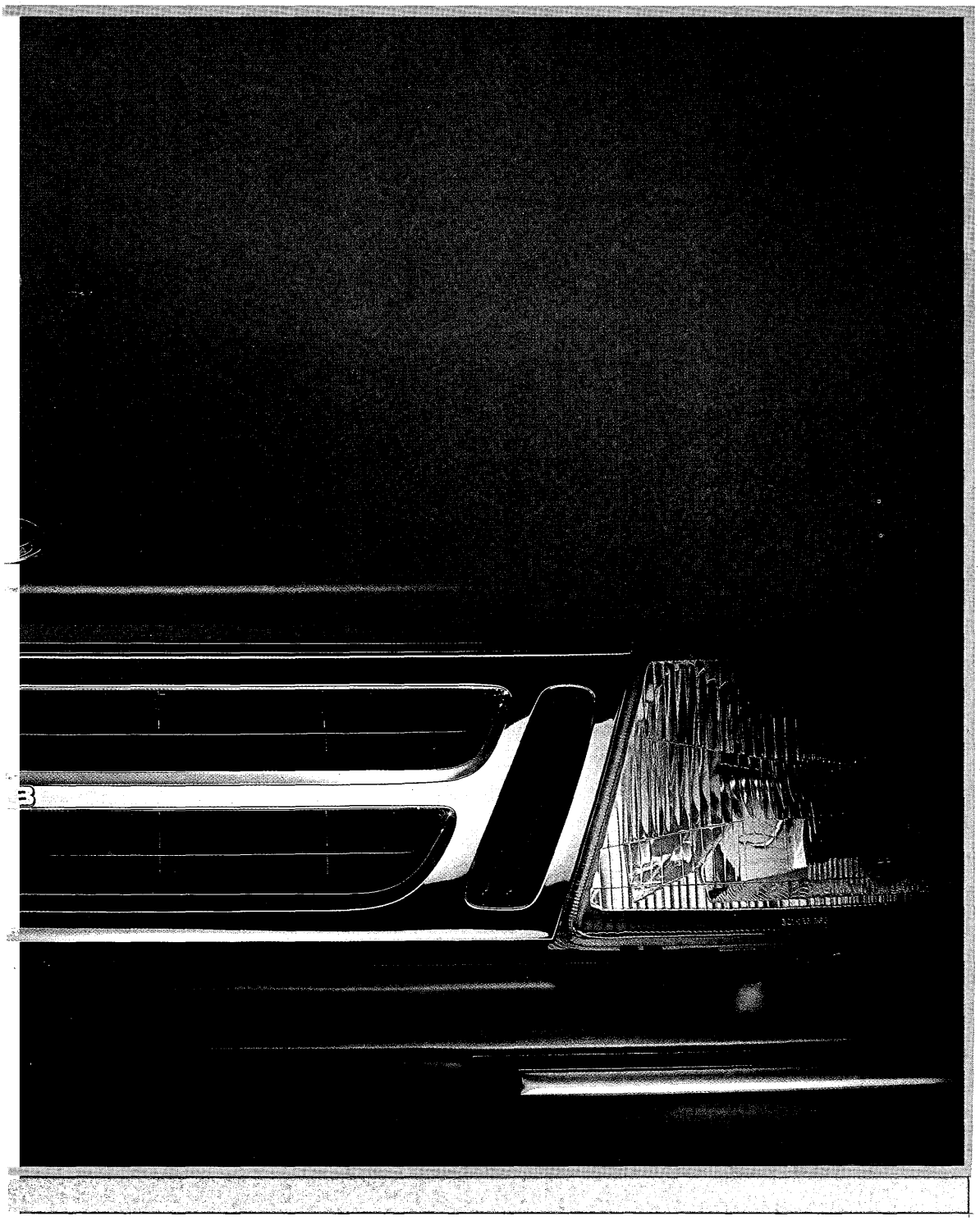
Saab 9000

SERVICE MANUAL



SAAB

I Service

M 1992

Saab 9000

SERVICE MANUAL

1 Service

M 1992

Units

The basic and derived units used throughout the Service Manual are in accordance with the SI system. (Systéme International d'Unités)

For users not familiar with the SI units, some non-Continental units are given in brackets after the respective SI unit.

The following symbols and abbreviations are used:

SI unit	Equivalent unit and symbol
Millimeter (mm)	inch (in)
Kilograme (kg)	pound (lb)
Newton (N)	pound-force (lbf)
Newtonmeter (Nm)	foot pound (ft lb)
Atmosphere (bar)	pound-force per square inch (lbf/in^2) (Also abbreviated: psi)
Liter (l)	US liquid quart (liq qt) (Also abbreviated: qts) US gallon (USgal)
°Celcius (°C)	°Fahrenheit (°F)

Conversion factors	
1 in = 25.4 mm	1 mm = 0.039 in
1 lb = 0.45 kg	1 kg = 2.20 lb
1 lbf = 4.45 N	1 N = 0.23 lbf
1 lbf ft = 1.36 Nm	1 Nm = 0.74 lbf ft
1 psi = 0.07 bar	1 bar = 14.5 lbf/in^2
1 US liq qt = 0.83 UKqt	1 l = 1.05 liq qt
	1 USgal = 0.83 UKgal
°F = °C x 9/5 + 32	°C = (°F - 32) x 5/9

Market codes

The codes refer to market specifications

AT	Austria	GB	Great Britain
AU	Australia	GR	Greece
BE	Belgium	IS	Iceland
CA	Canada	IT	Italy
CH	Switzerland	JP	Japan
DE	Germany	ME	Middle East
DK	Denmark	NL	Netherlands
ES	Spain	NO	Norway
EU	Europe	SE	Sweden
FE	Far East	US	USA
FI	Finland	UC	US California
FR	France		

Production: Technical Publications, Saab Automobile AB, Trollhättan, Sweden

Saab Recommended Maintenance Program, 9000 Models (U.S. & Canada)

Service Interval** Miles = U.S. Cars Kilometers = Canadian Cars		5,000 (8,000 km)	15,000 (24,000 km)	25,000 (40,000 km)	35,000 (56,000 km)	45,000 (72,000 km)	55,000 (88,000 km)	65,000 (104,000 km)	75,000 (120,000 km)	85,000 (136,000 km)	95,000 (152,000 km)	105,000 (168,000 km)
Service #		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Engine and engine compartment												
E	Engine oil and filter (a.)	■	■	■	■	■	■	■	■	■	■	■
R	Coolant freezing point and level	○	○	○		○	○		○	○		○
R	Coolant flush and replace (max. 3-year intervals)				■			■			■	
R	Cooling system, hoses and cap	○			○			○			○	
R	Drive belt tensioner function and belt condition)	○	○	○	○	○	○	■	○	○	○	○
E	Spark plugs				■*			■			■	
E	Crankcase ventilation and vacuum lines							○			○	
E	Evaporative control system including filler cap, vapor lines, canister and purge							○			○	
R	Fuel lines; leaks and condition				○			○			○	
E	Fuel filter							■				
E	Air cleaner element				■*			■			■	
R	Exhaust system and mountings; leaks and condition	○	○	○	○	○	○	○	○	○	○	○
R	Calibration, idle speed (Traction Control System) (b.)	○										

* For vehicles certified for sale and registered in California, these are the minimum required Emission Control System maintenance steps. Saab urges that all recommended maintenance procedures be performed according to this program.

(a.) Engine oil and filter should be changed at least once a year. Intermediate oil and filter changes (halfway between indicated intervals) suggested for cars primarily used for driving in dense city traffic or for repeated short trip operation without sufficient engine warm up.

(b.) TCS calibration must be performed by an authorized Saab dealer.

****Service Intervals:** Repeat service procedures for Service #2 at 115,000/135,000/145,000 etc.; Service #7 at 125,000; Service #4 at 155/185,000

Application/type of service (col. 1)

E = emission service
R = regular maintenance

Service Procedure

○ = check - top up, adjust or replace if necessary
■ = replace
▲ = lubricate

Service Interval Miles = U.S. Cars Kilometers = Canadian Cars		5,000 (8,000 km)	15,000 (24,000 km)	25,000 (40,000 km)	35,000 (56,000 km)	45,000 (72,000 km)	55,000 (88,000 km)	65,000 (104,000 km)	75,000 (120,000 km)	85,000 (136,000 km)	95,000 (152,000 km)	105,000 (168,000 km)
Service #		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Electrical system												
R	Battery; check electrolyte level, clean and grease terminals	○	○	○	○	○	○	○	○	○	○	○
R	Headlamp and fog lamp alignment				○			○			○	
R	Head, fog, brake, tail, turn signal, backup and marker lamps	○	○	○	○	○	○	○	○	○	○	○
Transmission												
R	Automatic transmission fluid and filter change (c.)	■			■			■			■	
R	Gearbox oil level (manual and automatic)	○	○	○	○	○	○	○	○	○	○	○
R	Outer and inner drive joint boots	○	○	○	○	○	○	○	○	○	○	○
Chassis												
R	Hand brake function	○			○			○			○	
R	Hand brake cable adjustment	○										
R	Ball joint clearance, outer and inner steering joints and rubber boots				○			○			○	
R	Front suspension, rear axle mountings; retighten	○										
R	Shock absorbers and bushes; tightness and condition				○			○			○	
R	Tire pressure tread depth and wear (d.)	○	○	○	○	○	○	○	○	○	○	○
R	Rotate tires, front to rear	○	○	○	○	○	○	○	○	○	○	○
R	Brake pads and discs; wear and condition	○	○	○	○	○	○	○	○	○	○	○

(c.) Change automatic transmission fluid and filter at more frequent intervals (20,000, 50,000, 80,000 miles, etc.) if car is driven in dense city traffic where the outside temperature regularly reaches 90° F or higher, or if car is used in a mountainous/high altitude area or for trailer towing.

(d.) Check wheel alignment if irregular or premature tire wear is apparent.

Service Interval Miles = U.S. Cars Kilometers = Canadian Cars		5,000 (8,000 km)		15,000 (24,000 km)		25,000 (40,000 km)		35,000 (56,000 km)		45,000 (72,000 km)		55,000 (88,000 km)		65,000 (104,000 km)		75,000 (120,000 km)		85,000 (136,000 km)		95,000 (152,000 km)		105,000 (168,000 km)
Service #		**1**		**2**		**3**		**4**		**5**		**6**		**7**		**8**		**9**		**10**		**11**
Chassis (continued)																						
R	Brake lines and hoses	○		○		○		○		○		○		○		○		○		○		○
R	Brake fluid level and renewal (max. 2-year intervals)	○		○		○		■		○		○		■		○		○		■		○
R	Power steering fluid level	○		○		○		○		○		○		○		○		○		○		○
R	Toe-in							○						○						○		
Body																						
R	Ventilation air filter							■						■						■		
R	Door hinges, stops and locks							▲						▲						▲		
R	Airbag system (check after 10 years)																					
Road Test																						
R	Check performance of drive train, steering and brakes and verify tire balance. Check function of instruments and controls, including horn, windshield wipers, cruise control and climate system. Note any noises or problems for correction.	○		○		○		○		○		○		○		○		○		○		○

Pre-Delivery Inspection Control Form

Application: All 1992 Saab Models

Inspecting Dealer Code ☐☐☐☐ V.I.N. YS3☐☐☐☐☐☐N☐☐☐☐☐☐☐

Initial Inspection

- ☐ Check for proper specification and equipment. Account for spare keys and owner documents.
- ☐ Fill washer fluid reservoir.
- ☐ Install fuses (ignition off).

Interior Equipment

- ☐ Check instrument warning and indicator lamps.
- ☐ Check horn operation.
- ☐ Check cigarette lighter.
- ☐ Check instrument lighting.
- ☐ Set clock.
- ☐ Activate radio and place radio code card in glovebox.
- ☐ Check emergency flasher operation.
- ☐ Check direction indicators.
- ☐ Check headlights (high and low beam).
- ☐ Check parking lights.
- ☐ Check backup lights.
- ☐ Check brake lights.
- ☐ Check seat belt warning light.
- ☐ Check windshield/headlight wipers and washers.
- ☐ Check seat belts.
- ☐ Activate Convertible and 9000 alarm system.

Exterior Equipment

- ☐ Check headlight alignment and adjust if necessary.
- ☐ Check function of central lock system.
- ☐ Check door function (includes adjust striker plate).
- ☐ Set tire pressures (including spare).
- ☐ Check wheel bolt torque.
- ☐ Check jack and assemble tool kit.
- ☐ Check brake fluid level.
- ☐ Check power steering fluid level.
- ☐ Check cooling system level.
- ☐ Check drive belts (and tensioner function, 9000).
- ☐ Plug in APC solenoid (Turbo's).
- ☐ Check battery charge, connections and securing.
- ☐ Check engine oil.
- ☐ Check manual transmission oil level.
- ☐ Check automatic transmission oil level.
- ☐ Raise the car on a lift and check the underbody for transportation damage.
- ☐ Check front suspension bolt torque.
- ☐ Check the bolt torque for rear suspension attachments at the body.
- ☐ Remove temporary tie-down hooks (9000).
- ☐ Check final drive oil level (900 automatics).
- ☐ Remove Convertible top protection and check top operation.
- ☐ Remove transmission cooler line guard (9000 automatics).
- ☐ Install spoiler sections and fog lights (aim fog lights) where applicable.
- ☐ Install license plate bracket.

Road Test

- ☐ Road test for a minimum of 5 miles/15 minutes. Check performance of drive train, steering, brakes (including hand brake) and verify tire balance. Check function of instruments and controls, including cruise control and climate system. Note any noises or problems for correction.
- ☐ Remove interior plastic protection.

The above inspection has been completed on this new Saab.

PDI Technician _____ **Date** _____

- ☐ Car cleaned and fueled; now ready for delivery.

Performing The Pre-Delivery Inspection

Whenever used, "CHECK" means to inspect and correct/adjust to specification as necessary, and, unless stated otherwise, the service time allows for the correction, adjustment and materials (including shop supplies). Time is not included for extra work (body/door hinge and latch adjustment, front end alignment) and must be claimed separately.

PDI work may also involve correcting and claiming damages and misbuilds, according to Saab policies. **Applicable recall and service campaign work should also be performed prior to delivery.**

Always use recommended Saab practices and routines when performing services. Technicians unfamiliar with Saab PDI procedures should consult Saab Service Manual, Sec. 1 Service.

Using This Form

This is a three part form. The technician who performed the PDI should sign it, and the top copy should be retained in the service file with the work order.

The rest of the form is to be routed to the Sales Department to be kept with the Dedicated Delivery Record. At the time of retail delivery, the selling dealer is to verify the delivery condition of the car and sign the second copy (spaces for service manager and sales representative are provided). The selling dealer keeps the second copy in the sales file and the third copy goes to the purchaser.

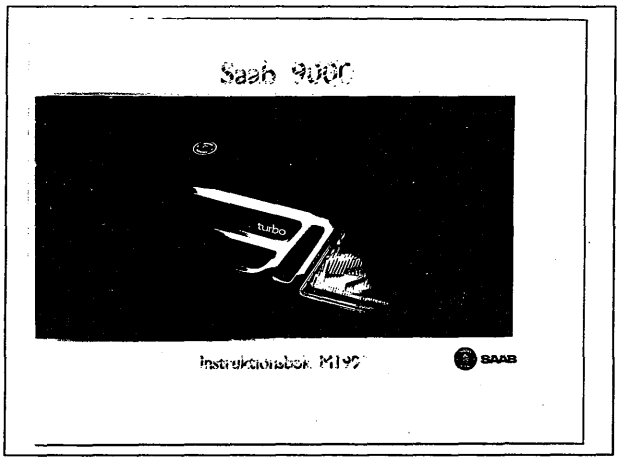
The PDI is to be done within 5 working days of receipt of the car by the dealer.

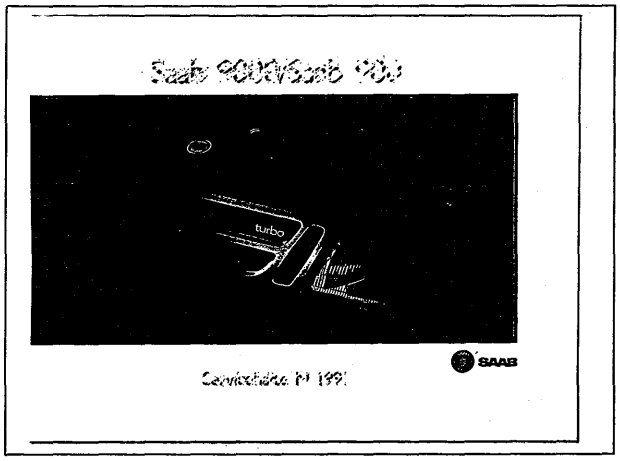
Pre-delivery service

Specification

Check that the car is equipped in accordance with the specification.

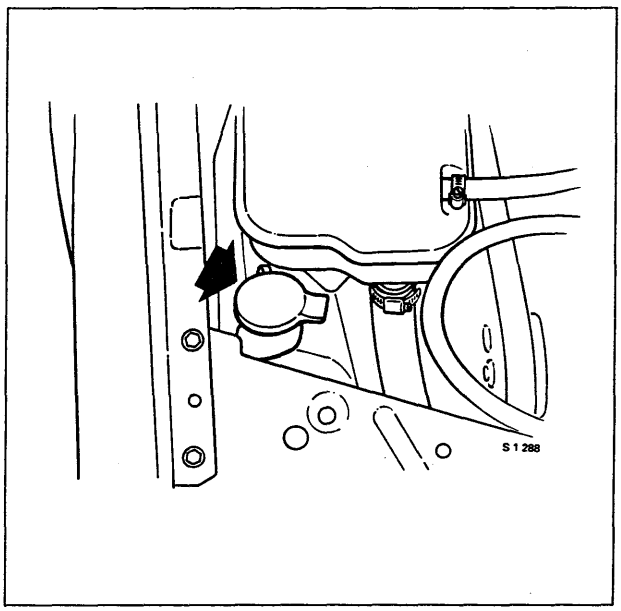
Check that the Service Book and the Owner's Manual are in the car. Fill out the Service Book and send off the report part.





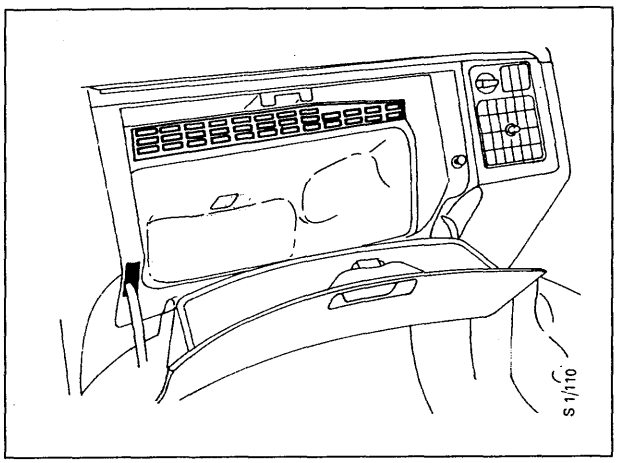
Washer fluid

Top up the washer fluid container with washer fluid and water (in accordance with the recommendations on the packaging).



Interior equipment

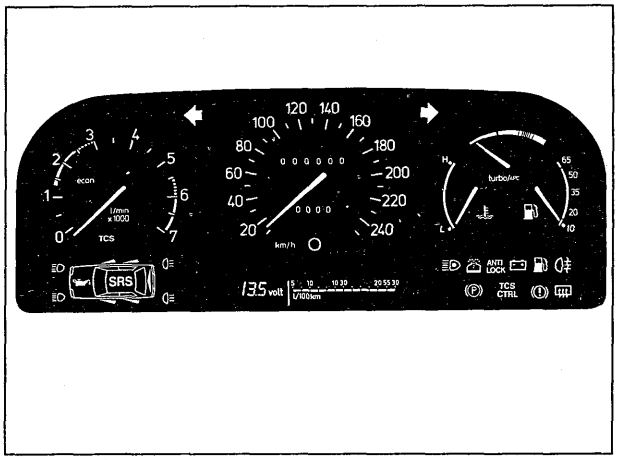
Fit the fuses for the electric aerial, radio, burglar alarm, interior lighting, central locking system and clock.



Instrument panel

Check:

- Warning and indicating lamps
- Horn
- Cigarette lighter
- Instrument panel lighting
- Clock (set to correct time)
- Audio system, enter anti-theft security code.



Radio

1 Switch on the radio. The display will show CODE. (In Turbo's, the radio will also begin beeping.)

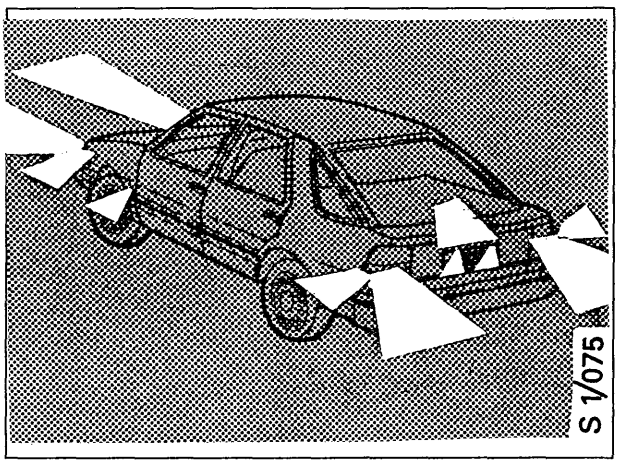
2 Enter the correct security code on the six pre-select buttons.

If you enter the wrong code, the display will continue to show the incorrect code. (Turbo models will also continue to beep.)

Press and hold the BAND switch until the display shows CODE again.

Note:

If the wrong code is entered three times in succession, the display will lock up on the fourth entry attempt. The radio must then be left on for one hour before one additional attempt can be made.



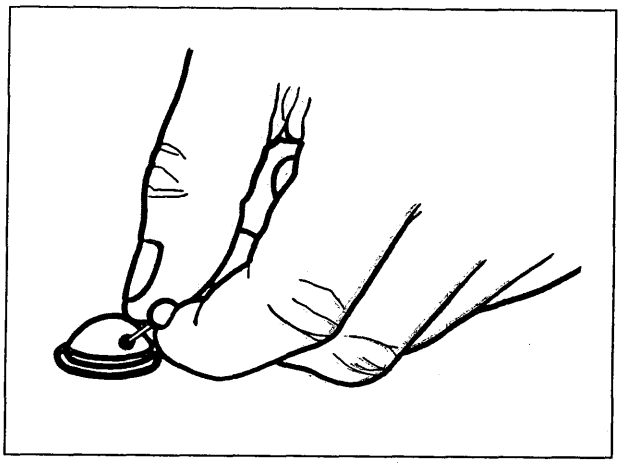
Lighting

Check:

- Hazard flashers
- Direction indicators
- Headlamps, full beam and dipped beam
- Rear lights and parking lights
- Reversing lights
- Brake lights
- Number plate illumination

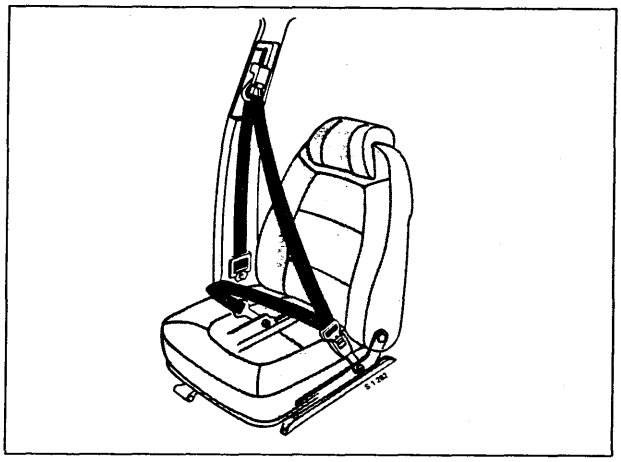
Wipers and washers

Check the operation of windscreen and headlamp wash/wipe systems, adjust washer nozzles if necessary.



Seat belts

Check the operation of the seat belts and inspect them for damage.

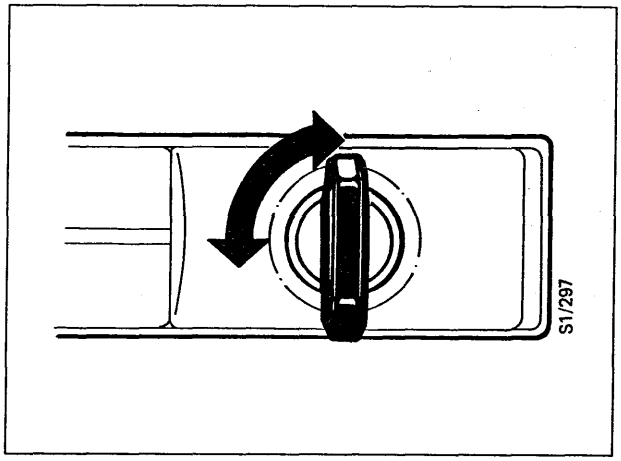


Burglar alarm

When the fuse has been fitted, the burglar alarm assumes the "transit mode". The LED in the loudspeaker grille will start flashing at four- second intervals for five minutes and then go out.

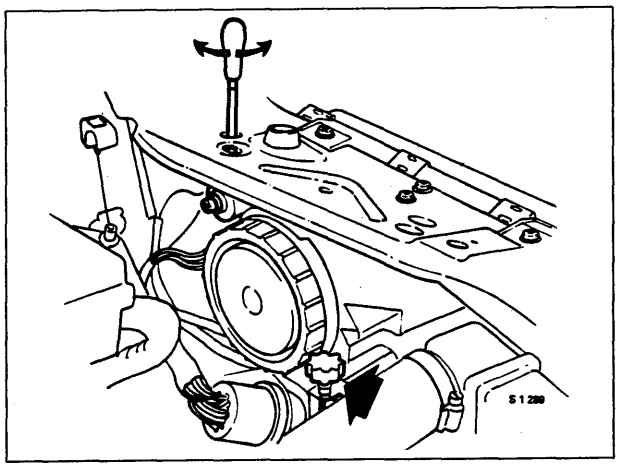
1 Make sure that the doors, the bonnet and the luggage compartment door or boot lid are closed.

2 Activate the alarm by turning the key in the driver's door lock back and forth three times in two seconds.



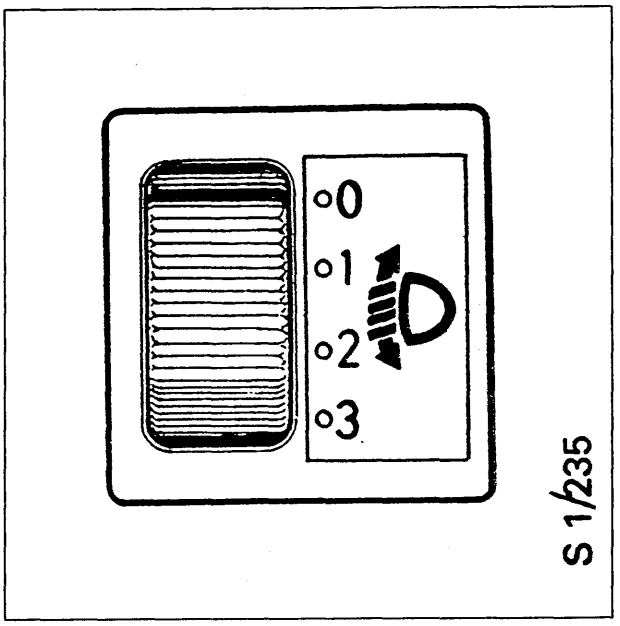
Headlamps

Check headlamp alignment and adjust if necessary.



Headlamp beam adjustment (Not US)

Check that the vertical alignment of the headlamps changes when the switch on the fascia is moved to positions 1, 2 and 3.



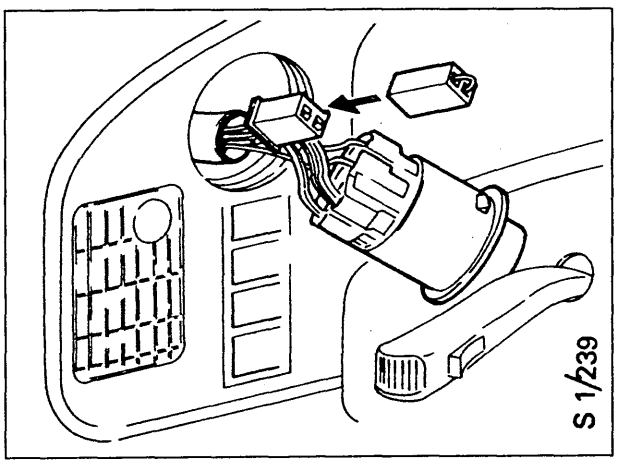
Indicating lamp, headlamps (IT, not US)

Fit the connector and multi-lead connector.

The existing connector can be reached by withdrawing the headlamp switch from the fascia.

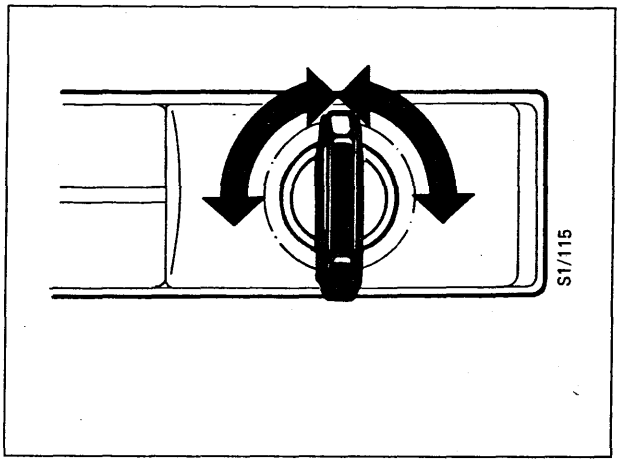
After fitting, check that the indicating lamp lights up when the parking lights or headlamps are switched on.

The indicating lamp is located in the lower right-hand corner of the tachometer.

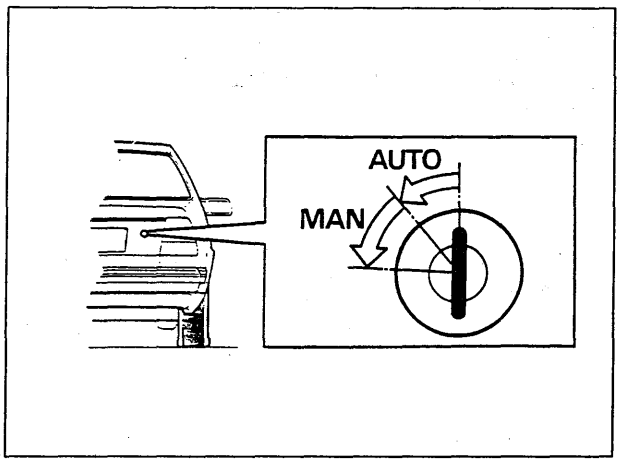


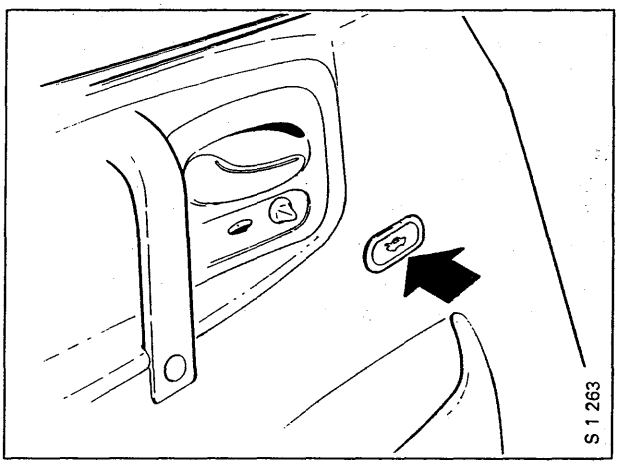
Locks

Check that all locks for the doors, rear door child safety catches and luggage compartment door or boot lid are in proper working order.



On 9000 CD models, open the boot lid (trunk) by means of the key from outside the car and also by operating the switch on the inside of the driver's door.





Tyres

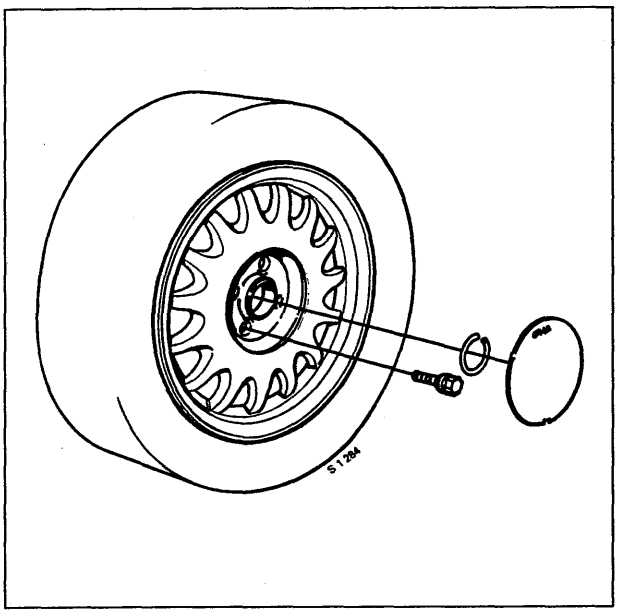
Check tyre inflation pressures and adjust if necessary.

Tyre size	Number of occupants	Speed	front		rear	
		km/h (mph)	bar	(psi)	bar	(psi)
195/65 R15 91T/H/V	1-3	0-160 (0-100)	2.1	(30)	2.1	(30)
205/55 ZR16	1-3	0-160 (0-100)	2.4	(35)	2.4	(35)
205/50 ZR16	1-3	0-160 (0-100)	2.4	(35)	2.4	(35)
205/60 ZR15	1-3	0-160 (0-100)	2.2	(32)	2.2	(32)
Spare wheel						
T115/70 R16			4.2	(60)		
175/70 R15 T			2.6	(38)		

For other types of tyres and loads, refer to the Service Manual, Group 7.

Wheel bolts, pressed steel and light alloy wheels

Retighten the wheel bolts to a torque of 105-125 Nm (77-92 lbf ft).



Note:

When light alloy wheels are fitted for the first time, tighten the bolts to a torque of 125-145 Nm (92-107 lbf ft).

A percussion-type nut runner may be used only in conjunction with a torque limiter socket. Overtightening of the bolts could damage the wheel, making it impossible for the driver to slacken them and remove the wheel in the event of a puncture.

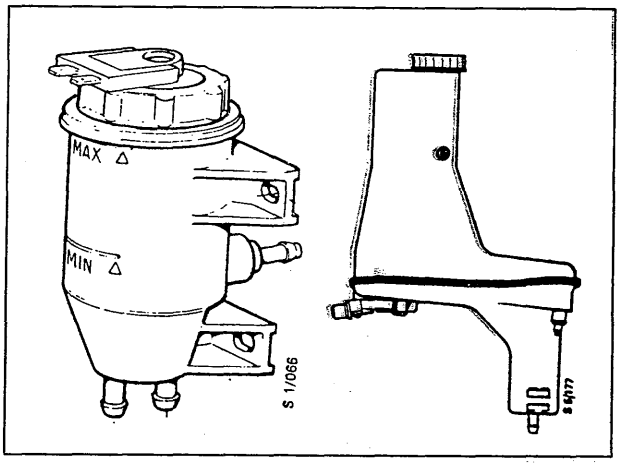
Always use a torque wrench to retighten the wheel bolts to the correct tightening torque.

Fit the hub caps.

Brake/clutch fluid level

Check the level and top up as necessary.

Grade: To DOT 4.

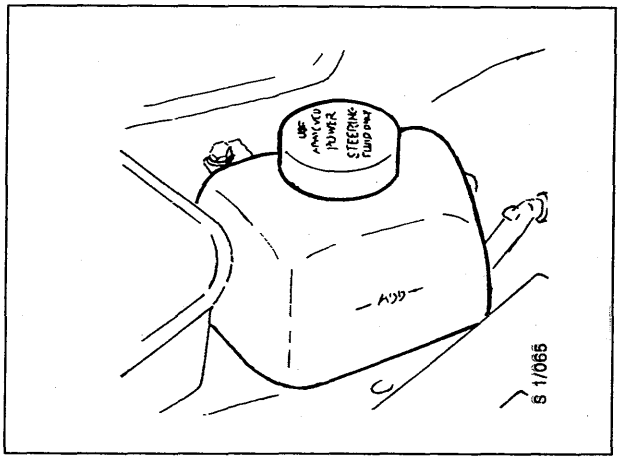


Power steering fluid level

Check the level and top up as necessary. If the fluid level is low, investigate the cause.

Grade:

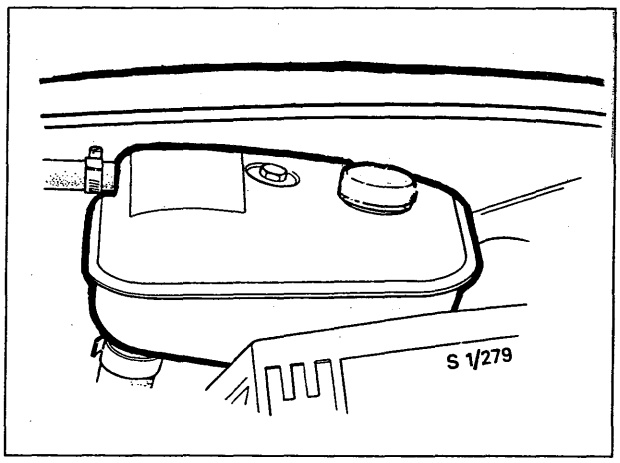
Texaco Power Steering Fluid 4634,
part No. (45) 30 09 800 or GM Power Steering Fluid,
part No. 105 0017 1 litre, 105 2884 0.5 litres



Coolant level

Check the level of the coolant and top up as necessary with equal parts of Saab anti-freeze and water. Avoid mixing different types of anti-freeze.

Do not fill up above the MAX mark.



Drive belts, no automatic belt tensioner (not US)

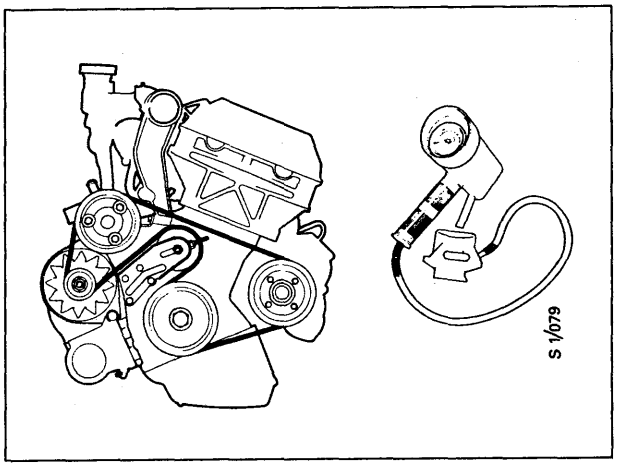
Alternator drive belt (manually adjusted)

Use an IPU tension meter to check the alternator belt tension.

New belt:
800 ± 45 N (180 ± 10 lbf)

Lower limit:
355 N (80 lbf)

Setting:
535 ± 45 N (120 ± 10 lbf)

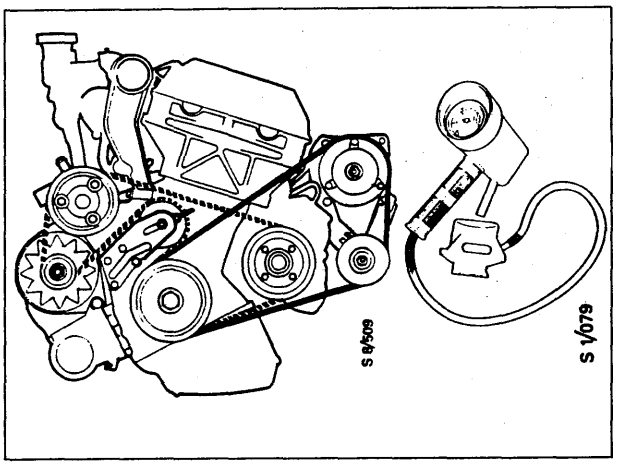


B202 without AC

AC drive belt

Use an IPU tension meter to check the AC drive belt tension.

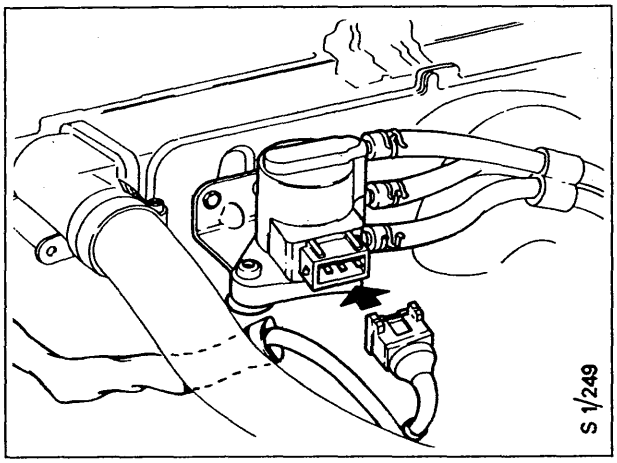
New belt:	535 ± 45 N (120 ± 10 lbf)
Lower limit:	265 N (60 lbf)
Setting:	355 ± 20 N (80 ± 5 lbf)



B202 with AC

Solenoid valve (Turbo only)

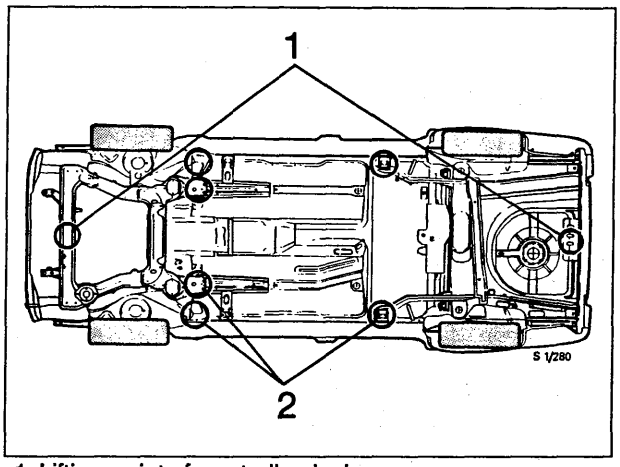
Plug the connector into the solenoid valve.



Underbody

Raise the car and check it for possible in-transit damage to the brake system, suspension, exhaust system and underbody.

Note: the anti-corrosion treatment should be intact.



1 Lifting points for a trolley jack
2 Lifting points for a garage hoist

Retightening the front assembly joints

Tighten all mounting points as shown in the figure.

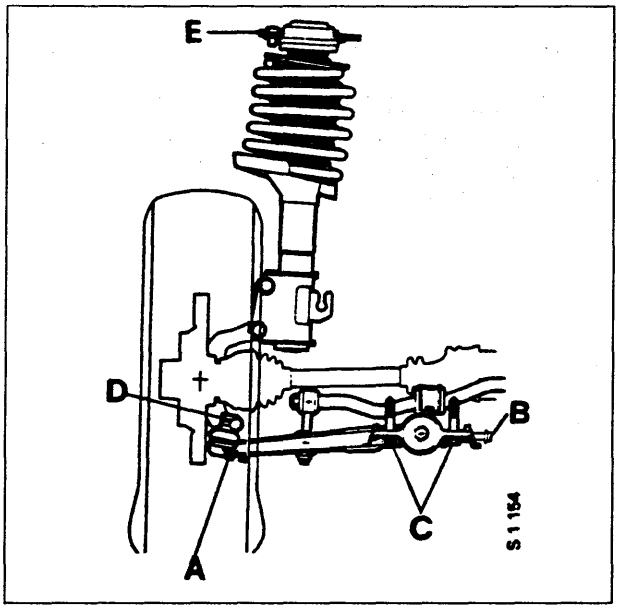
a. Suspension arm ball joint to suspension arm
25-34 Nm (18-25 lbf ft).

b. Suspension arm front bearing to sub-frame
45-54 Nm (33-40 lbf ft).

c. Suspension arm rear bearing to sub-frame
55-54 Nm (33-40 lbf ft).

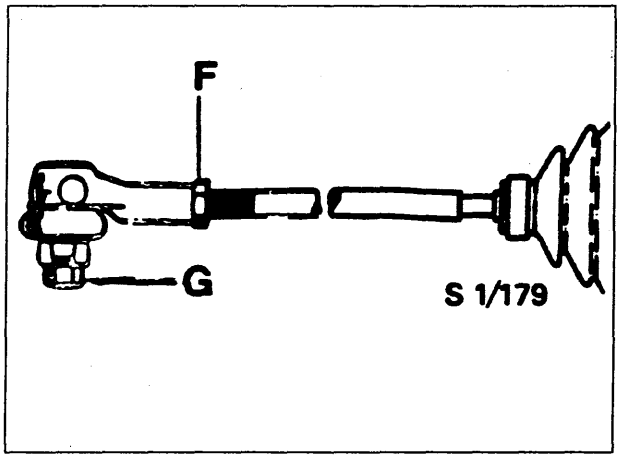
d. Suspension arm ball joint to steering swivel member
50-68 Nm (37-50 lbf ft).

e. McPherson strut to body
40-54 Nm (30-40 lbf ft).



f. Locknuts on track-rod ends
60-80 Nm (44.4-59.2 lbf ft).

g. Track-rod end ball studs
50-60 Nm (37-44 lbf ft).



Retightening the rear-axle mountings to the body

Tighten all mounting points as shown in the figure.

a. Spring link to body
40-64 Nm (30-47 lbf ft).

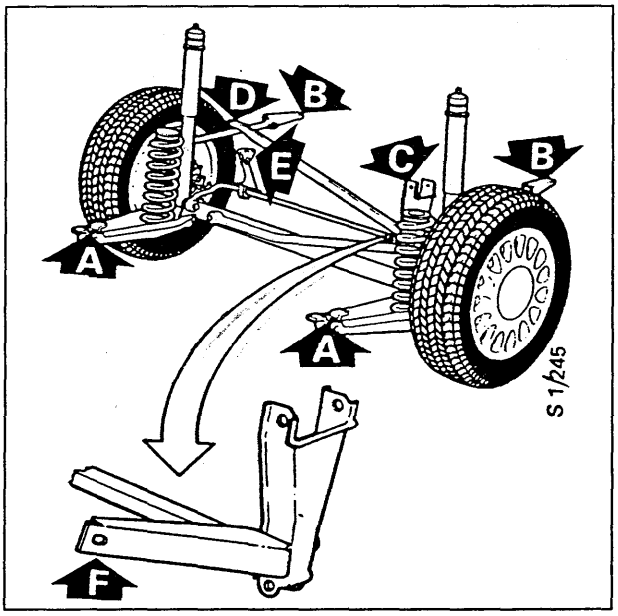
b. Torque arm to body
20-27 Nm (18-20 lbf ft).

c. Panhard rod mounting to body
40-54 Nm (30-40 lbf ft).

d. Panhard rod stay mounting to body
30-70 Nm (22-52 lbf ft).

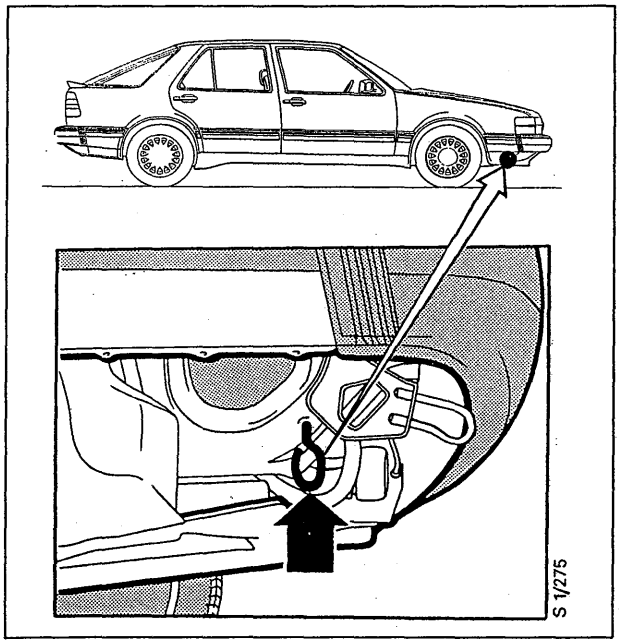
e. Anti-roll bar link to body (two)
20-27 Nm (15-20 lbf ft).

f. Support for Panhard rod mounting to body
10-26 Nm (8-19 lbf ft).



Transport fasteners

Remove the fasteners. Withdraw the cotter pin and remove the fastener.

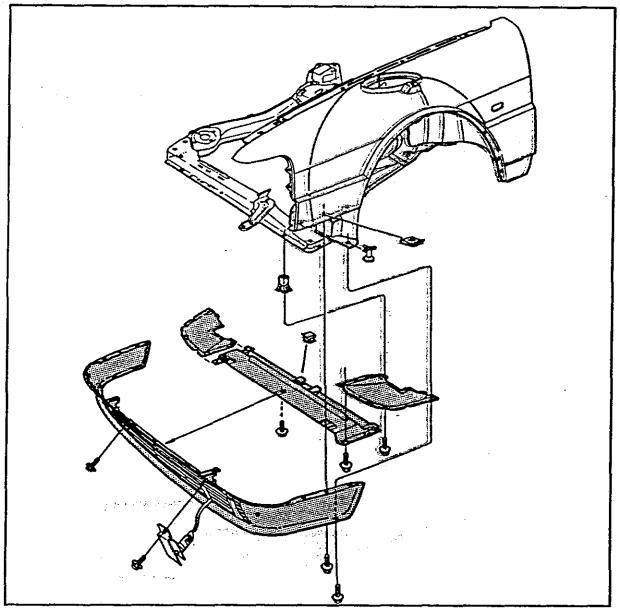


Equipment

Fit all loose equipment contained in the delivery box.

The contents of the box may vary, depending on the market and model variant.

- Number plate holder
- Mounting kit for number plate holder
- Speed-warning system (ME)
- Jack protector
- Plastic bag for the spare wheel
- Fog lamps
- Mounting kit for stone chip guards
- Mounting kit for spoiler
- Fitting of high-mounted brake light

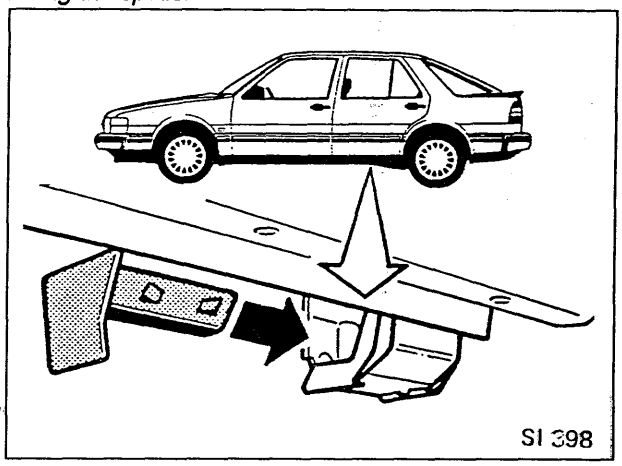


Fitting the spoiler

- Mounting kit for air dam and skirts
- Screws
- Tools
- Gloves
- Mounting plate for child seat (CA)

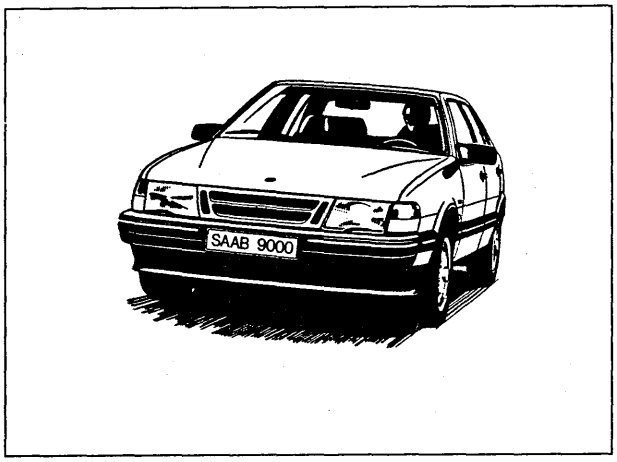
Note:

When fitting blanking-off covers to the extra lamp openings in the front spoiler, drill the holes**before**-fitting the spoiler.



Mounting of stone chip guards

Road test



- Ignition switch
  Check that the steering column lock operates satisfactorily and that the key is easy to insert and remove.
- Engine
  Operation and noise level. Turbo: Check that the boost pressure is normal during acceleration (the needle moves towards the red zone)
- Clutch
  Check the positions of the pedal at which the clutch disengages and begins to engage.
- Manual gearbox
  Check its operation and noise level.
- Automatic transmission
  Check the selector lever detent, noise level and gear-changing performance.
- Wheels
  Check wheel balance and wheel roundness.
- Driving comfort
  Check that wind noise, road noise and other sounds in the car are normal.
- Steering
  Check the straight-ahead position of the steering wheel, directional stability and operation of the servo.
- Instruments and indicating lamps
  Check the operation of instruments and indicating lamps
- Brakes
  Check the travel of the foot brake pedal and handbrake lever (4-5 notches) and the performance of the foot brake and handbrake.
- Cruise control
  Check the performance.
- Climate control system
  Check the operation of the heating system and AC/ACC and their controls

Bear in mind what the customer might think!
Wipe the steering wheel and gear lever clean and make sure that all other traces of pre-delivery inspection and service work have been removed.

Cleaning

The following procedure is only necessary for markets where transport paint protection is not removed at the port of entry.

Washing - dewaxing

The protective film for the paintwork must be removed with an alkaline detergent.

A suitable detergent is part No. (45) 30 08 414. The packaging contains 25 litres (26.5 qts).

This is a microemulsion which dissolves the film protecting the paintwork as well as residual grease from assembly.

Note:

Certain tenside and alcohol compounds affect perspex (PMMA) and cause it to crack. Be particularly careful when using tar solvents.

Washing the car

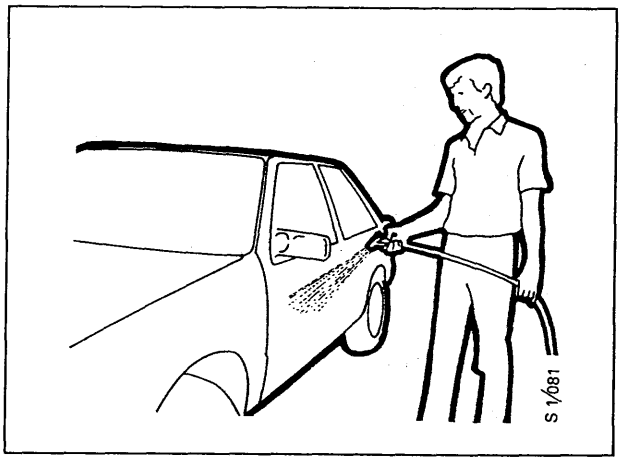
First hose the car down with a high-pressure spray:

- If it is covered with snow or ice.
- If you intend to sponge the car down with a detergent solution.

Apply the detergent. Always begin at the bottom and work your way round the car to finish off with the roof.

- Open the doors and spray the sides of the sills and deflector mouldings on the bottom of the doors.

Allow the detergent solution to act for 5-10 minutes.



Note:

It is important to keep the car wet with detergent solution during this time. Therefore, do not wash the car in sunlight or if it is still hot after a lengthy drive. **Do not leave the car wet with detergent solution during a work break.**

- Now the car can be sponged down lightly. Rinse the sponge frequently in the detergent. Water dilutes the detergent on the car. Sponging the detergent on the car helps the alkali to penetrate thicker layers of the film protecting the paintwork.

Note:

Do not wash the anti-corrosion agent off the sheet metal joints in the engine compartment.

Rinsing off the detergent solution

Hosing the car down after washing it has an important bearing on the end result.

Note:

Never hose down a cold car with hot water. Local heating of the paintwork could easily lead to the formation of microscopic cracks.

Hose down the whole car, and possibly also the engine compartment, with a high-pressure water supply.

Note:

Do not direct high-pressure water on the radiator as this might damage it.

Best results will be obtained if the dissolved protective film is diluted as little as possible with water when rinsing it off.

- Begin at the bottom of the car at a corner.
- Aim the jet of water at a surface that has already been rinsed clean.
- Continue round the car and finish with the roof.
- Hose down the whole car again to be sure of removing all remaining detergent.

Clean the door openings.

Wipe the car dry.

Safety information

- Make sure the premises are well ventilated.
- Avoid getting any liquid on your skin or mucous membranes.
- Wear gloves. It is also advisable to wear goggles.
- It is strictly forbidden to apply detergent with a spray gun, as this produces a mist.
- Never store detergent in a bottle or other container without a label giving details of the manufacturer and type of detergent.

Remedial action if detergent gets in your eyes

- Wash out the detergent immediately.
- Hold your eyelids apart as much as possible.
- Rinse your eyes with copious amounts of water for at least 15 minutes.
- Then see a doctor as soon as possible.

Poisonous substance

If someone has swallowed detergent and is still conscious:

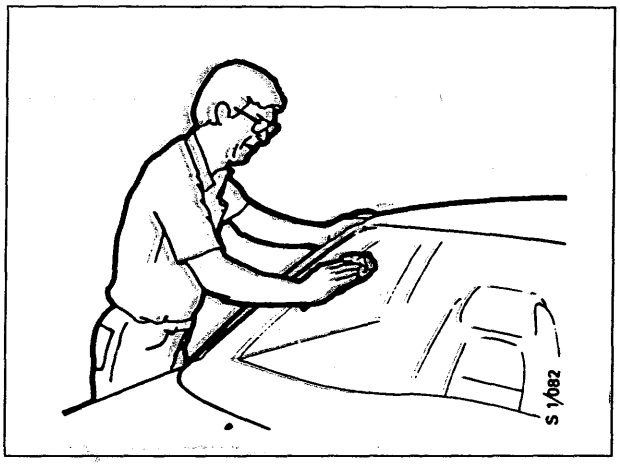
- Get them to drink large quantities of water or two or more glasses of milk.
- Do **not** make them vomit.
- Call a doctor immediately

If detergent gets on your bare skin.

- Take off any clothing that has been splashed with detergent.
- Wash the affected parts of your skin with soap and generous amounts of water.

Concluding dismantling and finishing measures

1 Clean all the windows.

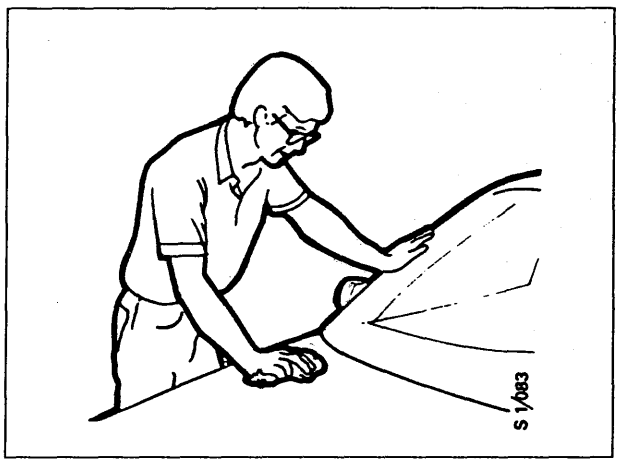


2 Remove the in-transit and in-storage protection from the bumpers, doors, floor and seats. Inspect the interior for stains and remove any that you find.

Remove any spots or stains on the upper horizontal surface of the dashboard with a lukewarm soap solution. Rinse the surface with clean water before drying.
Note: Vinyl sprays and the like must never be used as they could be the cause of a film forming on the windscreen which seriously reduces visibility.

3 Clean rubber mouldings, tyre sidewalls and bumpers.

4 Inspect the car, remove spots and stains. If necessary, polish the car.



Service No. 1.

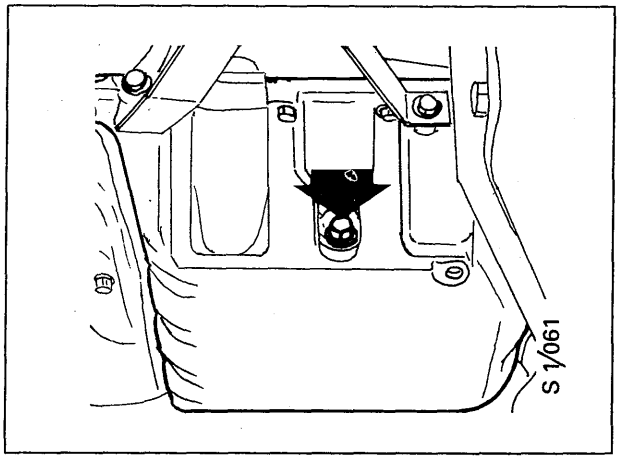
Engine oil change

Oil capacities:

B202: 4 litres (4.2 qts), including filter
B234: 4.3 litres (4.5 qts), including filter

Grade of oil:

9000 Turbo and 9000i
Saab Turbo engine oil or oil to API Service SG. If this grade is unavailable, SF/CC or SF/CD grade oil or oil to CCMC G3/G5 may be used instead. These grades of oil contain additives which are suitable for the engine. We advise against the use of other additives.



Viscosity:

SAE 10W-30, 10W-40, 5W-30 or 5W-40. If these grades are unavailable, 15W-40 oil may be used instead.

If 5W oil is used, it must be of a synthetic or semi-synthetic type.

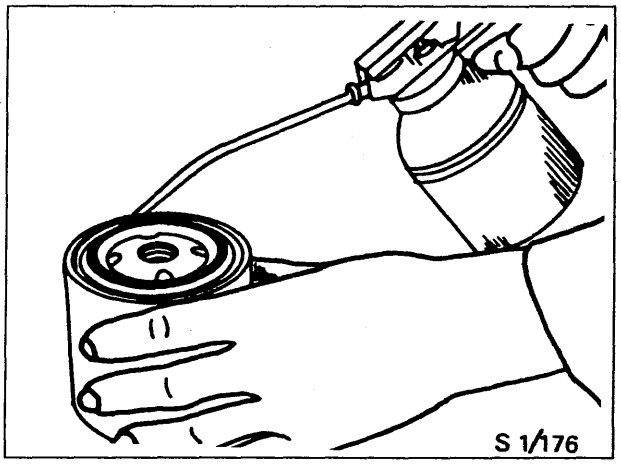
Drain plug
Tightening torque 29-39 Nm (21-29 lbf ft)

Oil filter change

1 Loosen the filter cartridge using a filter wrench and unscrew the filter.

- Wrench for removing production filters: 83 93 332.

2 Oil the rubber gasket on the new filter cartridge and screw in the cartridge until the gasket is in contact with its seating. Then tighten the filter an additional half-turn.



Note:

Start the engine and check for oil leaks.

Drive belts, no automatic belt tensioner (Not US)

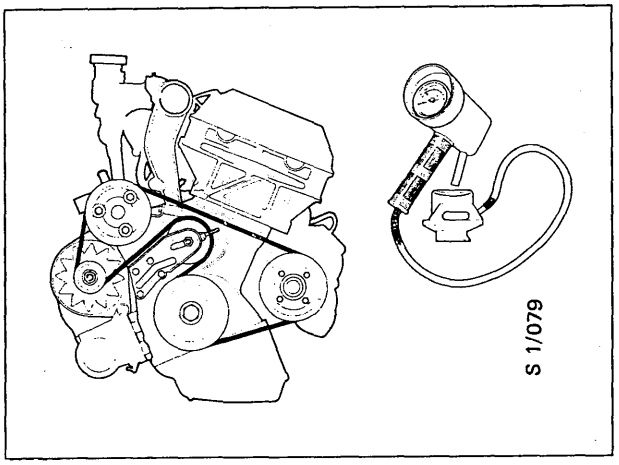
Alternator drive belt

Use an IPU tension meter to check the alternator belt tension.

New belt:
800 ± 45 N (180 ± 10 lbf)

Lower limit:
355 N (80 lbf)

Setting:
535 ± 45 N (120 ± 10 lbf)



B202 without AC

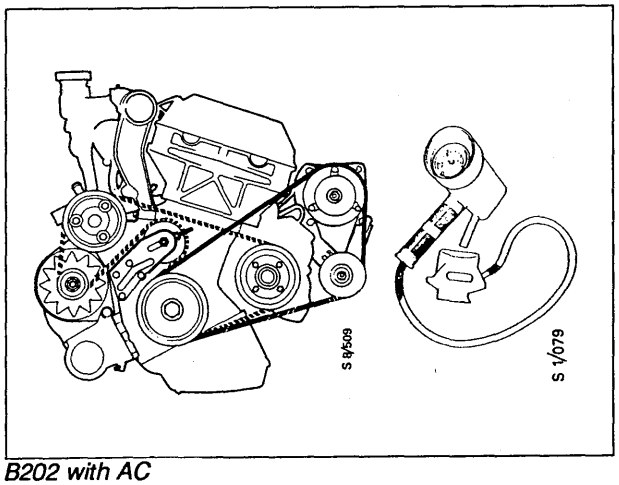
AC drive belt

Use an IPU tension meter to check the AC drive belt tension.

New belt:
535 ± 45 N (120 ± 10 lbf)

Lower limit:
265 N (60 lbf)

Setting:
355 ± 20 N (80 ± 5 lbf)



B202 with AC

Retightening the front assembly joints

Tighten all mounting points as shown in the figure.

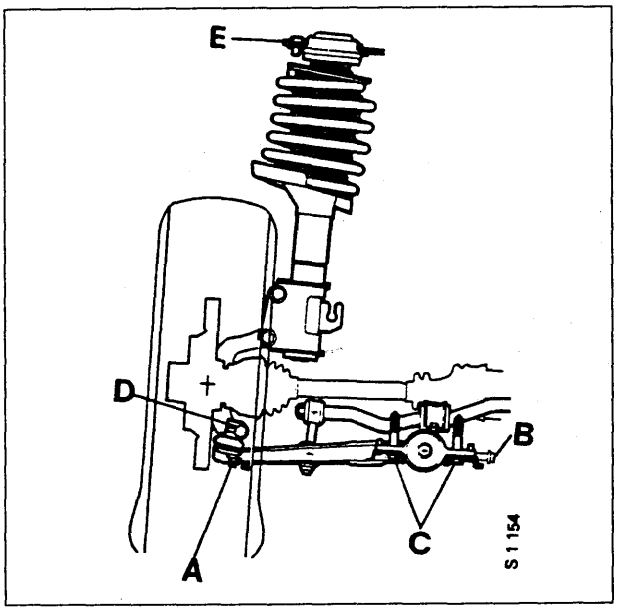
a. Suspension arm ball joint to suspension arm
25-34 Nm (18-25 lbf ft).

b. Suspension arm front bearing to sub-frame
45-54 Nm (33-40 lbf ft).

c. Suspension arm rear bearing to sub-frame
45-54 Nm (33-40 lbf ft).

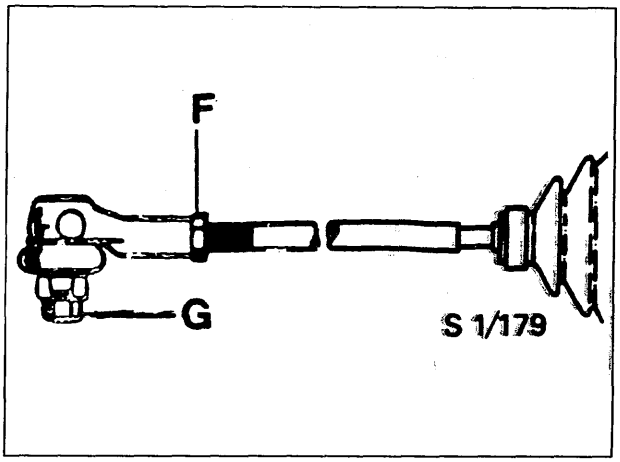
d. Suspension arm ball joint to steering swivel member
50-68 Nm (37-50 lbf ft).

e. McPherson strut to body
40-54 Nm (30-40 lbf ft).



f. Locknuts on track-rod ends
60-80 Nm (44.4-59.2 lbf ft).

g. Track-rod end ball studs
50-60 Nm (37-44 lbf ft).



Retightening the rear-axle mountings to the body

Tighten all mounting points as shown in the figure.

a. Spring link to body
40-64 Nm (30-47 lbf ft).

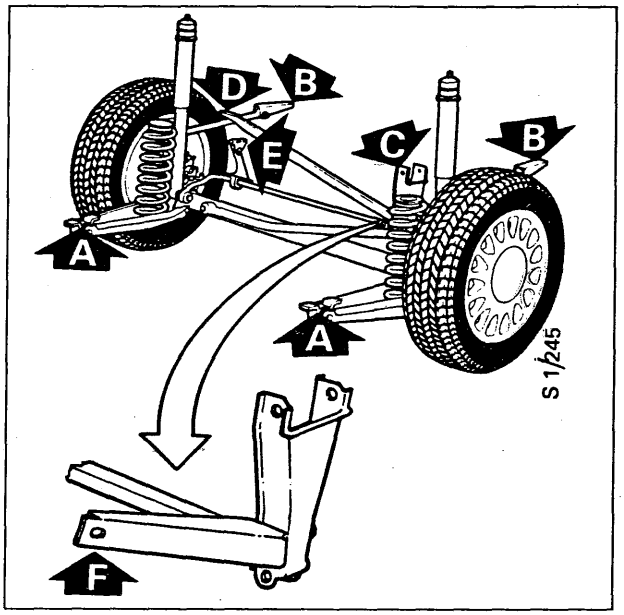
b. Torque arm to body
20-27 Nm (15-20 lbf ft).

c. Panhard rod mounting to body
40-54 Nm (30-40 lbf ft).

d. Panhard rod stay mounting to body
30-70 Nm (22-52 lbf ft).

e. Anti-roll bar link to body (two)
20-27 Nm (15-20 lbf ft).

f. Support for Panhard rod mounting to body
10-26 Nm (8-19 lbf ft).



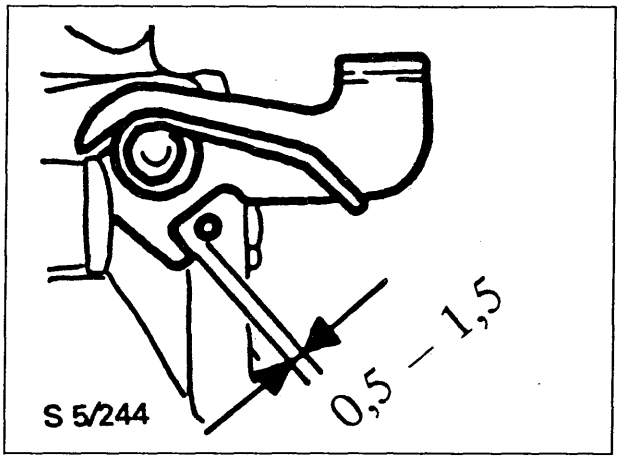
Handbrake lever

Check that there is sufficient clearance between the lever and the stop.

Adjust the cable as follows:

Insert a 1 mm feeler gauge between the lever and the stop. Then turn the cable adjusting nut until the feeler gauge drops out.

The correct clearance is 0.5-1.5 mm (0.02-0.06 in).

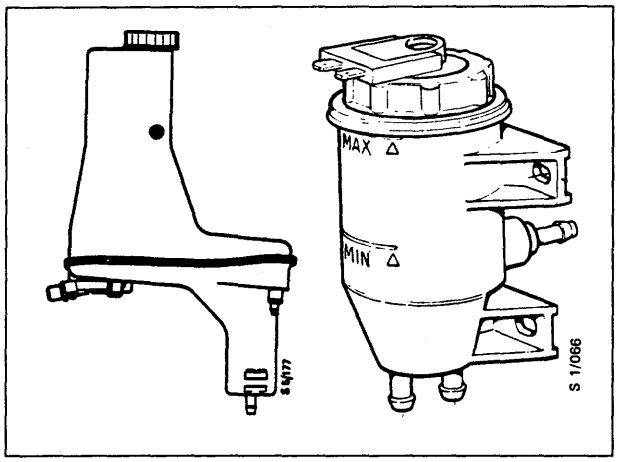


Brake/clutch fluid level

Check the level and top up as necessary.

Brake fluid:

Grade: To DOT 4.

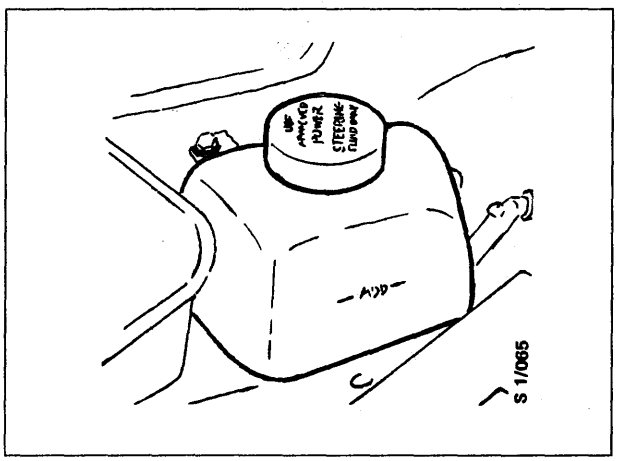


Power steering fluid level

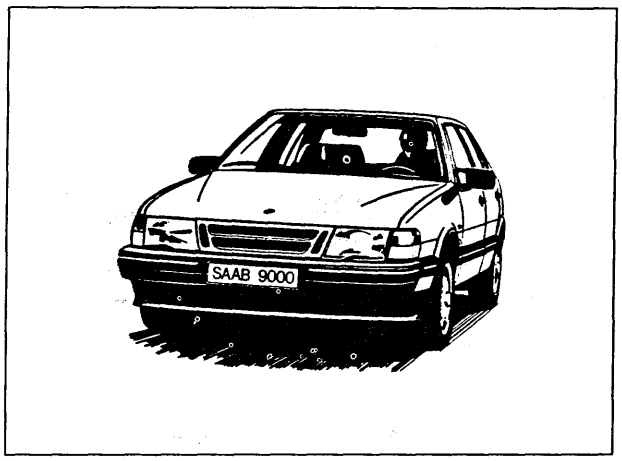
Check the level and top up as necessary.

Grade of fluid:

Texaco Power Steering Fluid 4634, part No. (45) 30 09 800 or GM Power Steering Fluid, part No. 105 0017 1 litre, 105 2884 0.5 litres.



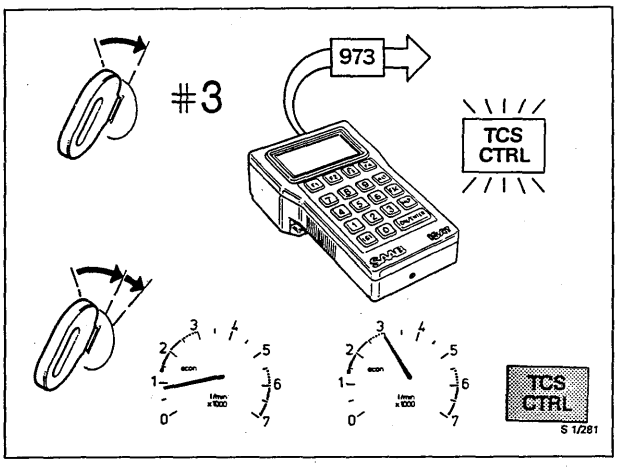
Road test



- Ignition switch
  Check that the steering column lock operates satisfactorily and that the key is easy to insert and remove.
- Engine
  Operation and noise level. Turbo: Check that the boost pressure is normal during acceleration (the needle moves towards the red zone)
- Clutch
  Check the positions of the pedal at which the clutch disengages and begins to engage.
- Manual gearbox
  Check its operation and noise level.
- Automatic transmission
  Check the selector lever detent, noise level and gear-changing performance.
- Wheels
  Check wheel balance and wheel roundness.
- Driving comfort
  Check that wind noise, road noise and other sounds in the car are normal.
- Steering
  Check the straight-ahead position of the steering wheel, directional stability and operation of the servo.
- Instruments and indicating lamps
  Check the operation of instruments and indicating lamps
- Brakes
  Check the travel of the foot brake pedal and handbrake lever (4-5 notches) and the performance of the foot brake and handbrake.
- Cruise control
  Check the performance.
- Climate control system
  Check the operation of the heating system and AC/ACC and their controls

Bear in mind what the customer might think!
Wipe the steering wheel and gear lever clean and make sure that all other traces of pre-delivery inspection and service work have been removed.

TCS idling calibration (cars with manual gearbox)



1 Run the engine until it reaches normal operating temperature.
2 Apply the handbrake.
3 Connect the ISAT instrument to the black test socket underneath the right-hand front seat, using connecting cable 8611048.
4 Turn the ignition key to the Drive position, select the diagnostic position and contact system No. 3 (erase any error codes, command code 900).
5 Enter command code 973 (the TCS-CTRL lamp lights up)
6 Start the engine without turning the ignition key back to the 0 position and without touching the pedals. Calibration is carried out at idling speed and at approx. 3,000 rpm. The TCS-CTRL lamp goes out on completion of calibration.

TCS idling calibration (cars with automatic transmission)

1 Run the engine until it reaches normal operating temperature.
2 Gear selector lever in the P position. Apply the parking brake.

CAUTION
Make sure that nobody is in front of or behind the car.

3 Connect the ISAT instrument to the black test socket underneath the right-hand front seat, using connecting cable 8611048.
4 Turn the ignition key to the Drive position, select the diagnostic position and contact system No. 3 (erase any error codes, command code 900).
5 Enter command code 973 (the TCS-CTRL lamp lights up).
6 Start the engine without turning the ignition key back to the 0 position and without touching the pedals.
7 Wait until the TCS-CTRL lamp starts flashing and press the SET button for the cruise control system within 20 seconds. Calibration is carried out at idling speed and at approx. 3,000 rpm. Keep the button depressed until calibration ends. The TCS-CTRL lamp goes out on completion of calibration.

Saab Original Service

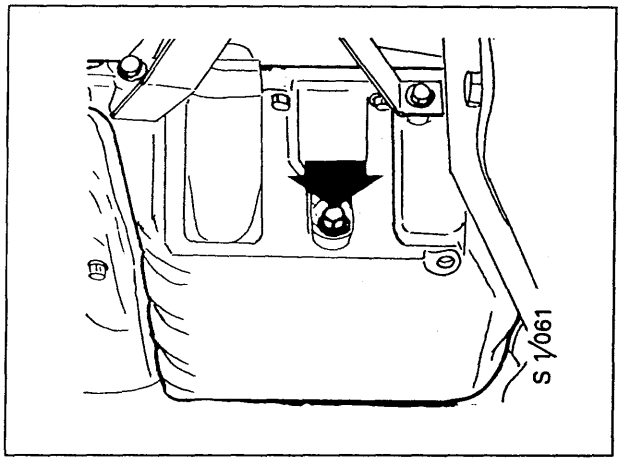
Engine oil change

Oil capacities:

B202: 4 litres (4.2 qts), including filter
B234: 4.3 litres (4.5 qts), including filter

Grade of oil:

9000 Turbo and 9000i
Saab Turbo engine oil or oil to API Service SG. If this grade is unavailable, SF/CC or SF/CD grade oil or oil to CCMC G3/G5 may be used instead. These grades of oil contain additives which are suitable for the engine. We advise against the use of other additives.



Viscosity:

SAE 10W-30, 10W-40, 5W-30 or 5W-40. If these grades are unavailable, 15W-40 oil may be used instead.

If 5W oil is used, it must be of a synthetic or semi-synthetic type.

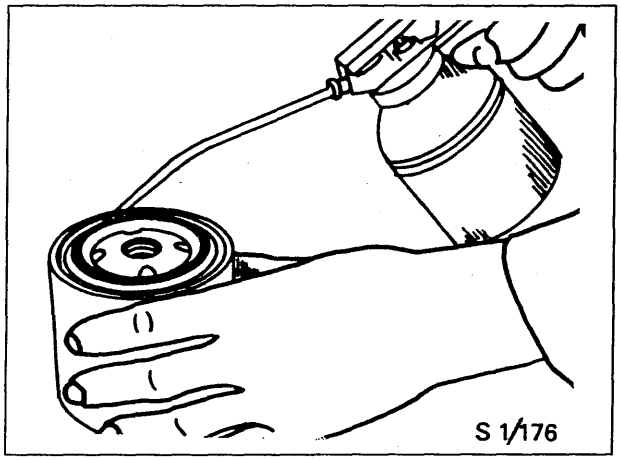
Drain plug
Tightening torque 29-39 Nm (21-29 lbf ft)

Oil filter change

1 Loosen the filter cartridge using a filter wrench and unscrew the filter.

- Wrench for removing the filter: 78 62 014.

2 Oil the rubber gasket on the new filter cartridge and screw in the cartridge until the gasket is in contact with its seating. Then tighten the filter an additional half-turn.



Note:

Start the engine and check for oil leaks.

Automatic transmission

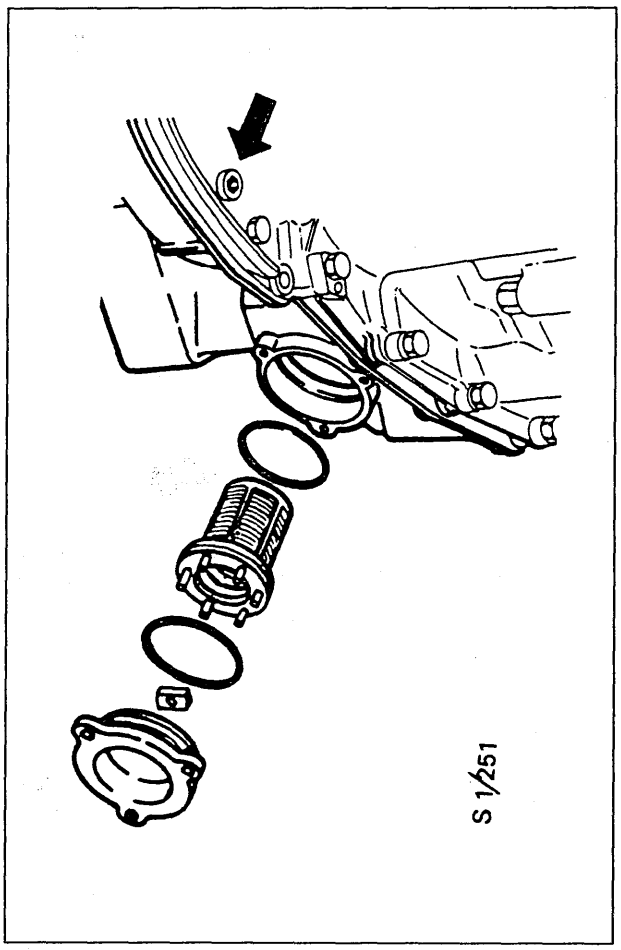
Change the fluid in the automatic transmission

Grade of fluid: DEXRON II automatic transmission fluid

Change the filter element.
Change O-rings.

Fluid capacity: 3.0-3.5 litres (3.1-3.7 qts).

The drain plug must be removed to ensure that all the oil runs out of the transmission.

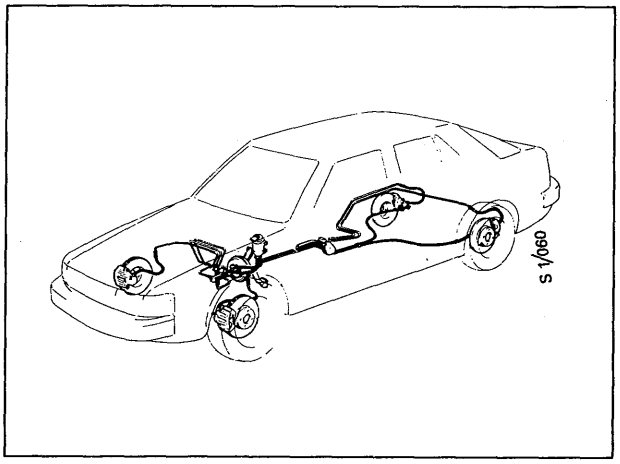


Coolant

Change (at least once every 3 years).

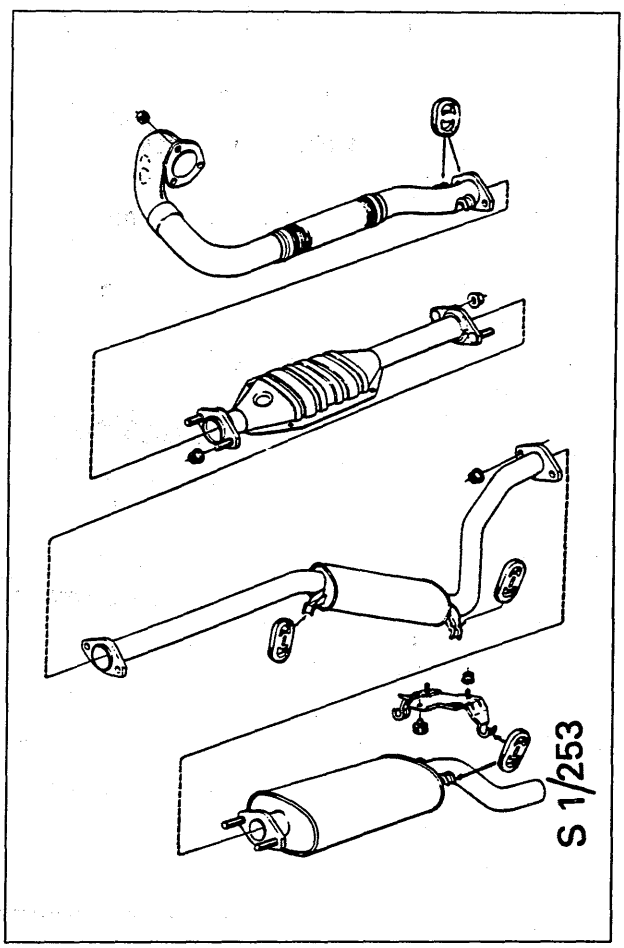
Brake hoses and brake lines

Check for leakage, inspect mounting points and general condition.



Exhaust system

Check for leakage, inspect mounting points and general condition.

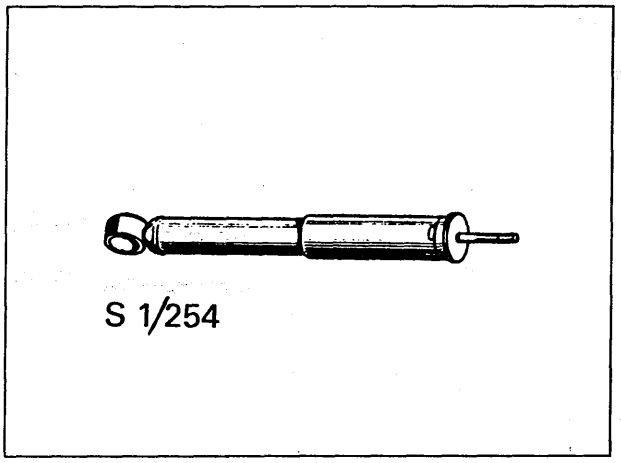


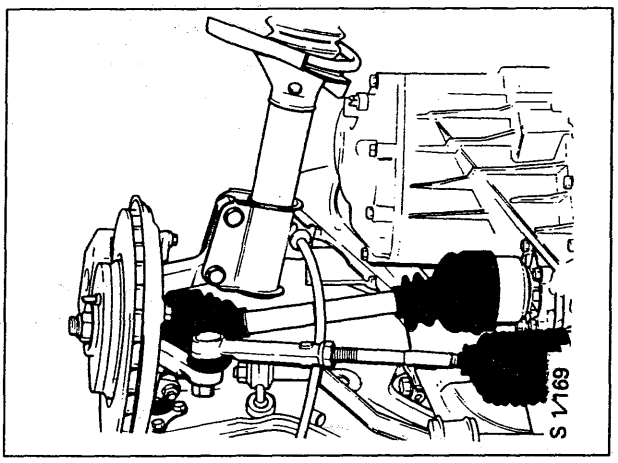
Dampers and bushes

Check for leakage and inspect general condition.

Rubber gaiters, inner and outer drive shaft universal joints

Check the rubber gaiters round the drive shaft universal joints for wear and leakage, and make sure that they are firmly secured.





Retightening the front assembly joints

Tighten all mounting points as shown in the figure.

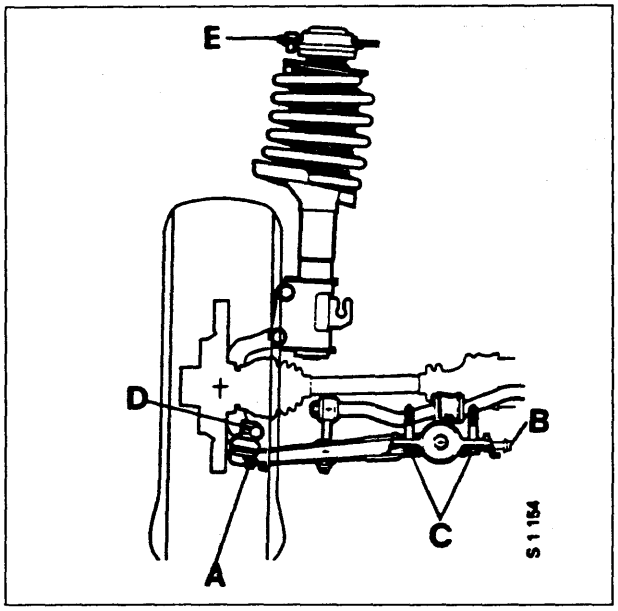
a. Suspension arm ball joint to suspension arm
25-34 Nm (18-25 lbf ft).

b. Suspension arm front bearing to sub-frame
45-54 Nm (33-40 lbf ft).

c. Suspension arm rear bearing to sub-frame
45-54 Nm (33-40 lbf ft).

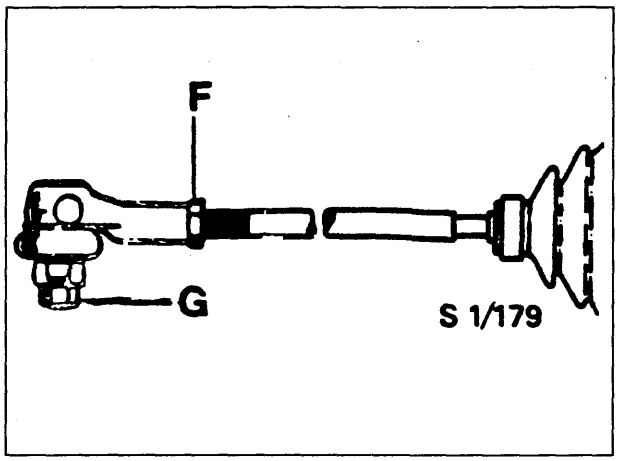
d. Suspension arm ball joint to steering swivel member
50-68 Nm (37-50 lbf ft).

e. McPherson strut to body
40-54 Nm (30-40 lbf ft).



f. Locknuts on track-rod ends
60-80 Nm (44.4-59.2 lbf ft).

g. Track-rod end ball studs
50-60 Nm (37-44 lbf ft).



Retightening the rear-axle mountings to the body

Tighten all mounting points as shown in the figure.

a. Spring link to body
40-64 Nm (30-47 lbf ft).

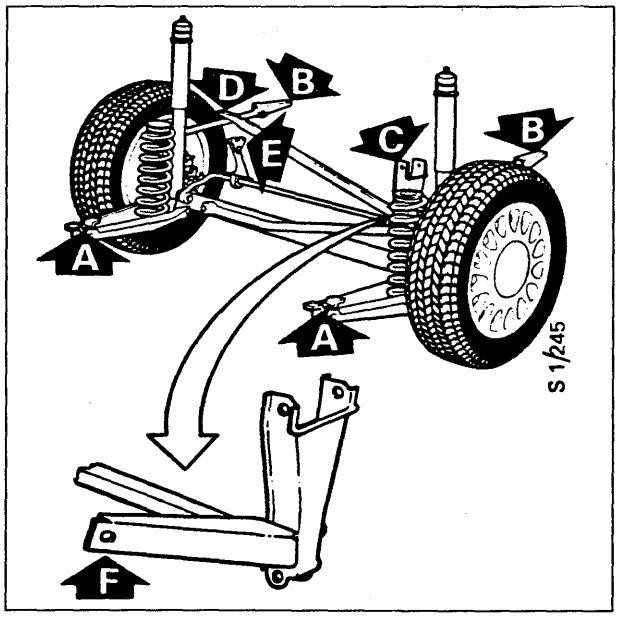
b. Torque arm to body
20-27 Nm (15-20 lbf ft).

c. Panhard rod mounting to body
40-54 Nm (30-40 lbf ft).

d. Panhard rod stay mounting to body
30-70 Nm (22-52 lbf ft).

e. Anti-roll bar link to body (two)
20-27 Nm (15-20 lbf ft).

f. Support for Panhard rod mounting to body
10-26 Nm (8-19 lbf ft).



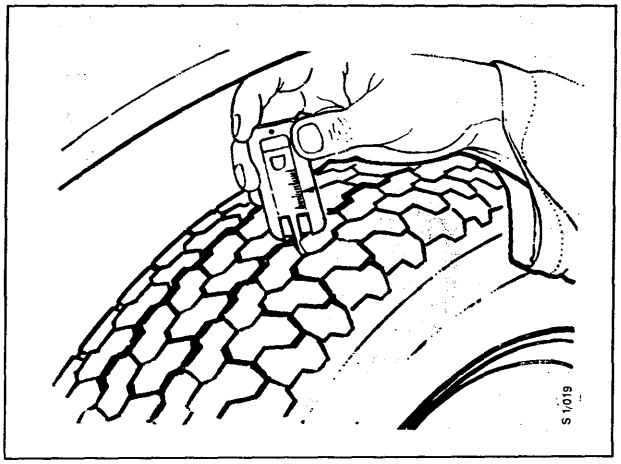
Tyres

Measure the depth of tread and check the pattern of wear. Check the inflation pressures (including the spare wheel).

If the pattern of wear has changed, check the toe-in and adjust as necessary.

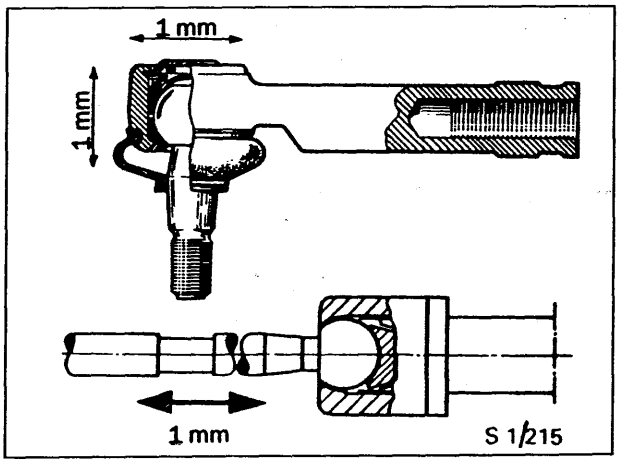
Optional work

Swapping the front and rear wheels is recommended if the pattern of wear on the rear wheels is uneven.



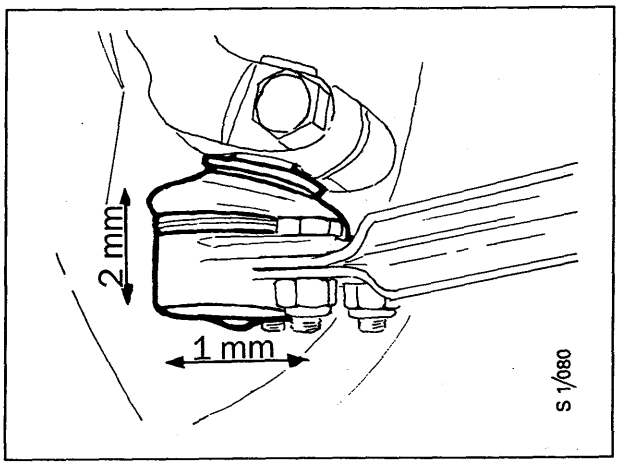
Steering ball joints and rubber gaiters

Check the inner and outer ball joints for wear.
Inner and outer ball joints:
Max. axial play: 1 mm (0.04 in).
Max. radial play: 1 mm (0.04 in)
Inspect the rubber gaiters.



Suspension ball joints and rubber gaiters

Check the ball studs for wear.
Max. axial play: 2 mm (0.08 in).
Max. radial play: 1 mm (0.04 in).
Inspect the rubber gaiters.



Brake pads and brake discs

Remove the wheels, check the thickness of the friction linings and inspect the condition of the discs.

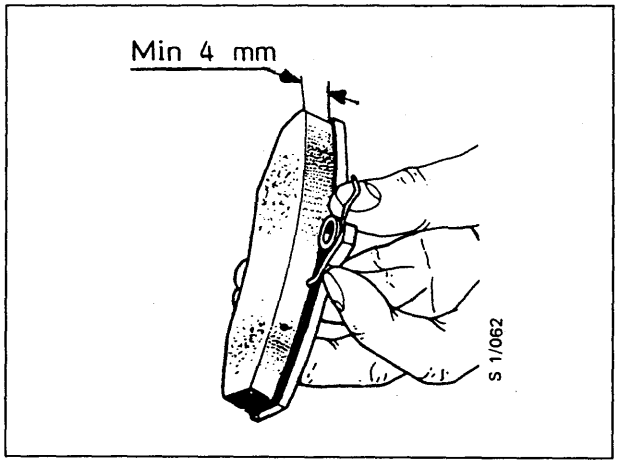
It is advisable to change the pads when the friction lining has worn down to less than 4 mm (0.16 in).

Tighten the wheel bolts to a torque of 105-125 Nm (77-92 lbf ft).

Note:

Retightening to the right torque must only be done with a torque wrench.

When fitting new light alloy wheels for the first time, tighten the bolts to a torque of 125-145 Nm (92-107 lbf ft).



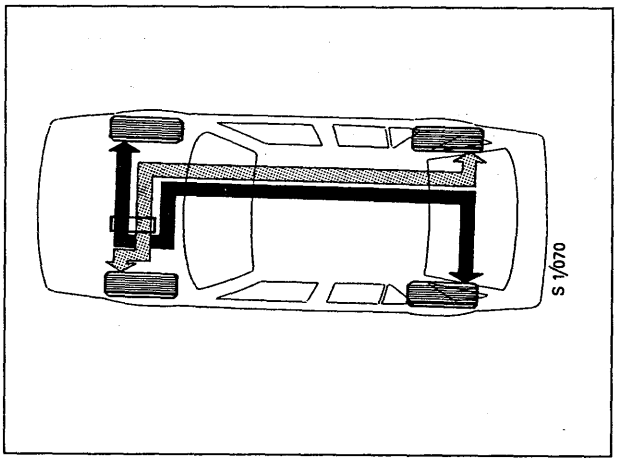
Brake fluid

Change at least every other year.
Grade: To DOT 4

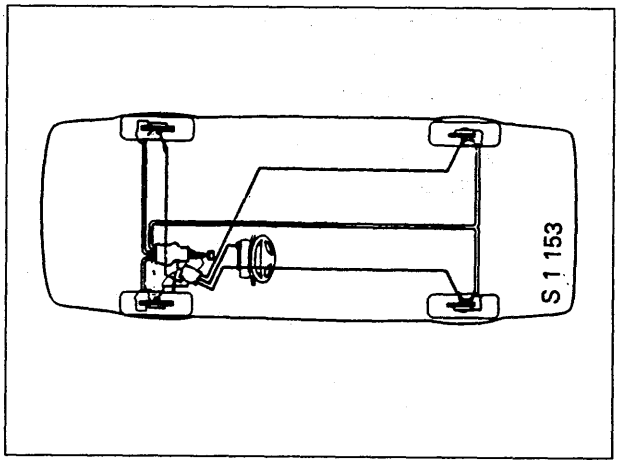
Never use brake fluid which has been stored in an open container.

Note:

Observe the special safety instructions described in Group 5:2 of the Service Manual when changing the brake fluid on a car equipped with ABS brakes.



Conventional dual-circuit brake system

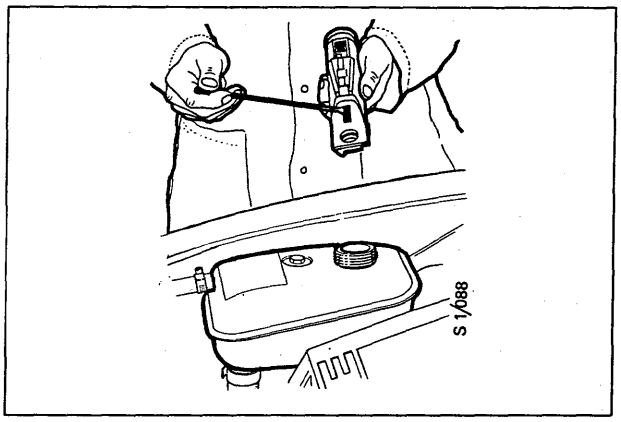


Triple-circuit ABS brake system

Coolant

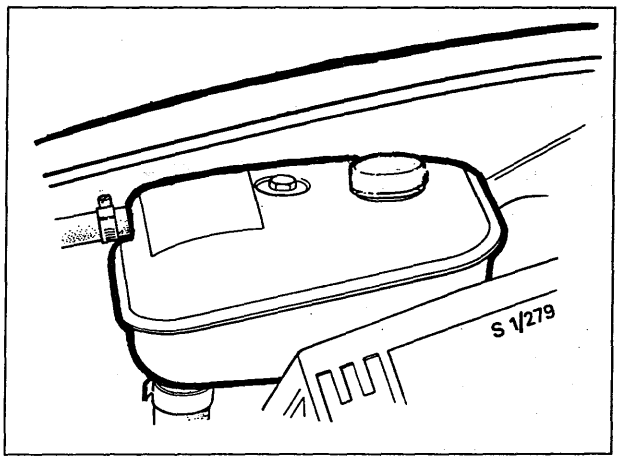
Measure the freezing point. The coolant must not freeze above a temperature of -30 to -35°C (-22 to -31°F). Check the level and top up as necessary. Do not fill up above the MAX mark.

In the event of loss of coolant, investigate the cause.



Cooling system

Check the condition of the hoses and pressure cap.

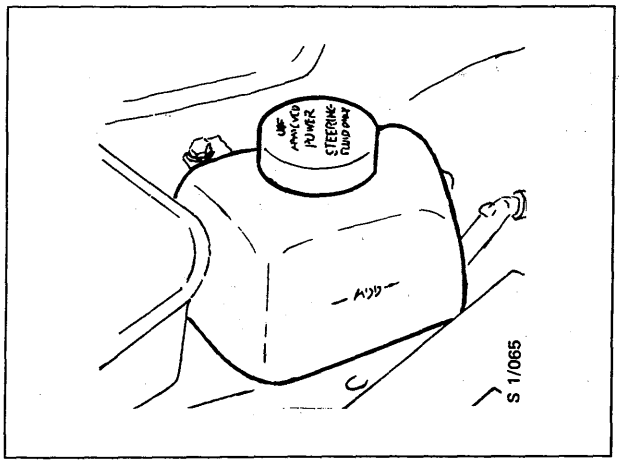


Power steering fluid level

Check the level and top up as necessary. In the event of loss of fluid, investigate the cause.

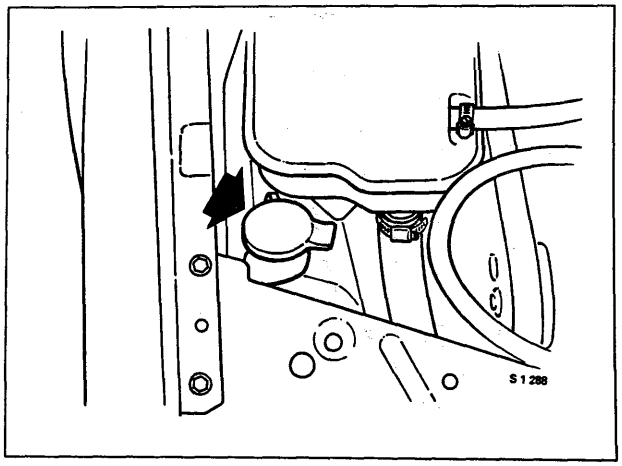
Grade of fluid:

Texaco Power Steering Fluid 4634,
part No. (45) 30 09 800 or GM Power Steering Fluid,
part No. 105 0017 for 1 litre, 105 2884 for 0.5 litres



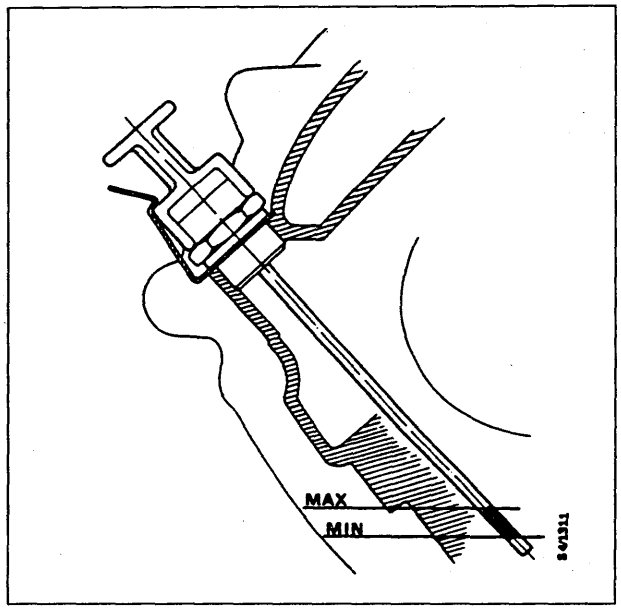
Washer fluid

Check the level of the fluid in the reservoir and top up as necessary with a mixture of washer fluid and water (according to the table of recommendations on the packaging).



Manual gearbox oil level

Use the dipstick to check the oil level.



Note:

Push the dipstick hard down to prevent oil leakage.

Grade of oil:

Engine oil (mineral oil) to API Service SG, SF/CC, SF/CD.

Viscosity:

10W30 or 10W40.

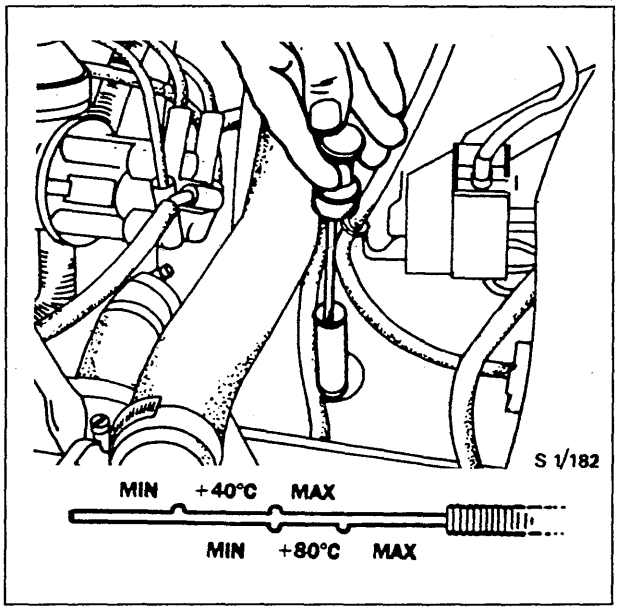
Note:

Synthetic engine oil must not be used.

Automatic transmission fluid level

Start the engine and let it run at idling speed. Engage D and wait at least 15 seconds. Then engage R and wait another 15 seconds. Repeat in position P.

Check the fluid level (engine running at idling speed and gear selector in P). Top up as necessary.



Note:

The dipstick has two level marks. The amount of fluid between the maximum and minimum marks is about 0.4 litres (0.4 qts)

Grade of fluid:

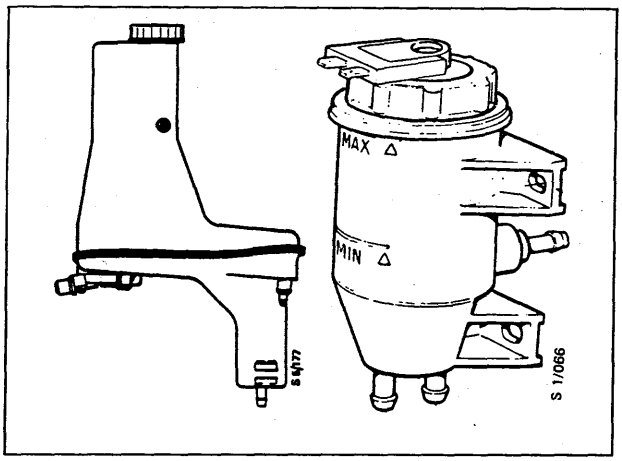
DEXRON II automatic transmission fluid.

Brake/clutch fluid level

Check the level and top up as necessary.

Brake fluid:

Grade: To DOT 4.



Drive belts, no automatic belt tensioner (Not US)

Alternator drive belt

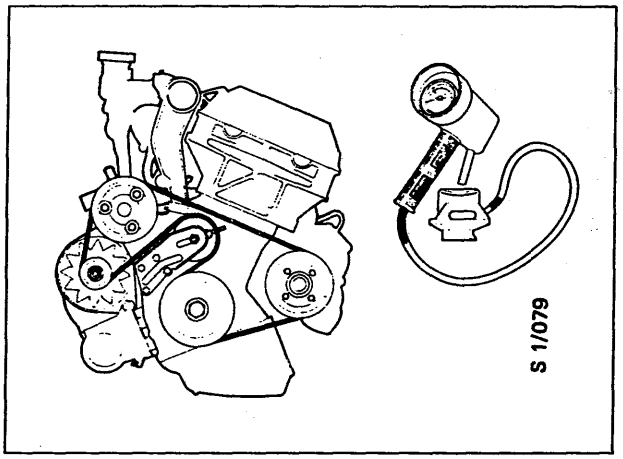
Use an IPU tensioner to check the alternator drive belt tension.

New belt:
800 ± 45 N (180 ± 10 lbf)

Lower limit:
355 N (80 lbf)

Setting:
535 ± 45 N (120 ± 10 lbf)

Check the condition of the drive belt.



B202 without AC

AC drive belt

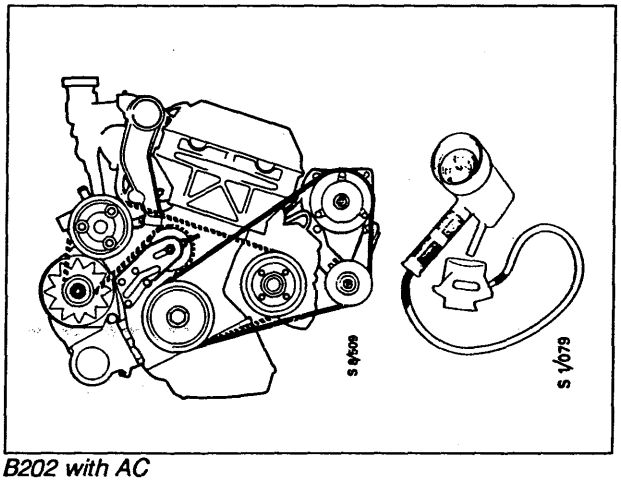
Use an IPU tensioner to check the AC drive belt tension.

New belt:
535 ± 45 N (120 ± 10 lbf)

Lower limit:
265 N (60 lbf)

Setting:
355 ± 20 N (80 ± 5 lbf)

Inspect the condition of the drive belt.

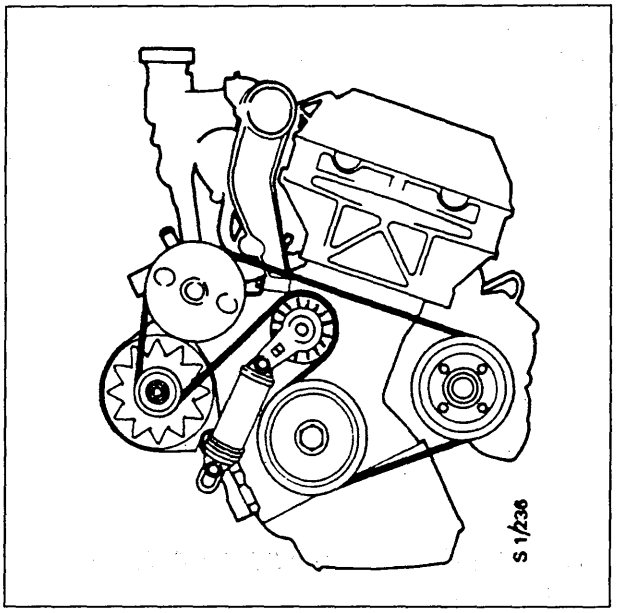


B202 with AC

Automatic belt tensioner (on cars for certain markets only)

Check the condition and operation of the belt tensioner by pressing and pulling the belt. The belt should return smoothly to the tensioned position.

Check the condition of the belt tensioner.



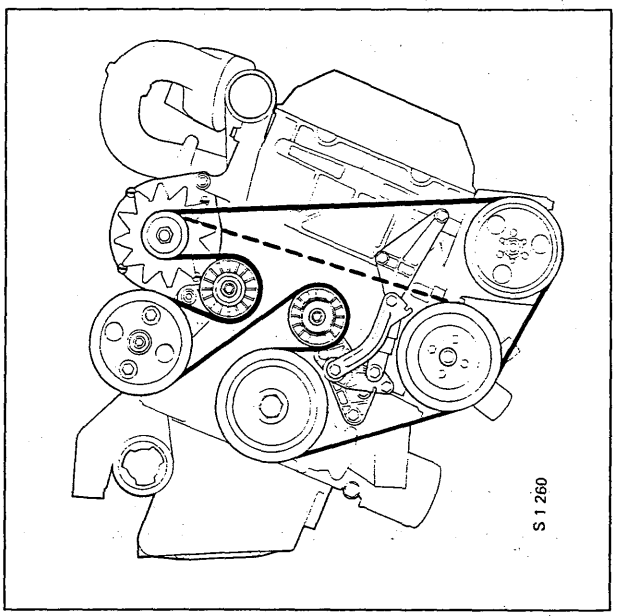
B202 without AC

Automatic belt tensioner B234

Check the condition and operation of the belt tensioner by pressing and pulling the belt. The belt should return smoothly to the tensioned position.

Test value for the drive belt: at least 170 N (40 lbf).

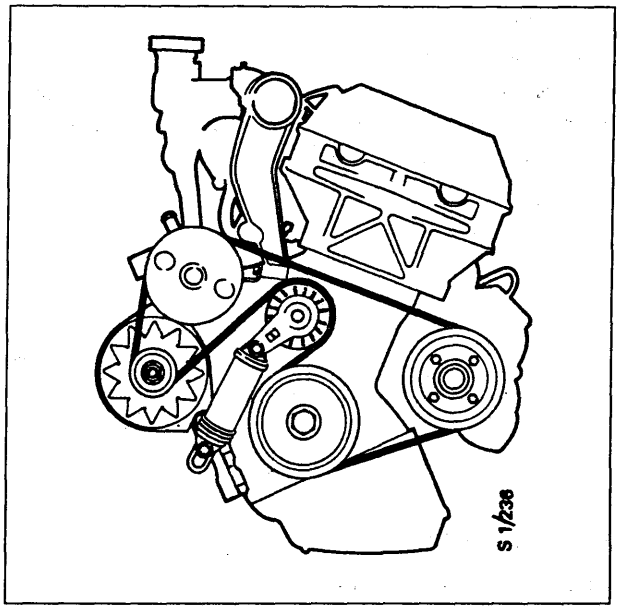
Check the condition of the belt.



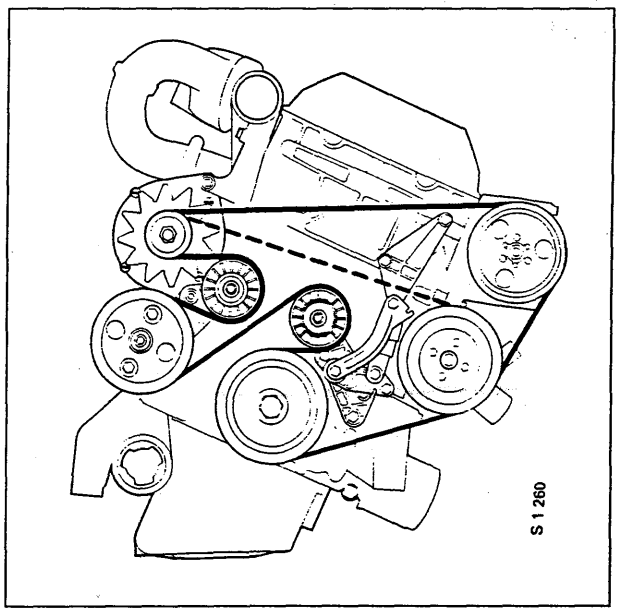
B234 with AC. The broken line shows the run of the belt without AC.

All drive belts

Change the drive belts on cars with automatic and manual belt tensioning (see Service Manual 2:1-216).



B202

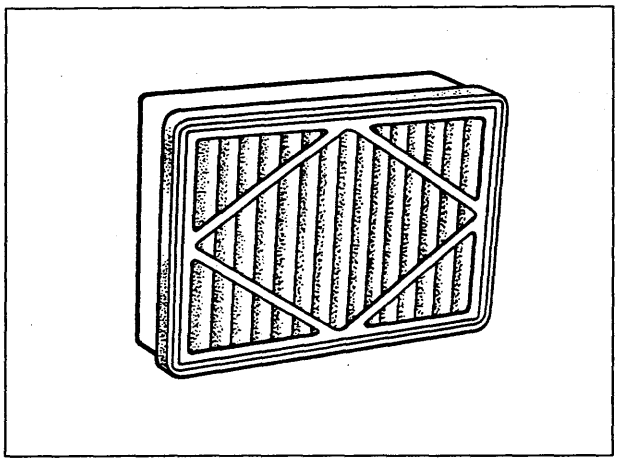


B234 with AC. The broken line shows the run of the belt without AC.

Ventilation air filter

Change the filter element.

If the car is used in an extremely polluted environment, it is advisable to change the filter element at more frequent intervals.

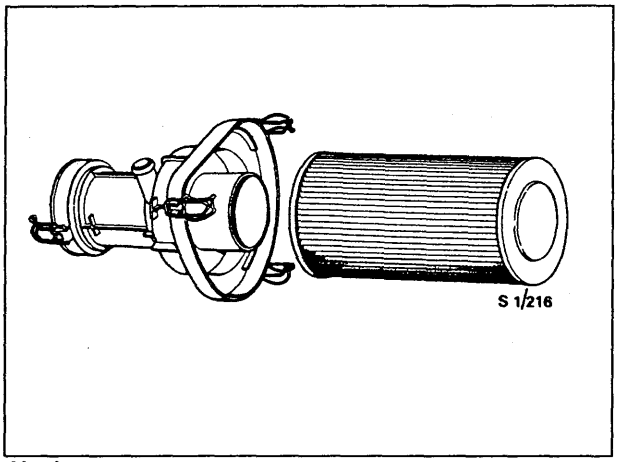


Standard AC/ACC

Air cleaner

Change the filter element.

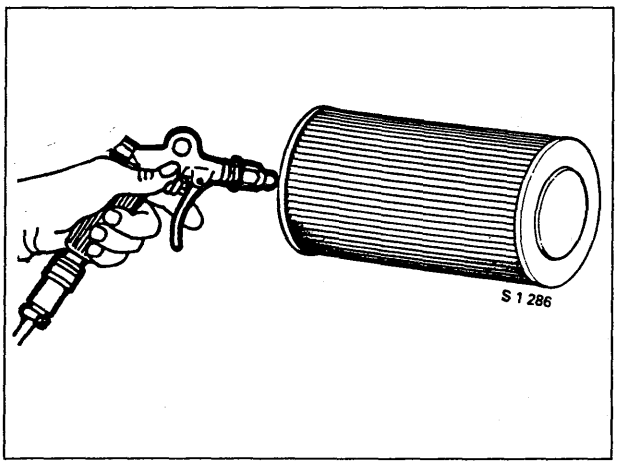
If the car is used in an extremely polluted environment, it is advisable to change the filter element at more frequent intervals.



Air cleaner

Air cleaner

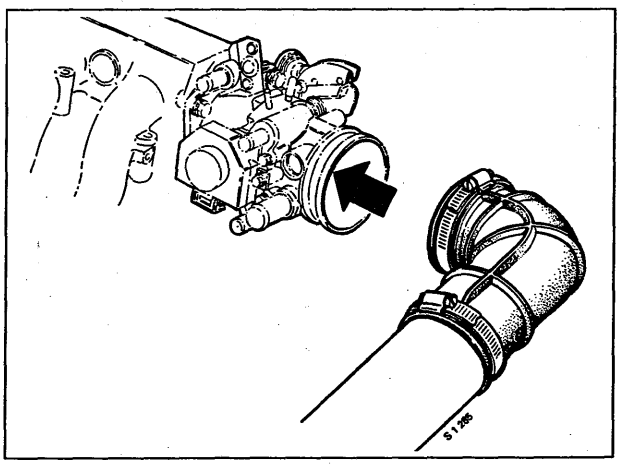
Blow the element clean from the inside with compressed air.



Optional work

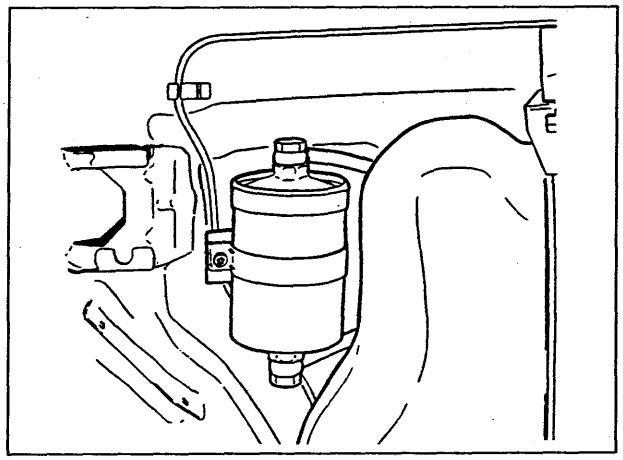
Throttle housing

Remove the throttle housing inlet hose, open the butterfly and clean the inside of the housing using a cloth moistened with grease solvent.
To be carried out if the engine idles unevenly or not at all.



Fuel filter

Change the fuel filter and the seals at the banjo couplings.



Crankcase ventilation and vacuum hoses

Inspect the condition of the vacuum hoses and check them for leakage.

Fuel lines in the engine compartment

Inspect the condition of the fuel lines and check them for leakage.

Optional work

Compression test

1 Disconnect the ignition cables or remove the ignition cartridge (on DI cars) and remove the spark plugs.

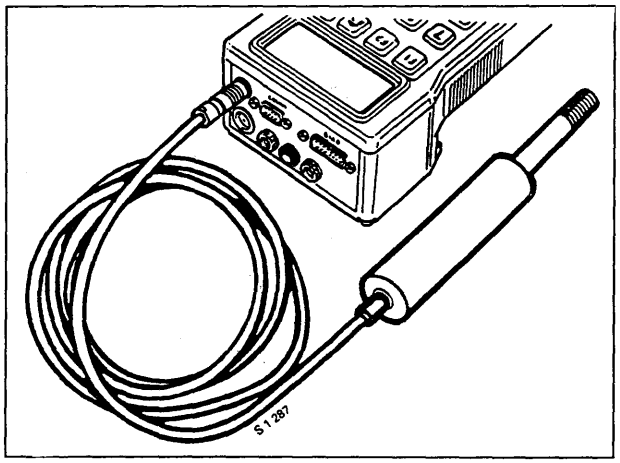
Note:

Unplug the connector from the power output stage or separate the two connector halves in the power supply cable for the ignition cartridge.

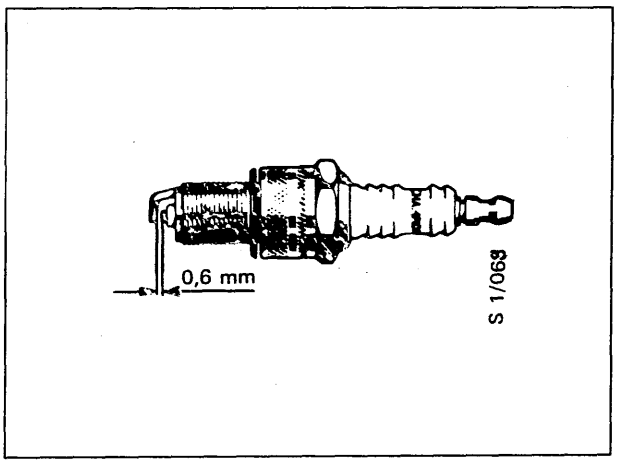
2 Connect the pressure sensor (86 10 974) to the ISAT instrument by means of the adapter cable (86 10 982).

3 Advance to the desired menu by pressing "F3" (TEST) and "ALT". Then depress "F2" (COMP), press the accelerator pedal to the floor and run the starter motor until the result appears in the display (5 engine revolutions + the average of the 3 highest values from the following 5 engine revolutions).

4 Move the sensor to the other cylinders and repeat the test.



Spark plugs



Engine	Designation
B202i	NGK BCP 5EV Precious metal
B202 Turbo without Saab DI	NGK BCP 7EV Precious metal Champion C7GY Precious metal
B202 Turbo with Saab DI	NGK BCPR 7 ES
B234i	NGK BCPR 6ES
B234 Turbo	NGK BCPR 7ES

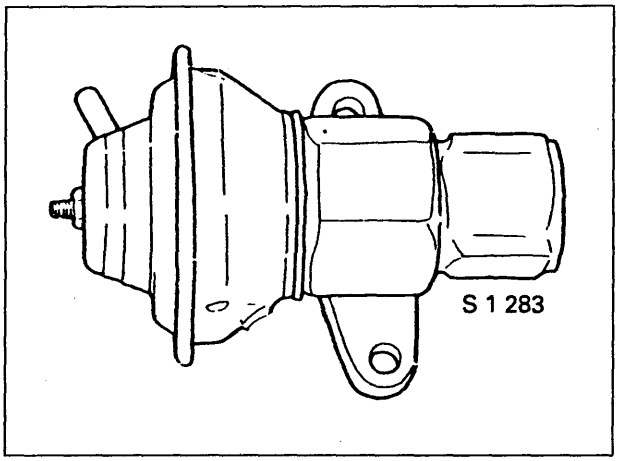
Electrode gap without Saab DI:
0.6 + 0.1 mm (0.023 + 0.004 in)

Electrode gap with Saab DI:
1.0 + 0.1/-0.2 mm (0.039 + 0.004/-0.008 in)

Tightening torque:
25-29 Nm (18.5-21.5 lbf ft)

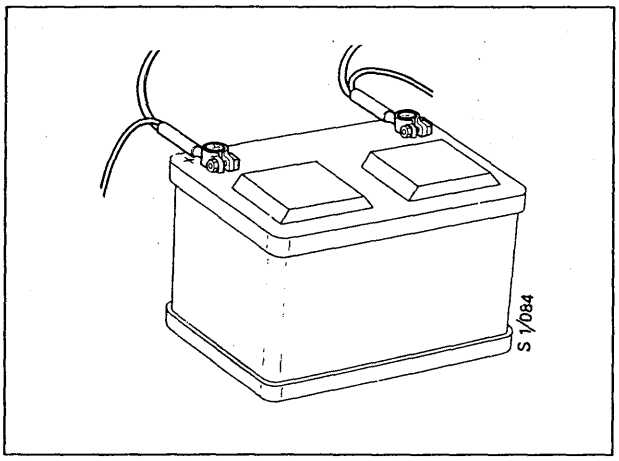
Cleaning the EGR device

1 Remove and fold back the rubber neck and valve housing.
2 Remove the EGR pipe and EGR valve.
3 Clean the EGR valve's inlet and outlet
4 Clean the hole in the intake manifold and wipe off any carbon deposits.
5 Reassemble the parts and fit a new gasket.
6 Check the operation of the EGR device.



Battery

Clean the battery terminals and smear them with petroleum jelly. Retighten the terminal clamps. Check the electrolyte level.

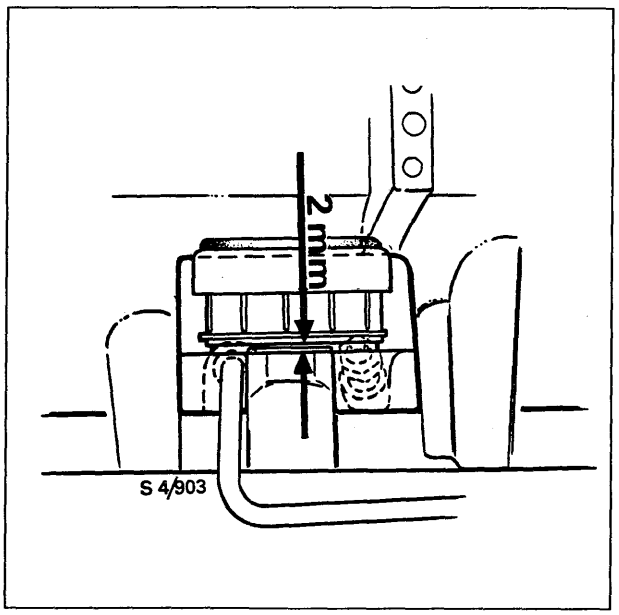


Optional work

Clutch plate

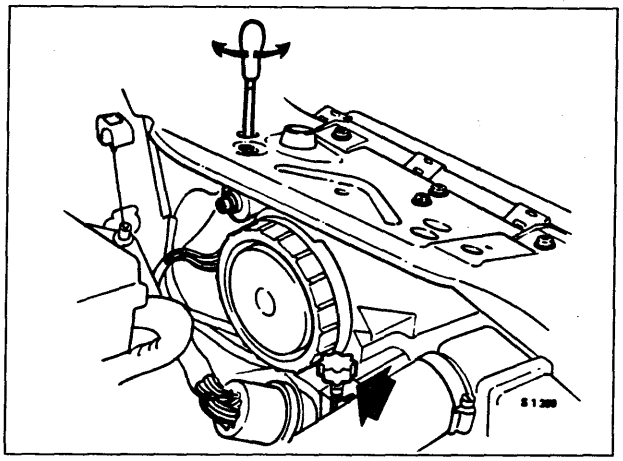
Check clutch wear through the inspection hole in the clutch casing after removing the rectangular plastic plug.

When the distance between the rear of the plastic sleeve and the front of the turned surface is less than 2 mm (0.108 in), the clutch plate should be changed.



Headlamps

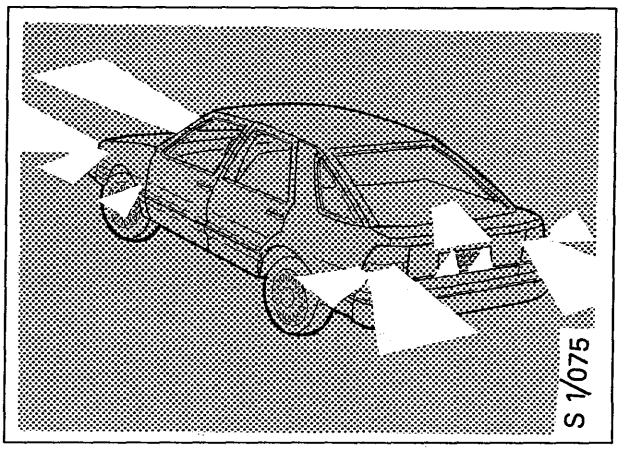
Check the condition and alignment of the headlamps.



Lighting

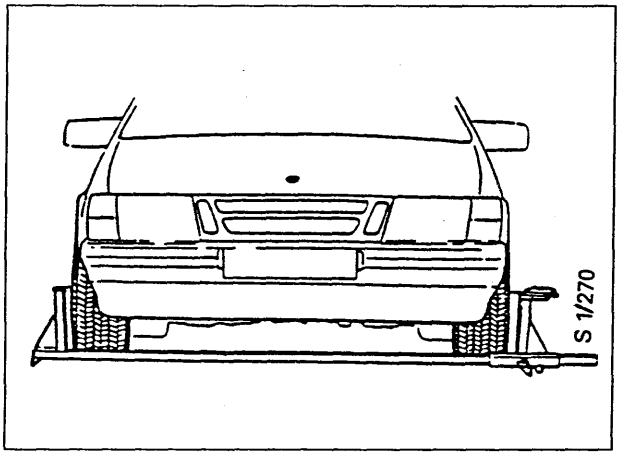
Check the front and rear lighting, direction indicators, brake lights, high- mounted brake light, reversing lights, rear fog light, number plate illumination and engine compartment lighting.

Check that the lighting indicator lamp (GB, IT) lights up when the parking lights or headlamps are switched on. The indicator lamp is located in the lower right-hand corner of the tachometer.



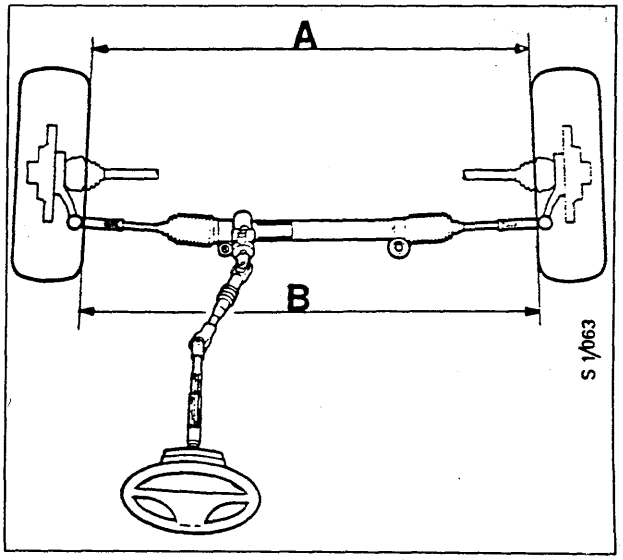
Toe-in

Note the following when checking and/or adjusting toe-in with special tool No. 88 19 013:



- Check and adjust tyre inflation pressures.
- Toe-in: 1.5 ± 0.5 mm (0.06 ± 0.02 in).

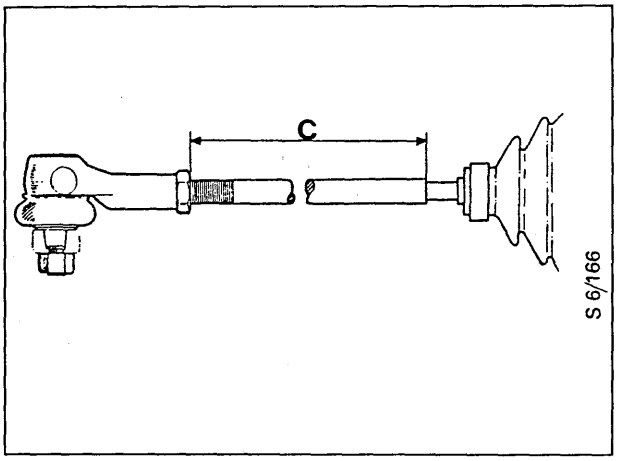
Tightening torque: Locknuts on the track-rod ends: 60-80 Nm (44-59 lbf ft).



Note:

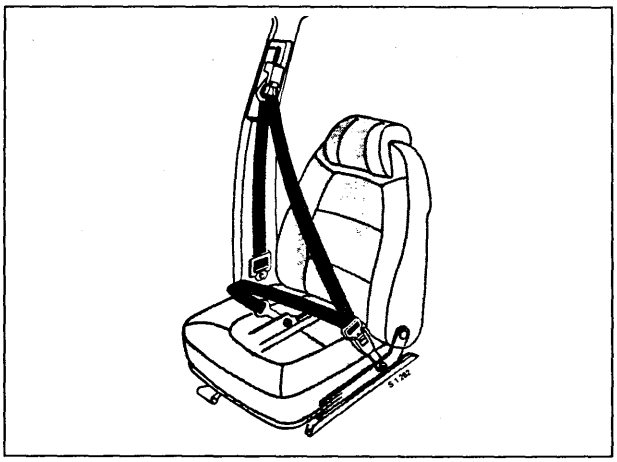
When toe-in has been adjusted, dimension C between the locknut and the edge of the groove in the track rod must never exceed 140 mm (5.5 in).

The difference in dimension C on the two sides of the car must not exceed 2 mm (0.08 in)



Seat belts

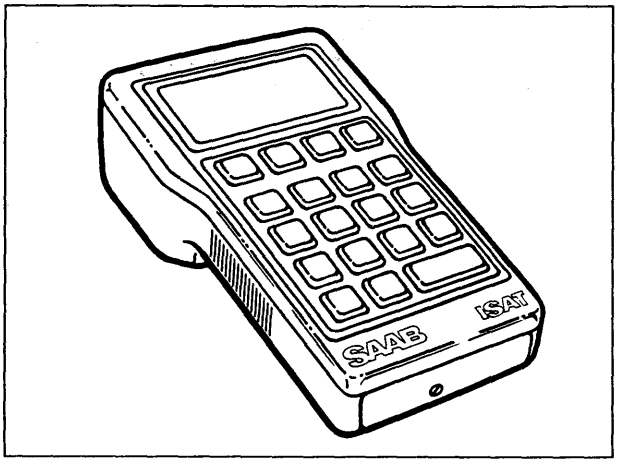
Check the operation of the seat belts and inspect them for damage.



At 10-year intervals:

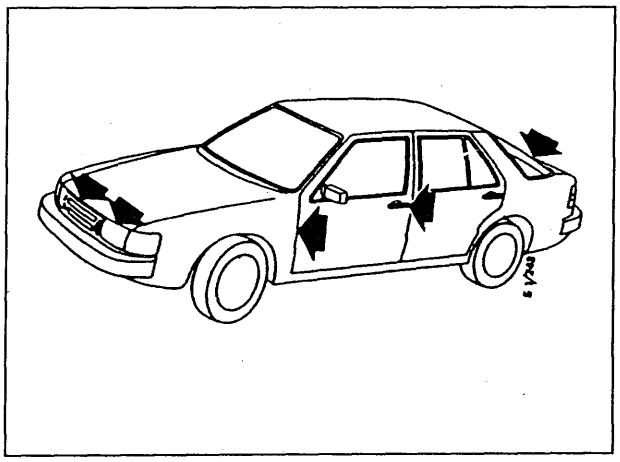
Airbag system

Inspection



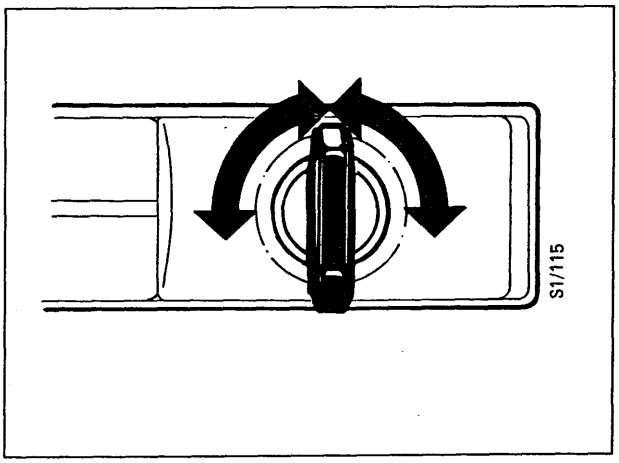
Lubrication

Lubricate the door stops with Gleitmo 750 (45)-3007309.
Lubricate the bonnet catches and locking pins with petroleum jelly.

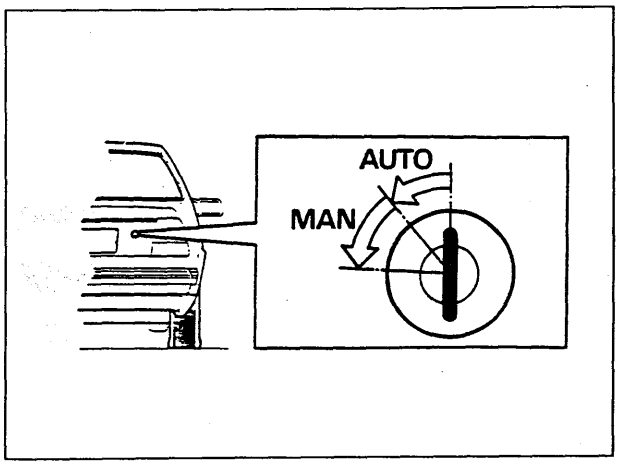


Locks

Check the operation of all locks for the doors, the child safety catches for the rear doors, the luggage compartment door or boot lid, and fuel filler flap.

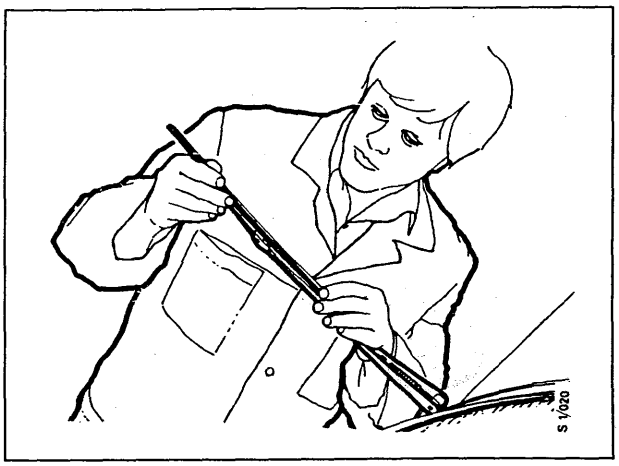


On 9000 CD and CS models, check that the luggage compartment can be unlocked from the outside of the car and also by means of the switch on the inside of the driver's door.



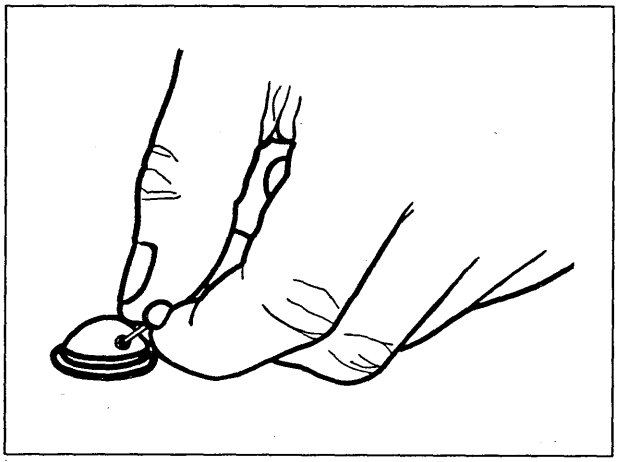
Wiper blades

Check the condition of the wiper blades for the windscreen and headlamps.

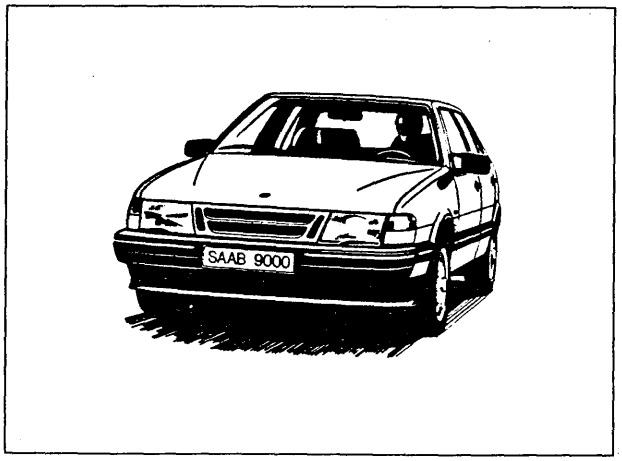


Washer nozzles

Clean and adjust the washer nozzles.



Road test



- Ignition switch
  Check that the steering column lock operates satisfactorily and that the key is easy to insert and remove.
- Engine
  Operation and noise level. Turbo: Check that the boost pressure is normal during acceleration (the needle moves towards the red zone)
- Clutch
  Check the positions of the pedal at which the clutch disengages and begins to engage.
- Manual gearbox
  Check its operation and noise level.
- Automatic transmission
  Check the selector lever detent, noise level and gear-changing performance.
- Wheels
  Check wheel balance and wheel roundness.
- Driving comfort
  Check that wind noise, road noise and other sounds in the car are normal.
- Steering
  Check the straight-ahead position of the steering wheel, directional stability and operation of the servo.
- Instruments and indicating lamps
  Check the operation of instruments and indicating lamps
- Brakes
  Check the travel of the foot brake pedal and handbrake lever (4-5 notches) and the performance of the foot brake and handbrake.
- Cruise control
  Check the performance.
- Climate control system
  Check the operation of the heating system and AC/ACC and their controls

Bear in mind what the customer might think!
Wipe the steering wheel and gear lever clean and make sure that all other traces of pre-delivery inspection and service work have been removed.

Workshop information
User feedback

To

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SWEDEN

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From

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Comments/suggestions

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Manual concerned: .....

It is important that Saab technicians in the field regard the Workshop Service Manual as their bible, and we therefore strive to make the manual easy to use and to provide accurate information.

By letting us have your views on this manual you will be helping us to maintain a high standard in our literature.

Note down any comments or suggestions you may have on a sheet of paper or take a copy of this page and send us your views at the above address. For greater convenience, you are also welcome to send your comments by fax, using the telephone number shown.

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Trollhättan, Sweden

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