

SAAB

90

**SERVICE
MANUAL**

1:1 Pre-Delivery Inspection
and Warranty service

M 1985-

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1.1 Delivery- and Warranty service

M 1985-

DELIVERY SERVICE

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WARRANTY SERVICE

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General

Why delivery inspection?

The Saab car is a high-quality product. It is manufactured by highly skilled personnel, using the best available technology and equipment. A comprehensive inspection programme is included in the production line and extends from the raw material up to the finished product.

The last stage in this inspection chain is the pre-delivery service. Pre-delivery service is of growing importance in the stiffening competitive climate, in which the customer can make increasingly heavy demands on being supplied with a high-quality product.

So bear in mind the minor details, such as removing any oil or dirt spots, the clock showing the right time, etc.

Saab-Scania AB
Saab Car Division



Specifications

Engine

Oil capacity, including filter	3.8 liter
Grade of oil	SF/CC as per API Service
Viscosity:	SAE 10 W/30, 10 W/40 or 5 W/30

Fuel system

Idling speed	850 ± 50 r/min
Fast idling	1350 ± 50 r/min

Grade of oil in carburetor damper plunger	ATF oil
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Ignition system

Ignition setting at 2 000 r/min and with the vacuum regulator disconnected

Sweden	18°
Europe	20°

Power transmission

Grade of oil:	
Manual gearbox	Saab Transmission oil or SE engine oil or an EP oil
Viscosity:	SAE 10 W/30, 10 W/40 or EP 75 API-GL4 (GL5)

Brake system

Brake fluid	As per DOT4
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Wheels

Tightening torque	90 – 110 Nm (9 – 11 kgf m)
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Special tools



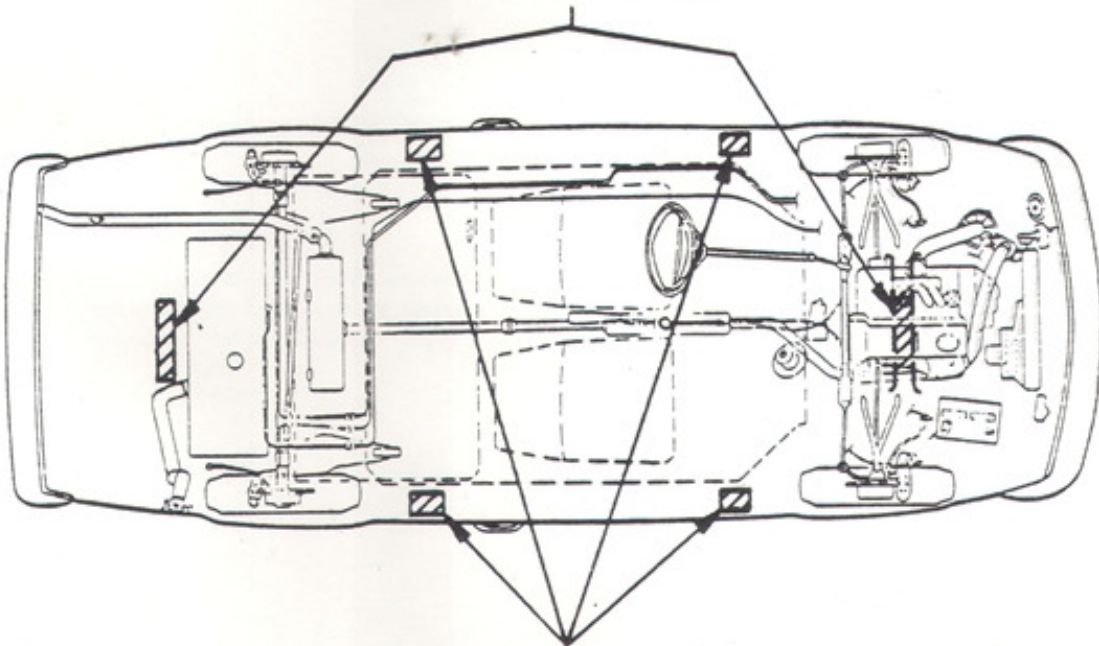
58133

83 93 217 (A0-1) Adapter for cooling system tester.

Other tools

- Pressure tester for the cooling system
- TSI ignition service instrument
- Hydrometer for battery electrolyte
- Tyre pressure gauge

Lifting points for the workshop jack



Lifting points for the hoist

Washing – dewaxing

Washing

Flush the car with tepid water to wash away any dirt or the like.

Spray the car with Nav 77 degreasing agent (Art. No. 45-3008257) or equivalent.

Let it act for a couple of minutes.

Wash the car with a car shampoo.

If any residues of wax remain, remove them with a sponge moistened with degreasing agent.

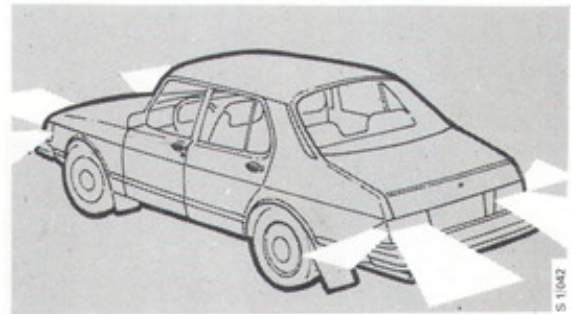
Then wash the car again with a car shampoo.



Inspection programme

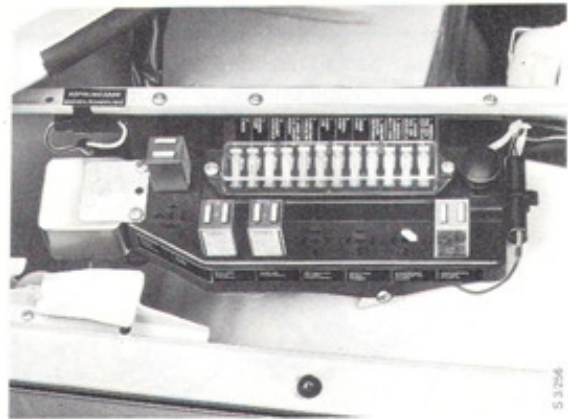
1. Lighting, electric equipment

Carry out a functional check of the front and rear lights. Check the windscreen and headlamp wipers and washers and the ventilation fan. Check the instrument lighting, the indicating lamps and the warning lamps.



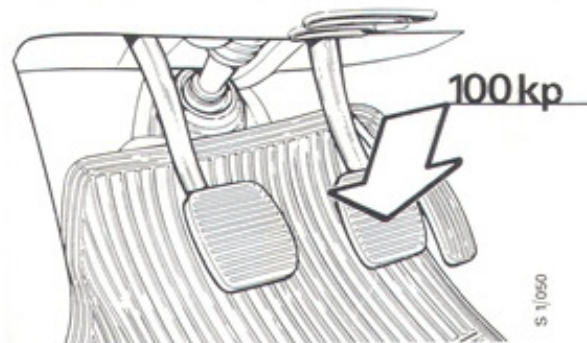
2. Equipment inside the car

Fit the fuse for the clock. Check the courtesy lights, electrically heated rear window and the seat belts. Check the performance of the cigarette lighter.



3. Pressure test the brake system

Depress the brake pedal with a force of about 100 kgf. Keep the pedal depressed for about 10 seconds and check that it remains in position.



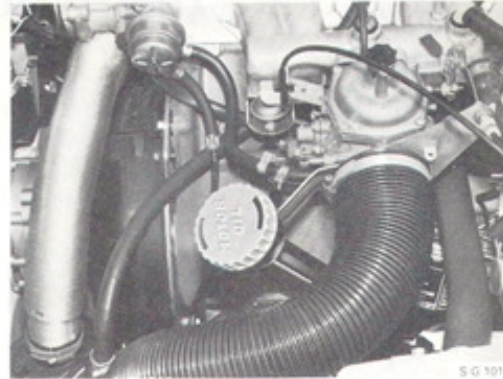
4. Oil level in the engine

The oil volume between the maximum and minimum marks on the dipstick is approx. 1 litre.

Grade of

oil: SF/CC as per API Service.

Viscosity: SAE 10 W/30 or
10 W/40 or 5 W/30.

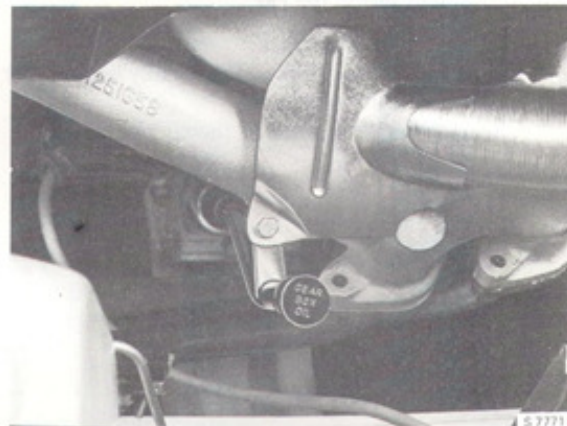
**5. Oil level in the manual gearbox**

Top up as necessary.

Grade of

oil: Saab Transmission oil or
engine oil (SE or SF oil)
or an EP oil.

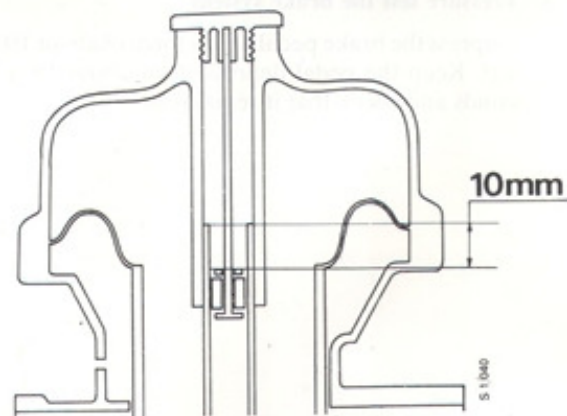
Viscosity: SAE 10 W30 or
10 W 40 or EP 75 API-
GL-4 (GL 5).

**6. Oil level in the carburetor**

The level should be about 10 mm below the top end of the cylinder.

Grade of

oil: ATF oil



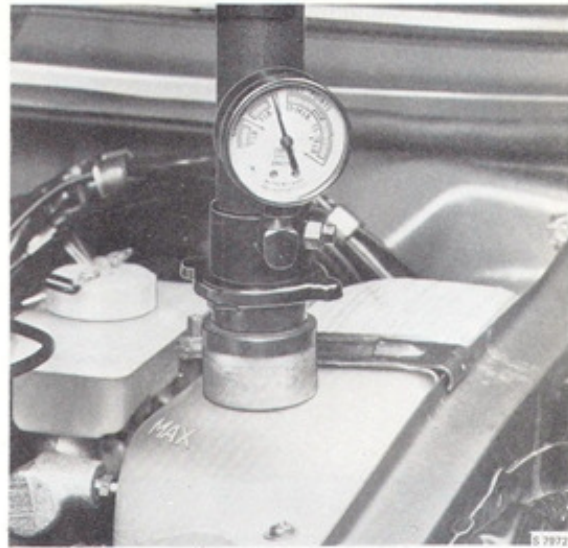
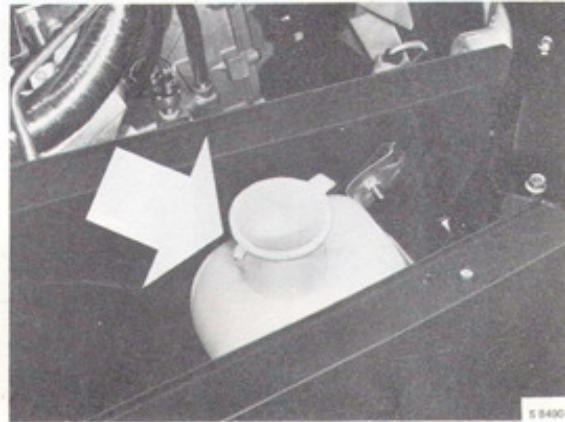
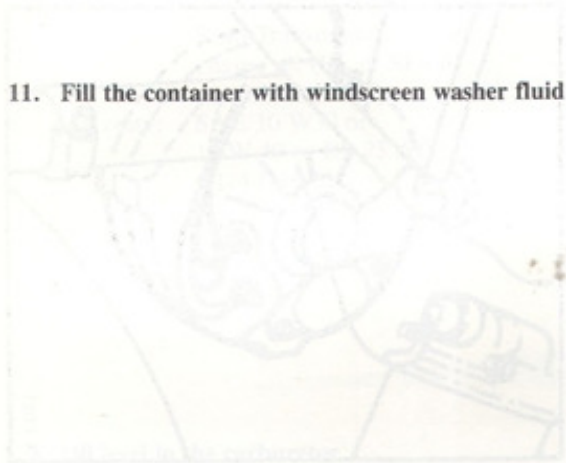
10. Cooling system

Check the coolant level. Top up with coolant mixture (50 % water and 50 % genuine Saab radiator fluid), as necessary.

Avoid mixing different types of anti-freeze.

Pressure test the cooling system:

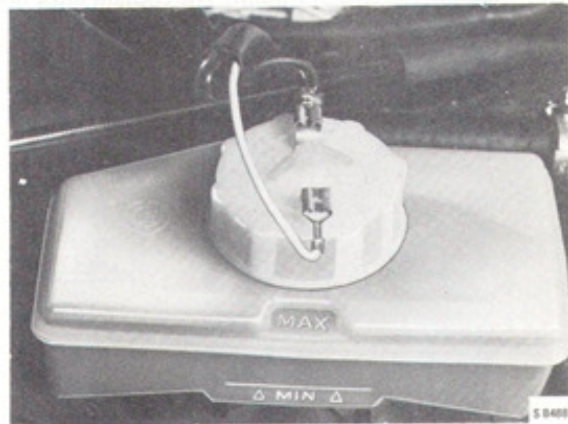
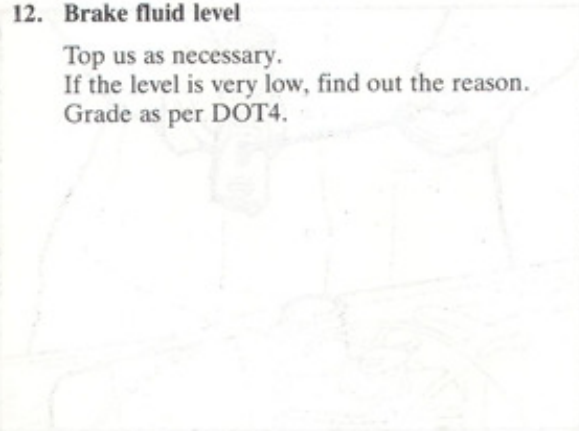
The max. test pressure is 1.2 bar (kgf/cm²).

**11. Fill the container with windscreen washer fluid****12. Brake fluid level**

Top us as necessary.

If the level is very low, find out the reason.

Grade as per DOT4.



13. Ignition setting

Connect the ignition service instrument. Remove the vacuum hose connected to the distributor. Start the engine and run it at 2 000 r/min.

The ignition setting should be:

Sweden	18°
Europe	20°

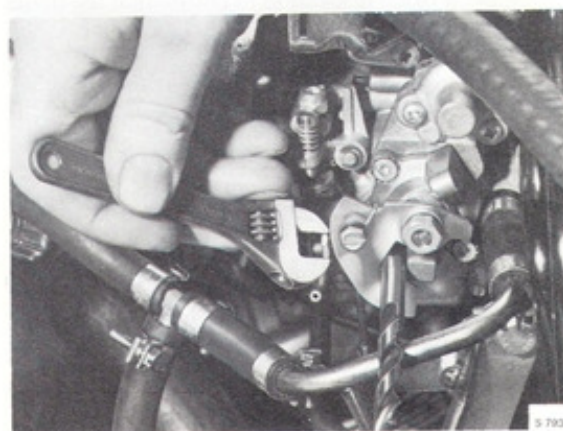


14. Idling speed (engine warm)

Check and, if necessary, adjust the idling speed. Idling speed: 850 ± 50 r/min

Fast idling speed:

Place an 8 mm drill between the recess in the cam and the stop on the choke housing. Check the fast idling speed. The correct fast idling speed is: 1350 ± 50 r/min



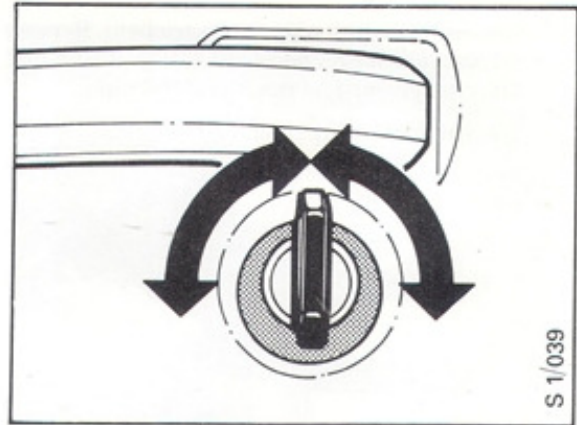
15. Equipment

Check that the tool kit, warning triangle and Owners Manual are in the car.

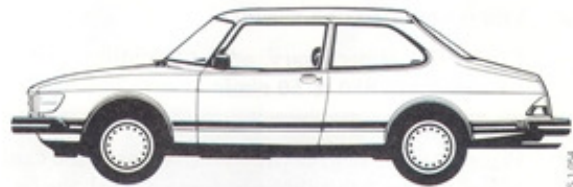


16. Locks

Check the performance of all locks for the doors and luggage compartment lid.

**17. Doors and luggage compartment lid**

Make a visual inspection to ensure that the doors and lid are a good and tight fit. Check the closing force.

**18. Wheel nuts**

Tighten the wheel nuts with a torque of 90–110 Nm (9–11 kgf m).

N.B. Do not tighten the nuts too hard. Do not use a nut runner without torque rod.



19. Tyres – check the pressures

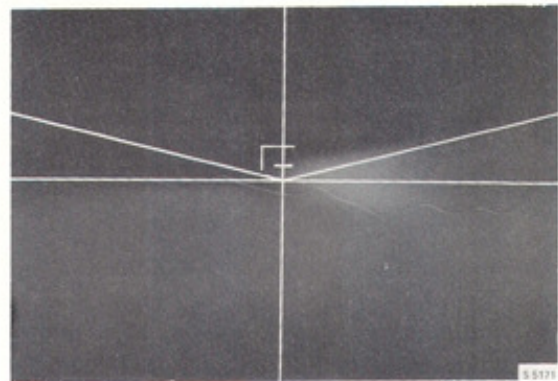
Check and, if necessary, adjust the tyre pressures to the following values

	front	rear	
165 SR 15	1.9	1.9	bar
175/70 R15	1.9	1.9	bar
Spare wheel (GB, AU)	5.5		bar
Others	4.2		bar



20. Headlamp setting

Check the headlamp setting.



21. Road test

Check the general functions of the car, such as the engine clutch, gearbox, brakes, wheel balance, instruments, direction indicator stalk return, steering, etc. Check that there is no noise, wind noise or other strange sounds.

Check the steering wheel position.

Cleaning – fitting of equipment

1. Windows, rubber parts

Clean the rubber strips and bumpers. Wash all windows. Clean the tyres.



2. Polishing

Polish the entire body, using a car polish. Check the paintwork and bright metallic parts.



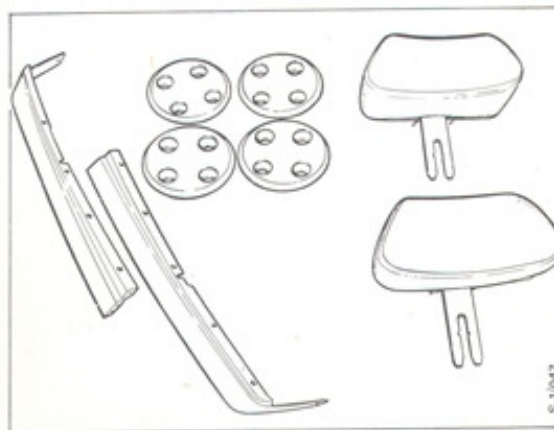
3. Fit the equipment

Fit the equipment supplied, such as hub caps, spoiler and headrest cushions.

Remove the protective plastic film from the seats, doors, floor and bumpers. Remove the protective film in the engine compartment.

Wipe away any spots of dirt.

Fill in the service booklet.



Specifications

Engine

Valve clearances, mm, after the engine has been warmed-up to normal temperature and the left to cool for 30 min.

On checking:	inlet	0.15–0.30
	exhaust	0.35–0.50
On adjusting:	inlet	0.20–0.25
	exhaust	0.40–0.45

Shims between 1.77 and 2.89 mm thick, steps of 0.05 mm, are available.

Cylinder head

Tightening torques	Stage I	60 Nm (6.0 kgf m)
	Stage II	90 Nm (9.0 kgf m)
	Stage III	Run the engine to normal temperature and then allow it to cool for 30 minutes
	Stage IV	Slacken and then retighten each bolt to 90 Nm (9.0 kgf m)
	Stage V	Tighten further through 90°

Fuel system

CO on idling (engine warm). On cars with carburetor engines for Sweden and Switzerland, the CO check should be carried out at 2000 r/min, with the hoses to the vacuum control unit, the crankcase vent and the EGR system disconnected. All other cars should be checked at 850 r/min.

On cars equipped with an extra CO idling screw, this should be screwed down to the bottom before the setting work.

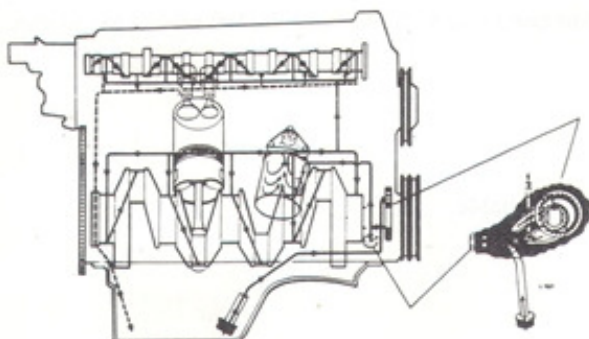
Engine	Model year	Market	CO%	Engine speed on checking	Idling speed, r/min, ± 50
Single carburetor (CM)	1985	Sweden	1.5–2.0 *	2000	850
		Switzerland	1.4–2.0 **	2000	850
		Europe	0.5–2.5	850	850

* Maximum value of 4.5% at idling speed

** Maximum value of $0.8^{+0.8}_{-0.4}$ % at idling speed.

Adjust as necessary by means of the extra CO screw.

Lubrication system



Oil capacity, including oil filter	3.8 litres
Volume between MAX and MIN marks on the dipstick	1.0 litre
Grade of oil	To API Service SF/CC
Viscosity	10 W/30 or 10 W/40 or 5 W/30. On markets where these viscosities are not available, 15 W/40 or 15 W/50 oil may be used.

Ignition system

Ignition setting with the vacuum control unit disconnected.

Engine	Model year	Market	Remarks	Degrees before TDC at 2000 r/min
CM	1985	Sweden, Switzerland		18°
		Europe		20°

Gear box, manual

Oil capacity:	3 litres
Grade of oil:	Saab Transmission oil or SE engine oil or an EP oil
Viscosity:	SAE 10 W 30, 10 W 40 or EP 75 17PI-GL4 (GL5)

Brake system

Hydraulic fluid To DOT 4

Front assembly, steering

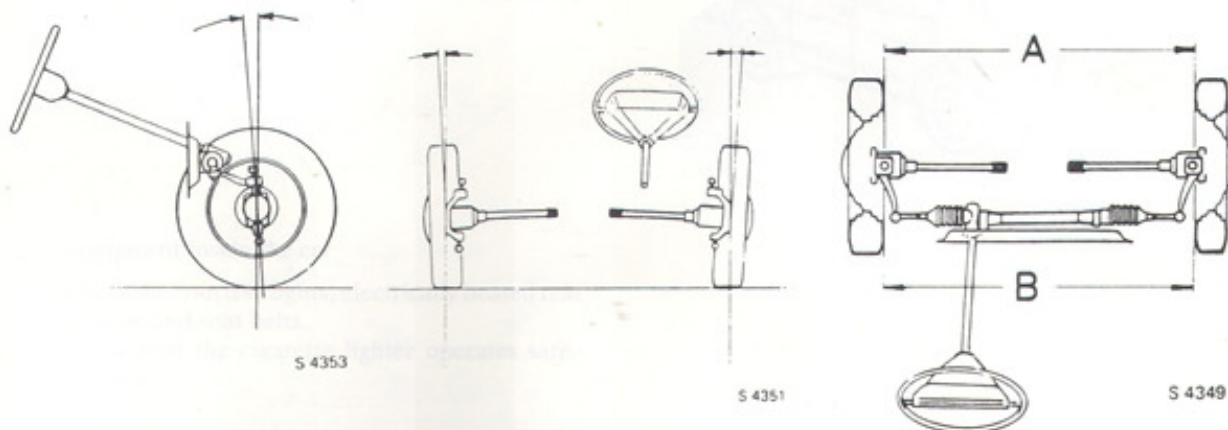
Wheel alignment

All of the figures below apply to an unladen car

Caster
+1° ±0.5°

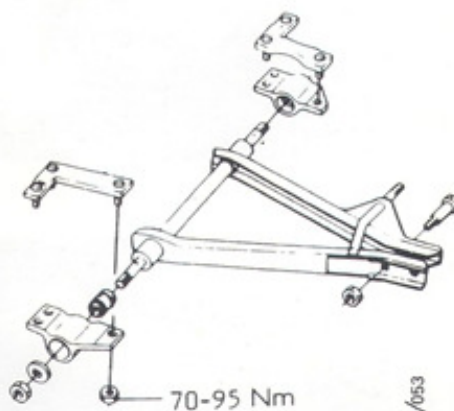
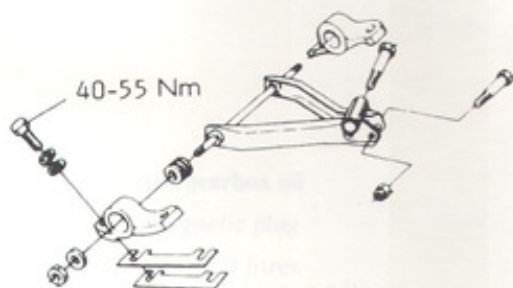
Camber
+0.5° ±0.5°

Toe-in
B-A = 2 ± 1 mm



Tightening torques

The torques are specified in Nm (10 Nm = 1 kgf m)



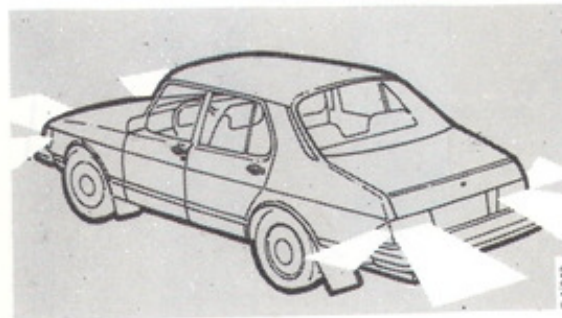
Recommended tyre pressures

	Front	Rear
165 SR 15	1.9	1.9 bar
175/70 R15	1.9	1.9 bar
Spare wheel (GB,AU)	5.5	bar
Others	4.2	bar

Inspection programme

1. Lighting, electrical equipment

Carry out a functional check of the front and rear lights.
 Check the windscreen and headlamp wipers and washers and the ventilation fan.
 Check the instrument lighting, the indicating lamps and the warning lamps.

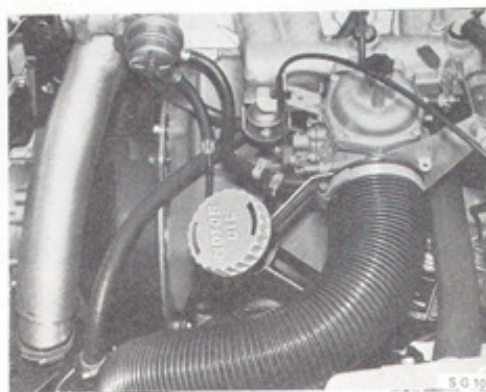


2. Equipment inside the car

Check the courtesy lights, electrically heated rear window and seat belts.
 Check that the cigarette lighter operates satisfactorily.

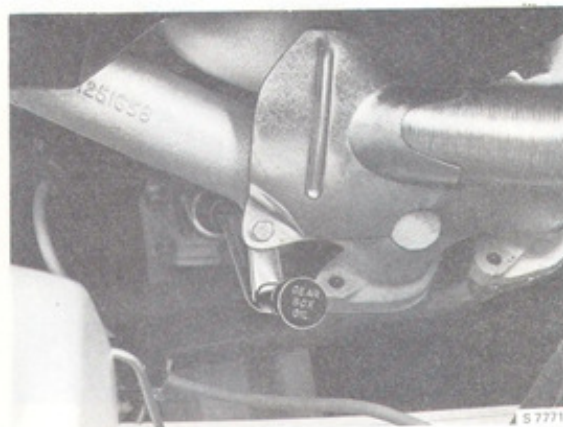
3. Engine oil and filter change

Oil capacity: 3.8 litres
 Grade of oil: SF/CC as per API Service
 Viscosity: SAE 10 W/30 or 10 W/40 or 5 W/30



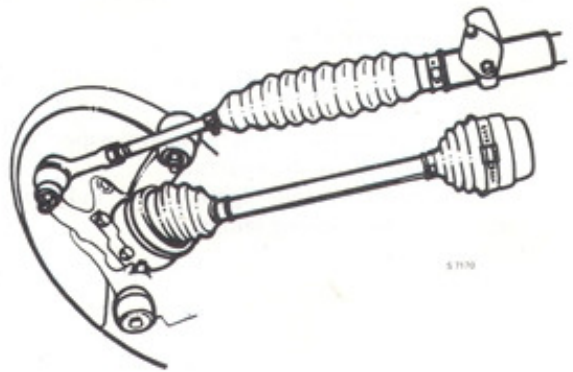
4. Changing the gearbox oil

Clean the magnetic plug
 Oil capacity: 3.0 litres
 4-speed: 2.5 litres
 Grade of oil: Saab Transmission oil or SE, SF engine oil or EP oil
 Viscosity: SAE 10 W/30 or 10 W/40 or EP 75 API-GL4 (GL5)



5. Rubber bellows – check

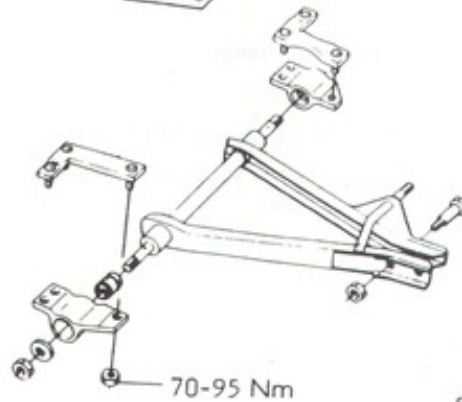
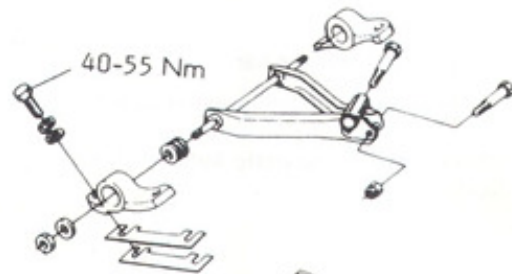
Check the tightness of the rubber bellows on the steering gear, universal joints of the drive shafts, ball joints and tie rod ends.



6. Wishbone mountings – retighten

Retighten the chassis mountings of the wishbone bearings.

Tightening torques: upper 40–55 Nm
 lower 70–95 Nm



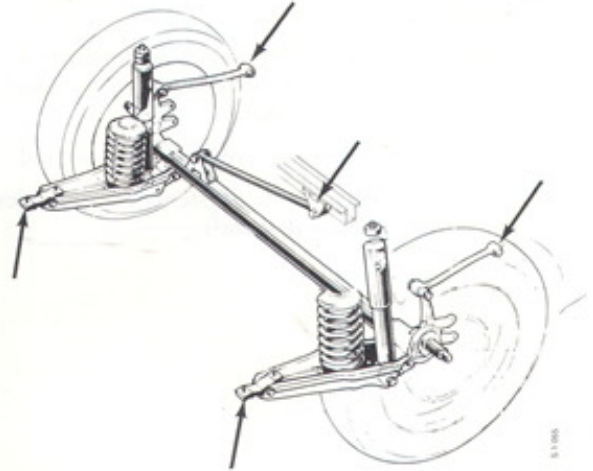
7. Exhaust system – check

Check the mountings and the pipe clamps.



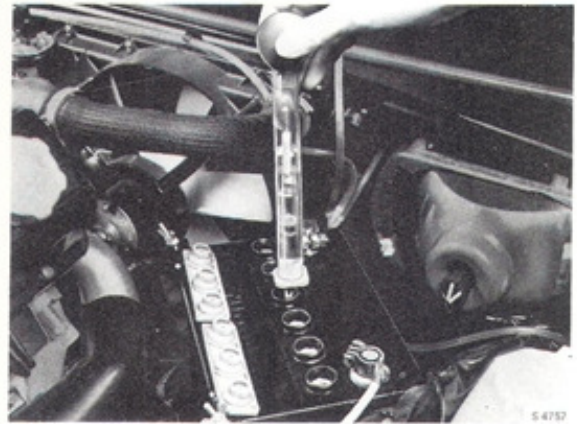
8. Rear axle mountings – retighten

Retighten the chassis mountings of the rear axle.



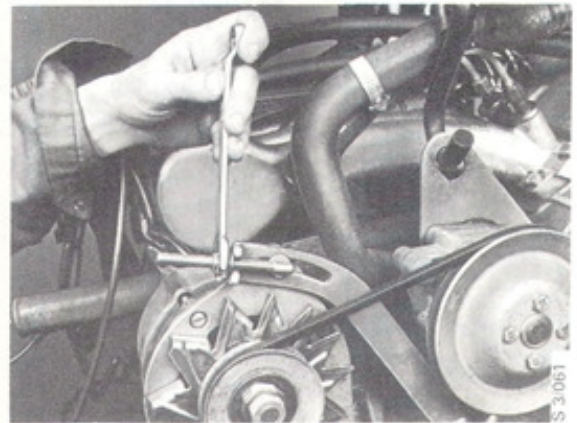
9. Battery – check

Check the electrolyte level. Check and, if necessary, grease the terminals with petroleum jelly.



10. Drive belts – check

Check and, if necessary, adjust the belt tension.

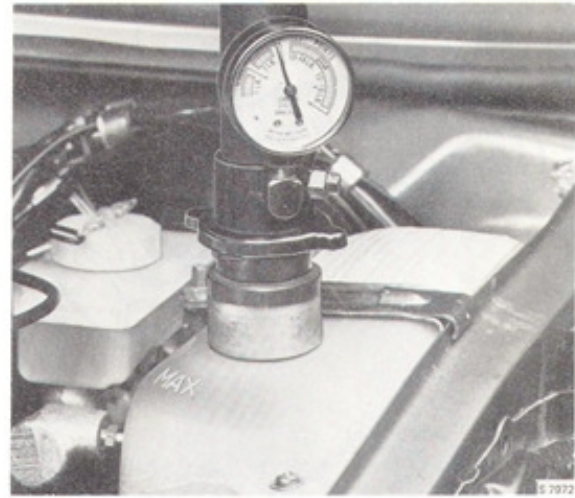


11. Cooling system

Check the coolant level. Top up with a mixture of 50% of water and 50% of genuine Saab radiator fluid, whenever necessary.

Avoid mixing different types of radiator fluid.

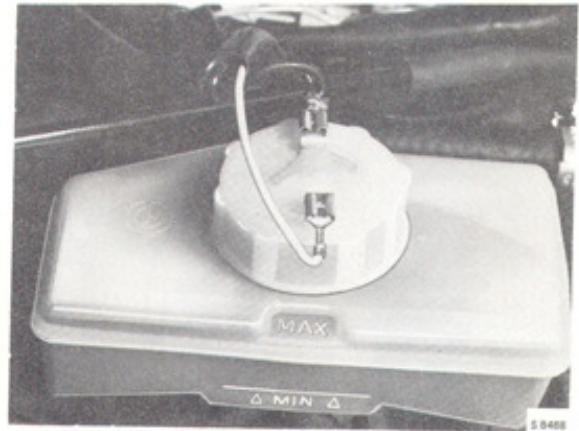
Pressure test the cooling system. The max. test pressure is 1.2 bar (kgf/cm²).

**12. Brake fluid level**

Top up as necessary.

If the level is very low, find out the reason.

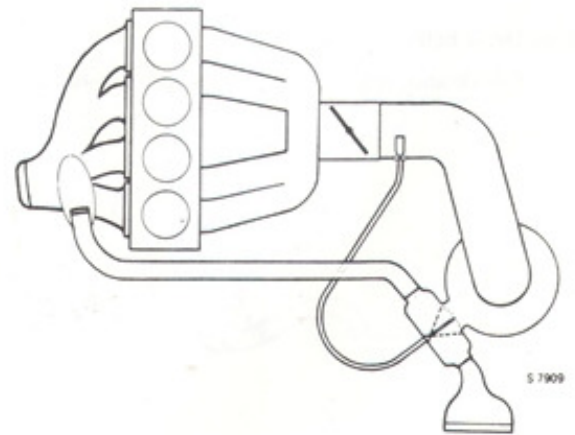
Brake fluid grade to DOT 4.

**13. Intake manifold and exhaust manifold – retighten**

Retighten the bolts with the following torques:

Intake manifold: 18 Nm (1.8 kgf m)

Exhaust manifold: 20 Nm (2.0 kgf m)

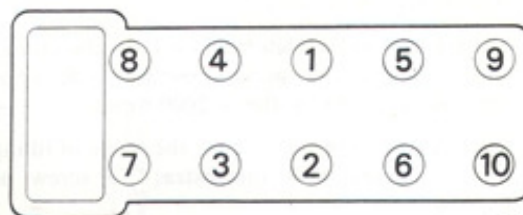


14. Cylinder head – retighten

Retighten after the engine has been warmed up to normal temperature and then left to cool for 30 min.

Remove the valve cover.

Back off and retighten the bolts with a torque of **90 Nm**, in the order shown in the picture. Tighten further through **90°** (quarter of a turn) in the same order.



S 7836

15. Valve clearances – check

Check the valve clearances with a feeler gauge.

Valve clearances on checking:

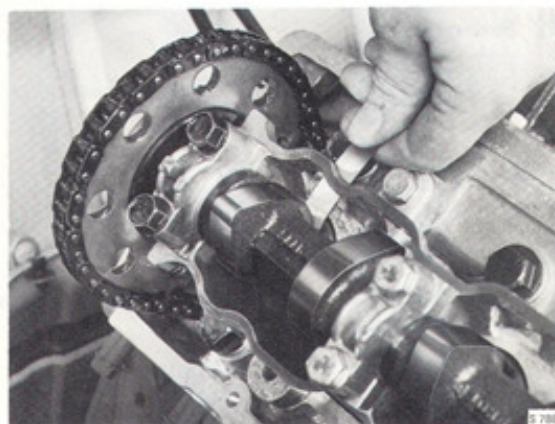
Inlet 0.15–0.30 mm

Exhaust 0.35–0.50 mm

On adjusting:

Inlet 0.20–0.25 mm

Exhaust 0.40–0.45 mm



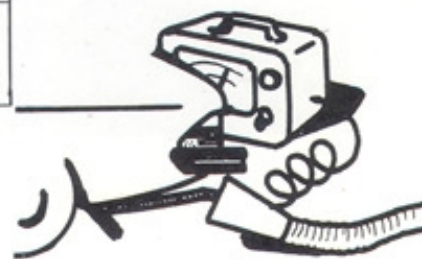
S 7887

16. Idling speed and CO – check and adjust

Engine	Market	CO%	Engine speed, r/min	Idling speed, r/min, ±50
CM	Sweden	1.5–2.0 *	2000	850
	Switzerland	1.4–2.0 **	2000	850
	Europe	0.5–2.5	850	850

* Maximum value of 4.5% at idling speed

** Maximum value of $0.8^{+0.8}_{-0.4}\%$



S 5202

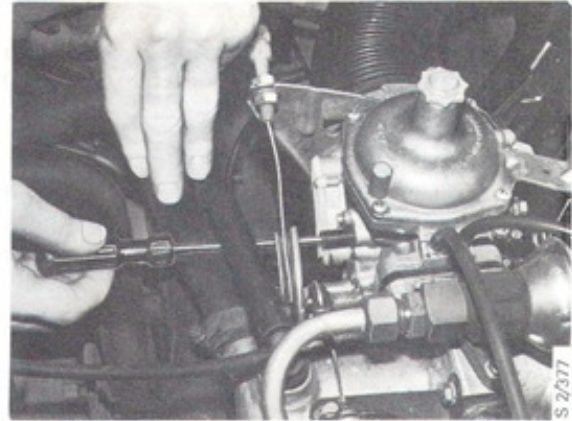
Start the engine and run it until it is warm (the cooling fan has started)

Sweden and Switzerland: Disconnect the crankcase vent. Plug the vacuum hose to the distributor. Check the CO value at **2000 r/min**.

Connect the hoses and check the value at idling speed. Adjust with the extra CO screw as necessary.

N.B. The extra CO screw should be screwed down to the bottom before any adjustments are made.

Europe: Check the CO value at idling speed (**850 ± 50 r/min**)



17. Power unit

Check for oil leakage.

18. Tyres – check the pressures

Check and, if necessary, adjust the tyre pressures to the following values

	front	rear	
165 SR 15	1.9	1.9	bar
175/70 R15	1.9	1.9	bar
Spare wheel (GB, AU)	5.5		bar
Others	4.2		bar



19. Front wheel alignment – check

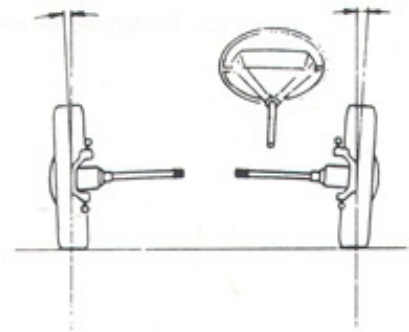
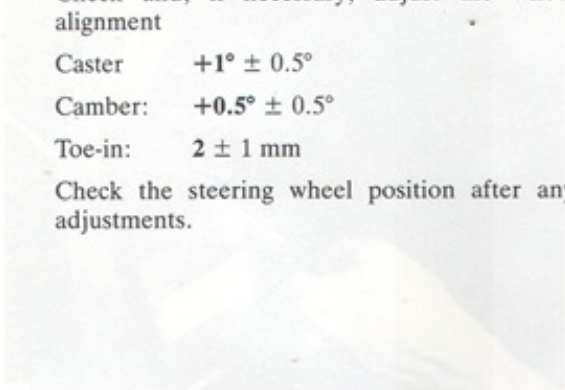
Check and, if necessary, adjust the wheel alignment

Caster $+1^\circ \pm 0.5^\circ$

Camber: $+0.5^\circ \pm 0.5^\circ$

Toe-in: 2 ± 1 mm

Check the steering wheel position after any adjustments.

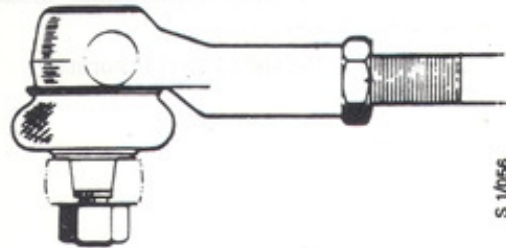


S 4351

20. Tie-rod end nuts – retighten

Retighten the nuts of the tie rod ends.

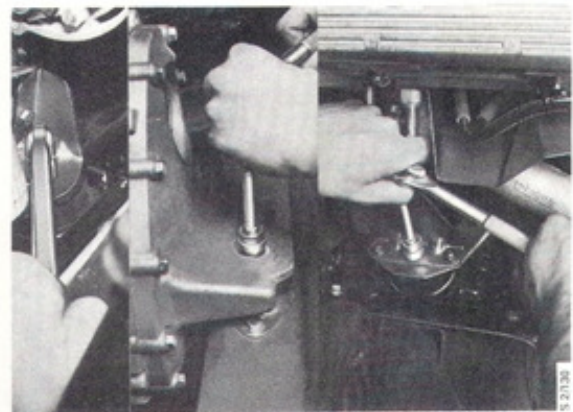
Tightening torque: 60–80 Nm (6–8 kgf m)



S 1/056

21. Engine mountings – retighten

Retighten the engine mounting bolts.



S 2130

22. Door locks and striker plates – retighten

Check the closing force. Retighten the mounting screws.

**23. Road test**

Check the general performance of the car, such as the engine, clutch, transmission, brakes, wheel balance, etc.

Check whether the sound level is normal.

Saab-Scania AB
Saab Car Division
Nyköping, Sweden

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