



MERITOR

Air disc brake maintenance

Daniel Philpott

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

The vocational market leader in NA



• Military Applications
MRAP **Over 20,000 brakes supplied since 2008**
ProTec 50 Series



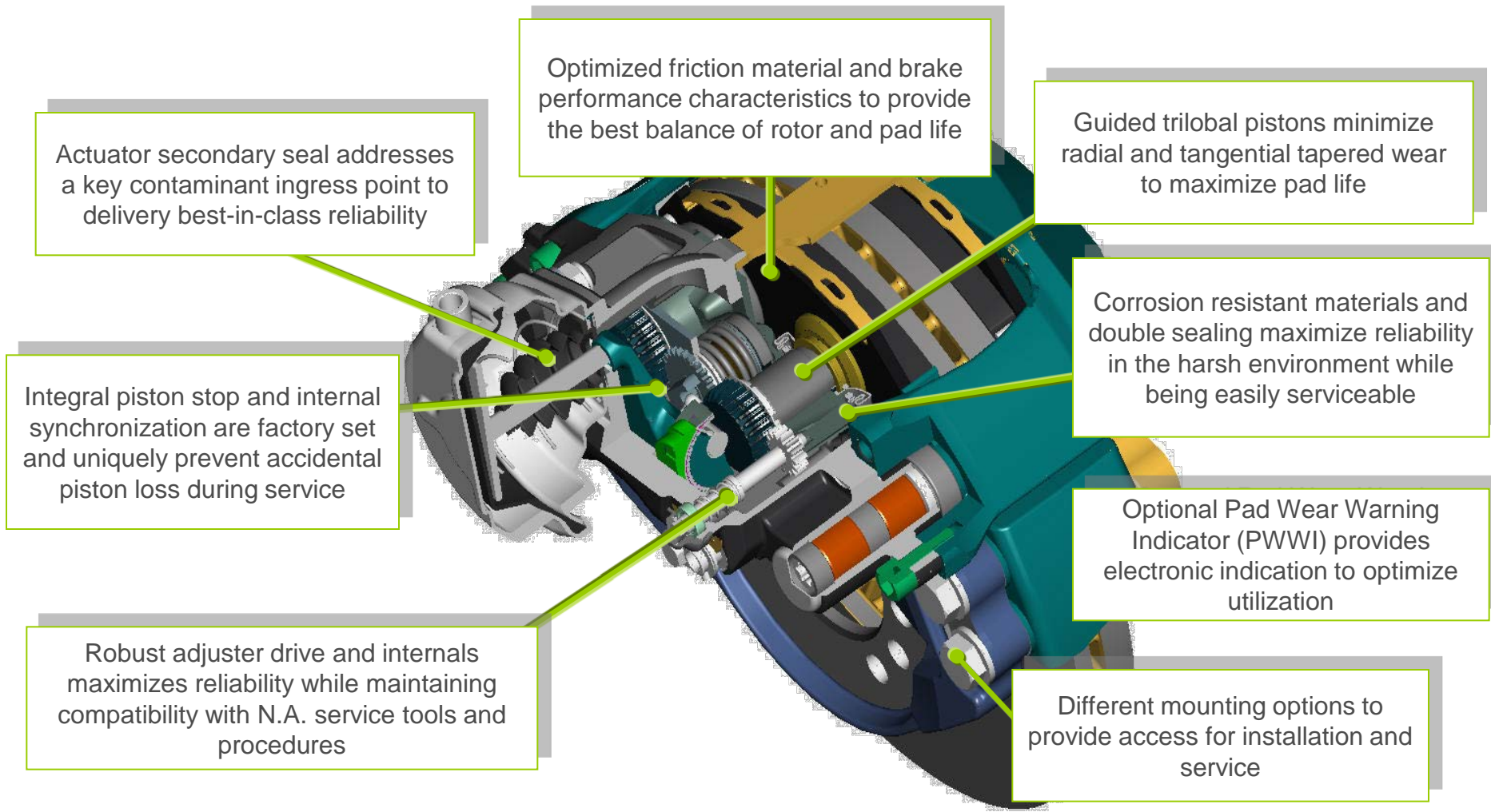
• Over the Road Applications
Truck tractor & trailer **OE releases since 2013**



Proven in the most severe applications



EX225H – Heavy Duty



features focused on reliability

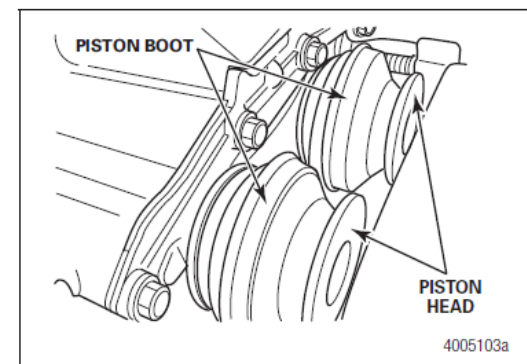
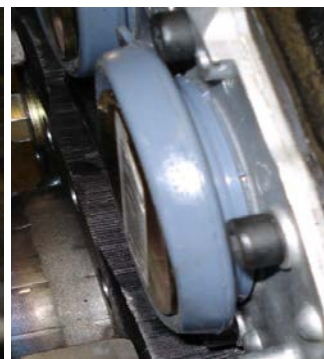
Field maintenance experiences



Piston Boot damage



Principal Cause	Effect	Repair options	Prevention / Detection
Debris damage. Heat Damage.	Seizure of clamping mechanism due to water ingress.	Service Piston Boots. New Housing. New brake.	Visual inspection & Operation check at maintenance interval



Notes:- EX+ boots replaceable “in-situ” with effective secondary sealing.

Slide pin Boot damage



Principal Cause	Effect	Repair options	Prevention / Detection
Debris Damage. Heat Damage.	Seizure of sliding system due to water ingress.	Service slide pin Boots. New brake.	Visual inspection & Slide check at maintenance interval



Notes:- EX+ H brakes with standard Stainless slide pins.



“play” in slide pin bushings

Principal Cause	Effect	Repair options	Prevention / Detection
Bushing wear – rough roads / high mileage	Rattle of brake assy.	Service bushings. New housing. New brake.	Measure play at periodic inspection.

MST 1000 - Bush fitting tool

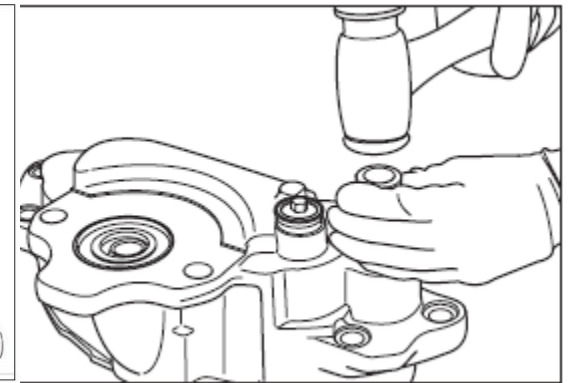
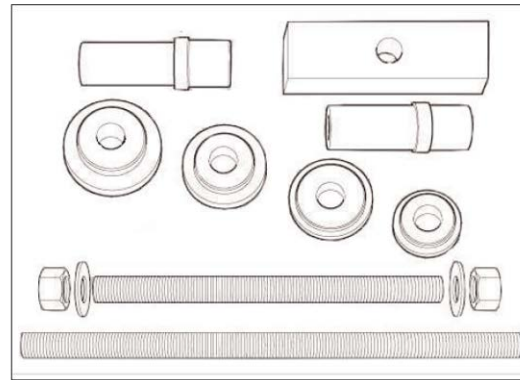
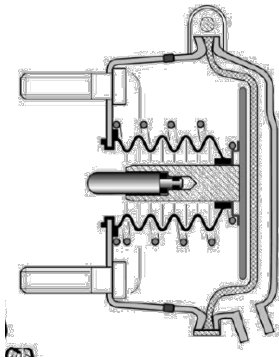


Fig 11.7



Water in brake housing mechanism

Principal Cause	Effect	Repair options	Prevention / Detection
Leaking Air chamber.	Brake has difficulty applying or releasing.	New housing assy. New brake.	Use of High quality air chambers only. Visual / Vacuum Inspection check



Corrosion on ball end of actuator and liner part of seal



Corrosion inside the brake housing

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



Adjuster damage

Principal Cause	Effect	Repair options	Prevention / Detection
Mechanic abuse	Inability to adjust. Damage to brake mechanism.	New housing assy. New brake.	Mechanic training. Do not use power tools. Adjuster function check.

Notes:-

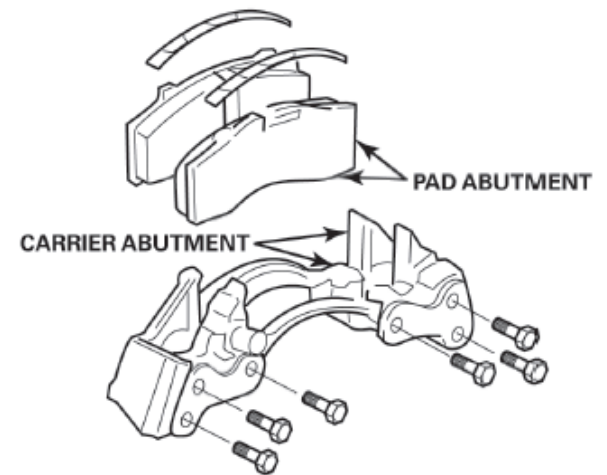
EX+ designed to handle high abuse torques without damage.



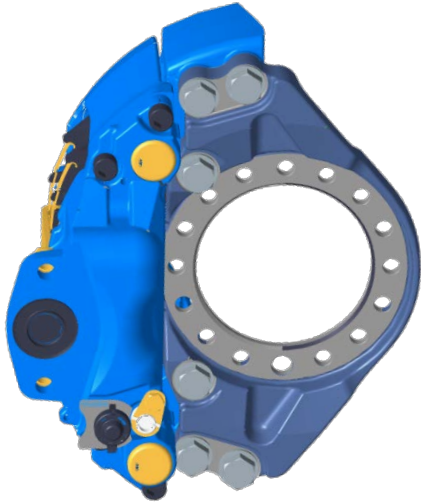


Carrier abutment wear / Grooving

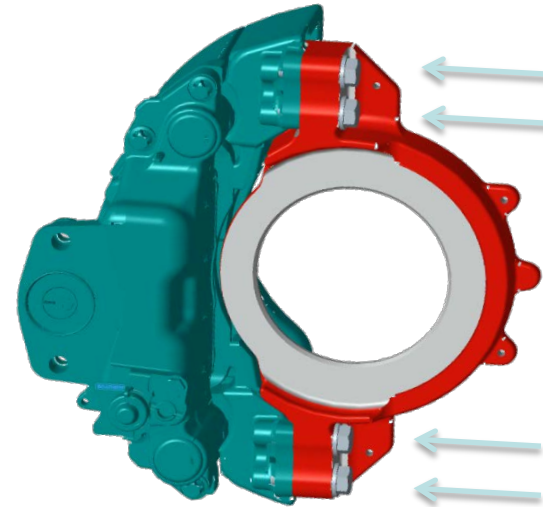
Principal Cause	Effect	Repair options	Prevention / Detection
High vibration / environment combined with very slow pad wear rate	Pad slop / uneven pad wear.	Replace brake carrier. New brake.	Visual inspection at maintenance interval.



Servicing benefits of radial mount calipers



- Restricted bolt access

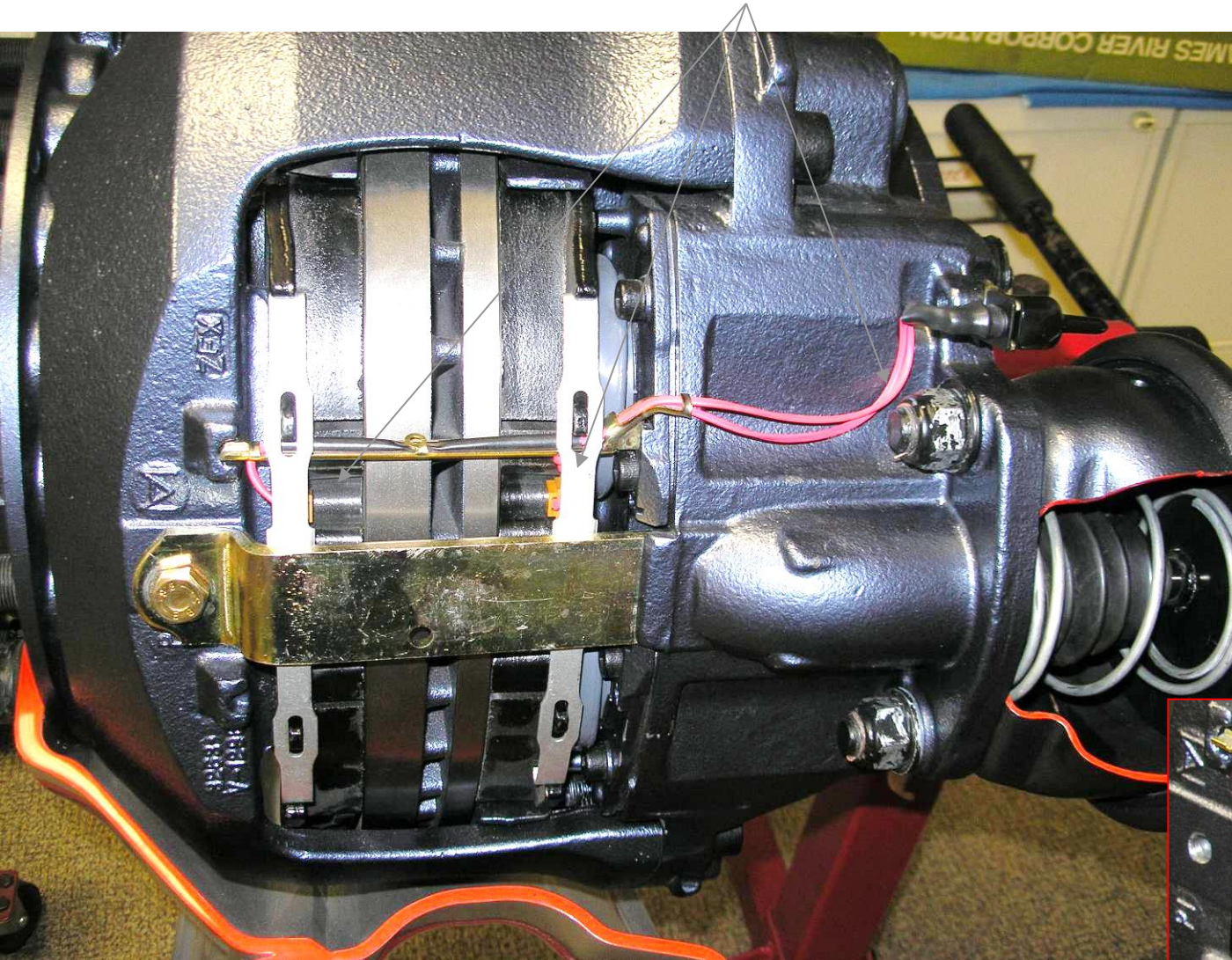


- Mechanic is beside vehicle at the end of the axle rather than under.
- Caliper mounting bolts are accessed in ergonomic position.



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)).