

**Clearance Record**  
**DOCUMENT COMMENT LOG**  
**FAA**

<b>Originating Office:</b> AIR-120 POC: George Soteropoulos	Document Description: TSO-C23f – Revision of TSO-C23d, Personnel Parachute Assemblies and Components	<b>Reviewing Office:</b>  AIR-120	<b>Date of Review:</b>  8/30/12	<b>Date of AIR-120 Disposition:</b>  8/30/12
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Company & Group	Page & Paragraph	Comment	Rationale for Comment	Recommendation	Disposition
ACE-102A ACE-119A	Pgs 2 &, 3, Para. 5 & 6	Paragraph 3 requires that new models “meet the MPS qualification and documentation requirements” in TS-135. However, neither Paragraph 5 or 6 requires that the documentation be submitted to the FAA or even made available for FAA review. This documentation should be submitted to the FAA for review, otherwise we are de facto allowing the applicant (possibly a new and unknown entity) to retain ‘type design’ data which requires an MOA for major established TC holders.	Omission appears to be oversight.	Add a new paragraph 5.a. that states “All TS-135 documentation and test results”. Note: If applied reflect changes in Section 7 paragraph references.	We agree:  Added new paragraph 5.h., which requires submission of: “Manufacturer’s TSO qualification report showing results of testing accomplished according to paragraph 3.c of this TSO.”  Further, Para. 6.a. requires the manufacturer to make all qualification and documentation data available to the ACO, ensuring that the ACO will be able to obtain any necessary data from the applicant.

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ACE-102A ACE-119A	Pgs 2 &, 3, Para. 5 & 6	Neither of these paragraphs require the submittal of the design drawings (paragraph 5 requires only a listing of the drawings). The design drawings need to be submitted to the FAA in paragraph 5 (preferred) or at least made available for our review in paragraph 6. If submittal is not required, then the FAA is de facto allowing the applicant (possibly a new and unknown entity) to retain 'type design' data which requires an MOA for major established TC holders.	Omission appears to be oversight.	Add a new paragraph 5.a. that states "All drawings and processes that define the article's design." Note: If applied reflect changes in paragraph 7 paragraph references.	Partially agree:  Added new paragraph 5.a(4), which requires submission of a manual containing: "Schematic drawings, wiring diagrams, and any other documentation necessary for assembly, installation, donning, and operation of the personnel parachute assembly and component."  Further, Para. 6.c. requires the manufacturer to make all drawings available to the ACO. We do not believe it is necessary for all applicants to submit all drawings, but paragraph 6 ensures that the ACO will be able to obtain any necessary drawings from the applicant, based on the ACO's determination regarding the level of review necessary for the specific application.

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ACE-118Wa	Page 4, Para 7.a	The first sentence should be reworded because it seems to imply that the data in paragraphs 5.a through 5.c is only required to be provided if articles are furnished to one entity and not required if it is provided to others or multiple entities, when it should be provided to all who purchase/use the articles.	I think the intent is to allow for providing only one copy or online access of the data to an entity instead of having a copy for every article, but it should still require providing a copy or online access when furnishing articles to multiple entities or with every article when it doesn't involve an entity such as individual private owners/operators.	Reword the sentence because the way it is currently worded may be interpreted to not require providing the data to others that are not an entity or when there are multiple entities.	Agreed:  Revised the example to "(such as an individual skydiver or a drop zone operator)" to make it more clear that the intent of this requirement is for data to be made available to any purchaser of the TSO article
Myra Kuck ANM-150L	Page 2 Paragraph 5.	This sentence notes ...”and one copy each of the following technical data to support your design for production approval.”	No where in this paragraph does it note “technical data/drawings, test reports, etc. to substantiate part meets requirements. Some LODA holders interpret what is written as we only needs lists of specs but cannot request to see the specifications, if this is the intent how can we verify the part meets the MPS?	Recommend you note somewhere that we should be provided the data to substantiate the part meets the requirements including all technical drawings and reports. Additionally you may wish to include a statement that we can request any additional data to substantiate the part meets the requirements.	Agree: Added new paragraph 5.h., which requires submission of: “Manufacturer’s TSO qualification report showing results of testing accomplished according to paragraph 3.c of this TSO.” Further, Paragraph 6.a. requires the manufacturer to make all qualification and documentation data available to the ACO, ensuring that the ACO will be able to obtain any necessary data from the applicant.

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Myra Kuck ANM-150L	TS 135 Page 5, Para. 4.1.2	“Stitching shall generally be of a type that will not ravel when broken.” Concern over use of word “generally.”	The use of generally does not prevent TSO manufacturers from using stitching that is known to do this function.	Reconsider verbiage and replace “generally” with “not be of a type known to ravel” or something similar.	Agree:  Stitching should not ravel when broken. Revised appendix 1 to delete the word “generally” from TS 135, Para. 4.1.2.
Myra Kuck ANM-150L	TS 135 page 5, Para. 4.1.3	...”shall not interfere w/the proper function of the reserve parachute assy. Ref: Table 2”	What is this trying to convey? Table 2 is a human factors & actuation force test for the primary actuation device, not the reserve parachute.	Reword paragraph to note the intent since this is not clear as to what is being looked at for the reserve parachute, or, state that the reserve needs to meet what the primary requirements?	Agree:  Delete “Ref: Table 2” from TS 135 Para. 4.1.3. Testing of a packed assy will show if the main parachute will interfere with the proper function of the reserve parachute.
Myra Kuck ANM-150L	TS 135 page 9, Para. 4.3.7	“A minimum of 5 drops shall be made with a weight not more than...”	The worst case would be the maximum operating weight, so why are we utilizing a weight that is less than the maximum operating weight?	Change verbiage from “weight not more than” to “maximum operating weight”	Agree:  Delete: ...”a weight not more than”...from TS 135 Para. 4.3.7.

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AIR-200	Global	Incorrect acronym "TSOA."	Aircraft Certification has discontinued the use of the "acronym TSOA."	Change all references from "TSOA" to "TSO authorization."	Do not agree:  Both terms are interchangeable, as defined in Para. 1.
AIR-200	Page 2 Para. 4a	Incorrect CFR paragraph reference.	Specific marking requirements for TSO articles are in 14 CFR § 45.15.	Change to: "Mark at least one major component permanently and legibly with all the information required in 14 CFR§45.15."	Agree:  It has been revised in the published Template.
AIR-200	Page 2 Para. 4b	This paragraph requires each easily removable component or interchangeable subassembly to be marked with the manufacturer's name, subassembly part number, and TSO number.	There is no regulatory requirement for marking components or subassemblies within a TSO article.	Delete this paragraph.	Do not agree:  This is a requirement to ensure that parachute components are not interchanged improperly.
AIR-200	Page 4 Par. 5a(3) note	The note uses the term "quality control standards." This term is no longer used in Part 21.	In the new Part 21, the term "quality control" has been replaced with "quality system."	Change to read: "This article meets the minimum performance and quality system standards required by a technical standard order (TSO)."	Agree:  Change to read: "This article meets the minimum performance and quality system standards required by a technical standard order (TSO)."

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AFS-350 GAG	All pages	Change TSO number from "e" to "f" on top left corner of all pages	Eliminate confusion	Change to "f".	Agree:  Typo corrected.
AFS-300 GAG	Appendix, First paragraph	Where we modified	Who are THE "WE"	Should state "The FAA".	Agree:  Change to: We the FAA
AIR-40	Pages 2-5	Headers read TSO-C23e	Cover page reads TSO-C23f	Resolve inconsistency.	Agree:  Typo corrected.