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|  | <b>SURFACE<br/>VEHICLE<br/>RECOMMENDED<br/>PRACTICE</b> |                      |
|                                                                                  | <b>SAE</b>                                              | <b>J1953 JUN2012</b> |
|                                                                                  | Issued<br>Revised                                       | 1993-10<br>2012-06   |
| Superseding J1953 SEP2001                                                        |                                                         |                      |
| Brake-Stroke Indicator Design Guideline for Cam or Disc Air-Brake Actuators      |                                                         |                      |

## RATIONALE

This standard is being revised as part of the 5 year review process. Most of the revisions are updates to format and wording only. The tolerance for the placement of the stroke indicator band was changed to + 0.0 -3.8 mm (+0 -.15 in) tolerance instead of +0.0 to 3.8 mm (+0 to .15 in). The minus tolerance means the indicator will begin to show from readjust stroke (max.) to 3.8 mm (.15 in) before the readjust stroke is reached. The old tolerance would allow the indicator to begin showing at readjust stroke or up to 3.8 mm (.15 in) after readjust stroke has been reached. The minus tolerance does not reduce the effectiveness of the indicator, but the old plus tolerance may allow for reduced brake effectiveness beyond the stated readjust point.

### 1. SCOPE

This SAE Recommended Practice shall cover mechanical- readjust stroke indicators for actuators with visible exposed pushrods and electrical-readjust stroke indicators for all air-brake actuators.

This device shall indicate the foundation brake(s) may require adjustment or service when inspected per vehicle manufacturer's procedures. A measurement shall be made to determine actual stroke measurement for any system not factory calibrated.

Stroke indication accuracy of an air-brake actuator can be assured only when all of its components are supplied by the original brake actuator manufacturer.

#### 1.1 Purpose

This document establishes design guidelines for air-brake actuator stroke indicators.

### 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.

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### 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 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

SAE J1292      Automobile and Motor Coach Wiring

SAE J1455      Recommended Environmental Practices for Electronic Equipment Design in Heavy-Duty Vehicle Applications

SAE J1469      Air Brake Actuator Test Procedure, Truck-Tractor, Bus, and Trailers

SAE J1817      Long-Stroke Air-Brake Actuator Marking

## 3. REQUIREMENTS

### 3.1 Stroke Indicator

#### Mechanical Design Guidelines

3.1.1 The stroke indication shall occur at  $+0 -3.8$  mm ( $+0.00 -0.15$  in) of the recommended readjustment stroke in Table 1 of SAE J1817.

3.1.2 The stroke indication shall be high visibility orange to red. See Figure 1.

### 3.2 Stroke Indicator

#### Electrical Design Guidelines

3.2.1 The readjust stroke indication shall occur at  $+0 -3.8$  mm ( $+0.00 -0.15$  in) of the recommended readjustment stroke in Table 1 of SAE J1817.

3.2.2 Electrical system installation shall conform to SAE J1292, if applicable.

3.2.3 Electrical systems shall have a system function test capacity.

3.2.4 Any system that provides a driver-warning device in a distracting manner shall be provided with manual override which shall automatically reset each time the vehicle is shutdown or restarted.

### 3.3 Test Procedure

#### 3.3.1 Mechanical Design

Test per SAE J1469.

#### 3.3.2 Electrical Design

Test per SAE J1455.

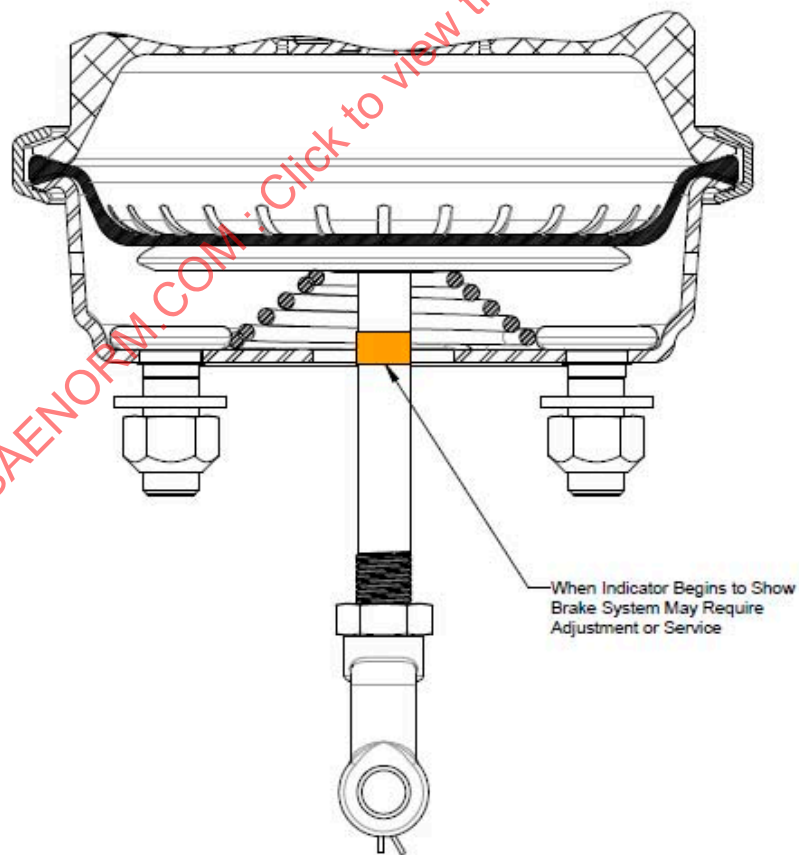
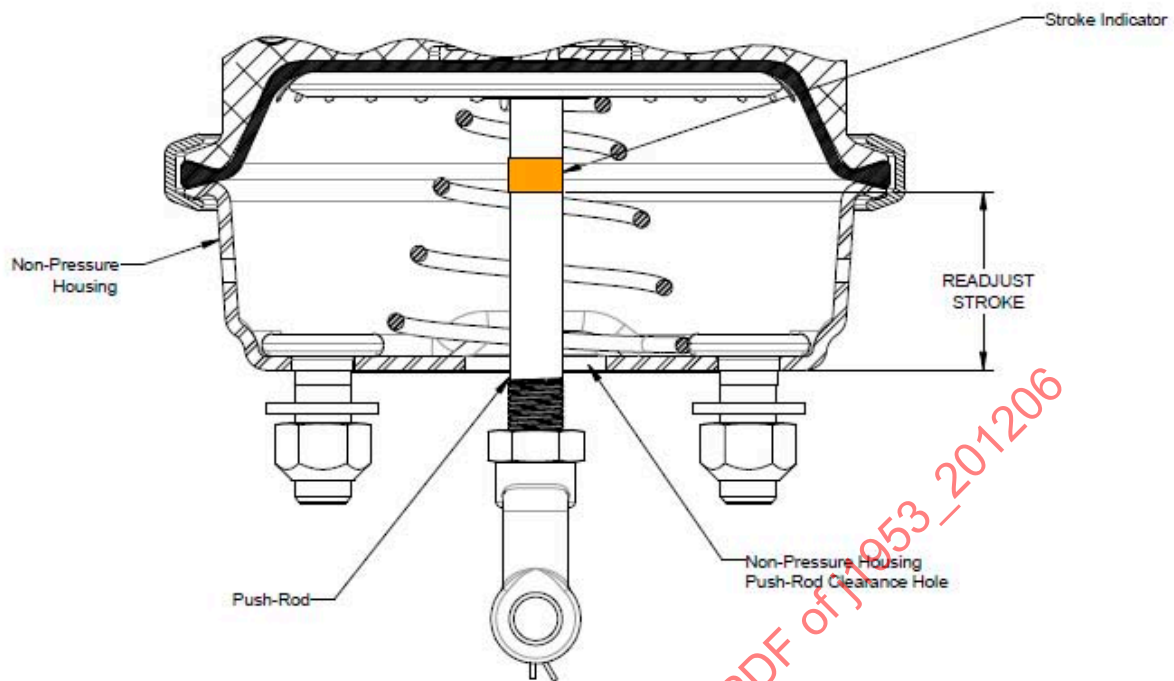


FIGURE 1 - PUSHROD AT ZERO AND ACTUATED STROKE