



<b>AEROSPACE RECOMMENDED PRACTICE</b>	<b>ARP4912™</b>	<b>REV. C</b>
	Issued 1996-12 Revised 2017-06 Reaffirmed 2022-09	
Superseding ARP4912B		
(R) Design Recommendations for Spare Seals in Landing Gear Shock Struts		

## RATIONALE

This document provides information surrounding the recommended hardware geometry for spare seals in landing gear shock struts, as well as the effects of stretch, fluid interaction, and grease interaction on elastomer seal properties. In addition, this ARP document now covers property characteristics of AMS-P-25732 and AMS-P-83140 elastomer materials after immersion in the three primary red oils (hydraulic fluids) used in industry, MIL-PRF-5606, MIL-PRF-87257, and MIL-PRF-83282. Changes in volume, tensile strength, and elongation are discussed after immersion in the aforementioned fluids, both in whole and in mixed percentages of fluid. These characteristics should be taken into account when incorporating and implementing fluid and/or fluid changes with specific elastomer materials in shock struts containing spare seals.

ARP4912C has been reaffirmed to comply with the SAE Five-Year Review policy.

## 1. SCOPE

This SAE Aerospace Recommended Practice (ARP) provides recommendations on cavity design, the installation of elastomer type spare seals in these cavities, and information surrounding elastomer material properties after contact with typical shock absorber hydraulic fluid(s) or grease. This ARP is primarily concerned with the use of spare seals on shock absorbers where only a single dynamic seal is fitted and in contact with the slider/shock absorber piston at any one time.

These shock absorbers typically have a spare (dynamic) seal gland located on the outer diameter of the lower seal carrier. This spare seal gland is intended to house a spare elastomer contact seal. Split Polytetrafluoroethylene (PTFE) backup rings can also be installed in the spare seal cavity.

During operation, if the fitted dynamic shock absorber standard seal begins to fail/leak, then the aircraft can be jacked up, allowing the lower gland nut of the shock absorber to be dropped down. The current used dynamic seal can be cut free, and the spare elastomer seal can be stretched over the seal carrier ring into the dynamic seal position. The shock absorber can be re-assembled and the landing gear is ready to continue operation with a new seal in position after this relatively simple procedure.

## 2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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