AUSTRALIAN TRUCKING ASSOCIATION

INDUSTRY TECHNICAL COUNCIL

TECHNICAL ADVISORY PROCEDURE

COMPLIANT BRAKE ACTUATORS

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ATA Technical Advisory Procedure

Complaint Brake Actuators

Edition 3

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About this Technical Advisory Procedure (TAP):

This Technical Advisory Procedure (TAP) is published by the Australian Trucking Association Ltd (ATA) to assist the road transport industry in improving heavy vehicle safety.

This TAP is not, nor is it intended to be, complete or without exception.

The TAP is a guide only and its use is entirely voluntary. Recommendations or procedures may not be suitable for, or applicable to all operators. Operators should consider their own circumstances, practices and procedures when using this TAP.

Operators must comply with the Australian Design Rules (ADRs), the Australian Vehicle Standards Regulations, the Roadworthiness Guidelines and any specific information and instructions provided by manufacturers in relation to the vehicle's systems and components.

No endorsement of products or services is made or intended. Brand names, where used in this TAP, are for illustrative purposes only.

Suggestions or comments about this TAP are welcome. Please write to the Industry Technical Council, Australian Trucking Association, 25 National Circuit, Forrest ACT 2603.

About the ATA Industry Technical Council (ITC):

The Industry Technical Council (ITC) is a standing committee of the Australian Trucking Association (ATA). The ITC's mission is to improve trucking equipment, its maintenance and maintenance management. The ITC was established in 1995.

As a group, the ITC provides the ATA with robust professional advice on technical matters to help underpin the ATA's evidence-based policymaking. It is concerned with lifting technical and maintenance standards, improving the operational safety of the heavy vehicle sector, and the development of guidelines and standards for technical matters.

ITC performs a unique service in the Australian trucking industry by bringing operators, suppliers, engineers and other specialists together in a long-term discussion forum. Its members provide expert and independent advice in the field to inform the work of the ITC. The outcomes from ITC benefit all ITC stakeholders and the heavy vehicle industry at large.

The ITC operates under the Australian Trucking Association's Council, which formulates industry policy for implementation by the organisation.

We welcome applications to join the ITC. For further information, please call the ATA on (02) 6253 6900 or email ata@truck.net.au or download information from the ATA website www.truck.net.au, follow the links under the members tab to join.

Acknowledgement

The cover page was generously provided by Volvo Trucks Australia.

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Introduction

This Technical Advisory Procedure (TAP) is published by the Australian Trucking Association Ltd (ATA) to to provide operators with key information about heavy vehicle air brake actuators and to assist with identifying the standards that they comply to. It was originally produced to counter a run of very premature brake actuator failures and highlight the suppliers who were building to a recognised standard.

It is not, nor is it intended to be, complete or without exceptions.

Brake actuators are often seen as a commodity. This view is wrong. The use of substandard parts may void the ADR compliance of the brake system while creating an unstable vehicle combination and negatively affect the brake balance across an axle or axle group.

Brake actuators are a critical part of brake system and are essential to ADR compliance. The ADRs are the national standards for vehicle safety, anti-theft, and emissions. Brake actuator part number traceability and part equivalence via the quality control system will maintain ADR compliance. Any change in the part number or the performance of the part will require either the system to be retested or an analysis of the parts in question to ensure that they are equivalent and will maintain the performance of the originally tested component or system.

Table 1 provides confirmation for the brands listed of the standards to which the brake actuators comply.

Note

- Should operators require test reports, they should contact their supplier directly.

1. Definitions

ADR	Australian Design Rules 3rd Edition.
AM	After Market Supplier
Brake actuator	Equivalent interchangeable terms – brake chamber, actuator, or booster.
NA	Not applicable or not available
OEM	Original Equipment Manufacturer
OES	Original Equipment Spare parts supplier

Components of a brake actuator.

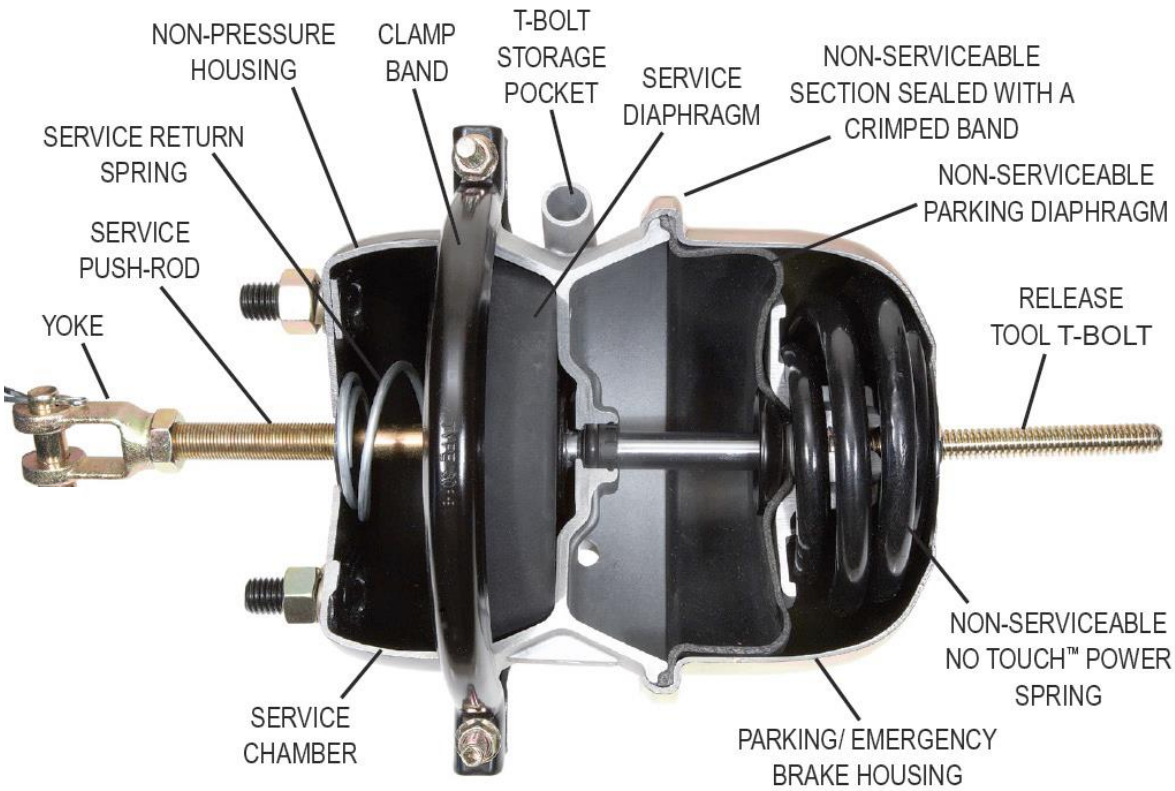

Figure 1: Sectioned brake actuator used in drum brake systems

Source Bendix

For further definitions and terms refer to ATA's ITC Dictionary [LINK]

2. Spring Brake Actuator Warnings

Warning - Do not disassemble the actuator

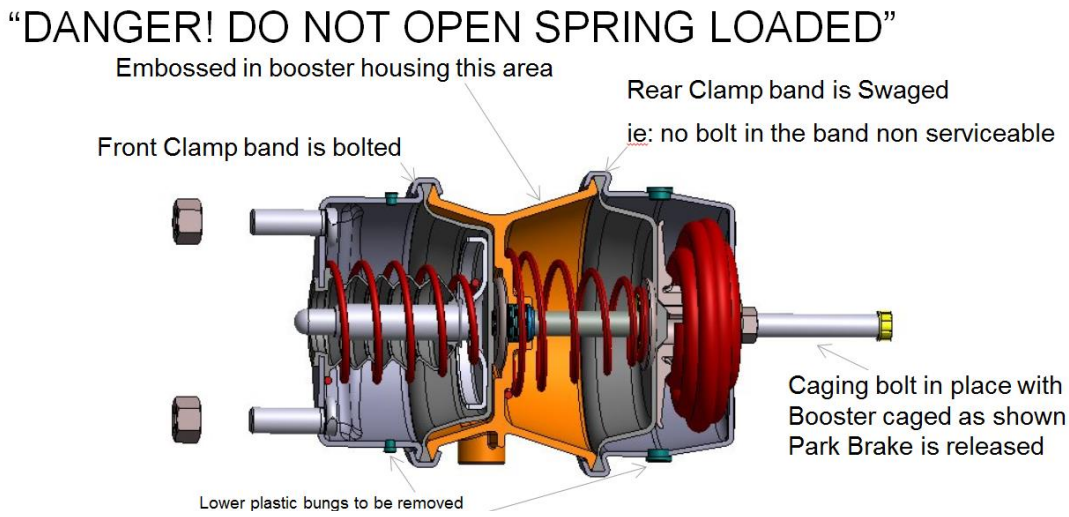

Figure 2: Sectioned brake actuator used in disc brake systems

Source BPW Transpec

Warning

Never attempt to disassemble a spring brake actuator. The spring forces inside the spring brake actuators can be deadly if the heavy-duty spring is suddenly released by disassembly! Some suppliers are fitting non-removable bands.

Examples warnings on actuators, include: -

- WARNING - HEAVY SPRING LOAD
- WARNING - HEAVY SPRING LOAD - NOT SERVICEABLE - DO NOT TAKE APART
- NON-SERVICEABLE - DO NOT TAKE APART - IMPROPER HANDLING OR USE WILL RESULT IN INJURY OR DEATH
- WARNING SPRING LOADED DO NOT DISASSEMBLE

Note

- Normally, the spring in the park brake chamber of the actuator is fully compressed whenever the park brakes are released, or the vehicle is in motion. However, when the park brake is applied the spring force is still considerable. As a result, these springs may fatigue and weaken over time/use resulting in less park brake force being available. Good quality actuators are tested and should outlast cheaper untested units.

Warning

Do not use a rattle guns or impact wrenches for any procedures involving brake actuators, particularly when manual releasing or applying the spring park brakes. Rattle guns will damage the components, resulting in premature component failure and possible injury.

3. Acceptable Air Brake Actuator Build Standards

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

This SAE Recommended Practice provides procedures and methods for testing service, spring applied parking, and combination brake actuators with respect to durability, function, and environmental performance. A minimum of five test units designated A, B, C, D, and E are to be used to perform all tests per 1.1 and 1.2.

Source: http://standards.sae.org/wip/j1469/

J2318 - Air Brake Actuator Test Performance Requirements - Truck & Bus

This procedure provides test performance requirements for service, spring applied parking, and double diaphragm combination brake actuators with respect to durability, function, and environmental performance when tested in accordance to SAE J1469.

Source: http://standards.sae.org/wip/j2318/

DIN 74060-3 (2002-02) Air Braking Systems - Pneumatic Actuator - Part 3: Brake

Actuator - Technical Data for Disc Brake

DIN 74060-3 is the European standard and applies to brake actuators used in disc brake systems. It covers technical data, marking, operating pressure, and operating temperature.

4. Table of Brake Actuators and Their Compliance Standards

The following table provides confirmation, for the brands supplying data, of the standards to which the brake actuators comply.

Make	Airbrake test procedure	Airbrake actuator test performance requirements	Airbrake test systems – pneumatic actuator Part 3 Brake Actuator – technical Data for Disc Brake	Marketed or distributed by
	SAE J1469 *	SAE J2318 *	DIN 74060	
Bendix	**YES**	**YES**	**NA**	Knorr-Bremse
BPW	**NA**	**NA**	**For Annex 19 UN ECE R13**	BPW Transpec
RHC	**YES**	**YES**	**NA**	BPW Transpec
Fuwa K-Hitch	**YES**	**YES**	**NA**	K Hitch/Air Brake Systems
GP Actuator	**YES**	**YES**	**NA**	GP Truck Products
Haldex	**YES**	**YES**	**YES for EU Units only**	Various OEM, OES & AM Distributors
Maxus	**YES**	**YES**	**NA**	MAXIParts
MBA	**YES**	**YES**	**NA**	BAPCOR Commercial Vehicle Group
MGM	**YES**	**YES**	**NA**	Meritor
ProVia	**YES**	**YES**	**NA**	ZF-Wabco
SCTEG	**YES**	**YES**	**NA**	SCTEG – HVE&P
TRP	**YES**	**YES**	**NA**	TRP / PACCAR
TSE	**YES**	**YES**	**NA**	Meritor HVS / Air Brake Group
TSE OMNIBRAKE	**YES**	**YES**	**NA**	Meritor HVS
WABCO	**NA**	**YES**	**YES**	ZF-Wabco

Table 1: Listing of compliant actuators

Note

"*" Air brake actuators will typically comply to either an SAE standard when used with drum foundation brake systems or to the DIN standard when used with disc foundation brake systems.

- Table source - support for content and references were provided by the suppliers of the brake actuators.

Drafting

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