



SURFACE VEHICLE RECOMMENDED PRACTICE

J2932™

FEB2023

Issued 2014-09
Revised 2023-02

Superseding J2932 DEC2017

Air Disc Brake Actuator Test Requirements

RATIONALE

Piston spring brakes are becoming increasingly common in North America with the continued adoption of air disc brake. This update defines the performance requirements for these types of spring brakes. This update also harmonizes the T18 service force output with SAE J2318 and removes the reference to DIN 74060-3 2002 for this size.

TABLE OF CONTENTS

1.	SCOPE.....	3
1.1	Purpose.....	3
2.	REFERENCES.....	3
2.1	Applicable Documents.....	3
2.1.1	SAE Publications.....	3
2.1.2	U.S. Government Publications.....	3
2.1.3	DIN Publications.....	3
3.	DEFINITIONS.....	3
4.	LEAK RATE - PARKING AND SERVICE CHAMBERS.....	4
5.	RELEASE AND HOLD-OFF PRESSURE - PARKING CHAMBER.....	4
6.	MINIMUM PRESSURE RESPONSE - SERVICE CHAMBERS.....	4
7.	FORCE OUTPUT AND STROKE - PARKING AND SERVICE CHAMBERS.....	5
7.1	Parking Chamber.....	5
7.2	Service Chamber.....	6
8.	LOW TEMPERATURE LEAKAGE - PARKING AND SERVICE CHAMBERS.....	6
9.	LOW TEMPERATURE MAX RELEASE AND HOLD-OFF - PARKING CHAMBER.....	7
10.	LOW TEMPERATURE FORCE OUTPUT - PARKING CHAMBER.....	7
11.	LOW TEMPERATURE OPERATIONAL TESTS - SERVICE CHAMBER.....	7
11.1	Low Temperature Service Return Test.....	7
11.2	Low Temperature Minimum Response Test, Service Chamber.....	7
11.3	Brittle Failure Check.....	7

SAE Executive Standards Committee Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2023 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE J2932_202302

For more information on this standard, visit
https://www.sae.org/standards/content/J2932_202302/

Documents

Document Sharing Hub

12.	CHAMBER VOLUME - SERVICE CHAMBERS	7
12.1	Service Chamber	7
13.	CORROSION RESISTANCE - PARKING AND SERVICE CHAMBER.....	7
13.1	Output Force for a Parking Chamber of a Combination Actuator	7
13.2	Leakage - DDSB Parking Chamber	7
13.3	Leakage - Service Chamber	8
13.4	Leakage - Caliper Flange Pushrod Boot	8
13.5	Mechanical Back-Off Release Mechanism	8
14.	MECHANICAL BACK-OFF RELEASE MECHANISM	8
15.	ELEVATED TEMPERATURE CYCLE TEST - PARKING AND SERVICE CHAMBERS	8
15.1	Parking Chamber	8
15.1.1	Leakage, DDSB Chamber	8
15.2	Service Chamber	8
15.2.1	Leakage	8
15.3	Component Failure.....	8
16.	CYCLE TEST - PARKING AND SERVICE CHAMBERS	8
16.1	Parking Chamber	8
16.1.1	Leakage Parking Chamber	8
16.1.2	Force Output	9
16.1.3	Maximum Release and Hold-Off Pressure	9
16.2	Service Chamber	9
16.2.1	Requirements.....	9
17.	PROOF PRESSURE TEST - PARKING AND SERVICE CHAMBER	9
17.1	Parking Chamber	9
17.1.1	Leakage	9
17.2	Service Chamber	9
17.2.1	Leakage	9
18.	VIBRATION TEST.....	10
18.1	Parking Chamber	10
18.1.1	Leakage	10
18.2	Service Chamber	10
18.2.1	Leakage Service Chamber	10
18.2.2	Leakage Caliper Flange Seal Pushrod Boot.....	10
19.	NOTES	10
19.1	Revision Indicator.....	10
Table 1	Leak rate parking chamber, service chamber, and caliper flange seal	4
Table 2	Release pressure	4
Table 3	Diaphragm parking chamber force output at stroke ⁽¹⁾	5
Table 4	Service chamber force output at stroke (for reference purposes only).....	6
Table 5	Low temperature leak rate parking chamber and service chamber.....	6

1. SCOPE

This SAE Recommended Practice provides test performance requirements for air disc brake actuators for service and combination service parking brake actuators with respect to function, durability, and environmental performance when tested according to SAE J2902.

1.1 Purpose

This SAE Recommended Practice provides recommended uniform minimum requirements for air disc brake actuators used in brake systems for truck, truck-tractor, bus, and trailer applications.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J2902 Air Disc Brake Actuator Test Procedure, Truck-Tractor, Bus, and Trailer

2.1.2 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

FMVSS 121 Air Brake Systems, 49 Code of Federal Regulations Parts 571.121

2.1.3 DIN Publications

Available from the Standardization Committee of Motor Vehicles (FAKRA) in the DIN German Institute for Standardization.

DIN 74060-3 2002 Compressed Air Brakes, Pneumatic Cylinder, Part 3 - Diaphragm Cylinder, Characteristic Data for Disc Brakes

3. DEFINITIONS

Refer to SAE J2902, Section 3.

3.1 DOUBLE DIAPHRAGM SPRING BRAKE (DDSB)

Consisting of a diaphragm on the service side and a separate diaphragm on the parking side.

3.2 PISTON PARKING CHAMBER

Spring brake consisting of a diaphragm on the service side and a separate piston with a dynamic seal on the parking side.