

**Clearance Record  
DOCUMENT COMMENT LOG**

<b>Originating Office:</b> AIR-120	<b>Document Description:</b> Cargo Straps	<b>Project Lead:</b> Doug Law	<b>Reviewing Office:</b>	<b>Date of Review:</b>
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American Airlines – Aircraft Engineering - Harry Demarest		American Airlines has reviewed the Proposed TSO and has the following comments. AAL would first like to point out that proposed TSO C-172 refers to SAE specification ASS5385 Revision A, while the latest revision of the specification is revision B. It is not clear if this omission is intentional for limiting purposes.			Agree. TSO C-172 now references SAE ASS5385C, which is the latest revision. Due to the changes in the SAE spec, this is being put out for public comment again prior to publication.
American Airlines – Aircraft Engineering - Harry Demarest		AAL recognizes the need for shelf life and service life requirements of textile Cargo Restraint Strap Assemblies to be used and complied with by airlines; however, the Proposed TSO, by its regulatory nature, will subsequently lead to its use as an enforcement authority. The Proposed TSO specification requires that the purchaser be provided with “An expiration date after which the rated performance may not be expected to be maintained.” This statement stops short of implying that a Cargo Restraint Strap found beyond the ‘expiration’ date cannot be used and the Proposed TSO lacks specific guidance for product use after that date. It is expected that, in			Disagree. TSO’s are not used as enforcement authority, they are a minimum performance specification that the article must be meet. The enforcement of using an article beyond its expiration date is the responsibility of FAA inspectors. Any article that is marked with an expiration date must

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<p>American Airlines – Aircraft Engineering - Harry Demarest</p>		<p>The proposed TSO requirements pertain to all “Cargo Restraint Strap Assemblies that are identified and manufactured on or after the effective date of the TSO”. This statement implies that parts manufactured before the effective date of the TSO are not affected by the TSO and; therefore, are not required to have shelf life or service life limits. The proposed TSO can not stand alone in the regulatory environment as it lacks a comprehensive bridging plan to address in-service equipment. It is precisely the use of older Cargo Restraint Straps which should be scrutinized and phased out in favor of date controlled products.</p>			<p>Disagree. Parts manufactured before the effective date are, in fact, not affected by this TSO. Generally, these cargo straps have a useful life of two years and therefore, straps manufactured prior to this TSO will be eliminated through attrition in two years. The FAA has no intention of developing a “bridging plan” to address straps manufactured prior to the effective date</p>
		<p>the absence of clear and unambiguous language, the manufacturer’s recommendation could be applied as a life limit. AAL believes that the FAA’s future ability to enforce shelf life or service life limits per this TSO remains ambiguous. This aspect of Restraint Strap Assembly usage should not be relegated to regional FAA inspectors for interpretation</p>			<p>be removed from service after that date.</p>

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American Airlines – Aircraft Engineering - Harry Demarest		<p>Questions will undoubtedly arise regarding the legality of using older straps and whether newer straps are considered a life limited part. It is incumbent on the FAA to concurrently incorporate comprehensive regulatory guidance related to the Proposed TSO so that operators have clear information for planning its implementation.</p> <p>Since cargo straps are used by all our member cargo carriers in countries around the world, we request that the “new TSO” not present any conflict with the already developed standard for cargo strap design and testing under ISO standard 16049. As all NACA all-cargo members fly internationally and have international customers, it is very important that all our members are able to use those straps in their fleets</p>			<p>Questions regarding legality of using older straps should be directed to the responsible Aircraft Certification Office.</p> <p>of this TSO, nor is this a function of a TSO.</p>
National Air Carrier Association – George Paul		<p>The manufacturer’s operating instructions should not be the only allowable directions for the use of straps. We cannot be assured that the instructions of each manufacturer will be</p>			<p>ISO 16049 was the specification that was used to develop SAE ASS385, so there should not be any conflicts.</p> <p>The manufacturer’s are only required to provide the limitations such as webbing</p>

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<p>National Air Carrier Association – George Paul</p>		<p>consistent with all other manufactures. Most operators have detailed cargo operations manuals with very specific use instructions for straps and other items used to restrain freight in their aircraft. These air carrier manuals are already accepted by the FAA and should remain in effect. They should not be superseded by conflicting instructions that a manufacturer may produce.</p>			<p>deterioration, damage and corrosion limits and to identify any limitations resulting from deviations granted per 3.b. of this TSO. This does not provide any particular application specific instructions such as those contained in any cargo operations manuals. FAA accepted manuals for the use of these straps remain valid and are not superseded by these limitations.</p>
		<p>Our members support the proposal to have expiration dates for cargo straps. However, the proposal, as presented, is too complex and must be made simple. To track cycles of use for each strap and to calculate expiration dates that vary with storage is overly burdensome. We request that a specific date be established after which the strap must be removed from service. See added comments below concerning in-service inspections.</p>			<p>Disagree. The method to determine when a particular strap no longer meets the MPS of this TSO is the responsibility of the manufacturer. We do not agree that a specific date should be specified by this</p>

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National Air Carrier Association – George Paul		Please clarify whether all these new requirements cover the entire strap, which includes locking studs, rings, and buckles, or does it cover just the fabric itself?			These requirements cover the TSO'd article, which includes the entire assembly.
National Air Carrier Association – George Paul		Many of our members provide charter air transportation for the U.S. Department of Defense (DOD). Please clarify that the DOD's Mil-Spec straps on those military charters are acceptable. If not, how would these new specifications affect the straps provided by the U.S. military on commercial charter operations?			This TSO provides a Minimum Performance Specification (MPS) that must be met for the strap to be marked with the TSO number, showing that the strap meets the MPS of this TSO. It is not required that cargo straps meet this TSO, as other methods can be used for installation/operational approval. This

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National Air Carrier Association – George Paul		We find paragraph 4.c. somewhat confusing. Does “ultimate” (meaning final or end) load rating equal failure load. What is the safety factor specified in the load’s rating? Please clarify.			Paragraph 4.c deals with part marking, not ultimate load. Assume reference is section 4.2. This is explained in AS5385C, Paragraphs 3.11 (Load Limit) and 3.12 (Ultimate Load)
National Air Carrier Association – George Paul		In paragraph 5.a., to whom are the deviations granted? The operator or the manufacturer? Please clarify.			Deviations are granted to the TSOA holder. The TSO itself is not used by the operator, other than to reference to see what the minimum performance requirements for a particular article are.
National Air Carrier Association – George Paul		We would like to see more guidance on wear limits, permissible damage, deterioration and breaking strength. We do caution that it is important that the normal in-service use be taken into account so that we do not			Partially agree. These limits are to be provided by the manufacturer as specified in paragraph 5.a. The

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<p>JMJ Consulting - Jean-Jacques Machon</p>		<p>4. <b>Marking requirements :</b>  Marking per § 4.a.(1) with " <i>all the information required by 14CFR § 21.607(d)</i> " would include " <i>Name and address of the manufacturer</i> ", understood to be a standard TSO wording for all appliances, but which would be quite difficult to legibly comply with due to limited space on straps. It is required by 14CFR § 21.607 (d), but the proposed TSO's own § 4.c also specifies " <i>at least the manufacturer's name</i> ", which is feasible. Is it to be understood that marking with the name only will be acceptable when the address is readily available elsewhere ? This would be a practical solution.</p>			<p>TSO cannot provide additional guidance on these limits due to various design possibilities from different manufacturers.  Partially agree. The article must be identified per 14CFR § 21.607 (d), however, subassemblies do not have to meet the same requirements. Clarified 4.c.(1) through 4.c.(3) as follows: 4.c. "In addition, each component that is easily removable (without hand tools), each interchangeable element, and each subassembly of the article that you determined may be interchangeable, must be marked with at least the manufacturer's name, subassembly</p>
		<p>reject straps that are perfectly safe for use.</p>			

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Jean-Jacques Machon		<p><b>5.a.</b> The intent of § 5.a regarding operating instructions and equipment limitations is understood and agreed. However, as regards installation on aircraft (granted to be in a different field with separate approval, i.e. approved aircraft Weight and Balance or Cargo Loading Manuals), adequate instructions should be given by the strap manufacturer : the minimum should be something like " Straps shall be installed on aircraft only in accordance with the requirements of the aircraft's approved Weight and Balance or Cargo Loading Manuals ". But more detailed and appropriate information as to do's and don't's was recently approved and published by the FAA itself as AC 120-85 dated 6/20/05, " <i>Air Cargo Operations</i> ", an outcome of the ACIP project. Specifically, AC 120-85 § 201a. (3) and (4), 220d., 234, 248a., 250, 251, 252, 253, 254, 316 and Appendix 2 (reference to SAE ARP5595) refer to proper use of restraint straps. Would it not be better to require the TSO or LODA</p>			<p>Deferred. The TSO Minimum Performance Specification is only used by the TSOA holder to insure the article meets those specifications. Installation approval is separate from the TSOA and isn't the responsibility of the TSOA holder. The operator should follow the procedures in the appropriate manuals specified in AC 120-85, Chapter 2, paragraph 201 when using the cargo straps. Further, paragraph 234 states " A cargo strap manufacturer may not necessarily provide damage limits." And then</p>
					<p>part number, and the TSO number.</p>

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		<p>applicant, through a cross-reference to AC 120-85, to review these prior to developing his own instructions, which might occasionally evidence some product shortcomings he had not previously been conscious of, and would at least convey the right message to his airline customers ?</p>			<p>goes on to give some "Do not use" criteria.</p>
<p>Mark Trafford</p>		<p><b>3. REQUIREMENTS. i.e. ASS5385 Section 5 (testing methods).</b> 5.7 of ASS5385 is the Cyclic Load Test. The principle of doing a cyclic load test is fine and good. However, the specifics detailed within ASS5385 do not make sense. ASS5385 says, "The untensioned webbing shall not have permanently settled by more than 25mm (1.0in)." This is very unclear as to what is being asked for and the belief is that it cannot be achieved. For instance, what is the length of webbing you are trying to ensure the settlement is less than 25mm? Also, the Elongation Test within ASS5385 allows a 10% elongation, therefore 25mm is not achievable. It might be best to remove this particular sentence from 5.7 and the TSO requirements?</p>			<p>Agree. Sections 5.7.3 and 5.7.4 in ASS5385 have been revised to clarify this requirement.</p>

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<p><b>Mark Trafford</b></p>		<p><b>4. Marking. (2).</b> This states, "Mark dates of manufacture and expiration on each strap assembly. Format the dates per ASS385, Section 7.2".</p> <p>I would agree with the general philosophy of what is being asked for here, but I think that the current wording may be interpreted by some in a way that is too prescriptive. It says that you need to "mark dates of manufacture and expiration". These products will be made and yes a manufacturing date needs to be marked on the product. However, if stored correctly by the manufacturer and the customer/user/operator before entering service, then the life of the product does not start immediately. Typically our Restraint Straps have a two year life. It may be a number of months before the products are actually removed from their proper storage condition (light proof packaging is typical) and hence it is right</p>			<p>Concur. Changed paragraph 4.2 to add "Mark dates of manufacture and expiration on each strap assembly per ASS385C, Section 4.5.2. Format the dates per ASS385C, Section 7.2. Section 4.5.2 of ASS385C addresses this issue. It states: "The expiration date may be based on a fixed time period after the date of manufacture, or may be based on a fixed time period after the cargo restraint strap assembly is first placed in-service. If the expiration date is based on the date the cargo restraint strap assembly is first placed in-service</p>

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		<p>therefore that the life starts from that date. However the onus is on the customer to ensure this is done correctly and we already have a system to take care of this. I believe that our system (and to be honest I think the system could be used by anyone as it is reasonable) fulfills the philosophy of the TSO but it may not meet the words/interpretation by someone if that want to interpret it in a particular way. I am attaching a copy of a Label drawing that shows something we might typically use for this type of product (obviously it is not specific for the TSO). In the real world of operators etc I believe that the characteristics the Label offers is needed, and I do think that it also satisfies the philosophy of the TSO. I just want to ensure that the TSO will allow such things. (Hope this makes sense, please do not hesitate to telephone to discuss if needed).</p>			<p>then:....” It then goes on to specify that storage instructions shall be provided to the user and be uniquely marked to allow tracking of individual straps.</p>

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Amsafe Bridport	3 <u>Requirement</u> <u>s</u> Table 1 Section 4	'Modify 4.4.1...'  There is not a Paragraph 4.4.1 in AS 5385C. Believe this should reference 4.4.	Appears that it is not the published AS5385C that is being referenced - but an earlier draft revision of AS5385 B.		Agree. Corrected reference.
Amsafe Bridport	3 <u>Requirement</u> <u>s</u> Table 1 Section 4	'Modify 4.4.2...'  There is not a Paragraph 4.4.2 in AS 5385C.	Appears that it is not the published AS5385C that is being referenced - but an earlier draft revision of AS5385 B.		Agree. Removed incorrect reference.
Amsafe Bridport	3 <u>Requirement</u> <u>s</u> Table 1 Section 5	'Modify 5.4.1 Note 7 by replacing the word 'damps' with the word 'clamps' in the first sentence'  There is no mention of 'damps' or 'clamps' in Paragraph 5.4.1 of AS 5385C	Appears that it is not the published AS5385C that is being referenced - but an earlier draft revision of AS5385 B.		Agree. Removed reference to paragraph 5.4.1
Amsafe Bridport	4 <u>Markings</u> a. (2)	Marking the date of manufacture is fully agreed, but we request allowance is made to change and improve the format.	AS5385C requires marking date to be in format '200910'. From our experience, a more robust and safer system is to state dates in format '2009 OCT'.  This is now the established method for our date marking – it was deliberately changed from the 'number only' format several years ago based on in service experience. The revised format was found much easier to read and understand globally and is unambiguous – it has proved great success.  Currently CTSO 172 is not		Disagree. If the marking system is not adequate, it should be changed in AS5385, not just in the TSO. However, you may apply for a deviation to use a different date format at the time of a new TSO application.

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Amsafe Bridport	4 <u>Markings</u> a. (2)	<p>The requirement to mark an expiry date from the date of manufacture strictly in accordance with AS 5385C is too prescriptive and restrictive.</p> <p>There are proven and well established alternatives that have been developed that are more practical and economically viable for manufacturers and operators that do not compromise the principle of life limiting the equipment.</p> <p>We request these alternatives to be considered and allowed by CTSO 172.</p>	<p>Straps are not 'perishing' from the date of mfr providing they are stored in normal conditions and in lightproof packaging (i.e. cardboard boxes). With a strict requirement to mark an expiration date from the date of manufacture, the usable life of the strap is unnecessarily being consumed during stocking and shipping by the manufacturer, and then when in storage by the operator. The value of the item is effectively depreciating even though the equipment has never been used and there is no loss of performance.</p> <p>The key date for the straps life limit is the date of entry into service. From operator feedback, Amsafe Bridport developed a robust, simple and proven system whereby the operators can punch mark the date of entry into service on the strap label when its taken out of storage – the life then expires 2 yrs from this date. (Please see attached example of a strap label in e-mail – if further explanation or examples are needed please don't hesitate to ask).</p>		<p>Agree. Section 4.5.2 of AS5385C addresses this issue and allows for marking the date a strap is put in service, which then starts the clock for the final expiration date.</p>

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Amsafe Bridport	7 <u>Furnished Data Requirement</u> a.	Reference is made to '5l' (5L) of the TSO. There is no '5l' in the current draft TSO C172	If the operator does not punch mark the date, or the date is not known, or they fail to do it correctly, or choose not to utilize the system etc - the life defaults back to expiry after 2 years from the date of manufacture (which is also printed on the label). This system provides operators a clear choice to utilize the full life of the strap, or not to depending on their resources, priorities and utilization needs. Appears that reference is being made to the 2005 draft of TSO C172.		Agree. Correct reference.