Meritor Air Disc Brake Evolution

ADB-1560
External Slack
External Auto Adjust
1980

D-LISA
External Lever
Internal Auto Adjust
1990

EX +
Internal Lever
Internal Auto Adjust
2003
## Field Experience

- **European Market:** Over 3 million brakes supplied since 2000

- **N.A. Market:** Over 150,000 brakes supplied to the NA market
  - **Vocational Applications:** Over 100,000 brakes supplied since 2003
    - Refuse, Fire, Coach and Bus
  - **Military Applications:** Over 20,000 brakes supplied since 2008
    - MRAP
    - ProTec 50 Series
  - **Over the Road Applications:** OE releases since 2013
    - Truck tractor & trailer

*Proven in the most severe applications*
EX225H – Heavy Duty

Actuator secondary seal addresses a key contaminant ingress point to delivery best-in-class reliability

Guided trilobal pistons minimize radial and tangential tapered wear to maximize pad life

Corrosion resistant materials and double sealing maximize reliability in the harsh environment while being easily serviceable

Robust adjuster drive and internals maximizes reliability while maintaining compatibility with N.A. service tools and procedures

Optimized friction material and brake performance characteristics to provide the best balance of rotor and pad life

Integral piston stop and internal synchronization are factory set and uniquely prevent accidental piston loss during service

Optional Pad Wear Warning Indicator (PWWI) provides electronic indication to optimize utilization

Different mounting options to provide access for installation and service

features focused on reliability
Field maintenance experiences
# Piston Boot damage

<table>
<thead>
<tr>
<th>Principal Cause</th>
<th>Effect</th>
<th>Repair options</th>
<th>Prevention / Detection</th>
</tr>
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</table>

Notes:- EX+ boots replaceable “in-situ” with effective secondary sealing.
## Slide pin Boot damage

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<tbody>
<tr>
<td>Debris Damage.</td>
<td>Seizure of sliding system due to water ingress.</td>
<td>Service slide pin Boots.</td>
<td>Visual inspection &amp; Slide check at maintenance interval</td>
</tr>
<tr>
<td>Heat Damage.</td>
<td></td>
<td>New brake.</td>
<td></td>
</tr>
</tbody>
</table>

Notes:- EX+ H brakes with standard Stainless slide pins.
## “play” in slide pin bushings

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## Water in brake housing mechanism

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</thead>
<tbody>
<tr>
<td>Leaking Air chamber.</td>
<td>Brake has difficulty applying or releasing.</td>
<td>New housing assy.</td>
<td>Use of High quality air chambers only.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New brake.</td>
<td>Visual / Vacuum Inspection check</td>
</tr>
</tbody>
</table>

Notes:- Replace air chamber at same time to prevent re-occurrence
## Adjuster damage

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Notes: -
EX+ designed to handle high abuse torques without damage.
# Carrier abutment wear / Grooving

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<tbody>
<tr>
<td>High vibration / environment combined with very slow pad wear rate</td>
<td>Pad slop / uneven pad wear.</td>
<td>Replace brake carrier. New brake.</td>
<td>Visual inspection at maintenance interval.</td>
</tr>
</tbody>
</table>
Servicing benefits of radial mount calipers

- Restricted bolt access

- Mechanic is beside vehicle at the end of the axle rather than under.

- Caliper mounting bolts are accessed in ergonomic position.
Pad Wear out sensing

Loop of wire goes through both pads on each brake
Summary:

- Modern Air Disc Brakes are proven in the field as highly reliable units with fairly simple maintenance when required.

- Servicing information at Meritor.com
  - Service manual MM0467
  - Parts book PB8857B

- Maintenance manuals & service parts catalogues for specific brakes are the master document and provide latest information.

- APTA is working via committee on commonized service documentation for various brake / vehicle manufacturers.

  - No attempt to cover “Air system” related issues.
  - No attempt to cover extreme scenarios (crash damage / consequential damage from adjacent part failure (wheel bearing)).