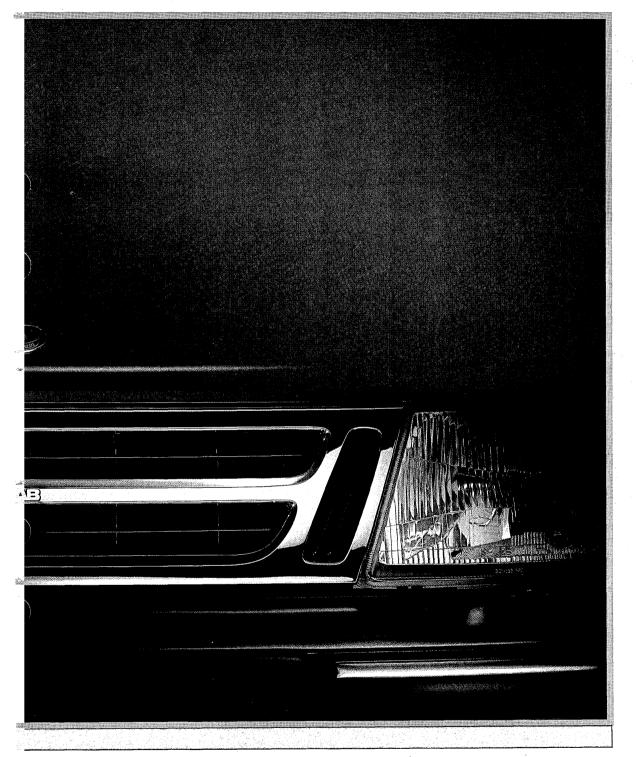
Saab 9000

SERVICE MANUAL



SAAE

I:2 Service

M 1990-1991

Saab 9000

SERVICE MANUAL

1:2 Service M 1990–1991

General 1 Maintenance program 3 Major service 17

Units

The basic and derived units used throughout the Service Manual are in accordance with the SI system. (Système 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 Millimters (mm) Kilograme (kg) Newton (N) Newtonmeter (Nm) Atmosphere (bar)	Equivalent unit and symbol inch (in) pound (lb) pound-force (lbf) foot pound (ft lb) pound-force per square inch (lbf/in ²)
Liter (I) °Celcius (°C)	(Also abbreviated: psi) US liquid quart (liq qt) (Also abbreviated: qts) US gallon (USgal) °Fahrenheit (°F)
Conversion factors 1 in = 25.4 mm 1 lb = 0.45 kg 1 lbf = 4.45 N 1 lbf ft = 1.36 Nm 1 psi = 0.07 bar 1 LS lig gt = 0.92 LlKat	1 kg = 2.20 lb 1 N = 0.23 lbf 1 Nm = 0.74 lbf ft 1 bar = 14.5 lbf/in ² 1 I = 1.05 liq qt

1 USgal = 0.83 UKgal

 $^{\circ}C = (^{\circ}F - 32) \times 5/9$

Market codes

The codes refer to market specifications

1 US liq qt = 0.83 UKqt

 $^{\circ}F = ^{\circ}C \times 9/5 + 32$

1 mm = 0.039 in

ATAustriaAUAustralBEBelgiurCACanadaCHSwitzeiDEGermaDKDenmaESSpainEUEuropeFEFar EaFIFinlandFRFrance	ia GR n IS a IT fland JP ny ME rk NL NO SE st US I UC	Great Britain Greece Iceland Italy Japan Middle East Netherlands Norway Sweden USA US California
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Production: Technical Publications, Saab Automobile AB, Trollhättan, Sweden

General

General

A clean and orderly workshop is an essential condition for good, professional work. Certain components of the car must also be handled carefully and protected from dirt and grit. For mechanics who are new to the job (and as a reminder to experienced mechanics) the following guidelines should be followed.

- 1 Cover the fenders and other parts of the paintwork where you are working to avoid chipping and scratching.
- 2 Protect the upholstery with a suitable plastic covering to keep it clean.
- 3 Before starting to dismantle hubs, shafts, etc., remove all loose dirt from the insides of the surrounding body panels and from around the suspension components. This will help to prevent dirt and grit from entering bearings and other sensitive components, as well as making the work easier.
- 4 Thoroughly clean the recess in the cylinder head before removing a spark plug.
- 5 The workshop should have special areas set aside for different jobs. For instance, a workbench on which an engine or gearbox is to be disassembled should never be used for filing or the like.

Important safety notice

The proper performance of service is essential for both the safety of the technician and the efficient functioning of the vehicle. The service methods in this Service Manual are described in such a manner that the service may be performed safely and accurately. Service varies with the procedures used, the skills of the technician and the tools and parts available. Accordingly, anyone using service procedures, tools or parts which are not specifically recommended must first completely satisfy himself that neither his safety nor the vehicle's safety will be jeopardized by the service method selected. The use of the proper tools and recommended essential tools should be used where specified for proper, safe and efficient service repairs.

Do not operate the engine for an extended period of time without proper exhaust ventilation.

Keep the work area well ventilated and free of any inflammable materials. Special care should be taken when handling any inflammable or poisonous materials, such as gasoline, refrigerant gas, etc. When working in a pit or other enclosed area, be sure to properly ventilate the area before working with hazardous materials.

Do not smoke while working on the vehicle.

Before jacking up the vehicle, apply wheel chocks or other tire blocks to the wheels to prevent the vehicle from moving. After jacking up the vehicle, support the vehicle weight with safety stands at the points designated for proper lifting and towing before working on the vechicle.

These operations should be done on a level surface.

Precautions for a Catalyst

If a large amount of unburned fuel flows into the converter, the converter temperature will be excessively high. To prevent this, follow the procedure below.

- 1 Use unleaded gasoline only. Leaded gasoline will seriously damage the catalytic converter.
- 2 When checking for ignition spark or measuring engine compression, make tests quickly and only when necessary.
- 3 Do not run engine when the fuel tank level is low, otherwise the engine may misfire causing damage to the converter.
- 4 Do not place the vehicle on inflammable material. Keep inflammable material off the exhaust pipe.

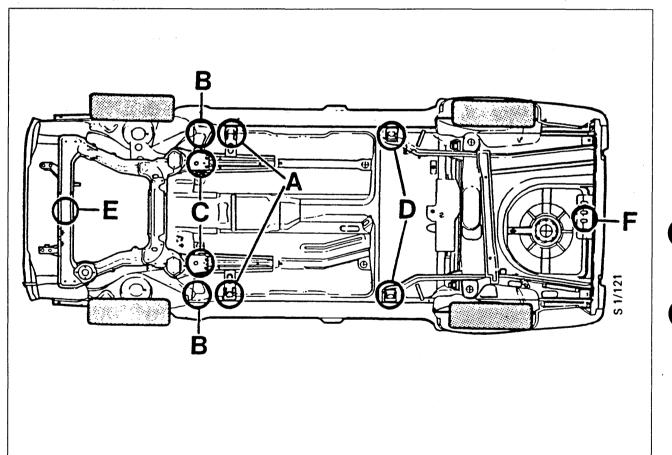
Lifting and jacking up the car

WARNING

Improper jacking or lifting of the car may cause serious injury or death.

To avoid damaging the car, jacks and car lifts should only be applied at suitable points. Two jacking points are provided on either side of the car to enable one side of the car to be jacked up, for instance, for changing a wheel. The engine compartment floor is reinforced immediately under the cross-member supporting the engine for the application of a floor jack. A similar reinforced jacking point is provided under the floor panel behind the fuel tank at the rear of the car. On most floor jacks, the pad or head is of channel-section design. To prevent damage to the floor of the car, a block of wood should be placed between the jack and the car. For jobs requiring either the front or the rear of the car to be raised, the jacking points under the sills should be used.

Application points



- A Frontjack attachments and application points for hoist
- B Alternate front application points for hoist
- C Alternate front application points for hoist
- D Rear jack attachments and application points for hoist
- E Front application point for floor jack
- F Rear application point for floor jack

Maintenance program

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Exterior and Trunk Inspection and Services .	-	9

Under Hood Inspection and Services	9
Under Car Inspection and Services 1	3
Final Service 1	5

Maintenance schedule Saab 9000, M 1990 - 1991

These Maintenance instructions specify operations to ensure proper and safe function of Saab emission control systems throughout the useful lift of the automobile. Additional maintenance is specified for certain components when operated under certain servere conditions. Maintenance, replacement, or repair of the emission control devices and systems may be performed by any automotive repair establishment or individual using any automotive part which has been certified according to U.S. EPA regulations governing voluntary aftermarket part self- certification.

Service Record Retention

Service coupons and record stubs are provided in the Saab 9000 Warranties/Service Record booklet.

The coupons are arranged in the order that service should be performed. The edge of each coupon is shaded to correspond to the type of service point Striped - Break in Service; Blue - Oil Change/Safety Inspection; Black - Major Service. Two coupons are provided at the end for notification to Saab of change of ownership or change of address.

When scheduled services are performed tear out the applicable coupon, check off the operations performed and enter it into the service file at the dealership. The servicing dealer's stamp, along with date and mileage at which the service was performed, should be entered on the coupon stub which remains in the booklet. This is a permanent record that recommended maintenance has been performed.

MAINTENANCE PROGRAM, SAAB 9000

The maintenance schedule table shown below is for quick reference only. Refer to the descriptive pages of this Service Manual 1:2, Service, and the Warranties and Service Record Booklet for complete procedures. Also note the Maintenance Program information in the customer Owner's Manual for special notations about this schedule.

9000 Emissions Systems	7,500	15,000	22,500	30,000	37,500	45,000	52,500	60,000	67,500	75,000	82,500	90,000	97,500	105,000	112,500	120,000	127,500	135,000	142,500	150,000	157,500	165,000	172,500	180,000	187,500	195,000	202,500	210,000
Spark plugs - replace, adjust gap (Note 1)				٠				٠		1)				1)		•		1)		•		1)		•		1)	<u> </u>	•
Air cleaner insert - replace				•					2 2 - 2			•				•				•		÷.,		٠				•
Fuel filter - replace (Note 2)				•				•				•				•				•				•				•
Fuel evaporative emission control system - check (Note 2)						. *		•	Eve	ery 1	 2 ma	 nths	after	60,0	00 m	niles												1
Charcoal canister - replace, 1990 only (Note 2)								•				4				•								•				
Crankcase ventilation - check (Note 2)								•	Eve	ery 1	1 2 mc	h Inths	after	60,0	00 m	niles												
Secondary ignition wires - check/replace as required, except DI system (Note 2)								•	Eve	ery 1	2 mc	nths	after	60,0	00 m	niles												
Distributor cap and rotor - replace, except DI System								•				Ŧ				•								٠				
Engine oil and oil filter - change (Note 3)	•	•	•	." .	•	•	•	•	•	.•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Overpressure safety switch – check, Turbo only (Note 2)				•				•		;		. •				•			1	•			54. 1					•

Notes:

- For cars used only for city driving, it is suggested that spark plug inspection and regapping or replacement be performed at intervals of 15,000 after the 60,000 mile Major Service has taken place.
- Emission system maintenance is required under the provisions of applicable emission control system warranties, except that this step is recommended, not required, for vehicles certified for sale and registered in California.
- 3) The Intermediate oil and filter change service interval of 3,750 miles is suggested for periods of operation under severe service conditions including extensive idling, stop-and-go driving and/or driving in cold climates over repeated short trips without sufficient engine warm-up.

4 Maintenance program

Saab 9000

9000	7,500	00	00	00	00	00	00	00	00	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Vehicle Maintenance	7,5	15,000	22,500	30,000	37,5	45,000	52,5	60,000	67,5	75,000	82,500	90,0	97,500	105,000	112,500	120,000	127,500	135,000	142,500	150,000	157,500	165,000	172,500	180,000	187,500	195,000	202,500	210,000
Engine									· · ·							· · · · · · · · ·												
Drive-belts - check				•	Εv	l /ery 1	1 2 mc	i onthe	after	, 30,0	00 n	i niles																
Cooling system - check	•	•	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Engine coolant – flush and replace (Note 4)				•:		4)		•.		4)		•		4)		•		4)		٠		4)	<u> </u>	.•		4)		•
Fuel injection system – perform safety check	•	•	•	•	•	.•	•	. •		•	•	•	•	•	•	•	•	•		٠	•	•	•	•	•	•		•
Exhaust system - check	•	•	•	•	•	•	•	٠	•	•	•	•	•	•	•	•	•		•	۲	•	•	•	•	•	•		
Electrical////////////////////////////////////		I		÷	 `	, . ,	<u> </u>	I		<u>!</u>	I	<u>I</u> _				l					I	<u> </u>	1			L	<u> </u>	
Battery - tighten cable terminals	•	•		•	•		•	•	•	•	•	•	•	•	•	•		•	•	٠	•	•	•	•	•	•	•	•
Lights and electrical equipment function – check	. •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Headlights and Foglights - check and aim as required				•				•				•				•								•				•
Manual Transmission				L			1	I	, 1			·										I	<u>I</u>				L	L
Transmission oil level - check and add as required	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•
Automatic Transmission/////								·	1			•	-	L													ـــــــــــــــــــــــــــــــــــــ	·
Transmission fluid - Check and add as required	•	•	•		•	•	•		•	•	•		•	•	•		•	•	•		•	•	•	-	•	•	•	
Transmission fluid – change and clean filter (Note 5)		5)		•		5)		•		5)		•		5)		•		5)		•		5)		•	1.1	5)		•

Notes:

Saab 9000

- 4) Unless Saab approved coolant is used to replace the factory fill, change the coolant every 15,000 miles after the 30,000 mile service.
- 5) An automatic transmission service is recommended every 15,000 miles if the vehicle is used under the severe service conditions of trailer towing, extensive city driving or driving in hot climates.

Maintenance program

G

9000 Vehicle Maintenance	7,500	15,000	22,500	30,000	37,500	45,000	52,500	60,000	67,500	75,000	82,500	90,000	97,500	105,000	112,500	120,000	127,500	135,000	142,500	150,000	157,500	165,000	172,500	180,000	187,500	195,000	202,500	210,000
Chassis //////////////////////////////////																												
Toe-in - check and adjust as required	•	•	•	•	•		•	•	•	.•	•	•	•	•	٠	•	•	٠	•	•	•	•	•	•	•	•	•	•
Upper and lower ball joints and tie rod ends – check				•				•				٠				•				•		-	54.	•				•
Shock absorbers - check				•				•				•				•				•				•				•
Tires - check wear/balance and rotate	٠	•	•	•	•	•	•	•	•	٠	•	٠	•	•	٠	•	•	•	•	•	•	•	•	•	•	•	•	•
Power steering fluid – check and add as required	٠	•	•	•	•	•	•	٠	•	•	•	•	•	•	٠	•	•	•	•	•	•	•	•	•	•	•	٠	•
Suspension and steering - general safety inspection	•	•	•	•	•	•	•	•	•	•	٠	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•
Drive shaft bellows - inspect	•	•	•	•	•	•	•	•	•	•	•	•.	•	•	•	•	•	•	•	•	.• .	•		•	•	•	•	•
Brake system - general inspection	•	•	•	٠	•	•	•	•	•	•	•	•	•	۲	•	•	•	٠	•	•	•	•	. •	•	•	•	•	•
Hand brake - check function	•	•	•	٠	•	•	•	•	•	•	•	•	•	.•	٠	•	•	•	•	•	•		•		•	•	•	•
Brake pads - check thickness	•	•	•	٠	•	•	•	•	•	•	٠	•	•	- •	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Brake fluid – check level and add as required	•	•	•		•	•	•		•	•	•		•	•	•		•	•	•		•	•	•		•	•	•	14
Brake fluid - replace fluid and bleed system				•				•				•				•				•				•				•
Ventilation air filter - replace				•				•				٠				•				٠				•				•
Lubricate – hinges, hood lock, throttle control				•				•				•				•				•				•				•
Test drive – check general vehicle functions and engine performance	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Saab 9000

6 Maintenance program

Oil Change/Safety Inspection

0il change and safety inspection at 7,500 miles, 15,000 miles, 22,500 miles, 37,500 miles, 45,000 miles, 52,500 miles, 67,500 miles, 75,000 miles, 82,500 miles, 97,500 miles, 105,000 miles, 112,500 miles, 127,500 miles, 135,000 miles, 142,500 miles 157,500 miles, 165,000 miles, 172,500 miles 187,500 miles, 195,000 miles, 202,500 miles.

Performing the Oil Change/ Safety 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 (shop supplies). Time is not allowed for extra work which must be added separately.

Always use recommended Saab practices and routines when performing service. Use proper equipment and tools or parts that are designed for the task at hand.

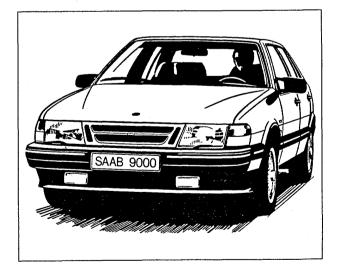
Operating Condition

Start engine and perform electrical system check (all lights and accessories visible or accessible from driver's seat).

Road Test

Road Test

Road test - check engine, transmission, clutch, steering and brake performance. Also check cruise operation, ventilations system and observe and note any noises (brake squeal, rattles, etc.).

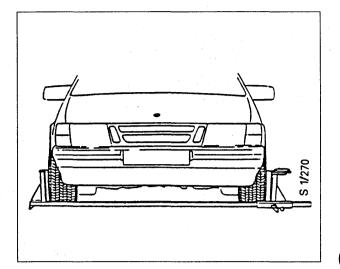


8 Maintenance program

Alignment

Check toe-in. If out of specification, correct and claim additional time allowed.

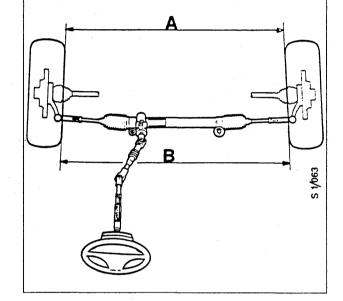
(See Service Manual Section 6)



Toe-in is measured at the rims at points level with the front axle.

Measured at Rims	Measured at a Univer-
(410 mm or 16.1 in)	sal 28.64 in circle
1.5±0.5 mm	2.6±1.7 mm
(0.06±0.02 in)	(0.059±0.020 in)

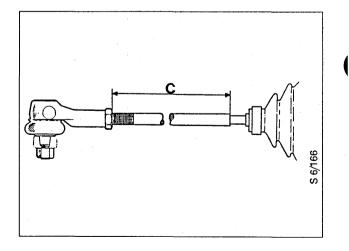
Both tie rods should be adjusted equally.



After adjusting the toe-in, distance C, between the lock nut and the outer edge of the groove on the track rod, must not exceed 140 mm (5.51 in) under any circumstances.

The difference in distance C between the left and right track rods must not exceed 2 mm (0.079 in)

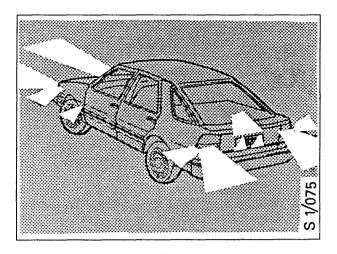
Torque locknut 60-80 Nm (44-59 ft lb)



Exterior and Trunk Inspection and Services

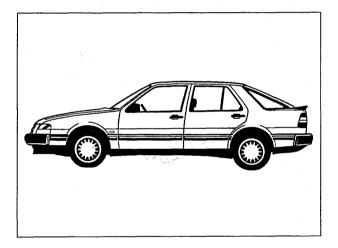
Move to the lift

Park car over lift, set and check parking brake, check exterior lights. Check spare tire and pressure 4,2 bar (60 psi).



Door Operation

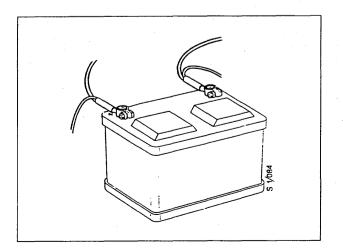
Check the operation of the doors, and lubricate hinges and latches. Also check dome light, door lights and pictogram operation with doors.



Under Hood Inspection and Services

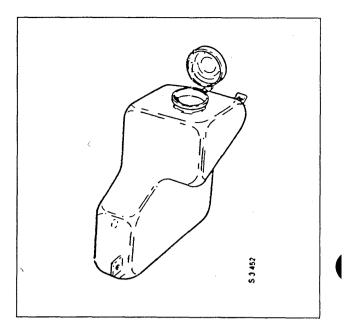
Battery

Check terminal connections and clean terminals if necessary.



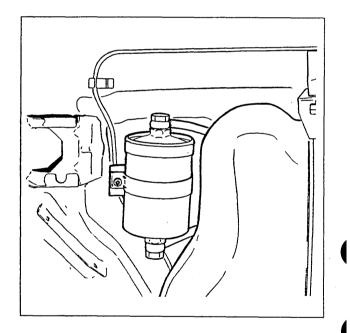
Washer Fluid

Check washer fluid.



Fuel system

Check fuel line condition (visual inspection).



Vacuum Hoses

Check vacuum hoses (visual inspection).

Brake Fluid

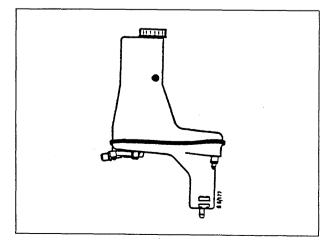
Check the fluid level visible in the transparent reservoir. The level should be maintained between the MAX and MIN marks.

WARNING

Use only fresh brake fluid from a sealed container to avoid water contamination.

Do not use DOT 5 brake fluid.

Brake fluid: DOT 4, SAE J 1703 Hydraulic brake fluid



Manual Transmission Oil

Check gearbox oil level.

Oil level should be between MAX and MIN marks on dipstick.

Manual transmission oil:

SAE 10W 30 SE, SF, SF/CC, SF/CD, SG

Drive Belts

Check drive belts Poly-V belt is tensioned automatically. No adjustment is possible or necessary.

Engine B202:

Engine B234:

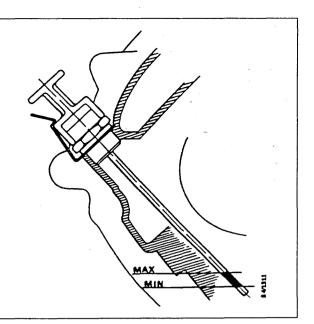
Test value for the belt at least 170 N (40 lbf)

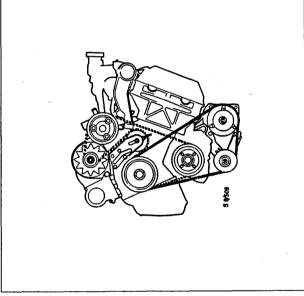
Check the AC drive belt tension. Set if necessary.

AC drive belt	(535 ± 40 N)	120 ± 10 lbf
Lower limit	(265 N)	60 lbf
Setting value	(355 ± 20 N)	80 ± 5 lbf

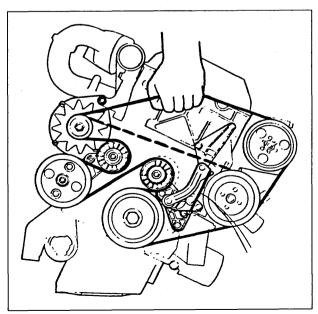
Check the performance of the belt tensioner by pressing and pulling the belt. The belt should return

smoothly to the tensioned position.





B202



B234 The dashed line shows the run of belt without AC

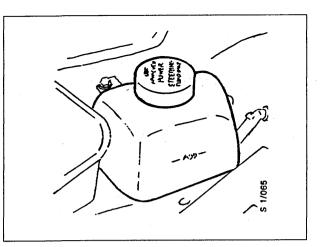
Power Steering Fluid

Check power steering fluid level.

At normal temperature the fluid level should be between HOT and COLD marks. If checked when cold the level should be between marks for COLD level and mark for ADD.

Power steering fluid:

GM Specification, GM Power steering fluid (GM 99 85 010) or Texaco Power steering fluid 4634



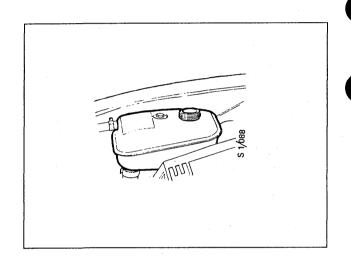
Cooling System

Check coolant level and freezing point. Inspect hoses and clamp condition (on 45,000, 75,000 and 105,000 mile services the cooling system should be flushed and refilled).

Refill with a mixture of 50% pure water and 50% engine coolant.

Use Saab coolant P/N 02 08 991 (BASF G48)

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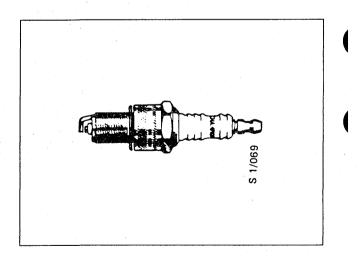
Spark Plugs

Check and regap or replace spark plugs during 75,000 and 105,000 mile services only. (Severe usage vehicles.)

Spark Plugs	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
Engine	1990	1991
B202 Nat. Asp.	NGK BCP 5ES	NGK BCP 5ES
B202 Turbo	NGK BCPR 7ES	NGK BCPR 7ES
B234 Nat. Asp.		NGK BCPR 6ES
B234 Turbo		NGK BCPR 7ES

Electrode gap

Nat. Asp.: 0.6 - 0.7 mm (0.024 - 0.028 in) Turbo: 0,8 - 1,1 mm (0.031 - 0.043 in)

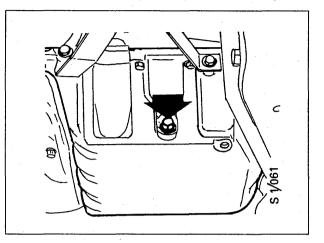


Under Car Inspection and Services

Set and raise lift

Drain oil

Change oil filter and drain engine oil.



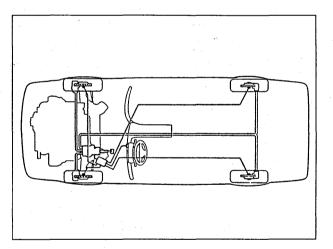
Automatic Transmissoion Fluid Service

(At 15,000 miles, 45,000 miles, 75,000 miles and 105,000 miles services for severe usage vehicles only).

Drain Automatic Transmission Fluid and replace filter.

Brake System

Inspect brake hoses and brake lines.



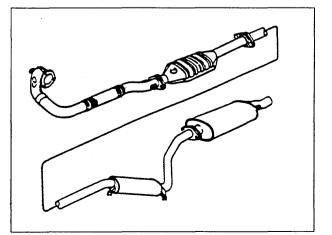
Exhaust System

Check exhaust system alignment and secure all bolts.

Check for leakage and ensure that all fasteners and hangers are secure. Correct as necessary.

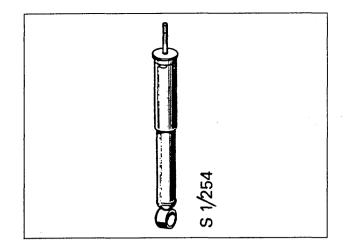
Tightening torque:

Catalytic converter bolts 30 - 35 Nm (22 - 26 ft lb)



Shock Absorbers

Inspect shock absorbers.

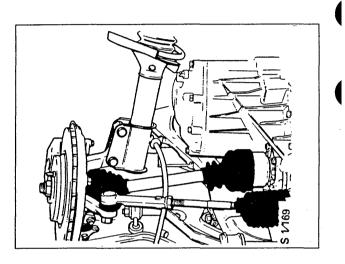


Drive Boots

Inspect rubber boots for drive shaft joints, ball joints steering rack and tie-rod ends.

(At 15,000, 45,000, 75,000 and 105,000 mile services check the condition of all components).

Lower car 1/2 way

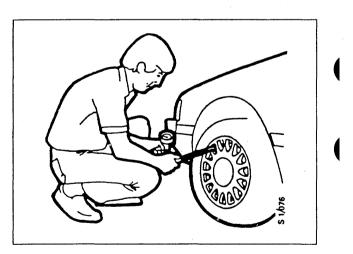


Tires

Rotate tires. Inspect tires for uneven wear and set pressures.

Set tire pressures.

Tire size	Fr	Rear				
	bar	(psi)	bar	(psi)		
195/65 R15 87H	2,1	(30)	2,1	(30)		
195/65 VR15	1,9	(28)	1,9	(28)		
205/50 ZR16	2,4	(35)	2,4	(35)		

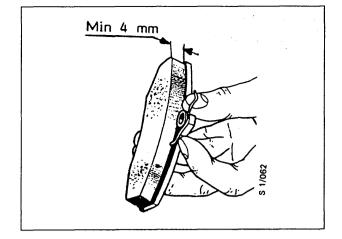


Brake Pads

Inspect brake pads. (While tires are off.) Replace pads if worn to minimum specification and add time for repair.

Fit new pads if the lining thickness has worn to: 4 mm (0.16 in)

Thickness of new lining: front/rear 11 mm (0.43 in).



Final services

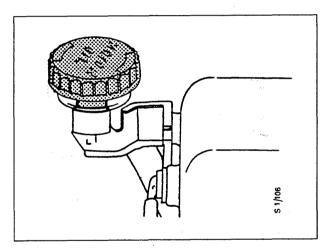
Lower car all the way

Replace Oil

Fill crank case with proper oil.

Oil capacity:

B202 4.0 litres (4.2 qts) B234 4,3 litres (4.5 qts) Use only oil which meets API Service SG, SF/CD or SF/CC and the SAE viscosity ratings listed below. Above -17°C (0°F) SAE 10W-30 or 15W-40 Below -17°C (0°F) SAE 5W-30



Throttle cable for automatic transmission

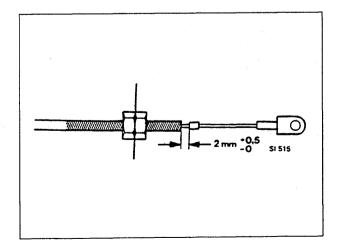
Only at 7 500 miles

B202:

Check that the dimension is 2.0 + 0.5/-0 mm in the idling speed position as shown in the figure. For particulars of fine adjustment, see Group 4:2 of the Service Manual.

B234:

Special tool 87 91 980 is required for this check and adjustment.



Automatic Transmission Fluid

Check and/or top up automatic transmission fluid level.

Note!

At 15,000, 45,000, 75,000 and 105,000 mile services for severe usage vehicles. Refill ATF.

Oil capacity: 8.7 litres (9.1 qts)

Oil type: Dexron II

Set the handbrake and idle engine for at least 15 seconds in drive, reverse and park positions.

Check fluid level with engine idling in the park position.

The dipstick is marked for cold fluid 40° C (104° F) and hot fluid 90° C (194° F).

Difference between MAX and MIN on dipstick is 1/2 liter (1 U.S. pint).

Check Engine

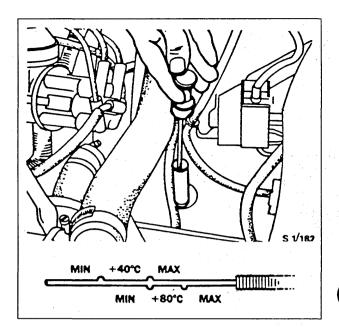
Start engine and check for leaks.

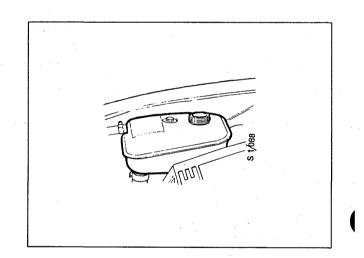
Cooling System

Flush and fill cooling system on 45,000, 75,000 and 105,000 mile services.

Refill with a mixture of 50% pure water and 50% engine coolant.

Use Saab coolant P/N 02 08 991 (BASF G48) Contents: 8.65 litres (9.1 qts)





Major Service

Performing the Major Service		. 17
Road Test.		. 17
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Major service at 30,000 miles, 60,000 miles, 90,000 miles, 120,000 miles, 150,000 miles 180,000 miles, 210,000 miles.

Performing the Major Service

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 (shop supplies). Time is not allowed for extra work which must be added separately.

Always use recommended Saab practices and routines when performing service. Use proper equipment and do not use tools or parts that were not designed for the task at hand.

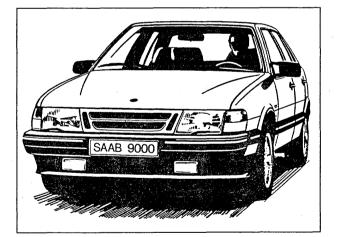
Operating Condition

Start engine and perform electrical system check (all lights and accessories visible or accessible from drivers seat).

Road Test

Road Test

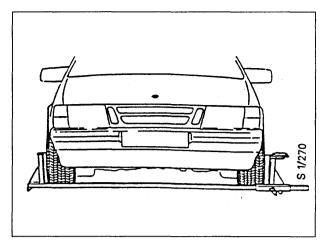
Road test - check engine, transmission, clutch, steering and brake performance. Also check cruise operation, ventilations system and observe and note any noises (brake squeal, rattles, etc.).



Alignment

Check toe-in. If out of specification, correct and claim additional time allowed.

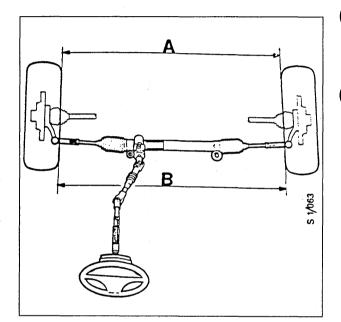
(See Service Manual Section 6)



Toe-in is measured at the rims at points level with the front axle.

Measured at Rims	Measured at a Univer-		
(410 mm or 16.1 in)	sal 28.64 in circle		
1.5±0.5 mm	2.6±1.7 mm		
(0.06±0.02 in)	(0.059±0.020 in)		
	(0.005±0.020 m)		

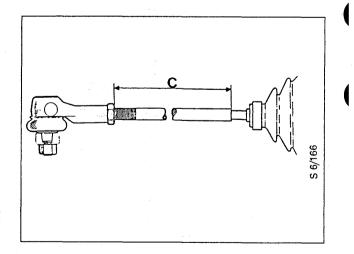
Both tie rods should be adjusted equally.



After adjusting the toe-in, distance C, between the lock nut and the outer edge of the groove on the track rod, must not exceed 140 mm (5.51 in) under any circumstances.

The difference in distance C between the left and right track rods must not exceed 2 mm (0.079 in)

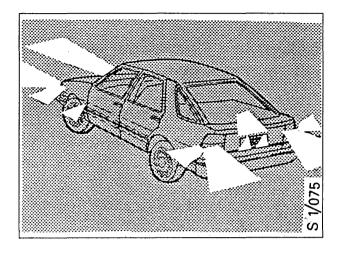
Torque locknut 60-80 Nm (44-59 ft lb)



Exterior and Trunk Inspection and Services

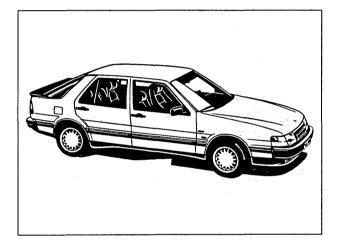
Move to the lift

Park car over lift, set and check parking brake, check exterior lights, check spare tire and pressure 4,0 bar (60 psi).



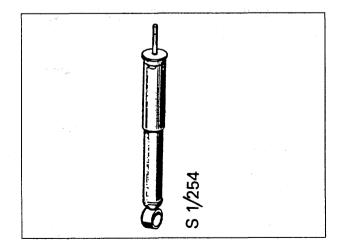
Door Operation

Check the operation of the doors, and lubricate hinges and latches. Also check dome light, door lights and pictogram operation with doors.



Shock Absorbers

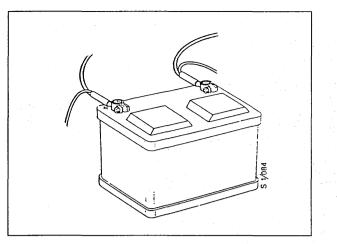
Check dampening action



Under Hood Inspection and Services

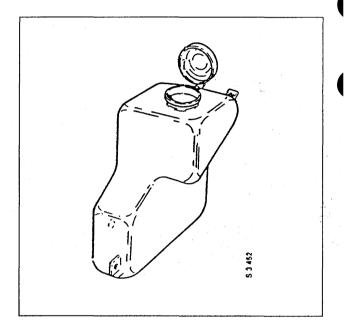
Battery

Check terminal connections and clean terminals if necessary.



Washer Fluid

Check washer fluid.



Fuel system

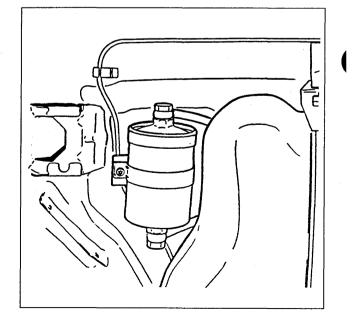
Check fuel line condition (visual inspection).

Pressure safety switch

Check pressure safety switch operation

Vacuum Hoses

Check vacuum hoses (visual inspection).



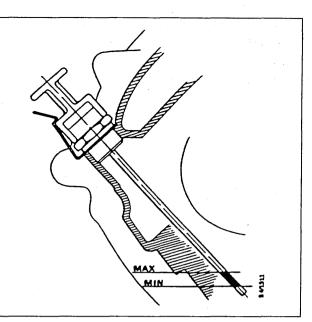
Manual Transmission Oil

Check gearbox oil level.

Oil level should be between MAX and MIN marks on dipstick.

Manual transmission oil

SAE 10W 30 SE, SF, SF/CC, SF/CD, SG



Drive Belts

Check drive belts

Poly-V belt is tensioned automatically. No adjustment is possible or necessary.

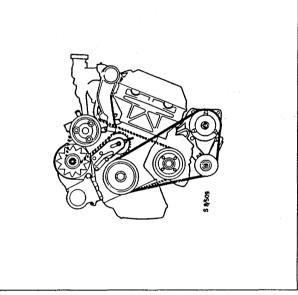
Engine B202:

Check the AC drive belt tension. Set if necessary.						
AC drive belt	(535 ± 40 N)	120 ± 10 lbf				
Lower limit	(265 N)	60 lbf				
Setting value	(355 ± 20 N)	80 ± 5 lbf				

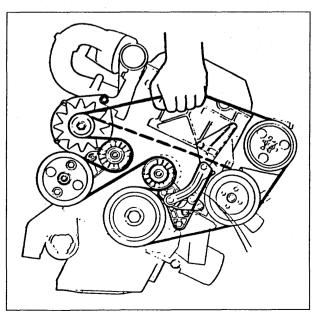
Engine B234:

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

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



B202



B234 The dashed line shows the run of belt without AC

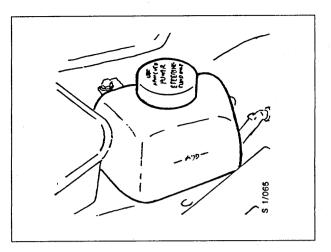
Power Steering Fluid

Check power steering fluid level.

At normal temperature the fluid level should be between HOT and COLD marks. If checked when cold the level should be between marks for COLD level and mark for ADD.

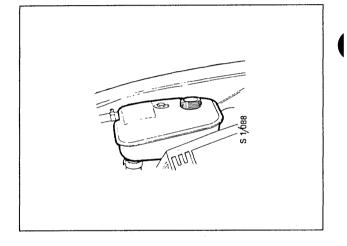
Power steering fluid:

GM Specification, GM Power steering fluid (GM 99 85 010) or Texaco Power steering fluid 4634



Cooling System

Visually inspect hose and clamp conditions, secure clamps if needed.

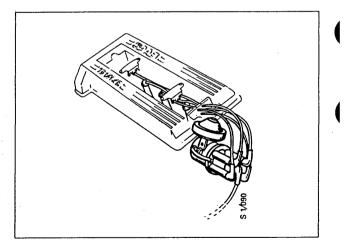


Ignition Wires (1990 only)

Clean and inspect secondary ignition wires. At 60,000 and 120,000 mile services test the resistance of the wires.

Wire specification

Wire between Distributor - Plug: 2 - 4 kOhm Coil - Distributor: 0.5 - 1.5 kOhm



Spark Plugs

Replace spark plugs.

Spark Plugs

1990	1991
NGK BCP 5ES	NGK BCP 5ES
NGK BCPR	NGK BCPR
7ES	7ES
	NGK BCPR
	6ES
	NGK BCPR
	7ES
	NGK BCP 5ES

Electrode gap

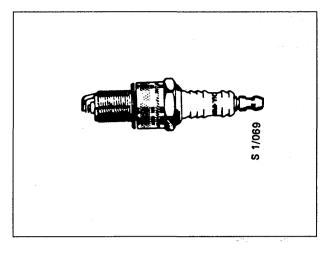
Nat. Asp.: 0.6 - 0.7 mm (0.024 - 0.028 in) Turbo: 0,8 - 1,1 mm (0.031 - 0.043 in)

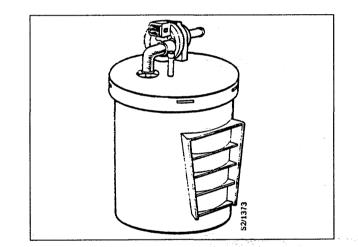
Distributor Cap (1990 only)

Replace distributor cap and rotor (60,000 and 120,000 mile services only).

Charcoal Canister (1990 only)

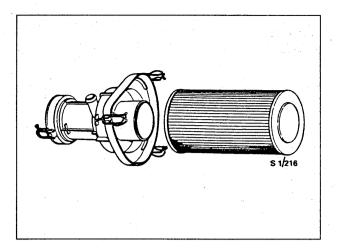
Replace charcoal canister (60,000 and 120,000 mile services only).





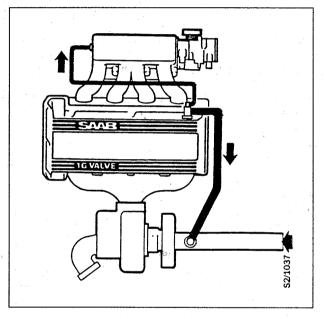
Air Filter

Replace air filter element.



Crankcase Ventilation

Check crankcase ventilation system and check valve on Turbos.



Brake Fluid

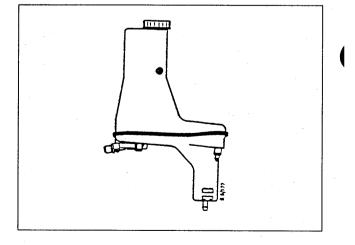
Check the fluid level visible in the transparent reservoir. The level should be maintained between the MAX and MIN marks.

WARNING

Use only fresh brake fluid from a sealed container to avoid water contamination.

Do not use DOT 5 brake fluid.

Brake fluid:DOT 4, SAE J 1703 Hydraulic brake fluid

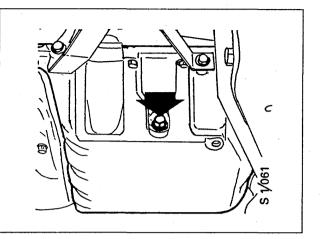


Under Car Inspection and Services

Set and raise lift

Drain oil

Change oil filter and drain engine oil.

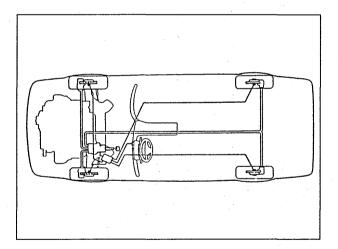


Automatic Transmission Fluid Service

Drain transmission fluid and replace filter.

Brake System

Inspect brake hoses and brake lines. Bleed brake system.



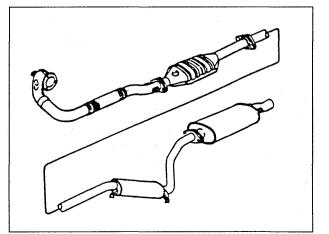
Exhaust System

Check exhaust system alignment and secure all bolts.

Check for leakage and ensure that all fasteners and hangers are secure. Correct as necessary.

Tightening torque:

Catalytic converter bolts 30 - 35 Nm (22 - 26 ft lb)



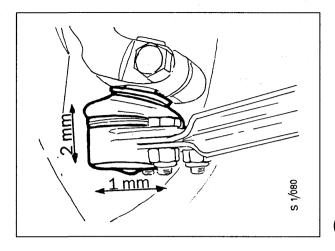
26 Major Service

Ball Joints

Check ball joint condition and inspect rubber boots.

Suspension Arms

Check the wear in the ball joints. Axial play: max 2 mm (0.08 in) Radial play: max 1 mm (0.04 in)

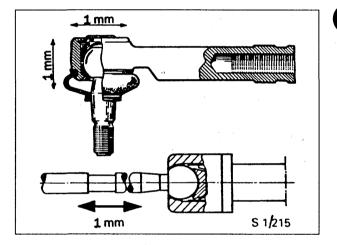


Tie-Rod Ends

Check both sides of vehicle for wear. Also check steering gear universal joints. Correct any unsafe condition.

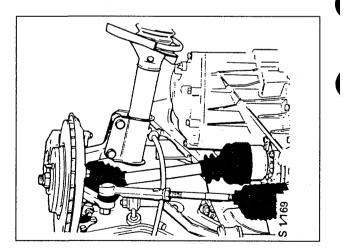
Axial play in ball joint rack and pinion gear: max 1 mm (0.04 in)

Axial play in track-rod ends: max 1 mm (0.04 in)



Drive and Steering Boots

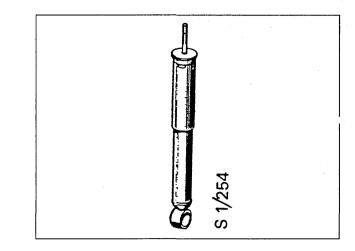
Inspect drive boots and steering rack boots.



Shock Absorbers

Inspect shock absorbers (bushings).

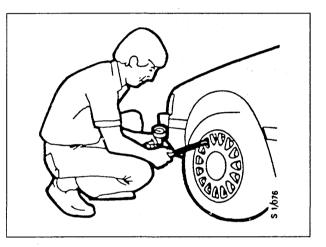
Lower car 1/2 way



Wheels

Set tire pressures.

Tire size	Fr	Front		Rear	
	bar	(psi)	bar	(psi)	
195/65 R15 87H	2,1	(30)	2,1	(30)	
195/65 VR15	1,9	(28)	1,9	(28)	
205/50 ZR16	2,4	(35)	2,4	(35)	

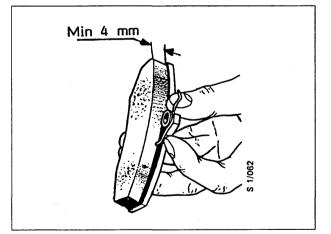


Brake Pads

Inspect brake pads. (While tires are off.) Replace pads if worn to minimum specification and add time for repair.

Fit new pads if the lining thickness has worn to: 4 mm (0.16 in)

Thickness of new lining: front/rear 11 mm (0.43 in)



Final Services

Lower car all the way

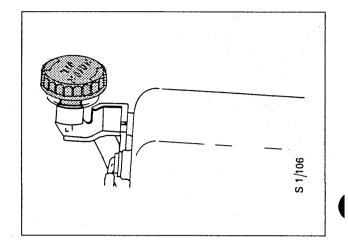
Replace Oil

Change oil filter and fill crank case with proper oil.

Oil capacity:

B202 4.0 litres (4.2 qts) B234 4,3 litres (4.5 qts)

Use only oil which meets API Service SG, SF/CD or SF/CC and the SAE viscosity ratings listed below. Above -17°C (0°F) SAE 10W-30 or 15W-40 Below -17°C (0°F) SAE 5W-30



Automatic Trasnsmission Fluid

Fill automatic transmission with ATF. Oil capacity: 8.7 litres (9.1 qts)

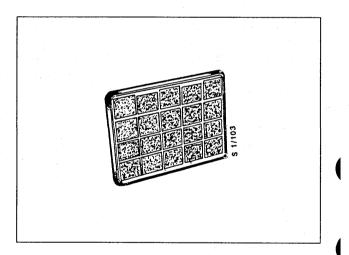
Oil type: Dexron II

AC Air Filter

Change ventilation air filter.

Check Engine

Start engine and check for leaks.



Automatic Transmission Fluid

Check transmission fluid.

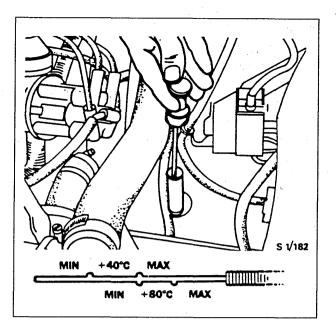
Set the handbrake and idle engine for at least 15 seconds in drive, reverse and park positions.

Check fluid level with engine idling in the park position.

The dipstick is marked for cold fluid 40°C (104°F) and hot fluid 90°C (194°F).

Difference between MAX and MIN on dipstick is 1/2 liter (1 U.S. pint).

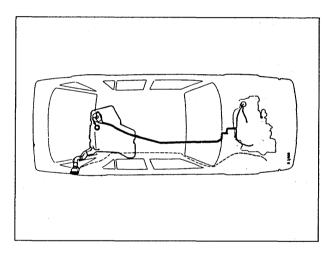
Oiltype: Dexron II



Evaporative Emission

Check the evaporative emissions system operation (60,000 and 120,000 180,000 miles services only).

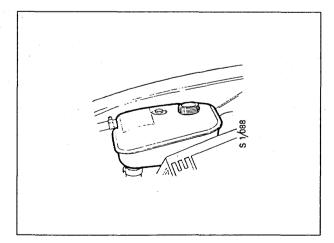
Check fuel filler cap, vent lines, canister, and connections for wear, deterioration and/or damage which could cause leakage. Tighten any loose connections and/or replace any leaking components.



Cooling System

Flush system and replace coolant mixture. Refill with a mixture of 50% pure water and 50% engine coolant.

Use Saab coolant P/N 02 08 991 (BASF G48) Contents: 8.65 litres (9.1 qts)



Headlights

Aim headlights and foglights if equipped.

Note

Be sure tire pressures are correct before adjusting.

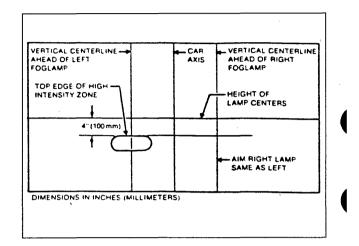
Aim Fog Lights

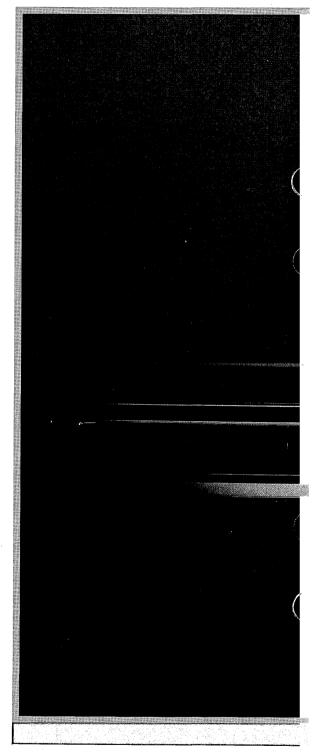
The fog lights must be correctly aimed as part of the installation procedure. Poorly-aimed fog lights are of limited value

The chart reproduced here shows the optimum position of the high-intensity zone of the fog lights, in relation to their horizontal and vertical centers, at a distance of 7.6 meters (25 feet) in front of the car.

Aim each fog light so that the top of the highintensity zone is 100 mm (4 in) below it's horizontal center.

The vertical center of the high-intensity zone should concide with the vertical centerline of the fog light, and under no circumstances be permitted to deviate more than 150 mm (6 in) to either side.





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Saab Automobile AB Trollhättan, Sweden