Chapter 11
Suspension and steering

Contents

Degrees of difficulty

Easy, suitable for novice with little experience 

Fairly easy, suitable for beginner with some experience 

Fairly difficult, suitable for competent DIY mechanic 

Difficult, suitable for experienced DIY mechanic 

Very difficult, suitable for expert DIY or professional 

Specifications

Front wheel alignment

Front wheel toe-setting	0 to 3.0 mm toe-out

Vehicle ride height (see text)

Models up to 1994:	
Front	144.0 +10.0 mm/ -7.0 mm
Rear	431.0 +10.0 mm/ -7.0 mm
Models from 1995:	
Front	141.5 mm
Rear	136.5 mm

Torque wrench settings

	Nm	lbf ft
Front suspension		
Driveshaft retaining nut	320	236
Hub carrier-to-suspension strut clamp nut and bolt	55	41
Lower balljoint-to-lower arm nut	40	30
Lower arm balljoint-to-hub carrier	250	185
Anti-roll bar drop link securing nuts	30	22
Anti-roll bar drop link adjuster locknut	30	22
Lower arm rear securing bolts	35	26
Lower arm front pivot bolt and nut	85	63
Hydraulic unit-to-body bolts	25	18
Suspension strut-to-hydraulic unit nut*	65	48
Rear suspension		
Rear hub nut	380	280
Rear hub assembly securing bolts	32	24
Anti-roll bar-to-trailing arm bolts:		
Hatchback models	80	59
Estate models	100	74
Trailing arm pivot shaft nut	130	96
Rear suspension front securing bolts	60	44
Rear suspension rear securing bolts	40	30
Rear suspension rear mounting rubber-to-body nuts	30	22
Steering		
Steering wheel nut	30	22
Track-rod balljoint nut	45	33
Steering column universal joint pinch-bolt	20	15
Steering column nuts	20	15
Intermediate shaft-to-steering gear pinion pinch-bolt	20	15
Steering gear-to-subframe bolts	70	52
Track-rod balljoint locknut	45	33
Hydraulic pipe unions		
3.5 and 4.5 mm diameter pipes	8	6
6.35 mm diameter pipes:		
With sleeve seal	10	7
Without sleeve seal	13	10
10.0 mm diameter pipes	30	22
Roadwheels		
Roadwheel bolts	90	66

**Use thread/locking compound*

1 General information

The suspension is of an independent hydraulic type, exclusive to Citroën.

The front suspension comprises a vertically-mounted hydraulic suspension strut unit, a lower arm, and an anti-roll bar. The lower arms and the anti-roll bar are mounted on the front subframe. The front suspension hydraulic units are supplied with hydraulic fluid from the main hydraulic system via the front height corrector which is actuated by the front anti-roll bar. The anti-roll bar is attached to the suspension struts by drop links.

A trailing arm rear suspension is used, and the rear hydraulic units are supplied with hydraulic fluid from the main system via the rear height corrector. The height corrector is actuated by the rear anti-roll bar.

The ground clearance of the vehicle may be adjusted using a lever mounted inside the vehicle. The lever is connected via operating rods to the front and rear height correctors.

Automatic damping is incorporated in the hydraulic units, which take the place of the coil springs and dampers found in a conventional suspension system.

Certain models have 'Hydractive' suspension system, which allows the driver to switch between 'Normal' (or 'Auto' on early models) and 'Sport' suspension settings. This system is electronically controlled via various sensors. The 'Normal' (or 'Auto') position provides maximum comfort, and adapts automatically to driving and road conditions. The 'Sport' setting provides a stiffer suspension more suited to a sporting driving style, particularly on winding roads.

The steering is of rack-and-pinion type, mounted on a crossmember attached to the front subframe. The steering column incorporates a universal joint and coupling. Power steering is fitted to all models, and hydraulic fluid is supplied from the main hydraulic system (see Chapter 9), and the pressure is controlled by a flow distributor unit and a control valve. The power assistance is provided via a hydraulic ram mounted on the steering gear.

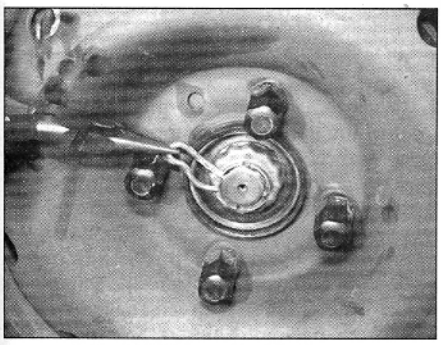
2 Front hub carrier assembly – removal and refitting

Note: *A balljoint separator tool will be required for this operation. A new suspension lower balljoint nut, a new track-rod balljoint nut, and a new hub carrier-to-strut nut will be required on refitting.*

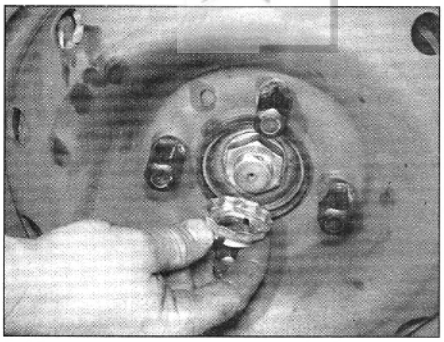
Removal

1 Depressurise the suspension hydraulic system, as described in Chapter 9.

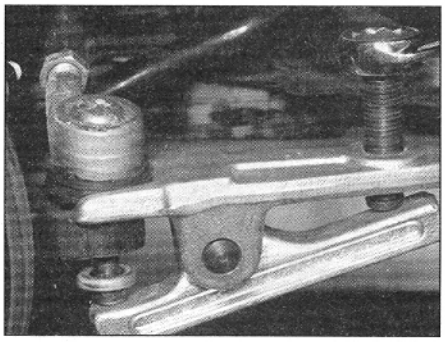
2 Chock the rear wheels, then jack up the front of the car and support it on axle stands (see *Jacking and Vehicle Support*). Remove the appropriate front roadwheel. On models



2.2a Withdraw the R-clip . . .



2.2b . . . and remove the locking cap, then loosen the driveshaft nut



2.3 Releasing the track-rod balljoint using a balljoint separator tool

where access to the driveshaft nut can be obtained by removing the wheel trims, before jacking up the vehicle, loosen the driveshaft nut as follows **(see illustrations)**.

a) *Chock the front wheels, and remove the wheel trim.*
b) *Apply the parking brake firmly.*
c) *Withdraw the R-clip and remove the locking cap from the driveshaft nut..*
d) *Loosen the driveshaft nut using a socket and extension.*

3 Slacken and partially unscrew the track-rod balljoint nut (unscrew the nut as far as the end of the threads on the balljoint to prevent damage to the threads as the joint is released), then release the balljoint using a balljoint separator tool **(see illustration)**. Remove the nut.

4 Unbolt the wiring/hose bracket(s) from the hub carrier, and move to one side, taking care not to strain the wiring or hose **(see illustration)**.

5 On models with ABS, remove the wheel sensor as described in Chapter 10, section 16, and unbolt the sensor shield.

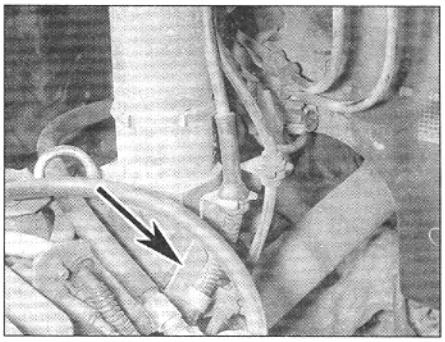
6 Remove the brake disc, as described in Chapter 10.

7 Disconnect the outboard end of the driveshaft from the hub carrier, as described in Chapter 8, noting the following points.

a) *There is no need to drain the transmission oil.*
b) *Do not disconnect the inboard end of the driveshaft from the transmission, and when working on the right-hand driveshaft, there is no need to release the intermediate bearing.*
c) *Support the free, outboard end of the driveshaft by suspending it using wire or string - do not allow the end of the driveshaft to hang down under its own weight.*

8 Unscrew and remove the clamp nut and bolt securing the hub carrier to the suspension strut **(see illustrations)**.

9 Engage an 8.0 mm Allen key or hexagon bit in the slot in the hub carrier, and turn the key/bit through a quarter turn to spread the slot **(see illustration)**. Simultaneously pull the hub carrier down to release it from the strut.



2.4 Unbolt the wiring/hose bracket (arrowed) from the hub carrier

Refitting

10 Commence refitting by using the Allen key to spread the slot in the hub carrier, as during removal, if not already done.

11 Engage the hub carrier with the strut, noting that the raised positioning boss on the strut must engage with the hub carrier slot.

12 Push the hub carrier onto the strut until the top surface of the hub carrier rests against the shoulder on the strut.

13 Refit the clamp bolt, noting that the bolt fits from the rear of the strut, then fit a new nut, and tighten to the specified torque.

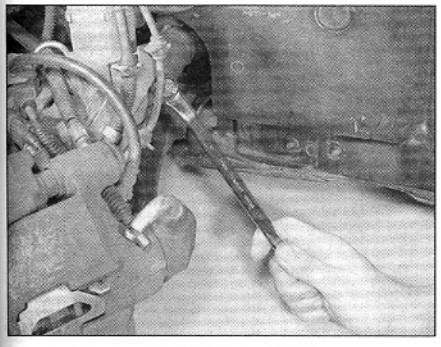
14 Refit the brake disc and the caliper, then reconnect the parking brake cable and check the adjustment, as described in Chapter 10.

15 Reconnect the driveshaft to the hub carrier, and tighten the driveshaft retaining nut, as described in Chapter 8. Note that on models where access to the driveshaft nut can be obtained by removing the wheel trims, the driveshaft nut can be tightened with the parking brake applied, and the vehicle resting on its wheels.

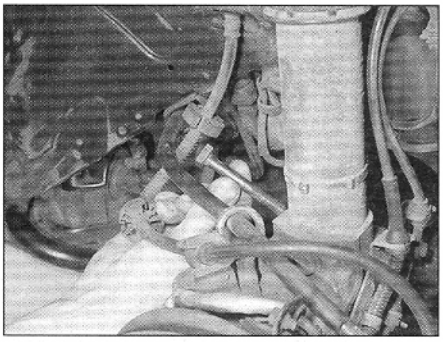
16 Once the driveshaft nut has been tightened, where applicable refit the ABS wheel sensor shield, then refit and adjust the ABS wheel sensor as described in Chapter 10.

17 Refit the wiring/hose bracket(s) to the hub carrier, and secure with the bolt(s).

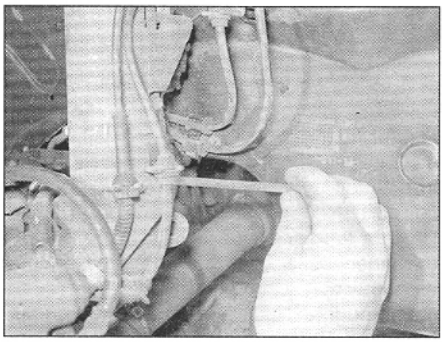
18 Reconnect the track-rod end to the hub carrier, and secure using a new balljoint nut, tightened to the specified torque.



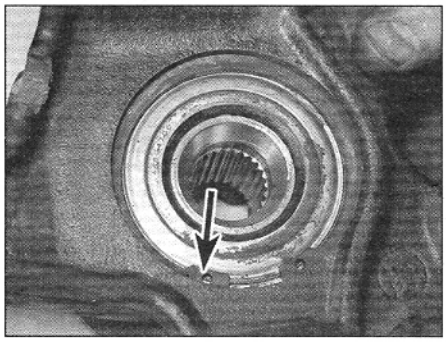
2.8a Unscrew the clamp nut . . .



2.8b . . . and remove the bolt securing the hub carrier to the suspension strut



2.9 Engage an 8.0 mm Allen key in the slot in the hub carrier



3.3 Front wheel bearing retaining circlip (arrowed)

19 Refit the roadwheel, and lower the vehicle to the ground.
20 Pressurise the hydraulic system as described in Chapter 9.
21 On completion, have the front wheel alignment checked, with reference to Section 17.

3 Front hub bearings – renewal

Note: *The bearing is a sealed, pre-adjusted and pre-lubricated, double-row roller type, and is intended to last the car's entire service life without maintenance or attention. Never overtighten the driveshaft nut beyond the specified torque wrench setting in an attempt to adjust the bearing.*
Note: *A press will be required to dismantle and rebuild the assembly; if such a tool is not available, a large bench vice and spacers (such as large sockets) will serve as an adequate substitute. The bearing's inner races are an interference fit on the hub; if the inner race remains on the hub when it is pressed out of the hub carrier, a knife-edged bearing puller will be required to remove it. A new bearing retaining circlip should be used on refitting.*
1 Remove the hub carrier assembly as described in Section 2.
2 Support the hub carrier securely on blocks or in a vice. Using a tubular spacer which bears only on the inner end of the hub flange, press the hub flange out of the bearing. If the bearing's outboard inner race remains on the hub, remove it using a bearing puller (see note above).
3 Extract the bearing retaining circlip from the inner end of the hub carrier assembly **(see illustration)**.
4 Where necessary, refit the inner race back in position over the ball cage, and securely support the inner face of the hub carrier. Using a tubular spacer which bears only on the inner race, press the complete bearing assembly out of the hub carrier.
5 Thoroughly clean the hub and hub carrier, removing all traces of dirt and grease, and polish away any burrs or raised edges which might hinder reassembly. Check both for cracks or any other signs of wear or damage, and renew them if necessary. Renew the circlip, regardless of its apparent condition.
6 On reassembly, apply a light film of oil to the bearing outer race and hub flange shaft, to aid installation of the bearing.
7 Securely support the hub carrier, and locate the bearing in the hub. Press the bearing fully into position, ensuring that it enters the hub squarely, using a tubular spacer which bears only on the bearing outer race.
8 Once the bearing is correctly seated, secure the bearing in position with the new circlip, ensuring that it is correctly located in the groove in the hub carrier.
9 Securely support the outer face of the hub flange, and locate the hub carrier bearing inner race over the end of the hub flange. Press the bearing onto the hub, using a tubular spacer which bears only on the inner race of the hub bearing, until it seats against the hub shoulder. Check that the hub flange rotates freely, and wipe off any excess oil or grease.

4 Front suspension lower arm – removal, overhaul and refitting

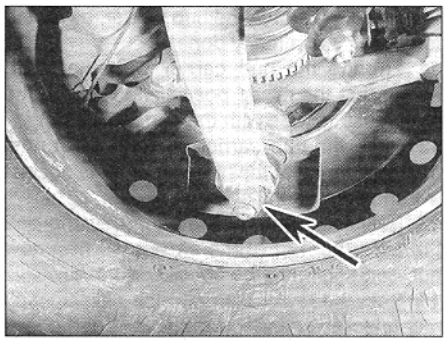
Note: *A balljoint separator tool will be required for this operation. New lower arm securing nuts, a new lower balljoint nut, and a new anti-roll bar drop link nut must be used on refitting.*

Removal

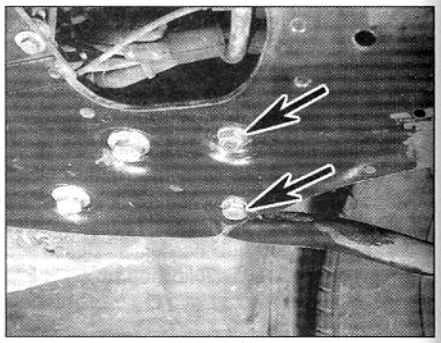
1 Move the suspension height control lever to the 'Low' position.
2 Chock the rear wheels, then jack up the front of the vehicle and support securely on axle stands (*see Jacking and Vehicle Support*). Remove the relevant roadwheel.
3 Slacken and partially unscrew the suspension lower balljoint nut (unscrew the nut as far as the end of the threads on the balljoint to prevent damage to the threads as the joint is released), then release the balljoint using a balljoint separator tool **(see illustration)**. Remove the nut.
4 Similarly, partially unscrew the nut securing the anti-roll bar drop link to the end of the anti-roll bar. Counterhold the end of the drop link pin using a 5.0 mm Allen key whilst unscrewing the nut. Remove the nut.
5 Unscrew and remove the lower arm rear securing bolts (recover the washers), and lift off the securing clamp **(see illustrations)**.
6 Unscrew the nut and front pivot bolt securing the front of the lower arm to the subframe, then withdraw the lower arm **(see illustration)**.

Overhaul

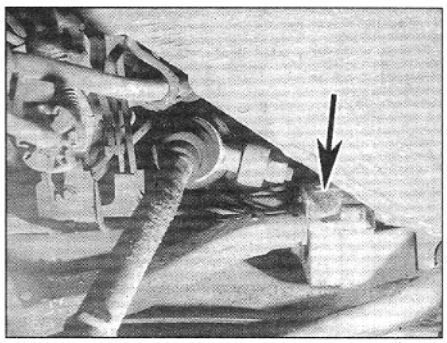
7 Thoroughly clean the lower arm and the area around the arm mountings, removing all traces of dirt and underseal if necessary, then check carefully for cracks, distortion or any other signs of wear or damage, paying particular attention to the pivot bushes, and



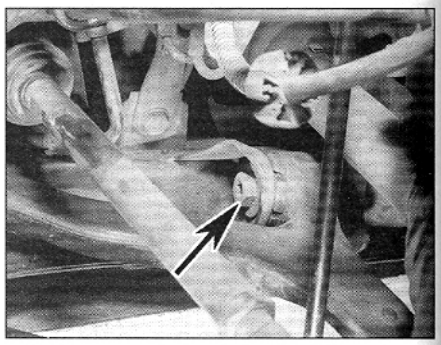
4.3 Unscrew the lower balljoint nut (arrowed)



4.5a Unscrew the lower arm rear securing bolts (arrowed) . . .



4.5b . . . and lift off the securing clamp (arrowed)



4.6 Lower arm front pivot bolt (arrowed)

renew components as necessary. Check with a Citroën dealer regarding the availability of spares.

8 Examine the shank of the pivot bolt for signs of wear or scoring, and renew if necessary.

9 It is possible to renew the lower arm bushes, but the bushes are an extremely tight fit, and a hydraulic press and special adapter tools are required to remove the old bushes and fit the new bushes successfully. Bush renewal should be referred to a Citroën dealer, or a suitably-qualified specialist.

Refitting

10 Offer the lower arm into position, then loosely refit the front pivot bolt, and a new nut. Do not fully tighten the nut and bolt at this stage.

11 Refit the clamp, then refit the two lower arm rear securing bolts, ensuring that the washers are in place. Again, do not fully tighten the bolts at this stage.

12 Before tightening the lower arm fixings, the lower edge of the outboard end of the lower arm should be positioned approximately level with the lower surface of the suspension subframe.

13 With the arm positioned as described in the previous paragraph, tighten the fixings to the specified torque.

14 Reconnect the suspension lower balljoint, then fit a new securing nut, and tighten to the specified torque.

15 Reconnect the anti-roll bar drop link to the end of the anti-roll bar, then fit a new securing nut and tighten to the specified torque. Hold the balljoint stem in position using a 5.0 mm Allen key.

16 Refit the roadwheel and lower the vehicle to the ground.

17 On completion, set the suspension height control to the 'Normal' position.

5 Front suspension lower balljoint – renewal

Note: *Citroën special tool 7103-T or an equivalent, and an impact wrench (such as a Facom Dynapact wrench) will be required to unscrew and tighten the balljoint. If these tools are not available, the task should be entrusted to a Citroën dealer.* ***Do not*** *attempt the work using improvised tools. A new balljoint nut must be used on refitting. Take care not to pull the inner end of the driveshaft from the transmission during this procedure, as this will result in loss of transmission oil/fluid.*

Removal

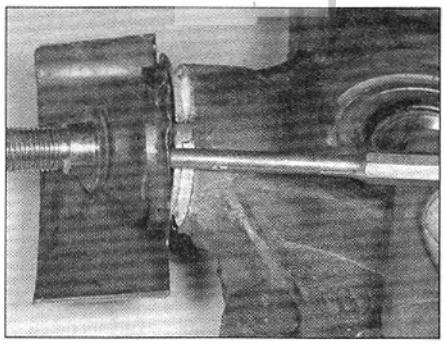
1 Move the suspension height control lever to the 'Low' position.

2 Chock the rear wheels, then jack up the front of the vehicle and support securely on axle stands (*see Jacking and Vehicle Support*). Remove the relevant roadwheel.

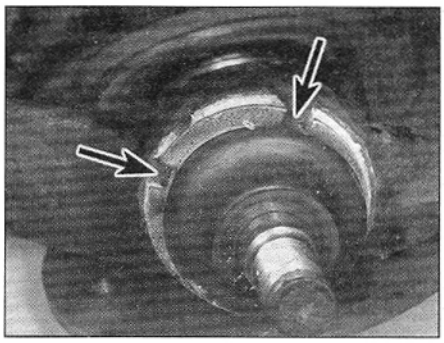
3 Slacken and partially unscrew the suspension lower balljoint nut (unscrew the nut as far as the end of the threads on the balljoint to prevent damage to the threads as the joint is released), then release the balljoint using a balljoint separator tool. Remove the nut.

4 Tap the dust shield from the balljoint, using a drift **(see illustration)**.

5 Fit the special tool 7103-T to the balljoint, engaging the tool with the cut-outs in the balljoint, and secure it by screwing the tool locknut onto the threaded section of the balljoint **(see illustration)**. Engage the impact wrench with the tool, and unscrew the balljoint.



5.4 Tapping off the lower balljoint dust shield



5.5 Engage the tool with the cut-outs (arrowed) in the balljoint

Refitting

6 Refitting is a reversal of removal, bearing in mind the following points.

a) *Tighten the balljoint as far as possible by hand before finally tightening to the specified torque using the special tools.*

b) *Take care not to damage the balljoint rubber gaiter during fitting.*

c) *Lock the dust shield in position by staking it in the cut-outs in the bottom of the hub carrier.*

d) *After lowering the vehicle to the ground, set the suspension height control to the Normal position.*

6 Front suspension hydraulic unit/strut assembly – removal and refitting

Removal

Note: *All Nyloc self-locking nuts must be renewed on refitting. Where applicable use new seals when reconnecting the hydraulic fluid pipes.*

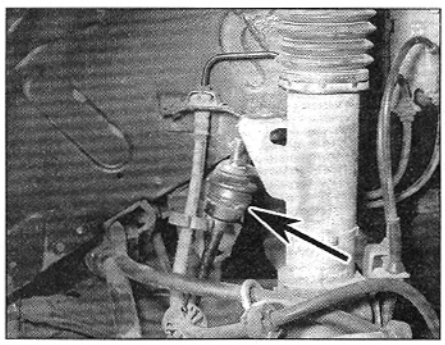
1 Depressurise the hydraulic system as described in Chapter 9.

2 Jack up the vehicle, and support securely on axle stands, with the roadwheels clear of the ground (*see Jacking and Vehicle Support*). Remove the relevant front roadwheel.

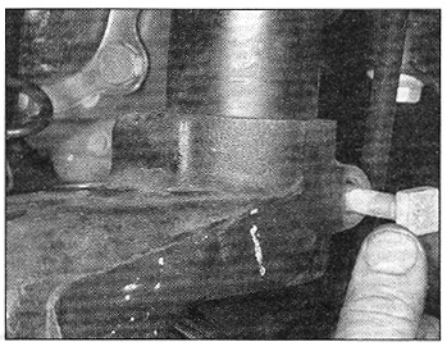
3 Drain as much fluid as possible from the suspension hydraulic unit by compressing the suspension, pushing up on the lower arm.

4 Unscrew the securing nut, and disconnect the anti-roll bar drop link from the suspension strut. Counterhold the end of the drop link pin using a 5.0 mm Allen key whilst unscrewing the nut. If necessary, use a balljoint separator tool to free the drop link from the strut, but in this case, screw the nut onto the end of the drop link, to prevent damage to the thread **(see illustration)**.

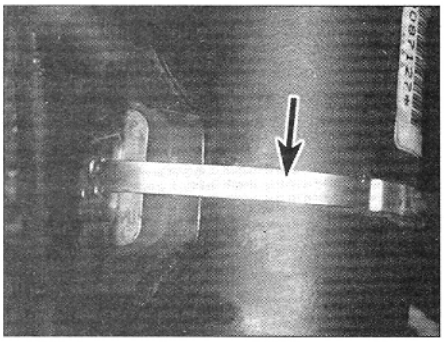
5 Unscrew and remove the clamp nut and bolt securing the hub carrier to the suspension strut **(see illustration)**.



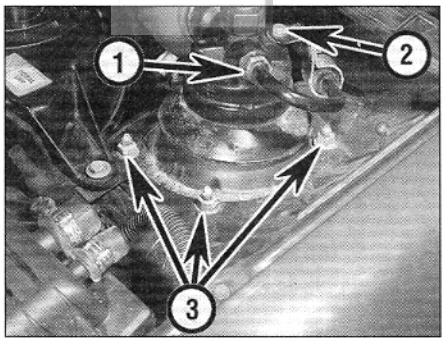
6.4 Disconnect the anti-roll bar drop link (arrowed) from the strut



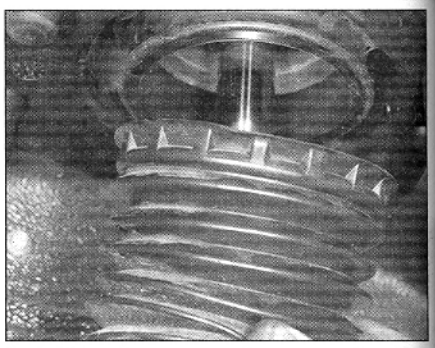
6.5 Removing the hub carrier-to-suspension strut bolt



6.7 Suspension strut fluid return pipe securing clip (arrowed)



6.10 Disconnect the fluid feed pipe (1), unbolt the pipe bracket (2), then unscrew the nuts (3) securing the hydraulic unit



6.12 Prise the suspension strut gaiter from the hydraulic unit

6 Engage an 8.0 mm Allen key in the slot in the hub carrier, and turn the Allen key through a quarter turn to spread the slot. Simultaneously pull the hub carrier down to release it from the strut.

7 Disconnect the hydraulic fluid return pipe from the suspension strut. To disconnect the pipe, cut the securing clip, and pull the end of the pipe from the strut **(see illustration)**. Be prepared for fluid spillage, and plug the open ends of the pipe and strut to prevent dirt entry.

8 Proceed as follows according to whether the complete hydraulic unit/strut assembly, or just the strut is to be removed.

Complete hydraulic unit/strut assembly

9 Working in the engine compartment, unscrew the union and disconnect the hydraulic fluid feed pipe from the hydraulic unit. Plug the open ends of the pipe and hydraulic unit to prevent dirt entry and reduce fluid loss. Unbolt the pipe bracket(s) from the hydraulic unit.

10 Unscrew the four nuts securing the hydraulic unit to the body **(see illustration)**.

11 Lower the assembly, and manipulate it down from under the wheel arch.

Suspension strut

12 Working under the wheel arch, prise the suspension strut gaiter from the base of the hydraulic unit **(see illustration)**.

13 Where applicable, prise off the plastic cover, then slacken the nut securing the top of the strut to the hydraulic unit. If necessary, counterhold the strut piston using a splined key **(see illustrations)**.

14 Spray penetrating oil, or a lubricating fluid onto the top of the suspension strut cone (below the nut), to help to free the strut from the hydraulic unit.

15 Remove the nut, then withdraw the strut downwards and remove it from under the wheel arch.

Refitting

Complete hydraulic unit/strut assembly

16 Offer the assembly into position, taking care not to trap the hydraulic fluid return pipe, then refit the hydraulic unit securing nuts, and tighten to the specified torque.

17 Reconnect the hydraulic fluid feed pipe to the hydraulic unit, using a new seal where applicable, and tighten the union.

18 Proceed to paragraph 22.

Suspension strut

19 Lubricate the top of the strut cone and the sealing surfaces with clean LHM fluid.

20 Coat the threads at the top of the strut with thread-locking compound, then offer the assembly into position from under the wheel arch. Refit the securing nut, and tighten to the specified torque. If necessary, counterhold the strut piston using a splined key. Where applicable, refit the plastic cover.

21 Secure the strut gaiter to the base of the hydraulic unit.

Strut with or without hydraulic unit

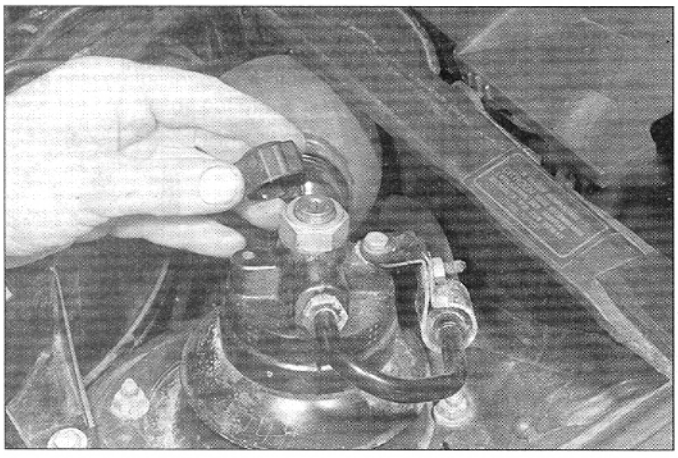
22 Commence refitting by using the Allen key to spread the slot in the hub carrier, as during removal, if not already done.

23 Engage the hub carrier with the strut, noting that the raised positioning boss on the strut must engage with the hub carrier slot.

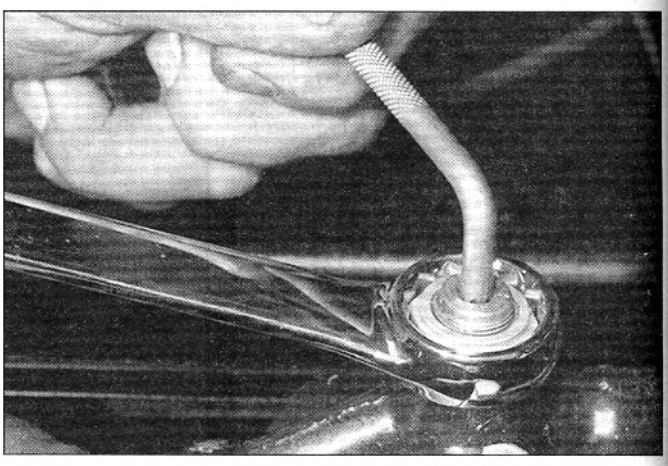
24 Push the hub carrier onto the strut until the top surface of the hub carrier rests against the shoulder on the strut.

25 Refit the clamp bolt, noting that the bolt fits from the rear of the strut, then fit a new nut, and tighten to the specified torque.

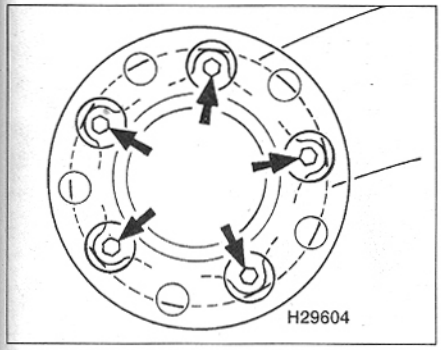
26 Reconnect the anti-roll bar drop link to the suspension strut, and tighten a new nut to the specified torque. If necessary, counterhold



6.13a Prise off the plastic cover . . .



6.13b . . . then slacken the nut securing the strut to the hydraulic unit



7.2 Rear hub assembly securing bolts (arrowed)

the end of the drop link pin using a 5.0 mm Allen key.

27 Reconnect the hydraulic fluid return pipe to the suspension strut, using a new seal where applicable, and secure with a new clip.

28 Refit the roadwheel, and lower the vehicle to the ground.

29 Pressurise the hydraulic system as described in Chapter 9, and check for fluid leaks around the disturbed components.

30 Check and if necessary top up the hydraulic fluid level as described in *Weekly Checks*.

7 Rear hub assembly – removal and refitting

Removal

1 Remove the rear brake disc as described in Chapter 10.

2 Working through the holes in the hub flange, unscrew the five bolts securing the hub assembly to the trailing arm, and remove the hub assembly **(see illustration)**.

Refitting

3 Refit the hub assembly to the trailing arm, and tighten the securing bolts to the specified torque.

4 Refit the brake disc as described in Chapter 10.

8 Rear hub bearings – renewal

The rear hub bearing is integral with the rear hub mounting plate. To renew the bearing/mounting plate assembly, it is necessary to separate the hub flange from the bearing/mounting plate assembly. This operation requires the use of Citroën special tools, and should be entrusted to a Citroën dealer or a suitably-equipped specialist.

9 Rear suspension trailing arm – removal and refitting

Removal

Note: *A new trailing arm pivot shaft nut must be used on refitting.*

1 Chock the front wheels and apply the parking brake, then jack up the rear of the vehicle, and support securely on axle stands with the rear wheels clear of the ground (*see Jacking and Vehicle Support*). Remove the relevant roadwheel.

2 Depressurise the hydraulic system as described in Chapter 9.

3 Remove the securing screws, and withdraw the brake backplate from the trailing arm.

4 On models with ABS, proceed as follows.

a) Unscrew the securing bolt and remove the wheel sensor. Move the sensor to one side, taking care not to strain the wiring.

b) Remove the wheel sensor heat shield.

5 Remove the relevant rear suspension hydraulic unit as described in Section 10.

6 Unscrew the union, and disconnect the fluid pipe from the brake caliper. Plug the open ends of the pipe and the caliper to prevent dirt ingress.

7 Release the hydraulic fluid pipe and the ABS sensor wiring from the clips on the trailing arm and the rear axle assembly. Where necessary, unbolt the brackets.

8 Set the suspension height control to the 'Normal' position.

9 Working on the side from which the trailing arm is to be removed, unscrew the two bolts securing the anti-roll bar to the trailing arm **(see illustration)**. Recover the shims from the securing bolts, noting their locations.

10 Unscrew the nut from the inner end of the trailing arm pivot shaft **(see illustration)**.

11 Withdraw the trailing arm pivot shaft, then manipulate the arm out from under the vehicle **(see illustration)**.

Refitting

12 Refitting is a reversal of removal, bearing in mind the following points.

a) Grease the entire length of the trailing arm pivot shaft.

b) Use a new pivot shaft nut, and tighten all fixings to the specified torque.

c) Ensure that the shims are in place on the anti-roll bar securing bolts as noted before removal.

d) Reconnect the fluid pipe to the brake caliper using a new seal.

e) Refit the hydraulic unit as described in Section 10.

f) Refit and adjust the ABS wheel sensor as described in Chapter 10.

g) Bleed the rear brake hydraulic system as described in Chapter 10, section 2.

10 Rear suspension hydraulic unit – removal and refitting

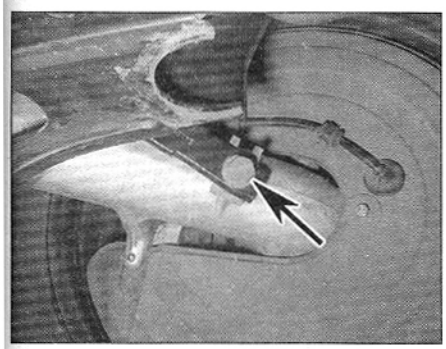
Note: *A strap wrench will be required to unscrew the hydraulic fluid reservoir bulb from the hydraulic unit. A new fluid reservoir seal and, where applicable, a new fluid pipe seal will be required on refitting.*

Removal

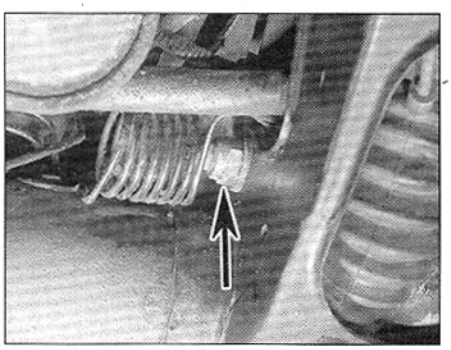
1 Depressurise the hydraulic system as described in Chapter 9.

2 Jack up the vehicle, and support on axle stands with the roadwheels clear of the ground (see *Jacking and Vehicle Support*). Remove the relevant roadwheel.

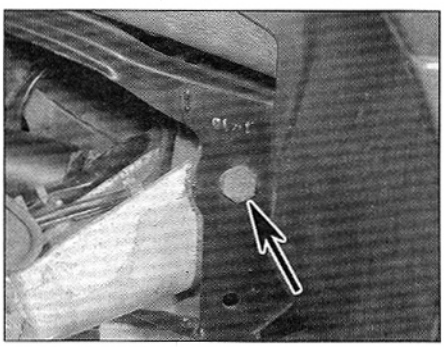
3 Drain as much fluid as possible from the suspension hydraulic unit by compressing the suspension, pushing up on the trailing arm.



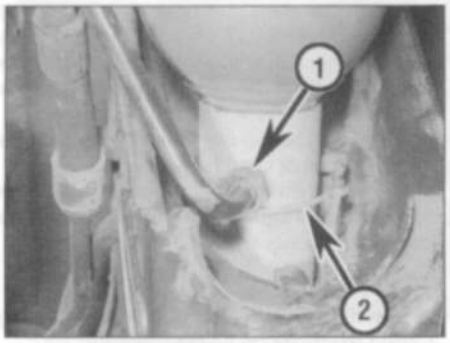
9.9 Anti-roll bar-to-trailing arm securing bolt (arrowed)



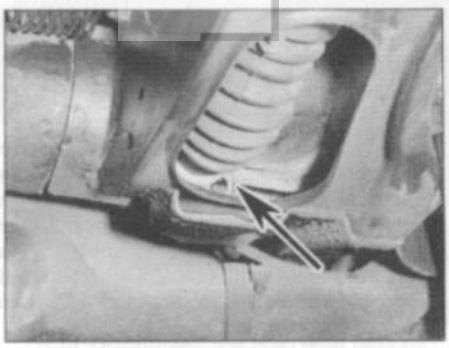
9.10 Unscrew the nut (arrowed) from the trailing arm pivot shaft . . .



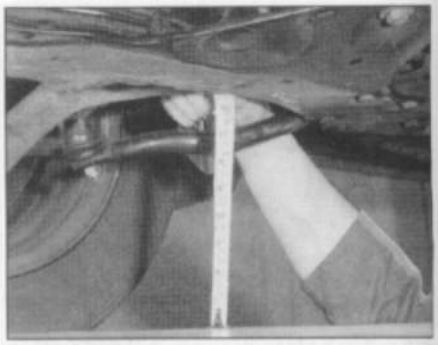
9.11 . . . then withdraw the pivot shaft (arrowed)



10.5 Rear suspension hydraulic unit fluid supply pipe (1) and hydraulic unit retaining clip (2)



10.6 Suspension link rod spring clip (arrowed)



11.7 Measuring the front ride height

4 Use a strap wrench to loosen the hydraulic fluid reservoir bulb, then unscrew the reservoir bulb from the hydraulic unit.
5 Disconnect the hydraulic fluid supply pipe from the hydraulic unit. Plug the open ends of the hydraulic unit and the pipe to prevent dirt entry **(see illustration)**.
6 Remove the spring clip from the suspension link rod **(see illustration)**.
7 Remove the hydraulic unit retaining spring clip.
8 Manipulate the hydraulic unit out from the rear suspension assembly, and disconnect the hydraulic fluid return pipe and the vent pipe.

Refitting

9 Refitting is a reversal of removal, bearing in mind the following points.

a) Ensure that the fluid return pipe and the vent pipe are securely reconnected, and make sure that they are not trapped.
b) Use a new seal when reconnecting the fluid supply pipe.
c) Grease the contact face of the hydraulic fluid reservoir bulb, and refit the reservoir bulb using a new seal. Tighten the reservoir bulb by hand only.
d) Pressurise the hydraulic system as described in Chapter 9, and check for leaks from the disturbed components.
e) On completion, check and if necessary top up the hydraulic fluid level as described in "Weekly checks".

11 Vehicle ride height – checking and adjustment

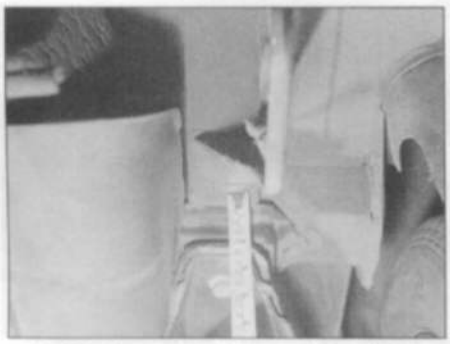
Checking

Note: *After each movement of the bodyshell, and each measurement during the following procedure, move the vehicle backwards and forwards slightly by turning one of the roadwheels. This will relieve any stress in the suspension components.*

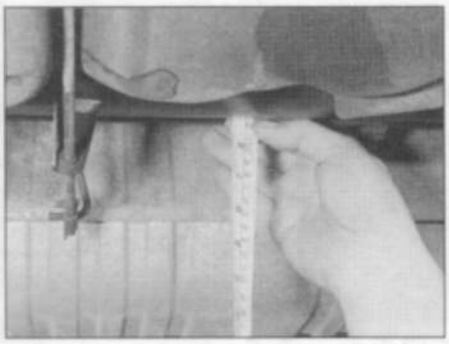
1 Check the tyre pressures, and adjust if necessary.
2 Raise the vehicle on a four-post lift.
3 Set the suspension height control to the 'Normal' position.
4 Release the parking brake.
5 Start the engine.
6 Working under the vehicle, push the vehicle up as far as possible by hand, then let go. The vehicle will drop, then rise and settle.
7 Measure the front ride height at each side, by measuring the distance between the bed of the four-post lift (the flat area on which the roadwheels are resting), and the lower surface of the subframe longitudinal member on each side of the vehicle **(see illustration)**.
8 Push the vehicle down as far as possible by hand, then let go. The vehicle will rise, then drop and settle.
9 Again measure the front ride height as described in paragraph 7. Take an average of the two measurements to give the front ride height for each side of the vehicle.
10 Repeat the procedure in paragraphs 6 to 9 to measure the rear ride height but, on models up to 1994, take the measurements between the bed of the four-post lift (the flat area on which the roadwheels are resting), and the point on the body directly behind the rear suspension rear mounting point. On models from 1995, take the measurement between the flat area on which the roadwheels are resting, and the lower surface of the rear suspension crosstube **(see illustrations)**. Again, take an average of the two measurements to give the rear ride height for each side of the vehicle.
11 Check the ride height measurements with the figures given in the Specifications.

Adjustment

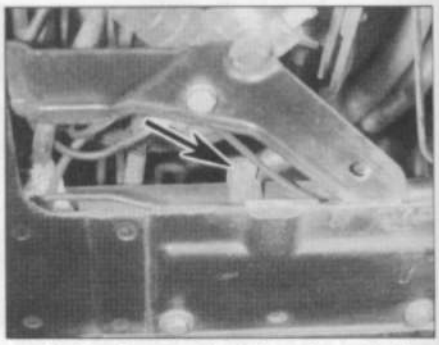
12 The ride height is adjusted by rotating the height corrector control rod clamps on the anti-roll bars. This is a trial-and-error process.
13 To adjust the position of the relevant control rod clamp (one on the front and one on the rear anti-roll bars), slacken the clamp bolt, and pivot the clamp as necessary, then tighten the clamp bolt, and re-check the ride height as described previously in this Section **(see illustrations)**.
14 Note that when carrying out adjustment, there should be approximately 1.0 mm freeplay between the height corrector rod



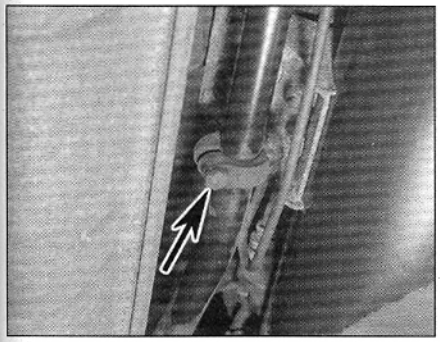
11.10a Measuring the rear ride height – models up to 1994



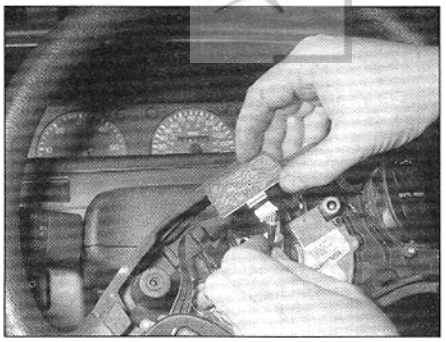
11.10b Measuring the rear ride height – models from 1995



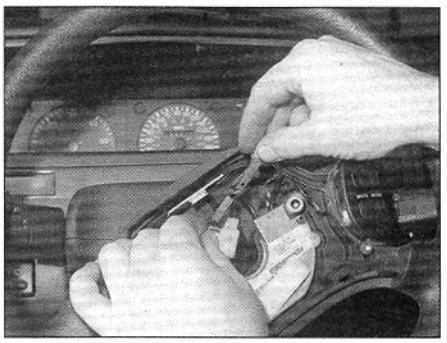
11.13a Front anti-roll bar clamp bolt (arrowed)



11.13b Rear anti-roll bar clamp bolt (arrowed)



12.7 Disconnect the radio/cassette player remote control switch wiring plug



12.8 Separate the two halves of the air bag electronic control unit wiring connector

balljoint and the height corrector control rod lever.

15 The front ride heights on each side of the vehicle must be equal to within ± 2.0 mm. On early models, if necessary, once the overall front ride height has been set, any difference in height from side-to-side can be eliminated by adjusting the length of the anti-roll bar drop links. To adjust a drop link, unscrew the locknut towards the top of the drop link, and rotate the drop link upper section whilst holding the lower section still. Tighten the locknut on completion.

12 Steering wheel – removal and refitting

Models without air bag

Removal

1 Using a screwdriver, release the securing clip, and remove the cover from the battery, then disconnect the battery negative lead.

2 Carefully prise the centre pad from the steering wheel.

3 Where applicable, disconnect the steering wheel-mounted radio/cassette player remote control switch wiring plug(s).

4 Unscrew the steering wheel securing nut, and lift off the washer, then withdraw the steering wheel. Where applicable, feed the wiring through the steering wheel as it is withdrawn.

Refitting

5 Refitting is a reversal of removal but, where applicable, make sure that the wiring is correctly routed through the wheel, and tighten the steering wheel securing nut to the specified torque.

Models with air bag

Note: *The air bag electronic control unit is integral with the steering wheel. Take care not to damage the unit during removal, and store the wheel carefully once removed.*

Removal

6 Remove the air bag unit as described in Chapter 13.

7 Where applicable, disconnect the radio/cassette player remote control switch wiring plug **(see illustration)**.

8 Unclip the air bag electronic control unit wiring connector from the steering wheel, and separate the two halves of the connector **(see illustration)**.

9 Unscrew the steering wheel securing nut, and recover the washer, then withdraw the steering wheel **(see illustration)**. Feed the wiring through the steering wheel as it is withdrawn.

10 Store the wheel carefully, taking care not to damage the air bag electronic control unit.

Refitting

11 Refitting is a reversal of removal, bearing in mind the following points.

a) Make sure that the wiring is correctly routed through the wheel.

b) Tighten the steering wheel securing nut to the specified torque.

c) Refit the air bag unit as described in Chapter 13.

13 Steering column – removal, inspection and refitting

Removal

1 Using a screwdriver, release the securing clip, and remove the cover from the battery, then disconnect the battery negative lead.

2 Set the roadwheels in the straight-ahead position.

3 Remove the steering wheel as described in Section 12.

4 Remove the securing clips and screws, and remove the driver's footwell carpet trim panel from the underside of the facia.

5 Working on the driver's side of the centre console, remove the side trim panel as follows.

a) Unscrew the two screws securing the front air vent, and pull out the air vent.

b) Unscrew the screw securing the rear air vent, and withdraw the vent.

c) Working through the slit in the carpet trim, unscrew the side trim panel rear securing nut.

d) Withdraw the trim panel.

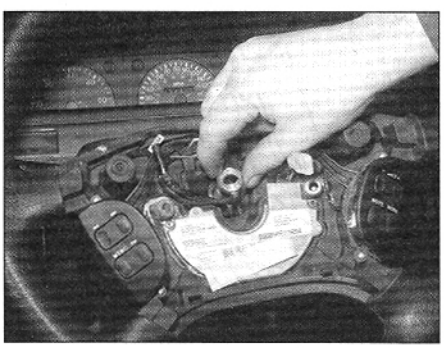
6 Remove the securing screws, and withdraw the driver's side lower facia panel.

7 On models up to 1994, disconnect the end of the parking brake lever cable from the parking brake linkage balljoint.

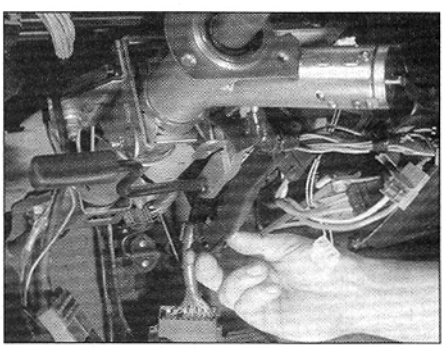
8 Remove the steering column shrouds, as described in Chapter 12, section 23.

9 On left-hand-drive models, where applicable, remove the securing screw from the lower end of the fusebox, then unclip the upper end of the fusebox, and lower the assembly for access to the steering column switch wiring connectors.

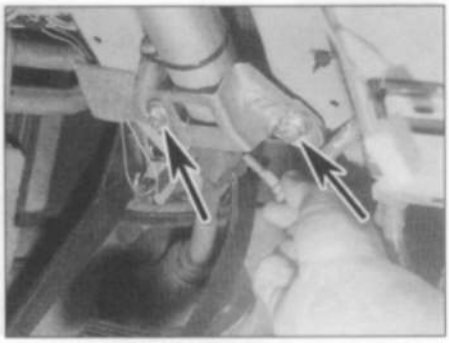
10 Trace the wiring back from the switches mounted on the steering column, and disconnect the wiring connectors. Note that on models from 1995, it may be necessary to unclip the plastic wiring ducts from the steering column in order to allow the wiring to be disconnected **(see illustration)**.



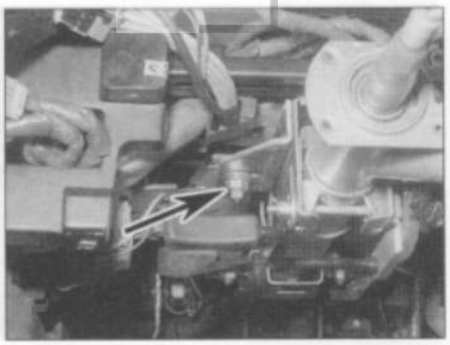
12.9 Removing the steering wheel securing nut



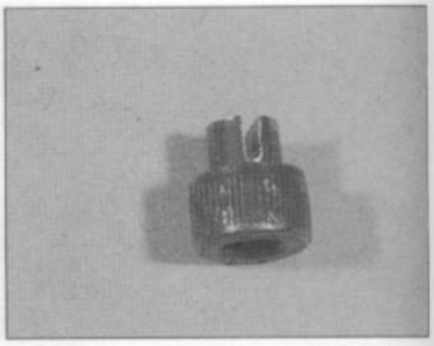
13.10 Unclipping a wiring duct from the steering column – models from 1995



13.11 Removing the steering column universal joint clamp bolt – lower steering column securing nuts arrowed



13.12 Steering column upper securing nut (arrowed)



13.16 Improvised tool (made from M7 bolt) for centring steering column bearing

11 Unscrew the clamp nut and bolt, and, then carefully prise out the legs of the safety clip, and disconnect the steering column universal joint from the intermediate shaft **(see illustration)**.

12 Unscrew the four steering column securing nuts, then withdraw the column assembly. Note the locations of any washers under the nuts **(see illustration)**.

Inspection

13 The steering column incorporates a telescopic safety feature. In the event of a front-end crash, the shaft collapses and prevents the steering wheel injuring the driver. Before refitting the steering column, examine the column and mountings for signs of damage and deformation, and renew as necessary.

14 Check the steering shaft for signs of free play in the column bushes, and check the universal joints for signs of damage or roughness in the joint bearings. If any damage or wear is found on the steering column universal joints or shaft bushes, the column must be renewed as an assembly.

Refitting

15 Commence refitting by offering the steering column into position, and loosely refitting the securing nuts. Make sure that any washers noted during removal are in place.

16 If the column tube has a red plastic stop sleeve attached to it, unclip the sleeve, and engage the lug on the sleeve with the bearing slot in the column tube. If no stop sleeve is fitted to the column, a suitable alternative can be improvised as follows **(see illustration)**.

a) Obtain an M7 bolt, and cut off the threaded section of the bolt to leave the shank and head.

b) Cut a 2.0 mm wide slot in the centre of the end of the shank.

17 Fit the stop sleeve or the improvised tool to the slot in the steering column tube, making sure that the slot in the sleeve or tool engages with the steering column bearing plate **(see illustration)**. If desired, the improvised tool can be temporarily held in place using a cable-tie.

18 Reconnect the steering column universal joint to the intermediate shaft, and ensure that the safety clip is correctly fitted, then refit the clamp nut and bolt, and tighten to the specified torque.

19 Tighten the steering column securing nuts to the specified torque, then remove the stop sleeve or improvised tool (as applicable) from the slot in the column tube.

20 Further refitting is a reversal of removal, bearing in mind the following points.

a) Refit the steering column shrouds with reference to Chapter 12, section 23.

b) Where applicable, reconnect the parking brake cable, and check the parking brake operation and adjustment as described in Chapter 10.

c) Refit the steering wheel as described in Section 12.

21 On completion, adjust the steering column as follows **(see illustration)**.

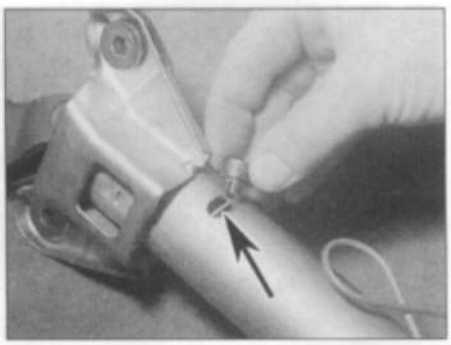
a) Unlock the steering column adjuster lever, then pull the column out and push it down.

b) Slacken the column adjuster locknut.

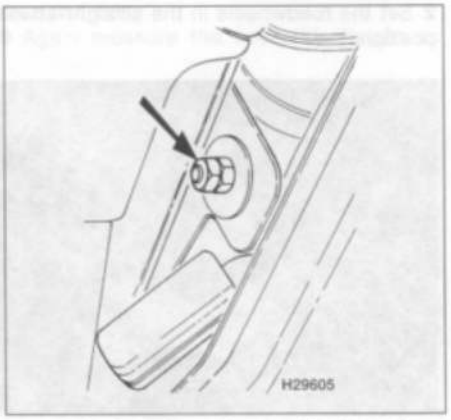
c) Turn the adjuster nut so that the steering column slides horizontally and vertically without resistance.

d) Tighten the locknut.

e) Lock the adjuster lever, and check that the steering column is firmly locked in position – if not, repeat the adjustment procedure.



13.17 The slot in the tool must engage with the bearing plate (arrowed)



13.21 Steering column adjuster nut (arrowed)

14 Ignition switch/steering column lock – removal and refitting

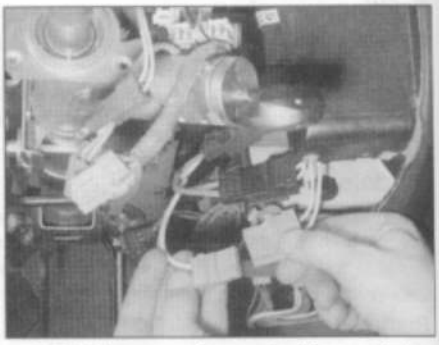
Right-hand-drive models

Removal

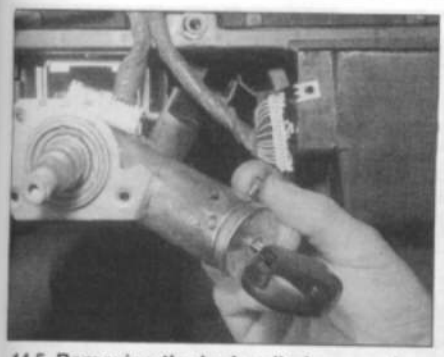
1 Using a screwdriver, release the securing clip, and remove the cover from the battery, then disconnect the battery negative lead.

2 Remove the lower steering column shroud, as described in Chapter 12.

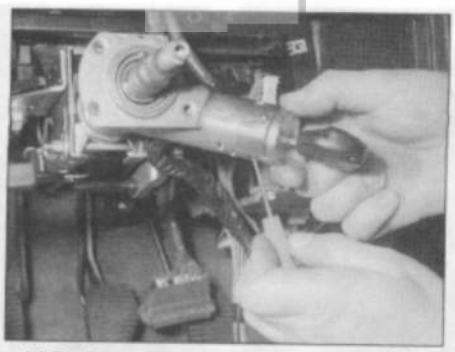
3 Trace the wiring back from the ignition switch, and disconnect the wiring connectors under the steering column **(see illustration)**.



14.3 Disconnecting an ignition switch wiring connector



14.5 Removing the lock cylinder securing screw



14.7a Depress the lock securing lug . . .

14.7b . . . then pull the lock cylinder from the housing

On later models, it may be necessary to unclip the plastic wiring housing from the steering column, in order to release the wiring – the housing can be opened to allow the wiring to be released or, alternatively, it may be possible to feed the wiring through the housing (in this case, refitting may be difficult).

4 Release the ignition switch wiring from any clips and brackets, taking note of its routing.

5 Unscrew the lock cylinder securing screw from the housing on the steering column **(see illustration)**.

6 Insert the ignition key into the lock, and turn the key to the position between 'A' and 'S'.

7 Using a screwdriver, depress the lock securing lug, then pull the lock cylinder from the housing using the ignition key **(see illustrations)**. Feed the wiring connectors through the hole in the steering column.

8 If desired, the ignition switch can be separated from the steering column lock after unscrewing the securing grub screw – take care, as a spring will be ejected as the switch and lock cylinder are separated.

Refitting

9 Refitting is a reversal of removal, bearing in mind the following points.

a) *Where applicable, make sure that the spring engages with the pin when refitting the ignition switch to the steering column lock.*

b) *Make sure that the lock cylinder securing lug engages securely.*

c) *Ensure that the wiring is routed as noted before removal.*

Left-hand-drive models

Removal

10 Using a screwdriver, release the securing clip, and remove the cover from the battery, then disconnect the battery negative lead.

11 Remove the securing clips and screws, and remove the driver's footwell carpet trim panel from the underside of the facia.

12 Working on one side of the centre console, remove the side trim panel as follows.

a) *Unscrew the two screws securing the front air vent, and pull out the air vent.*

b) *Unscrew the screw securing the rear air vent, and withdraw the vent.*

c) *Working through the slit in the carpet trim, unscrew the side trim panel rear securing nut.*

d) *Withdraw the trim panel.*

13 Remove the securing screws, and withdraw the driver's side lower facia panel.

14 On models up to 1994, disconnect the end of the parking brake lever cable from the parking brake linkage balljoint.

15 Remove the lower steering column shroud, with reference to Chapter 12 if necessary.

16 Remove the securing screw from the lower end of the fusebox, then unclip the upper end of the fusebox, and lower the assembly for access to the steering column switch wiring connectors.

17 Disconnect the steering column switch wiring connectors from the rear of the fusebox, then move the fusebox assembly to one side, taking care not to strain the wiring. Take careful note of the routing of the ignition switch wiring.

18 Proceed as described in paragraphs 5 to 8.

Refitting

19 Refer to paragraph 9.

15 Steering gear assembly – removal, overhaul and refitting

Removal

Note: *A balljoint separator tool will be required for this operation. New track-rod balljoint nuts, and a new intermediate shaft-to-steering gear pinion pinch-bolt will be required on refitting. New hydraulic fluid pipe seals will be required.*

1 Jack up the vehicle, and support on axle stands with the roadwheels clear of the ground (see *Jacking and Vehicle Support*). Remove the front roadwheels.

2 Slacken the pressure release screw on the hydraulic pressure regulator – see Chapter 9.

3 Turn the steering from lock-to-lock to drain the steering gear hydraulic ram.

4 Remove the securing clips and screws, and remove the driver's footwell carpet trim panel from the underside of the facia.

5 Unscrew the clamp nut and bolt, and, then carefully prise out the legs of the safety clip, and disconnect the steering column universal joint from the intermediate shaft.

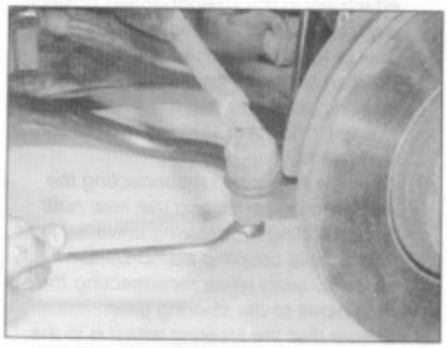
6 Unscrew the clamp nut and bolt, and disconnect the steering intermediate shaft flexible coupling from the steering gear pinion. Pull up on the intermediate shaft to disconnect the coupling from the pinion.

7 On manual transmission models, disconnect the two gearchange link rods from their balljoints, then move the gearchange control rod to one side.

8 Disconnect the exhaust front section from the intermediate section with reference to Chapter 4C, section 7. Move the exhaust sections clear of the working area, and if necessary support them using wire or string.

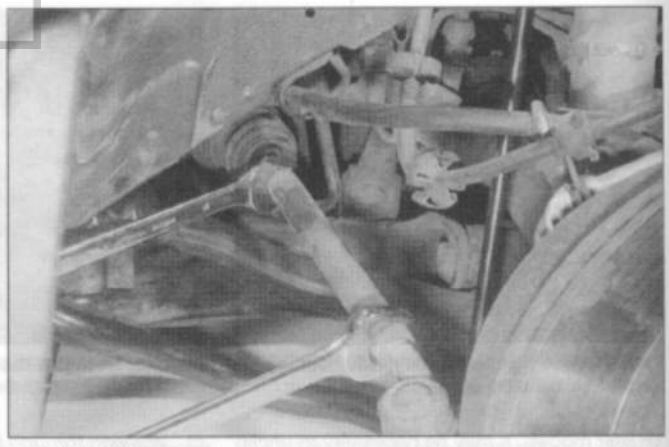
9 Disconnect the steering gear hydraulic fluid return pipe, then unscrew the union nuts and disconnect the two fluid feed pipes – disconnect the pipes from the unions, **do not** unscrew the unions from the steering gear. Be prepared for fluid spillage, and plug the open ends of the pipes and steering gear to prevent dirt entry and further fluid loss.

10 Working on each side of the vehicle in turn, slacken and partially unscrew the track-rod balljoint nut (unscrew the nut as far as the end of the threads on the balljoint to prevent damage to the threads as the joint is released), then release the balljoint using a balljoint separator tool **(see illustration)**. Remove the nut.



15.10 Slackening the track-rod balljoint nut

15.12 Steering gear securing bolt (arrowed)



16.4 Hold the track-rod and unscrew the track-rod end locknut

11 Unbolt and remove the steering gear heat shield.

12 Unscrew the two steering gear securing bolts from the subframe, then manipulate the steering gear out from under the right-hand wheel arch **(see illustration)**.

13 Recover the two thrust washers, which fit under the steering gear.

Overhaul

14 Examine the steering gear assembly for signs of wear or damage, and check that the rack moves freely throughout the full length of its travel, with no signs of roughness or excessive free play between the steering gear pinion and rack. It is possible to overhaul the steering gear assembly, but this task should be entrusted to a Citroën dealer. The only components which can be renewed easily by the home mechanic are the track-rod ends (see Section 16).

15 Inspect all the steering gear fluid unions for signs of leakage, and check that all union nuts are securely tightened. Also examine the steering gear hydraulic ram for signs of fluid leakage or damage, and if necessary renew it.

Refitting

16 Refitting is a reversal of removal, bearing in mind the following points.

a) *Centralise the rack so that the steering is effectively in the straight-ahead position before refitting the steering gear.*
b) *Ensure that the thrust washers are in position between the subframe and the steering gear, and that the washers are in position under the steering gear securing bolt heads.*
c) *Use new nuts when reconnecting the track-rod balljoints, and use new nuts when refitting the steering universal joint and flexible coupling clamp-bolts.*
d) *Use new seals when reconnecting the fluid pipes to the steering gear.*
e) *Ensure that the steering wheel is in the straight-ahead position, and that the steering gear is centralised before reconnecting the intermediate shaft to the steering gear and column.*
f) *Before lowering the vehicle to the ground, retighten the hydraulic pressure regulator bleed screw.*
g) *On completion, check and if necessary adjust the front wheel alignment as described in Section 17.*

16 Track-rod end – removal and refitting

Removal

Note: *A new balljoint-to-hub carrier nut will be required on refitting.*

1 Chock the rear wheels, then jack up the front of the vehicle, and support securely on axle stands (see *Jacking and Vehicle Support*). Remove the relevant roadwheel.

2 Slacken and partially unscrew the track-rod balljoint nut (unscrew the nut as far as the end of the threads on the balljoint to prevent damage to the threads as the joint is released), then release the balljoint using a balljoint separator tool. Remove the nut.

3 If the track-rod end is to be re-used, use a straight-edge and a scriber, or similar, to mark its relationship to the track-rod.

4 Hold the track-rod, using a spanner on the flats provided, and unscrew the track-rod end locknut by a quarter of a turn **(see illustration)**. Do not move the locknut from this position, as it will serve as a handy reference mark on refitting.

5 Counting the **exact** number of turns necessary to do so, unscrew the track-rod end from the track-rod.

6 Count the number of exposed threads between the end of the track-rod end and the locknut, and record this figure. If a new track-rod end is to be fitted, unscrew the locknut from the old track-rod end.

7 Carefully clean the track-rod end and the threads. Renew the track-rod end if the balljoint movement is sloppy or too stiff, if excessively worn, or if damaged in any way; carefully check the balljoint taper and threads. If the balljoint gaiter is damaged, the complete track-rod end assembly must be renewed; it is not possible to obtain the gaiter separately.

Refitting

8 If a new track-rod end is to be fitted, screw the locknut onto its threads, and position it so that the same number of exposed threads are visible, as was noted on the old track-rod end prior to removal.

9 Screw the track-rod end into the track-rod by the number of turns noted on removal. This should bring the locknut to within a quarter of a turn from the shoulder on the track-rod, with the alignment marks that were made on removal (if applicable) lined up.

10 Reconnect the track-rod balljoint to the hub carrier, then fit a new nut and tighten to the specified torque.

11 Refit the roadwheel, then lower the vehicle to the ground and tighten the roadwheel bolts to the specified torque.

12 Check and, if necessary, adjust the front wheel alignment as described in Section 17, then securely tighten the balljoint locknut.

17 Wheel alignment and steering angles – general information

General

1 A car's steering and suspension geometry is defined in four basic settings - all angles are expressed in degrees (toe settings are also expressed as a measurement); the relevant settings are camber, castor, steering axis inclination, and toe-setting. With the exception of front wheel toe-setting, none of these settings are adjustable.

Front wheel toe setting - checking and adjustment

2 Due to the special measuring equipment necessary to accurately check the wheel alignment, and the skill required to use it properly, checking and adjustment is best left to a Citroën dealer or similar expert. Note that most tyre-fitting shops now possess sophisticated checking equipment. The following is provided as a guide, should the owner decide to carry out a DIY check.

3 The front wheel toe setting is checked by measuring the distance between the front and rear inside edges of the roadwheel rims. Proprietary toe measurement gauges are available from motor accessory shops. Adjustment is made by screwing the track-rod ends in or out of their track-rods, to alter the effective length of the track-rod assemblies.

4 For **accurate** checking, the vehicle **must** be at the kerb weight, ie unladen and with a full tank of fuel, and the ride height must be correct (see Section 11).

5 Before starting work, check first that the tyre sizes and types are as specified, then check the tyre pressures and tread wear, the roadwheel run-out, the condition of the hub bearings, the steering wheel free play, and the condition of the front suspension components (Chapter 1A or 1B). Correct any faults found.

6 Park the vehicle on level ground, check that the front roadwheels are in the straight-ahead position, then rock the rear and front ends to settle the suspension. Release the parking brake, and roll the vehicle backwards 1 metre, then forwards again, to relieve any stresses in the steering and suspension components.

7 Measure the distance between the front edges of the wheel rims and the rear edges of the rims. Subtract the rear measurement from the front measurement, and check that the result is within the specified range.

8 If adjustment is necessary, chock the rear wheels, then jack up the front of the vehicle and support it securely on axle stands (*see Jacking and Vehicle Support*). Turn the steering wheel onto full-left lock, and record the number of exposed threads on the right-hand track-rod end. Now turn the steering onto full-right lock, and record the number of threads on the left-hand side. If there are the same number of threads visible on both sides, then subsequent adjustment should be made equally on both sides. If there are more threads visible on one side than the other, it will be necessary to compensate for this during adjustment. **Note:** *It is most important that after adjustment, the same number of threads are visible on each track-rod end.*

9 First clean the track-rod threads; if they are corroded, apply penetrating fluid before starting adjustment. Release the steering gear rubber gaiter outboard clips (where necessary), and peel back the gaiters; apply a smear of grease to the inside of the gaiters, so that both are free, and will not be twisted or strained as their respective track-rods are rotated.

10 Use a straight-edge and a scriber or similar to mark the relationship of each track-rod to its track-rod end then, holding each track-rod in turn (use a spanner on the flats provided), unscrew its track-rod end locknut fully.

11 Alter the length of the track-rods, bearing in mind the note made in paragraph 8. Screw them into or out of the track-rod ends, rotating the track-rod using an open-ended spanner fitted to the flats provided on the track-rod. Shortening the track-rods (screwing them into their track-rod ends) will reduce toe-in/increase toe-out.

12 When the setting is correct, hold the track-rods and securely tighten the track-rod end locknuts. Check that the balljoints are seated correctly in their sockets, and count the exposed threads to check the length of both track-rods. If they are not the same, then the adjustment has not been made equally, and problems will be encountered with tyre scrubbing in turns; also, the steering wheel spokes will no longer be horizontal when the wheels are in the straight-ahead position.

13 If the track-rod lengths are the same, lower the vehicle to the ground and re-check the toe setting; re-adjust if necessary. When the setting is correct, securely tighten the track-rod end locknuts. Ensure that the steering gear rubber gaiters are seated correctly, and are not twisted or strained, and secure them in position with new retaining clips (where necessary).