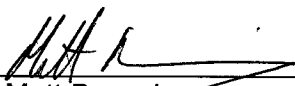



WEBBING SERVICE LIFE GUIDELINES

Prepared by:

AmSafe, Inc.
1043 N. 47th Avenue
Phoenix, AZ 85043

Prepared by:	Reviewed by:
 4/15/14	 17 April 2014
Matt Browning Lead Engineer	Giuseppe Gullotto Director of Engineering
Date	Date

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person

Rev.	Changed by	Revisions	Approved	Release Date
-	Browning	New Release	DG MB	4-18-14

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person

Table of Contents

1.0	PURPOSE.....	4
2.0	RELATED DOCUMENTS	4
3.0	VISUAL CONDITION SCORE	4
4.0	VISUAL CONDITION OF THE WEBBING	5
5.0	RECOMMENDATIONS.....	10

List of Tables & Figures

Table 1: Visual Condition Scoring System.....	4
Figure 1: “Looks New” – no visible flaws	5
Figure 2: “Slight Fraying” – edges of webbing are partially tattered and/or worn.....	5
Figure 3: “Fraying” – exterior and/or edges of webbing are tattered or worn and damaged.....	6
Figure 4: “Very Frayed” – exterior of webbing is substantially worn and damaged	6
Figure 5: “Small Rip” – torn less than 0.5 inches on edge of webbing.....	6
Figure 6: “Ripped” – torn between 0.5 and 3 inches on edge of webbing	7
Figure 7: “Heavy Ripping” – tear exceeding 3 inches on edge of webbing.....	7
Figure 8: “Slight Discoloration” – small amount of dirt or fading color	7
Figure 9: “Discoloration” – fair amount of dirt or fading color.....	8
Figure 10: “Slightly Warped” – small amount of webbing curvature	8
Figure 11: “Warped” – fair amount of webbing curvature	8
Figure 12: “Very Warped” – large amount of webbing curvature	9
Figure 13: “Scratched” – minor surface scratches and scuffs on webbing exterior	9
Figure 14: Overall Strength vs Visual Condition	10

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person

1.0 PURPOSE

The purpose of this report is to act as a guide to determining the service life of restraint webbing based on test data previous collected in other studies. This report is a guide only and not a definitive gauge. The webbing is always to be replaced on condition as determined by the operator.

2.0 RELATED DOCUMENTS

- SAE AS8043 Torso Restraint Systems
- TR505874 Affects of UV Exposure to Nylon and Polyester Seatbelt Webbing
- TR505890 Service Life Test Plan/Report for Nylon and Polyester Seatbelt Webbing
- R503922 Web Fray Guidelines

3.0 VISUAL CONDITION SCORE

The visual condition scoring system can be seen in Table 1. Each webbing sample begins with 10 points. For every corresponding flaw, the appropriate amount of points is deducted from the score. Multiple flaw types can be seen on single samples so any score between 0 and 10 points is possible. Using this system, the highest possible Visual Condition Score (VCS) is 10, and the lowest possible VCS is 0.

Table 1: Visual Condition Scoring System		
Flaw Type	Score Deductions	Corresponding Figure
None (Looks New)	-0 pts	Figure 1
Slight Fraying	-1 pt	Figure 2
Fraying	-2 pts	Figure 3
Very Frayed	-3 pts	Figure 4
Small Rip	-1 pt	Figure 5
Ripped	-2 pts	Figure 6
Heavy Ripping	-3 pts	Figure 7
Slight Discoloration	-1 pt	Figure 8
Discoloration	-2 pts	Figure 9
Slightly Warped	-1 pt	Figure 10
Warped	-2 pts	Figure 11
Very Warped	-3 pts	Figure 12
Scratched	-1 pt	Figure 13

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person

4.0 VISUAL CONDITION OF THE WEBBING



Figure 1: “Looks New” – no visible flaws



Figure 2: “Slight Fraying” – edges of webbing are partially tattered and/or worn

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person



Figure 3: “Fraying” – exterior and/or edges of webbing are tattered or worn and damaged



Figure 4: “Very Frayed” – exterior of webbing is substantially worn and damaged



Figure 5: “Small Rip” – torn less than 0.5 inches on edge of webbing

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person



Figure 6: “Ripped” – torn between 0.5 and 3 inches on edge of webbing



Figure 7: “Heavy Ripping” – tear exceeding 3 inches on edge of webbing or multiple tears exceeding 0.5 inches throughout webbing



Figure 8: “Slight Discoloration” – small amount of dirt or fading color

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person



Figure 9: “Discoloration” – fair amount of dirt or fading color



Figure 10: “Slightly Warped” – small amount of webbing curvature
(usually occurs with small fraying along one side)



Figure 11: “Warped” – fair amount of webbing curvature
(usually occurs with fraying along one side)

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person



Figure 12: “Very Warped” – large amount of webbing curvature (usually occurs with very frayed sides and sometimes with discoloration)



Figure 13: “Scratched” – minor surface scratches and scuffs on webbing exterior

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person

5.0 RECOMMENDATIONS

The ultimate breaking strength is proportional to the visual condition of the webbing samples.

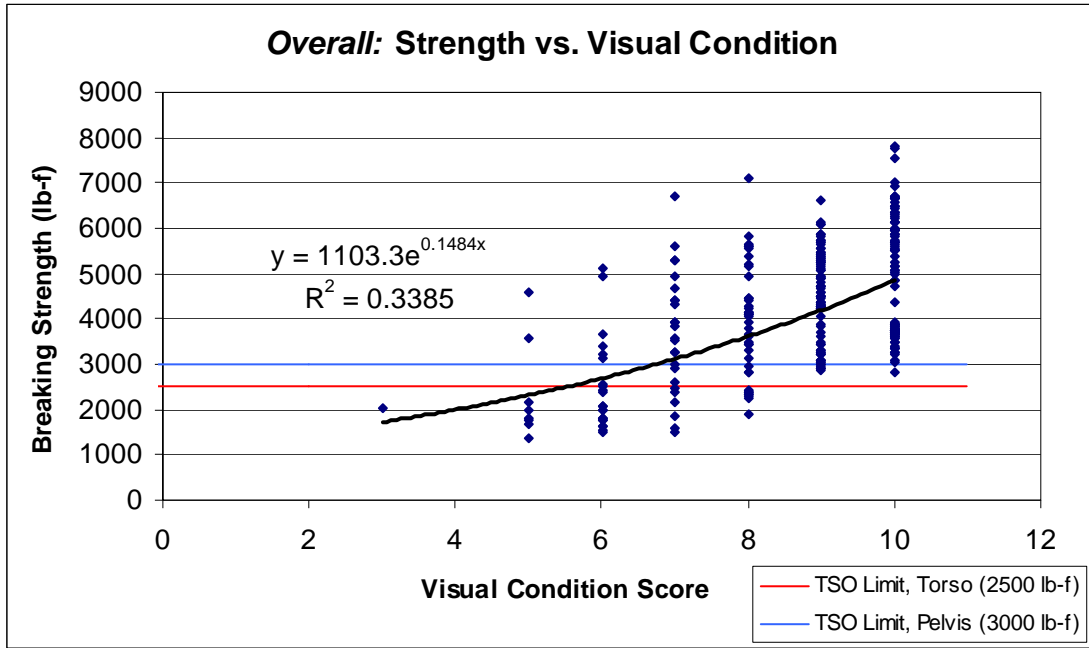


Figure 14: Overall Strength vs Visual Condition

Figure 14 shows the webbing breaking strength versus visual condition scores for tested samples. If the webbing sample scores 8 points or less according to Table 1, it is recommended that the old webbing should be replaced with new webbing. If the webbing scores above 8 points it will be (in most cases, but not all) considered airworthy according to TSO-C22g, TSO-C114, and SAE AS 8043 standards.

PROPRIETARY NOTICE

This document (TR506253) contains proprietary designs, specifications, data, information, and technical material that are the sole property of AmSafe, Inc. to be held and treated by its recipient on confidential basis, and not to be shown or disclosed to any unauthorized organization or person

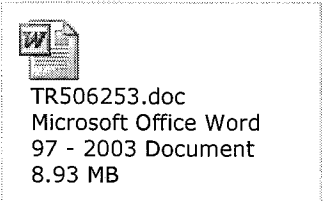
Engineering Change Order

ECO# 3622	Priority# 2	Date: 4/3/2014
Submitter: Matt Browning	Department: Engineering	Extension:
Drawing No.: TR506253	Product Line: Seatbelts	Change Level: <input type="radio"/> Class I <input type="radio"/> Class II
Rev: -	Product Used On:	
Drawing Title: WEBBING SERVICE LIFE GUIDELINES		Desired Release Date: 4/17/2014

Replace/New Release?	Customer Request?
Reason for Change: New document release	

Description of Change: (If Multiple DWGs, List PN/Rev/Description)
New document release

Form, Fit, Function Affected? <input type="radio"/> Yes <input checked="" type="radio"/> No	Customer Controlled Drawing? <input type="radio"/> Yes <input checked="" type="radio"/> No	Responsible: Matt Browning
<input type="checkbox"/> Risk Analysis	Does Change Require? <input type="checkbox"/> Test Plan/Report?	<input type="checkbox"/> Update Certification Docs?
<input type="checkbox"/> Summary Report?	<input type="checkbox"/> TSO/PMA?	<input type="checkbox"/> Update Work Instructions?
AO79 / Update Required? <input type="radio"/> Yes <input checked="" type="radio"/> No	FAA <input type="radio"/> Major <input checked="" type="radio"/> Minor <input type="radio"/> N/A	
DO178 Software Affected <input type="radio"/> Yes <input checked="" type="radio"/> No	Software Safety Affected <input type="radio"/> Yes <input checked="" type="radio"/> No	Software Certification Affected <input type="radio"/> Yes <input checked="" type="radio"/> No
Disposition		
WIP: <u>No Effect</u>	Qty On Hand: <u>No Effect</u>	On Order: <u>No Effect</u>



Attach File:

Effective Date: 4-18-14

REQUIRED PRE-APPROVALS

Configuration Management: <i>Jennifer A. Walsh</i> 4/7/14	Checking: <i>D. GOETZ</i> 4/8/14
--	-------------------------------------

FINAL APPROVALS

Engineering: <i>Matt</i> 4/15/14	Quality: <i>Cheryl</i> 4/17/14	Sales/Program Management: <i>Manufacturing</i> <i>John</i> 4/17/14
-------------------------------------	-----------------------------------	---

Certification:	Planning/Procurement:	Manufacturing: Sales
<i>D. Galt</i> 4/18/14	<i>Cory R. Man</i> 4/17/14	<i>C. Bergman</i> 4/17/14