Disposition of Public Comments
AC 25.795-5X
Cargo Compartment Fire Suppression

Comment	Requested Change	Disposition
Transport Canada		
The title of the AC is *Cargo Compartment Fire Suppression* whereas the title of § 25.855 is *Cargo or baggage compartments.*	The title of the AC should match the title of § 25.855.	The title of the AC is the same as that of § 25.795(b)(3). To remain consistent with the rule addressed by the AC, we have not changed the title of the AC.
Paragraph 3. Related sections of 14 CFR part 25.	Add § 25.853 to the list of references since it refers to hazardous quantities of smoke and toxic gases.	While there is a peripheral relationship to § 25.853, the focus of this rule and AC is not on flammability of airplane materials, but on the fire suppression system and how to protect it. Including § 25.853 would not make the AC clearer.
Paragraph 4. Background. Not all cargo compartments use the same design philosophy; some have open floors whereas others are enclosed. The AC should encompass both approaches.	Expand the background section to include different design approaches to cargo compartments.	Regardless of the compartment design, the manufacturer must comply with the certification requirements. In this case, the assumptions about the type of fire apply no matter what the design of the cargo compartment may be. The AC, as proposed, applied to all types of designs; thus we have not changed it.
Paragraph 5. Definitions. The definitions section does not address what constitutes a baggage or cargo compartment or whether there is a difference between bulk loaded and containerized compartments	Include more definition of cargo compartments and the different types that exist.	As stated above, the AC applies to all types of cargo compartments that have a fire suppression system. The regulations already provide definitions of different compartment types, so no additional definition is needed.

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Boeing		
In several places, the AC equates explosive and incendiary devices. However, the effects of the two devices are not the same.	Remove all reference to incendiary devices, and add definitions for explosive and incendiary devices in paragraph 5.	We do not intend to equate the two types of devices. But for the purpose of the AC, their effects can be dealt with in the same way. That is, there are no special considerations required for incendiary devices that are not also required for explosive devices. The rule addresses both types of device, so the AC also needs to account for both types. We have revised the AC to say that the consequences of the two devices are similar with respect to the fire protection system. In terms of adding definitions of each device, there are already common definitions in use, and the AC does not intend anything different.
Paragraph 5.f. The definition of a "remote installation" should be expanded.	The language used in the NPRM to describe a "remote installation" should be included here, so that application of the requirement is more standard.	We agree and have expanded the definition of "remote" to include the intent of the discussion from the NPRM.

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Paragraph 6.c. There should be additional discussion of the basis of the two types of agent discharge and the influence a damaged cargo compartment could have on their effectiveness.	State in the AC that both the knockdown discharge and the follow-on agent discharge are based on an intact cargo compartment and that damage to the compartment may affect these discharges.	The AC discusses the assumptions used to show compliance and, in particular, that a surface burning fire can be extinguished by the initial knockdown discharge. Although it is true that the extent of damage to the liner will affect the overall time that the agent will be contained within the compartment, the assumption is that the ability to extinguish a surface fire will not be substantially affected.
Boeing		
Paragraph 7. The AC should clearly state that airplanes are already designed to address the effects of a fire and/or an incendiary device in a cargo compartment.	Add the following additional discussion in paragraph 7**:** *"The airplane design is already safe and designed to account for the fire that may result from an incendiary device. Compliance with 14 CFR §§ 25.855, 25.857, and 25.858 already ensures provisions for detecting and extinguishing/ suppressing a fire that may occur in a cargo compartment. Thus, the current fire detection designs and fire suppression system designs are considered adequate to address the effects of an incendiary device."*	While this statement is accurate for class C cargo compartments, it may not be true for other cargo compartments that use a fire protection system, such as current class B cargo compartments. In the rule, we discuss the potential for the rule to greatly restrict class B compartments. In fact, the AC does discuss the adequacy of existing systems and agents to the extent that it makes sense to do so.

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Paragraph 7. The nozzle is and must be exposed to the cargo compartment in order to function properly. If it is, there is no practical way to protect or shield it. However, even if the nozzle were damaged, dispersal of the agent is still likely to occur.	Add a statement that the extinguisher nozzles do not require any protection.	We agree. However, we have added this statement to paragraph 8.b.(2) rather than to paragraph 7 to be consistent with the discussion of other elements of the distribution system.
Paragraph 7. There is no regulatory requirement to annunciate failure of the fire detection system.	Delete the statement in paragraph 7 that indicates that there is such a regulatory requirement.	We agree that the requirement is to be able to determine whether the system is functional and have revised the AC accordingly.
Paragraph 8.a.(2)(a). There should be a very clear definition of this pressure pulse requirement in the AC as well as in the final rule. If there is not a definition of the pressure pulse, it could be incorrectly assumed to be infinite in size. In addition, the effects of the pressure pulse need to be limited to the sphere of separation, as defined in AC 25-7.	The FAA should confirm the following requirement and add the following language: "*The pressure load from the explosive device that must be applied to components larger than four square feet is assumed to be contained within the dimensions of the sphere of separation. The maximum amount of the pressure load is at the center of the sphere of separation and then reduces such that the pressure load is less than or equal to 0.1 psi at the outer edge of the sphere of separation.*"	The AC is intended to provide a simple criterion that does not require detailed characterization of a particular explosive device. The approach is to apply a local pressure load to large surfaces that can influence the integrity of the fire protection systems and not "inflate" the entire cargo compartment at 15 psi. The source of the data to arrive at the 15 psi criterion is security sensitive information and so cannot be published in the AC. An applicant may always propose an alternative set of criteria but would have to justify its suggestion. The criteria in the AC were agreed upon by ARAC, based on

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		a review of the data. To address the main concern, the word "local" has been added at the end of the paragraph to describe the pressure load.
Paragraphs 8.a.(2)(a) and 8.a.(2)(b). There is no text which addresses wiring.	Revise the AC to address protection of the wiring of the fire suppression system: either the wiring is currently acceptable or it needs additional protection to some level.	We agree that—to the extent that wiring forms a part of the fire protection system—the protection criteria should apply. We have modified Paragraph 8.a. to include wiring as part of the existing "electrical devices."
Paragraph 8.b. The paragraph is titled "Distribution of Components" but in some cases it doesn't address how components should be distributed.	Reword this paragraph to focus on the distribution of the *agent*.	We agree with the intent. Actually, the title should have been "Distribution Components" rather than "Distribution of Components," and we have changed the title and associated text accordingly.
Boeing, Bombardier		
Paragraph 8.b.(2)(b). The AC doesn't need to address a 6-inch displacement in any direction for the fire suppression system attachments because it is unrealistic and requires extra space surrounding each system to account for the displacement.	Delete this section or modify it significantly.	We referred this issue to the ARAC Harmonization Working Group for a recommended disposition. After discussion, the working group recommended a modification to both the final rule and the AC to address the concerns. The commenters had some misconceptions

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Boeing also objected to application of a point load, since an explosive device will not produce a point load.		about what was required but the FAA also underestimated the potential effect of the proposed requirement on system design. The FAA has accepted the resulting ARAC recommendation and has revised both the rule and the AC accordingly. The basic changes limit consideration of deflections to 6" in an *outward* direction or to the outer fuselage contour, whichever is less. This revision addresses the principal concerns and preserves the intent of the requirement. With respect to the application of a point load, the AC describes a method of compliance and is not intended to replicate an explosion. As with the 6" displacement, an applicant may propose an alternative method of compliance.
Embraer		
Paragraph 8. Refers to "modified" components, but not all components will actually need to be modified.	The AC implies that modifications are needed, whereas given a certain type of design they may be acceptable as is.	We agree and have changed the word "modified" to "affected," which is more accurate and does not imply a particular outcome of the assessment.