10/16/2012
MASTER LIST FOR DISPOSITION OF PUBLIC COMMENTS

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Commenter: Embraer		
1.	Paragraph 10.b(8): Section 25.107(d) - Minimum Unstick Speed (V_{MU}) Historically V_{MU} has been treated as a reference speed over which the takeoff speed schedule is constructed, using adequate safety margins. The tests to demonstrate this reference speed are among the most risky ones and, for this reason, some or all of the safety devices (such as pusher and shaker) could be deactivated or delayed depending on the airplane characteristics knowledge. Revision C is the first document to address other safety devices used on modern Fly By Wire airplanes. The treatment to these devices is similar to 'the practice used on previous versions. However, revision C states on paragraph 10.b(8)b(3): *"However the V_{MU} test demonstrations will need to be assessed to ensure that the system would not have activated with the angle-of-attack indication means set at the lowest angle within production tolerances.*" This requirement has never been applied	So considering that "non FBW" and "FBW" devices aim for the same objective, there is no stated reason to start considering the quoted paragraph above. It also has to be considered that in some projects pushers remain, by design, inactive until the airplane reaches a specific altitude above the ground. It also has to be considered that in most of the V_{MU} tests the airplane lifts off at or very close to stall speed so it is reasonable to assume that any protection device would have been activated and do not pass in above quoted requirement. Embraer suggests replacing the above statement as below: *"However the takeoff speed schedule derived from these V_{MU} tests will need to be assessed to ensure that the system will not be activated with the angle-of-attack indication means set at the nominal angle within production tolerances."* Therefore, new guidance presented at this "draft" document asks for	The FAA agrees that the intent of the V_{MU} requirement is to verify that an airplane can safely climb out at the minimum liftoff speed selected by the applicant, which may correspond to the maximum lift capability of the wing. We also agree that there are fundamental differences between a stick pusher system that is not designed to be inhibited during takeoff and other angle-of-attack limiting or other envelope protection systems. Stick pusher systems provide a nose down pitch that cannot immediately be arrested. From the standpoint of showing compliance with the V_{MU} requirements (§ 25.107(d)), it is essentially equivalent to (and mimics) an aerodynamic stall. Like a stall occurring during a V_{MU} takeoff, activation of a stick pusher would not be compliant. Although the activation of angle-of-attack limiting or other envelope protection systems may prevent attaining the angle-of-attack for V_{MU}, they would not prevent the airplane from safely lifting off the ground and continuing the takeoff. Therefore, the guidance has been revised to state that, for airplanes equipped with a stick pusher that is not designed to be inhibited during takeoff, the V_{MU} test demonstrations will need to be assessed and will only remain valid if the stick pusher would

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	on previous versions (A and B), since the object of the test was to determine the lift capability of the wing. This draft goes in the same direction, but mentioning the devices used on FBW airplanes, which ultimately provide the same degree of airplane protection compared to the "non FBW" devices such as pushers and shakers.	assessment of V_{MU} test demonstrations to check for potential activation of a stall protection system eventually disabled during the tests. This request deviates from the main intent of V_{MU} determination, which is to show that the airplane can safely lift off as a function of base aerodynamic parameters, as: sufficient lift to overcome aircraft weight, sufficient thrust to overcome drag and adequate control. Any consideration regarding functional system aspects and their impacts on the aircraft takeoff will be treated more appropriately on the abused tests.	not have activated with the angle-of-attack indication means set at the lowest angle within production tolerances.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Commenter: Gulfstream Aerospace Corporation		
1.	Page 73, Section 17b(3) Proposed AC 25-7C Section 17b(3) adds a sentence that states: **[**While during an actual takeoff the airplane may accelerate from V_{LOF} towards V_2, the climb gradient for showing compliance with § 25.121(a) is based on the V_{LOF} speed.**]**	Gulfstream requests that the FAA consider whether the climb gradient for showing compliance to §25.121(a) be based on the most limiting portion of first segment. For example, should one consider V_{LOF} at 0' and V_2 at the maximum height gained during gear retraction? This would capture the start and end points of first segment, and account for any thrust lapse with speed or altitude gained.	The speed at which compliance is shown is specified in the rule as being V_{LOF}. The sentence added to AC 25-7C simply reflects the regulatory requirement. The words "as specified in the rule" have been added. The power or thrust used to show compliance is also stated in the rule – "the power or thrust available when retraction of the landing gear is begun in accordance with § 25.111 unless there is a more critical power operating condition existing later along the flight path but before the point at which the landing gear is fully retracted." The reference to a more critical power operating condition does not refer to normal lapse rates, as explained in paragraph 17b(5).
2.	Page 75, Section 19a(1) Proposed AC25-7C has added the following bracketed text: The landing distance is the horizontal distance from the point at which the main gear of the airplane is 50 ft. above the landing surface (treated as a horizontal plane through the touchdown point) to the position of the [nose gear] when the airplane is brought to a stop. (For water	The clarification of 'nose gear' to the position when the airplane is brought to a stop effectively lengthens the certified landing distance by the distance between the main and nose gear. If a satisfactory operational safety record has been observed with the current guidance provided by AC25-7B, adding a note or clarification in the Performance section to consider the length of the airplane in landing distance planning would be more suitable than adding an increment into	The commenter's conclusion that the proposed clarification effectively lengthens the certified landing distance by the distance between the main and nose gear is accurate. This correctly reflects the actual runway length needed to stop with the nose gear on the runway surface. The FAA believes it would be inappropriate to address this issue by simply adding a note informing operators to "consider the length of the airplane" in landing distance planning. The originally proposed text has been retained.

No.	Comment	Requested Change	Disposition
	landings, a speed of approximately 3 knots is considered "stopped.") **[**The beginning of the landing distance is referenced to the main gear because it is the lowest point of the airplane when the airplane is 50 feet above the landing surface. The end of the landing distance is referenced to the nose gear because it is the most forward part of the airplane in contact with the landing surface, and it should not extend beyond the certified landing distance.**]**	the AFM landing distance. Gulfstream recommends no change be made to the means of compliance.	
3.	Page 76, Section 19b Proposed AC 25-7C has removed the following italicized text: Three acceptable means of compliance are described in paragraphs (1), (2), and (3) below. *These differ from the "traditional" method in which steep approaches and high touchdown sink rates were permitted. Such a demonstration of maximum performance is no longer considered acceptable. However, the distances obtained using that method resulted in a Satisfactory operational safety record. The methods given here allow credit for the amount of testing an applicant is prepared to conduct, such that if the*	As stated in the deleted text, the distances obtained using the method described in Section 19b(3) resulted in a satisfactory operational safety record. Given this record, Gulfstream requests an explanation for why this method is now only acceptable if full operational safety margins are to be required	The derivation of the parametric method relied on the presence of the operational safety margins required by § 121.195(b) or (c) or § 135.385(b), (c), or (f). The operational safety record referred to in the deleted text was the safety record achieved in operations subject to those operational safety margin requirements. That is why it is important to link the use of the parametric method with the specified approach angle and touchdown sink rate values to use of the operational safety margins provided by compliance with § 121.195(b) or (c), § 135.385(b), (c), or (f), or equivalent. The originally proposed text has been retained.

No.	Comment	Requested Change	Disposition
	method described in paragraph 19b(3) (the most complex) is chosen, distances typical of those from the "traditional" method should be obtained, but without incurring the associated risks during testing. In addition AC 25-7C has added the following restriction to the method described in Section 19b(3): **[**The parametric analysis method with these approach angle and touchdown sink rate values should only be used for landing distances for which the full operational safety margins required by § 121.195(b) or (c), § 135.385(b), (c), or (f), or equivalent will be applied.**]**		
4.	Page 101, Section 21b(7)	The referenced section called out in Section 21b(7) should be corrected to "10b(9)(c)4" instead of "10b(8)(c)4."	The paragraph reference has been fixed.
5.	Pages 106-107, Section 23b(2)(a)2	Gulfstream requests clarification whether bank angle can exceed 5^o during the dynamic V_{MCA} test. Inconsistent application of a 5^o bank limit during dynamic V_{MCA} testing has occurred between ACOs in the past.	The 5-degree bank limit pertains to the ability to hold straight flight after the steady flight condition has been recovered. The text has been clarified in this regard.
6.	Page 143, Section 31a(4)	Gulfstream recommends that a paragraph similar to AMC 25-251(e) Section 2.2 be included in AC 25-7C if the intent of this revision is to reduce	Section 25.251(e) requires the buffet onset envelope to be determined for airplanes with M_D greater than 0.6 or with a maximum operating altitude greater than 25,000 feet. It does not

No.	Comment	Requested Change	Disposition
		the differences from the EASA guidance. It states that an acceptable means of compliance is to establish the maximum altitude at which it is possible to achieve a positive normal acceleration increment of 0.3g without exceeding the buffet onset boundary.	require a maximum altitude to be established based on this information. Establishing a maximum altitude based on the buffet onset boundary is an operational issue, not a certification issue. The originally proposed text has been retained.
7.	Page 145, Section 31b(5)(b)2 In addition, paragraph 1 does not identify a speed range within which maneuvering characteristics for probable inadvertent excursion beyond buffet onset are to be shown, nor does any other paragraph of this section. Although Figures 31-1, 31-2 and the added Note in this section indicate testing is to be conducted at speeds up to V_{DF}/M_{DF}, this is not explicitly stated.	Based on comparison to AC 25-7B, the reference to the "weight/altitude/speed combinations of (aa), above, …" should be corrected to refer to the prior paragraph 1 rather than (aa).	Section 25.251(e) requires the buffet boundary to be determined for the ranges of airspeed or Mach number for which the airplane is to be certificated, i.e., up to V_{MO}/M_{MO}. The incorrect paragraph reference has been fixed.
8.	The proposed AC25-7C adds the following: [Flight tests to determine the reference stall speeds under § 25.103 may be conducted with the stall identification system adjusted to operate at the nominal angle of attack within an acceptably narrow design range (e.g., corresponding to ±1 knot). Flight tests to determine stalling characteristics (§ 25.203) should be made with the system adjusted to the upper limit of tolerance on angle of attack. See paragraph 29f.(2)(f)	Section 6. Stalls, i., Additional Considerations for Airplanes Equipped with Stall Identification Systems paragraph (3) also provides guidance regarding tolerances. It states, if the combined root-sum-square (square root of the sum of the squares of each tolerance) effect of the tolerances identified above is less than ±1 knot, stall speeds testing can be performed with the systems set at their nominal values. This agrees with the addition to Section 228(g) above. However, for	It appears that providing guidance on the effect of stall identification system tolerances on stall testing in two different places in the AC can be confusing. Therefore, most of paragraph 228g has been replaced by a reference to paragraph 29i. To further clarify that no further corrections to stall speeds are necessary if the system tolerances are within the specified ±1 knot value, the text was clarified in paragraph 29i(3) to state that the stall speeds can be determined with the tolerances at their nominal values.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	for how to address tolerances of the stall warning and stall identification systems during testing to show compliance with the stall warning requirements (§ 25.207).]	those cases where the tolerances are within the acceptably narrow design range, and stall speeds were determined as such, Gulfstream inquires if further corrections are required, i.e., do the resulting speeds require further correction to represent worst case tolerances, or is that only valid to cases where the design range is in excess of ± 1 knot? Gulfstream requests that this be clarified at this revision.	

No.	Comment	Requested Change	Disposition
	Commenter: Cessna Aircraft Company		
1.	11a(1)	Clarify rationale for referencing accelerate-stop distances to nose gear. Suggest "The accelerate-stop distance is the horizontal distance from a reference point on the airplane at initial brake release to that same reference point when the airplane is brought to a stop."	The suggested change has been made.
2.	31b(5)(b)2	Reference to (aa) in "weight/altitude/speed combinations of (aa), above" appears to be incorrect. Should be 31b(5)(b)1.	The paragraph reference has been fixed.
3.	Figure 31-2	Referenced paragraphs in the note below Figure 31-2, 31b(5)(a)1(aa) and (bb), do not exist. The note in Figure 31-2 should	The paragraph references in the notes below both figures have been fixed.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
		be the same note as in Figure 31-1.	
4.	Section 1, Paragraph 7	Section 1, Paragraph 7 states: "As required by § 21.35(a), applicants must show that these structures comply with the applicable structural requirements of part 25…" This statement is not included in 21.35. While there is no mention of Part 25 in 21.35 there is mention of "structural requirements of this subchapter" although Part 21 doesn't actually have structural requirements in it. In any event, it is recommended that this sentence be removed. The intent of Paragraph 7 is to ensure that any ballast carried during flight tests be substantiated for the anticipated loads. It would further be expected that any limitation from the approved flight envelope for the flight tests be explicitly defined and therefore the requirement for these limitations should be included in the AC.	14 CFR Section 21.35 states the following: **§ 21.35 Flight tests.** (a) Each applicant for an aircraft type certificate (other than under §§21.24 through 21.29) must make the tests listed in paragraph (b) of this section. Before making the tests the applicant must show— (1) Compliance with the applicable structural requirements of this subchapter; 14 CFR part 25 contains the "applicable structural requirements of this subchapter." Section 21.35 establishes the regulatory basis for requiring that the loads associated with any ballast carried during flight tests to meet the structural requirements. No changes have been made to the proposed text.

No.	Comment	Requested Change	Disposition
	Commenter: Boeing		
1.	Chapter 2, Section 1, Paragraph 3a(1)(f)2(bb)	Revise the text to read as follows: (bb) The required environmental	The text has been changed in a manner similar to that suggested by the commenter.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	The proposed text states: (bb) The required environmental conditions are too difficult to attain (e.g., validation of system safety analyses failure cases involving high crosswinds, development of crosswind guidance for slippery runway operations),”	conditions or minimum allowable weight are too difficult to attain (e.g., validation of system safety analyses failure cases involving high crosswinds, development of crosswind guidance for slippery runway operations, or minimum allowable weight is not obtainable because the required test equipment makes the airplane too heavy), For minimum weight compliance, conducting S&C testing is “too difficult” because the equipment and minimum fuel needed to conduct the test make the airplane too heavy. This is not clear in the existing text, which only addresses an environmental condition.	
2.	Page 6 Chapter 2, Section 1, Paragraph 3a(3)(b)1 The proposed text states: 1 . . . As noted in paragraph (a) above, the purpose of the test tolerances is to allow for variations in flight test values, not to routinely schedule tests at less than critical weight conditions or to allow for compliance to be shown at less than the critical weight condition. In addition, the tolerances can be used to determine when	Revise the text by deleting the shaded text, as shown below: 1 . . . . As noted in paragraph (a) above, the purpose of the test tolerances is to allow for variations in flight test values, not to routinely schedule tests at less than critical weight conditions or to allow for compliance to be shown at less than the critical weight condition. ~~In addition, the tolerances can be used to determine when to interrupt a series of test conditions in order to refuel the~~	The proposed text is consistent with the intended use of test weight tolerances. The originally proposed text has been retained, but with the addition of the word “help” in front of “determine” to not make this guidance appear too dogmatic.

No.	Comment	Requested Change	Disposition
	to interrupt a series of test conditions in order to refuel the airplane if necessary to remain within the acceptable weight tolerance.	~~airplane if necessary to remain within the acceptable weight tolerance.~~ Draft AC 25-7C adds the shaded text, but that text may be interpreted as inconsistent with past practice. In the past, it has been acceptable to have some of the data acquired at the heaviest weights, but due to flight test practicalities, it is not typically possible to have all "heavy weight" testing within the tolerances discussed. Boeing suggests that the shaded text be removed as it may lead to confusion and to a burdensome change of long-standing practice in terms of acceptability of test weights.	
3.	Page 7 Chapter 2, Section 1, Paragraph 3a(3)(b)1(aa) The proposed text states: (aa) It can be difficult or impossible to conduct testing at the airplane's minimum allowable weight with an airplane configured for conducting a flight test program. If the minimum weight cannot be obtained (within the specified tolerance limit) and compliance at the minimum weight cannot be clearly deduced from the results at the tested weight, the testing	We recommend revising the text as follows: (aa) It can be difficult or impossible to conduct testing at the airplane's minimum allowable weight with an airplane configured for conducting a flight test program. If the minimum weight cannot be obtained (within the specified tolerance limit) and compliance at the minimum weight cannot be clearly deduced from the results at the tested weight, the testing should be conducted on a production	The text has been changed in a manner similar to that suggested by the commenter.

No.	Comment	Requested Change	Disposition
	should be conducted on a production airplane (or other airplane on which the minimum weight can be obtained).	airplane (or other airplane on which the minimum weight can be obtained). Alternatively, if the instrumentation and/or equipment required to conduct safe testing are not available with the production airplane configuration, consider the use of simulation. It would be possible to perform a qualitative performance assessment or some benign handling tests on a production airplane, but it would not be adequate to demonstrate compliance with many handling qualities or performance requirements without the necessary instrumentation and equipment to collect the results. In such a case, using simulation makes more sense and is an existing means of compliance.	
4.	Page 7 Chapter 2 Section 1 Paragraph 3a(3)(b)1(bb) The proposed text states: (bb) For follow-on airplane certification programs involving an increase in the maximum allowable gross weight, the test weight limits of Figure 3-1 have been applied as extrapolation limits on the original test data in order to minimize additional testing. For the test weight	We recommend revising the entire paragraph to read as it previously did in AC 25-7B, Chg 1: (bb) For follow-on airplane certification programs, test data may be extrapolated to higher gross weights than specified in Figure 3-1 if the available test data include an adequate range of weights and an appropriate number of points at the highest weight tested. If the test	The text proposed for AC 25-7C maintains the requirement that compliance must be shown for the full gross weight range. Unlike the previous wording in AC 25-7B, it does not leave open the use of "other" undefined extrapolation limits based on weight effects being verified by test data at lower weights. The proposed text has been retained.

No.	Comment	Requested Change	Disposition
	tolerance limits to be applied in this manner, the extrapolation must be from an existing certificated database for an aerodynamically similar model of the same airplane type. The tolerance limit should be applied to the maximum weight at which the original testing was conducted, not to the maximum certified weight.	data analysis verifies the predicted effect of weight, then other extrapolation limits may apply. This proposed text has been changed from what appeared in AC 25-7B, Change 1. The previous version provided good guidance because the requirement is to show compliance for the full gross-weight range. If analysis is appropriate to address weights heavier than tested, then compliance by analysis should be allowed. The wording in AC 25-7B made this clear and should be restored.	
5.	Page 27 Chapter 2, Section 2, Paragraph 10b(8)(i)1 The proposed text states: 1 V_{MU} speeds obtained by flight testing one model of an airplane type may be used to generate V_{MU} speeds for a geometry-limited stretched version of that airplane. If the short body airplane met the criteria for the 104/108 percent V_{MU}/V_{LOF} speed margin equivalent safety finding for geometry limited airplanes discussed in paragraph 10b(7)(h)1, the flight tests described in paragraph 10b(7)(h)2 should be performed on the stretched derivative. Otherwise, the flight tests described in	We recommend revising the text as follows: 1 V_{MU} speeds obtained by flight testing one model of an airplane type may be used to generate V_{MU} speeds for a geometry-limited stretched version of that airplane. If the short body airplane met the criteria for the 104/108 percent V_{MU}/V_{LOF} speed margin ~~equivalent safety finding~~ for geometry limited airplanes discussed in paragraph ~~10b(7)(h)1~~ 10b(8)(h)1, the flight tests described in paragraph ~~10b(7)(h)2~~ 10b(8)(i)2 should be performed on the stretched derivative. Otherwise, the	The text has been revised to correct the paragraph references and remove the reference to an equivalent safety finding.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	paragraph 10b(7)(i)2(bb) should be performed on the stretched derivative.	flight tests described in paragraph ~~10b(7)(i)2(bb)~~ 10b(8)(h) should be performed on the stretched derivative. The phrase "equivalent safety finding" is not necessary since Amendment 25-135 has gone into effect. Also, three of the paragraph references appear to be in error and should be corrected.	
6.	Page 27 Chapter 2, Section 2, Paragraph 10b(8)(i)2(bb)(i) and (ii) The proposed text states: (i) All-engines-operating, early rotation tests specified in paragraph 10b(8)(c)2, including both the rapid rotations and over-rotations as separate test conditions. (ii) One-engine-inoperative, early rotation tests specified in paragraph 10b(8)(b).	We recommend revising the text as follows: (i) All-engines-operating, early rotation tests specified in paragraph ~~10b(8)(c)2~~ 10b(9)(c)2 , including both the rapid rotations and over-rotations as separate test conditions. (ii) One-engine-inoperative, early rotation tests specified in paragraph ~~10b(8)(b)~~ 10b(9)(b). Two of the paragraph references appear to be in error and should be corrected.	The paragraph references have been corrected.
7.	Page 75 Chapter 2, Section 2, Paragraph 19a(1) In this proposed paragraph, the distance from the nose gear to the main gear has been added to the landing distance	We disagree with this change in the definition of landing distance. The current definition of landing distance adequately defines the	The definition of the landing distance used in AC 25-7B puts the portion of the airplane forward of the main gear off the end of the runway. The definition proposed in the draft of AC 25-7C has been retained.

No.	Comment	Requested Change	Disposition
	definition, so that it now reads: The landing distance is the horizontal distance from the point at which the main gear of the airplane is 50 ft. above the landing surface (treated as a horizontal plane through the touchdown point) to the position of the nose gear when the airplane is brought to a stop.	requirement and fleet history has shown that the proposed change would not enhance safety.	
8.	Pages 87-94 Chapter 2, Section 3, Paragraph 20d All of paragraph 20d, "Pilot Induced Oscillations (PIO)" is of concern. See our suggested rewording of paragraph 20d in Enclosure 2 of this letter. It is widely acknowledged that the text of paragraph 20d does not represent current industry thinking regarding PIO, nor does it represent procedures used in recent years for certification via issue papers. Paragraph 20d was discussed at great length with FAA, JAA, TCCA, and industry representatives in the JAA Flight Study Group.	Our recommendation rewording (Enclosure 2) is based on Flight Working Paper 599, resulting from those Flight Study Group discussions, and is consistent with current practice documented in recent PIO issue papers.	We agree that the existing text for PIO investigation is out of step with current industry thinking and certification practices. However, because of the need to also harmonize pilot induced oscillations (PIO) guidance with the European Aviation Safety Agency, revising this section was scheduled as a follow-on project to the release of AC 25-7C. We plan to address revisions to the guidance pertaining to PIO, the handling qualities rating method (HQRM), and other areas needing harmonization in the next major revision to AC 25-7C.
9.	Page 101 Chapter 2, Section 3, Paragraph 21b(7) The proposed text states: (7) Longitudinal control, out-of-trim	The referenced paragraph 10b(8)(c)4 does not appear to fit the deleted content. Rather, the cited paragraph is concerning all-engine operating demonstration of one-engine inoperative V_{MU} tests.	The suggested change has been made.

No.	Comment	Requested Change	Disposition
	takeoff conditions, §§ 25.107(e)(4) and 25.143(a)(1). See paragraph 10b(8)(c)4.	The correct information actually appears to be in paragraphs 10b(9)(c)3 and 4. [Also see our cover letter to these comments concerning difficulties with the paragraph numbering format, as this paragraph citation becomes an example to cite or look up.] The reference in this paragraph should be corrected to point to relevant guidance material. [As stated in our cover letter, we suggest that an improved paragraph numbering format would result in fewer errors in paragraph citations by those within both FAA and the aerospace industry.]	
10.	Page 113 Chapter 2, Section 5, Paragraph 26b(1)(b) The proposed text states: (b) Starting again at the trim speed and with the trim set at the same position, push forces should be gradually applied and gradually relaxed in the same manner as described in paragraph (1) above.	We recommend revising the sentence as follows: "(b) Starting again at the trim speed and with the airplane in trim ~~set at the same position~~, push forces should be gradually applied and gradually relaxed in the same manner as described in paragraph ~~(1)~~ (a) above." When performing the "push" side of the maneuver, it is appropriate to begin	The suggested change has been made.

No.	Comment	Requested Change	Disposition
		from a current and valid trim condition, since the airplane weight and cg will have changed since the initiation of the prior "pull" side maneuver. To start the "push" side maneuver with trim set to the earlier "pull" side condition is to begin the maneuver in an out-of-trim condition, which introduces a force bias into the data. Hence, the second half of the demonstration (i.e., the "push" side) should be initiated from a re-established and current trim condition. Our suggested revised wording clarifies this. Additionally, the reference to "paragraph (1) should be corrected to "paragraph (a)."	
11.	Page 115 Chapter 2, Section 5, Paragraph 26b(5) Paragraph "(5)"	This paragraph should be numbered paragraph (4) Typo.	The suggested change has been made.
12.	Page 117 Chapter 2, Section 5, Paragraph 27a(3)(a) and (d) The proposed text in both paragraph 27a(3)(a) and 27a(3)(d) state: " … the lesser of (1) one-half of the available rudder control input, and (2) a rudder control force of 180 pounds."	We request revising the text in both paragraphs as follows: " … the lesser of (1) one-half of the available rudder control input, or (2) a rudder control force of up to 180 pounds." In both paragraphs (a) and (d) the reference to "the lesser of (1) one-half	The text is correct as proposed in the draft AC 25-7C. Both conditions, one-half of the available rudder control input and a rudder control force of 180 pounds, must be considered. The requirement must be met at the lesser of the two conditions. If using one-half of the available rudder control input takes less than 180 pounds of force, than compliance must be based on using one-half of the available rudder control input. If application of 180 pounds of rudder control force

No.	Comment	Requested Change	Disposition
		of the available rudder control input and (2) a rudder control force of 180 pounds" is in error. The correction of this was submitted to the FAA via Boeing letter B-H001-REG-10-TLM-12, dated Dec. 16, 2010 (see Enclosure 3). The correction reflects the actual input as accepted by the JAA in October 2002 prior to their release of the final harmonized rule 25.177(c). This letter and associated correction is attached (double click to open). The wording should be corrected to what we have recommended.	results in using less than one-half of the available rudder control input, then compliance must be based on applying 180 pounds of rudder control force. For additional clarity, the explanation given in the paragraph above has been added to AC 25-7C.
13.	Page 119 Chapter 2 Section 5 Paragraph 27b(2) The proposed text states: "…or the sideslip angle associated with one-half of the available rudder control input (or as limited by a rudder control force of 180 pounds), whichever is greater."	We recommend revising the paragraph as follows: "…or the sideslip angle associated with one-half of the available rudder control input (or as limited by a rudder control force of up to 180 pounds per 27(a)(3)(a), whichever is greater." Adding the reference to Section 27(a)(3)(a) provides both clarity and consistency with other sections of this AC. Without this clarification, it might be misunderstood to require a rudder control force of at least 180 pounds,	The existing text states that one-half of the available rudder control input is the primary criterion, but that no more than 180 pounds of rudder control force need be applied. (Note: there is no "or" in the actual text in the parenthetical as incorrectly indicated in the comment.) The existing text has been retained.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
		which is not the intent.	
14.	Page 123 Chapter 2, Section 5, Paragraph 29c(1)(a) The proposed text states: (a) The pitch control reaches the aft stop and is held full aft for two seconds, or until the pitch attitude stops increasing, whichever occurs later. In the case of turning flight stalls, recovery may be initiated once the pitch control reaches the aft stop when accompanied by a rolling motion that is not immediately controllable (provided the rolling motion complies with § 25.203(c)).	We recommend revising the text as follows: (a) The pitch control reaches the aft stop and is held full aft for two seconds, or until the pitch attitude stops increasing, whichever occurs later. In the case of turning flight stalls, recovery may be initiated once the pitch control reaches the aft stop ~~when accompanied by a rolling motion that is not immediately controllable~~ (provided the rolling motion complies with § 25.203(c)). This section provides the definition of when the airplane is considered to be fully stalled, but unfortunately contains the obsolete definition of "stall" from the retired Amendment 25-42, which allowed for: "(ii) a roll that cannot be readily arrested; or (iii) If clear enough, a loss of control effectiveness," both of which were made invalid with the publishing of Amendment 25-84. Hence, to reflect the current stall definition, subparagraph (a) needs to be revised by removing the words "when accompanied by a rolling motion that is	The existing text was developed as part of the amendment 25-84 change that the commenter refers to. This guidance pertains to the meaning of a "short time" in showing compliance with 25.201(d)(3). The existing text has been retained.

No.	Comment	Requested Change	Disposition
		not immediately controllable."	
15.	Page 124 Chapter 2, Section 6, Paragraph 29c(1)(b) The proposed text states: (b) An uncommanded, distinctive and easily recognizable nose down pitch that cannot be readily arrested. This nose down pitch may be accompanied by a rolling motion that is not immediately controllable, provided that the rolling motion complies with Section 25.203(b) or (c) as appropriate.	(b) An uncommanded, distinctive and easily recognizable nose down pitch that cannot be readily arrested. This nose down pitch ~~may be accompanied by a rolling motion that is not immediately controllable, provided that the rolling motion complies~~ must also comply with Section 25.203(b) or (c) as appropriate. The corrective action rationale is the same as noted for subsection (a) in our comment #14, above, and arises from the Amendment 25-84 removal of an uncontrolled rolling motion as identifying a fully stalled condition.	The existing text was developed as part of the amendment 25-84 change that the commenter refers to. Although a roll by itself cannot be used to identify a stall, it is acceptable to have some roll accompanying the nose down pitch that indicates a stall (as long as the rolling motion complies with 25.203(b) or (c), as appropriate). The existing text has been retained.
16.	Page 125 Chapter 2, Section 6, Paragraph 29d(3)(a) …The rudder should not be used excessively during the stall entry or recovery. Depending on the specific flight control system design (such as automatic turn coordination), any use of the rudder during stall testing could be considered to be an unusual piloting technique that would not be permitted. and Page 133, Chapter 2, Section 6,	We request that FAA clarify intent of the highlighted paragraphs. The highlighted paragraph is a bit confusing. First it states that excessive rudder should not be used, and then it states that, depending on the flight control system design, any use of rudder would not be permitted. This guidance is not consistent, and the FAA's position needs to be clarified. For example, is this paragraph suggesting that any use of the rudder by	The proposed text regarding excessive rudder use has been removed.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Paragraph 29e(3)(a) The proposed text states: …The rudder should not be used excessively during the stall entry or recovery. Depending on the specific flight control system design (such as automatic turn coordination), any use of the rudder during stall testing could be considered to be an unusual piloting technique that would not be permitted.	the flight control system during stall entry or recovery is not permitted (including yaw damper activity)? Or is rudder activity by the flight control system acceptable? While the pilot's use of rudder inputs may be considered unusual during stall entry and recovery on a transport category airplane, we do not consider that pilot (or flight control system) input of rudder should be prohibited. Rather, we suggest that excessive use of rudder should not be used by the pilot (or flight control system).	
17.	Page 126 Chapter 2, Section 6, Paragraph 29d(3)(b) The proposed text states: (b) A sufficient number of stalls (normally four to eight) should be accomplished at each critical combination of weight, altitude, c.g., and external configuration. The intent is to obtain enough data to define the stall speed at an entry rate of 1.0 knot/second.	We recommend revising the text as follows:: (b) A sufficient number of stalls (normally four to eight) should be accomplished at each critical combination of weight, altitude, c.g., and external configuration. ~~The intent is to obtain enough data to define the stall speed at an entry rate of 1.0 knot/second.~~ The target stall entry rate near C_{LMAX} should be 1 knot per second or less. During the maneuver for determining	The FAA agrees that 1-g stall speeds are not very sensitive to entry rate. The guidance in the draft AC 27-7C for determining and accounting for entry rate effects was inadvertently retained from previous versions of the AC that applied prior to adoption of the 1-g stall requirements (ref. amendment 25-108 to part 25). The text has been clarified to be consistent with the § 25.103(c) regulatory requirement that $C_{L_{MAX}}$ be determined in a maneuver where the speed reduction does not exceed 1 knot per second. The additional clarifying text suggested by the commenter about smoothly exercising the flight controls rather than trying to maintain a constant entry rate has also

No.	Comment	Requested Change	Disposition
		stall speeds, the flight controls should be operated smoothly in order to achieve good data quality rather than trying to maintain constant entry rate because experience has shown that adjusting flight controls to try to maintain constant entry rate leads to fluctuations in load factor and hence significant data scatter. The resultant entry rate as defined in paragraph (5)(e) may be lower or higher than the initial stall entry rate. The average stall entry rate (as defined in paragraph (5)(e)) from the set of stalls used to determine stall speeds should not significantly exceed 1 knot per second. This paragraph is carried over from prior to Amendment 25-108 (the "1g stall speed") and is not consistent with the Amendment 25-108 regulation wording for §25.103(c), which states: *"Starting from the stabilized trim condition, apply the longitudinal control to decelerate the airplane so that the speed reduction <u>does not exceed</u> one knot per second,"* [emphasis added]	been added.

No.	Comment	Requested Change	Disposition
		Because $C_{L_{MAX}}$ is insensitive to small changes in entry rate, this is not a significant technical issue; however, this has caused some confusion during certification flight testing regarding the proper target stall entry rate. Boeing suggests revising this paragraph as we have indicated.	
18.	Page 126 Chapter 2, Section 6, Paragraph 29d(4)(c) The proposed text states: (c) These data may then be extrapolated to a zero thrust condition to determine the effects of idle thrust on stall speeds (see Figure 29-1). If the difference between idle thrust and zero thrust stall speed is 0.5 knots or less, the effect may be considered insignificant.	We recommend revising the text as follows: (c) These data may then be extrapolated to a zero thrust condition to determine the effects of idle thrust on stall speeds (see Figure 29-1). If the difference between idle thrust and zero thrust stall speed is ~~0.5 knots~~ 1% of stall speed or less, the effect may be considered ~~insignificant~~ to not be appreciable per § 25.103(b)(1). Regarding the criteria used to determine whether idle thrust causes an appreciable decrease in stall speed, we suggest that, rather than use the traditional 0.5 knot criteria, use a criteria of 1% in stall speed in accordance with § 25.103(b)(1). The motivation to use the 1% criteria, instead of the 0.5 knot criteria used in	The text in question was not part of the proposed change; it is existing text and is a longstanding portion of the harmonized compliance methodology used to determine airplane stall speeds in accordance with § 25.103. The requested change is considered to be significant enough that the public should be given a chance to comment on it. The existing test has been retained; however, this comment will be considered for the next major revision of AC 25-7.

No.	Comment	Requested Change	Disposition
		the past, is that on some past programs, the 0.5 knot criteria has required either the use of FC's to keep the engine at a flight min idle level (which adds test complexity and can add flow time to the test program) or post-test analysis to adjust the data from a test idle level to the flight min idle level (which adds complexity and flow time to the data reduction) neither option has added value worthy of the added complexity. Our proposal would allow testing at the normal idle thrust levels and using the data without these adjustments, thus reducing test and/or analysis complexity and flow time. The proposed 1% value approximates estimated flight test accuracy, and thus is an appropriate definition for an "appreciable decrease in stall speed" in this context. It is important to note that the minimum 3% stall warning margin required by § 25.207(d) is essentially unaffected by this issue, since the effects of idle thrust on C_L at stick shaker and $C_{L_{MAX}}$ are essentially the same regardless of whether flight min idle or a higher idle level is used; the stick shaker speed and stall speed are affected together, so their ratio is essentially unaffected.	

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
19.	Page 127 Chapter 2, Section 6, Paragraph 29d(5)(c) The proposed text states: (c) The maximum lift coefficient ($C_{L_{MAX}}$) is defined as the maximum value of C_L achieved during the stall test. Where the time history plot of C_L exhibits multiple peak values, $C_{L_{MAX}}$ corresponds to the first maximum. There should also typically be a noticeable break in a plot of the load factor normal to the flight path near the point at which $C_{L_{MAX}}$ is reached. . . .	(c) The maximum lift coefficient ($C_{L_{MAX}}$) is defined as the maximum value of C_L achieved during the stall test. Where the time history plot of C_L exhibits multiple peak values, $C_{L_{MAX}}$ corresponds to the first maximum. <u>However, the peak corresponding to the highest C_L achieved may be used for $C_{L_{MAX}}$, provided it represents useable lift, meaning it does not occur after deterrent buffet or other stall identification cue.</u> There should also typically be a noticeable break in a plot of the load factor normal to the flight path near the point at which $C_{L_{MAX}}$ is reached … Regarding C_L (Lift coefficient) time history data that may show multiple peaks: It can be difficult to identify what constitutes a "peak." Based on discussions with the FAA during a recent airplane certification program, the peak corresponding to the highest C_L achieved may be used for $C_{L_{MAX}}$, provided it represents useable lift, meaning it does not occur after deterrent buffet or other stall identification cue. This interpretation is consistent with past practice. We therefore recommend including this	The suggested change has been made.

No.	Comment	Requested Change	Disposition
		guidance in AC 25-7C.	
20.	Page 129 Chapter 2, Section 6, Paragraph 29d(5)(e) The proposed text states: (e) Determine the stall entry rate, which is defined as the slope of a straight line connecting the stall speed and an airspeed 10 percent above the stall speed, for each stall test. Because $C_{L_{MAX}}$ is relatively insensitive to stall entry rate, a rigorous investigation of entry rate effects should not be necessary. Test data should bracket a 1.0 knot/second entry rate such that the value of $C_{L_{MAX}}$ corresponding to an entry rate of 1.0 knot/second can be determined. (See Figure 29-3.)	We recommend deleting the highlighted text and the referenced figure from section (5) Data Reduction and Presentation. This recommendation is based on the same rationale we provided for our comment #17, above, concerning paragraph 29d(3)(b).	The suggested change has been made and the subsequent figures have been renumbered.
21.	Page 130 Chapter 2, Section 6, Paragraph 29d(5)(g) The proposed text states: (g) … The expansion of $C_{L_{MAX}}$ versus Mach number data is only permitted up to the highest $C_{L_{MAX}}$ demonstrated within the range of W/delta's tested.	We recommend modifying the highlighted sentence and adding additional text, as follows: (g)… The expansion of $C_{L_{MAX}}$ versus Mach number data is only permitted up to the highest $C_{L_{MAX}}$ demonstrated within the range of W/delta ~~tested~~ values tested, unless it is shown by analysis that extrapolation to lower Mach numbers is justified. This justifying analysis may include use of	The text has been revised to allow extrapolation to lower Mach numbers when the trend of higher $C_{L_{MAX}}$ with decreasing Mach number is substantiated with other test data. For example, data obtained at a more aft cg position or with power on can be used for this purpose if c.g. and thrust effects are acceptably accounted for and there is enough data to determine the trend of $C_{L_{MAX}}$ with Mach number. Data from another airplane in the same family with the same wing and showing the same general trend of $C_{L_{MAX}}$ versus

No.	Comment	Requested Change	Disposition
		data that demonstrate the continuing trend of $C_{L_{MAX}}$ with Mach number at lower Mach numbers than can typically be achieved with forward CG idle thrust testing. These data may be acquired at mid CG or aft CG and/or with power on, provided CG and thrust effects can be accounted for. Data from another airplane model with the same main wing (e.g., a lighter weight airplane family member) may also be used. Boeing experience indicates that additional expansion methods can be valid.	Mach (e.g., a lighter weight variant) may also be used if shown to be applicable.
22.	Page 141 Chapter 2, Section 8, Paragraph 30e(2)(c)5 The proposed text states: 5 *No matter which method is used, the wind should be continuously time-recorded throughout the takeoff from brake release (or any low speed above which all data necessary to the computation are available and of sufficient accuracy) to a height of 50 ft, and throughout the landing from a height of 50 ft to full stop (or any low speed above which all data necessary to the computation are available and of sufficient accuracy).*	We recommend revising the text as follows:: 5 No matter which method is used, the wind should be continuously time-recorded throughout the takeoff from brake release (or any low speed above which all data necessary to the computation are available and of sufficient accuracy) to a height of 50 ft, and throughout the landing from a height of 50 ft to termination of the test event (full stop, touch-and-go, go-around) or any low speed above which	The suggested change has been made.

No.	Comment	Requested Change	Disposition
		all data necessary to the computation are available and of sufficient accuracy. Our recommended change takes into account approach conditions that do not terminate in a full stop, such as touch-and-go's and go-arounds. Touch-and-go and go-around operations are heavily utilized in demonstrating compliance with other regulatory paragraphs (e.g., §25.1329). AC 25-7C §25.237 is the sole source of wind calculation guidance from the FAA.	
23.	Page 145 Chapter 2, Section 8, Paragraph 31b(5)(a), Note The proposed text states: NOTE: Although Figures 31-1 and 31-2 imply that the airplane is in trim at the speed for which the stick force evaluation is being made (up to V_{DF}/M_{DF}), the airplane should be trimmed at V_{MO}/M_{MO} for speeds of V_{MO}/M_{MO} and above.	We recommend revising the entire note as follows: *NOTE: Evaluation of airplane characteristics above the initial trim speeds of V_{MO}/M_{MO} (up to V_{DF}/M_{DF}) is recognized to constitute out-of-trim conditions and as such the criteria of Figure 33-1 are applicable. If evaluating buffet characteristics, then Figures 31-1 and 31-2 can be applied if the horizontal x-axis is adjusted to represent the initial "on-condition" trim force input realized at initiation of the test condition at speeds above V_{MO}/M_{MO}.*	The FAA agrees with the commenter that for maneuvers initiated at speeds above V_{MO}/M_{MO}, these maneuvers begin in an out-of-trim condition and the out-of-trim stick force characteristics of figure 33-1 apply. The requirements of § 25.251(e) apply to speeds within the airplane's normal operating envelope, i.e., up to V_{MO}/M_{MO}. Therefore, figure 31-2, which applies to speeds above V_{FC}/M_{FC} up to V_{DF}/M_{DF}, has been removed. Figure 31-1 has been revised to clarify that it applies to speeds up to V_{MO}/M_{MO}.

No.	Comment	Requested Change	Disposition
		The "NOTE" needs revision and clarification since the Figures referred to (i.e., Fig 31-1 and 31-2) are for maneuvers that begin in a trimmed (zero elevator force) state. Since the maneuvers in Paragraph 31 are evaluated at speeds above V_{MO}/M_{MO} speeds, these are conducted at speeds above the initial trim speed and, thus, properly invoke the "mistrimmed" maneuvering criteria contained within Paragraph 33 (Out-Of-Trim Characteristics - §25.255).. Consequently, the Figures referred to in the Paragraph 31 "NOTE" should be the out-of-trim Figure 33-1. This correction will accurately reflect the out-of-trim condition for the maneuvers specified to be evaluated at speeds from V_{MO}/M_{MO} to V_{DF}/M_{DF}.	
24.	Page 157 Chapter 4, Section 3, Paragraph 34b(1) The proposed text states: (1) In accordance with § 25.671(d), the airplane must be controllable when all engines fail. Compliance should be shown for each approved configuration. The airplane should remain controllable in any	We recommend that the FAA clarify this guidance to cover all types of transport category aircraft. The proposed revised guidance wording assumes that all aircraft will define "approved configurations" for all-engine failure (and ditching). It also assumes that there is time to reach such	The proposed guidance applies to all transport category airplanes. The text has been clarified to restrict the consideration of configurations for which the airplane must remain controllable to those configurations that can be reached after all engines fail.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	specific configuration that is to be selected and maintained per the AFM non-normal operating procedures following the failure of the engines. …	a configuration in an all-engine out event. It assumes that configuration can be changed after all-engine failure. There are several certified transport category aircraft where the flaps cannot be reconfigured, or the gear lowered, or both after all-engine failure.	
25.	Page 157 Chapter 4, Section 3, Paragraph 34b(3) The proposed text states: (3) Past approaches to showing compliance with § 25.671(d) have been to show that the airplane is controllable following the failure of all engines in the climb, cruise, descent, approach, and holding configurations and can be flared to a landing attitude from a reasonable approach speed. We request that FAA clarify intent of this proposed reformatted paragraph.	In AC 25-7B, this paragraph was worded as follows: *"(1) It is controllable following the failure of all engines in the climb, cruise, descent, approach, and holding configurations and can be flared to a landing attitude from a reasonable approach speed. The airplane must be controllable when all engines fail in each of the specified configurations and in any specific configuration that is to be selected and maintained following the failure of the engines in accordance with the AFM emergency operating procedures."* The guidance and list of configurations in the revised wording of new paragraph 34b(3) is basically the same as the old paragraph 34b(1) in AC 25-7B. How is this change intended to address NTSB Recommendation A-10-072?	The proposed text in this paragraph is not intended to address National Transportation Safety Board safety recommendation A-10-72. The proposed text provides guidance for showing compliance with the regulatory requirement contained in 25.671(d). Proposed text in paragraph 73 regarding compliance with section 25.801, Ditching, was added in response to safety recommendation A-10-72. The originally proposed text has been retained.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
26.	Page 204 Chapter 5, Section 5, Paragraph 130b(8) The proposed text states: (8) Maximum Ambient Atmospheric Temperature. Section 25.1043(b) establishes 100° F (38° C) at sea level as a lower limit for cooling tests, except for winterization installations…	We recommend revising the text as follows: (8) Maximum Ambient Atmospheric Temperature. Section 25.1043(b) establishes 100° F (38° C) at sea level as a lower limit for ~~cooling~~ certification tests, except for winterization installations. This appears to be an error in writing the guidance [misquoted §25.1043(b)].	The draft AC 25-7C guidance does not misquote 25.1043(b), and it is unclear how the suggested change would be more accurate. For clarity, the draft text has been revised to state that 100 degrees F at sea level is the lowest maximum ambient temperature for cooling tests, except for winterization equipment.
27.	Page 257 Chapter 6, Section 2, Paragraph 181b(2)(a) The proposed text stats: (a) Protection features of the FGS help the flight crew make sure that the boundaries of the flight envelope or operational limits are not exceeded so an unsafe condition cannot occur ... We recommend revising the first sentence in the paragraph as follows: (a) ~~Protection features of the FGS help the flight crew make sure~~ The FGS may contain protection features to aid the flight crew in assuring that the boundaries of the flight envelope or operational limits are not exceeded so an unsafe condition does not	We recommend revising the first sentence in the paragraph as follows: (a) ~~Protection features of the FGS help the flight crew make sure~~ The FGS may contain protection features to aid the flight crew in assuring that the boundaries of the flight envelope or operational limits are not exceeded so an unsafe condition does not occur. Although the FGS may contain envelope or operational limit protection features, the FGS is not required to contain such features.	The suggested change has been made along with some additional text changes to put it in context relative to the regulatory requirement for protection features.

No.	Comment	Requested Change	Disposition
	occur. Although the FGS may contain envelope or operational limit protection features, the FGS is not required to contain such features.		
28	Page 257 Chapter 6, Section 2, Paragraph 181b(2)(a) The proposed text states: (a) … The procedures in the following paragraphs can be used to evaluate the protection functions of an FGS.	We recommend revising this text as follows: (a) … The procedures in the following paragraphs can be used to evaluate the protection functions of the FGS <u>if applicable</u>. Although the FGS may contain envelope or operational limit protection features, the FGS is not required to contain such features.	The text was revised to state that the procedures in the following paragraphs can be used regardless of whether the protection features are provided by the FGS, or by other means.
29.	Page 257 Chapter 6, Section 2, Paragraph 181b(2)(b) The proposed text states: (b) … If the FGS remains in the existing mode with reversion to low speed protection, the FGS should provide a suitable alert to annunciate the low speed condition.	We recommend revising this text as follows: (b) … If the FGS remains in the existing mode with reversion to low speed protection, ~~the FGS should provide~~ a suitable alert <u>should be provided</u> to annunciate the low speed condition. A low speed alert may not necessarily be a function of the FGS, but rather of	The suggested change has been made.

No.	Comment	Requested Change	Disposition
		the Crew Alerting System.	
30.	Page 257 Chapter 6, Section 2, Paragraph 181b(2)(b) The proposed text states: (b)… In this case, note the pilot response to the alert and the recovery actions taken to maintain the desired vertical path and to accelerate back to the desired approach speed.	We recommend revising this text as follows: (b) … In this case, note the pilot response to the alert and the recovery actions taken to maintain the desired vertical path and to accelerate back to the desired ~~approach~~ speed. The term "approach speed" does not apply to examples being referenced in paragraphs 181b(2)(b)1 – 3.	The suggested change has been made.
31.	Page 257 Chapter 6, Section 2, Paragraph 181b(2)(b)1 The proposed text states: 1 High Altitude Cruise Evaluation. (aa) At high altitude at normal cruise speed, engage the FGS into an Altitude Hold mode and a heading or lateral navigation (LNAV) mode. (bb) Engage the autothrust into a speed mode. (cc) Manually reduce one engine to idle power or thrust. (dd) As the airspeed decreases, observe the FGS behavior in maintaining altitude and heading/course. (ee) When the low speed protection feature	We recommend that this test case be broken into: • a thrust asymmetry condition and • an altitude loss condition. Each of those should be addressed at their critical case. The test case, as proposed in the draft AC, combines two separate cases and doesn't address the critical case for either situation.	This test condition is not intended to be a test of the effect of altitude loss. It is a test of the low speed protection feature during high altitude cruise. The speed protection feature is to be activated by reducing thrust on one engine to idle while maintaining a constant altitude via an altitude hold mode of the FGS. The proposed text has been retained.

No.	Comment	Requested Change	Disposition
	becomes active, note the airspeed and the associated aural and visual alerts including possible mode change annunciations for acceptable operation.		
32.	Page 257 Chapter 6, Section 2, Paragraph 181b(2)(b)2 (aa) The proposed text states: (aa) At approximately 3000 feet above MSL and at 250 knots, engage the FGS into Altitude Hold and a heading or LNAV mode.	We recommend revising this text as follows: (aa) At ~~approximately 3000 feet above MSL~~ a reasonably low altitude and at 250 knots, engage the FGS into Altitude Hold and a heading or LNAV mode. The specification of 3000 feet MSL is too restrictive for operations not originating from coastal airports (e.g., testing supporting a Wichita ACO certification in the Midwest).	The suggested change has been made although the 3000 foot altitude was retained as an example with the note "where terrain permits."
33.	Page 258 Chapter 6, Section 2, Paragraph 181b(2)(b)2 (cc) The proposed text states: (cc) Set the altitude pre-selector to 8000 feet MSL.	We recommend revising this text as follows: (cc) Set the altitude pre-selector to ~~8000 feet MSL~~ approximately 5000 feet above the current altitude. The specification of 8000 feet MSL is too restrictive.	The suggested change has been made.
34.	Page 258 Chapter 6, Section 2, Paragraph 181b(2)(b)2 (dd) The proposed text states:	We recommend revising this text as follows: (dd) Make a flight level change to	The suggested change has been made.

No.	Comment	Requested Change	Disposition
	(dd) Make a flight level change to 8000 feet with a 250 knots climb at maximum climb power or thrust.	~~8000 feet~~ selected altitude with a 250 knots climb at maximum climb power or thrust. The specification of 8000 feet MSL is too restrictive.	
35.	Page 258 Chapter 6, Section 2, Paragraph 181b(2)(b)4 (cc) The proposed text states: (cc) Cross the final approach fix/outer marker at a high speed (approximately V_{REF} + 40 knots) at idle thrust/power until low speed protection activates.	We recommend revising this text as follows: (cc) Cross the final approach fix/outer marker at a high speed ~~(approximately VREF + 40 knots)~~ at idle thrust/power until low speed protection activates. Crossing the final approach fix at V_{REF} + 40 may not allow enough time for speed to decay to the point of triggering low speed protection.	The suggested change has been made. In addition, the word "reasonably" has been added preceding "high speed."
36.	Page 259 Chapter 6, Section 2, Paragraph 181b(2)(c) The proposed text states: (c) High-Speed Protection. The high-speed protection feature in an FGS is intended to prevent a gain in airspeed to an unsafe condition. …	We recommend revising the first sentence in the paragraph as follows: (c) High-Speed Protection. The ~~high speed protection feature in an~~ FGS ~~is intended to prevent~~ may contain high-speed protection features to aid the flight crew in preventing a gain in airspeed to an unsafe condition. … Although the FGS may contain envelope or operational limit protection	The text has been revised to clarify that high speed protection may either be included in the FGS or provided by other means.

No.	Comment	Requested Change	Disposition
		features, the FGS is not required to contain such features.	
37.	Page 259 Chapter 6, Section 2, Paragraph 181b(2)(c) The proposed text states: *(c) … If the FGS remains in the existing mode with reversion to high speed protection, the FGS should provide a suitable alert to annunciate the high-speed condition.*	We recommend revising the second sentence in the paragraph as follows: (c) … If the FGS remains in the existing mode with reversion to high speed protection, ~~the FGS should provide~~ a suitable alert should be provided to annunciate the high-speed condition. A high speed alert may not necessarily be a function of the FGS, but rather of the Crew Alerting System.	The suggested change has been made.
38.	Page 259 Chapter 6, Section 2, Paragraph 181b(2)(c)2 (bb) The proposed text states: (bb) As the airspeed increases, observe the basic airplane overspeed warning activate between V_{MO} + 1 and V_{MO} + 6 knots.	We recommend revising the text as follows: (bb) As the airspeed increases, observe the basic airplane overspeed warning activate ~~between V_{MO} + 1 and V_{MO} + 6 knots~~. V_{MO} + 1 and V_{MO} + 6 is too specific and does not apply to the M_{MO} region.	The suggested change has been made.
39.	Page 259 Chapter 6, Section 2, Paragraph 181b(2)(c)2 (cc) The proposed text states: (cc) Observe the high-speed protection	We recommend revising the text as follows: (cc) Observe the high-speed protection condition ~~become active as evidenced by the unique visual alert~~ activation and	The text has been changed in line with this suggestion although it now states that FGS behavior should also be noted.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	condition become active as evidenced by the unique visual alert and note any FGS mode change.	~~note any FGS mode change~~ observe FGS indications. A high speed alert may not necessarily be a function of the FGS, but rather of the Crew Alerting System.	
40.	Page 260 Chapter 6, Section 2, Paragraph 181b(2)(c)3 (ee) The proposed text states: (ee) Observe the reduction in pitch attitude.	We recommend deleting this paragraph. Pitch attitude reduction will not occur during the overspeed event, and may only occur after speed correction, depending on the method of speed correction.	The suggested change has been made.
41.	Page 265 Chapter 6, Section 2, Paragraph 181b(5)(p) The proposed text states: (p) Go-around altitude loss information should be included in the AFM, especially if the airplane is to be approved for low visibility (Category I, II, or III) approaches. (See paragraph 5.14 of AC 120-29A and Appendix 6 of AC 120-28D.) The preferred format for presentation of this information in the AFM is as a cross-plot of altitude loss (ordinate of the crossplot) versus altitude of mode initiation (abscissa of the crossplot) as shown below.	We recommend revising the text as follows: (p) Go-around altitude loss information should be included in the AFM, especially if the airplane is to be approved for low visibility (Category I, II, or III) approaches. ~~(See paragraph 5.14 of AC 120-29A and Appendix 6 of AC 120-28D.) The preferred format for presentation of this information in the AFM is as a cross-plot of altitude loss (ordinate of the crossplot) versus altitude of mode initiation (abscissa of the crossplot) as shown below.~~ Paragraph 5.14 of AC 120-29A does not reference go-around altitude loss. Additionally, the proposed AC 25-7C	The references to AC 120-28D and 120-29A have been deleted as suggested. The figure has been retained as an example of how such information has been presented in the AFM.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
		states that the preferred format for go-around altitude loss information is a cross-plot. This contradicts the language in Appendix 6 of AC 120-28D (Criteria for Approval of Category III Weather Minima for Takeoff, Landing, and Rollout), which references a table format.	
42.	Page 267 Chapter 6, Section 2, Paragraph 181b(6)(b)1 The proposed text states: 1 Conduct a series of approaches (usually 4 or more) on CAT I rated ILS beams to a radio altitude of 160 ft. (20 percent below the CAT I decision height of 200 ft).	1 Conduct a series of approaches (usually 4 or more) on ~~CAT~~ Type I rated ILS beams to a radio altitude of 160 ft. (20 percent below the CAT I decision height of 200 ft). "Category" refers to overall facility qualifications. When referencing ILS beam quality, "Type" should be used in lieu of "CAT" in order to maintain consistency with FAA Orders 8400.13D (Procedures for the Evaluation and Approval of Facilities for Special Authorization Category I Operations and All Category II and III Operations) and 6750.24D [Instrument Landing System (ILS) and Ancillary Electronic Component Configuration and Performance Requirements].	The suggested change has been made.
43.	Page 268 Chapter 6, Section 2, Paragraph 181b(6)(b)3 The proposed text states:	We recommend revising the text as follows: 3 At least three ~~CAT~~ Type I beams	The suggested change has been made.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	3 At least three CAT I beams should be included in the evaluation, one of which should exhibit very noisy localizer and glideslope characteristics.	should be included in the evaluation, one of which should exhibit very noisy localizer and glideslope characteristics. "Category" refers to overall facility qualifications. When referencing ILS beam quality, "Type" should be used in lieu of "CAT" in order to maintain consistency with FAA Orders 8400.13D and 6750.24D.	
44.	Page 268 Chapter 6, Section 2, Paragraph 181b(6)(c)1 The proposed text states: 1 Conduct a series of approaches on CAT II rated ILS beams to a radio altitude of 100 feet.	We recommend revising the text as follows: 1 Conduct a series of approaches on ~~CAT~~ Type II rated ILS beams to a radio altitu de of 100 feet. "Category" refers to overall facility qualifications. When referencing ILS beam quality, "Type" should be used in lieu of "CAT" in order to maintain consistency with FAA Orders 8400.13D and 6750.24D.	The suggested change has been made.
45.	Page 268 Chapter 6, Section 2, Paragraph 181b(6)(c)3 The proposed text states: 3 At least three CAT II beams should be included in the evaluation.	We recommend revising the text as follows: 3 At least three ~~CAT~~ Type II beams should be included in the evaluation. "Category" refers to overall facility qualifications. When referencing ILS	The suggested change has been made.

No.	Comment	Requested Change	Disposition
		beam quality, "Type" should be used in lieu of "CAT" in order to maintain consistency with FAA Orders 8400.13D and 6750.24D.	
46.	Page 271 Chapter 6, Section 2, Paragraph 181b(9)(a)3 and 4 The last two sentences in proposed paragraph 3 state: 3 … After the recognition point, action by the test pilot should be delayed to simulate the time it would take for a line pilot to take control after recognizing need for action. The test condition is considered completed when a stable state is reached as determined by the test pilot.	We recommend moving the last two sentences in proposed paragraph 3 to the beginning of paragraph 4. The last two sentences in paragraph 3 discuss delay time and would more appropriately align with the delay discussion in paragraph 4.	The suggested change has been made.
47.	Page 271 Chapter 6, Section 2, Paragraph 181b(9)(a)3 Paragraph 3 should identify recognition point determination.	We recommend adding the following text to paragraph 3: ". . . The recognition point should be identified by the test pilot" Test pilot evaluation is required to properly determine fault recognition.	The suggested change has been made.
48.	Page 271 Chapter 6, Section 2, Paragraph 181b(9)(a)4 Paragraph 4 should contain a statement about varying delay times.	We recommend adding the following text to paragraph 4: ". . . The test method should include varying delay times to evaluate a reasonable recognition time." The varied recovery times allow the	The recognition time should be based on the behavior of the airplane and/or a reliable alerting system. The delay time is the time it would take a line pilot to take action after recognizing the need for action and is independent of the recognition time. Neither the delay time nor the airplane response as a function of the recognition + delay

No.	Comment	Requested Change	Disposition
		test pilot the opportunity to evaluate what a reasonable recognition time is and provide data to allow the airplane response to be modeled as a function of recovery (recognition + delay) time.	time should be used to determine the recognition time. The originally proposed text has been retained.
49.	Appendix 5 Page A 5-2 Figure 1 In Figure 1, there is a box labeled: Xc + Xa + Xe Combination Methodology	Revise the text in the box to read as follows: Xc * Xa * Xe Combination Methodology Figure 1 is in error in that the expression "Xc+Xa+Xe" should read as "Xc * Xa * Xe" -- reflecting the product of the three variables, not the sum.	The suggested change has been made.
50.	Appendix 5 Page A 5-8 Figure 7 In Figure 7, Item D reads as follows: D. Repeat process to identify all cases where Xc + Xa + Xe => 10^{-9}	Revise the text in Figure 7, Item D, to read as follows: D. Repeat process to identify all cases where Xc * Xa * Xe => 10^{-9} Figure 7, Item D, is in error in that the expression Xc + Xa + Xe => 10^{-9} should reflect the combined product of the three variables, not the sum.	The suggested change has been made.
51.	Appendix 5 Page A 5-8 Figure 7 Figure 7, Item E, states: E. Determine: "Flight Condition" (Xc+Xe)	We recommend revising the text as follows: E. Determine "Flight Condition" (Xc*Xe)	The suggested change has been made.

No.	Comment	Requested Change	Disposition
	- PROBABLE FLIGHT CONDITION: -5<(Xc+Xe)<0 - IMPROBABLE FLIGHT CONDITION: -9<(Xc+Xe)<-5	- PROBABLE FLIGHT CONDITION: 10^{-5}<(Xc*Xe)<0 - IMPROBABLE FLIGHT CONDITION: 10^{-9}<(Xc*Xe)<10^{-5} The "Flight Condition" is the product of Xc * Xe, not the sum. Additionally, the PROBABLE and IMPROBABLE range of probabilities should be expressed as exponents of base 10 (e.g., 10^{-5})	
52.	Appendix 5 Page A 5-10 Figure 9 In Figure 9, the heading of the first column states: FLIGHT CONDITION (Xc+Xe)	We recommend revising the heading as follows: FLIGHT CONDITION (Xc*Xe) Flight Condition is the product of Xc and Xe, not the sum. Therefore, the column heading should be labeled as "Flight Condition (Xc*Xe)."	The suggested change has been made.
53.	We also would like to reiterate a general comment that has been brought up with the FAA over the years concerning this	Because of the length and complexity of this Advisory Circular, we recommend that the complete	AC 25-7C follows the standard FAA format for advisory circulars.

No.	Comment	Requested Change	Disposition
	particular AC: The paragraph numbering system used in AC 25-7 makes the document extremely difficult to use because of the reliance on providing only a partial paragraph designator based on indentation level for identifying specific paragraphs rather than by providing the complete paragraph designator at the start of each paragraph. The paragraph numbering scheme used throughout AC 25-7 is difficult to use and should be changed to make it easier for applicants to use and maneuver through. As an example, there can be up to seven indentation levels in this AC, which makes for an extremely tedious and time-consuming task to either track down a specific paragraph for which the complete number is already known, or determine what the complete paragraph number is for a specific paragraph for citing purposes. This is a particular problem at the mid- to lower levels of indention where it may be necessary to hunt through several pages to track down the correct paragraph number. The process is error-prone, as demonstrated by the fact that even the FAA has made several errors in citing paragraph numbers in the proposed AC	paragraph number be provided for each paragraph. An excellent example of what we are asking for is provided in the JAA Flight Test Guide. That document was developed directly from AC 25-7, but the JAA Flight Test Guide Subgroup that produced it (which included FAA participants) determined that the usability of the document would be significantly improved by providing complete paragraph numbers throughout the document. Note that this approach does not eliminate the use of indentation as used in AC 25-7C. While we understand there may be long-established writing conventions for many of the FAA's documents, we also consider that the most important purpose of any advisory material is to ensure that applicants understand and comply with the document. If a particular formatting convention has been identified time and time again as detrimental to the usability of a document, we would hope that FAA would be considerate more of the need for the intended audience's	

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	revision (see our comments #5, #6, and #9, for example). In addition to the considerable amount of time that can be wasted due to this inefficient paragraph numbering scheme, the consequences of citing an erroneously-determined paragraph number in documentation such as Certification Plans can result in unnecessary rework on the part of both applicant and the FAA.	understanding, rather than the blind adherence to use of a traditional but problematic format.	

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
1.	In *Chapter 2 – Flight, Section 1. General, 3. Proof of Compliance - § 25.21, (1) Section 25.21(a) – Proof of Compliance, (f)3(bb)(ii)*:	Change: "the required quality" To: "the required fidelity ~~quality~~"	The suggested change was made.
2.	In *Chapter 2 – Flight, Section 1. General, 3. Proof of Compliance - § 25.21, (3) Section 25.21(d) – Proof of Compliance (Flight Test Tolerances), (a)*:	Change: "to allow for small variations" To: "to allow for acceptable ~~small~~ variations"	This sentence explains the intent of why "acceptable tolerances" are allowed for. Stating that acceptable tolerances are allowed to allow for acceptable variations, as proposed by the commenter, does not provide much guidance as to intent. The FAA considers it important to retain the more descriptive qualifier "small" in regards to the types of variations that the "acceptable tolerances" are meant to address. The original text was retained.
3.	In *Chapter 2 – Flight, Section 1. General, 3. Proof of Compliance - § 25.21, (3) Section 25.21(d) – Proof of Compliance (Flight Test Tolerances), (b)*:	Change: "within the approved operating envelope" To: "within the approved, or being approved, operating envelope"	The FAA sees no need to make this distinction. It is recognized that this document addresses an ongoing certification process.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

<table>
<tr><th>No.</th><th>Comment</th><th>Requested Change</th><th>Disposition</th></tr>
<tr><td></td><td colspan="3">Commenter: Hawker Beechcraft Corporation.</td></tr>
<tr><td>4.</td><td>In Chapter 2 – Flight, Section 1. General, 3. Proof of Compliance - § 25.21, (3) Section 25.21(d) – Proof of Compliance (Flight Test Tolerances), (b)1:

Comment:
Applicants need to define weight tolerance limits for all flight tests, including those that are not listed in Figure 3-1.</td><td>Enhance the guidance provided in Figure 3-1 as follows
<table><tr><th>Flight Test Conditions</th><th colspan="2">Weight Tolerance Limit</th></tr><tr><td></td><td>±5%</td><td>±10%</td></tr><tr><td>Stall Speeds</td><td>X</td><td></td></tr><tr><td>Stall Characteristics</td><td></td><td>X</td></tr><tr><td>All other Flight Characteristics</td><td></td><td>X</td></tr><tr><td>Climb Performance</td><td>X</td><td></td></tr><tr><td>Takeoff Flight Paths</td><td>X</td><td></td></tr><tr><td>Landing Braking Distance</td><td>X</td><td></td></tr><tr><td>Landing Air Distance</td><td>X</td><td></td></tr><tr><td>Takeoff Distance & Speed</td><td>X</td><td></td></tr><tr><td>Accelerate-Stop Distance</td><td>X</td><td></td></tr><tr><td>Maximum Energy RTOs</td><td>X</td><td></td></tr><tr><td>Minimum Unstick Speed</td><td></td><td>X</td></tr><tr><td>Minimum Control Speed</td><td>X</td><td></td></tr></table></td><td>The suggested changes were made.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>5.</td><td>In Chapter 2 – Flight, Section 1. General, 3. Proof of Compliance - § 25.21, (3) Section 25.21(d) – Proof of Compliance (Flight Test Tolerances), (b)1(aa):

Comment:
Often it is impractical to test even a production airplane at the minimum flight weight. Instances exist of simulation having being used in lieu of flight testing at minimum flight weight.</td><td>Add the following statement at the end of the paragraph:
“If available, a simulation with the level of fidelity described in 3(f)3 above may be used in lieu of flight testing at the minimum allowable weight.”</td><td>The text has been revised to allow the use of a simulator in lieu of airplane testing from a minimum practical test weight to the minimum allowable weight.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>6.</td><td>In Chapter 2 – Flight, Section 2. Performance, 10. Takeoff and Takeoff</td><td>Change: “Increased drag due to lateral/directional control systems.”</td><td>The suggested change was made.</td></tr>
</table>

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	Speeds - §§25.105 and 25.107, (8) Section 25.107(d) – Minimum Unstick Speed (V_{MU}), (c)3:	To: "Increased drag due to the use of lateral/directional control systems."	
7.	In *Chapter 2 – Flight, Section 2. Performance, 10. Takeoff and Takeoff Speeds - §§25.105 and 25.107, (8) Section 25.107(d) – Minimum Unstick Speed (V_{MU}), (d)*: Comment 1: 14 CFR 25.107(d) states that "V_{MU} speeds must be selected by the applicant […]" This means that, although it is desirable to keep V_{MU} low, its minimum value needs not be determined. In fact, an applicant is – ► Not required i) to determine the lowest possible unstick speed for its airplane, or ii) to select the lowest possible unstick speed as V_{MU}. ► Allowed to select a value for V_{MU} that supports the takeoff performance targets of the applicant's airplane. ► Required to demonstrate this speed by flight testing. Comment 2: Minimum unstick speed testing of high performance, aft-fuselage-mounted, high	Revise this sub-paragraph of AC 25-7C as appropriate to incorporate the clarifications in comments 1 and 2.	The text has been revised to include the suggested clarifications.

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	thrust line engine jet airplanes at their highest T/W often yields V_{MU}/V_{SR1} ratios that are higher than those obtained at lower T/W. Therefore, applying the V_{MU}/V_{SR1} ratios achieved at low T/W to the entire range of T/W might not be appropriate for all airplanes.		

8.	In *Chapter 2 – Flight, Section 2. Performance, 10. Takeoff and Takeoff Speeds - §§25.105 and 25.107, (8) Section 25.107(d) – Minimum Unstick Speed (V_{MU}), (h)3(aa), (bb) and (cc), and (i)2*:	For (h)3(aa) --
		Change: "should be in contact with the runway"
		To: "~~should be~~ is in contact with the runway".
		
		For (h)3(bb) --
		Change: "should not decrease"
		To: "~~should~~ does not decrease".
		
		For (h)3(cc) --
		Change: "[…] should not be greater than […]"
		To: "[…] ~~should~~ is not ~~be~~ greater than […]".
		
		For (i)2 --
		Replace full-stop with colon at the end of the paragraph.
			The existing text is appropriate for guidance that reflects something to occur in the future rather than something that is occurring at the present time.
			
			The existing text is appropriate for guidance that reflects something to occur in the future rather than something that is occurring at the present time.
			
			The existing text is appropriate for guidance that reflects something to occur in the future rather than something that is occurring at the present time.
			
			The suggested change has been made.

9.	In *Chapter 2 – Flight, Section 2. Performance, 10. Takeoff and Takeoff Speeds - §§25.105 and 25.107, (9) Section*	Provide a clarification in AC 25-7C (an example would be useful, considering airplane size, speed, etc.)	What constitutes a rapid rotation versus a rotation at the maximum practicable rate is very airplane dependent and must be determined on a case-by-

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	25.107(e) – Rotation Speed (V_R), (a)4: Comment: Often the question arises as to what the difference is between an airplane rotated at a "rapid" rotation and an airplane "rotated at its maximum practicable rate."		case basis. No changes have been made to the draft C in response to this comment.
10.	In *Chapter 2 – Flight, Section 2. Performance, 10. Takeoff and Takeoff Speeds - §§25.105 and 25.107, (9) Section 25.107(e) – Rotation Speed (V_R), (b)3*: Comment: The qualifier "Non-damaging" is subjective.	Change: "Non-damaging contact due to inadvertent […]" To: "~~Non-damaging~~ Contact due to inadvertent […]".	"Non-damaging" is an important qualifier. Although it may be somewhat subjective, not all contact due to in inadvertent over-rotation would be acceptable. The originally proposed text has been retained.
11.	In *Chapter 2 – Flight, Section 2. Performance, 10. Takeoff and Takeoff Speeds - §§25.105 and 25.107, (9) Section 25.107(e) – Rotation Speed (V_R), (c)2*: Comment 1: Applicants and the FAA ACOs often find themselves resorting to clearer, more user-friendly words when writing test plan procedures for early-rotation takeoffs with all engines operating.	For Comment 1 -- Change: "For these tests, the airplane should be rotated at a speed 7 percent or 10 knots, whichever is less, below the scheduled V_R." To: "For these tests, the airplane should be rotated at a speed equal to the scheduled V_R minus 7 percent or the	The suggested change was made.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	Comment 2: Will this new AC 25-7C require that both rapid rotations and over-rotations be performed? Should "and" revert to "or" in the wording? Comment 3: Often the question arises as to what the difference is between an airplane rotated at a "rapid" rotation and an airplane "rotated at its maximum practicable rate."	scheduled V_R minus 10 knots, whichever results in the higher rotation speed.~~is less, below the scheduled V_R~~" For Comment 2 -- Clarify (and revise, as appropriate). For Comment 3 -- Include a clarification of the difference between an airplane rotated at a "rapid" rotation and an airplane "rotated at its maximum practicable rate" (an example would be useful).	The intent is that both rapid and over-rotation tests should be performed. The originally proposed text has been retained. What constitutes a rapid rotation versus a rotation at the maximum practicable rate is very airplane dependent and must be determined on a case-by-case basis. The existing test is retained.
12.	In *Chapter 2 – Flight, Section 2. Performance, 10. Takeoff and Takeoff Speeds - §§25.105 and 25.107, (9) Section 25.107(e) – Rotation Speed (V_R), (c)4*:	Change: "[…] for the operation of the airplane not result in unsafe flight characteristics." To: "[…] for the operation of the airplane should not result in unsafe flight characteristics."	The word "may" has been added, which is consistent with the rule wording.
13.	In *Chapter 2 – Flight, Section 2. Performance, 10. Takeoff and Takeoff Speeds - §§25.105 and 25.107, (9) Section 25.107(e) – Rotation Speed (V_R), (c)4(aa) and 4(bb)*:	For Comment 1 -- Clarify both instances of the statement.	Since there is only one scheduled rotation speed for airplane weight and ambient conditions, the words

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	Comment 1: In both instances of the statement "Rotation should be initiated at the most critical scheduled rotation speed for the airplane weight and ambient conditions." it seems that the words "most critical" should not apply, because there is only one scheduled V_R in the AFM for the given airplane configuration, weight, and ambient conditions. Comment 2: The last statement in *4(bb)* could benefit from the deletion of the words "[…] an excessive force required to maintain normal pitch attitude […]"	For Comment 2 -- Delete words as follows: "Unsafe characteristics include: an abrupt self rotating tendency which cannot be checked with normal control input, or an excessive pitch control force required to maintain the airplane in the normal pitch attitude prior to the scheduled rotation speed, or ~~an excessive force required to maintain normal pitch attitude~~ during rotation and initial climb."	"most critical" have been removed in both instances. The suggested change was made.
14.	In *Chapter 2 – Flight, Section 2. Performance, 11. Accelerate-Stop Distance - §25.109, c.(3)(c)*:	Change: "[…] to the first pilot action to stop the airplane" To: "[…] to the first ~~pilot~~ action taken by the pilot to stop the airplane"	The current wording is judged to be acceptable and is being retained. This wording used in several other places as well, so retaining the current wording is consistent with these other places where the same wording is used.
15.	In *Chapter 2 – Flight, Section 2. Performance, 12. Takeoff Path - §25.111, b.(2)(c)*:	Change: "An analysis may be used to account for various engine bleeds (e.g., ice protection, air conditioning, etc.) and for electrical power extraction [...] "	In addition to the suggested change, a reference to pneumatic power extraction is added.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	Comment: The proposed new words do not address the fact that engine power extraction supports both electrical and mechanical loads.	To: "An analysis may be used to account for various engine bleeds (e.g., ice protection, air conditioning, etc.) and for electrical (generator, etc.) and mechanical (hydraulic pumps, etc.) power extraction [...]"	
16.	In *Chapter 2 – Flight, Section 2. Performance, 12. Takeoff Path - §25.111, f.(2)*:	Change: "[…] that the actual airplane height, […]" To: "~~that~~ at which the actual airplane height […]"	The text has been changed in a manner similar to that suggested.
17.	In *Chapter 2 – Flight, Section 2. Performance, 14. Takeoff Flight Path - §25.115, a.(2), NOTE 2*: Comment 1: Ground level is not the correct vertical reference for the takeoff flight path. The height of the terrain, as the airplane flies away from the airport, may vary significantly. The correct vertical reference is the takeoff surface. Comment 2: Is 1500 ft intended to be an upper limit, or may the second segment be extended to geometric altitudes higher than 1500 feet	For Comment 1 -- Change: "[…] to an altitude of 1500 feet above ground level (AGL)." To: "[…] to an altitude of 1500 feet above the takeoff surface ~~ground level (AGL)~~." For Comment 2 -- Clarify if 1500 ft is to be treated as an upper limit, or if the second segment may be extended to geometric altitudes higher than 1500 feet above the takeoff surface.	The text has been revised as suggested. The second segment can be extended to a geometric altitude (height) higher than 1500 feet above the takeoff surface. The text has been changed accordingly.

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	above the takeoff surface?		
18.	In *Chapter 2 – Flight, Section 2. Performance, 16. Landing Climb: All-Engines-Operating - §25.111, b.(3) and (4)*: Comment: EASA guidance material (AMC 25.119) for CS 25.119 indicates that "Engine acceleration tests should be conducted using the most critical combination of the following parameters: i. Altitude; ii. Airspeed; iii. Engine bleed; iv. Engine power off-take; likely to be encountered during an approach to a landing airfield within the altitude range for which landing certification is sought; […]" The changes suggested in the following column in regards to critical accessory (electrical and mechanical) power extraction aim at harmonizing this aspect of AC 25-7C with the corresponding EASA advisory material.	For b.(3) -- Change: "For the critical air bleed configuration […]" To: "For the critical air bleed and power extraction configuration […]" For b.(4) -- Change: "[…] for each of the bleed combinations tested in accordance with paragraph (3) above. Unless AFM performance data are presented for each specific power extraction level (bleed and electrical), the AFM performance data should be based on the power or thrust obtained with the most critical power extraction level." To: "[…] for each of the bleed and power extraction combinations tested in accordance with paragraph (3) above. Unless AFM performance data are presented for each specific bleed and power extraction level (~~bleed and~~ electrical and mechanical), the AFM performance data should be based on the power or thrust obtained with the most critical power extraction level."	The suggested changes have been made except for the parenthetical reference to "electrical and mechanical." The latter was not included because the placement of the parenthetical would also need to have included a list of bleeds, and it is not considered necessary to again list the types of power extraction here.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
19.	In *Chapter 2 – Flight, Section 2. Performance, 17. Climb: One-Engine-Inoperative - §25.121, b.(7)*: Comment: Need to quantify the altitude lost during the go-around maneuver and link it to the maximum landing weight of the airplane.	Just prior to b.(8), add the following paragraph: "The vertical deviation from the stabilized approach flight path that results from performing the go-around maneuver should be quantified and used in establishing the maximum allowable landing weight for the approach category (e.g. 1, 2, or 3) selected by the applicant."	This section addresses flight testing to show compliance with 25.121. Section 25.121 does not require an assessment of the altitude lost during a go around maneuver, nor does it link the maximum landing weight to that altitude lost. The originally proposed text has been retained.
20.	In *Chapter 2 – Flight, Section 2. Performance, 19. Landing - §25.125, b.(3)*: Comment 1: The new text in this paragraph seems to indicate that different requirements would apply if the approach angle were less than -3.5° and the sink rate at touchdown less than 8 ft/sec. Does this mean that, for example, using an approach angle of -3.4° and a sink rate at touchdown of 7.25 ft/sec would permit the use of the landing distances determined with the parametric analysis without the aforementioned full operational safety margins? Would different operational safety margins be applicable in the case of this example?	Address comments and revise this sub-paragraph of AC 25-7C as appropriate.	Response to comment 1: The new text clarifies the bounds within which the specified parametric landing air distance can be used to show compliance with 25.125. If an applicant proposes to use more operationally representative approach angles and touchdown rate of sink values, the resulting landing distances may be used in applications where the specified operational safety margins may not be required (e.g., part 91 operations). Response to comment 2: The landing distances using the specified parametric method need not be presented only as "factored" landing distances, but it must be clear that they cannot be used without the specified operational safety margins. Response to comment 3: To be able to use

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	Comment 2: Does the new text mean that the landing distances determined with the parametric analysis method must be presented in the AFM or its supplements as factored distances only? Comment 3: Does the new text mean that actual, unfactored landing distances published in the AFM or its supplements (and allowed to be used as such by Part 91 operators) may be based only on the methods presented in *Chapter 2 – Flight, Section 2. Performance, 19. Landing - §25.125, b.(1) and (2)* of this proposed AC 25-7C? Comment 4: Is the new text levying a requirement that applies to Part 121 and 135 operators only, and not to TC or STC applicants? In other words, is it a certification requirement or an operational requirement? Comment 5: Is the new text expressing a "soft" requirement (i.e. "should" = "it would be a good idea if …") or a hard requirement (i.e. "should" = "must")?		unfactored landing distances, either landing distance methods 1 or 2 would need to be used, or method 3 with an operationally representative approach angle and touchdown rate of sink. Response to comment 4: The new text applies to the showing of compliance with 25.125, which is an airworthiness certification requirement. Response to comment 5: The new text establishes the bounds in which the specified compliance methodology would be found acceptable for showing compliance with 25.125.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
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21.	In *Chapter 2 – Flight, Section 2. Performance, 19. Landing - §25.125, b.(3)(a), (b), and (d) through (g)*:	For (a) --
		Change: "The air distance at a given weight or air time established […]"
		To: "At a given weight, ~~T~~the air distance ~~at a given weight or~~ and the air time established […]"
		
		For (b) --
		Delete "should" from first sentence.
		
		For (d) through (g) --
		Paragraphs (d) through (g) should be moved up one level and become 19b(4) through 19b(7).
			The suggested changes, except for the paragraph re-numbering, have been made. Paragraphs (d) through (g) apply to the parametric method and should therefore remain as formatted.

22.	In *Chapter 2 – Flight, Section 2. Performance, 19. Landing - §25.125, h.*:	In the explanation – Change: "[…] Using the same regression coefficient relationships, determine the values of the constants, a, b, and c, for the speed reduction between 50 ft. and touchdown (V_{50}/V_{TD}) by substituting the value of (V_{50}/V_{TD}) for 50/t for each test point. After determining the values of the constants, use the above equation for 50/t to calculate the time from 50 ft. to touchdown for the target conditions of a	The text has been clarified by replacing "substituting" with "using." The suggested changes for all instances of Ft/Sec have been changed as suggested and parentheses have been added around the variables where missing.

No.	Comment	Requested Change	Disposition
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		-3.5 degrees flight path angle and R/S_{TD} = 8 ft/Sec. Use a value of R/S_{50} calculated from the approach path and V_{50}. Then, using the same equation, but substituting V_{50}/V_{TD} for 50/t and using the constants determined for V_{50}/V_{TD}, calculate V_{50}/V_{TD} […]" To: "[…] Using the same regression coefficient relationships, determine the values of the constants, a, b, and c, for the speed reduction between 50 ft. and touchdown (V_{50}/V_{TD}) by substituting the value of (50/t) with that of (V_{50}/V_{TD}) ~~for 50/t~~ for each test point. After determining the values of the constants, use the above equation for (50/t) to calculate the time from 50 ft. to touchdown for the target conditions of a -3.5 degrees flight path angle and (R/S_{TD}) = 8 ft/~~S~~sec. Use a value of (R/S_{50}) calculated from the approach path and V_{50}. Then, using the same equation, but substituting (V_{50}/V_{TD}) for (50/t) and using the constants determined for (V_{50}/V_{TD}), calculate (V_{50}/V_{TD}). In the example, change all instances of "Ft/Sec" to "ft/sec"	

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
23.	In *Chapter 2 – Flight, Section 3. Controllability and Maneuverability, 21. Longitudinal Control - §25.145, b.(1)(a)1*:	Change to read "Maximum weight, or a lighter weight if ~~considered~~ more critical."	The suggested change has been made.
24.	In *Chapter 2 – Flight, Section 3. Controllability and Maneuverability, 23. Minimum Control Speed - §25.149*: Comment: A sub-section should be added to "23. Minimum Control Speed - § 25.149" to explain that the minimum control speed of a previously certified airplane could be affected by significant aerodynamic and / or propulsive changes made during an amended TC or STC project. It should be made clear that this possibility must be investigated and that, if the effect is found to be not negligible, it must be accounted for in the AFM (or AFM Supplement) limitations and in the takeoff and landing performance data. There are and have been instances of STC projects in which the effect on V_{MC} and V_{MCG} of higher-thrust engines installed on previously certified airplanes is not determined nor accounted for. Instead, it	Address comment and revise this sub-paragraph of AC 25-7C as appropriate.	Text has been added as suggested by the commenter.

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	is simply shown that the takeoff speeds published in the original AFM yield satisfactory flight characteristics and conservative takeoff distances for the airplane with the new, higher-thrust engines. However, these tests are generally <u>not</u> performed at conditions of weight, altitude, and temperature where the airplane with the new engines is V_{MCG} or V_{MC}-limited, <u>nor</u> are they performed with the nosewheel steering disengaged, as required for V_{MCG} determination. A similarly simplistic view is adopted for the landing where, at the most, the landing distance is increased analytically to account for a possibly higher idle thrust. Nothing in the approach described above accounts for the fact that V_{MC}, V_{MCG} and V_{MCL} might change as a result of the thrust increase and that, consequently, V_1, V_R, and V_{REF} need to be re-established. Often, V_{MCG} and static V_{MC} / V_{MCL} determinations, and dynamic V_{MC} / V_{MCL} demonstrations are simply not performed. This approach leads to a regulatory non-compliance and to the potential for a safety issue.		
25.	In *Chapter 2 – Flight, Section 3. Controllability and Maneuverability, 23.*	Revise this sub-paragraph of AC 25-7C as appropriate to clarify what constitutes	What constitutes a dangerous attitude as well as what constitutes exceptional piloting skill,

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	Minimum Control Speed - §25.149, b.(2)(c)1: Comment: Regarding the newly introduced text ("In accordance with § 25.149(d), the airplane may not assume any dangerous attitude, nor require exceptional piloting skill, alertness, or strength"), HBC suggests quantifying what constitutes a "dangerous attitude". Left to interpretation, this has resulted in ACOs imposing that the airplane not exceed 5° of bank at any time during the recovery following the dynamic engine cut. • Should 5° of bank be considered the acceptable limit? • Is a higher value acceptable? • Should this limit depend on the size of the airplane, considering its wing span and wing sweep as well?	a "dangerous attitude."	alertness, or strength is inherently a qualitative assessment. However, text has been added to clarify that bank angles are not limited to 5 degrees in showing compliance with this rule.
26.	In *Chapter 2 – Flight, Section 5. Stability, 26. Static Longitudinal Stability and Demonstration of Static Longitudinal Stability - §25.173 and 25.175, b.(2):* Comment:	Change (a) as follows -- From: "Trim at the desired airspeed and note the power or thrust setting. Increase power or thrust to accelerate the airplane to the extreme speed of the desired data band. Then reset the power	The suggested change has been made.

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	New sub-paragraphs (a) and (b) can be refined to provide clearer guidance.	or thrust to the original trim power setting and allow the airplane to decelerate at a constant altitude back to the original trim speed. Obtain longitudinal static stability data during the deceleration to trim speed with the power and the elevator trim position the same as the original trim data point." To: "Trim at the desired airspeed and note the power or thrust setting. Without changing pitch trim, increase power or thrust to accelerate the airplane to the extreme speed of the desired data band (maintain altitude approximately constant, using elevator control as required). Then, without changing pitch trim, rapidly reset the power or thrust to the original ~~power~~ trim setting and allow the airplane to decelerate at a constant altitude back to the original trim speed. Obtain longitudinal static stability data during the deceleration to trim speed with the power and the ~~elevator~~ pitch trim position the same as the original trim data point. Change (b) as follows -- From: "Obtain data below the trim	

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
		speed in a similar manner, by reducing power or thrust to decelerate the airplane to the lowest speed in the data band. Then, reset the power to the original trim conditions, and record the data during the level acceleration back to trim speed." To: "Obtain data below the trim speed in a similar manner, by reducing power or thrust to decelerate the airplane to the lowest speed in the data band (maintain altitude approximately constant, using elevator control as required; do not change pitch trim). Then, without changing pitch trim, rapidly reset the power or thrust to the original trim ~~conditions~~ settings and record the data during the level-flight acceleration back to trim speed."	
27.	In *Chapter 2 – Flight, Section 6. Stalls, 29. Stall Testing, d.(3) and e.(3):* <u>Comment 1</u>: The first part of the proposed new text opens the door to interpretation. • What constitutes an excessive use of the rudder control?	Address comments and revise this sub-paragraph of AC 25-7C as appropriate.	The proposed text regarding excessive rudder use has been removed.

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	• What (measurable quantity) is it based on? Comment 2: Some airplanes are designed such that the yaw damper (which also provides automatic turn coordination in certain cases) disconnects at stick shaker activation. Therefore: • Is it reasonable to expect a pilot to not use rudder pedal input to control and correct yaw as the airplane continues towards the stall with the yaw damper disengaged? • In its current form, the change proposed in this AC 25-7C appears to be imposing a new design philosophy that the yaw damper, if installed, must not auto-disconnect throughout a stall maneuver (decel-shaker-pusher-recovery) because any use of the rudder by a Part 25 pilot might be considered unusual piloting technique. Is this one of the intents of this change? Furthermore, is it reasonable to provide a restriction on the use of rudder on all Part 25 airplanes, whether they are equipped – for example - with fuselage-mounted jet		

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	engines or with wing-mounted propeller engines? Comment 3: Part of this proposed change seems to impose a requirement that contrasts with at least one of the regulations that this portion of AC 25-7C is intended to support. In fact, 14 CFR 25.203(a) states that "It must be possible to produce and to correct roll and yaw by unreversed use of the ailerons and rudder controls, up to the time the airplane is stalled […] In addition, it must be possible to promptly prevent stalling and to recover from a stall by normal use of the controls." If the intention is to restrict or prohibit the use of rudder input during a stall maneuver, the applicable regulations should be amended accordingly. Imposing this new requirement at the advisory material level generates a conflict with the regulation and will create confusion among applicants and FAA ACOs alike.		
28.	In *Chapter 2 – Flight, Section 6. Stalls, 29. Stall Testing, e.(1):*	Change: "Since operational pilots are not required to fly […]" To: "Since operational pilots are typically not required to fly […]"	The sentence that this comment recommends changing has been removed from the AC. Future training requirements may include exposure to angles of attack beyond stall warning. In any case,

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
			the sentence is not needed.
29.	In *Chapter 2 – Flight, Section 7.Ground and Water Handling Characteristics, 30. General, e.(2)(c) and e.(2)(c)1:*	Change: "a flight test wind measurement station […]" To: "a calibrated flight test wind measurement station […]"	The suggested change has been made.
30.	In *Chapter 2 – Flight, Section 8.Miscellaneous Flight Requirements, 31. Vibration and Buffeting, a.(4):* Comment: Once an accelerometer location and threshold value have been correlated with the pilot's buffet onset assessment, the accelerometer can provide data with more accuracy and precision. The accelerometer is more objective than a human pilot, and its output is not subject to communication lag, which can make a significant difference, particularly during wind-up turns.	Change: "This boundary should be established by pilot qualitative evaluation, as there is no established criterion for buffet level at the pilot station." To: "This boundary should be established by, or correlated with pilot qualitative evaluation of buffet onset, as there is no ~~established~~ predetermined criterion for buffet level at the pilot station."	Text has been added to address this comment.
31.	In *Chapter 2 – Flight, Section 8.Miscellaneous Flight Requirements, 32. High Speed Characteristics, c.(3)(b) and c.(6)(b)1:* Comment 1:	For Comment 1 -- Change: "[…] should be trimmed at	The suggested changes have been made.

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	In c.(3)(b), the applicant should be guided to maintain as close a cruise condition as possible before introducing the upset. Comment 2: In c.(6)(b)1, "opposite direction" is more commonly used in flight test planning than "other direction".	V_{MO}/M_{MO} in a descent.)" To: "[…] should be trimmed at V_{MO}/M_{MO} in as shallow a descent as possible.)" For Comment 2: Change: "[…] a 20-degree bank angle in the other direction […]" To "a 20-degree bank angle in the ~~other~~ opposite direction […]".	
32.	In *Chapter 4 – Design and Construction, Section 3. Control Systems, 46. Flap and Slat Interconnections - § 25.701, c.:*	Change: "Simulate appropriate flap malfunctioning during takeoffs […]" To: "Simulate appropriate flap or slat malfunctioning during takeoffs […]"	The suggested change has been made.
33.	In *Chapter 4 – Design and Construction, Section 4. Landing Gear, 55. Brakes - § 25.735, c.(1) and c.(7):* Comment 1: In c.(1) it is not clear what the purpose of the qualifier "Basic" is. Comment 2: The intent of sub-paragraph c.(7) is to provide guidance for demonstrating the integrity of the fuse plugs during a maximum energy landing. The title of the	For Comment 1: Delete "Basic" from title, to read "~~Basic~~ New airplane certification". For Comment 2: Replace "Design" with "Integrity" in the title, to read "Wheel Fuse Plug ~~Design~~ Integrity."	The suggested changes have been made.

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	paragraph speaks of "design" which does not seem appropriate.		
34.	In *Chapter 8 – Airworthiness: Miscellaneous Items, 228. Design and Function of Artificial Stall Warning and Identification Systems, c.(2)(c):* Comment: Have there been events involving Part 25 airplanes in service today that prompted the FAA to propose this change, which seems to disfavor multi-function buttons (less cockpit clutter), and favor multiple single-function buttons (more cockpit clutter) instead? The industry is interested in learning more about this because some certified airplanes are designed such that the auto-pilot disconnects at the push of its disconnect button (and remains disconnected thereafter), while the stick pusher interrupts and remains interrupted as long as the auto-pilot disconnect button is pressed, but resumes pushing as soon as the button is released (providing all of the conditions for pusher activation are still valid, e.g. speed, AOA, etc.). Such designs avoid presenting the pilot with	Address comment and revise this sub-paragraph of AC 25-7C as appropriate.	The proposed text has been removed. This text had been proposed as a result of concerns expressed by the European Safety Agency (EASA) during the certification of several different airplane models equipped with stick pushers. Addressing these concerns over acceptable means for stick pusher deactivation will be considered in harmonization discussions with EASA being planned to develop the next major revision to this AC.

No.	Comment	Requested Change	Disposition
	Commenter: Hawker Beechcraft Corporation.		
	multiple, separate buttons with separate functions each, and lead to a less cluttered cockpit overall.		
35.	In *Chapter 8 – Airworthiness: Miscellaneous Items, 231. Criteria For Approval Of Steep Approach To Landing, d.(1)(b)4:*	Change: "Below a height of 200 feet, no action should be taken to increase power or thrust, apart from those small changes needed to maintain an accurate approach;" To: "Below a height of 200 feet, no action should be taken by the pilot to increase power or thrust, apart from those small changes needed to maintain an accurate approach;"	The suggested change has been made.
36.	Global comment (applicable to the AC 25-7C in its entirety): The abbreviation of a unit of measure should not be pluralized.	Change all instances of "1.5 g's" to "1.5 g." Change all instances of "2 g's" to "2 g."	The suggested changes have been made.
37.	Global comment (applicable to the AC 25-7C in its entirety): Ensure a consistent adoption of "power/thrust" and "power or thrust."	Change "power" and "thrust" to "power/thrust" or "power or thrust" in all applicable instances.	The suggested changes have been made.

No.	Comment	Requested Change	Disposition
	Commenter: Garmin May 2, 2012		
1.	(PDF page 237/422) As a result of the changes to AC 25-7C, Table 170-2's heading and altitude information are not aligned with the rest of the table.	Move Table 170-2's heading and altitude information with the rest of the table where it may be aligned properly.	The table was inadvertently split over two pages. This has been fixed.
2.	(PDF page 263/422) Item 174.b.(5) – 14 CFR Part 25.1310 is mentioned. 14 CFR Par 25.1310 is introduced with Amendment 25-123. The purpose of the revision for this AC does not mention Amendment 25-123 in the "provide acceptable means of compliance for the regulatory changes associated with amendments 107, 109, 113, 115, and 119 to part 25" statement.	Remove reference to 25.1310. OR Add Amendment 25-123 to the purpose of the revision. Adding Amendment 25-123 to the purpose might require the AC to be modified to include the appropriate changes from Amendment 25-123. OR Clarify the purpose of the revision. The addition of 25.1310 may fall under the "provide a general update to reflect current FAA and industry practices and policies" statement in the purpose of	Amendment 25-123 has been added to the list of amendments for which this AC was revised to provide guidance for an acceptable means of compliance.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
		the revision. Further clarify this statement such that the addition of 25.1310 from Amendment 25-123 is covered.	
3.	(PDF page 272/422) Item 181.b.(2)(c)2(dd) – The current text is vague. What aspect(s) of the airplane is expected to be observed?	Change the current text to further define what aspect(s) of the airplane is expected to be observed. For example, "Maintain the existing power or thrust level and observe ***the airplane behavior as it*** depart***s*** the selected altitude."	For this step in the flight test procedure, the only observation being made is to observe that the airplane departs the selected altitude. The originally proposed text has been retained.
4.	(PDF page 298/422) Item 208.a.(1) – 14 CFR Part 25.1310 is mentioned. 14 CFR Par 25.1310 is introduced with Amendment 25-123. The purpose of the revision for this AC does not mention Amendment 25-123 in the "provide acceptable means of compliance for the regulatory changes associated with amendments 107, 109, 113, 115, and 119 to part 25" statement.	Remove reference to 25.1310. OR Add Amendment 25-123 to the purpose of the revision. Adding Amendment 25-123 to the purpose might require the AC to be modified to include the appropriate changes from Amendment 25-123. OR Clarify the purpose of the revision. The addition of 25.1310 may fall under the "provide a general update to reflect current FAA and industry practices and policies" statement in the purpose of the revision. Further clarify this statement such that the addition of 25.1310 from Amendment 25-123 is covered.	Amendment 25-123 has been added to the list of amendments for which this AC was revised to provide guidance for an acceptable means of compliance.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
5.	(PDF page 298/422) Item 208.a.(3) – The change in Amendment 25-123 for 25.1353(a) is included. The purpose of the revision for this AC does not mention Amendment 25-123 in the "provide acceptable means of compliance for the regulator changes associated with amendments 107, 109, 113, 115, and 119 to part 25" statement.	Correct item (3) to be as stated in Amendment 25-113. OR Add Amendment 25-123 to the purpose of the revision. Adding Amendment 25-123 to the purpose might require the AC to be modified to include the appropriate changes from Amendment 25-123. OR Clarify the purpose of the revision. The changes for 25.1353(a) may fall under the "provide a general update to reflect current FAA and industry practices and policies" statement in the purpose of the revision. Further clarify this statement such that the changes from Amendment 25-123 are covered.	Amendment 25-123 has been added to the list of amendments for which this AC was revised to provide guidance for an acceptable means of compliance.
6.	(PDF page 298/422) Item 208.b.(2)(a) – IDG is not defined in the text of Item 208.b.(2)(a) and the first instance of IDG is at Item 208.b.(2)(a).	Define IDG in Item 208.b.(2)(a).	Since this is the only instance that acronym is used in the AC, the acronym has been removed from this paragraph and the list of acronyms in appendix 1.
7.	(PDF page 299/422) Item 216.b.(1) – The last sentence specifies the requirements for a flight deck mockup to accurately reflect the proposed design but does not seem to address a requirement for a simulator (or the airplane). Is the intent that whichever test article (airplane,	Reword the last sentence to more clearly specify the requirements of the test article (airplane, simulator, or flight deck mockup). For example, "The donning tests may be ***conducted in an airplane, simulator, or flight deck mockup, all of which must accurately***	It should be clear from the formatting of the sentence that the qualifying phrase "that accurately reflects the proposed design" applies to the entire list of potential test articles. The originally proposed wording has been retained.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	simulator, or flight deck mockup) used must accurately reflect the proposed design?	***reflect the proposed design.***"	
8.	(PDF page 325/422) Emergency Locator Transmitter sub-section removed from 25.1301 section (170) but ELT is still in the acronym list.	Remove ELT from the acronym list as it is not used anywhere else in the AC.	The suggested change has been made.

No.	Comment	Requested Change	Disposition
	Commenter: Brazilian Civil Aviation Authority – ANAC.		
1.	This suggested change includes other items that can affect operations (kinds of) or systems and not only performance, such as "Light lens" that is necessary for night operation or operation in ice condition. Also for antennas. In these cases, normally, they are associated with MMEL items. It will be in line with 234.a and AMC 25-11 that refers to "performance penalties and other limitation": "The parts or combinations of parts permitted to be missing, together with the associated performance penalties and other limitations should be determined and presented in the same format as the Master Minimum Equipment List (MMEL)." (MMEL is a time limited dispatch, CDL is not).	234.b.(1) The effect of the missing part should be evaluated to ensure that there is no safety effect. When operations are affected, it must be clearly stated, and when there is ~~other than~~ a potential effect on airplane performance, ~~which will~~ it shall be accounted for. It should not affect structural safety, result in damage to other parts, or cause the loss of required safety features. For example, access panels that, if missing, could affect fire detection, extinguishing, and containment characteristics, are not eligible for listing as CDL items.	The text has been revised in line with this comment, though in a different manner than suggested by the commenter.
2.	This change is being suggested because there are airplanes that follow ATA 2200	234.c.(11)The numbering and designation of systems in the CDL	The text has been revised as suggested.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
		appendix is based on Air Transport Association (ATA) Specification ~~100~~. The parts within each system are identified by functional description and, when necessary, by part numbers.	
3.	The F&R tests are a compliance with Part 21, subpart B, necessary to issue the Type Certificate (TC). The term "previously certified airplanes" in the AC 25-7 App 2. par. 2.a.(1), if it means changes to TC, is addressed in the subpart D (21-91 up to 21-101), so §21.35 does not apply.	Appendix 2 2.a.(1) For a turbine engine-powered airplane incorporating engines of a type not previously certificated, § 21.35(f)(1) requires an F & R test program of at least 300 hours. This 300 hour minimum may also be applied to a complex new airplane model (e.g., an airplane with an electronic flight control system (fly by wire)). Though some F & R test requirements can be completed concurrently with certification testing (if relevant design conformity can be shown), experience has indicated the desirability of obtaining at least 150 hours on a production configured airplane. ~~For a previously certificated airplane, the F & R program requirement should be commensurate with the modifications or changes.~~	The requirements of § 21.35 apply to flight tests conducted to show compliance with 14 CFR subchapter C requirements, regardless of whether the certificate being sought is a type certificate, an amended type certificate, a design change, or a supplemental type certificate. The existing text has been retained. [Note: Should be checked/verified by FAA legal]

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Commenter: Brazilian Civil Aviation Authority – ANAC		
1.	Item 109.a.(1) reads: "The unusable fuel quantity is considered as the quantity of fuel that can be drained from the fuel tank sump with the airplane in its normal level ground attitude after a fuel tank unusable fuel test has been performed." From our understanding, this statement is misleading and not consistent with the requirement (§ 25.959). We believe that the consistent interpretation of unusable fuel quantity is the quantity which constitutes the drainable and the undrainable portion of the remaining fuel quantity after the dedicated flight test has been performed. Our view would also be consistent with the empty weight requirement (§ 25.29(a)(2)) because any fuel quantity which remains in the tank after the test would have to be taken into account for the aircraft empty weight definition. For instance, if on a new airplane only the drainable quantity is considered as the empty weight, that weight could never be achieved in service anymore. This is due to the fact that once the tank is fueled to the capacity (assuming this has not occurred prior to the empty weight definition), a portion of the fuel would be trapped at the internal ribs of the tank. Therefore, an additional undrainable fuel quantity would make an impact on		The text has been changed to address this comment. The undrainable portion of the fuel quantity remaining after the unusable fuel test has been performed is added to the drained fuel to obtain the total unusable fuel quantity.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	aircraft weight onwards.		
2.	This addition would allow fuel tank sump quantity to be respected in flight also thereby avoiding water and dirt to be transferred to a main tank.	109.b.(7): Auxiliary fuel tanks and fuel transfer tanks designed or restricted for use during cruise flight only (not suitable for takeoff and landing) should be tested for unusable fuel quantity by appropriate investigation of the cruise environment. This should include reasonable turbulence levels, asymmetrical power or thrust, adverse fuel feed/transfer configuration, etc. <u>However, this quantity should not be less than fuel tank sump quantity, as defined at § 25.971(a).</u>	The suggested change has been made, except that the words "as defined at § 25.971(a)" were not included. The unusable fuel quantity should be less than the actual fuel tank sump quantity, not the minimum sump quantity allowed by the cited regulation.
No.	**Comment**	**Requested Change**	**Disposition**
	Commenter: Brazilian Civil Aviation Authority – ANAC		
1.	Current § 25.841(a)(1) states clearly that "the airplane must be designed so that occupants will not be exposed to cabin pressure altitudes in excess of 15,000 feet after any probable failure condition in the pressurization system." The use of "reasonably probable" may lead to confusion as such terminology is not consistent with the current Arsenal draft AC and AC 25-20 definitions.	87.b.(2)(a): The critical ~~reasonably~~ probable system failure should be identified. The cabin pressure altitude warning system should be set to the high altitude side of its tolerance band or additional testing or analysis may be necessary for compliance. If more than one system failure mode is determined to meet the "~~reasonably~~ probable" criteria, the flight test should be conducted for each failure mode identified.	The suggested changes have been made.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
2.	Paragraph 84 (Ventilation - § 25.831): Current § 25.831 (c) and (d) use the "reasonably probable" terminology. This may lead to confusion since such terminology is not consistent with the latest Arsenal draft AC definitions. Suggestion is to include an explanation on how this "reasonably probable" should be interpreted in terms of Arsenal draft AC terminology. As an example of the impacts that such interpretation may have, below is the text found in the Propulsion Mega AC section for 25.901(c): "The term 'probable' does not have the same meaning in § 25.901(c) and AC 25.1309-1A. The term 'probable' in § 25.901(c) means 'foreseeable' or (in AC 25.1309-1A terms) 'not extremely improbable'."		As stated in paragraph 84a(1), AC 25-20 provides guidance for methods of showing compliance with the ventilation requirements. Although it is recognized that the term "reasonably probable" used in § 25.831(c)(and (d) is not explicitly defined in that AC, AC 25-20 would be the appropriate place for such a definition. No changes have been made to the AC in response to this comment.
3.	Paragraph 84 (Ventilation - § 25.831): Current § 25.831 (b)(1) defines CO concentrations above 1 part in 20,000 parts of air as hazardous. Considering the current Arsenal draft AC terminology, such hazard class is not commensurate with § 25.831 (c), which states that the condition above must be met after reasonably probable failures. Suggestion is to clarify in the AC 25-7C if the "hazardous" in § 25.831 (b) should not be interpreted according to the Arsenal draft AC or if the "reasonably probable" in		Section 25.831(b)(1) defines what a hazardous concentration of CO is specifically for use in showing compliance with § 25.831(b). There is no need for further clarification of the definition of the term hazardous as it is used in this paragraph or its relationship to the use of that term relative to showing compliance with § 25.1309. No changes have been made to the AC in response to this comment.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	§ 25.831 (c) should be interpreted as "extremely remote."		
4.	Paragraph 87 (Pressurized Cabins - § 25.841), item (a)(2): Equivalent safety findings are being made for § 25.841 (a) for operations in high altitude airports (refer to recent ELOS memos TD0765IB-T-S-1Rev A and TC6918SE-T-ES-19). Suggestion is to include guidance so that the applicants will start requiring an ELOS finding for this regulation also, and not only 25.841 (b)(6), when operation at high altitude airports is desired.		The suggested change has been made.
No.	**Comment**	**Requested Change**	**Disposition**
	Commenter: Airbus		
1.	Page 5 Chapter 2 Section 1 3a(1)(f)2(bb) For minimum weight compliance, conducting S&C testing is "too difficult" because the equipment and minimum fuel needed to conduct the test make the airplane too heavy. This is not clear in the existing text which only states an environmental condition.	*Please change (bb) by:* (bb) The required environmental conditions or **minimum allowable weight** are too difficult to attain (e.g., validation of system safety analyses failure cases involving high crosswinds, development of crosswind guidance for slippery runway operations**, or minimum allowable weight is not obtainable because the required test equipment makes the airplane too heavy**),	The text has been changed in a manner similar to that suggested by the commenter.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
2.	Page 7 Chapter 2 Section 1 3a(3)(b)1(aa) The initial wording is found too restrictive and does not allow any assessment of a new design, which is not acceptable.	*Add the **bold** text to the end of the paragraph:* (aa) It can be difficult or impossible to conduct testing at the airplane's minimum allowable weight with an airplane configured for conducting a flight test program. If the minimum weight cannot be obtained (within the specified tolerance limit) and compliance at the minimum weight cannot be clearly deduced from the results at the tested weight, the testing should be conducted on a production airplane (or other airplane on which the minimum weight can be obtained). **Alternatively, use of simulation may be considered.**	The text has been changed in a manner similar to that suggested by the commenter.
3.	Page15 Chapter 2 Section 1 (9)(b) Significant dis-harmonization with draft JAA NPA 25B-335 paragraph 3a(10)ii) resulting from several years of rule making with JAA Flight Study group & JAA Flight Test Guide subgroup (including FAA participants) and adopted by EASA and TCCA through CRIs. Airbus requests FAA to launch rulemaking activities for harmonization on this topic.	*Wind velocity greater than 10 kts: Please align with draft JAA NPA 25B-335 – 3a (10)(ii)*	FAA policies regarding demonstrating safe characteristics for taking off and landing in tailwinds greater than 10 knots differ from those of EASA. We are coordinating with EASA to initiate a project to harmonize a number of subpart B topics, of which this would be one.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
4.	Page 75 Chapter 2 Section 2 17.b.(8)(c) The initial wording is found too restrictive and does not allow any assessment of a new design, which is not acceptable.	*Reword last sentence of (8)(c) as follows:* (8)(c) If the approach climb power/thrust setting is higher than the landing climb power/thrust setting, a throttle push would be required to obtain the AFM performance in the event of an engine failure after an all-engines-operating go-around has been initiated. ~~**The FAA considers the need to manually reset the engine power/thrust setting in a high workload environment to be unacceptable.**~~ ***When different power/thrust setting procedure is used in the conditions of §§ 25.119 and 25.121(d), crew situation awareness and capability to perform required procedure need to be evaluated.***	The text proposed in the draft AC 25-7C reflects existing FAA policy. It applies to all designs, regardless of whether the design is "new" or "old." The need to manually reset the power after an engine failure during an all-engines-operating go-around in order to achieve the minimum climb gradient required by § 25.121(d) is unacceptable.
5.	Page 75 Chapter 2 Section 2 19.a.(1) Not harmonized with the draft JAA NPA 25B- 335 §19-landing –JAR 25.125- The current definition of landing distance adequately defines the requirement and fleet history has shown that the proposed change would not enhance safety.	*The distance from the nose gear to the main gear was added to the landing distance definition in this sentence:* "to the position of the nose gear when the airplane is brought to a stop." *Airbus disagrees with this change in the definition of landing distance.*	The definition of the landing distance used in previous editions of AC 25-7 puts the portion of the airplane forward of the main gear off the end of the runway. The definition proposed in the draft of AC 25-7C has been retained.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
6.	Pages 87-94 Chapter 2 Section 3 20.d. It is widely acknowledged that the text of paragraph 20.d. does not represent current industry thinking regarding PIO nor does it represent procedures used in recent years for certification via issue papers. Paragraph 20.d. was discussed at great length with FAA, JAA, TCCA, and industry representatives in the JAA Flight Study Group. The recommendation attached is based on Flight Working Paper 599 & resulting from those Flight Study Group discussions and is consistent with current practice documented in recent PIO issue papers.	*For all paragraphs of "Pilot Induced Oscillations (PIO)"* *Please see Airbus suggestions for the rewording of the paragraph 20.d. in the attached file "Airbus_20d_Reword.doc*  Airbus_20d_Reword.doc	We agree that the existing text for PIO investigation is out of step with current industry thinking and certification practices. However, because of the need to also harmonize pilot induced oscillations (PIO) guidance with the European Aviation Safety Agency, revising this section was scheduled as a follow-on project to the release of AC 25-7C. We plan to address revisions to the guidance pertaining to PIO, the handling qualities rating method (HQRM), and other areas needing harmonization in the next major revision to AC 25-7C.
7.	Page 117 Chapter 2 Section 5 27.a.(3)(a) and (d) For clarity & harmonization with CS 25 & FAR 25, align strictly with AMC25.177c) §1 and §3 wording.	*Reword the following paragraphs:* Replace 27a(3)(a) by paragraph AMC 25.177 (c) 1) Replace 27a(3)(d) by paragraph AMC 25.177(c) 3)	The draft AC 25-7C text includes clarifications sought by commenters to amendment 25-135. Further clarifications are being introduced into paragraph 27a(3) as a result of comments on the draft text. Replacement of the text in these paragraphs by the corresponding EASA AMC text would reduce clarity rather than enhance it.
8.	Page 125 Chapter 2 Section 6 29d(3)(a) & Page 133	*Please amend the following paragraph as proposed:* The rudder should not be used excessively during the stall entry or recovery. ~~**Depending on the specific**~~	The proposed text regarding excessive rudder use has been removed.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
	Chapter 2 Section 6 29.e.(3)(a) While an excessive rudder control input shall not be allowed during stall entry and recovery, all automatic rudder activity by flight control system (for example through yaw damper) shall be acceptable. In the same manner, limited rudder control input shall be permitted, independently from the flight control system design. Is this paragraph suggesting that use of rudder control is considered to be unusual piloting technique for aircraft equipped by automatic turn coordination device, whatever is the maneuver requested to the pilot?	~~**flight control system design (such as automatic turn coordination), any use of the rudder during stall testing could be considered to be an unusual piloting technique that would not be permitted**~~.	
9.	Page 126 Chapter 2 Section 6 29.d.(3)(b) §25.103(c) explicitly describes the maneuver to be targeted. It does not specify that the deceleration rate shall be 1 knot/second, but clearly indicates that the deceleration shall not be greater than 1 knot/second.	*Please amend paragraph 29.d.(3)(b)as proposed:* (b) A sufficient number of stalls (normally four to eight) should be accomplished at each critical combination of weight, altitude, c.g., and external configuration. The intent is to obtain enough data to define the stall speed at an entry rate **not exceeding** 1.0 knot/second.	The suggested change has been made.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
10.	Page 127 Chapter 2 Section 6 29.d.(5)(c) Dis-harmonisation with the draft JAA NPA 25B-335 Credit for $C_{L_{MAX}}$ greater than the first peak may be taken provided it does not occur after deterrent buffet or stall identification cue.	*We suggest to replace paragraph 29.d.(5)(e) by the draft JAA NPA 25B-335 paragraph 29c(5)(iii):*	The text has been revised to state that the peak corresponding to the highest C_L achieved may be used for $C_{L_{MAX}}$, provided it represents usable lift, meaning that it does not occur after deterrent buffet or other stall identification cue.
11.	Page 129 Chapter 2 Section 6 29.d.(5)(e) § 25.103(c) explicitly describes the maneuver to be targeted, and clearly indicates that the deceleration shall not be greater than knot/second.	*Airbus proposes the suppression of the last sentence :* (e) Determine the stall entry rate, which is defined as the slope of a straight line connecting the stall speed and an airspeed 10 percent above the stall speed, for each stall test. Because C_{LMAX} is relatively insensitive to stall entry rate, a rigorous investigation of entry rate effects should not be necessary. ~~**Test data should bracket a 1.0 knot/second entry rate such that the value of C_{LMAX} corresponding to an entry rate of 1.0 knot/second can be determined. (See Figure 29-3.)**~~	The suggested change has been made.
12.	Page 174 Chapter4 Section7 73.(a) The intent of § 25.801 is to maximize the	*Reword last sentence as follows:* … Applicants should also demonstrate that their ditching parameters used to	The commenter is correct, in that historically, FAA policy has allowed assumption of all engines operating for evaluating probable airplane behavior and damage analysis in a ditching. The FAA is currently reviewing historical data regarding

No.	Comment	Requested Change	Disposition
	safety of the aircraft's occupants in case of ditching. Up to now it has always been the interpretation that the engines are still available so that the crew can adequately prepare to ditch. Considering the ditching exercise without any engine operative would lead to very high level of loads at the impact time, incompatible with "practical design measure, compatible with the general characteristics of the aeroplane." Airbus believes this should be considered as a change in the intent of the regulation 25.801. Moreover, Airbus believes that the requirement 25.671(d) already addresses controllability of the aircraft with power off**.**	show compliance with § 25.801 can be attained with all engines ~~in~~operative without the use of exceptional piloting skill, alertness, or strength.	ditching accidents to determine if a regulatory and/or policy change to consider all engines inoperative is warranted. Until any such policy change is made, the reference to all engines being inoperative has been removed from the sentence in question.
13.	Pages 202 to 208 Chapter 5 Section 5 Airbus is not aware of any regulatory change, NTSB recommendation, nor FAA policy associated with FAR § 25.1045. In addition there is no corresponding EASA AMC on this topic. Airbus is also not aware of any international rulemaking work / recommendation on the topic. Airbus therefore fails to see any rationale for the sudden incorporation of such a section in the proposed AC without prior extensive consultation with EASA and industry. Without such a consultation,	*Airbus recommends removing this section in this current update or that additional time for review and comments be given to thoroughly analyze it.* *As an illustration of Airbus strong concerns with the proposal, a few detailed comments are nevertheless provided in the next rows for the FAA consideration*.	This AC only provides guidance for a means, not the only means, of demonstrating compliance with the referenced regulations. As explained in the AC, the term "must" only applies to a necessary aspect should this means of demonstrating compliance be used. Applicants are at liberty to propose a different means of demonstrating compliance for consideration by the authorities. However, the FAA considers it valuable for applicants to know ahead of time if there is a standardized means that the FAA has deemed acceptable. Consequently, this section will not be removed. It is true that the long standing and wide spread use of much of this guidance has resulted in it

No.	Comment	Requested Change	Disposition
	Airbus is concerned that the inclusion of this section will increase the differences with EASA and also not necessarily reflects practices shared by the complete industry. In addition Airbus is concerned that the details provided in this AC may be too binding for applicants. They are indeed reflecting practices / criteria / procedures that may not fit all propulsion systems designs / installations. Although Airbus understands that a minimum of standardization may be necessary on some topics, we consider that it shall be properly balanced with sufficient flexibility for the applicants to adapt the compliance method to design/installation specificities.		effectively establishing the level of safety currently provided by the rule. Nevertheless, the specifics of this guidance are not inherently binding until promulgated into a rule. While promulgating some of the key aspects of this means as minimum standards might be appropriate, the FAA currently has no plans to do so, rather preferring to retain the flexibility to entertain other means.
14.	Page 202 Chapter 5 Section 5 130.a.(3) It goes beyond the scope of §25.1045, which is about 'cooling test procedures.' This paragraph does not provide any guidelines on how to perform a cooling flight test.	*Airbus recommends removing paragraph 130.a.(3).*	While this guidance may be useful, it is not specifically aimed at testing components with transient limits and therefore has been deleted.
15.	Page 202 Chapter 5 Section 5 130.b.(1) Airbus fails to understand the influence of moisture on the cooling demonstration.	*Airbus recommends removing paragraph 130.b.(1) on Moisture.*	Before making a cursory attempt at clarifying the purpose of this restriction, it should be noted that the FAA has had this policy in place since before the introduction of turbine engines. The presence of liquid water impacts any number

No.	Comment	Requested Change	Disposition
			of the transport processes involved in nacelle cooling, not only in the heat transfer aspects themselves, but also in the resulting aerodynamic impacts on differential pressures, airflows, and other performance aspects of the cooling provisions and flight test instrumentation. The FAA does not have confidence that these somewhat complex influences can be analytically removed with sufficient accuracy and confidence to allow flight test results to be corrected for critical points not directly tested. The paragraph will be retained as proposed.
16.	Page 203 Chapter 5 Section 5 130.b.(3) The flight profile quoted in the proposed AC is too specific, may clearly not fit all situations / installations and raises too many questions with regard to the pertinence / criticality of the quoted conditions. Airbus therefore considers that it is more appropriate to leave sufficient room to the applicant and the concerned Authority for agreeing the pertinent profile(s) for each certification case With the proposed FAA profile, Airbus is in particular concerned with the following: Paragraph (a): Why 1 mile single engine	*We suggest to reword as follows:* (3) Test Conditions. The critical flight profile(s) for the complete installation should be determined and tested. The applicant should identify and obtain the FAA's approval of the flight test profile(s) prior to beginning certification testing.	As indicated in the first sentence of the referenced paragraph, the FAA agrees that: *"The critical flight profile(s) should be tested."* Furthermore, the specific conditions are simply provided as experiential guidance regarding what: *"sequence of test conditions is usually adequate to cover the critical case."* There is no implication that this set of conditions will always cover all the critical conditions, or that all of the conditions listed are necessary for every airplane. It is simply intended to serve as a starting point, not a default set of conditions. This paragraph will be retained as proposed.

No.	Comment	Requested Change	Disposition
	taxi? Airbus does not understand the rationale for this as being a critical condition. Paragraph (b): Airbus does not understand the influence of crosswind. What is the rationale for the 20 minutes duration? Paragraph (e) & (f): Also it is questionable if the maximum operating altitude is a critical condition in terms of cooling Paragraph (h): Airbus does not understand the need for performing a go-around		
17.	Page 204 Chapter 5 Section 5 130.b.(4) What is a 'critical' oil quantity condition with regard to cooling? Unless there are failure conditions, the quantity of engine/accessory oil will not have significant variation, hence influence. Therefore this criterion does not seem appropriate.	*Airbus recommends removing paragraph 130.b.(4) on Oil Quantity.*	The FAA disagrees that it takes a failure to cause thermodynamically significant differences in the quantities of oil present in some portions of the oil systems. Variations in gulping, consumption, flight duration, selected oil type, etc. may significantly influence the localized heating/cooling around specific components such as top mounted oil tank sensors. Again, these considerations are included to assure the applicant takes them into consideration. It is up to the applicant to determine if there are such "critical conditions" and if so what they are. The paragraph is retained as proposed.
18.	Page 204 Chapter 5 Section 5	*Airbus recommends removing paragraph 130.b.(5) on Thermostat.*	The subject paragraph does nothing more than recognize the potential impacts that a thermostat can have on cooling test results depending upon

No.	Comment	Requested Change	Disposition
	130.b.(5) The intent of this paragraph is not clear. First it seems to address very specific designs / installations. Therefore its inclusion in an AC is more than questionable since it may not concern most of the applicants. In addition, this paragraph seems to request to simulate a failure condition. Why this one and not another? Moreover, the request is made irrespective of the likelihood of the failure and of any indications / alerts that would be generated if this failure occurs. In addition, the failure seems to result in a situation that would increase fluid cooling.		how an applicant chooses to configure the airplane for test. An applicant may chose to test with the thermostat removed and then blocked to cover the extremes of the variables introduced by the thermostat, or test under different ambient conditions with the thermostat present. Either way, the applicant will have to address the impacts of normal thermostat operation. The chosen test configuration(s) and condition(s) must conservatively represent, or the test results be corrected for, the presence of the thermostat in the final product. The subject paragraph is not a "request" for the airplane to be tested with a failure present, albeit if the applicant needs to validate failure effects to support compliance with other regulations, this would be an opportune time to do that. The paragraph is retained as proposed.
19.	Page 204 Chapter 5 Section 5 130.b.(6) This paragraph is not appropriate for the following reasons: • The first part does not concern instrumentation. It is rather a requirement to identify components with temperature limits. Airbus considers that this is not pertinent to	*Airbus recommends removing paragraph 130.b.(6) on Instrumentation.*	The first part does in fact identify what needs to be instrumented and as such is relevant to the AC. As for the necessity of the second part, it does no harm to state what may be obvious. The paragraph is retained as proposed.

No.	Comment	Requested Change	Disposition
	include such a requirement in an AC. The word 'must' is indeed inappropriately used. Airbus considers that the request is the consequence of FAR 25.1041 requirement and is therefore out of scope • The second part is not necessary. It provides obvious, common sense, recommendation like 'accurate and calibrated measuring devices should be used.'		
20.	Page 205 Chapter 5 Section 5 130.b.(10) Airbus does not understand the rationale for this paragraph. It is not clear to Airbus why an 'artificially low starting temperature would result in erroneous results' if the equipment 'are not significantly affected by ambient temperature'. This seems contradictory; therefore, Airbus does not understand why a 'more rational correction method' should be used.	*Airbus recommends removing paragraph 130.b.(10) on Temperature inversion.*	The FAA agrees that the wording *"are not significantly affected by ambient temperature";* may be confusing and to a great extent redundant to the alternate statement: *"require significant time to adjust to ambient temperature changes."* So, the paragraph has been revised to reduce confusion. The bottom line here is that if the components start off colder and initially operate in a colder environment than they would if there were no inversion at the time of testing, this effect needs to be taken into account when correcting the test results to hot day conditions. If the applicant can stand the conservatism, the FAA allows a simple degree for degree increase in the results for the difference between the initial ground ambient temperature at the time the test begins and hot day conditions. Otherwise a more rationale correction may be utilized based on the actual impacts of the inversion encountered during the testing.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
21.	Page 206 Chapter 5 Section 5 130.c. Ground conditions for normal aircraft operations are encompassed in the §25.1045 'flight' test procedure and do not need different assessment criteria, in particular for temperature stabilization. If this paragraph aims at addressing aircraft maintenance/test conditions, it is outside the scope of FAR 25.	*Airbus recommends removing paragraph 130.c. on Ground Test Procedures.*	The FAA disagrees with the assertion that the covered ground operations are "outside the scope of FAR 25." These tests are intended to assure that the type design complies under any anticipated operating and environmental conditions approved for the airplane. This testing may identify necessary operational limitation or other instructions for continued airworthiness necessary to find compliance. Operational and Maintenance Evaluations are an integral part of FAA type certification. As stipulated in FAA Order 8110.4C: *"According to 14 CFR §§ xx.1529, 31.82, 33.4, and 35.4, the ACO, with AEG concurrence, is responsible for compliance findings for requirements of the ICA and airworthiness limitations in the applicant's maintenance manuals."* The paragraph is retained as proposed.
22.	Page 212 Chapter 5 Section 5 130.e.(3) As indicated by the FAA as an introduction to the paragraph, the concerned correction factor is not discussed in the regulations. Airbus therefore considers that the incorporation of this paragraph in the Flight Test Guide revision equates to 'rulemaking by AC', which is inappropriate and shall be	*Airbus recommends removing paragraph 130.e.(3) on Correction Factor for Minimum Engine.*	This AC only provides guidance for a means, not the only means, of demonstrating compliance with the referenced regulations. As explained in the AC, the term "must" only applies to a necessary aspect should this means of demonstrating compliance be used. Applicants are at liberty to propose a different means of demonstrating compliance for consideration by the authorities. However, the FAA considers it valuable for applicants to know ahead of time if there is a standardized means that the FAA has deemed acceptable.

No.	Comment	Requested Change	Disposition
	prevented. If the FAA maintains that the regulation now needs to address such a topic, the Agency should follow the appropriate rulemaking process and propose a change to the FAR 25.1043 requirement.		It is true that the long standing and wide spread use of much of this guidance has resulted in it effectively establishing the level of safety currently provided by the rule. Nevertheless, the specifics of this guidance are not inherently binding until promulgated into a rule. While promulgating some of the key aspects of this means as minimum standards might be appropriate, the FAA currently has no plans to do so, rather preferring to retain the flexibility to entertain other means of compliance. The paragraph is retained as proposed.
23.	Page 297 Chapter 8 231.d.(1)(c) As per NPA 25B-267 "JAR 25, Subpart B, Steep approach landing requirements" dated March 1999 and further FWP 737 issue 6 following in depth discussions within JAA Flight Steering Group (with FAA participation), it was recognized that some relaxation on flare height initiation was acceptable for the -2° abuse case.	When conducting the 2 degrees steeper approach path angle test condition of paragraph 231.d.(1)(a)1, the initiation of the flare must not occur above 150% of the screen height.	Relaxation of the flare height used during the 2 degree steeper approach path testing is addressed in paragraph 231d(1)(c).
24.	General comment. Harmonize with the draft JAA 25B-335 numbering paragraphs indicating clearly the CS 25/FAR 25 paragraphs to which it relates.	The paragraph numbering scheme used throughout AC 25-7 is difficult to use and should be changed in conjunction with the AC 25-7C update. This triggers a lot of typo & paragraph numbering errors contained in AC 25-7C.	AC 25-7C follows the standard FAA format for advisory circulars.

AC 25-7C Flight Test Guide for Certification of Transport Category Airplanes

No.	Comment	Requested Change	Disposition
		We recommend that the complete paragraph number be provided for each paragraph. An excellent example of this is provided in the JAA Flight Test Guide (draft). That document was developed directly from AC 25-7, but the JAA Flight Test Guide Subgroup that produced it (which included FAA participants) determined that the usability of the document would be significantly improved by providing complete paragraph numbers throughout the document.	