

[redacted] 21:21:

And I'm assuming we didn't declare any of the major issues he's finding

[redacted] 21:21:

98 it got to

[redacted] 21:22:

Probably because [redacted] hid 25 in "transit" between Binary and TRU

[redacted] 21:22:

I agree - this is what I said to [redacted] and which is why I said it shouldn't go ahead. There was no need to take this risk given there is no training

[redacted] 21:22:

Worse

This makes it very likely UK CAA won't extend LGW

Where there is training

[redacted] 21:23:

Or CAAS/EASA in Singapore - the house of cards is starting to topple

[redacted] 21:23:

The house of cards built by SMS

[redacted] 21:24:

Sadly, a part of which I am...

[redacted] 21:27:

SMS PM

[redacted] 21:28:

So much of the brown stuff is going to be thrown that I don't think anyone will be safe

[redacted] 21:29:

No doubt

Wanna come to Fleet Care?

[redacted] 21:30:

Yep - can't work for [redacted] any longer. He doesn't get it

[redacted] 21:37:

Should have hired you as the SPM instead of [redacted]

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 5/15/2018 12:09:52 PM
Subject: Conversation with Boeing Employee

[redacted] 17:37:

hey I need to catch you before this meeting

[redacted] 17:37:

Call away - this TRB is going nowhere

17:38 Connected to [redacted]@boeing.com).

17:48 Call with [redacted]@boeing.com) has ended. Duration: 00:09:58

[redacted] 19:14:

I guess now is the time to speak to any other issues that haven't been mentioned

[redacted] 19:14:

They have all been touched upon

[redacted] 19:14:

ok

[redacted] 19:22:

Thanks [redacted] - better put than I

[redacted] 19:39:

anything said here change your opinion?

[redacted] 19:40:

Not really - they are ploughing forward regardless of the danger, failing to appreciate the implication of Boeing failing to qualify a Boeing device running the Boeing Binary

They are failing to appreciate that a delay would be less costly than the incurred costs for sustaining this, particularly as the QTG will need to be changed immediately.

Are they swaying your opinion? It all sounds plausible on face value but one slight error would compromise everything.

[redacted] 19:43:

I think the right answer is it's not ready. I think we could get through it, but we'd be doing it just to save face. The biggest risk is that if the FAA can't come back for 3 months it risks the program.

[redacted] 19:44:

There is no pressing need for the device to be qualified at this point so why push our luck - we fluked 4 qualifications last year and both [redacted] and I had to compromise integrity during the qualifications. We left the campuses with a poor quality device which fortunately in 3 campuses went unused. 3 campuses only got to the same standard sustainment-wise two weeks ago

Singapore is running a load that is >7 months old

This will be no different and given we need TRU to fix things, how will they cope given that they are struggling with the [redacted] device and have our #5 IPA coming up.

They don't have the resources or bandwidth to deal with 6 different device QTGs going on at the same time

The fact that it took 6 hours to review the DRs last night speaks volumes to its readiness

We also need to remove the projectors, reclamp the lenses, refit them and realign them thereafter - that is going to be time consuming post qualification

Even if it is qualified, how do we expect to turn around 7 day fixes if [redacted] is en-route to Singapore?

[redacted] 19:57:

No go - the quality isn't high enough

5-3

Thought so

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 4/8/2018 8:10:13 AM
Subject: Testing of TP 2.3.57 / Binary 3.19.4.0a

[redacted] 15:36:

That flight director definitely looks worse than it did before

[redacted] 15:37:

Thought it was just my flying :)

I don't recall seeing it do that previously either - it was repeatable though

[redacted] 15:37:

It pitched you into a stall

[redacted] 15:37:

Yes

[redacted] 15:37:

It was never anywhere near that bad

And then when you pitched down it followed you

I think it follows the pitch attitude too much

[redacted] 15:38:

Generally happens when asked to fly at 45 degrees nose up - initially I tried to follow it religiously but then thought I'd be a little slow on the inputs as it seemed like the FD was changed to within +/-1 degree of the aircraft attitude

I just couldn't believe how bad it was - the first altitude on the route was 2000' and it blew through that by about 500' before even commanding a descent

[redacted] 15:40:

We have been trying to fix that for over 6 months

[redacted] 15:40:

Will go back to the training [iLC load] and see what it does

[redacted] 15:40:

I don't see how this will get fixed next week

But hey, their "other" pilots can probably sign this off as no training effect...

[redacted] 15:40:

Still can't reproduce the FD commanding a descent during VNAV acceleration S/E - will see if you can do that when you arrive

No issue whatsoever

[redacted] 15:40:

We'll look at it next week

And let's look at that 125' issue too

But to be honest, I hope I get hit by a bus between now and then, really don't want to be there

[redacted] 15:41:

I spoke to [redacted] about that last night

[redacted] 15:41:

What's his take?

[redacted] 15:42:

If he is honest, he says he will back you and fall on his sword before you take a hit

Time will tell

New Binary released to TRU today but no information passed to myself, [redacted] or [redacted] - [redacted] phoned [redacted] last night who carried the phone to the TRU engineer.

[redacted] 15:43:

I will try my best to be quiet, take a back seat approach in meetings, and only talk specifics and metrics

Why a new binary? I thought it was every week, and the sprint closes today so the new binary should be released tomorrow, right?

I-Foy, Neil 15:45:

Don't know why - it has a new engine model with updated oil temperature model - I haven't looked at it yet as TRU are testing but will try again. Don't think it was tested as TRU asked for the QTG results and didn't receive anything

Gustavsson (US), Patrik H 15:46:

ok, well I am looking forward to testing this new "physics based" engine model
You should have been on the call yesterday to hear that. "physics based"

15:46:

Will be interesting

15:47:

I will make sure that we get the data as to how many sprint 1 issues were offered to us, and how many were rejected.
We need to put up real numbers
You, me, and [] saying it like it is doesn't work. It just doesn't stick with people. Hard numbers will hopefully do it.
If not, then we are truly screwed

15:49:

I'm looking at [] sprint 1 list and as far as I can see only 26 of the 69 issues are closed
And that is with the updates from yesterday
[] is worried that everything will be downgraded to P4 - I said that you and I wouldn't tolerate that. He agreed
Will be interesting to see if he backs up talk with action

15:50:

I think they mean close as it is offered to be checked, for the purpose of the sprint. I'll give them that, but that is why we need to check rejection rate too

15:50:

I don't consider offered, I only look at what I have closed - Sprint 1 is over but < 50% was completed

15:51:

I hope he will, but ultimately he works for [] who suggested that in the meeting yesterday
That is a terrible rate

15:51:

Yup

15:51:

That needs to be addressed next week

I-Foy, Neil 15:51:

There are several QTG issues that could be closed by [] wants further discussion

15:52:

Ok, that may help a little

15:53:

But still not the big-ticket items such as FUEL FLOW etc.

15:53:

They can downgrade to P4, but we still have to disclose anything with a flight deck effect on the F&S

15:53:

Am opening the IAN/FAC issues in DRDB also so that they don't get papered over

15:53:

That's a good idea

15:54:

Nope - if it is visible on the flight deck, I won't downgrade it

15:55:

I'm with you, but they can do it behind our back and hope to get away with it. [] said explicitly that there are other pilots who have a say on if it has a training effect

15:56:

Oh yes - there are plenty of Yaeger wannabes out there but very few who I trust. It will be [] and I will not allow him to do it. If I need to, I'll email [] or send the full list to EASA/UK CAA

15:56:

Hopefully [] will support us.

15:57:

I think he has to otherwise, is position is untenable.

15:57:

Anyway, I got up for the morning call only to find it was not on. I will go and do some useful stuff. Try not to think about the shit show....

I'll probably be on later to see how things are going

15:57:

Good for you! Enjoy your time with your family and safe travels tomorrow

15:58:

Thanks, see you soon

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 3/28/2018 8:21:29 AM
Subject: Conversation with [redacted] Boeing Employee

[redacted] 15:00:

How you feeling?

[redacted] 15:01:

not bad, running at slightly slower speed than normal and a bit sore still!

[redacted] 15:01:

Must have been a terrible shock - do the doctor's have any idea what caused it?

[redacted] 15:02:

not yet - and bizarrely the best outcome is they don't, and that it remains a one-off!

[redacted] 15:02:

Ergghhh - not a good response

[redacted] 15:20:

All DRs are in TDMS in SMO or Campus - LGW has a lot of DRs that insufficient information is provided - they may become global but the instructors aren't helping with the brevity of their responses

What is in SMO will be transferred to the campus closer to qualification but the plan is to have much of it resolved in the next 3 sprints

[redacted] 15:42:

I am hoping we can 'hit' the instructors at LGW via a couple of ways - the updated DR process I'm writing with more info on what is needed for raising DRs, plus some separate things that came up with FT here at LGW where we'll be having a get-together with them! Understand totally about TDMS, ECDs etc - it was us that arrived at the solution of not tagging the SMO stuff to the device if not resolved! - I'm just trying to figure out where to get the most 'objective' picture of progress against the get-to-green plan.

[redacted] 15:43:

SMO is a good place for the outstanding issues - the Miami device has very few device specific issues due to low usage

[redacted] 15:45:

ok, thanks [redacted] I take it you are fed up with being in MIA totally now? Are you leaving MIA because of the 30 day thing?

[redacted] 15:46:

Yes - I'm not fed up with Miami. I'm fed up with the meetings that include countless managers who have no understanding of the state of the simulator or the problems that will arise. Everybody is investing more time in blaming others that actually fixing the problem

There are dozens of spreadsheets flying around and none of the data is in sync - nobody questions on the IPT why SDRs with no ECDs are not included in sim support metrics - how many are outstanding 5, 10, 500? It is masking figures to manipulate perception

Nobody questions how SDRs requesting assistance can be closed with the comment "this is a TRU integration issue" - FMC rehost etc. is a grey box provided by Boeing as part of the BSP

[redacted] 15:49:

I get that bit - but I also agree with [redacted] that there has been bit of a mind-shift in the past couple of weeks towards actually focussing on fixing stuff instead of passing the buck. Is it too little too late? - who knows at present!? Will be in MIA during the w/c 23rd April?

[redacted] 15:49:

Audit or conference?

I won't - am leaving before then I believe

QTG submittal to FAA is 20th April

[redacted] 15:51:

meeting with the FAA in ATL, then a verification audit visit to MIA in the 2nd half of the week

[redacted] 15:51:

OK

Thought you weren't meant to travel

[redacted] 15:53:

I'm OK to fly, I just had to cancel Shanghai as I was due to depart the day after I left hospital and they signed me off work for the week!

[] 15:53:

Oh ok - that's good

[] 15:56:

I'd be really screwed if I couldn't fly! It's bad enough not being able to drive for 6 months!!

[] 15:56:

I bet - welcome to my world :)

[] 16:04:

you chose it though!

[] 16:09:

True

You got me there

From: [redacted]@boeing.com>
To: Boeing Employees
Sent: 2/8/2018 8:25:29 PM
Subject: Conversation with: Boeing Employee

[redacted] 03:33:

I feel like such a sucker

[redacted] 03:36:

me too - i/o seems to be the problem at lgw - not the switch i thought

[redacted] 03:36:

interestgin

*interesting

[redacted] 03:40:

Clearly wouldn't have guessed that.

[redacted] 03:40:

nor i but it confirms

[redacted] F 03:41:

Great!

TRU will be there at 09.00

[redacted] 03:41:

ok

[redacted] 03:41:

By the way, I want a really honest assessment from you: are TRU really doing their job fully, and by extension, am I?

Don't have to give now, and don't ever have to stop

I just want to be sure I'm adding value, not just taking up space (especially since I'm clearly an awful FO)

[redacted] 03:43:

[redacted] you don't need to ask such silly questions. You are doing a better job than the PMs - if I ask you something, I get an answer or what I need. If I ask SMS PM, I get buggered with a banana

[redacted] 03:43:

That's a low bar, mate.

I appreciate it, but it's a fantastically low bar

I feel awful that there are (at least) 97 DRs

and SIN MQTG is so out of date

not to mention all the issues at SHA

and the LGW MAX has been AOG for damn near a week

[redacted] 03:44:

I believe TRU are disorganized, chaotic, dysfunctional, but hard working, honest, open to criticism [and there is a lot] but no different to other TDMs but are cheaper and have to date, not failed to meet a major milestone

[redacted] 03:44:

Thank you

Please don't ever stop providing honest feedback. I don't trust many people in Boeing, and like I said, I really just want to be sure to add value.

Especially because I miss my family so much when I spend so much time away.

I can't tell you how much I appreciate your presence on this program. I've been trying to find a way to get you on the 777X because I don't know how else we would succeed.

[redacted] 03:46:

There are 180 DRs on LGW and that is the lead ship - the hardware is buggered I believe but because I promoted a software load, it is easier to blame that than fix the issue. That is due to misreporting by a campus that I held in regard but then lost the rose-tinted glasses.

You are only working so hard because you are trying to support your family - it doesn't seem like it to them and probably not to you right now, but in a few years, they will realise that whilst it seems you are abandoning them, they have each other whilst you are away - you don't have anyone whilst on the road - and I'm sure the Swede and I barely register on the misfit scale.

The money you are working so hard to gain and the sacrifices you are making will pave the way for your children to go through college, for your wife to have the vacations and the things she needs

These things cannot be underesitimated

03:49:

Thank you, my friend.

I don't know how to refer to the very, very few of us on the program who are interested only in truth

But it's mostly depressing that it's so few

03:50:

Honesty is the only way in this job - integrity when lives are on the line on the aircraft and training programs shouldn't be taken with a pinch of salt. Would you put your family on a MAX simulator trained aircraft?

I wouldn't

03:51:

No

03:52:

[redacted] is probably the best person to talk to if you have reservations - mine are grave at the moment and I won't stand for you or [redacted] being thrown under the bus. I do not believe at this rate the Level D deadline is achievable. How seriously have Boeing taken TRUs comments regarding the sound package? That is a critical Level D component that is going by the wayside because we have asked TRU to tune to a poor quality data package

03:53:

Our arrogance is our demise.

I really like [redacted] but the arrogance exhibited about the quality of the data package is appalling.

I'm sure you, me, and [redacted] will all be sacked if we keep our position. I'm not kidding - if I could go back a year, I would vote "no go" on the MIA iLC

03:56:

Me too but it wouldn't have made a difference - we can only draw that line in the sand and let our feelings be known. I will call [redacted] over the weekend to have a frank discussion as to where we are

I like simulators and have enjoyed tremendously working on this program - it is only a job after all and we are all dispensable when we it comes to it.

I'd rather not get fired but my integrity means more to me than a pay cheque

03:57:

I agree

I'm disposed to trust my gut and press my integrity more than I ever have

If there is *anything* I can do to help you more here, please don't hesitate to ask.

03:58:

At this stage, what else do we have - perhaps the Go-No Go should include the LGW instructors who use the device

03:59:

If you get a "no" from TRU, or even hesitation, let me know immediately.

03:59:

You know me - if I think I can get it, I'll ask for it. I'm not shy in that regard

Let me know if I am failing to do what I need to in any way

03:59:

Not in the slightest.

You and I can fix this program

I really believe that

It's what keeps me floating

04:01:

I'm sinking to be honest

04:01:

I know - I'm trying to keep bring you and [redacted] back to the surface

04:10:

You OK? No problems at home? Make sure you spend some time at home this time before you go away again

04:11:

No, no problems at home

I just have these swings

04:12:

Get some rest - don't worry about waking up early tomorrow to take me in. I can catch a taxi

04:12:

No, no

I'll be ready at the car at 6.15

Best part of the day, really

04:12:

Nahh - now I know you are kidding!

[] 04:12:

No, seriously

[] 04:15:

Car at 6.15

It's ON

[] 04:16:

Manyana

LGW:

Autopilot stab trim cut out switch is toggling

Also Copilot Yoke Autopilot Disengage is doing the same thing

[] 04:18:

Lovely

[] 04:18:

Wonder what that might be in hardware

[] 04:19:

Great question, though I have had a concern about their overall wiring and general EE skills for over a year.

[] 04:20:

Indeed [] at Gatwick stays [] still believes it to be software

[] 04:20:

Well, TRU will have someone on site shortly who's actually intelligent

So we'll see then

[] 04:21:

hope it isn't software - my bad if it is

[] 04:21:

meh

[] 04:21:

Can't see how it could have effed up though

[] F 04:21:

[] and I all assessed the same

I'm going to shutdown, otherwise I'll stay up all night.

Get some sleep, please

[] 04:22:

You too - don't worry about me. Am an insomniac at the best of times and Aliens is on the TV

[] 04:22:

LoL

From: [REDACTED] **Boeing Employee**
To: [REDACTED]
Sent: 4/24/2018 4:02:27 PM
Subject: RE: Updated QTG

[REDACTED]

I agree with you entirely and agree with the whole failure to plan this program properly from the Boeing side.

I am just sick and tired of being put in the middle of this with pathetically weak PMs and no support - Singapore has done nothing except break the simulator - the PM here is now swapping some form of isolator in the cockpit for reasons unknown - he has no training on the device but thinks he knows what he is doing.

At this rate, I will not be returning to Miami this trip or coming out again to either site - I have had enough.

[REDACTED]

-----Original Message-----

From: [REDACTED]
Sent: 24 April 2018 23:33
To: [REDACTED]@boeing.com>
Subject: RE: Updated QTG

[REDACTED]

This is a direct result of a poor plan which I objected to repeatedly since day 1. The schedule simply did not permit for any corrective actions to be taken; particularly given the circumstances of the program and for a device which is clearly undermaintained. No engineering support was ever planned in Singapore as per the change order executed in fall 2017 despite my objections when my initial proposals were refused for being "overly conservative". Moreover, given the need to extend residence in Miami, the Singapore contingent was always going to be small and take its cues from Miami. This was discussed and agreed upon.

Further, none of the HW issues on MAX 2 were previously reported and a number of them were caused recently by the campus itself. I am doing my best to mitigate the situation (as I know you are) but there is a limit to what can be accomplished in 3 days.

As to the QTG, we will do our best to accommodate however the understanding was always to submit the same document as in Miami run on the same load. Whatever deficiencies exist will be addressed in Miami for both campuses as required prior to the qualifications but again there is a limit to what can be done in 36-48 hours. Moreover it seems that we have sound issues to contend with as well which needs to be our primary focus right now.

I am not surprised by the outcome of the F&S. Nothing much has changed in 4 days so I wasn't expecting the F&S in Singapore to be any better than that of Miami. If anything it's a little worse I imagine.

We will continue to work out our issues but a lot of this is beyond our control.

FYI we are building a new load this evening and offering another 6-8 DRs. I will forward you release notes shortly.

Sent from mobile device.

[REDACTED]

[redacted]

From: [redacted]<[redacted]@boeing.com>
Sent: Tuesday, April 24, 2018 9:27:53 PM
To: [redacted]
Subject: RE: Updated QTG

[redacted]

I let it slide for the Miami qualification and put my name to something I didn't have the opportunity to check thoroughly due to time constraints. I do not see why this cannot be corrected now. I wished I had looked at the motion buffet tests further - the resource data has no bearing on the VDR in several cases and I would like to know why - to my knowledge, the data did not change at the last minute so I want to know why it differs. I had previously asked [redacted] to contact [redacted] regarding the IQTG latency methodology as I had concerns - Jon is likely to reject these tests outright.

I also want answers to all of [redacted] questions before Thursday morning Singapore time so that I can try and discuss them with him.

Given the current state of the device, QTG, and the lack of engineering resources on site, I cannot conscionably allow the device to be put forward for qualification and certainly will not be permitting the pilot to sign the F & S checklist. Given that there is no other opportunity for doing this, this part of the QTG will not be signed prior to [redacted] arrival the day prior to qualification.

Attached are the questions I would like answered.

[redacted]

From: [redacted]
Sent: 24 April 2018 15:21
To: [redacted]<[redacted]@boeing.com>
Cc: [redacted]
Subject: RE: Updated QTG

[redacted],

Isn't the document essentially identical to Miami? Or are you saying that we need to insert all of the relevant rationales at this point?

[redacted]
Program Manager
TRU Simulation + Training Canada Inc.
Email: [redacted]
Office: [redacted]
Mobile: [redacted]

[redacted]

[TRU_logo_color_horizontal]

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From: [redacted]@boeing.com]

Sent: Tuesday, April 24, 2018 10:18 AM

To: [redacted]

Subject: Updated QTG

Importance: High

Hi [redacted],

Could you ensure that the Singapore QTG is updated before Friday with all affected closure letters/SDSR responses - I have grave concerns as to whether the campus will submit it at this point in time.

Thanks,

[redacted]

[redacted]

Training & Professional Services
Global Services

Tel [redacted]

Fax [redacted]

Email [redacted]@boeing.com<mailto:[redacted]@boeing.com>

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Registered Office: Boeing House, Crawley Business Quarter, Manor Royal, Crawley, RH10 9AD
Company Registration Number: 3802219

From: Boeing Employee
To: Boeing Employee
Sent: 2/20/2017 7:14:29 AM
Subject: RE: [redacted] 777 ECL COC update request

So they won't fix anything just like they don't in LGW, hence the large DR count.

Makes sense

From: Boeing Employee
Sent: 20 February 2017 15:14
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

Yes the holy trinity of slackers

From: Boeing Employee
Sent: 20 February 2017 15:13
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

Oh ok – who is on the course?

[redacted]?

From: Boeing Employee
Sent: 20 February 2017 15:12
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

I think this bit is the motion system so maybe they have someone coming from MOOG

From: Boeing Employee
Sent: 20 February 2017 15:10
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

Don't know who is going to do the training

From: Boeing Employee
Sent: 20 February 2017 15:10
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

They should be in Miami from today for 6 days!

From: Boeing Employee
Sent: 20 February 2017 15:09
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

No – they were in Holland

From: Boeing Employee
Sent: 20 February 2017 15:08
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

So have you seen the LGW guys out there for their course?

From: Boeing Employee
Sent: 20 February 2017 12:57
To: [redacted]@boeing.com>
Subject: RE: [redacted] - 777 ECL COC update request

I am certain now that [redacted] is all bluster and no ability – he hasn't fixed a single thing without calling in multiple people to do his bidding

From: Boeing Employee
Sent: 20 February 2017 12:42
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

Will be interesting to see what happens in Singapore then as they are supposedly super thorough.

[redacted] told me a cracker about [redacted] asking him to redesign the brake feel on Fri afternoon the week before the Eval! He accidentally forgot to hang up and after an expletive laden discussion with his Mrs heard the call drop. [redacted] then called back to say maybe it wasn't such a good idea so late in the day!

Safe journey home.

[redacted]

From: Boeing Employee
Sent: 20 February 2017 12:22
To: [redacted]@boeing.com>
Subject: RE: [redacted] - 777 ECL COC update request

Fly home today – having the kitchen replaced on Thursday through to Friday next week L

Amazing what a brown envelope can achieve – it isn't anywhere near as good as it would appear to be reading the report. The FAA were neither thorough nor demanding and failed to write up many issues.

And the lies, the damned lies – I was removed from the simulator for three days in the week leading up to the evaluation on the instructions of a Senior Manager so that certainly individuals could 'tune' with the pilot. The tuning then fouled up multiple QTG tests and was clearly wrong and the pilot was forced to sign a SoC that was clearly based on a lie. Another Senior Manager was also screamed at in a temper tantrum by said individual and also barred from the simulator. The Go/No Go decision comes along and then aforementioned Senior Manager and Senior Engineer then state to a cast of 30 – "we have to trust the decision of [redacted] on Site".

Needless to say, I tore straight into [redacted] and [redacted] about the lies and the unethical/deceitful nature of this comment as it meant I was set up to take the blame should it have gone wrong.

It is a joke and nothing more – whilst 9 PMs were on Site last week during the evaluation, it was for a jolly/free meal. One PM even said that given that we are under budget, we should hire a yacht a sail around Miami harbour to celebrate and even asked [redacted] to submit the request...

Honestly, you wouldn't believe it

From: Boeing Employee
Sent: 20 February 2017 12:15
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

Cool see my subsequent back track!

Are you back yet? I see it passed with some very positive comments so I'm guessing you must have been working your butt off out there.

[redacted]

From: Boeing Employee
Sent: 20 February 2017 12:13
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

No problem – there is nothing you can do to make it work if it believes the engine configuration is wrong

From: Boeing Employee
Sent: 20 February 2017 11:55
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

Oh – Cheers for the heads up! I did think it was a bit of a strange request as all the engine fail procedures would not work properly.

Thanks

[redacted]

From: Boeing Employee
Sent: 20 February 2017 11:54
To: [redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

[redacted]

It is impossible to use a GE checklist in the RR configuration – it just will not work regardless of whether it is valid or not.

[redacted]

From: Boeing Employee
Sent: 20 February 2017 09:27
To: [redacted]
Cc: [redacted]@boeing.com>; [redacted]@boeing.com>; [redacted]@exchange.boeing.com>; [redacted]
Subject: RE: [redacted] 777 ECL COC update request

Hello [redacted]

See below for the reply from my Tech who tried to load the GE checklist over the weekend.

Our options going forward are:

- 1) Use a generic Boeing RR Checklist

Or

- 2) [redacted] supply a copy of their MODB & MODA2 LSAPS that they load along with the MODA (ECL) Parts for the AIMS2 GE BP17.1 ECL
- 3) [redacted] create a custom version of the AIMS1 RR checklist for AIMS 2 BP17 and supply this with the MODB and MODA2 parts.

I did go to my colleagues in Seattle with this request but as the checklist is created by the airline they are unable to do anything with these files and they suggested giving you a generic Boeing checklist.

Apologies for these issues,

Best regards,

[redacted]
Simulator Operations Supervisor
Boeing Flight Services
Gatwick Campus RH10 9AD
Tel [redacted]
Mob [redacted]
Fax + [redacted]
[mailto:\[redacted\]@boeing.com](mailto:[redacted]@boeing.com)

From: Boeing Employee
Sent: 20 February 2017 01:18
To: [redacted]@boeing.com>
Subject: RE: [redacted] - 777 ECL COC update request

Hi [redacted]

Tried loading the latest ECL 3114-BFT-001-6A into MODA with the following MODB options:

3166-BFT-004-00
3118-BFT-002-H0
3163-BFT-002-30
3164-BFT-006-00
3165-BFT-007-00

But could not get their ECL to work with any of them MODB options.

Regards,

[redacted]
Senior Simulator Technician
Boeing Flight Services
Gatwick Campus
[redacted]@boeing.com

From: [redacted]
Sent: 19 February 2017 05:54
To: [redacted] <[redacted]@boeing.com>
Subject: RE: [redacted] 777 ECL COC update request

Hello [redacted]

Thanks for information, waiting for update.

Brgds,

From: [redacted] <[redacted]@boeing.com>
Sent: Friday, February 17, 2017 6:42 PM
To: [redacted] Boeing Employee
Cc: [redacted] Boeing Employees
Subject: RE: [redacted] - 777 ECL COC update request

Hello [redacted]

We are still having issues getting any of the checklists we have been sent to work. One of the guys is going to try this AIMV2 BP17.1 GE version that you sent over the weekend with all the different MODB LSAPS that we already have as I believe the MODA part you are sending needs to be compatible with a MODB part to give a working ECL. Currently with this [redacted] checklist fitted we just get a 'Checklist Unavailable' message. I did ask Seattle to see if they could generate an AIMS2 BPV17 version of the RR ECL we previously were sent as there will obviously be issues around engine failure drills etc even if we do get the GE checklist to work.

Best regards and I hope to have better news for you next week,

[redacted]
Simulator Operations Supervisor
Boeing Flight Services
Gatwick Campus RH10 9AD
Tel [redacted]
Mob [redacted]
Fax [redacted]
mailto: [redacted] <[redacted]@boeing.com>

From: [redacted]
Sent: 14 February 2017 04:56
To: [redacted] <[redacted]@boeing.com>
Cc: [redacted] <[redacted]@boeing.com>; [redacted] <[redacted]@exchange.boeing.com>; [redacted] <[redacted]@boeing.com>; [redacted]
Subject: [redacted] - 777 ECL COC update request

Hello

I recall that our previous ECL (Electronic Checklist) COC files upload was not successful.

We have a simulator trainings scheduled starting 15, March 2017.
These trainings absolutely need to be accomplished with our ECL.

Attached ECL files that are compatible with Simulator AIMS-2 v17.1 GE Engines, latest revision (revision 34).
In addition, attached the Technical Newsletter.

Please upload simulator and advise if all is running properly.

Regards



Email secured by IT Security

From: Boeing Employee
To: Boeing Employee
Sent: 6/1/2018 9:24:56 AM
Subject: RE: MAX Simulator Program

[REDACTED]

I hear what you're saying, so I am willing to be the a-hole here and highlight this and call the Senior Leadership out for creating this culture.

Regarding the supplier side, someone made our bed so we just got to make the best of it and make sure we don't let the same things happen again else, why waste our time doing an AAR.

I want to sit down with you on Monday and discuss it and then I will let the team know that this type of behavior is unacceptable.

[REDACTED]

From: Boeing Employee
Sent: Friday, June 01, 2018 9:20 AM
To: [REDACTED]@boeing.com>
Subject: RE: MAX Simulator Program

At this point I think there's significant risk that the LGW MAX device will not be granted an iLC extension and will lose its qualification by regulatory decision, not ours. Not being granted an extension on that device would have significant impact for [REDACTED]

As for why people are voting yes.... everyone has it in their head meeting schedule is most important because that's what Leadership pressures and messages. All the messages are about meeting schedule, not delivering quality. We managers were told names were being taken by senior leadership at the level D Go/NoGo meeting, now referred to internally as the Go/Go meeting. Sometimes there are understandable reasons why we have schedule pressures - such as major impacts to customers. But not always. Take iLC decisions - we had practically no customer training on the device to now. But not looking bad by missing schedule was more important and we missed the opportunity to fix things when there was low impact.

We put ourselves in this position by picking the lowest cost supplier and signing up to impossible schedules. Why did the lowest ranking and most unproven supplier receive the contract? Solely based on bottom dollar. Not just MAX but also the 777X! Supplier management drives all these decisions - yet we can't even keep one person doing the same job in SM for more than 6 months to a year. They don't know this business and those that do don't have the appropriate level of input.

Also, that voting list is full of people voting for their self-interests. Binary was voting yes because 'binary is good'. Sim Support voted yes because 'level D Data package is huge improvement over level C'. New Programs voting yes because they need to make schedule and they believe the device will make it through qualification. Very few people are actually voting understanding the entirety of the decision including customer quality and long term maintainability of the specific device we are accepting. We haven't even fully checked the requirements TRU is supposed to meeting.

I don't know how to fix these things... it's systemic. It's culture. It's the fact that we have a senior leadership team that understand very little about the business and yet are driving us to certain objectives. Its lots of individual groups that aren't working closely and being accountable. It exemplifies the 'lazy B'. Sometimes you have to let things fail big so that everyone can identify a problem... maybe that's what needs to happen rather than just continuing to scrape by.

Best part is we are re-starting this whole thing with the 777X with the same supplier and have signed up to an even more aggressive schedule!

From: Boeing Employee
Sent: Thursday, May 31, 2018 11:25 PM
To: [redacted]@boeing.com>
Subject: RE: MAX Simulator Program

[redacted]

For the most part I agree. But I have to ask, who has said we had to proceed? Who from leadership had said we had to meet some level of approval on the Singapore device? On the Miami one, I understand (don't agree) why they decided to move forward, but why do we allow this to happen?

I look at who agreed to proceed to level C with EASA on the list and I see a whole slew of people that are not (quote) Leadership yes they voted yes. You and [redacted] said no, but [redacted] et.c. etc. said yes. So who drove this to say yes?

I understand your feeling and I want to help address the root problem, but the supplier selection is done. It isn't something we have the luxury of going back and doing over. The Quality of Boeing data packages, okay, how do we fix it? I am not advocating or defending our situation, but I have yet to see someone tell me that we need more resources, etc. etc.

At this point, I am hearing your gripes, acknowledge they have validity, so let's address this.

I am all for saying "NO" to proceeding with any activity with Shanghai or Gatwick Max, so let me know how I should say no. I can cite all the below, but I will immediately be asked, because I would if I heard someone say this, how do we fix it.

So, I'm accepting the responsibility to say "no" but you need to help me address what happens after so that we can get to "yes".

[redacted]

From: Boeing Employee
Sent: Thursday, May 31, 2018 11:13 PM
To: [redacted]@boeing.com>
Subject: FW: MAX Simulator Program

For reference – this evening the Singapore EASA level D qualification was downgraded to level C as sound objective tests could not pass. It was completely unnecessary, and frankly embarrassing on the part of Boeing and TRU. A lot of the below is down in the weeds but adds depth to a clearly visible problem that we have systemic organizational issues causing us to unnecessarily spend enormous amounts of effort (=\$\$\$) to end up with poor quality products and pat ourselves on the back about it.

It starts from our supplier selection process (or lack of) and continues to how we manage the supplier, the quality and support of Boeing data packages, substandard/non-existent requirements management, lack of resource staffing, lack of the right resources, lack of accountability, and hybrid ownership of programs/projects. It ends with our repeated decisions to push products into the field to meet *often arbitrary* schedules despite suppliers not delivering on commitments and clear quality concerns. At any point on this program (IPA, iIC, levelD) we could have stopped this by standing firm on a commitment to quality until the program was where it need to be. However we continued to bend to leadership pressure and allowed ourselves to shoot for the lowest possible bar of 'We think the regulator will qualify the device'.

From: Boeing Employee

Sent: Thursday, May 31, 2018 9:45 PM

To: [redacted]@boeing.com>; [redacted]
[redacted]@boeing.com>

Cc: [redacted]@boeing.com>

Subject: MAX Simulator Program

[redacted]

Would it be possible to arrange for some form of after action review to determine what is causing the MAX simulator program to press on regardless of the risks to the Boeing brand? Any such review should consider the systemic failures in leadership, preparation, and communication that are squandering thousands of dollars of Boeing finances and impacting the critical functions performed by the Flight Technical and Safety pilots for whom a simulator acceptance/testing is a minor part.

Consider the following, in the last 30 days:

- 1) Miami FAA Level D qualification was scheduled for March – it was achieved in late May.
 - a) Between these dates 100-150 DRs alone were closed.
 - b) The Boeing VDR has had more than 30 tests updated since release resulting from SDSRs
 - c) The sound data package released to industry was unacceptable
 - d) Functions and Subjective testing was only signed in mid-May on the third attempt and even then, critical issues were downgraded
 - e) 115 DRs were declared to the regulator at the time of qualification [100 others exists]
 - f) The air conditioning issues identified in August last year were not resolved until the last minute resulting in TRU charging Boeing for multiple visits to site to retune the sound
 - g) Temporary air conditioning blower fans were reluctantly purchased to boost airflow and Boeing are now having to purchase a CVAC from TRU which will require setup, and retuning of the sounds and another visit to assess subjectively and objectively.
 - h) The campus failed to provide the correct information to the regulator.
 - i) The campus failed to communicate the correct qualification dates to anyone on the MAX program resulting in airfare change fees of up to \$5000. A result of this delayed travel to Singapore by 1 day. Subsequent and unpredictable ATC delays further delayed travel by 18 hours.
 - j) The regulator was extremely upset to be asked to qualify a device with so many declared defects and documented this in their report. Worse, they felt that Boeing did not have a handle on the DRs and took the decision to transfer TDMS DRs into their report to permit them to stipulate time frames for rectification
- 2) Singapore EASA Level D / CAAS Level VII Qualification
 - a) Miscommunication regarding F&S dates resulted in [redacted] having to change flights twice
 - b) Fortuitously, the CAAS qualification dates slipped by 2 weeks. Had the original schedule been adhered to, the travel delays documented in item i) above resulted in the acceptance team arriving at 0030 on the morning of day 1 of the qualification. There would have been no time to complete F&S checks
 - c) The F&S checks were not signed at the time of QTG submittal due to there being too many hardware issues on the device. These had been known to exist for 2 weeks prior to the commencement of F&S testing but nothing had been done to resolve them until the issue was escalated.
 - d) Sound tests were submitted 30 days prior to qualification with failing results. Nothing was done to resolve the sound problems until the issue was escalated on day 1 of what would have been the CAAS qualification
 - e) Sound was only made to be marginally acceptable for Level C qualification on day 4 of the planned qualification. Until then, the device would have been limited to Level IV under CAAS – a downgrade from Level VII
 - f) Sound still does not pass objectively and is remains obviously different to the Miami device on day 5 of the planned qualification. Only now are the campus taking note of the fact that it may be a facility issue [redacted] and I found leaking air lines behind two of the devices which contribute to the ambient simulator hall noise]. TRU could not get the tests to pass – the campus believe that this may be associated with the CVAC or compressor on the adjacent Mechtronix NG but the failing results were

obtained with that device completely powered off.

- g) Nothing still has been done to satisfactorily resolve the sound issue. TRU did not send an engineer when requested, nor did they send hardware engineers – they were already in Singapore to work at the Airbus training centre. At this point, there is no requirement for [redacted] to be on site, particularly when his group is already stretched due to customer commitments and accident investigations
- h) The Go / No Go decision to proceed with qualification was based on schedule, nothing more. I do not believe the device will fail Level C qualification, but the fact that we are going for Level C is a failure in itself [although Boeing will not consider it so]. We will be left with a QTG that needs to be updated, a device with 160 DRs on it, and the inconvenience of having to reschedule and finance another special evaluation.
- i) Last year, in an inferior load, DR manipulation resulted in the declaration of 42 issues. This year, in an improved load, we have already declared double that number – nobody has considered how this will be explained. Plausible arguments such as “we have tested this using every level of documentation available” will be presented, however, there is no rebuttal for the regulator counterpoint stating “why did you not use these before”.
- j) The Singapore campus has documented problems with the quality of support they are provided with by TRU – this is not likely to change
- k) The Singapore campus did not come close to meeting sustainment goals during the iLC process. Do we believe they will achieve this during Level D?
- l) The Industry will now know that Boeing failed to qualify one of its own devices with its own product to Level D standard – given the anti-binary sentiment in the industry, how will the impact of this be perceived particularly given the failure is not Binary related?
- m) Level C qualification with the number of outstanding issues is not guaranteed

We now have to determine how to approach the UK CAA for an extension to the iLC qualification – they will have been contacted by EASA to indicate that there are significant numbers of outstanding issues in the Level C/D load – their experience will lead them to appreciate that there must be considerably more in the iLC load and they will have to seriously look at whether the device is in an acceptable condition to permit the certificate to be extended [note the decision was taken to not declare all issues across all devices even when we knew them all to be impacted because the Device Managers objected so the current list in TDMS is misleading].

Time and time again, we are inundated with Boeing material specifying quality is key – this clearly is not the case or driving factor in any of the decisions that are made. Lessons learned continually say we should not accept inferior quality products because there is an unnecessary and costly overhead associated with doing so, but here we are, immediately prior to qualification, dealing with an issue that was documented weeks ago, and now accepting a reduced qualification level [read failed] as a result. Nobody seemed to consider in the meeting today that a qualified device that goes unused is almost as useless as non-qualified device. Given that the 737-8 is a common type rating, why would a customer pay the elevated price to use a MAX simulator when there are dozens of Level D qualified 737 devices across 6 continents? Has this lesson not been learned in the MAX classroom?

Until an open and frank discussion takes place, the same errors, wasted opportunities, and financial losses will continually be absorbed.

Regards,

[redacted]

[redacted]

Training & Professional Services

Global Services

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