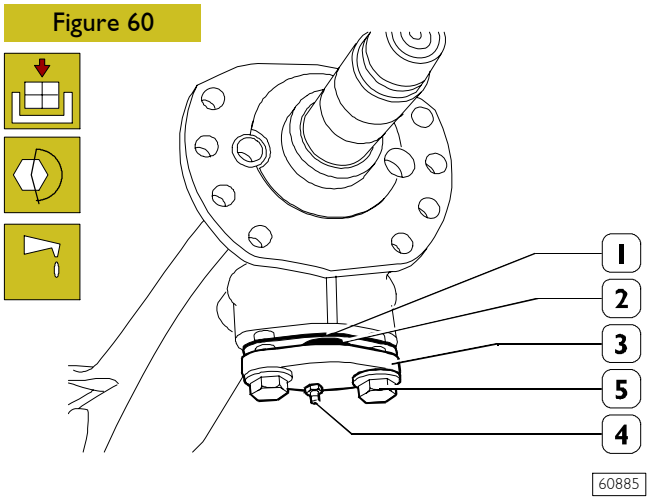
Figure 60

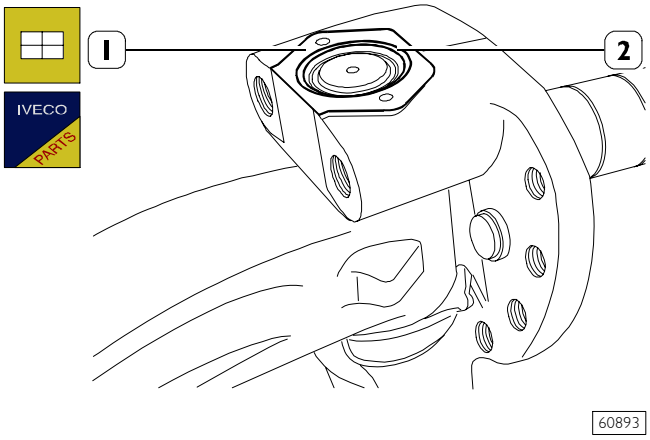


Place the lower cover (3) together with the lubricator (4), the thrust block (2), the adjusting plates (1) and clamp the lock screw (5) according to the prescribed torque.

NOTE Before making the assembly, moisten the lower cover (2) thrust block with grease Tutela MR2.

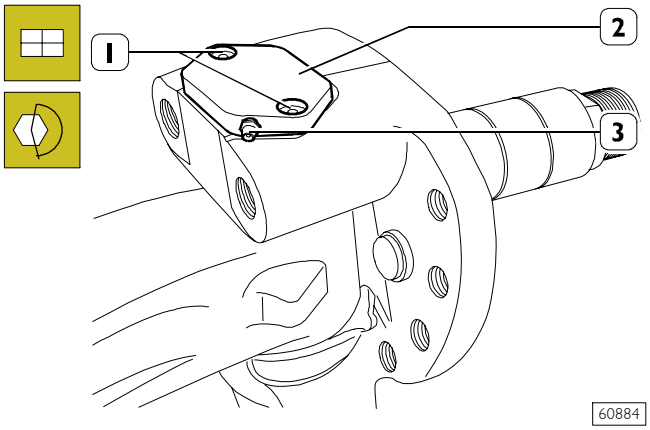
Repeat the same operations for the opposite steering knuckle.

Figure 61



Place in the steering knuckle (1) a new sealing ring (2).

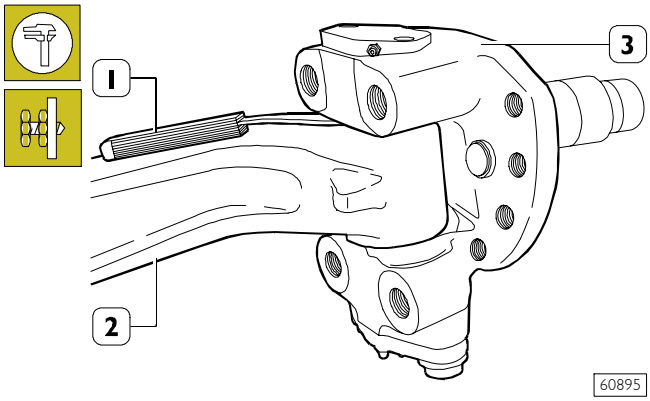
Figure 62



Place the upper cover (2) together with the lubricator (3) on the steering knuckle and clamp the screws (1) according to the prescribed torque.

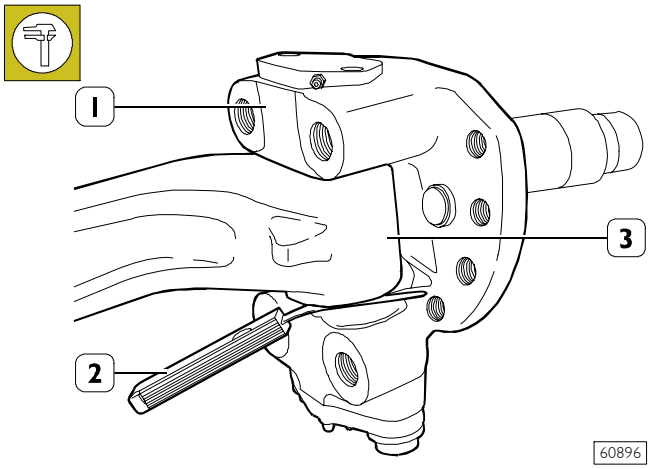
Check and adjustment of clearance between steering knuckle and axle

Figure 63



Keep the steering knuckle (3) raised and use a thickness gauge (1) to check clearance between the upper shim adjustment of the steering knuckle and the axle (2). This value must be between 0.10 and 0.35 mm.

Figure 64



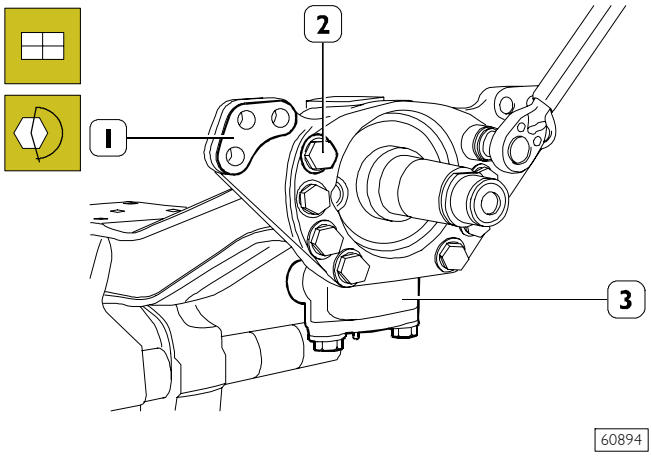
Once the clearance between the upper shim adjustment of the steering knuckle (1) and the axle (3) has been checked, use a thickness gauge (2) to check that between the lower shim adjustment of the steering knuckle (1) and the axle's (3) one there is a gap not lower than 0.25 mm.

The possible clearance adjustment can be done replacing the adjusting shims (1, Figure 60) with spare ones having the right thickness.

As to the thickness of spare rings, see table "SPECIFICATIONS AND DATA".

Lubricate the whole lower and upper articulated joint with grease MR2, checking that the grease flows through the gasket baffle.

Figure 65

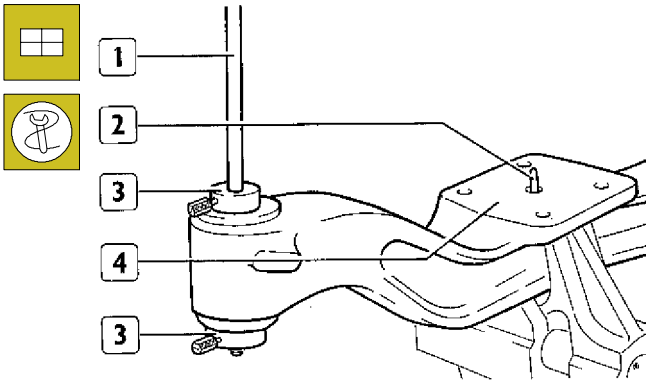


Place the brake callipers support (1) on the steering knuckle (3) and clamp lock screws (2) according to the prescribed torque.
Complete wheel hub assembly as described on page 27.

520618 CHECKS AND MEASUREMENTS OF THE AXLE UNIT

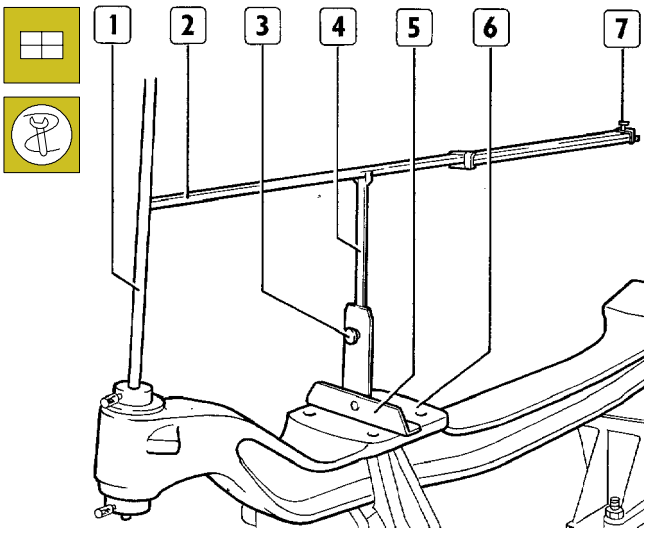
Check flatness of leaf spring surfaces compared to holes for steering knuckle pins

Figure 66



Place two bars (1) fitted with cones (3) in the steering knuckle pin holes. Push the cones and clamp them placing the appropriate screws on the bars.
Introduce two centring dowels (2) in the leaf spring supporting plane (4).

Figure 67

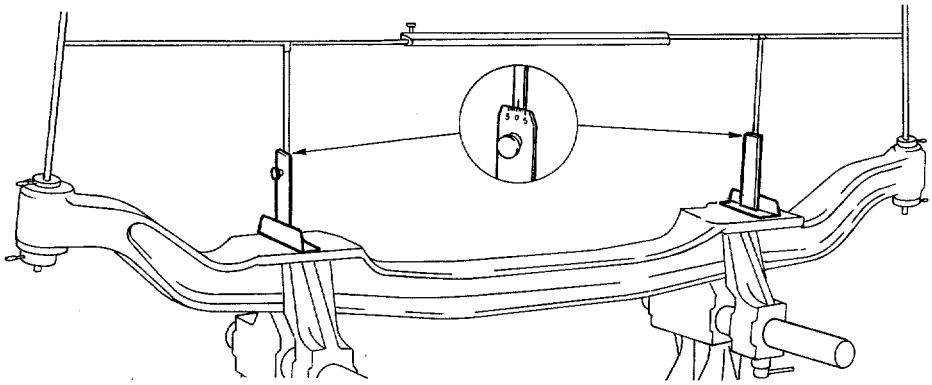


Place on the planes (6) two bases (5) using goniometers and introduce them in the centring dowels.

NOTE Before placing the bases with the goniometers, check that the supporting planes are not painted or irregular.

Place the sliding bar (2) on the goniometer's bars (4), adjusting its length so that the shaped edges touch the bars (1).
Clamp the screws of the stop block (7) and the goniometer's lock screws (3) to the bars (4).

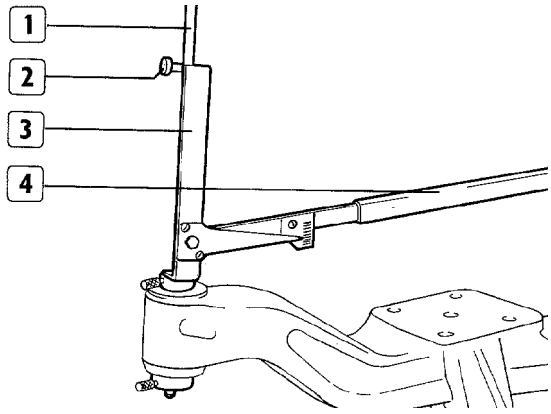
Figure 68



Check the angle of deformation on the goniometers' graduated sectors shown by the arrows.
Goniometers' indexes will, of course, detect no angle movement when the flatness of leaf spring surfaces compared to the steering knuckle pin holes is correct.

Check hole inclination for steering knuckle pins

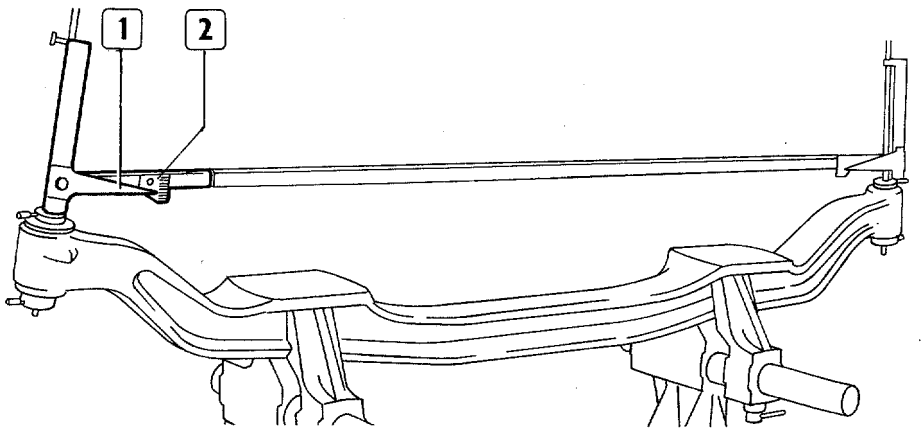
Figure 69



Place on the bars (1) the supports (3) fitted with goniometers and screw the screws (2) without clamping them.
Introduce the connecting cross tie rod (4) and tighten the screws (2) which clamp the supports touching the bars (1).

Remove the sliding bar and the goniometer's bases used to make the survey.

Figure 70



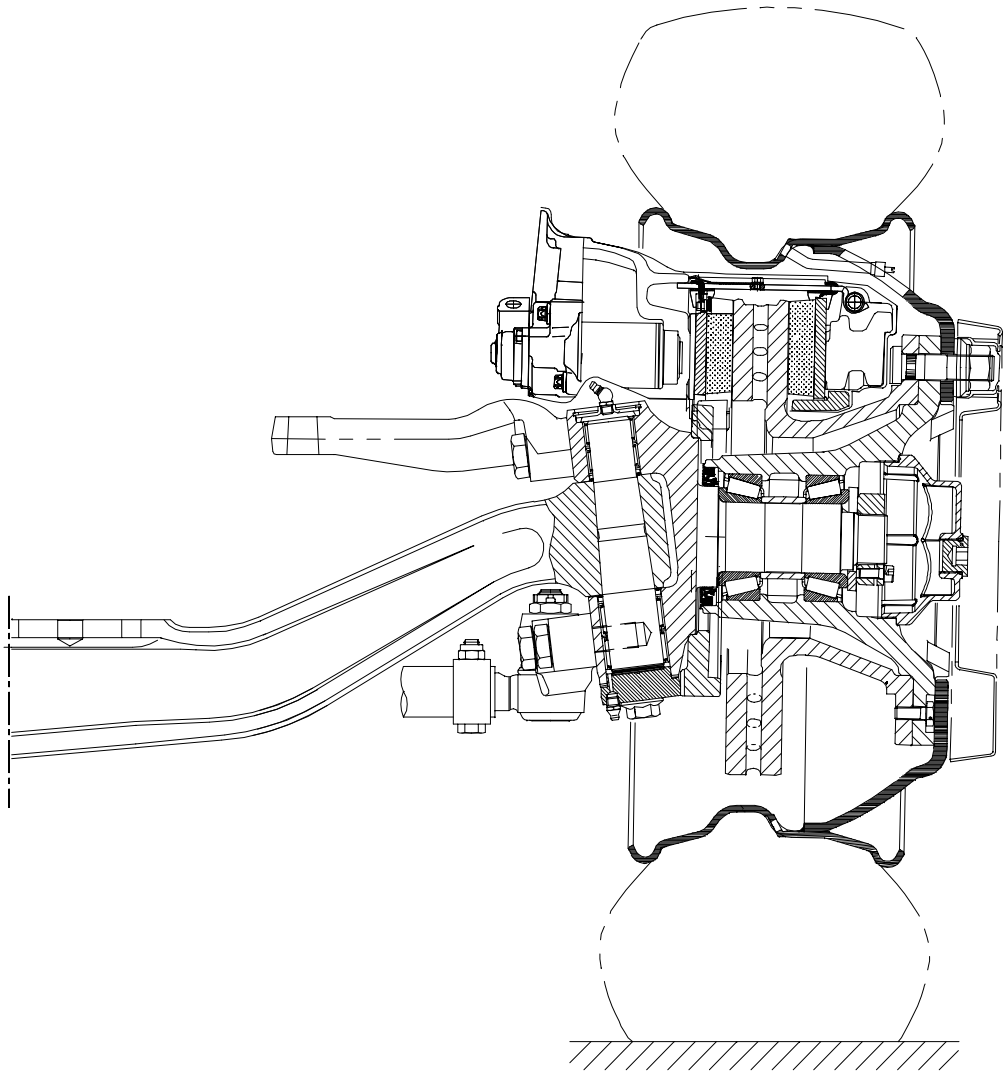
Check the angle of inclination value concerning the steering knuckle pin holes on the related graduated sectors (2), next to the gauge (1). The angle of inclination concerning the steering knuckle pin holes must be 7° ± 0°3'.

5206 Front axles 5842/5 - 5851/5

DESCRIPTION

The front axle has a steel structure with a double "T" section having at the end steering knuckles.
The steering knuckles' connection is made through pins integral with the axle body and by means of four roller bearings set with interference in the holes of the steering knuckles' embossing.
The wheel hubs are supported by two conical roller bearings set on the steering knuckle shank and adjustable by a threaded ring.

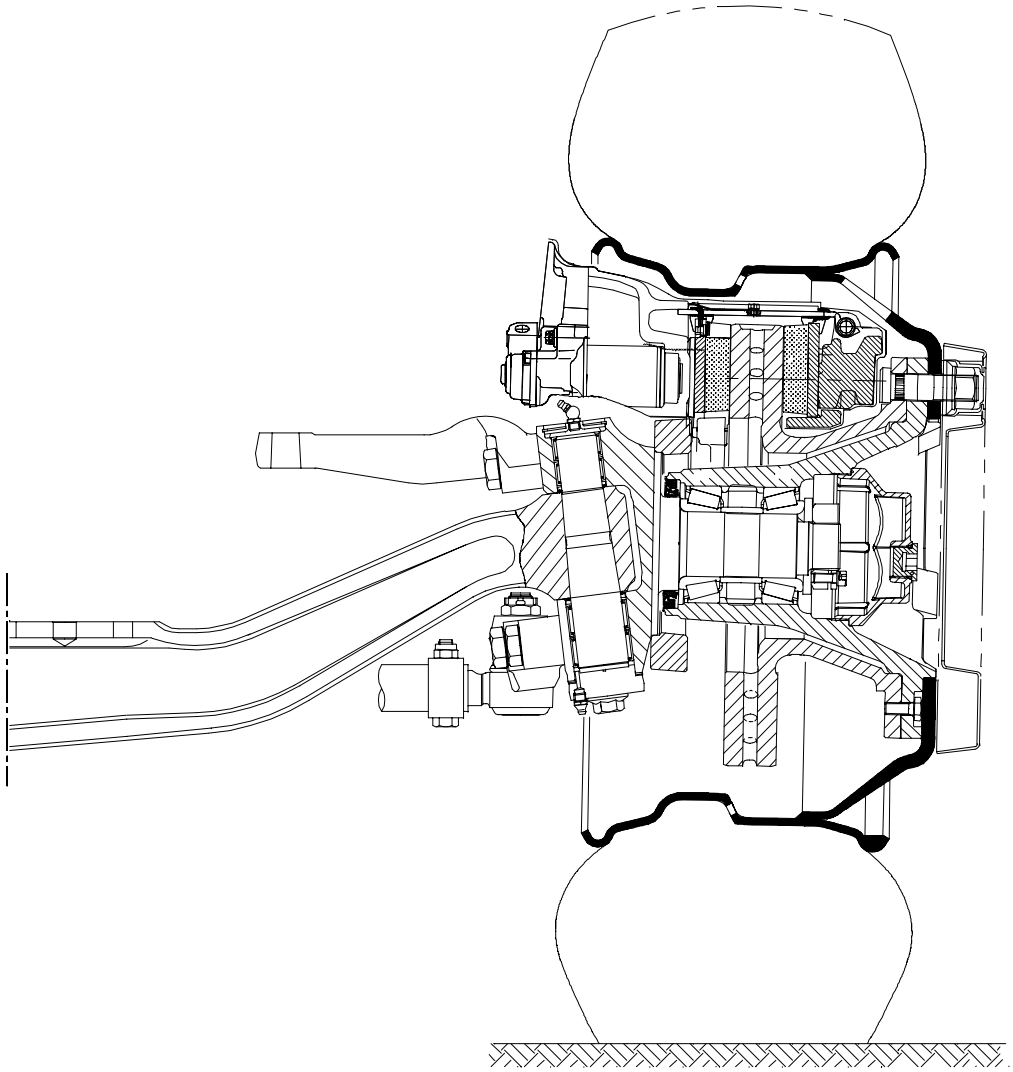
Figure 1



73841

SECTION OF FRONT AXLE 5842/5 (F 5021) WHEEL SIDE

Figure 2



73842

SECTION OF FRONT AXLE 5851/5 (F 5521) WHEEL SIDE

Characteristic angles

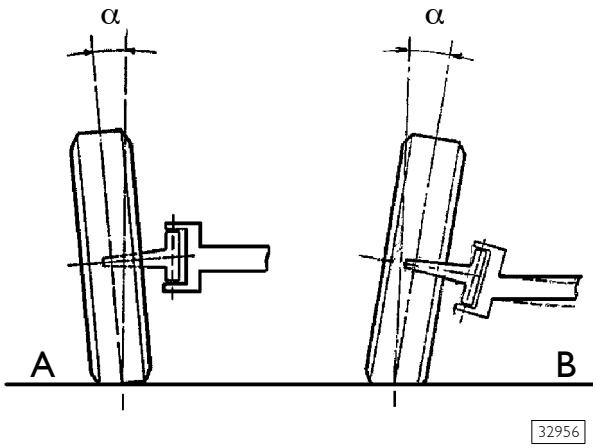
In order to have a good roadholding, a low tyre wear and to enable driving wheels to recover an upright direction after steering, it is necessary to set the wheels according to certain assembly angles:

- wheel angle of inclination
- upright angle of inclination
- clearance angle
- toe-in

Such angles, when correctly calculated, enable the vehicle to maintain the right balance among the various forces involved in its movement, in different loading conditions, which tend to alter the wheel position on the ground.

Wheel angle of inclination

Figure 3

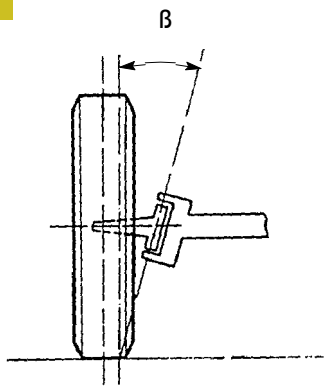


The wheel angle (α) of inclination is the one resulting from the axis passing through the wheel's centre line and the vertical to the ground, looking at the vehicle standing before it.

The inclination is positive (A) when the wheel's upper part moves outside. It is negative (B) when the wheel's upper part moves inside.

Upright angle of inclination

Figure 4



The upright angle (β) of inclination is the one resulting from the axis passing through the upright and the vertical to the ground, looking at the vehicle standing before it.

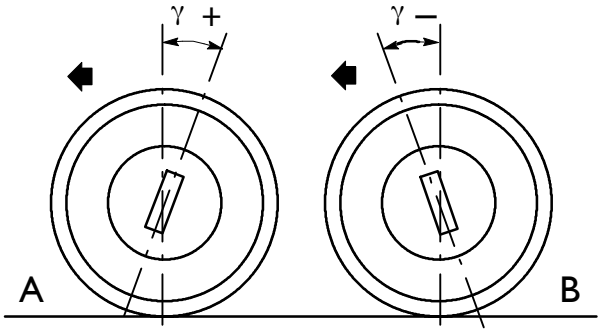
When the extension of the upright axis approaches the wheel when it is touching the ground (opposite direction compared to the wheel's inclination), the angle is positive. It is difficult, if not impossible, to have a negative upright angle of inclination.

The wheel angle (α) of inclination and the upright angle (β) of inclination enable the wheel axis and the upright axis to get closer to the tyre's fulcrum on the ground as much as possible.

As a result, it is possible to reduce the tyre wear and to get a low value of the steering torque.

Clearance angle

Figure 5



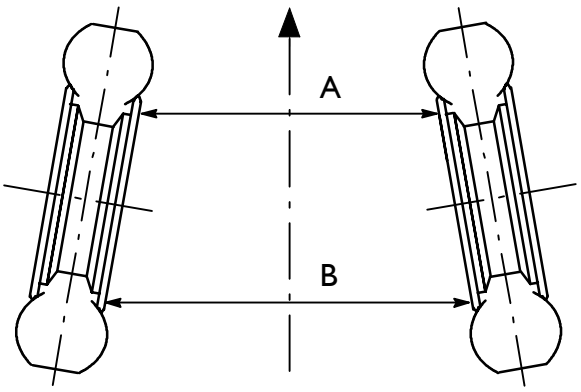
The clearance angle (γ) is the one resulting from the upright axis and the vertical to the ground, looking at the vehicle from one side.

If the extension of the upright axis falls beyond the wheel's fulcrum on the ground in the vehicle's direction, as a rule the clearance angle is positive (A). It is considered negative (B) if it falls behind the wheel's fulcrum on the ground. It is null if it is absolutely perpendicular to the wheel's fulcrum on the ground.

Such an angle enables front wheels to keep an upright position when the vehicle is moving in an upright direction and to recover such a position after taking a curve as soon as the steering wheel is released by the driver.

Toe-in

Figure 6

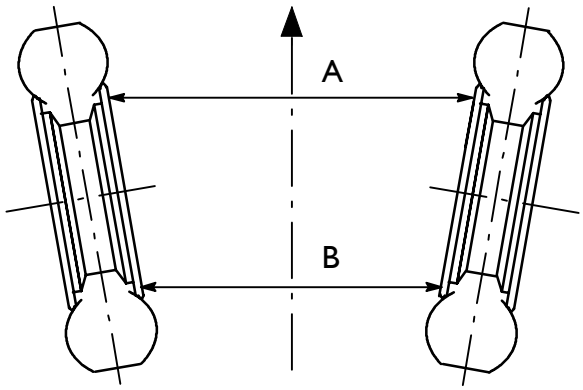


32359

Toe-in results from the difference between distance A and B (value expressed in mm) measured on the rims' horizontal axis, looking at the vehicle from above.
In this way it is possible to drive easily and to reduce the tyre wear.

Toe-in is positive if B is bigger than A.

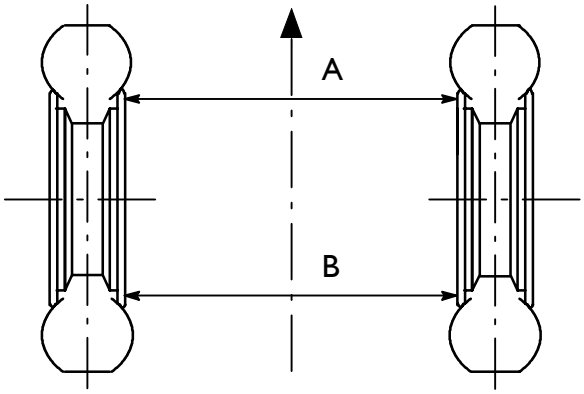
Figure 7



32960

Toe-in is negative if B is lower than A.

Figure 8



32961

Toe-in is zero if B corresponds to A.