757/767 Breakout Questions and Answers

Center Tank Fuel Pump Status:

1. How will the normal procedures be synchronized for the 757/767? Operators receive the revisions to the 757 and 767 6 months apart and thus have to wait to update their ops manual.

<Answer>. Both sets of procedures will be published in both old and new versions, though the publication dates will be staggered. The versions will be effective for about a year during which time the airlines can synchronize on their own schedule.

2. Are there any plans to incorporate the 767 shared flow operations manual bulletin into the fuel CONFIG operations manual procedure?

<Answer>. Boeing does not plan to do this. Airlines can modify their own books or they can contact Boeing if they have a contract for plan 2 service. Please contact Boeing Flight Technical Integration & Data to request that your operations manual bulletin be incorporated.

3. How big of a job is it to retrofit a scavenge system on the 767? Is there a Boeing service bulletin to do this?

<Answer>. One operator has purchased a Master Change from Boeing to install scavenge systems on their 767-200 airplanes. The service bulletin indicates approximately 40 hours of task time (2 people at 20 hours) are required to install the system on these airplanes.

4. What is the projected cost of the Auto Shutoff SB? Will Boeing be providing the auto shutoff service bulletin at a reasonable price?

<Answer>. Please be advised that the cost of retrofit for the auto shutoff system has not yet been determined.

5. If auto shutoff will be considered an AMOC to the fuel pump AD which requires wet shutoff, why is Boeing still pursuing a design change to the 767 fuel pumps? In other words, if installation of the Auto Shutoff feature is terminating action to the AD and installation of the cast-in diffuser pumps is another, why should an operator install both features? Why install cast-in diffuser pumps? What is the cost of the Auto Shutoff?

<Answer>. The Auto shut-off feature is intended to minimize dry running of pumps. The machined diffuser configuration of pumps has a failure mode within the pump which could cause an ignition source in the pump. Boeing intends to ask for an AMOC for the wet shutoff requirement, but the 1000 hour inspection will still be required. Current terminating action for the AD (which removes the 1000 hour inspection) is installation of the cast-in diffuser pump. The cast-in diffuser pump has performance issues, causing a premature main tank fuel consumption anomaly. Boeing is continuing to investigate a redesign of the pump in order to address the performance issues with the cast-in diffuser and relieve the operators of the 1000 hour inspection with the machined diffuser pump.

6. How big of a job will it be to incorporate the auto shutoff feature? Will it be true for both the 757 and 767?

<Answer>. Installation of the auto shutoff feature should only involve placing a couple of relays and some wires in the EE bay and could be accomplished overnight. This would apply to both the 757 and 767.

7. Will the auto shutoff feature require installation of new EICAS computers or result in new EICAS messages? What will be done about the uncommanded ON pump?

<Answer>. There are no plans to add any new EICAS messages as EICAS changes are costly and time consuming.

We are in discussions with the FAA at this time regarding the uncommanded ON function and are currently unable to provide any details on this issue.

8. Regarding AD 2002-19-52 for the 757 airplane, what is the inspection interval?

<Answer>. There is no established inspection interval. When a pump is first inspected it is identified with a special suffix. Each time after that the pump is reworked it must be re-inspected with a boroscope.

9. Will the auto shutoff feature prevent the metal to metal contact on the 767?

<Answer>. Auto shutoff does not prevent the metal to metal contact within the pump. The auto shutoff feature will minimize the dry running of pumps to 14 seconds. The current AD mandates a 1000 hour inspection which will ensure that there are no liberated parts within the pump.

10. Is this a change in philosophy? There seems to be a contradiction between the current procedure to turn the pumps off at 500kg and the Auto Shutoff that waits until a low pressure indication. If a wet shutoff is the right answer, why let the pump go a little dry?

<Answer>. The FAA has directed that there will be no dry running of pumps at any time. By installing the auto shutoff procedure there is no concern that the pilots might forget or are distracted with other more pressing duties to turn the pumps off. Installation of auto shutoff may allow operators to get rid of the operational wet shutoff, but it is unlikely the pump inspections would be removed. Auto Shutoff turns off the pump 14 seconds following indication of low pressure. That timing was tested in the lab to preclude dry running and the generation of heat in the event the pump has failed.

11. Don't we risk inspecting the pump into a failure mode by re-inspecting them every 1000 hours?

<Answer>. No, the inspection involves removing the pumps from the housing and does not take the pump apart. The inspection just looks at the screws, etc.

12. Is there a change of material (to composite) in store for future fuel pumps (7E7 for example)?

<Answer>. We are unaware of any plans or any current research on that issue. The cast-in diffuser pump eliminated screws in the assembly that were a significant part of the problem.

13. What is the status of nitrogen inerting?

<Answer>. Boeing is studying nitrogen inerting for the center wing tank as a service bulletin retrofit. In addition, we note that the FAA is considering mandating such a system on airplanes. The 737 and 747 airplanes would most likely be the first models to incorporate such a system. At the present time there is no plan to mitigate SFAR 88 requirements by installation of the NGS.

Contaminated and Slippery Runways:

14. Does the definition of "wet runway" include grooved or non-grooved runways? What is the definition of a "damp" runway?

<Answer>. Wet is considered to be "not dry" or "not contaminated" by some definitions. It is generally accepted that a surface that appears "reflective" is considered wet. A damp runway is not wet. However, airlines must decide how they will treat these different conditions.

15. Is "good" characterized as "wet" in Boeing data? If a grooved runway is wet, can we assume it is "dry"? If a non-grooved runway is wet, can it be assumed to be dry?

<Answer>. Boeing data is based on testing of the 707, 727, 737 and 747 in Roswell, NM (not a grooved runway). A wet, grooved runway cannot be considered dry. Boeing testing shows that braking capability on a wet, grooved runway is about 85-90% of that on a dry runway.

16. What is "advisory" data?

<Answer>. Advisory data is data that has been computed according to the same standards and with similar methods as certified data, but since the data is not required by certification or operational rules Boeing publishes the data as Advisory.

17. Is there friction data published in Boeing documents?

<Answer>. Boeing does not publish friction data from runway friction measuring carts.

18. The contaminated runway data takes credit for thrust reversers, but the published dry data does not. Is there thrust reverser inoperative data available for contaminated runways? And does the Boeing data for one thrust reverser operating normally consider that the pilot may be judicious in his application of reverse thrust because of the asymmetric condition?

<Answer>. Boeing does have some data available for one or two inoperative thrust reversers on contaminated runways; the data consider a "judicious" application of thrust. New data is being added for no reversers.

19. Does Boeing publish contaminated runway data for inoperative equipment such as hydraulics and anti-skid?

<Answer>. Boeing provides landing information for some inoperative systems in the Operations Manual - PI section for landing with non-normal configurations.

20. Are the published crosswind guidelines piloted simulations?

<Answer>. The 737 classic, the 757, the 767 and the 777 takeoff crosswind guidelines are based on piloted cab simulations assuming an engine out refused takeoff maneuver at an adverse loading condition using normal piloting techniques. The published crosswinds were selected to provide adequate airplane control. The 737NG and 747 takeoff crosswind guidelines are based on engineering analysis and simulation studies assuming the same engine out refused takeoff maneuver.

The 737 classic, 737NG, 747-400, 757, 767, and 777 landing crosswind guidelines are based on piloted cab simulations at an adverse loading condition using normal piloting techniques. Both all engines operating and engine out landings were considered. As above, the published crosswinds were selected to provide adequate airplane control.

21. What is the difference between the crosswind guidelines and the demonstrated crosswind data in the airplane flight manual?

<Answer>. The AFM "demonstrated" value is simply the highest crosswind conditions that were encountered during the airplane flight test program. The recommended crosswind limits were determined by analysis and piloted simulator evaluation, not by flight test.

22. Were the evaluations based on both takeoff and landing?

<Answer>. As described in the answer to Q20, piloted cab simulations were used in determining both the takeoff and landing crosswind guidelines. The crosswind guidelines are different because different maneuvers were considered for takeoff and landing.

23. Are these "theoretical" numbers?

<Answer>. The crosswind guidelines are not “theoretical” numbers. The crosswind guidelines are based on piloted cab simulations where the simulator aerodynamic, thrust, and ground

models are based on flight test data. The crosswind guidelines represent a conservative assessment of the steady state crosswind.

24. Are the crosswind guidelines based on engine out?

<Answer>. The takeoff crosswind guidelines are based on an engine out refused takeoff maneuver with an engine failure just before V1. The landing crosswind guidelines considered engine out landings and recommend that the landing crosswind guidelines be reduced by 5 knots on wet and contaminated runways when using asymmetric reverse thrust.

25. MTH - What is the minimum recommended runway width for operations in crosswind?

<Answer>. The minimum width is 45 meters. Boeing has provided narrow runway crosswind and takeoff speed and field length adjustment information to operators based on specific requests.

Flight Crew Use of Circuit Breakers:

26. How will Boeing send this revised circuit breaker cycling policy for a dual FMC lockup out to the fleets?

<Answer>. If internally approved in Boeing Flight Operations, Boeing would issue an Operations Manual Bulletin to 757/767 operators advising of the revised policy for circuit breaker use.

27. Operators need a list of circuit breakers (e.g., FMC, ACARS) that are acceptable to cycle.

<Answer>. Boeing may allow circuit breaker cycling via an operations manual bulletin on a case-by-case basis to grant temporary relief from a known system anomaly. There will not be a blanket recommendation or the establishment of a general policy. Please note the distinction between cycling and resetting of circuit breakers. Recommendations concerning circuit breaker resetting are already provided in the manuals. That policy is not changing.

28. Why is Boeing concerned about cycling of circuit breakers? What about circuit breaker cycling for the "Connexion by Boeing" system?

<Answer>. Flight crews are not trained in circuit breaker location or use. In many cases, circuit breakers are installed in different locations on different airplanes within a model. Circuit breakers are not designed to be switches; this impacts life expectancy of the circuit breaker. The flight crew is not always in a position to easily reach circuit breakers. In addition, the circuit breakers themselves are not necessarily clearly and uniformly labeled. Boeing is also concerned that if the crew becomes habitualized to using circuit breakers they will eventually use them in a situation they should not use them.

29. We need this ops manual bulletin, with respect to recovering a locked out FMC, in every operator's operations manual.

<Answer>. Boeing Flight Operations will review the Boeing circuit breaker policy as it applies to the FMC lockup failure mode(s). Any approved change in policy will be disseminated, as appropriate, to affected operators.

30. Will there be similar language regarding cycling circuit breakers in the QRH procedures?

<Answer>. No, such information would only be issued as an Ops Manual bulletin as it would be only temporary in nature. Our intent, as with all system malfunctions, is to permanently correct the problem necessitating cycling of C/B's.

31. Will cycling circuit breakers shutdown other systems?

<Answer>. Boeing will investigate this when establishing recommendations on a case-by-case basis. Yes, it is possible one system's circuit breaker could disable all or part of another system.

<u>757 Pilot Induced Oscillations (PIO):</u>

32. Please confirm when the Wheel damper service bulletin will be available.

<Answer>. The wheel damper Service Bulletin will be released sometime in mid to late August, 2004.

33. Will vortex generators be mandated?

<Answer>. As of May, 2004, installation of flap vortilons are a 'planned AD' (reference: FAA worksheet # 02-AD-166). This means that there is a very good chance that installation of the vortilons will be mandated. Boeing recommends that all operators install the vortilons.

34. If there are two (2) vortex generators missing will a flaps 25 landing be required? Why is this requirement necessary if the airplane has been flying around for years without vortex generators?

<Answer>. Per the CDL, if more than one vortex generator is missing on either side, use of flaps 30 is prohibited and Flaps 25 landings will be required..

The vortilons, or vortex generators, are installed on the leading edge of the outboard flap to remove an aerodynamic anomaly that could be a potential trigger for a lateral PIO. They are designed to prevent a sudden air flow separation on the outboard flaps caused by the spoilers deflecting. Thus, these vortilons will make lateral roll control authority more linear and smooth and predictable with wheel position. This lateral aerodynamic anomaly does not occur at flap detent positions other than 30.

The degree/level to which these vortilons prevent this premature separation is a function of how many vortilons are on the flap leading edge and their location. An aircraft with

different missing vortilon patterns left compared to right will exhibit different roll characteristics left when compared to right. For this reason, the operator is prohibited from using flaps 30 when more than one vortilon is missing on either side.

These vortilons are held in place by glue and rivets. It is unlikely they will depart the airplane by working themselves loose while under air load and vibration. Their departure most likely would be the result of something impacting the flap leading edge. In this case, it is likely that there would be other structural damage to the leading edge of the flap that would draw attention.

35. When will all service bulletins (for Vortex Generators) be available?

<Answer>. The vortilon Service Bulletin was originally released as a "SPECIAL ATTENTION" Bulletin on 3/9/00. On 1/10/02, it was re-released as an "ALERT" Service Bulletin.

The wheel damper Service Bulletin will be released sometime in mid to late August, 2004.

36. Do the simulators reflect this PIO tendency?

<Answer>. Boeing does not think crew training simulators accurately represent the PIO tendencies/proneness of our airplanes.

37. At what line number will the control wheel damper be implemented?

<Answer>. The first 757 to receive a wheel damper on the production line was line # 1039; a CAL 757-300 (NL106).

38. Have there been any reports of PIO's on airplanes with the vortex generators installed?

<Answer>. Yes.

39. Which airplanes have vortillons installed?

<Answer>. Vortilons were installed in the factory for all 757-200s delivered on or after 2/3/00. The vortilons are part of the 757-300 production configuration; so, all have them.

40. How many incidents of this have there been industry wide?

<Answer>. There have been thirteen (13) confirmed 757 lateral PIO events since early 1995.

41. Is the "revised rigging" a separate service bulletin?

<Answer>. No

FMS Upgrade Summary Pegasus 2003:

42. Will the 737NG have the same Pegasus update?

<Answer>. The 737 has a different FMC altogether; the Smiths' FMC (on 737NG) already had the holding pattern entry/exit displayed.

43. The Ops Manual description of the FMC indicates that resets will only occur during single FMC operation. They actually occur in dual FMC operations also. Is the Ops Manual going to be updated to correct this?

<Answer>. Boeing is making a change to the system description information in the operations manual to describe the fact that resets can occur during dual FMC operation.

43A. Have the power transfer problems that caused resets in the FMC been corrected in Peg 03?

<Answer>. Pegasus 2003 included changes intended to correct the problem with resets on power transfer however there have been some reports of resets with Peg03 installed. It appears that the problems are much less frequent with the new software installed.

Single Engine Taxi - Brad Caban (DAL):

44. Please provide a copy of Brad Caban's pitch for the CD.

<Answer>. A copy of the Delta Airline presentation by Mr. Caban is on the CD.

45. Are there restrictions on which engine should be shutdown?

<Answer>. The airplane configuration may dictate procedures. This procedure is not in the Boeing Operations Manual.

46. What percentage of DAL's operations are actually single engine taxi?

<Answer>. DAL is unsure. A fleet audit is necessary to determine actually how much this option is utilized by the flight crews. DAL believes single engine taxi is used more than the numbers presented in the financial analysis.

47. What are the costs associated with the increased number of crossbleed starts versus using APU?

<Answer>. For the crossbleed starts, DAL shuts down the APU so there are comparable savings. DAL believes it costs about $3 per start to bump up the operating engine to perform the cross bleed.

48. Is the DAL airplane taxiing (moving) when the second engine is started?

<Answer>. Yes, the DAL airplane is taxiing while the second engine is starting.

49. Do you [DAL] specify to the flight crews which engine should be shutdown during taxi?

<Answer>. No, DAL does not specify which engine is shutdown.

50. Does DAL provide maximum breakaway thrust guidelines for the flight crews?

<Answer>. No

51. Please provide Boeing's recommendations regarding single engine taxi.

<Answer>. Page 2.11 of the Boeing 757/767 Flight Crew Training Manual summarizes Boeing's recommendations regarding single engine taxi. It states:

"Because of additional operational procedural requirements and crew workload, taxiing out for flight with an engine shut down is not recommended. High bypass engines require warm up prior to applying takeoff thrust and cool down prior to shutting down. If the engine has been shut down for several hours, it is desirable to operate at as low a thrust setting as practical for several minutes prior to takeoff. If taxiing in after landing with an engine shut down, the crew must be aware of systems requirements, (hydraulics, brakes, electrical). If possible, make minimum radius turns in a direction that puts the operating engine on the outside of the turn. In operational environments such as uphill slope, soft asphalt, high gross weights, congested ramp areas, and wet/slippery ramps and taxiways, taxi with both engines operating."

In addition, a general article on single engine taxi operations from the Fuel Conservation and Operations Newsletter included in the January - March 1991 issue of the Boeing "Airliner" magazine.

Autothrottle Use with Autopilot Off:

52. Is this information in the Flight Crew Training Manual (FCTM)?

<Answer>. The FCTM provides this recommendation.

Revision to 767 Flap Checklists:

53. Would it be possible to develop different non-normal checklists to address these separate failure conditions? In other words, could Boeing publish a separate checklist for mechanical failures and another checklist for sensor failures; each with a different condition statement?

<Answer>. There are concerns that separate checklists in such a manner could possibility to determine the best course of action.

54. An operator advised that passenger seat 29 was the cause of a flap disagree. Any comment?

<Answer>. No.

Oxygen Requirements - Brad Caban (DAL)

55. Can we get the presentation on the CD?

<Answer>. The DAL Oxygen Requirements presentation is on the CD.

RNAV/RNP Operations & VNAV Approaches:

56. Are there more plans by Boeing to incorporate or display RAIM?

<Answer>. It is incorporated into the algorithm for calculating ANP. There are no plans to display RAIM.

57. Is the flight crew required to accomplish a raw data check prior to approach on pre-Pegasus boxes?

<Answer>. Yes, the flight crew must confirm they are using DME-DME updating.

58. Can the "UNABLE RNP" message display on a non-Pegasus FMC?

<Answer>. No.

59. Will the Pegasus FMC display "flight technical error"?

<Answer>. No, the FMC does not display flight technical error. We do not consider it necessary to monitor cross track error.

60. Why does Boeing recommend MDA + 50 used as the DA?

<Answer>. Boeing has determined that an additive of 50 feet above the published MDA(H) is adequate to comply with the MDA(H) when on a constant angle approach and a missed approach is initiated at MDA(H) + 50 feet

61. When do you set MDA?

<Answer>. Set MDA in the AFDS mode control panel just prior to selecting VNAV to commence the final approach. This is done by Boeing procedures when approximately 2 NM prior to the FAF or final approach segment.

62. If, for example, we have a DA of 640 feet, what should we set the MCP altitude to?

<Answer>. As in A60, set MCP to the next lower altitude number, in this case 600 feet. Once established on final approach in the descent, and at least 300 feet below the missed approach altitude, set the MCP to the missed approach altitude.

63. The 757 AFM has a requirement (limitation?) for 250 ft AGL or 5000 RVR…. What is the history behind the 5000 ft RVR requirement?

<Answer>. We have not been able to locate the noted requirement (limitation) in the 757 AFM.

64. Should the green arc be used to determine if the airplane is on the proper flight path to arrive at the runway?

<Answer>. While the MCP is set at MDA(H) the green arc will indicate where the airplane will arrive at the MCP altitude, but this indication may be of questionable value in turbulence and will not be available once the MCP altitude is reset to the missed approach altitude. If flying final approach in VNAV PTH, this technique for monitoring path performance is not necessary.

65. Some airlines were advocating setting the field elevation in the MCP during the approach and then using the green arc as a cross check to ensure they were on the proper path.

<Answer> This isn't recommended. If a windshear is encountered during the approach the autopilot could capture the field elevation if the airplane was 800 ft AGL at some point during the maneuver. This is also unnecessary once in VNAV PTH mode on final approach.

66. Does the green arc show the next altitude or the runway end?

<Answer> The green arc remains only where the MCP is set and provides a prediction of point of arrival at the MCP altitude. There is no need to keep the green arc once the airplane has captured the path.

67. The RDMI pointer points to the next waypoint in MAP mode, so how does this relate to the AFM? We are not meeting the first AFM requirement to monitor raw data.

<Answer>. Your unique airplane configuration is certified for this operation. There is no need to monitor raw data.

68. If ILS or LOC+DME do you need DME update?

<Answer> RNP operations do not require DME or timing, however we encourage monitoring raw data if it is available.

69. Are the altitude and temperature corrections on the Legs page?

<Answer> If cold temperature altitude corrections are made, normally the crew would at least add the correction to the FAF (and if needed the IAF or transition altitude) waypoint altitude constraints.

70. Please explain the AFM limitation which does not allow use of LNAV or VNAV with QFE?

<Answer> The FMC navigation database is coded by mean sea level (MSL), so there will be vertical error if VNAV is used during QFE operation. The use of LNAV is restricted during QFE

operation because of the possibility of altitude-based constraints associated with conditional waypoints in a selected departure, arrival or missed approach procedure.

71. Does changing the altitude on a waypoint affect the approach logic?

<Answer>. No, it does not.

72. Will temperature corrections to waypoint altitude adversely affect the approach?

<Answer> No assuming the correction is appropriate for the temperature and height above the airport. A Statement from the floor said that Transport Canada mandates a temperature correction.

73. Is there a limitation in QFE for LNAV below transition altitude?

<Answer>. Yes. See A70 above.

74. Is there a time limit on how soon before commencing the approach DME-DME updating must be checked?

<Answer>. No, the AFM simply says "prior to approach."

<u>An Enhanced Boeing QRH:</u>

75. We like the sample checklist with conditional statements and the choices, but what about a scenario where there are not, at least, two choices?

<Answer> We are looking for ways to address such a situation where there is a conditional statement with only one choice. We are considering using an IF statement for these cases and would reserve the term IF for only these single choice cases.

76. Will Boeing provide a copy of the "raw" version of the QRH so operators may edit them by adding their logo and extra items?

<Answer>. Operators may purchase digital data formats for their operations manual from Boeing or contract for plan 2 revision service. Interested operators should contact Boeing Flight Technical Integration & Data at FTID@boeing.com.

77. With regards to the possible use of color pages; will Boeing consult with the FAA regarding the use of color on the final design?

<Answer>. Yes.

78. In the sample, the Smoke/Fumes checklist title is in a larger font. Will that carry over to the final design?

<Answer>. We are unsure at this time. The larger font is better for cases where masks/goggles or smoke hoods may be used and visibility may be impaired.

79. How much larger will the new QRH be?

<Answer> We do not anticipate the QRH will initially be any thinner in thickness than today's QRH because in the "near term", duplicate checklists will not be removed. Boeing plans to publish the QRH in the current size (length and width).

RTO Manual vs. Auto Speedbrake Deployment:

80. Some operators are not using manual speedbrakes; how did that happen?

<Answer> These operators have received approval from their authorities and implemented appropriate training programs which include monitoring the speed brake handle to assure deployment. In addition, Boeing has been asked, and provided, a statement of No Technical Objection when appropriate training and standard procedures are provided to the flight crews.. Boeing is currently reviewing the capability to make automatic deployment of speedbrakes during RTO a standard policy.

81. Can we get relief on a long runway with a light airplane to disarm the auto brakes on an actual RTO?

<Answer>. Autobrakes may be disarmed at the Captain's option.

Miscellaneous:

82. The 767/CF6-80C2 ENGINE OIL PRESSURE non-normal checklist advises the flight crew to shut down the engine if the oil pressure is at or below the red line. Wouldn't it be prudent to check both the low pressure indication and the digital pressure indication to verify that a low pressure condition actually exists?

<Answer>. General Electric and Boeing consider the conservative approach to provide flight crew guidance in the QRH if either the low oil pressure sensor (which provides the EICAS alert message and amber ENG OIL PRESS light) or the pressure transmitter (which provides the oil pressure indication on secondary EICAS engine page) indicate red-line. As such, General Electric and Boeing provide QRH flight crew guidance if either sensor (low pressure switch or low pressure transmitter) detects low oil pressure.

83. Is Boeing aware of any fuel tank ruptures on the 757 or 767 airplanes?

<Answer>. No, Boeing has not received any operator reports of tank ruptures on either the 757 or 767.

84. What is the intent of the engine fuel leak procedure? How should the flight crew address a tank fuel leak?

<Answer>. The engine fuel leak procedure is primarily provided to address an engine fuel leak (a leak downstream of the engine fuel valve). The flight crew however may not be able to exactly determine the type of leak. When executing the ENGINE FUEL LEAK checklist, if the engine is shutdown and the leak continues, it is logical to assume a tank leak. As such, diverting and landing at the nearest suitable airport is the most prudent course of action.

85. The flight control check is moving from its current position before engine start to after engine start. If the flaps are down and there is aileron droop will there be interference?

<Answer>. No, there is no problem doing the flight control check with the flaps extended.

We are moving the 757/767 flight control check to a position after engine start as a result of an accident investigation, and for standardization purposes. The flight data recorder does not record parameters prior to engine start so it is not possible to determine if the flight control check has been accomplished using this data. As most other Boeing models accomplish this check after engine start it was prudent to move the 757/767 flight controls check to be common with other models.

86. Can we use the Assumed Temperature Method for reduced thrust with a tailwind on our 757 and 767 airplanes? Our 757 airplanes may not use the ATM for reduced thrust when a tailwind is present, but the 767 may use ATM with up to a 10 kt tailwind.

<Answer>. We are unaware of any tailwind restriction associated with use of the assumed temperature method for reduced thrust.

87. We experienced a power loss on a 767 operating into Bogota. The event was caused by improper ground of a bracket for a TRU shelf. What is the latest status of the investigation?

<Answer>. A 767 airplane, while enroute from Buenos Aires to Washington, experienced an electrical power system failure in flight forcing it to declare an emergency and divert to Bogota, Colombia. All electrical generators appeared to have been working properly, but the aircraft electrical system failed in such a way that Advisory and Status messages were displayed on the upper EICAS display with the illumination of main battery discharge, antiskid and auto speed brake indicator lights on the P5 overhead panel. The F/O displays (EADI/EHSI) also went blank, and the left VHF radio was intermittent through out the remainder of the flight. The crew suspected loss of both main AC buses and diverted. From the time of the initial indication to touchdown in Bogota, the aircraft flew

for approximately 42 minutes, while battery bus and standby DC bus power was being supplied mainly by the Main Aircraft Battery.

It was determined that the bracket that holds the grounding studs for the TRU-L, TRU-R and Battery Charger, had high bonding resistance; this resulted in the DC bus voltage falling below acceptable limits on these buses. The main battery was forced to carry the battery bus and standby DC bus loads. Boeing considers this single failure condition to account for the multiple Advisory and Status messages condition experienced in N644UA. The F/O display blanking is considered an isolated event and is still under investigation.

88. We have experienced where bleed light illuminates inflight and on takeoff. The Boeing procedures say the OFF light should be illuminated, but this is not the case?

<Answer>. Boeing Flight Operations Technical Bulletin 767-72 has been issued and addresses this phenomenon. This FOTB has been released in paper form but is also available via internet at MyBoeingFleet.com.

89. Speedbrakes are armed, but the spoilers don't deploy. Has this been reported to Boeing previously?

<Answer>. The Airplane Maintenance Manual has a discussion regarding this issue. There is no flight deck feedback that the speedbrakes are armed. Please see FRM 27-62-00/101, Fig. 104, Block 1 and AMM 27-62-01-00.

90. Are there recommended flight tests out of C & D checks to verify?

<Answer>. Recommended tests are in the Airplane Maintenance Manual. Flight tests are not recommended unless specifically mentioned.

757/767 Caucus Report

1. Operators would like to see the Battery Start procedure included in the ops manual Supplemental Procedures.

<Answer>. Boeing will be reviewing our documentation and manuals to improve the visibility of the Battery Start procedure.

2. The REVERSER ISOLATION VALVE non-normal procedure includes the following note: "Additional system failures may cause inflight deployment". This caution note applies to both the 757 and 767 and should be clarified or elaborated upon. Are there additional status or caution messages associated with this condition that the flight crews should be aware of?

<Answer>. With the third locking system installed the L/R REV ISLN VAL advisory level alert message is inhibited above 80 knots on the takeoff roll; however the message can still display during taxi out. As such, there must be a checklist to address possible display of the message during taxi.

With the addition of the third lock and associated changes, Boeing demonstrated that an in-flight T/R deployment is extremely improbable; less than e-9. Note that Boeing analyzes both powered and unpowered deployment. Further, if the sleeve actually moves, the Rev Amber or Rev Green will be displayed; these are not inhibited in flight.

3. Most operators cycle circuit breakers. There is concern that the new Boeing policy which advises that it is acceptable to cycle breakers for certain systems may actually be more restrictive than operators' current policies. As the new proposed policy may be more restrictive perhaps it should be worded more loosely?

<Answer>. Wording for a new Boeing policy that would allow an aircrew to cycle specific circuit breakers has not been determined.

4. Operators would like a list of circuit breakers that can be cycled; with and without maintenance direction.

<Answer>. Providing such a list of circuit breakers that can be cycled is under review.

5. Boeing needs to clarify what is acceptable for circuit breaker cycling. Airlines need something to take to their regulatory agencies. The Airbus Industries ops manual includes a list of circuit breakers that may be cycled.

<Answer>. Providing such a list of circuit breakers that can be cycled is under review.

6. Boeing must pursue MMEL relief for 757 fuel tank scavenge system.

<Answer>. Boeing has discussed MMEL relief for the scavenge system with the FAA. If industry desires to propose the scavenge system as an MMEL item, it should submit a proposal that can be discussed at the next FAA/Industry MMEL meeting where input from all

effected parties can be heard. Boeing and the FAA caution that the MMEL may not be the optimum way to approach malfunctions in this system because the maximum deferral permitted will not exceed 10 days, and repairs to the system may require significant time.

7. Cockpit pre-flight flow versus the security door check. Is there any guidance on how often this should be accomplished?

<Answer>. AFM limitation: "Verify that an operational check of the Flight Deck Access System has been accomplished according to approved procedures once each flight day."

8. One operator inquired if other operators have had a problem with new security door jamming?

<Answer>. No notable cases of doors jamming, although there have been – and continue to be – concerns about the high forces required to open the secure flight deck door. Engineers are working on a 3rd generation design to lower the forces.

9. Enhanced GPWS, same question on cockpit preparation guidance. When do operators accomplish an operational check of the EGPWS system?

<Answer>. An operational check is typically done at a 1C interval (6000 flight hours). The maintenance check intervals for each specific model however can be found via the Airplane Maintenance Inspection Interval Documents or Maintenance Planning Documents available on line at http://myboeingfleet.cs.boeing.com/boldweb/index.bhtml

For the EGPWC however, the built in test is robust enough that the flight crew will get an INOP indication if the system is compromised and the audio amplification interface and speakers are checked every time the airplane lands.

10. Do other operators lock the cockpit door while the airplane is on the ground? Does it matter if the crew is on or off the airplane; doing a walk around, for example? Do other operators disarm or manual lock the security door with a key during through flights if no pilots are on the airplane?

<Answer>. We have left it to operators, and their regulatory authorities, to establish their own procedures for cockpit security on the ground. Operators have naturally been reluctant to disclose their policies and procedures on this topic. The FAA's position is that the electronic entry code (emergency access code) is not the normal entry method.

11. Power to locking mechanism may be an issue of cockpit security. If power is lost to the door locking mechanism shouldn't there be a new procedure to use the deadbolt? There is no Boeing guidance….there is no indication of loss of power to the security door autolock. Boeing may need to address this, especially on the 767 (no EICAS indication on power loss).

<Answer>. Losing power to the door lock system will cause the LOCK FAIL light to illuminate on the P5 overhead panel. The LOCK FAIL non-normal procedure has the following note: The door can be locked with the deadbolt.

12. Fuel migration on diffuserless and cast-in diffuser pumps; Boeing doesn't want to update manuals if the fix is not immediate. There are some ops manual bulletins that are around for years. Operators do not like this; bulletins should be incorporated in the ops manuals in a timely fashion.

<Answer>. As of this date, there are only 4 Bulletins in the 757 and 4 in the 767 that do not contain closing action. Any anomaly for which there is no planned fix is incorporated in the FCOM and the OMB cancelled at that time.

13. Ops manual bulletins are in volume I of the ops manual, yet the procedures they affect are in the QRH. Pilots do not like having the bulletins in effect for so long and in the wrong place.

<Answer>. Operations manual bulletins with QRH pages are listed as INC (Incorporated) on the Bulletin record pages. The bulletin is only retained for background information. All necessary crew actions are contained in the QRH. If the procedure is the only known fix for the problem, the background information is incorporated into the FCOM and the bulletin is cancelled.

14. How does Boeing handle long term ops manual bulletins versus incorporation into applicable manuals?

<Answer>. Please see response to questions 12 and 13.

15. Will the flight crew be able to override the auto shutoff function on the fuel system? The service bulletin needs to be clear on this issue.

<Answer>. The auto-shutoff function, when certified, will be capable of being overridden, however, the intentional design of the auto-shutoff function will be transparent to the flight crew both in normal operation and non-normal operation. As such, the QRH checklist for FUEL PUMP will instruct the flight crew to select the respective pump switch OFF, and keep it off. The remaining center tank pump will continue to operate to empty the center tank. Therefore, the QRH checklist will not provide for overriding the auto-shut off function, per design and certification. If auto-shutoff removes power to the pump, it will be considered a pump failure and the pump, per the FUEL PUMP checklist, should be secured.

16. Do operators see differences between FMC calculated versus totalizer fuel quantities on the 757? Can Boeing explain this difference?

<Answer>. The Fuel Quantity Indicating System (FQIS) processor receives data from the fuel tanks and calculates the weight of fuel in each tank, and the total weight of fuel. The FQIS Processor passes this information to the FMC for display on the P5 overhead panel.

There is a Fuel Flow Transmitter (FFT) located on the main engines that provide EICAS information on fuel used. EICAS displays this information and provides it also to the FMC.

The two different sources of fuel information do at times show a difference, primarily due to differences in tolerances in the detecting/transmitting devices. The fuel tanks use

stationary fuel tubes that have an accuracy of +/-2.5% full volume of the tank, and the FFT tolerance varies with the fuel flow rate. At low flow rates, such as at idle, the inaccuracy can be fairly large. In addition, if the APU is running, the FQIS will record the lower fuel levels in the tanks, but the FFTs on the main engines will not record the fuel being used.

17. Please ensure all the pitches are on the breakout CD. Particularly Bill McKenzie's slides and Captain Morgan's (Air New Zealand) slides.

<Answer>. These will be included.

18. There needs to be similar guidance between the ops manual and the maintenance manual. In some cases the ops manual advises a condition is not normal whereas the AMM says it is normal.

<Answer>. The AMM is written for maintenance operations purposes. The AOM is written for flight crew operations purposes. What may be acceptable from a maintenance standpoint may not be acceptable from a flight operations standpoint. Conversely, the same is true. As such, what may seem like conflicts between the manuals may be written that way intentionally. If operators have specific issues they would like addressed, please contact Boeing through the operator's Field Service representative to have the issue reviewed by the appropriate Boeing personnel.

19. Does everybody mandate FRM code entries?

<Answer>. Show of hands indicated a nineteen (19)% utilization of the FRM.

20. Will there be an overweight landing checklist in the 757 and 767 (like the 777)?

<Answer>. This issue is under review with Boeing Flight Operations and Flight Operations Engineering. At present, an OVERWEIGHT LANDING checklist has been issued for the 777 and the 757-300 due to specific certification issues, which did not pertain to other Boeing models.

21. Would like to see common 757 and 767 ops manual volume II.

<Answer>. There are no current plans underway to combine the 757 and 767 Volume 2 manuals. The current standardization effort will reduce the number of unnecessary differences.

22. The smoke/fumes/electrical non-normal checklists should be integrated. In other words, combine the air conditioning smoke, electrical smoke checklist; all smoke troubleshooting" should be in one checklist.

<Answer>. Boeing will take this under advisement.

23. The AC BUS checklist contains lots of IF statements. Could this be broken into three (3) separate checklists instead of one?

<Answer>. Boeing is reviewing this proposal. All proposed checklist modifications are subject to committee reviews and flight operations board approvals. If approved, such modification would appear in a future Operations Manual revision. Be advised, Boeing receives conflicting requests on this subject from operators worldwide. As such, while some operators believe they would prefer separate checklists, other operators prefer a single checklist. Some operators want more information, some operators want less information. There are varying opinions worldwide on this subject.

24. Boeing should add more notes to checklists to help "understanding" or the rationale for the item with regards to system operation.

<Answer>. We are reviewing the content of non-normal checklists to identify how additional information and guidance should be presented and what the information should convey as part of our long-term standardization effort. Some of this information may be presented as "notes" but some information may be presented in new ways, such as operational consequences and considerations.

25. Inadvertent fuel shutoff; is there any good explanation on why there is no suction feed? May be PW4052 engine related only.

<Answer>. All engine models (PW, GE, and RR) for all production airplanes (Seattle production models) now have information published in Volume II, chapter 12, on Suction Feed operation. In addition, the FUEL SYSTEM PRESSURE checklist has been revised to provide more explicit recommended guidance for suction feed operation.

26. Boeing ops manual system description should cover more on suction feed design.

<Answer>. In-service events, which received attention of the NTSB, were the driving force to include suction feed description in the Operations Manual. Boeing, the NTSB, the Seattle ACO, and airline personnel involved in the in-service incidents, authored the existing information contained in all Boeing-Seattle production model Operations Manuals. All parties concluded the existing coverage of suction feed operation is positive and satisfactory.

27. When the cockpit door mechanism fails inflight you must use the deadbolt. Has Boeing done a risk assessment in case of a pilot incapacitation?

<Answer>. First there has to be an in-flight failure of the access system. As a result of this failure the flight crew could engage the dead bolt. The LOCK FAIL procedure simply reminds the crew that there is a dead bolt. Boeing does not direct them to engage it. The reliability of the access system is 10 E-5 per flight hour.

The estimated probability for incapacitation of the either member of the flight crew is estimated to be 10 E-7 per flight hour. Therefore, assuming the flight crew chooses to

engage the dead bolt, the combined probability of crew incapacitation while the dead bolt is engaged is 10 E-12 per flight hour, or three orders of magnitude beyond the FAR 25-1309 criteria for extremely improbable.

28. Does Boeing plan to do an inexpensive (cheap) service bulletin to eliminate the noise generating opening near the tail skid?

<Answer>. Boeing considers installation of the tailskid negative pressure cover a satisfactory method to eliminate the noise generated from the air which exists through the tail skid assembly.

29. Has Boeing done a sound level survey in the 767 cockpit and identified what effect use of Active Noise Cancellation headsets have on those levels? Do any other airlines use ANC headsets?

<Answer>. Typical 757 and 767 flight deck (pilot's inboard ear) noise spectrums for cruise flight at 35000 ft, mach 0.80 are as follows:

PREFERRED OCTAVE BAND - HZ (-SOUND PRESSURE LEVEL DB REF 20 MICRO PA-)											
	63	125	250	500	1000	2000	4000	8000	OA	DBA	SIL
757-200	72	76	73	75	68	63	58	49	80	74	63
767-300	70	67	66	68	68	66	59	60	76	72	64

Boeing has never evaluated active noise cancellation headsets in the laboratory. We suggest operators obtain performance and limitations regarding ANC headsets from the particular headset manufacturer. We are aware that some operators do use, or have used, active noise cancellation headsets.