

ALIGNMENT OF WHEELS

Camber and Inclination

If the camber value is not within the tolerance limits, then check whether the body is inclined to one side due to wrong radius arm adjustment or broken torsion bars by taking measurement on 4 points of the frame (Suggested points to take measurement: Outer end of the lower front axle tube and rear bottom edge of the

radius arm recess on both sides). If difference of camber is not caused by tilt of the body, then check suspension arm offset, suspension arm and stub axle with the special tools mentioned in Group S. The inclination measurement using the measuring device fixed to the wheel mirrors gives only an approximate reading.

Caster

Similar to the camber, the caster is also influenced by body tilt. If the front part of the car is loaded heavily with luggage, tools, snow chains, etc., the caster is smaller than in an unloaded car. Care should therefore be taken that abnormal load is considered when measurements are taken.

If the caster is not within the tolerance limits, then the inclination of the front axle tubes has to be measured with the aid of the gauge **VW 256 a**. If measurements indicate no error, then remove and check the suspension arms and the stub axles separately.

Toe-In Variation during Spring Action

Toe-in variations during springing must be checked, if a tendency of oversteering of the car is experienced. As the inclination of the steering gear is determined by

a dowel pin, toe-in variations can only be due to deformed axle tubes or steering arm (on stub axle).

Toe-In Alignment

8 Wh

1. Adjust toe-in (pressed) with dimension on front wheels (Refer to alignment data, page W 14).
2. Set steering gear to pressure point (mark) and arrest. Upon this procedure, the steering wheel should be in straight-ahead driving position. If necessary, remove steering wheel and correct position. Tighten steering wheel nut.
3. Push car along a straight line of approx. 5 m length until front and rear wheels are in straight-ahead position (level ground).
4. Adjust left and right tie rod by the same amount (in opposite direction) until steering wheel regains its straight-ahead position.
5. Check and, if necessary, correct toe-in value.

Determining Difference Angle

The location of the steering gear of the Type 356 B is determined by a dowel pin. It is not possible to correct

the difference angle. In case of severe faults, all parts of the front axle must be checked.

Rear Wheel Alignment

General

The toe-in of the rear wheels varies during spring action.

To ensure minimum tire wear, the total toe-in of the rear wheels during driving should be approximately zero (0).

Minimum toe-in increases driving stability. The alignment value of the rear wheel may be corrected by adjusting the wheel.

Offsetting the radius arm towards front by .0433" (1,1 mm) will result in a toe-in variation of .0394" (1 mm).

9 Wh

Aligning Rear Wheels on Measuring Gauge

1. Loosen screws on bearing flange of axle tube and stop screw (See fig. 17).
2. Move axle tube until aligning data is reached (observe with microscope).
3. Tighten stop screw, tighten screws on bearing flange.

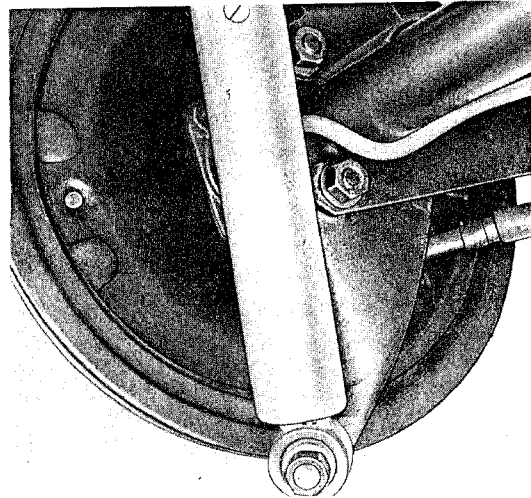
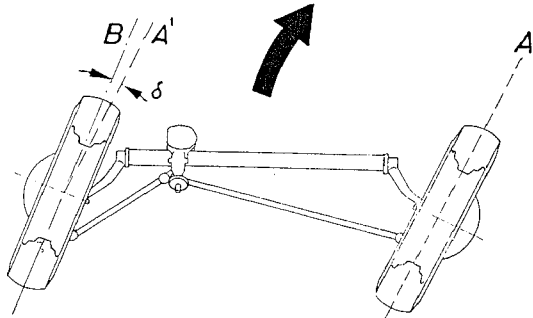
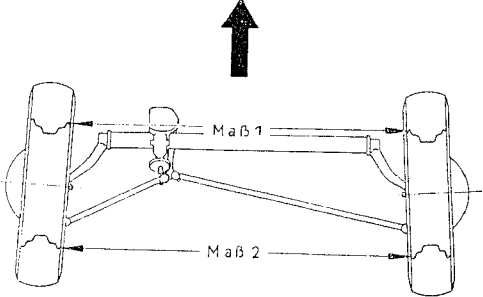


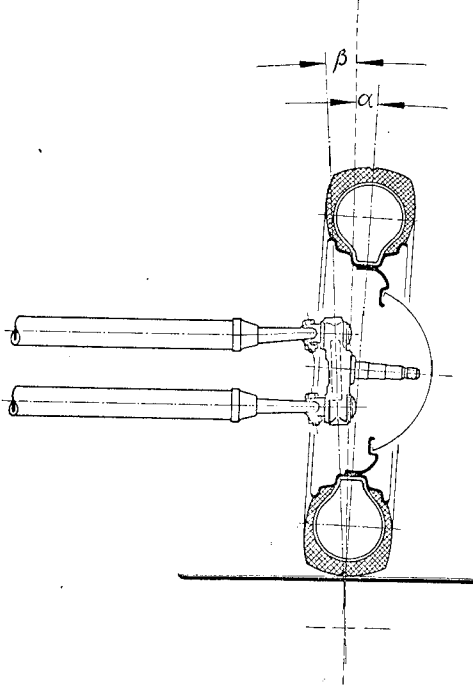
Fig. 17

Camber of Rear Wheels

The camber adjustment of an unloaded car depends on the setting of the radius arms. Care should be taken that equal adjustment on both sides is obtained.

Alignment Data and Tolerances
(Type 356 B, Vehicle unloaded, Weight empty)

Description	Nominal Alignment Value	Alignment	
<p>Difference angle, each side</p> <p>Wheel on inside of curve set to 20°</p> <p>A' parallel to A</p> <p>δ Difference angle</p>	$3^\circ 10'$	$\pm 20'$	
<p>Toe-in of front wheels</p> <p>Dimension 2 > dimension 1</p>	<p>2 mm</p> <p>.0788"</p>	<p>± 1 mm</p> <p>$\pm .0394$"</p>	
Toe-in of rear wheels	<p>.00"</p> <p>0 mm</p> <p>(0°)</p>	<p>$\pm .059$"</p> <p>$\pm 1,5$ mm</p> <p>($\pm 10'$)</p>	
<p>Caster</p> <p>Caster displacement is constant. Caster angle will be obtained from the camber difference of the front wheels between steering movement to the left and right.</p>	5°	$\pm 30'$	

Description	Nominal Alignment Value	Tolerance	
<p>Camber of front wheels (straight-ahead position) Angle α = camber angle</p> <p>Inclination Angle β = inclination angle</p>	<p>$0^{\circ} 40'$</p> <p>$4^{\circ} 30'$</p>	<p>$\pm 30'$</p> <p>—</p>	
Camber of rear wheels	$+ 45'$	$\pm 35'$	—