

Section H5

Front suspension settings

Introduction

Following operations in which the suspension has been partially or fully dismantled, the standing height of the car should be checked. This height is the vertical distance measured between the machined locating pads on the underside of the front sub-frame and the centre line of the triangle lever ball pin carrier securing bolt (see Fig. H18).

To allow the suspension to settle after assembly, drive the car back and forth several times before carrying out the standing height checks.

Standing height - To check

1. Ensure that the spare wheel, jack, tools, and accessories are fitted in their relevant positions.
2. Check the tyre pressures and correct if necessary.
3. Drive the car onto a suitable level ramp and chock the rear wheels.
4. Move the gear range selector lever to the P Park position. Remove the gear change isolator from the fuseboard.

Release the parking brake.

5. On cars other than Corniche and Camargue from serial number 50001 ensure the fuel tank contains 45 litres (10 Imp. gal., 12 U.S. gal.) of fuel.

Ballast the car with 136 kg. (300 lb.) equally divided between the two front seats.

On Corniche and Camargue cars from serial number 50001, the height must be checked with a full tank of fuel.

If however, the tank is partially empty, weight equivalent to the amount of missing fuel should be positioned adjacent to the fuel tank.

For each 4,5 litres (1 Imp. gal., 1.2 U.S. gal.) of missing fuel add 3,4 kg. (7.5 lb.) of weight.

Do not ballast the front seats.

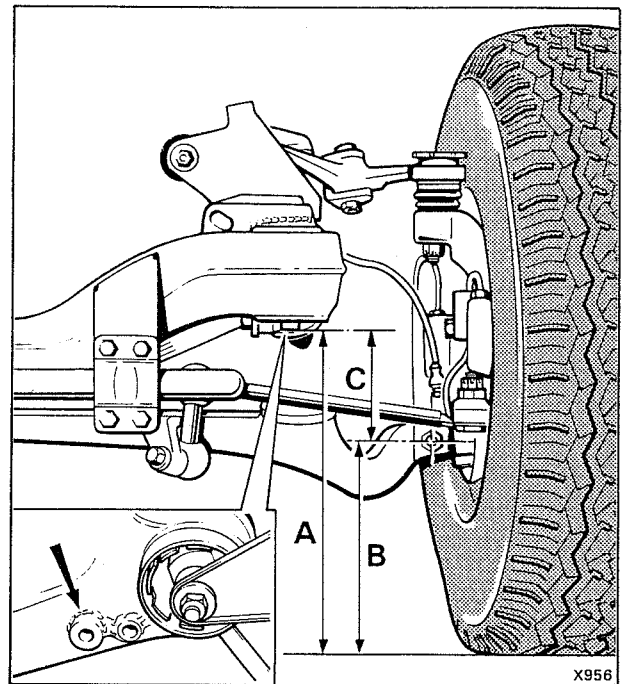
6. Start and run the engine. Allow the hydraulic systems to fully pressurize.
7. Disconnect both height control valve links at the ball joints on the trailing arms.
8. Simultaneously raise both control valve links approximately 40 mm. (1.5 in.) and allow the car to level.

Note

There should be a delay before the car starts to level after raising the control valve links. This delay can vary as between cars and variation in engine speed. Always allow approximately two minutes for the levelling process to be completed.

9. Slowly pull down both control links approximately 25 mm. (1.0 in.) to exhaust the hydraulic pressure from the rear suspension. Allow three minutes for the car to stabilize.

10. Measure the standing height from the level

**Fig. H18 Front height setting**

- A Floor to sub-frame location pad
 - B Floor to centre line of triangle lever bolt
 - C Height setting measurement A minus B
- Inset Sub-frame location pad

surface on which the car stands, to the face of the front sub-frame locating pads. These pads are situated on the underside of the sub-frame adjacent to the front mounts (see Fig. H18 dimension A).

11. Measure from the level surface to the centre of the bolt fitted through the lower ball pin carrier (see Fig. H18 dimension B).

12. Subtract dimension B from dimension A. The difference between the two dimensions should be as follows.

Cars other than Corniche and Camargue from serial number 50001; 86,4 mm. to 92,7 mm. (3.40 in. to 3.65 in.).

Corniche and Camargue cars from serial number 50001; 104 mm. to 110 mm. (4.10 in. to 4.35 in.).

If the resultant dimension is outside this tolerance adjust the car standing height as described below.

Standing height - To adjust

The car standing height is increased or decreased by altering the thickness of the collets fitted between the spring support collar and spring support plate. Refer to

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Section H2 for collet thickness information.

1. Fit the support plate halves of the road spring retention tool (RH 8809), around the lower section of the damper and secure them together.

Insert the four long studs of the tool through the upper spring plate and screw them securely into the tool support plate. Fit the special nuts, thrust races, and washers to the top of each stud.

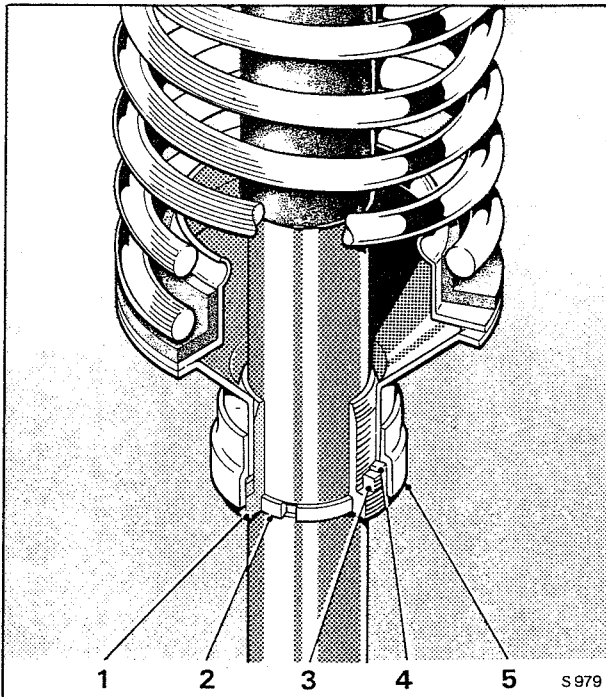


Fig. H19 Front height adjustment

- 1 Spring support collar
- 2 Support locating collar
- 3 Adjustment collets (thick)
- 4 Adjustment collets (thin)
- 5 Spring support

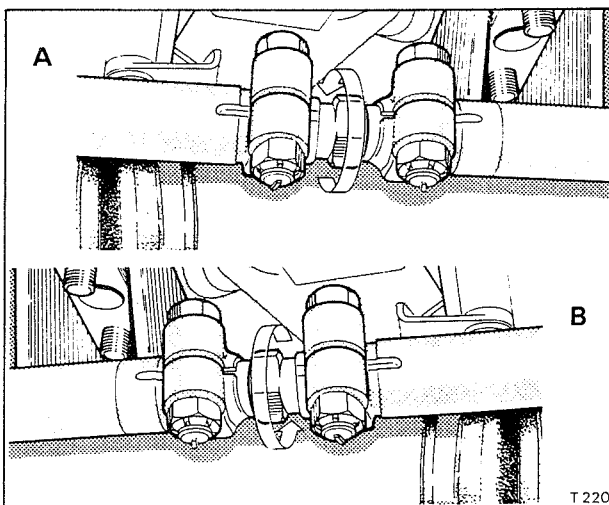


Fig. H20 Track rod toe-in adjustment

- A Left-hand toe-in
- B Right-hand toe-in

Warning

Always examine the spring retention tool components for signs of thread wear or damage prior to its use. If you have doubts concerning any parts of the tool and their ability to withstand spring load you should renew those parts.

It is recommended that the use of the tool is restricted to a maximum of 200 applications.

Always take extreme care when handling a road spring in a compressed condition.

2. Evenly tighten the four spring retention tool nuts to retain the spring in its compressed condition.

3. Place a jack under the centre triangle lever pivot and slowly raise the car.

This operation will allow the spring support collar to be drawn from the spring support plate, exposing the adjustment collets.

When the collets are exposed support the car body on sill blocks then carefully remove the collets.

4. Select the thickness of collets required to obtain the correct car standing height.

Do not fit collets totalling more than 25,4 mm. (1.0 in.) in thickness.

A packing washer 6,35 mm. (0.250 in.) thick gives a change in car height of approximately 9.50 mm. (0.375 in.).

5. Smear the collets with grease to hold them in position on the damper. Always ensure that the thinnest collets are fitted to the top of the selection (see Fig. H19).

6. Remove the sill blocks and carefully lower the car ensuring that the collets enter the spring support plate correctly.

7. Remove the jack and spring retention tool. Lower the ramp to the ground.

8. Roll the car back and forth until the wheels attain a stable camber, then check the standing height again as described previously.

Steering and suspension geometry

Front wheel toe-in	0° 12' ± 5'
Camber angle	0° 30' negative ± 15'
Caster angle	3° 0' ± 30'
Maximum caster variation from side to side	0° 30'

Front wheel toe-in - To adjust

1. With the car standing height correctly adjusted, position the car on a level surface. Set the steering in the straight ahead position.
2. Move the car forward a half revolution of the road wheels. Moving the car backward will give a false reading.
3. Fit optical equipment onto the front wheels following the manufacturer's instructions and take a reading.
4. Remove the equipment and move the car forward a further half a revolution of the road wheels. Take a second reading.

An average of the two readings will give the toe-in figure.

5. If adjustment is necessary, slacken the pinch bolts securing the track rod adjusters (see Fig. H20). Rotate

the adjusters to bring the wheels into the straight ahead position (zero toe-in).

6. Rotate the adjusters by equal amounts to give an overall toe-in figure of between $0^{\circ} 7'$ and $0^{\circ} 17'$.
7. Tighten the pinch bolts then check the toe-in as described in Operations 1 to 4 inclusive.
8. When the toe-in is correct torque tighten the pinch bolts to the figure quoted in Chapter P and fit new split pins.

Caster and camber angles - To adjust

The caster and camber angles must be checked at the same time as adjustment of one affects the other.

1. Drive the car onto a ramp setting the front wheels on turntables. Place blocks beneath the rear wheels to maintain the car on a level plane. Chock the rear wheels.
2. Ensure the car standing height is correct.
3. Fit suitable checking equipment to the wheel and check the caster and camber angles in accordance with the equipment manufacturer's instructions.
4. **Caster angle**

To adjust the caster angle, move the compliance rod in or out of the compliance mount using the clamping nuts on the rod (see Fig. H15). Slacken the compliance rod jaw bolt sufficiently to allow the jaw to pivot on the compliance arm during adjustment.

5. Camber angle

To adjust the camber angle, release the eccentric bolt on which the compliance arm pivots. Turn the bolt until the correct camber angle is obtained.

Note

The arrow stamped on the bolt head (see Fig. H15) should always point below the centre line of the bolt.

6. Check the caster angle again to ensure that the adjustment of the camber angle has not altered the caster angle out of the required limits.

Torque tighten the bolts and nuts to the figures quoted in Chapter P before carrying out the final checks.

7. Carry out the same adjustment procedure on the other front wheel.

The maximum caster variation allowed between each side of the car is $0^{\circ} 30'$.

Steering lock stop adjustment

This information is applicable to cars prior to the following car serial numbers.

Silver Shadow II 39572 except 39376, 39451 and 39458

Silver Wraith II 38847 except 38627, 38642, 38654, 38758, 38762, 38768 and 38833.

Corniche 50333 except 50285, 50303 and 50311.

Camargue 50348 except 50298.

1. Position the front road wheels on turntables with the steering in the straight ahead position.
2. Move the gear change selector lever to the P Park position.
3. Remove the gear range selector thermal cut-out from the fuseboard.
4. Fit a centralizing plug into the steering rack (see Fig. N7). Record the angles shown on the turntables if

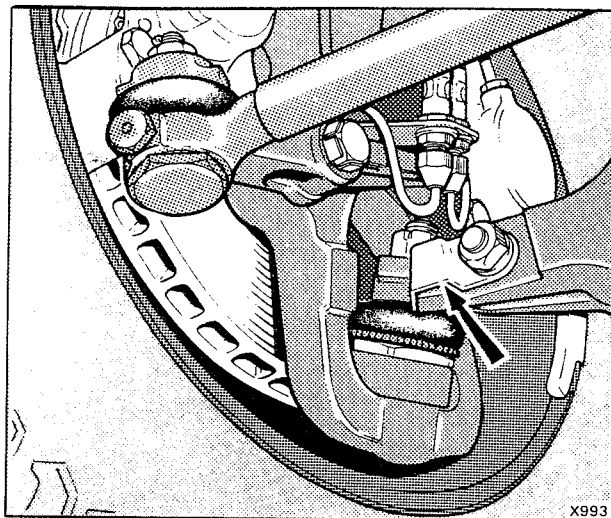


Fig. H21 Steering lock-stop packing

they have moved from the zero position. **Remove the centralizing plug** from the steering rack.

5. With the engine running, rotate the steering wheel in a clockwise direction until the right-hand road wheel has travelled through 40° . Switch off the ignition.
6. When the right-hand wheel is set at this angle, the left-hand road wheel should have turned between 34° and 38° on the turntable.
7. Ensure that the right-hand road wheel is limited in its travel by the lock stop on the left-hand triangle lever. If clearance exists between the yoke and triangle lever end, a suitable lock stop packing should be fitted to the end of the triangle lever (see Fig. H21).

Important

Under no circumstance should the maximum steering lock be governed by the limiting travel of the rack and pinion steering unit.

8. Carry out the same procedure with the steering on the opposite lock.

Note

If a new steering rack is required, a rack incorporating lock stops should be fitted. This type of rack has been fitted to all cars from and including the car serial numbers given above.

With this type of rack, lock stop adjustment is not required and any existing lock stops should be removed.