SAE Aerospace
An SAE International Group

AEROSPACE RECOMMENDED PRACTICE

SAE ARP5585
Issued 2004-05

Replacement or Modification of Components on Aircraft Seat Restraint Systems by Non-Original Equipment Manufacturers

1. SCOPE:

This document outlines the evaluation and documentation appropriate when the components of an approved aircraft seat restraint system are replaced or modified by a party other than the Original Equipment Manufacturer of the restraint system.

2. REFERENCES:

2.1 Department of Transportation
Federal Aviation Administration

2.1.1 Technical Standard Order (TSO) C-22f, Safety Belts

2.1.2 Technical Standard Order (TSO) C-22g, Safety Belts

2.1.3 Technical Standard Order (TSO) C114, Torso Restraint Systems

3. BACKGOUND:

Regulatory agency approval of aircraft seat restraint systems can take the form of a Federal Aviation Administration (FAA) Technical Standard Order (TSO) approval (C22g, C22f or C114), be part of a type certification approval (either in the original aircraft type certificate, a supplemental type certificate, or by amendment to the type certificate), or be under a Parts Manufacturer Approval (PMA). The replacement or modification of the components of an approved design creates a new configuration that must also be approved by the governing regulatory agency.

In the case that the party completing the rework of the restraint system is not the Original Equipment Manufacturer (OEM), the replacement or modification must be carefully evaluated, and it must be documented that the reworking party knows the original design specifications to the detail necessary to support the rework.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

4. REPLACEMENT OF COMPONENTS WITH NO PART NUMBER CHANGE:

Rework to a restraint system by a non-OEM without a change to the restraint part number must be done with components which are identical to the original components. This includes webbing and thread. In this way, it is ensured that the original design specifications are met.

5. MODIFICATION OF COMPONENTS:

If rework to the restraint system by the non-OEM involves a modification, it can be classified as a minor change or a major change, as follows:

a. Minor Changes:

1. Webbing color or thread color, when the webbing and thread meet the OEM specifications for those used in the original qualifications of the restraint system.

2. The length of adjustable, unloaded webbing. (Webbing on an inertia reel is loaded, and a length change would not be considered minor. Webbing on the adjustable half of a standard lap belt is not loaded, and a length change would be considered minor.)

3. Buckle cover color or logo.

4. Restraint system label information not specifically required by the TSO or another regulatory agency approval.

For minor changes made by a non-OEM modifier, the modifier must mark the system with their own part number. Certification of the new restraint configuration is required. Engineering documentation substantiating the change as minor must be reviewed and approved by the regulatory agency.

a. Major Changes: Any change made by the non-OEM to the restraint system not specifically classified as a minor change above is defined as a major change. This includes, but is not limited to:

1. Any webbing change that does not meet the OEM specifications of the webbing used in the original qualification of the restraint system.

2. Any addition or change to structural hardware, including end fittings, inertia reels, buckles, connectors, etc.

3. A change in the thread or stitch patterns which affects system strength.

4. A change to the length of loaded webbing (for example, the webbing on an inertia reel).

5. (Continued):

   All major changes require a restraint system part number change. All major changes also require a new certification of the restraint system, including its installation on the seat and its installation in the aircraft.

6. DOCUMENTATION OF RESTRAINT SYSTEM REWORK:

   Documentation of restraint system overhaul made by the non-OEM, whether it is component replacement or modification, must be submitted to the appropriate regulatory agency for approval. This documentation must include:

   a. A verification that the OEM design and performance specifications are known by the non-OEM and have been met or exceeded in the restraint system overhaul.

   b. A verification that the production processes and quality control systems of the non-OEM are capable of meeting the original design intent.

   c. For minor changes to a restraint system, substantiation that the changes are minor.

   d. For major changes to a restraint system, substantiation of the restraint installation on the seat and its installation in the aircraft.

PREPARED UNDER THE JURISDICTION OF
THE SAE AIRCRAFT SEAT COMMITTEE