



SERVICE BULLETIN No.1176

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COACH & BUS MODEL	: T2100 & C2000 Series, A330, AG300
BULLETIN TYPE	: Product Improvement
MANUAL SECTION	: Section 5 - Brakes
DATE	: December 19, 2005
SUBJECT	: D-ELSA 1 vs D-ELSA 2 – brake pad comparison
TERMS & CONDITIONS	: No claims will be accepted with reference to this Bulletin.

APPLICATION:

Effective with the units mentioned below, new D-ELSA 2 type disc brakes, which are a further development of the previously installed D-ELSA 1 type, have been cut into production:

Model	Engine	VIN
T2140	Cummins	40148 →
	Detroit Diesel	40611 →
T2145	Cummins	44316 →
	Detroit Diesel	44644 →
	Caterpillar	44806 →

Model	Engine	VIN
C2045	Cummins	46008 →
	Detroit Diesel	46606 →
	Caterpillar	47051 →

DESCRIPTION:

1. The purpose of this Bulletin is to inform service technicians of the differences that exist between D-ELSA 1 brake pads and those used on D-ELSA 2 type brakes (see Figure 1).
2. Compared to D-ELSA 1 assemblies, following design changes have been incorporated into D-ELSA 2 calipers:
 - Modular build (facilitating caliper, rotor and hub service)
 - Two-piece saddle (refer to Figures 2 and 3 on page 3)
 - Actuator secondary seal
 - Improved guiding of twin pistons
 - Heavy-duty adjuster drive
 - Outer piston stop
 - Thicker brake pads (doing away with the need for oversize items)
 - Secondary sealing of pistons

Description continued on page 3.

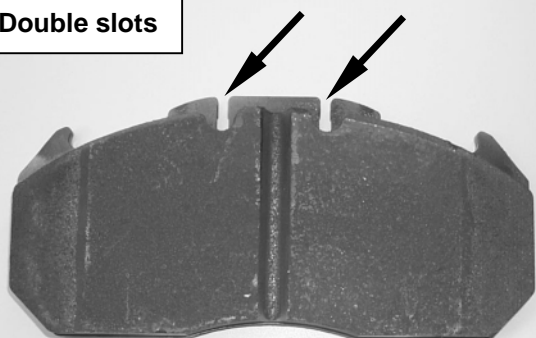
Service personnel: please read, initial and circulate.

Service Manager	Parts Manager	Warranty Administrator	Workshop Foreman	Service Technician

Figure 1: D-ELSA 1 vs D-ELSA 2
brake pad differences

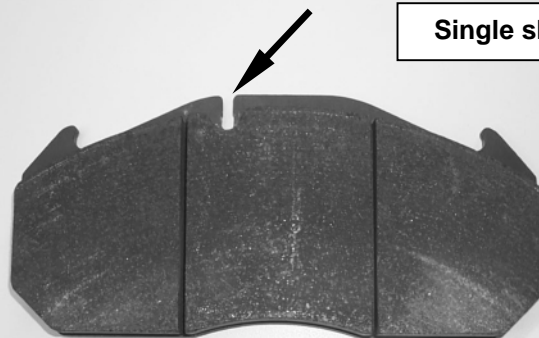


Double slots



D-ELSA 2

Single slot



D-ELSA 1

D-ELSA 2



Flat backplate with kink at the edges

D-ELSA 1



Flat backplate

Continued from page 1.

3. On the outside, D-ELSA 2 brake calipers can be identified by following features:

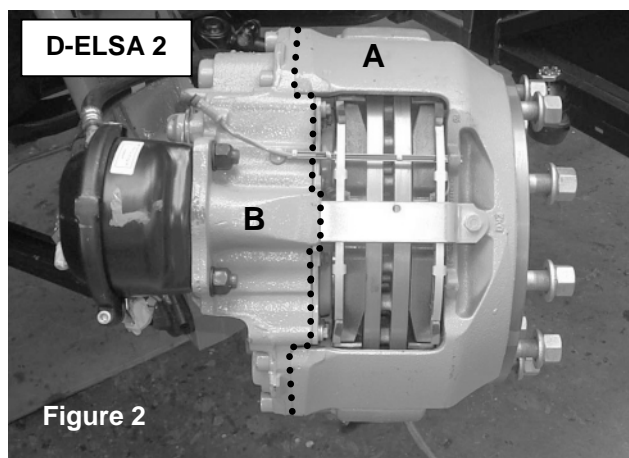


Figure 2: Complete D-ELSA 2 disc brake caliper with actuator (front axle.)
The saddle comprises a bridge (A) and bolt-on actuator housing (B)

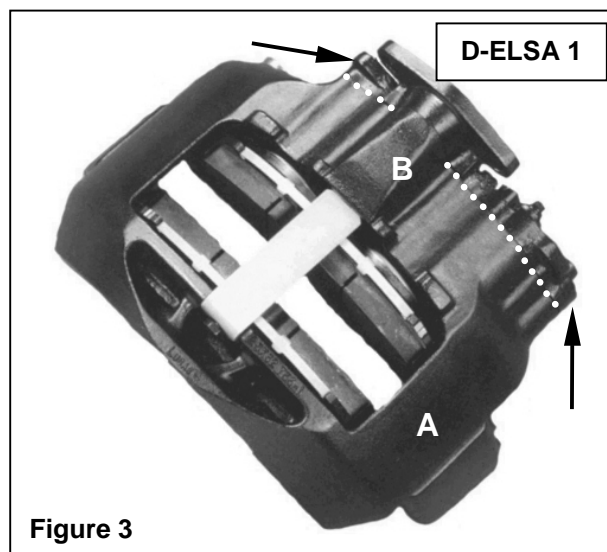


Figure 3: D-ELSA 1 caliper has the saddle (A) and actuator housing (B) integrated, and a closing plate (see arrows)

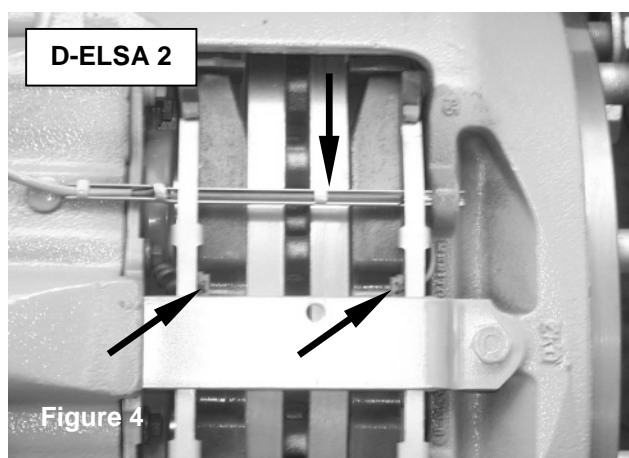


Figure 4: D-ELSA 2 pad and pad wear indicator installation (front axle)

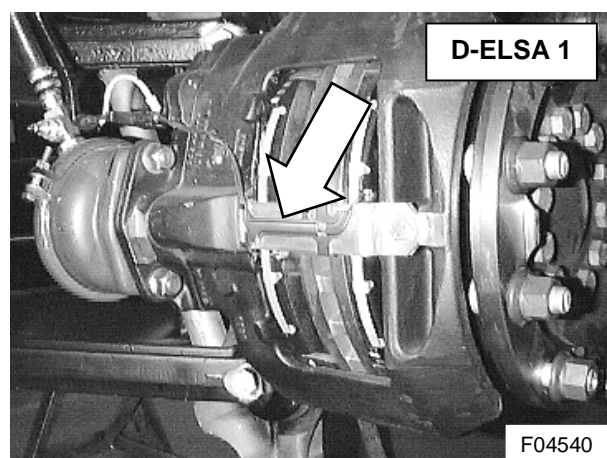
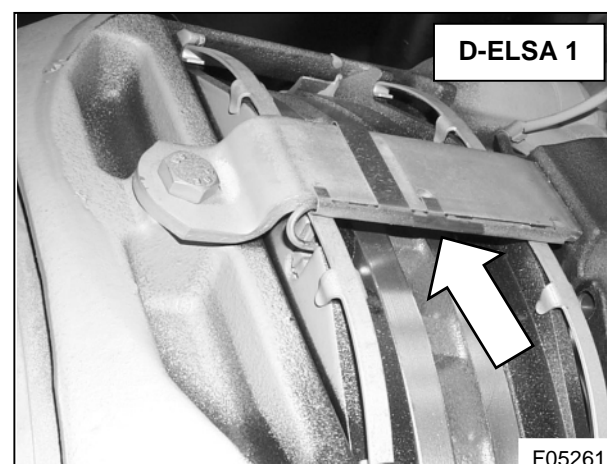


Figure 5: D-ELSA 1 pad wear indicator installation (front axle). Photo F04540 shows early type, photo F05261 shows later type



4. For more information on brake pad replacement, refer to the parts and products section below and to the Meritor procedure, which has been included in the Maintenance Manual.

PARTS AND PRODUCTS:

Parts D-ELSA 1 – A330, AG300

Part reference	Description	Qty
N508046190	Brake caliper, front axle LH, and 3rd axle RH, w/o pads or actuator	1
N508046189	Brake caliper, front axle RH, and 3rd axle LH, w/o pads or actuator	1
VH 10770748	Brake caliper, drive axle, LH, w/o pads or actuator	1
VH 10770767	Brake caliper, drive axle, RH, w/o pads or actuator	1
N508206044	Brake pads, Ferodo 4567, set of four, includes hold-down springs	1
N508080004	Hold-down springs	4
VH 10795120	Pad wear indicator	1

Parts D-ELSA 1 – Coaches

Part reference	Description	Qty.
N508046190	Brake caliper, front and tag axle, LH, w/o pads or actuator	1
N508046189	Brake caliper, front and tag axle, RH, w/o pads or actuator	1
VH 10935189	Brake caliper, drive axle, LH, w/o pads or actuator	1
VH 10935183	Brake caliper, drive axle, RH, w/o pads or actuator	1
N508206034	Brake pads, Textar 3010, set of four, includes hold-down springs	1
N508206035	Brake pads, Textar 3010, oversize, set of four, includes hold-down springs	1
N508206046	Brake pads, Ferodo 4568, set of four, includes hold-down springs	1
N508206047	Brake pads, Ferodo 4568, oversize, set of four, includes hold-down springs	1
N508080004	Hold-down springs	4
VH 10795120	Pad wear indicator	1

Parts D-ELSA 2 – A330, AG300

Part reference	Description	Qty
N508046390	Brake caliper, front axle LH, and 3rd axle RH, w/o pads or actuator	1
N508046390	Brake caliper, front axle RH, and 3rd axle, LH, w/o pads or actuator	1
N/A	Brake caliper, drive axle, LH, w/o pads or actuator	1
N/A	Brake caliper, drive axle, RH, w/o pads or actuator	1
N508206052	Brake pads, Ferodo 4567, set of four, includes hold-down springs	1
N508080004	Hold-down springs	4
VH 10954767	Pad wear indicator	1

Parts D-ELSA 2 – Coaches

Part reference	Description	Qty
N508046390	Brake caliper, front and tag axle, LH, w/o pads or actuator	1
N508046389	Brake caliper, front and tag axle, RH, w/o pads or actuator	1
VH 10938969	Brake caliper, drive axle, LH, w/o pads or actuator	1
VH 10938973	Brake caliper, drive axle, RH, w/o pads or actuator	1
N508206051	Brake pad, Ferodo 4568, set of four, includes hold-down springs**	1
N508080004	Hold-down springs	4
VH 10954767	Pad wear indicator	1

- Both D-ELSA 1 and D-ELSA 2 parts will be available as service replacements.

- **Parts interchangeability - brake calipers:**

On a per axle basis, D-ELSA 1 and D-ELSA 2 brake calipers are interchangeable.

- **Parts interchangeability - brake pads:**

CAUTION: Although it is possible to install D-ELSA 1 brake pads into D-ELSA 2 brake calipers, D-ELSA 1 and D-ELSA 2 **brake pads are NOT interchangeable** (see Figure 1).

CAUTION: Any attempt to interchange D-ELSA 1 and D-ELSA 2 brake parts will result in **poor brake performance and eventually brake failure.**

- For D-ELSA 2 calipers no oversize brake pads have been made available.
- D-ELSA 2 parts will be made available through regular channels.
- Parts may be purchased from your nearest ABC Customer Care & Parts Source service center.
- Parts and products disposition: discard according to applicable environmental regulations.

BRAKE PAD REPLACEMENT RECOMMENDATIONS:

- Brake pads should be replaced when the lining thickness has worn to 1/16 inch (1.5 mm).

CAUTION: Always replace brake pads in axle sets.

- Always fit new hold down springs and pad wear indicators when replacing brake pads.
- Avoid heavy or long braking, if possible, during the first 120 miles (200 km) to allow the new pads to bed in.

SERVICE INFORMATION:

Service Bulletins are issued to supplement or supersede information in the Van Hool manuals. Note Service Bulletin number, date and subject on the register at the end of the relevant chapter(s). File Service Bulletin separately for future reference.

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