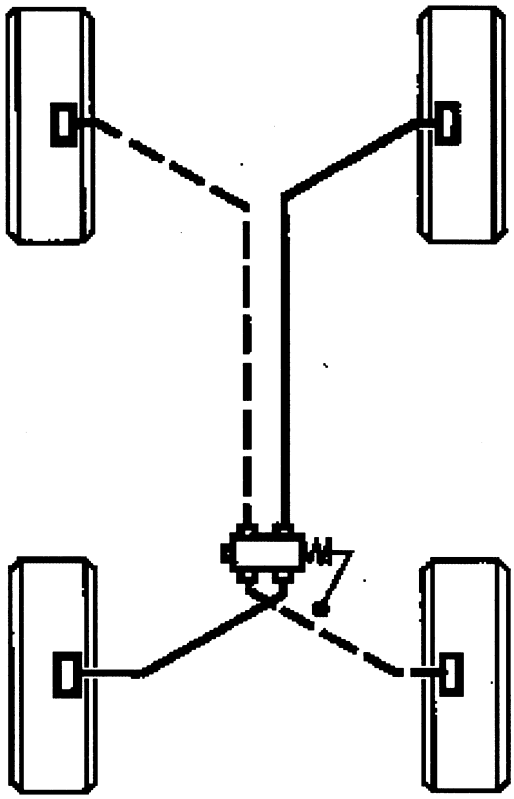
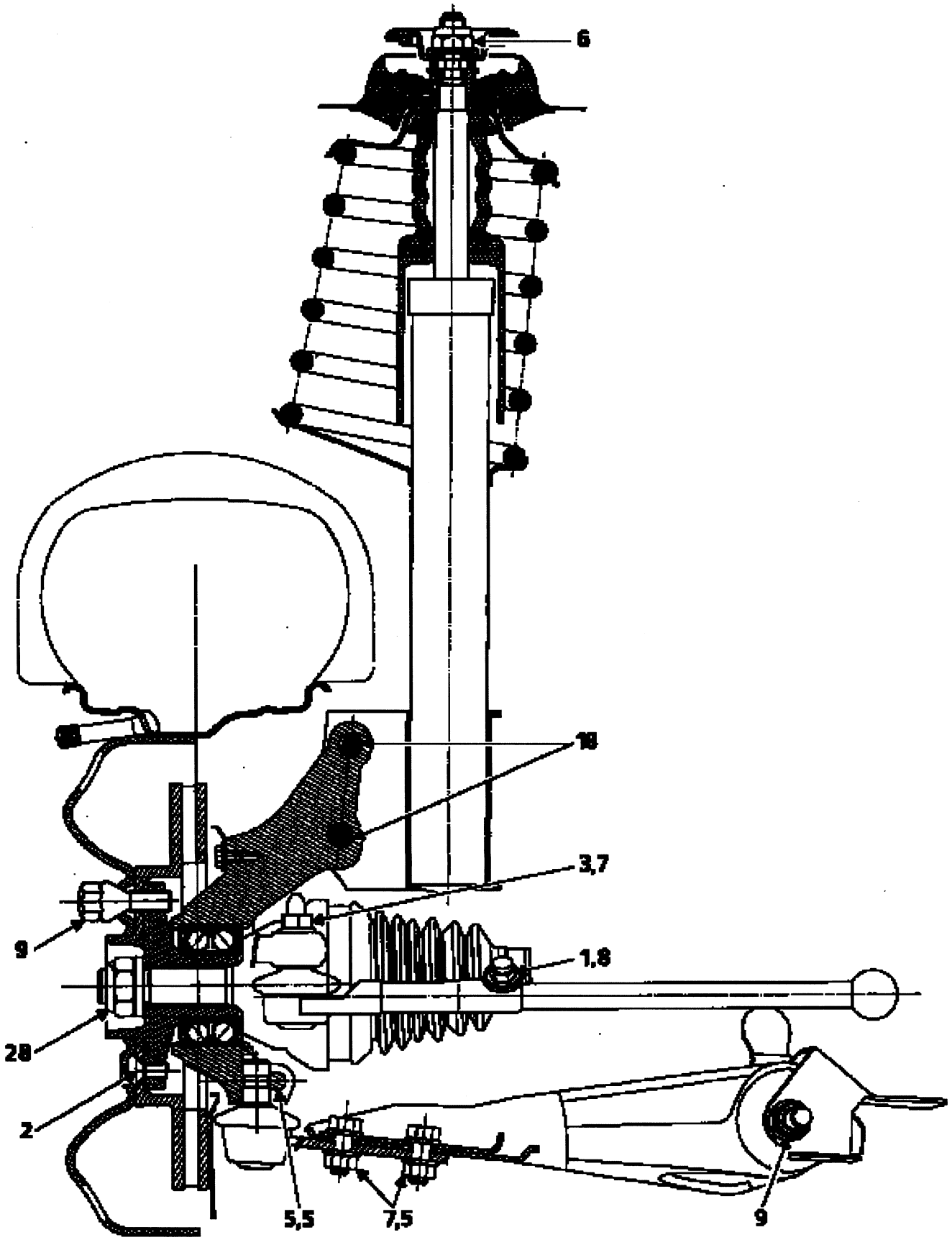
NOTE : the diagram below shows the general principle ; in no case should it be taken as reference for the circuit connections and allocations. When replacing one of the components of the brake circuit on a vehicle, always mark the pipes before removing them so that they can be connected back in their original positions.

"X" PATTERN BRAKING

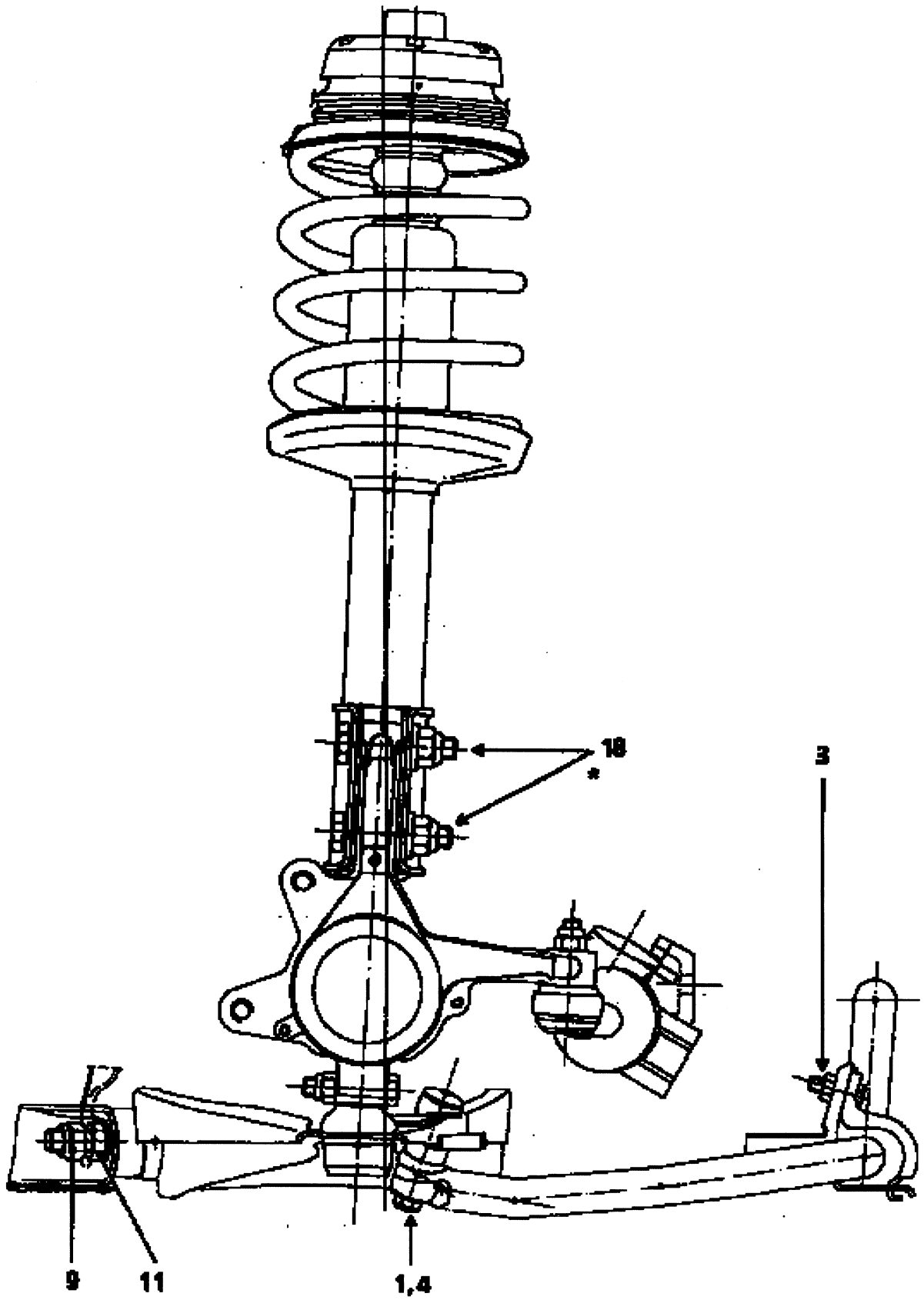
with load sensitive compensator



91563S

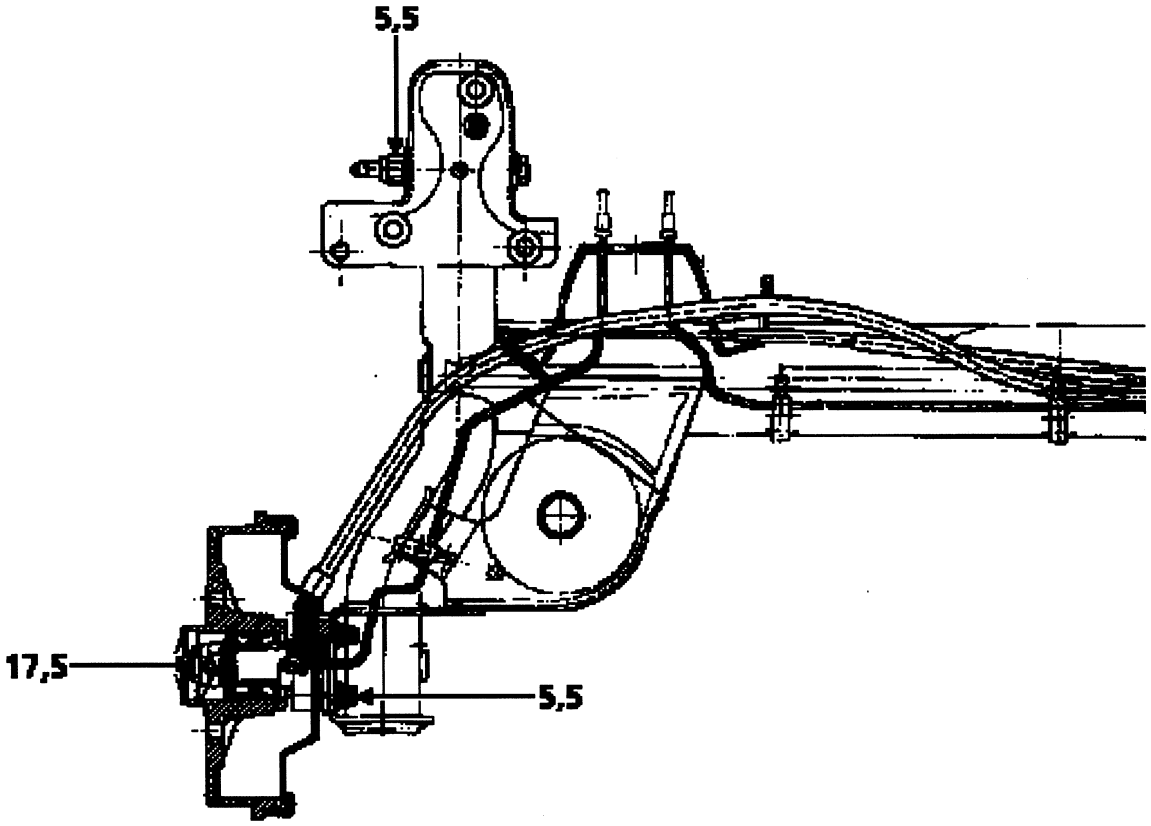


DI3035R

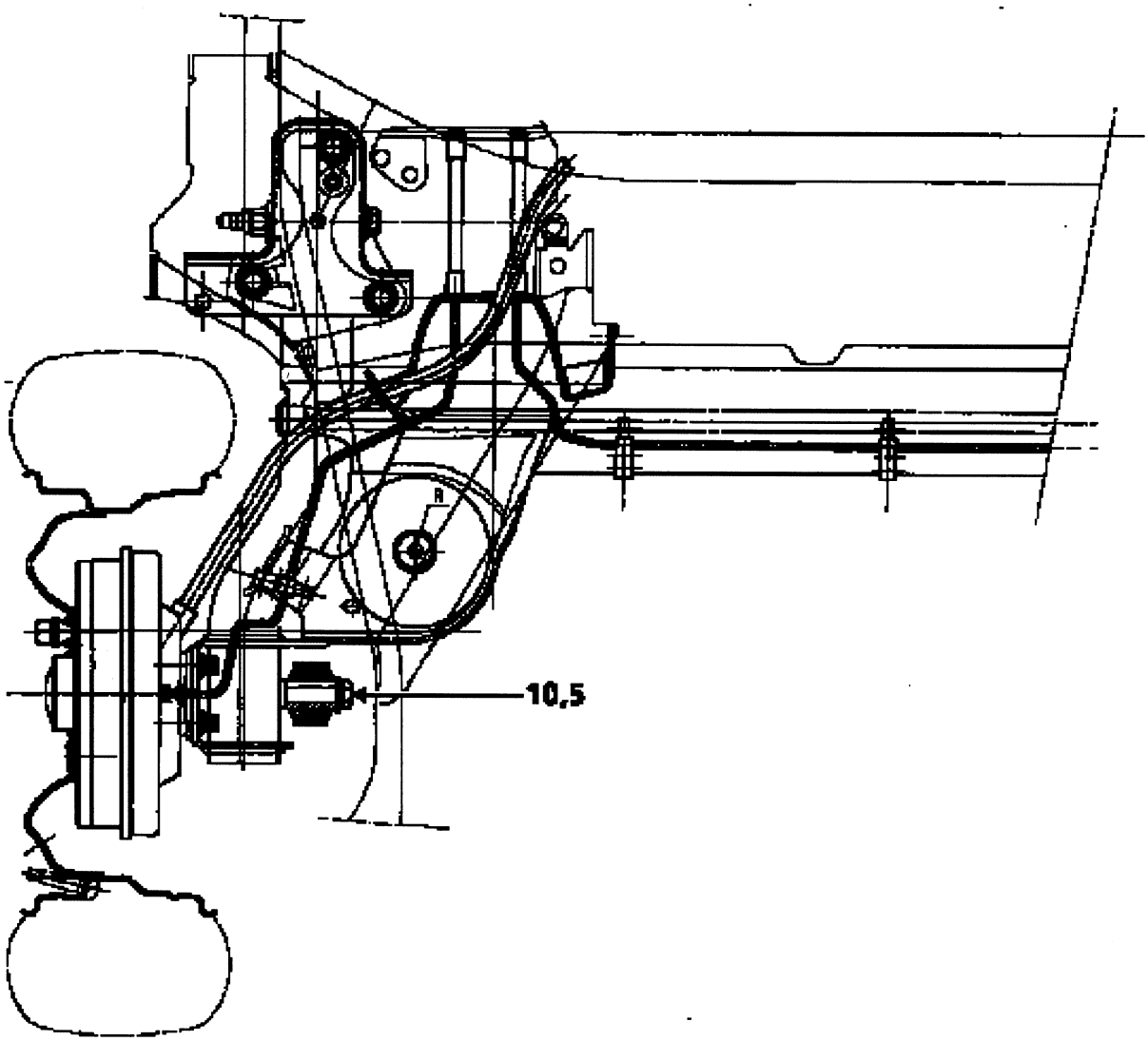


* Must be fitted in this way

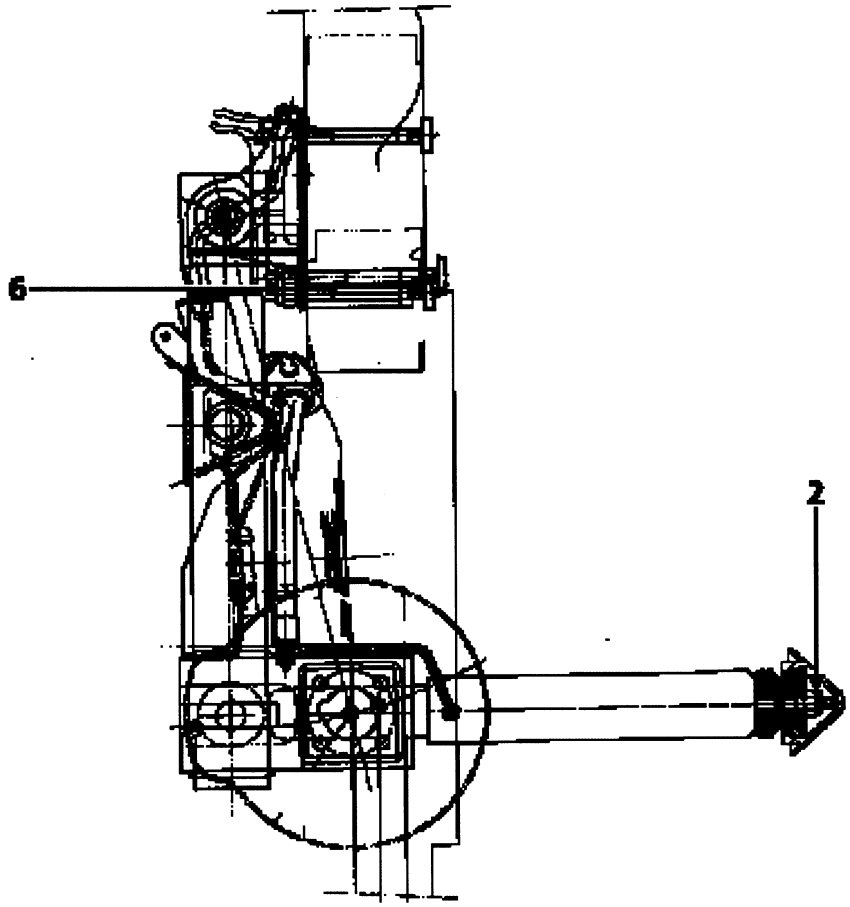
DI3034R1



DI3041



DI3042



DI3043

	DIMENSIONS	TIGHTENING TORQUE
Bleed screw	-	0.6 to 0.8
Hoşes for front calipers in front wheel cylinders	M 10 × 100	1.7
Hoses on rear suspension arm	M 10 × 100	1.7
Rear wheel cylinder supply	M 10 × 100 or M 12 × 100	1.7
Master cylinder outlets	M 10 × 100 or M 12 × 100	1.7
Compensator inlets	M 10 × 100 or M 12 × 100	1.7
Compensator outlets	M 10 × 100 or M12 × 100	1.7

	B/C B0A (1) B/C B0C (1) B/C B0E (1)	B/C B0A (2) B/C B0C (4) B/C B0D (1) B/C B0E (3) (4)	B/C B0C (2) B/C B0D (2) B/C B0E (2) (3)
FRONT BRAKES (in mm)			
Diameter of wheel cylinders	54	54	54
Diameter of discs	238	238	259
Thickness of discs	12	20	20.6
Minimum disc thickness	10.5	17.7	17.6
Pad thickness (including backing)	18.2	18.2	18.2
Minimum pad thickness (including backing)	6	6	6
Maximum disc run-out	0.07	0.07	0.07
REAR BRAKES (in mm)			
Diameter of wheel cylinders	19	17.5 *	17.5
Diameter of drums	180.25	203.2	203.2
Maximum drum wear diameter	181.25	204.2	204.2
Diameter of discs	-	-	-
Thickness of discs	-	-	-
Minimum disc thickness	-	-	-
Lining size	36.7	36.7	36.7
Lining thickness (including backing)	(A)	(A)	(A)
Minimum lining thickness (including backing)	2	2	2
MASTER CYLINDER (in mm)			
Diameter	20.6	20.6	20.6

(1) without ABS
(2) with ABS
(3) with CA
(4) with or without ABS

* except B/C B0A

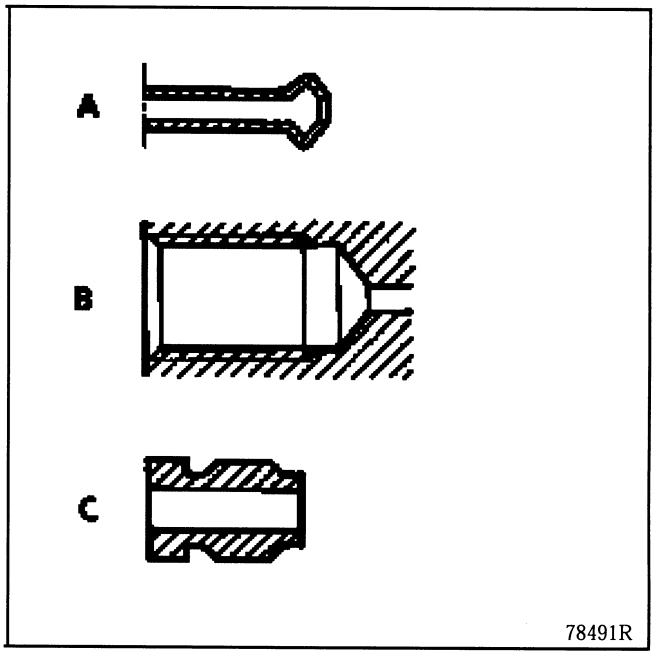
(A) The lining thicknesses are :
- 4.85 mm for the B/C B0A,
- 4.6 mm (leading shoe) and 3.3 mm (trailing shoe) for the B/C B0C, B/C B0D and B/C B0E.

The connection of the pipes between the master cylinder, calipers, compensator and the hydraulic assembly is made using threaded unions with a METRIC THREAD.

Consequently, only parts specified in the Parts Catalogue for this vehicle should be used.

Identification of parts

- SHAPE of the ends of PIPES in steel or copper (A),
- SHAPE of the THREADED LOCATIONS on components (B),
- Pipe UNIONS coloured GREEN or BLACK: HEXAGONAL OUTSIDE 11 mm or 12 mm (C).



Brake fluid

BRAKE FLUID RENEWAL FREQUENCY

The technology of our brakes, and of our disc brakes in particular (hollow pistons which transmit little heat, a low volume of fluid in the cylinder, sliding calipers avoiding the need for a fluid reservoir in the least cooled area of the wheel), has allowed us to reduce the risk of vapour lock as far as possible, even under conditions of intensive use of the brakes (mountainous areas).

Modern brake fluids still degrade slightly during the first few months of use due to a small uptake of humidity and replacement of the fluid is therefore recommended (refer to vehicle's Warranty and Servicing Handbook).

Topping up the level

Wear of the brake pads and shoes will cause a gradual drop in the fluid level in the reservoir. This drop should not be compensated for since the level will rise again when the pads are changed. The level should not however be allowed to fall below the minimum mark.

Approved brake fluids

Mixing two incompatible brake fluids in the circuit will cause a risk of major leaks, mainly due to deterioration of the cups. To avoid such risks, it is important to use only those brake fluids which have been tested and approved by our Technical Department and which conform to standard **SAE J 1703 DOT 4.**

SPECIAL TOOLING REQUIRED	
M.S. 815	Bleed equipment

For vehicles fitted with a brake servo, during bleeding and whatever the method applied, it is important that the assistance device is not used.

Bleeding is carried out using the **M.S. 815** tool on a four post lift with the wheels on the ground.

Connect the **M.S. 815** pipes to the bleed screws on the :
- master cylinder ,
- wheel cylinder ,
- compensator .

Connect the tool to a compressed air supply point (minimum 5 bars).

Connect the filling system to the brake fluid reservoir.

Open:
- the supply, wait until the reservoir is full (both sections),
- the compressed air valve.

Proceed as follows for vehicles fitted with X pattern braking:

Open:
- **the rear right hand wheel** bleed screw and allow the fluid to run out for approximately 20 seconds,
- **the front left hand wheel** bleed screw and allow the fluid to run out for approximately 20 seconds.

Ignore any bubbles in the bleed tool hoses .

Do the same for the **rear left and front right wheels**.

Check the firmness of the brake pedal when depressed (apply several times).

Repeat the bleed operation if necessary.

Top up the brake fluid level in the reservoir after disconnecting the tool.

(For bleeding of the ABS braking circuit,consult section 38).

TIGHTENING TORQUES (in daN.m)	
Wheel bolts	9
Lower wishbone nut on sub-frame	9
Cotter bolt on stub-axle carrier	5.5
Anti-roll bar bearing nut	1.5

REMOVAL

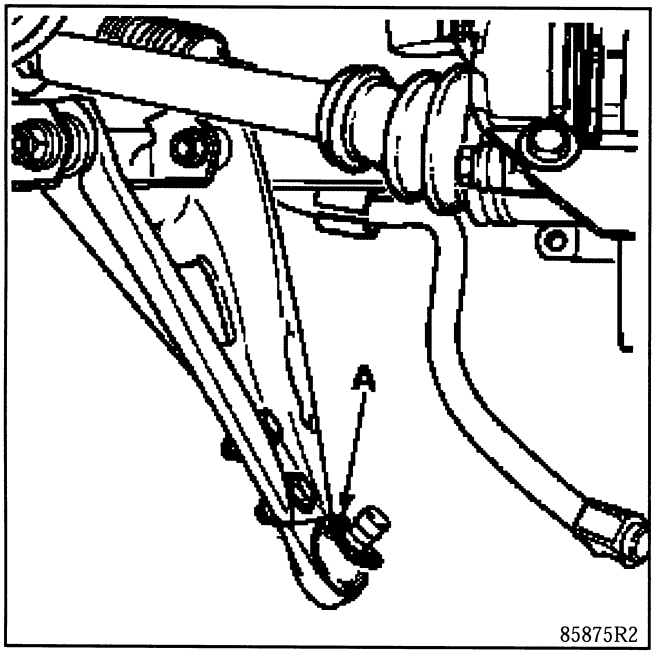
Put the vehicle on a two post lift.

Remove both wheels.

Remove the mounting nuts for the anti-roll bar on the lower wishbones.

Release the anti-roll bar downwards.

Remove:
- the nut and Cotter bolt on the stub-axle carrier,
- the two mounting bolts for the wishbone on the sub-frame,
- the wishbone.



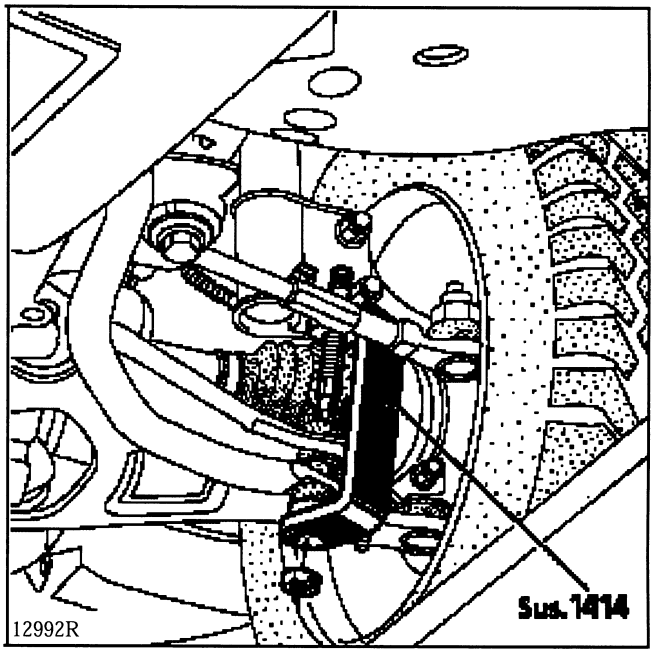
REFITTING

NOTE: ensure the plastic protective washer (A) is present on the lower ball joint shaft.

REFIT:
- the wishbone,
- the two bolts without tightening them,
- the ball joint shaft in the stub-axle carrier and tighten the Cotter bolt nut.

Refit the anti-roll bar and fit the mounting nuts using tool **Sus. 1414** (see method in anti-roll bar section).

This tool allows the rubber mounting to be compressed to fit the nut.



NOTE: bounce the suspension and tighten the wishbone and anti-roll bar bearing nuts to the recommended torque (tightening position: vehicle unladen).

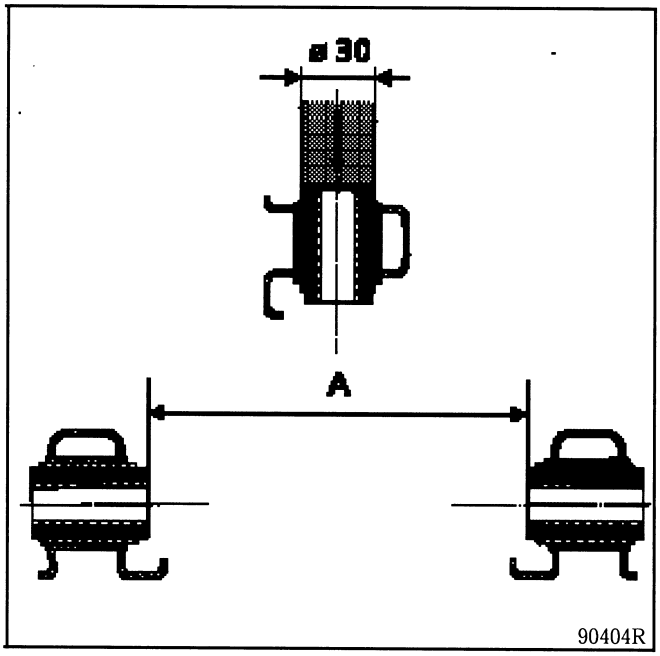
REPLACEMENT

To ensure the bushes are correctly positioned in relation to the lower wishbone, they are replaced one after the other.

On the press, remove one of the worn bushes using a tube of external diameter **30 mm**.

Refit the new bush, ensuring that dimension A = **146.5 mm**.

Remove the second bush on the press and proceed in the same manner as for the first bush, ensuring the new bush is fitted so that dimension A = **146.5 mm**.

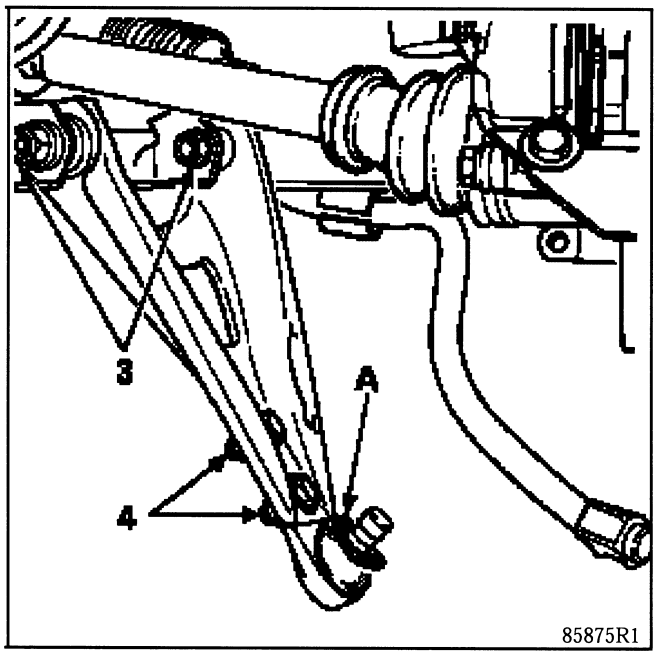


REMOVAL

If the gaiter is damaged, the complete ball joint must be replaced.

Proceed in the same manner as for removing the lower wishbone.

Slacken but do not remove the two mounting bolts (3) for the wishbone on the sub-frame.



Remove:
- the two ball joint mounting bolts (4) ,
- the ball joint.

REFITTING

Note: ensure the plastic protective washer (A) is present on the lower ball joint shaft.

Fit the ball joint and torque tighten the mountings.

Then proceed in the same manner as for refitting the lower wishbone.

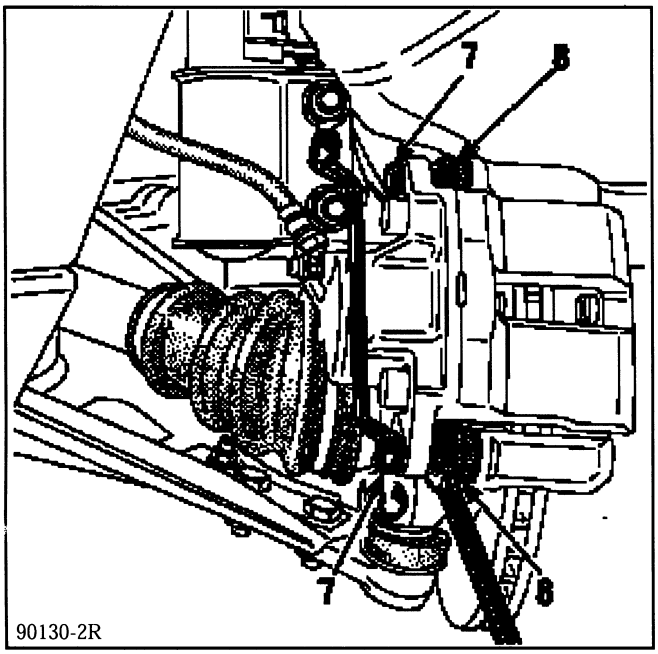
SPECIAL TOOLING REQUIRED	
Fre. 823	Tool for pushing piston back

TIGHTENING TORQUES (in daN.m)	
Wheel bolts	9
Brake caliper guide bolt	4

REMOVAL

Disconnect the wear warning light wire (if fitted).

Push the piston back by sliding the caliper outwards by hand.



Remove the guide bolts (7) using the two wrenches.

Do not clean these bolts.

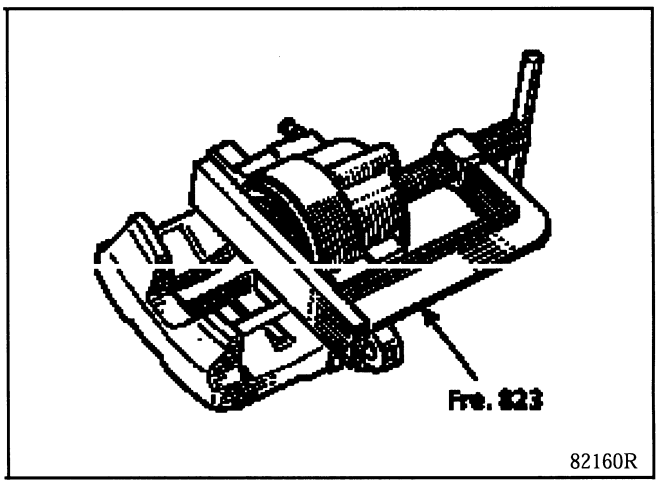
Remove:
- the sliding caliper,
- the pads.

Checking

Check:
- the condition and fitting of the piston dust cover and its retaining spring ring,
- the condition of the guide dust covers (8).

REFITTING

Push back the wheel cylinder piston using tool **Fre. 823**.



Fit new brake pads.

Refit the caliper into position and fit the lower guide bolt (7) coated with **Loctite FRENBLOC.**

Press on the caliper and fit the upper guide bolt coated with **Loctite FRENBLOC**.

Tighten the guide bolts to the recommended torque, beginning with the lower bolt.

Reconnect the wear warning light wire (if fitted).

Press the brake pedal several times to bring the piston into contact with the pads.