TYRE PRESSURE 27 — Keep at 28 kg/

SAAB 99

GUIDE

Description and Instructions. Driving and Maintenance

M 79 Eng. RHD, LHD

This Guide provides some practical advice for the driving and maintenance of L.H.D. and R.H.D. versions of Saab 99 GL, 99 GLE, 99 EMS, 99 Turbo and 99 GL Combi Coupé cars. Only the more essential points in which the various models differ are dealt with. Read the Guide through before you take the car out for the first time and then keep it in the car where you can refer to it when necessary.

Yours truly,
SAAB–SCANIA
Saab Car Division

We reserve the right to make changes in equipment and specifications in the course of production without prior notice.

The specification of this model is current for the U.K. at the date of printing, but as development is continually taking place, please check the progress with your Dealer; the export specification in particular would differ in order to suit local conditions and regulations.

This is Saab-Scania

Saab-Scania AB is one of Sweden's largest industrial corporations with over 42,000 employees and with sales in 1977 totalling SKr 10,800 million. The company, which has its headquarters in Linköping, is divided into four operating divisions.

	Head Office
Aerospace Division	Linköping
Saab Car Division	Nyköping
Scania Division (trucks, buses)	Södertälje
Nordarmatur Division (valves, fluid controls)	Linköping

Serving these divisions is the largest research and development organization for advanced technology in Scandinavia.

Saab-Scania's automotive origins date back to 1897 when the first Swedish factory-built passenger car was produced by the company, which was later to become the present Scania Division.

However, the manufacture of cars under the name of Saab commenced in 1949 and is now handled by the Saab Car Division with headquarters at Nyköping some 60 miles south of Stockholm. The main production plant is at Trollhättan (near Gothenburg) where design, development and testing facilities are also located. Saab cars are also assembled at Arlöv, Sweden and Uusikaupunki, Finland. Production capacity is now almost 100,000 units, and more than 60 per cent are sold on export markets.

The Scania Division's major products are heavy diesel vehicles, and in 1977 sales amounted to 20,700 trucks and buses in the 16-ton and over category. Some 85 per cent of the Division's trucks and buses are sold outside Sweden. Apart from the main plant in Södertälje (20 miles south of Stockholm), there are production units e.g. at Oskarshamn (cab manufacture), Katrineholm (buses) and Sibbhult (engine blocks). Outside Sweden the Scania Division has plants at Zwolle in Holland, São Paulo in Brazil and Tucumán in Argentina. The Division also operates a plant at Gothenburg in Sweden, where gearboxes for Saab cars are made; at the Södertälje plant, the 2-litre engines for the Saab 99 are produced.

Advanced military aircraft, guided missiles, avionics and space equipment are the new technology products manufactured by the Aerospace Division. Over the past 20 years more than 2,000 Saab military jet aircraft have been supplied to the air forces of four nations, making the company one of the leading aircraft manufacturers in Europe.

Current aircraft production includes the multi-role Saab 37 Viggen, a supersonic STOL combat aircraft, the Saab 105G, an advanced strike and trainer jet, the Saab 35 Draken Mach 2 fighter and the piston – engined Saab Safari trainer.

Saab-Scania is a member of the MESH space consortium.

The Nordarmatur Division is the leading Scandinavian manufacturer of heavy-duty industrial valves and pipe fittings for use in power plants, process industries, water and district heating systems and on board ships. Industrial process control equipment from Nordarmatur includes a full range of measuring and regulating instruments making Nordarmatur one of very few suppliers in the world able to provide complete packages of both valves and instruments – hardware as well as software.

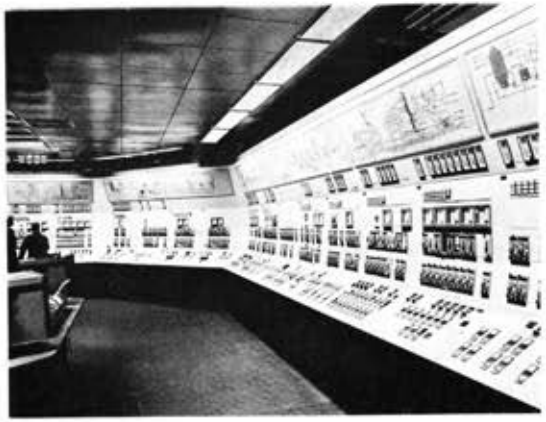
Saab Jönköping is divided into three branches, military products, industrial systems and military training equipment.

The military products developed and manufactured are electronic and mechanical aircraft equipment such as autopilots and sighting systems. For industrial applications Saab Jönköping produces advanced electronic systems for numerical, process and transport control as well as security systems. Equipment for military training, such as shooting range simulators and laser systems, are also manufactured.

The principal production unit for Saab cars is at Trollhättan, Sweden.

The most recent addition to the Aerospace Division's range of aircraft is the Saab 37 Viggen.

Heavy diesel trucks and buses are the main products of the Scania Division.



NAF instrumentation from Nordarmatur Division in a pulp plant in Sweden.

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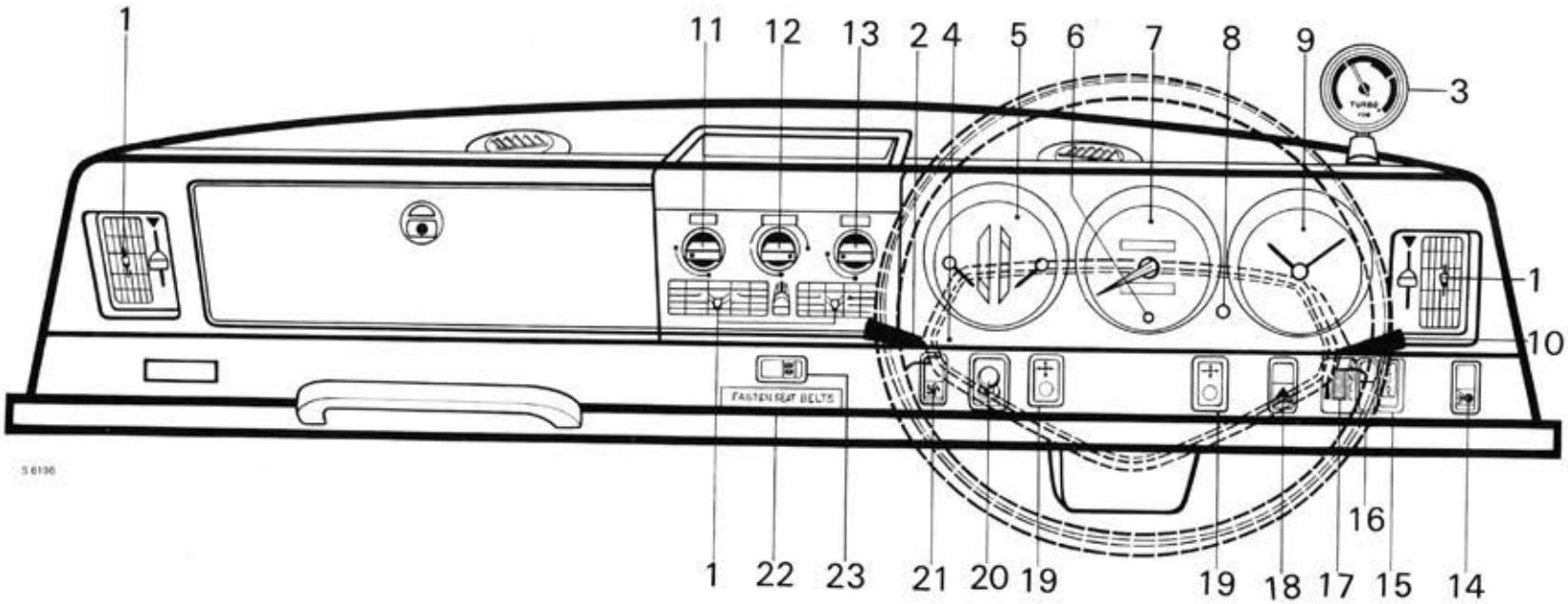

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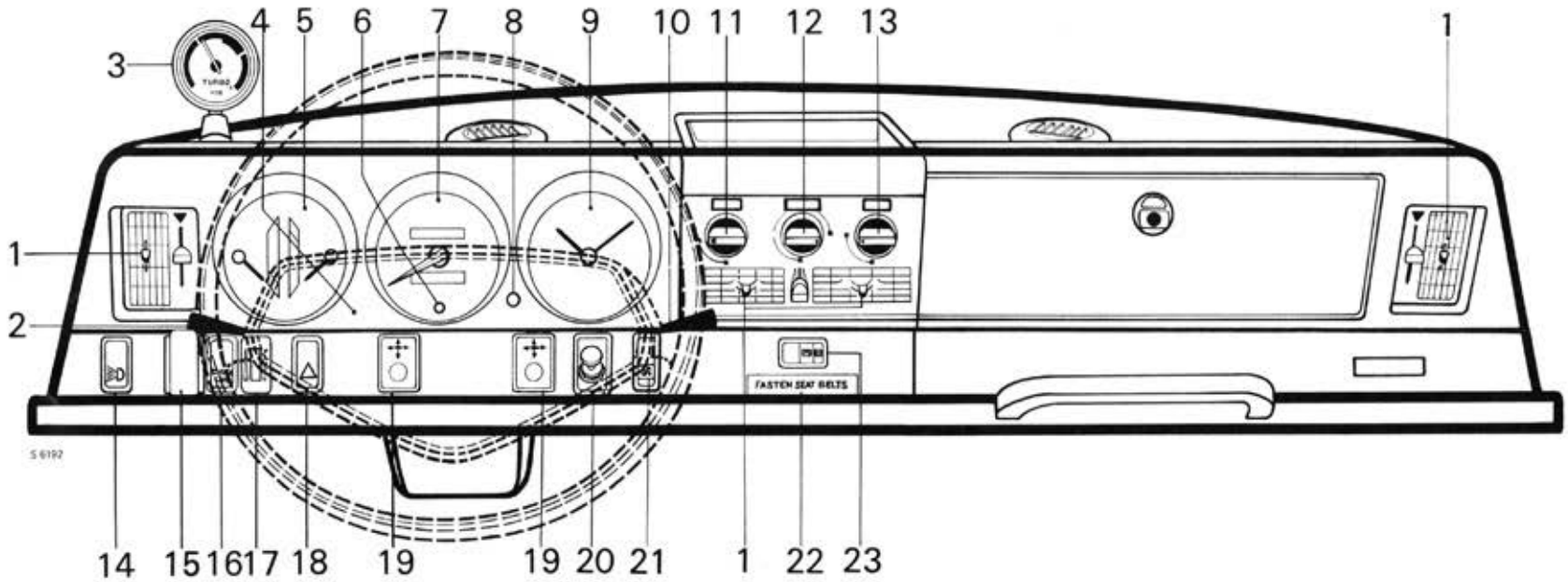

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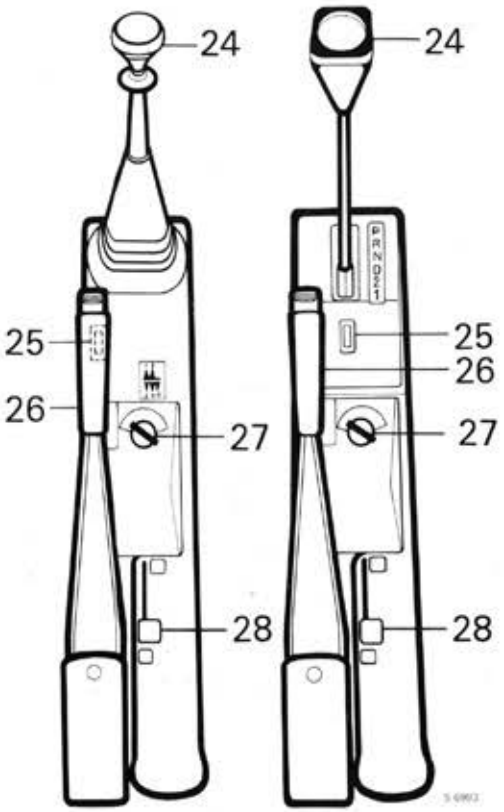
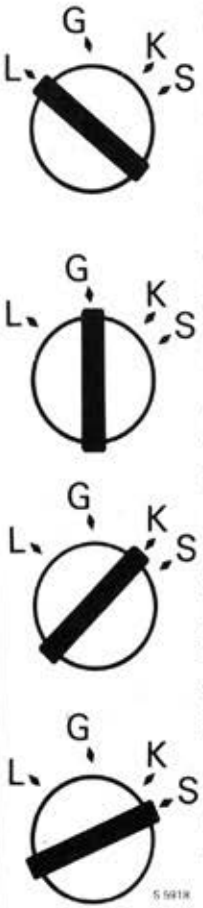


Ignition and Gear (Selector) Lever Lock

The ignition and gear selector lever lock (ignition switch) has the following positions:



Locked
The ignition key can be removed when the gear (selector) lever is in the reverse "R" position (manual transmission) or in the parking "P" position (automatic transmission). The gear (selector) lever is locked in this position. The parking lights and hazard warning flashers can be switched on.

Garage
The gear (selector) lever is unlocked and certain electrical systems can be switched on.

Drive
All electrical systems are live. **Do not leave the key in the drive position when the engine is not running.**

Start
The starter motor is engaged. This position is springloaded to return to position "K".

Instruments.

Pressure gauge, Saab 99 Turbo

The pressure gauge indicates the charging pressure in the inlet manifold. At low engine loads and during engine overrun, a vacuum will be present in the manifold. In such cases, movement of the needle will be within the white zone. At increased loads or engine speeds, the turbo compressor will increase the charging pressure in the inlet manifold. In this case, the needle will move into the orange zone. The charging pressure will not normally be high enough to cause the needle to enter the red zone, since the engine is equipped with a device which limits the charging pressure. However, should the needle for some reason enter the red zone at any time, consult an authorised workshop at your earliest convenience.

S 6218

Pressure gauge, Saab 99 Turbo

Combination instrument

FUEL **Fuel gauge.**

TEMP **Coolant thermometer.**

Brake warning light (red).

The light glows when the handbrake is on or when the brake fluid level is too low. If the light goes on while the car is in motion, the problem should be traced immediately and any necessary repairs should be carried out by an authorized Saab dealer.

Direction indicator light (green).

A light blinks in time with the direction indicators.

High beam indicator light (blue).

The light glows when the headlights are on high beam.

Charge indicator light (yellow).

If the light glows, the alternator is not charging.

Fuel warning light (orange).

The light shows a steady glow when there are less than around 2 imp. gallons (10 litres) left in the tank.

Oil pressure warning light (red).

Glows to indicate dangerously low oil pressure or oil level. When starting, never move off until this light has gone out. If it lights up while you are driving, switch off the engine at once and investigate the cause.

Speedometer and odometer

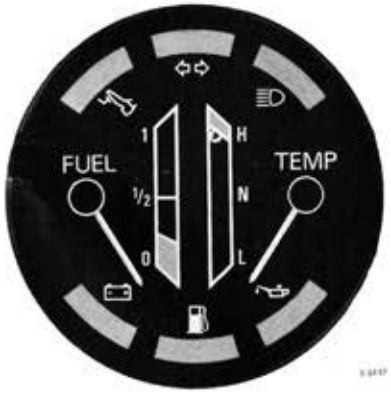
The car has a trip meter with the zeroing button placed in the speedometer.

Clock

The setting button is located to the left of the clock.

Tachometer, Saab 99 EMS and 99 Turbo

The tachometer indicates the speed of the engine in hundreds of revolutions per minute. The needle should never enter the solid red zone. The needle should only be allowed to enter the broken red zone for brief periods. The ignition system of the Saab 99 Turbo is equipped with a device which cuts off the power supply to the ignition at 6 000 rev/min.



Combination instrument

Speedometer and odometer

Clock

Tachometer and clock, Saab 99 EMS and 99 Turbo

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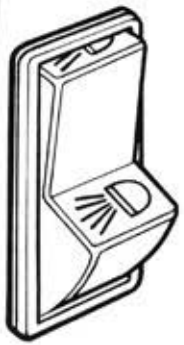
Lighting switches

Headlights and parking lights

The tangent switch has three positions:



Top pushed in
The lighting is off.

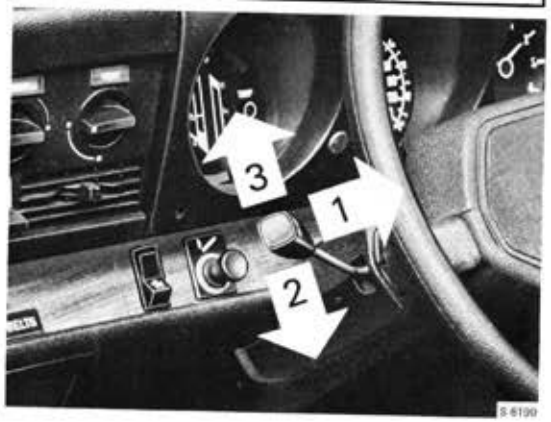
Intermediate position
The parking lights are on, irrespective of the position of the ignition key.

S 5919

Bottom pushed in
The headlights are on if the ignition key is in the G or K positions.

NOTE

The lighting is automatically extinguished if the ignition key is turned to the L position. The parking lights can be left on, however, if the switch is moved to the intermediate position.



S 6190

Combined headlight dimmer and flasher switch and direction indicator lever, R.H.D.-cars

1. High and low beam, headlight flasher. 2. Left direction indicator. 3. Right direction indicator.

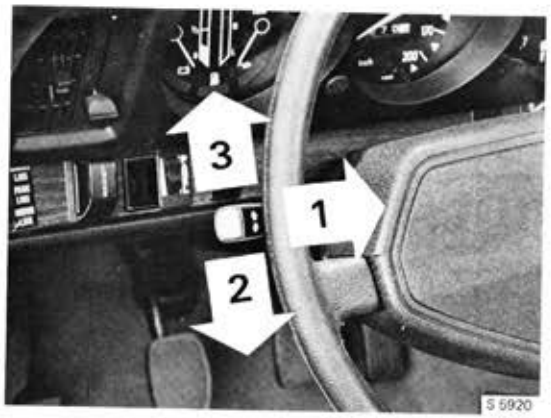
High and low beams

To switch from high beam to low beam, move the lever towards the steering wheel. This will also produce a high beam flash when only the corner or parking lights are switched on.

Direction indicators

The indicators will flash when the lever is moved in the direction in which the steering wheel is turned.

The switch is equipped with a spring-loaded contact position for when the driver wishes to indicate that he is changing lanes or overtaking. There is also a fixed position to indicate turning and the lever will return automatically to a neutral position when the steering wheel returns to the centre position.



S 5920

Combined headlight dimmer and flasher switch and direction indicator lever, L.H.D.-cars.

1. High and low beam, headlight flasher. 2. Left direction indicator. 3. Right direction indicator.

Corner lamp

Cars for Great Britain have corner lamps combined with the parking lights. The corner lamps are switched on with a special switch on the instrument panel and can be switched on regardless of the headlight switch position. The corner lamps are automatically extinguished when the ignition key is turned to the L position.

Reversing light

The reversing lights come on automatically when the gear (selector) lever selects reverse gear.

Instrument and control illumination

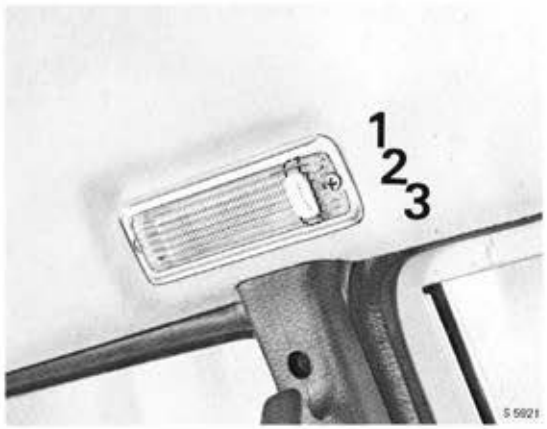
Turn the knob down to increase the intensity of the illumination. The illumination is switched off with the knob in its upper position. This illumination lights only when the parking lights or the headlights are on.

Hazard warning flashers

When the switch is in the operating position all four direction indicator lights flash simultaneously. The warning system should only be used if the car is in a position where it is liable to endanger or obstruct other vehicles as a result of an accident, breakdown, etc.

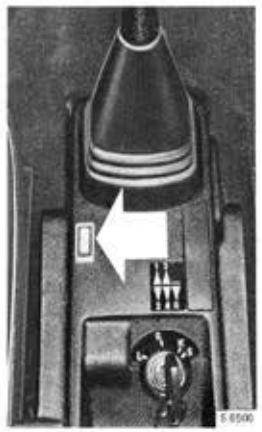
Interior illumination

The interior illumination comprises three lights, located above the left door post, close to the rear-view mirror and beside the ignition switch. The lighting is controlled by means of a three-position switch on the lamp by the door pillar (see illustration). The interior illumination may also be operated by means of a switch on the console between the front seats (see illustration). This switch can only be operated when the door post lamp switch is in the upper position. **Check that the interior lights are switched off when you leave the car.**



Door post lamp

1. Interior lights switched on when one of the doors is opened. 2. Interior lights off. 3. Interior lights switched on, irrespective of whether the doors are open or closed.



Cars with manual transmission: switch on gear lever console

Cars with automatic transmission: switch on selector console

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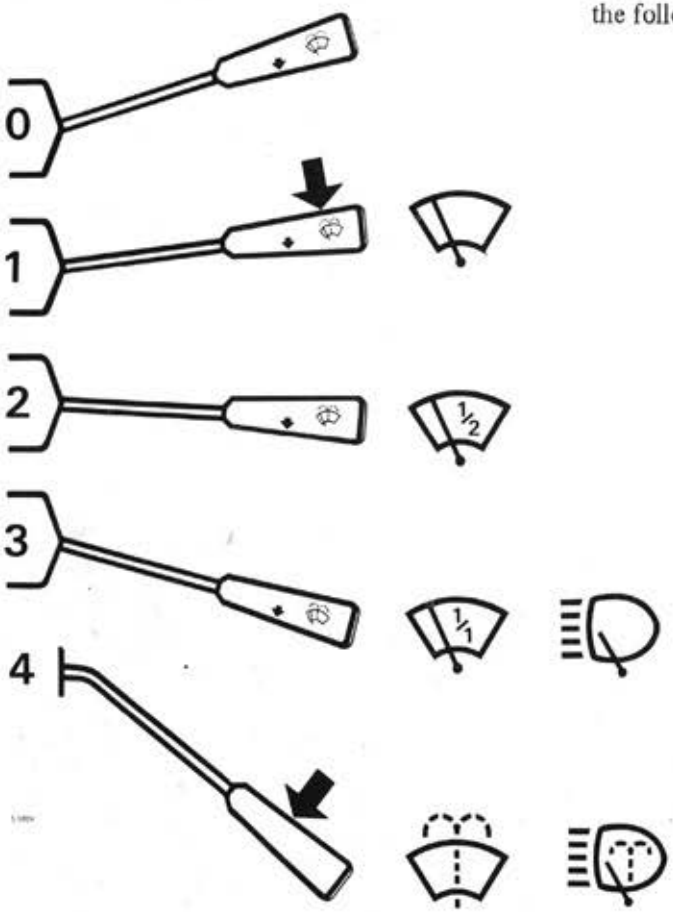
Washer and Wiper Control



The control lever for the windshield wipers and washers, headlight wipers and washers has the following positions:

0. Neutral position.

1. Windshield wiper, temporary operation: When the lever is momentarily moved to the spring-loaded position, the wipers will make a double sweep. This is particularly suitable when the windshield is only slightly moist. On Saab 99 GLE and 99 Turbo, the lever is equipped with a fixed position for intermittent operation.*

2. Windshield wipers, low speed.

3. Windshield wipers, high speed. Headlight washers (not Saab 99 Turbo).

4. Windshield and headlight washers, headlight wipers. The washers will operate for as long as the lever is held in the spring-loaded position towards the steering wheel.

* With the arm set to intermittent operation, the wipers will make a double sweep with a few seconds interval.

Heating and Ventilation Controls

Fresh air is circulated through the passenger compartment either as cold air or as warmed air through the heating system. The air is then evacuated through the outlet openings in the sides of the body.

Ventilator fan

The air flow can be boosted by using the ventilator fan. This may be necessary at low driving speeds. When the switch is in the middle position, the ventilator fan will operate at half speed. When the switch is pushed all the way down, the fan will operate at full speed.

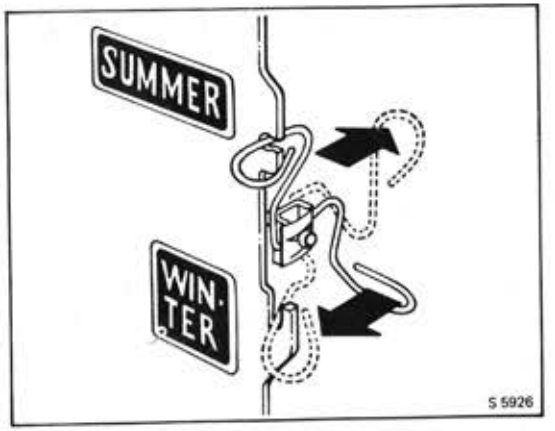
Cold air circulation control

Fresh air vents which admit cold air when the valve in the engine compartment is in the "Summer" position are located in the middle and at the outer ends of the instrument panel. The middle vents are open when the control is in the lower position and closed when in the upper position. The outer vents are open in the upper position and closed in the lower position. The vents are adjustable so that the flow of air can be aimed in the desired direction. The air flow can be boosted by using the ventilator fan.

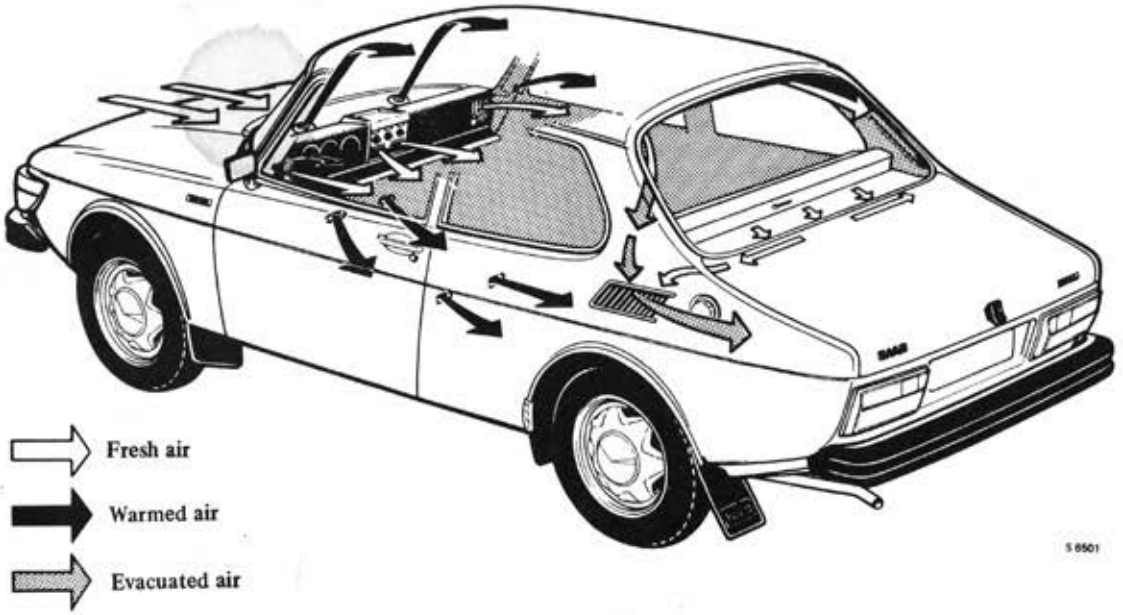
Temperature control

The temperature of the air entering through the heating system is set by means of the temperature control (TEMP) on the instrument panel. Maximum heating effect is obtained with the knob turned all the way to the right to the red mark. The maximum cold position is obtained with the knob turned to the white mark at the left.

The heating effect can be increased by altering the setting of the valve located at the ventilator fan housing in the engine compartment (see illustration). After the valve has been set to the "Winter" position, the cold air vents can also be used to supply warm air. Since the valve shuts off the supply of cold air, it should be reset to the "Summer" position in warmer weather.



Cold air supply valve



Air flow through car, heating and ventilation system

Controls for heating and ventilation

1. Windshield and front side window defroster. 2. Temperature control. 3. Air flow to floor area. 4. Fresh air flow. 5. Flow direction.

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Air supply to windshield and front floor

The air supply to the windshield is regulated by the defroster (DEFR) control and the air supply to the front floor space is regulated by the ventilation (VENT) control. The air supply is fully open when the knob is in the horizontal position and closed when the knob is in the vertical position.

Air supply to rear floor

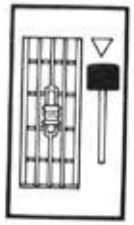
The air supply to the rear floor space is regulated by the ventilation (VENT) control. The air supply is fully open when the lever is in the rear position and closed when the lever is in the forward position. The control is situated between the front seats so that the passengers in the back seat can reach it.

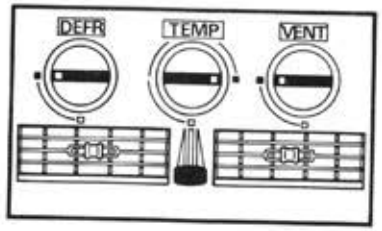
Rear floor space control

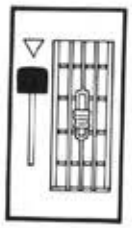
Outer fresh air vent

4. Air intake control. 5. Flow direction control.

Control positions

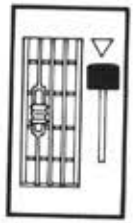


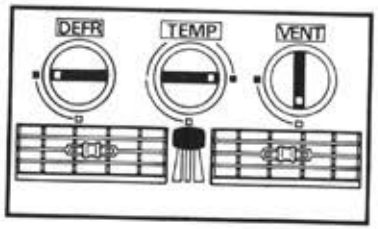


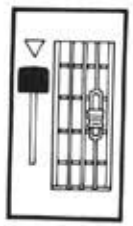


Maximum heat

The valve in the engine compartment should be in the "Winter" position. Use the ventilator fan at low driving speeds.

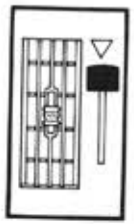


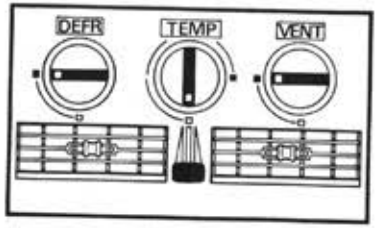


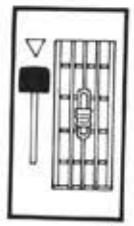


Maximum defrosting

The outer vents should be directed onto the side windows. Use the ventilator fan at low driving speeds.







Maximum ventilation

The valve in the engine compartment should be set to the "Summer" position. Use the ventilator fan at low driving speeds.

Electrically heated rear window

Rear window heating is controlled by means of a switch on the instrument panel. A warning light in the switch glows when the heating is on.

Always switch the heating off as soon as the rear window is free from ice and mist. Avoid placing large and heavy objects on the parcel shelf as the heating wires may easily be damaged. **Do not switch on the window heating until the engine is running.**

Gear Lever and Gear Selector Lever

Manual transmission

The gear positions are illustrated in the diagram below. To engage reverse (R), the catch on the gear lever must first be pulled upwards.

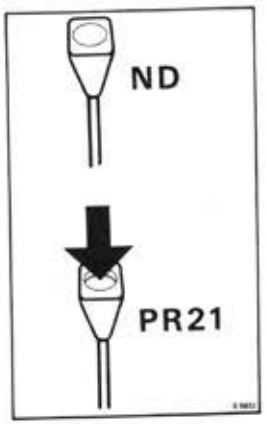
Gear positions and gear lever, manual transmission

Automatic transmission

A scale beside the gear selector lever indicates the various positions by means of symbols.

P	Park
R	Reverse
N	Neutral
D	Drive
2	2nd gear
1	1st gear

The lever can be shifted freely between the N and the D positions. The other positions are blocked by a catch which is released by depressing the button in the centre of the selector knob. The lever can, however, be shifted to D or N from positions R, 2 or 1 without depressing the knob.



Gear selector lever, automatic transmission

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Seats. Seat Belts. Rear View Mirrors.

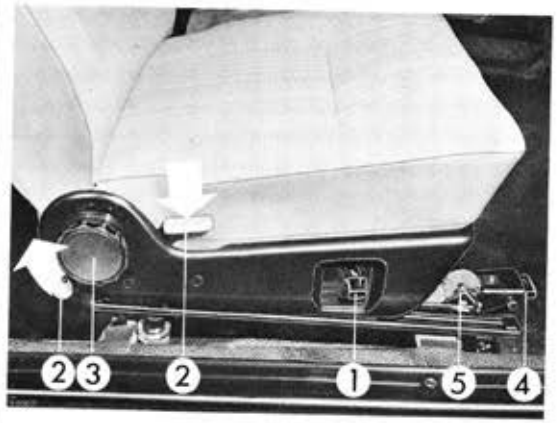
Seats

The backrest and seat cushion of the driver's seat (on Saab 99 GLE also the passenger seat) have thermostatically controlled electrical heating elements that warm up automatically when the ignition is switched on. The thermostat ensures that the heaters are switched on only when the seat is cold.

Both front seats are adjustable for legroom, and the driver's seat can also be adjusted for height. The backrest angle is infinitely adjustable within its limits.

Legroom adjustment

Release catch 1 (see illustration) and slide the seat to the desired position.



Front seat

1. Legroom adjustment catch. 2. Backrest release to drop backrest forward, 2- and 3-door cars. 3. Backrest angle adjusting knob. 4. Vertical adjustment handle, driver's seat. 5. Catch, removal of drivers seat.

Moving the backrest forward, 2- and 3-door cars

Push down catch 2 and drop the backrest forward.

The rear seat passengers can drop the backrest forward after having lifted the catch 2 at the lower, rear edge of the front seat (see illustration).

Backrest angle adjustment

The backrest angle is infinitely adjustable within its limits by means of knob 3.

Vertical adjustment

The driver's seat cushion can be raised and lowered and also tilted to the front or rear. There are four possible positions, see illustration.

Adjustments are made with handle 4 (see illustration), at the forward edge of the seat. Release the catch by pushing on the handle and

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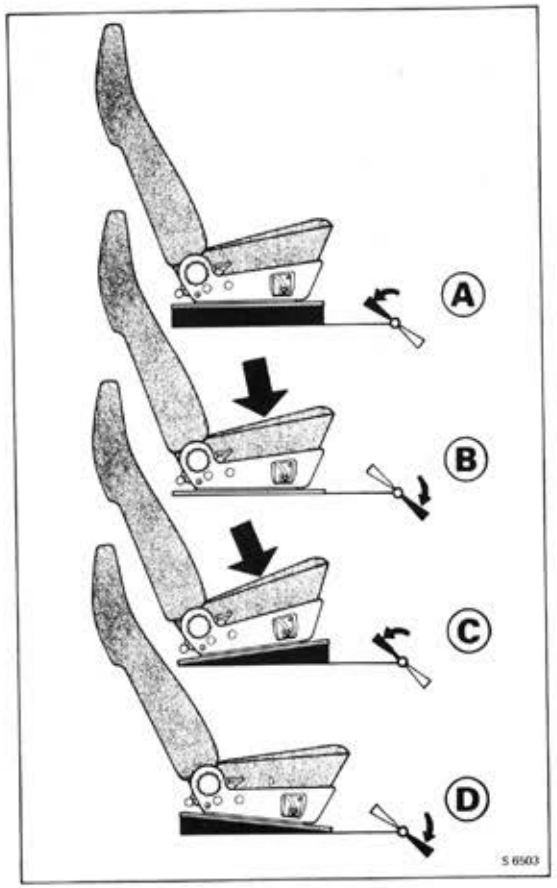
moving it to the intermediate position. The seat can now be adjusted as follows.

A. Raised seat. Move the handle back without pressing down on the seat.



Vertical adjustment of driver's seat

B. Lowered seat. Move the handle forward, pressing down on the seat.

C. Seat tilted back. Move the handle back, pressing down on the seat.

D. Seat tilted forward. Move the handle forward without pressing down on the seat. The rear edge of the seat may sometimes have to be lifted to get the seat to tilt forward.

To remove driver's seat

1. Disconnect the electric heater wiring (under the seat).
2. Release the seat by moving handle 4 to the intermediate position.
3. Push back catch 5 and drop the backrest forward. Lift the seat by the forward edge, tip it backward and free it from its rear attachments. Install in the reverse order.

To remove the front passenger seat

Undo the retaining screws from the seat rails. Use the special wrench included in the tool kit to undo the screws. The seat can now be removed. On Saab 99 GLE cars, the cable for the electrically heated seat must be disconnected. Remove the bolts by means of the special spanner included in the car tool kit.

Seat Belts

For driver and front seat passenger

The seat belts are of the inertia reel type and roll up automatically. To fasten the belt, pull out the strap carefully and feed it under the yoke located between the front seats. Press the yoke down to lock it. Pull the lower strap as low as possible across the hips. Then pull the upper part of the strap upwards so that the lower part fits properly against the body. The belt provides best protection when the lower strap is worn low

Seat belt, front seat

1. Yoke. 2. Lock button.

b

across the hips and the upper part runs over the shoulder. Check that the belt is not twisted or rubbing against any sharp edges. To release the belt, depress the red button marked "PRESS".

A warning light on the instrument panel will light up if the driver or front seat passenger has neglected to fasten the belt. When the belt is being worn, the reel is normally unlocked which allows freedom of movement. The reel locks when the belt is pulled out sharply, if the car leans over and in the event of sharp braking or a collision.

For rear-seat passengers

The two belts provided for the outer rear-seat passengers are of the inertia reel type. To fasten these belts, pull out the strap so that the tongue can be inserted into the buckle. Pull the upper part of the strap upwards so that the lower part fits properly against the body. To release the belt, depress the button marked "PRESS" on the buckle.

A lap belt, with manual adjustment, is provided for the middle rear-seat passenger. To lengthen the belt, hold the tongue at right-angles to the belt and pull it outwards (see illustration). Insert the tongue in the buckle. Then, to shorten the belt, pull the loose end of the strap out until the belt fits snuggly against the body. To release the belt, depress the red button marked "PRESS" on the buckle.

CAUTION

Ensure that the belt does not become trapped when the rear-seat backrest is raised or lowered.

Outer seat belt, rear-seat

Rear-seat belt, middle passenger

Lengthening the middle rear-seat

Inspection and maintenance

"General hints", section M.

Never carry out any repairs to ıe belts yourself. No modifications affecting oı eration of the belts should be made.

After a violent collision, all sea belts which were in use should be replaced reg rdless of whether there is any visible damaı : or not. Poorly maintained seat belts cons itute a safety hazard. Ensure that any faults are emedied immediately, which is especially imp ortant in the following cases:

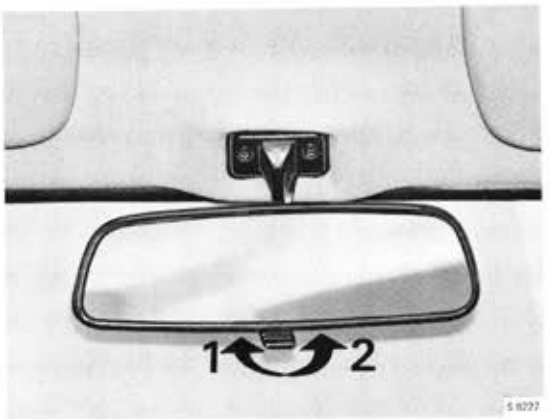
* damage to the webbing in the f orm of torn threads
* the belts cannot be locked in t le normal manner
* the belt lock opens if the strap s jerked
* the inertia reels do not lock th belt in the event of sharp jerks to the stra
* there is corrosion in the panels around the mounting points

Concerning maintenance, plea: refer to "General hints", section M.

Rear View Mirrors

The interior rear view mirror can be deflected to avoid glare by operation of the catch below. The exterior mirrors are antiglare coated.

In the case of the Saab 99 GLE, the exterior rear-view mirrors are electrically adjustable. The controls are located one on each side of the steering wheel and the movement of the mirrors corresponds to that of the control arms.

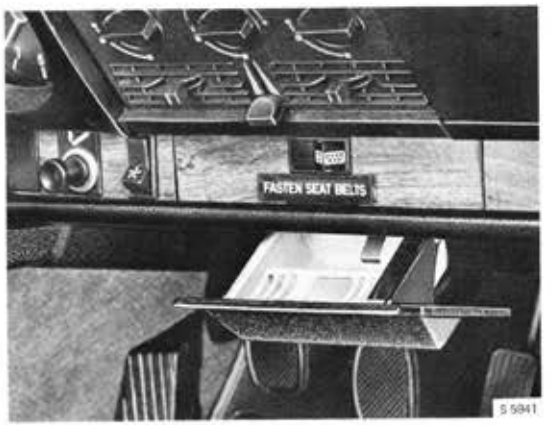


Interior rear view mirror
1. Normal position. 2. Anti-dazzle position.

Ashtrays and Cigarette Lighter

The front ashtray is located underneath the central section of the instrument panel. The rear ashtrays are recessed into the back seat armrests.

The cigarette lighter is located to the left of the steering wheel.

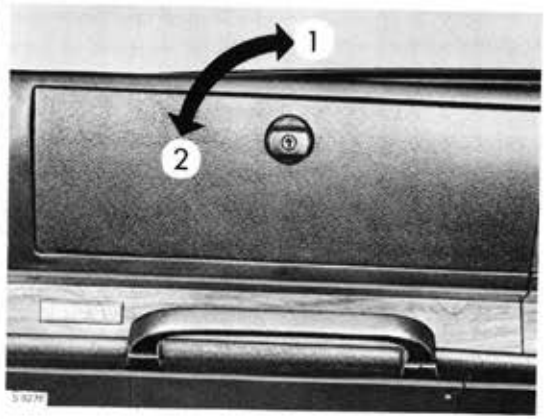


Ashtray and cigarette lighter

C

Glove Compartment

To open the glove compartment, turn the catch button clockwise. The catch is lockable using the same key as for other locks. To lock the compartment, turn the key 1/4 turn anti-clockwise; to unlock, turn the key 1/4 turn clockwise.



Glove compartment
1. Unlock. 2. Lock.

Doors. Luggage Compartment. Lid. Bonnet.

C

Door s

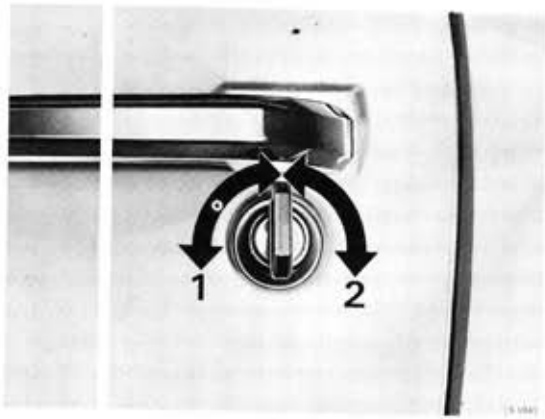
Two : eys supplied with the car fit all locks. The seril l number of the key will be found engraved o i the disc on the key-ring. Keep the disc and nake a note of the serial No. in case the key : ; lost.

Both side doors have lockable handles. These are lock d and unlocked as follows:

To lock Turn the key a quarter turn backwards and let it spring back.

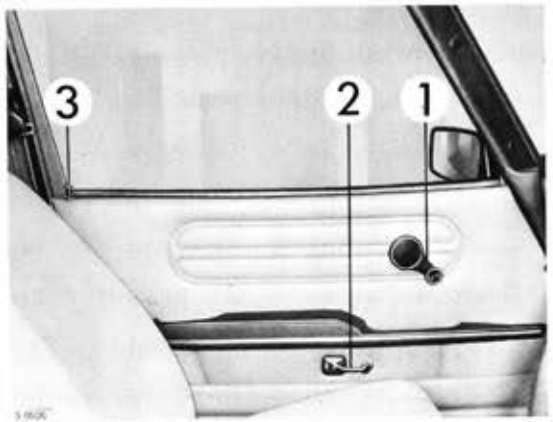
To unlo k: Turn the key a quarter turn forwards and let it spring back.

The c ors are fitted with lock buttons with



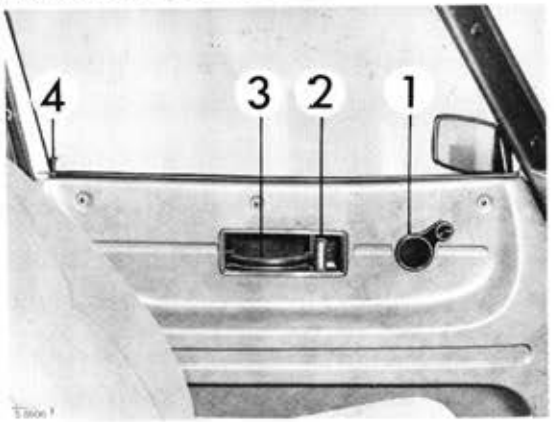
Door locl left-hand door
1. Lock. ! . Unlock.

which they can be locked from the inside when closed. From the outside, the lock buttons are actuated by the key. When travelling in the car, it is unwise to lock the doors from the inside.



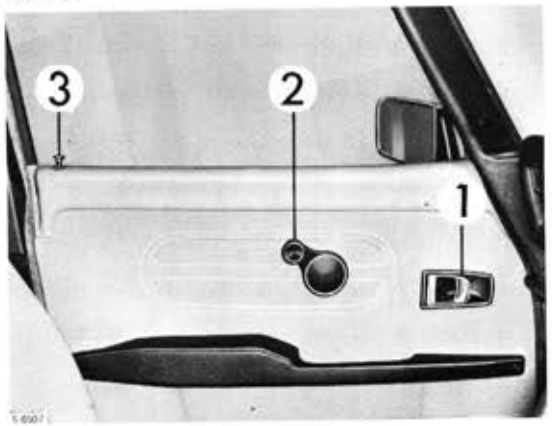
Door, 2-door model

1. Window crank. 2. Inside door handle. 3. Door lock button



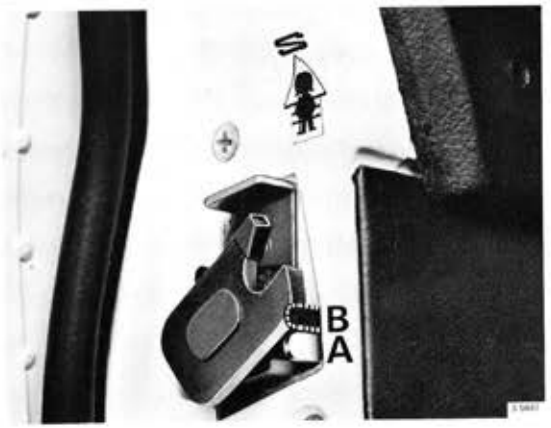
Door, 3-door model

1. Window crank. 2. Inner door handle. 3. Closing handle. 4. Lock button.



Door, 4- and 5-door models

1. Inside door handle. 2. Window crank. 3. Door lock button.



Catch, rear door, 4- and 5-door models

The rear doors of the 4- and 5 door models are provided with safety catches to prevent the doors from being opened unintentionally from the inside (as children might do). When the catch is in the lower position (A), the doors can be opened from both inside and outside, but when the catch is in the upper position (B) the door can only be opened from the outside (see illustration).

Special lock oil may be required during the winter to prevent the lock cylinders from freezing. Please refer to "Winter Driving".

C

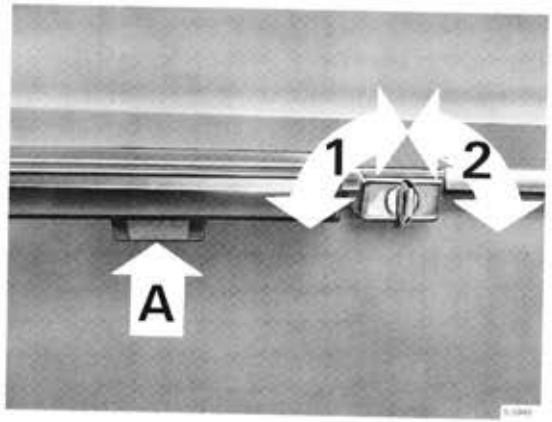
C

Lid

The luggage compartment is locked and unlocked in the same way as the doors.

To facilitate closing a handle is fitted on the inside of the luggage compartment door on Saab 99 Combi Coupé.

The spare wheel, jack and tool kit are carried in the luggage compartment.



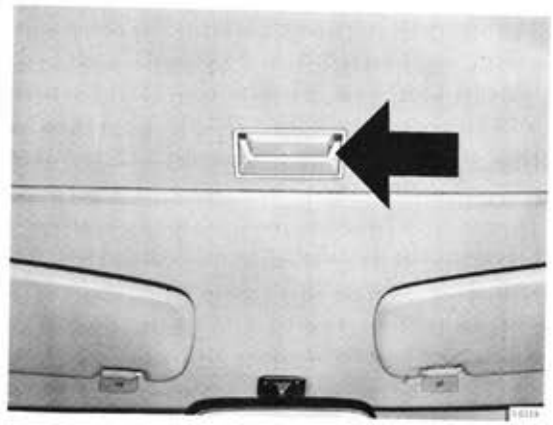
Luggage compartment door, Saab 99 Combi Coupé
1. Unlock. 2. Lock. A. Opening handle.

Luggage compartment lid, Saab 99 Sedan
1. Unlock. 2. Lock.

Closing handle, Saab 99 Combi Coupé

Sunroof

The sunroof is opened and closed by sliding the handle at the front of the panel either backwards or forwards. The roof can be opened either partially or completely. Once the handle is released, it will spring back to its central position (locking position). To close the roof, push the handle forward until the panel locks in the closed position.



Opening handle, sunroof

Bagga ge and Cargo Space.

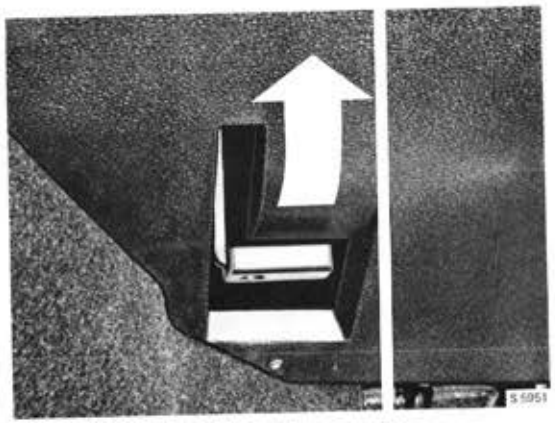
d

Bonnet

The bonnet release handle is lc cated under the instrument panel, close to the left wheel housing.

Opening the bonnet:

1. Pull the handle underneath the instrument panel. The bonnet opens halfway and is stopped by a safety catch at the front edge.
2. Press the leading edge of the bonnet down slightly and push back the safety catch. The bonnet will then spring up and can be tilted forward without effort.



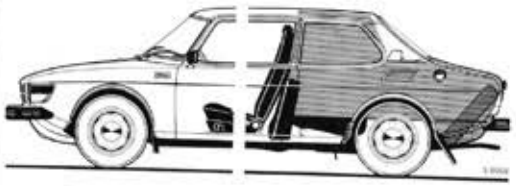
Bonnet release handle

Bonnet safety catch

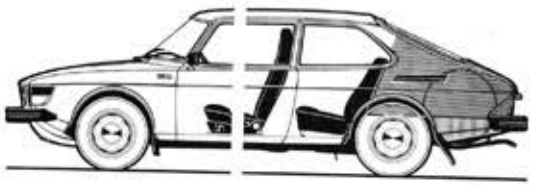
d

The rear seat can be converted to extend the luggage compartment.

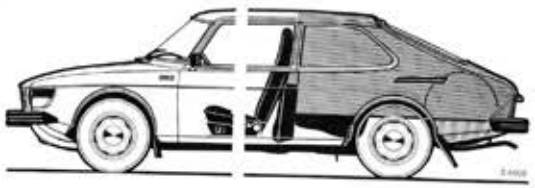
Release the seat catch and tip the seat forward, standing it on edge behind the front seats. In 2- and 3-door cars, the front of the seat must be lifted before it can be tipped forward. Next, release the backrest catch and drop the backrest forward.



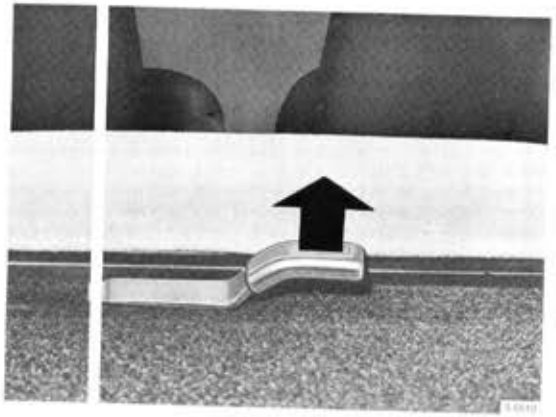
Extended cargo space with rear seat dropped, Saab 99 Sedan



Parcel shelf removed, Saab 99 Combi Coupé

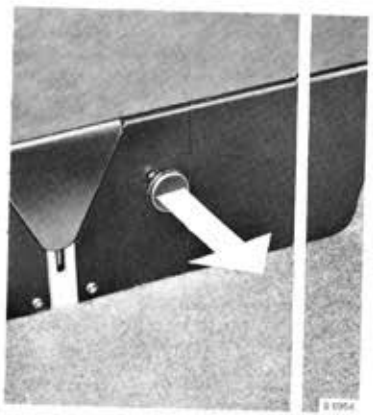


Extended cargo space with back seat dropped, Saab 99 Combi Coupé



Catch, backrest, Saab 99 Combi Coupé

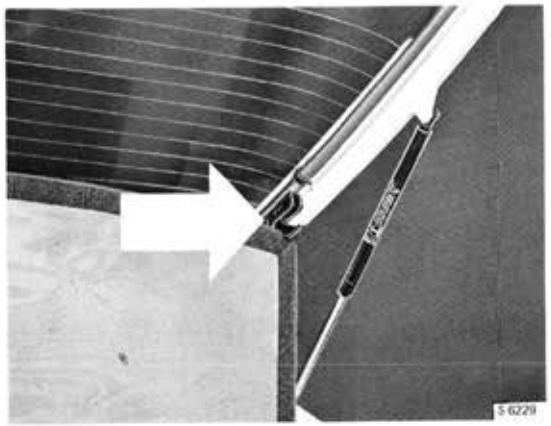
Seat cushion catch, 2- and 3-door models



Seat cushion catch, 4- and 5-door models

Catch, backrest, Saab 99 Sedan

The luggage compartment door on Saab 99 Combi Coupé is fitted with a catch which locks the parcel shelf in the raised position, facilitating loading and unloading. The shelf returns to its normal position automatically when the door is closed.



Parcel shelf catch, Saab 99 Combi Coupé

Starting and Driving.

e

Starting the Engine

General

Do not run the starter for more than 20–25 seconds at a stretch; wait 20–30 seconds to let the battery recover before attempting to start the engine again. **Make sure that the lights and electrically heated rear window are switched off before starting in wintertime.**

Do not race the engine or make it work too hard while it is still cold, and on no account do so while the oil pressure warning light is still lit. Avoid warming the engine by idling at a standstill. Start driving as soon as the oil pressure light has gone out to heat the engine up to its proper working temperature as quickly as possible.

Starting carburetor engines

The carburetor is equipped with a manual choke to assist starting when the engine is cold. Pulling out the choke control also adjusts the throttle to give the engine the higher idling speed it needs. Never pull out the choke when the engine is warm.

1. Apply the handbrake and put the gear lever in neutral (manual transmission) or select P or N (automatic transmission).

NOTE! Cars with automatic transmission can only be started when the selector lever is at P or N.

2. When the engine is cold, pull the choke con-

trol right out. Do not touch the accelerator. When the engine is hot, depress the accelerator all, or nearly all, the way. Do not touch the choke.

3. Fully depress the clutch pedal (manual transmission).

4. Turn the ignition key to start (S), letting it spring back to drive (K) as soon as the engine starts.

5. The choke control should be pushed back gradually as the engine warms up during driving. It can normally be pushed home completely after a short while.

e

Starting injection engines

The engine has an automatic choke. Start as follows:

1. Apply the handbrake and put the gear lever in neutral (manual transmission) or select P or N (automatic transmission).

NOTE! Cars with automatic transmission can only be started when the selector lever is at P or N.

2. Fully depress the clutch pedal (manual transmission).

3. Turn the key to the start position and let it spring back as soon as the engine has started. Allow the engine to idle for about 10 seconds before touching the accelerator. Do not depress the accelerator for full throttle until the engine has run for at least 2–3 minutes.

Saab 99 Turbo: If, after a journey, the engine is very hot, the radiator fan will cut in. This will occur even if the engine has been switched off. The fan will continue to run until the temperature has dropped.

Gear Changing

Manual transmission

To change gear, the clutch pedal should be fully depressed and then released slowly and smoothly. There are only two clutch positions during driving: either disengaged (pedal all the way down (or engaged (pedal all the way up). It is bad practice to drive with a slipping clutch or with your foot resting on the clutch pedal, as this causes heavy wear on the release bearing and clutch disc. When the car is standing still with the engine running, the gear lever should be in neutral and the clutch pedal released. All gear changing should be done with gentle but firm movements and with a short, barely perceptible pause in neutral. Before change down to reverse, make sure that the car is at a standstill and that the accelerator pedal is fully released.

For maximum fuel economy, gear changing is recommended at the following speeds:

Gear change	Speed
1 —— 2	15 mph (20 km/h)
2 —— 3	22 mph (35 km/h)
3 —— 4	30 mph (50 km/h)

Automatic transmission

The following basic rules for operation of the automatic transmission should be kept in mind:

1. Always have your foot on the brake or the handbrake engaged before moving the selector lever if the car is at a standstill with the engine idling. Otherwise the car will start to creep forward when a driving gear is selected, as the torque converter does not disengage the transmission completely.

2. The engine should be at idling speed if you move the selector lever while the car is at a standstill. If you race the engine while moving the lever, this is liable to cause abnormal wear on the transmission mechanism. For the same reason you should not change to R or P while the car is in motion.

Selecting gears

D. The D (Drive) position is for normal forward driving. Whichever of the three forward gears best matches the speed and load on the engine is automatically engaged.

2. Position 2 gives automatic changing between first and second gears but top gear cannot be engaged. If the lever is moved from D to 2, this gives an immediate change-down for more engine braking power. Position 2 must not be selected at road speeds above 55 miles per hour (90 km/h).

1. Position 1 is used to obtain maximum engine

braking power on steep downgrades. Road speed must be reduced to below about 12 mph (20 km/h) before 1st gear is selected. This position should also be used for uphill driving on very steep hills to avoid overheating the transmission oil. Second and top gears cannot be engaged when the lever is at 1.

N. In position N (Neutral) no gear is engaged. The starter contact is operative in this position. The handbrake should be applied when the selector lever is in position N to prevent the car from moving if it is standing on a slope.

R. Position R (Reverse) must not be selected unless the car is stationary.

P. Position P (Park) is selected when the car is parked, and the lever must be in this position before the ignition key can be turned to L (Locked) and withdrawn. The selector lever is then locked and the transmission is immobilized. Do not select position P when the car is in motion.

Moving off

1. Move the selector lever to the desired position (normally D for forward driving).
2. Release the brake and accelerate.

Kick-down

To obtain maximum acceleration, e.g. for overtaking, it is possible to effect an instant change-down at speeds below 50–55 mph (80–85 km/h) by pushing the accelerator pedal hard down to the kick-down position. Changing up to the next higher gear is automatic as soon as the engine reaches maximum revs for the gear engaged, or the pedal is eased up.

Braking

The car is delivered with a thoroughly tested set of brake linings with very little tendency to fade, i.e. they can tolerate high temperatures without serious loss of effect. **Always make sure when changing brake pads that original Saab spare parts are fitted.** Always use an authorized Saab workshop for changing the brake pads.

IMPORTANT

It is good policy to check the brakes occasionally when driving to make sure that they are working properly, especially if they have been subjected to heavy splashing with water or when driving through snow or salty slush, as the braking effect may be temporarily reduced in conditions of this kind. The brake system is power assisted, but the added power from this is only available when the engine is running. It requires a considerably greater force on the pedal to brake the car when the engine is switched off.

To avoid subjecting the brakes to excessively high temperatures, e.g. when driving downhill in mountainous country with descents of thousands of feet, you should utilize the braking power of the engine by selecting a lower gear.

For cars with automatic transmission, use position "1" or "2".

Steering Characteristics

The car has a built-in tendency to understeer, i.e. at a given position of the steering wheel the turning radius tends to increase with rising speed. The car is deliberately designed this way to improve its stability and reduce the risk of backwheel skids ("fishtailing"). One of the ways in which understeering has been achieved is through the weight distribution. With only a driver, about 60 % of the vehicle weight is on the front wheels: the corresponding figure for a fully loaded car is 50 %.

Running in

Every new car has a recommended running in period during which the owner is advised to drive with restraint. Pistons, cylinder walls and bearings need to be in operation for some time to produce smooth and hard-wearing contact surfaces. Placing too much strain on a new engine interferes with this gradual setling-down process,

shortening the life of the car and especially the engine.

For the first 2,000 miles (3,000 km) you should not drive at full throttle except for very brief periods.

Driving Economy

To obtain the best running economy as regards both fuel consumption and wear on the car, the car should be driven smoothly and calmly and should undergo regular servicing.

1. Avoid hard acceleration and revving the engine. Recommended speeds for gear changing are given under "Gear changing".
2. Use the choke sparingly and adjust the position of the choke control to the engine requirement during the warming-up period.
3. Driving in town, cold starts, studded tyres and driving with roof racks or trailers, all contribute to increased fuel consumption.

Winter driving

Check before driving off in cold weather that the wiper blades on the windshield and headlights have not frozen fast. Remove any snow from the air intake for the heating system. The air intake is located immediately behind the bonnet.

It may also be necessary to use a special lock oil to prevent the door and luggage compartment locks from freezing. In the event of a lock cylinder having frozen, be careful not to damage the key when attempting to turn it in the lock. To melt the ice, either heat the key or inject special lock oil into the lock.

It is recommended that carburetor spirit be added to the petrol periodically during the winter to prevent the condensation in the fuel tank from freezing and interrupting the supply of fuel to the engine. This is particularly important in the case of cars with injection engines. The risk of condensation is smallest when the fuel tank is full.

When the roads are slippery, it is essential that brakes and tyres are in good condition. On icy roads, studded tyres provide the best grip, provided that they are fitted on all four wheels. Never use a mixed set of tyres, but have the same kind on all four wheels.

The most effective means of dealing with a front-wheel skid is to employ the freewheeling method, i.e. the wheels are neither braked nor driven. It is particularly important to avoid braking. In the event of a rear-wheel skid, steer in the same direction as that in which the rear of the car is sliding. In the event of a front-wheel skid, steer gently into the line you wish to take.

Snap-on links should not be used to prevent skidding, since they are liable to damage the disc brakes. Ordinary snow chains can be used on both the front and rear tyres. However, drive carefully if these are fitted, since the chains may scrape against the body when the car hits a large bump or turns sharply.

Saab 99 EMS and 99 Turbo are equipped with tyres of size 175/70 HR 15. In addition to having excellent high-speed properties on wet or dry roads, these tyres have been designed to provide the best-possible roadholding for the cars. Unfortunately however, this design implies a considerable reduction in the frictional properties of the tyres on icy and snow-covered surfaces. Consequently for driving under winter conditions we recommend that snow tyres or "all-weather tyres" of size 165 SR 15 be fitted.

Driving with a Trailer or Caravan

A special towing attachment designed for a maximum trailer weight of 3300 lb (1500 kg) is available as an optional accessory for the car. Bolt holes are already provided to facilitate mounting of the attachment.

If cars with automatic transmission are to be used for towing a trailer or caravan weighing more than 1700 lb (800 kg), they must be equipped with an air-cooled oil cooler. A suitable oil cooler is available as an accessory.

It is inadvisable for several reasons to hook an excessively heavy trailer to the car, and the following points should therefore be borne in mind.

1. Legal restrictions on towing speed, trailer weight and trailer braking equipment in the

country concerned must of course be complied with.

2. For reasons of road safety the weight of the trailer should not exceed 3300 lb (1500 kg) on roads with normal gradients up to 10 %. On roads with steeper gradients (10–12 %) the weight should not exceed 2650 lb (1200 kg). In the case of very steep gradients the trailer weight should not exceed 1900 lb (850 kg). These weights refer to trailers equipped with adequate brakes, unbraked trailers should not weigh more than 1100 lb (500 kg).

3. If the car has automatic transmission, position 1 should be selected for towing up steep gradients. The same applies to downhill gradients so as to obtain maximum engine braking effect.

4. When towing a trailer, avoid gradients of 15 % or more, as in such conditions the weight on the front driving wheels is so low that they may lose traction and stop the car. For the same reason, the handbrake effect may be so reduced that the car and trailer cannot be held stationary on very steep uphill grades by the handbrake alone, without the wheels starting to slide. When driving with a trailer on very long hills, you can help keep the engine cool by turning on the fresh air heater for a time and running the ventilator fan at full speed.

5. The load distribution in the trailer is of the utmost importance. In a two-wheeled trailer, the load should be placed low down and concentrated as far as possible over the wheels. The trailer should be loaded in such a way that the downward force on the towing hook of the car is between 110 lb (50 kg) and a maximum of 200 lb (90 kg). The maximum load carried in the car's luggage compartment must be reduced by the same amount.

6. When driving with a trailer, always make allowance for the altered handling characteristics and longer stopping distances. The brakes, suspension and shock-absorbing equipment of the trailer are very important in this respect.

Driving with Roof Load

Max. roof load is 220 lb (100 kg). Note that the max. load of the car must obviously not be exceeded and that the roof load must be included in the max. load.

The roof rack must have strong mounting points which can resist heavy strains and the load must be properly secured. A roof rack, specially designed for Saab cars, is available from your Saab dealer.

Driving with an open Luggage Compartment

Driving with the luggage compartment open should be avoided since exhaust fumes can be sucked into the car. If it should prove necessary for some reason to drive with the lid open, close all windows, ensure that all air vents and defroster controls are in the open position, and that the ventilator fan is running at full speed.

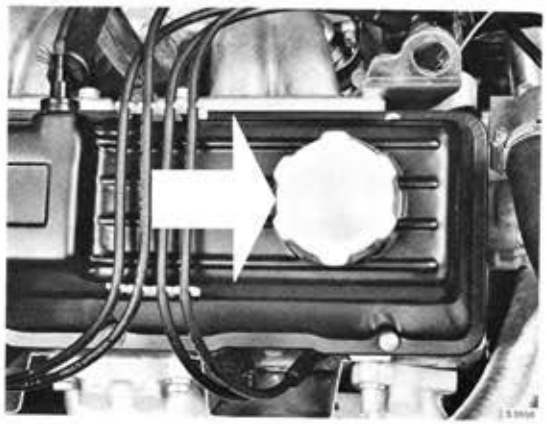
Engine

The car has a four-in-line liquid cooled engine with overhead camshaft.

The cylinder block is canted 45° to the right and the cylinder head is of cross-flow type, i.e. with inlet ducts on one side and exhaust ducts on the other. The crankshaft is supported in five main bearings. The engine has a separate idler shaft that drives the oil pump, water pump and distributor through gears. On carbureted engines, the fuel pump is also driven by a cam on the idler shaft.

The engine has fully enclosed crankcase ventilation.

The clutch is mounted at the front of the engine, forming a unit with the transmission underneath.

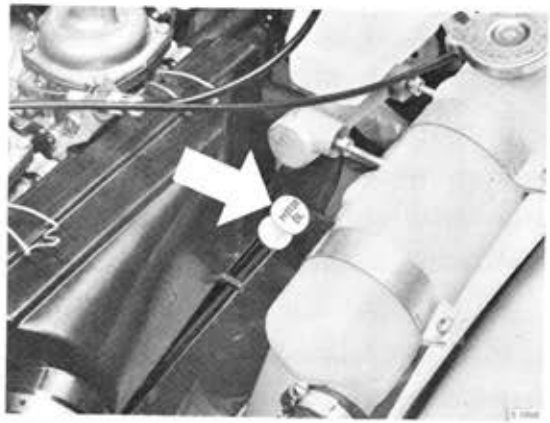


Oil filler cap

Engine oil

Check the oil level at regular intervals. Always switch the engine off first and allow it to cool for at least one minute. Do not let the level fall below the lower mark on the dipstick, nor fill beyond the upper mark; this will cause excessive oil consumption. The distance between the upper and lower marks corresponds to a volume of approx. 1 quart (1 litre). Top up with oil of recommended grade as necessary. (See section K.) After checking the oil and topping up as necessary, push the dipstick all the way down and tighten the cap securely.

CAUTION! Do not confuse the engine and transmission drain plugs (see page 29).



Oil dipstick, engine

Cooling System

The cooling system is pressurized with a cross-flow radiator and expansion tank.

Until the engine has reached its operating temperature, the radiator inlet is closed by a thermostat and the coolant circulates through the engine and the fresh air heater until it reaches the temperature at which the thermostat opens.

The radiator fan is electrically operated and is regulated by a thermostatic switch. The fan is only operative when the temperature of the radiator coolant is higher than the cut-in temperature of the thermostatic switch.

The cooling system must not be screened!

> **NOTE**
>
> **Always loosen the cap gently and allow steam to escape before taking the cap off.**
>
> **The coolant level must not be allowed to fall below the minimum level marked on the expansion tank.**

Checking the coolant level

Check regularly to make sure that the coolant is up to the recommended level. When necessary, top up with equal parts of clean water and coolant. See recommendations in section K. After an empty expansion tank has been filled

up, the engine should be run until warm and the tank topped up again.

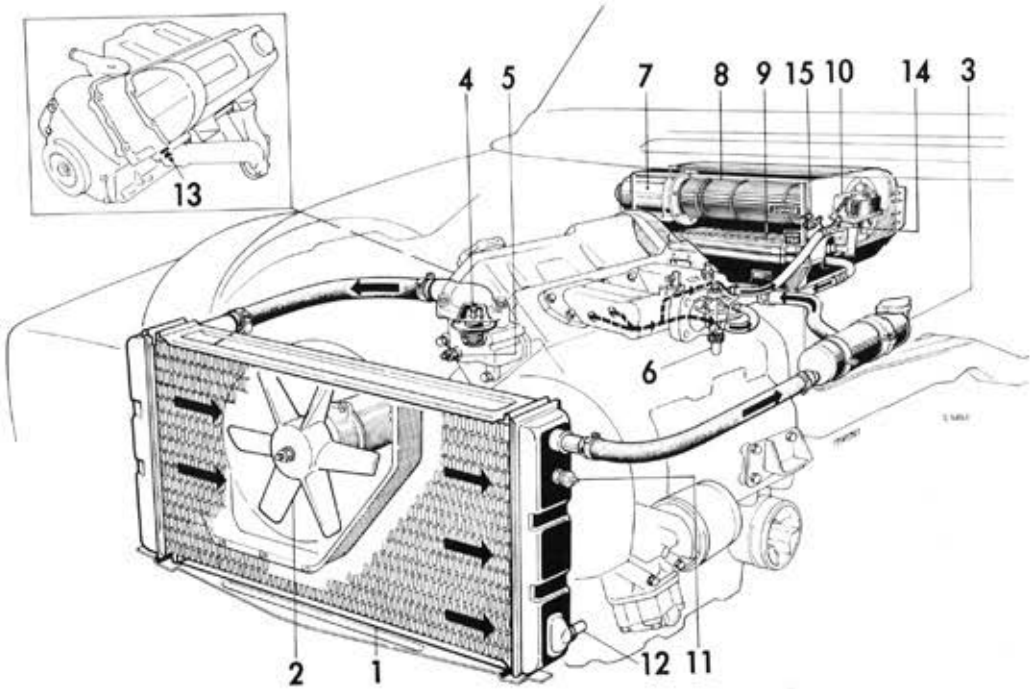
Changing coolant

Draining

1. Set the heater control to maximum heat.
2. Loosen the pressure cap on the expansion tank 3 (see illustration).
3. Open radiator drain cock 12 which is located towards the bottom of the radiator on the left-hand side (see illustration).
4. Open engine drain plug 13 located to the right of the engine, under the exhaust manifold (see illustration).

Filling

1. Close the drain cock and ensure that the heater control is set to maximum heat.
2. Fill the system with coolant until the expansion tank is filled. Replace cap.
3. Open the bleeder nipple, start the engine and let it run at a moderate speed until the coolant flowing out of the nipple is free from air bubbles.
4. Close the bleeder nipple, stop the engine and top up the expansion tank if necessary.



Cooling and heating system

1. Radiator
2. Radiator fan
3. Expansion tank with pressure cap
4. Thermostat
5. Temperature transmitter
6. Coolant pump
7. Fan motor
8. Impeller
9. Heat exchanger
10. Thermostatically controlled valve
11. Thermostat switch, radiator fan
12. Radiator drain cock
13. Engine drain plug
14. Bleeder nipple
15. Air valve

Anti-freeze coolant mixtures

The cooling system is filled with frostfree coolant mixture.

During the cold season the coolant must be mixed with anti-freeze, as pure water is liable to freeze and burst the radiator and the cylinder block. For maximum security against freezing and corrosion the glycol dosage should be 3–4 imp quarts (3–4 litres), i.e. 40–50 %. Use antifreeze suitable for petrol engines with light alloy cylinder heads.

NOTE! When anti-freeze is added, it must first be mixed with a suitable quantity of water, as full circulation cannot take place until the thermostat opens. If pure anti-freeze is added, there is still a risk of the engine being damaged by ice if the anti-freeze does not mix with the engine coolant quickly enough.

f

Fuel System

The engine is equipped with a Zenith carburetor or with a Bosch continuous fuel injection system.

The fuel tank is located underneath the car between the rear wheels. The electric fuel level transmitter is mounted on the top of the tank.

Air cleaner

The air cleaner is located on the left-hand side in the front part of the engine compartment. The cleaner cartridge is replaceable and should be changed every 30 000 miles (48 000 km) or every two years, whichever comes first. If the car is driven over dusty roads, the cleaner should be changed more frequently. The cartridge is made of a special grade of paper which may not be washed or moistened, but it may be cleaned carefully with compressed air. The air cleaner housing and cover should be wiped off from time to time.

The air cleaner is equipped with thermostatically controlled preheating.

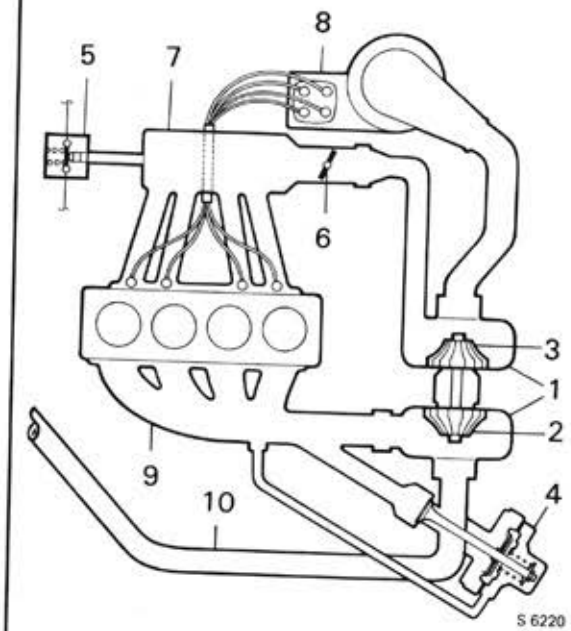
Fuel pump

In cars with carburetor engines, the fuel pump, which is located on the left-hand side of the engine, is equipped with a filter which can be removed for cleaning once the cover has been removed. The filter should be cleaned at the intervals recommended in the service programme or in the event of the presence of dirt in the fuel supply being suspected. When refitting the filter, ensure that the gasket is properly in position between the cover and the filter.

In cars with injection engines, the fuel pump is electric and located in the fuel tank. The fuel filter is located on the left-hand side in the engine compartment and should be changed as specified in the service programme.

Turbo System

The turbo compressor is designed to increase the supply of air to the cylinders. An increase of air to the cylinder implies that the engine can burn more fuel on each stroke, thereby producing a higher output than that of a conventional engine.



Turbo system

1. Turbo compressor
2. Turbine wheel
3. Impeller
4. Charge pressure regulator
5. Pressure switch
6. Throttle valve
7. Inlet manifold
8. Mixture control unit
9. Exhaust manifold
10. Exhaust pipe

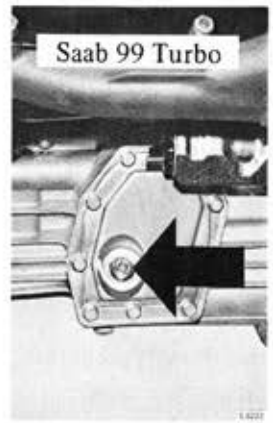
The turbo compressor is driven by the engine exhaust gases. The exhaust gas flow causes the turbine wheel in the compressor unit to rotate. Since the turbine wheel and the impeller in the compressor are mounted on a common shaft, they rotate at the same speed. The impeller is located in the induction system and through rotation it increases the pressure of the induced air. Because the turbo unit is driven by the exhaust gases from the engine, the speed of the compressor and, consequently, the charging pressure, are matched automatically to the speed of the engine and the engine loading. However, a charge pressure regulator controls the flow of exhaust gases to the turbine wheel once a preset load has been reached, thereby limiting the charging pressure.

The engine is equipped with an air-cooled oil cooler for cooling of the engine lubricating oil. The cooling air is admitted through a duct in the spoiler.

Transmission

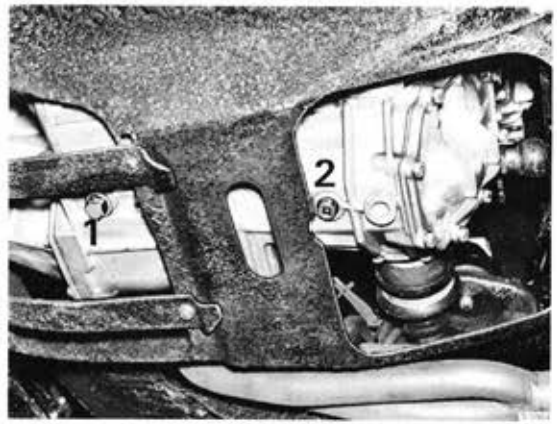
The transmission and differential are located beneath the engine and assembled to form an integral unit with the engine. Part of the transmission case serves as the engine oil sump. The

Oil dipstick, manual transmission

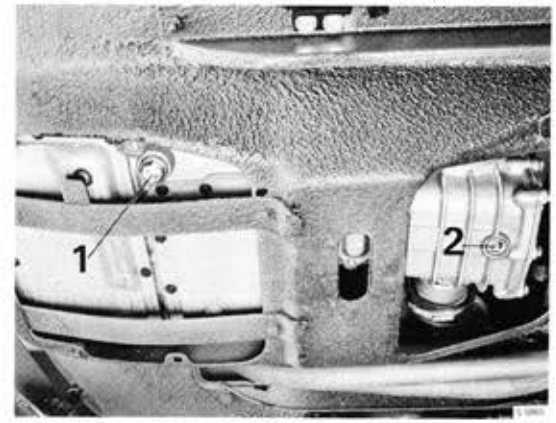


Oil filling and level plug, automatic transmission

Oil level plug, final drive, automatic transmission



Drain plugs, manual transmission
1. Engine. 2. Transmission.

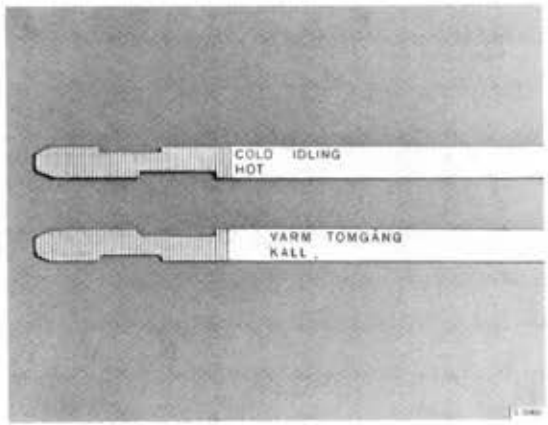


Drain plugs, automatic transmission
1. Engine. 2. Final drive.

f

forward part of the transmission is a primary gear delivering power from the engine to the gearbox.

Location of dipstick, automatic transmission



Dipstick, automatic transmission

The car is equipped with a 4-speed, fully synchronized manual transmission or with a 3-speed automatic transmission.

See the service program for details of oil changing and oil level checking.

A special wrench is required for the transmission drain plugs. This is to avoid confusion between the engine and transmission drain plugs.

The dipstick on the automatic transmission has different markings for hot and cold oil levels.

Check the oil level as follows:

1. Have the engine idle for a few minutes with the selector at P.
2. Check that the oil level is between the maximum and minimum marks on the dipstick. The distance between the marks is equivalent to 1 quart (1 litre) of oil.
3. Oil is refilled through the pipe in which the dipstick is located.
4. After topping up, allow the engine to idle again for a few minutes and then recheck the level.

Use a nylon rag, lint-free paper or chamois leather to wipe off the dipstick – do not use rags that may leave fluff on the dipstick.

The most scrupulous cleanliness must be observed during filling.

In R.H.D.-cars with manual transmission, the clutch fluid container should be well filled with a recommended brake fluid (see section K). In L.H.D.-cars, the hydraulic fluid for operation of the clutch is supplied from the hydraulic fluid container for the brake system. See section G.

g

The car has two mutually independent brake systems; the footbrake or driving brake, which is hydraulic and acts on all four wheels, and the handbrake or parking brake, which is mechanical and acts on the front wheels.

The footbrake system has two separate circuits. The master cylinder acts simultaneously but independently on each diagonally opposed pair of wheels, i.e. right front + left rear and left front + right rear. This means that if the system is damaged and starts to leak brake fluid, braking effect will still be available in two diagonally opposed wheels.

The front wheel cylinder has a larger bore than the rear wheel cylinder with the result that braking power is greater on the front wheels. This reduces the risk of the back wheels locking.

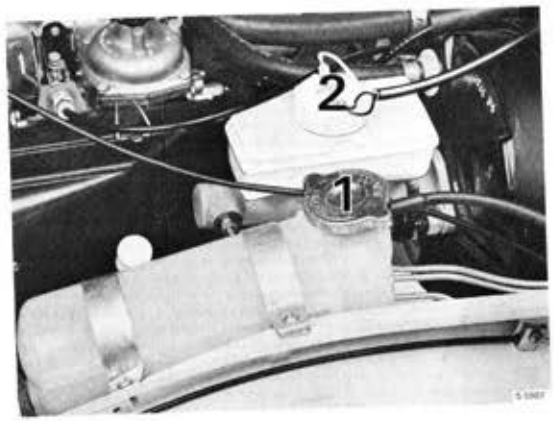
The footbrake system is equipped with a servo system which boosts pedal power during braking. A brake warning light is located on the instrument panel. This lights up when the handbrake is applied, or in the event of insufficient fluid in the brake fluid container. If the light goes on during driving, the problem should be traced immediately and necessary repairs should be carried out by an authorized Saab dealer. Leakage in one of the brake circuits is also manifested by the fact that the brake pedal must be depressed farther than normal and that the car tends to pull to one side when the brakes are applied.

Both the footbrake and the handbrake are self-adjusting. It is therefore impossible to tell when the brake linings are worn out and need to be replaced by noting an abnormally long pedal stroke. Consequently, it is very important to check the thickness of the brake linings regularly as specified in the service programme.

Brake pads should always be changed by an authorized Saab workshop. Fit only original Saab brake pads.

Topping up brake fluid

Check that the brake fluid container is well filled. Do not use inferior brake fluids, as these attack the rubber seals and endanger the functioning of the brake system. Even the best grade of brake fluid, however, eventually deteriorates through oxidation and absorption of water. The fluid should therefore be changed after 30 000 miles (48 000 km) or at intervals of two years. This should be done by an authorized Saab dealer.

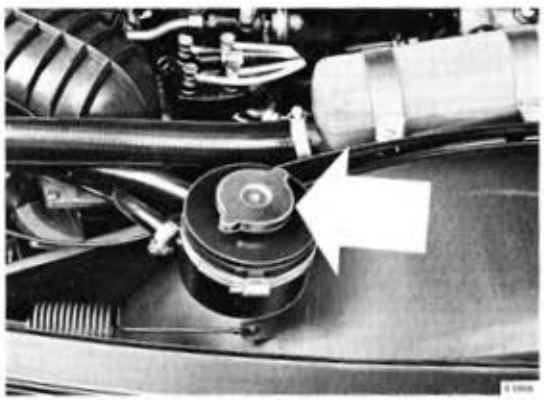


Containers

1. Expansion tank, radiator. 2. R.H.D.-cars: Brake fluid container, L.H.D.-cars: Brake and clutch fluid container.

Steering

On some models, the steering gear, which is of rack- and-pinion type, is power assisted to make the steering lighter at low speeds. The oil level in the power steering fluid container (mounted on the left wheel housing) should be checked as recommended in the service programme. The oil should be level with the lower part of the strainer. Use automatic transmission oil for topping up. See the specifications in section O.



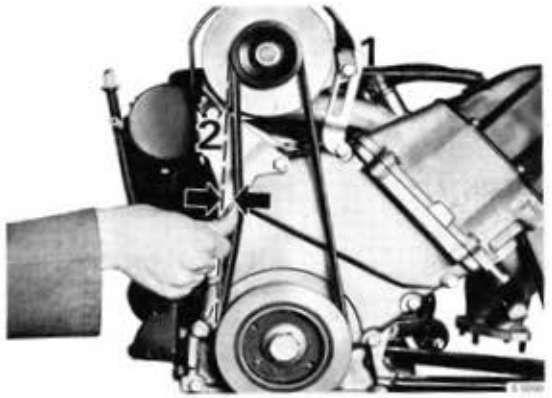
Power steering fluid container

Electrical System.

h

Alternator

The alternator is located at the top of the engine by the bulkhead. It is driven by a V-belt from a pulley on the crankshaft. It is important that the V-belt be properly tensioned. If the belt is too slack, it can be tightened by loosening the screws 1 and 2 (see illustration) and pressing the alternator outwards. The belt should be tensioned so that it can be pressed down about 1/2 inch (1 cm) by a force of 3.5 lb (1.5 kp).



Checking alternator belt tension

Battery

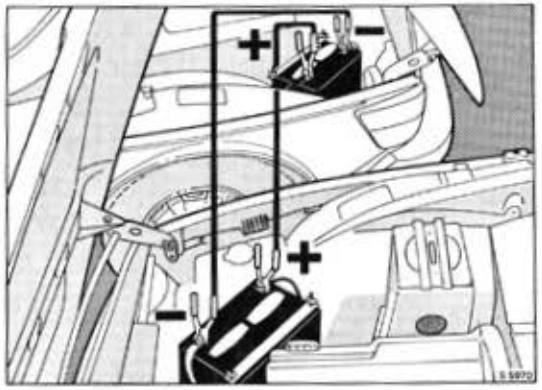
The battery is one of the most important components in the car and must therefore be carefully maintained. Always check the battery when you stop to refuel the car. The electrolyte should be level with the lower edge of the filler pipes. Top up as necessary using distilled water only.

You should check the state of charge from time to time. Check that the battery is securely retained and that the terminal clamps and earth connections are properly tightened. Grease the earth screws and clamps with vaseline to prevent oxidation.

Avoid prolonged and heavy discharge of the battery. When making repeated attempts to start the engine give the battery a chance to "recover" between discharges.

WARNING

Do not misconnect the battery. If the cable connections are reversed, even momentarily, this will damage the rectifiers. The insulated positive cable must be connected to the positive (+) terminal of the battery and the earth cable to the negative (–) terminal. If a spare battery is temporarily connected across the car battery, e.g. to assist starting, the connection must be made positive to positive and negative to negative. The battery must not be connected up to or disconnected from the electrical system of the car while the engine is running. During rapid charging the positive battery cable must be disconnected.



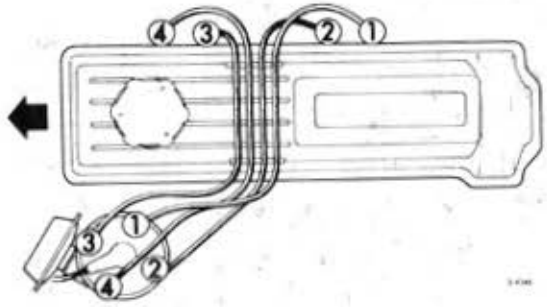
Start assistance with a spare battery

Spark Plugs

The recommended spark plugs must be used in order to obtain maximum power output from the engine. If the electrode gap must be adjusted, make the adjustment on the side electrode.

NOTE! If the spark plugs are removed, be very careful to see that no dirt enters the cylinders.

The order of firing is 1–3–4–2 (cylinder No. 1 at rear of engine).



Position of ignition cables

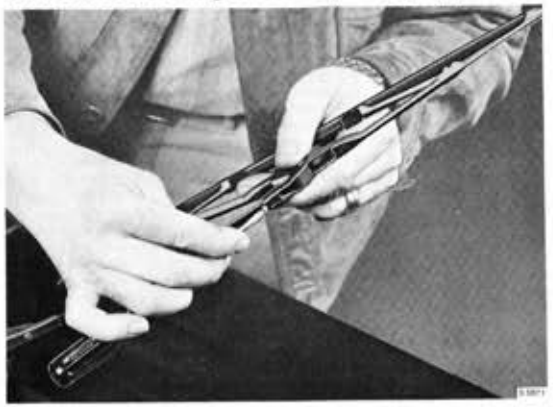
Windshield Wipers and Washers, Headlight Wipers and Washers

Wipers

Inspect and clean the rubber blades of the windshield- and headlight wipers at regular intervals. Methylated spirit is recommended for cleaning. If the blades show signs of wear, they should be replaced.

Changing the wiper blades

Lift up the wiper arm. Prise up the shiny spring by means of your thumb-nail or a small screwdriver (see illustration). Withdraw the old wiper blade. Slide on a new blade and ensure that it is locked in position by the spring.



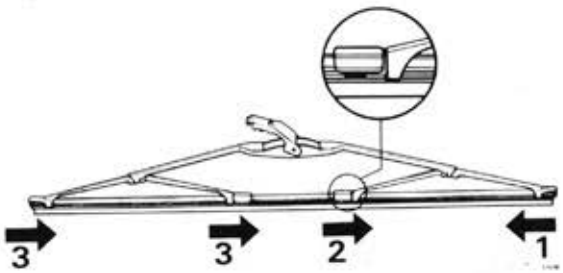
Removing the windshield wiper blade

Changing the windshield wiper blade rubber

Free the blade rubber from retainer 1 (see illustration) by sliding it in the direction of the arrow. After this, slide the rubber in the opposite direction until retainer 2 can be freed at the groove. The rubber can then be withdrawn from retainers 3. To fit a new rubber, proceed in the reverse order.

Changing the headlight wiper blade

Remove the lock ring on the wiper arm and slide off the blade. Fit in reverse order.



Removing the wiper blade rubber

Washers

The washer fluid container is mounted on the right hand side in the engine compartment. Always top up with clean liquid and keep the container free from dirt.

If the washer jets become clogged or do not direct the jets in the desired direction they can be cleaned and adjusted by means of a pin, for example. The jets are mounted in movable balls and can be set to the desired position.

Location of washer fluid container
1. Washer fluid container. 2. Battery

Headlights, Bulbs, Fuses

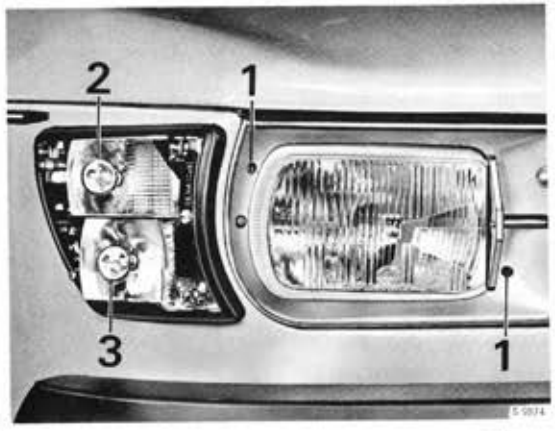
The halogen headlights are mounted in the front body section and are provided with two adjustment screws which are accessible through holes in the headlight trim. The upper screw is used for lateral adjustment and the lower screw for vertical adjustment.

It is extremely important that the headlights are adjusted correctly – both vertically and laterally – to achieve the best possible lighting effect without any risk of blinding other drivers.

Changing light bulbs

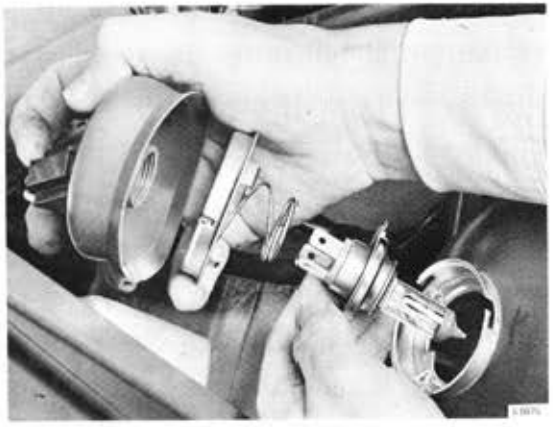
Headlights

Open the bonnet and disconnect the terminal block and rubber cap behind the headlight. Twist the bayonet grip to the left and pull out the bulb holder. Exchange the faulty bulb, **being careful not to touch the glass with the fingers.** Reassemble, making sure that the three guide lugs are properly seated and that the bayonet ring engages the three studs so that the bulb comes in its proper position. Refit the terminal block, making sure that the rubber cap fits snugly against the reflector, with the ventilation hole at the bottom.



Adjustment screws and bulbs

1. Adjustment screws, headlight. 2. Bulb, direction indicator. 3. Bulb, parking light and corner light.



Changing bulb, headlight

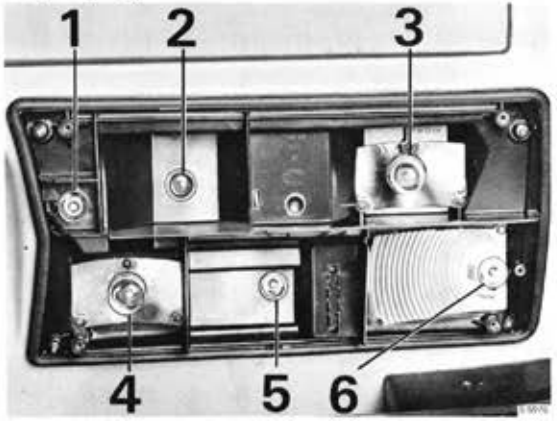
Instrument illumination, switch illumination and indicator warning lights

All of the bulbs in the instrument assembly are mounted in bayonet fittings and are accessible from the rear of the instrument panel once the safety padding has been removed. To facilitate changing bulbs for warning lights and switch illumination, loosen and pull the instrument panel slightly forward. The switch illumination bulb is located at the rear of the panel below the speedometer. To change the bulb for the heater control and glove compartment illumination, remove the cover in the glove compartment.

Changing other light bulbs

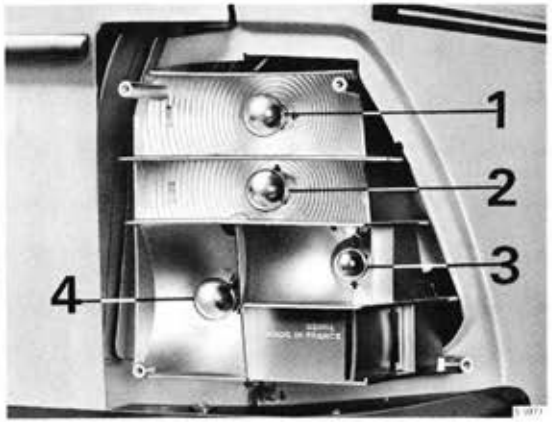
Undo the retaining screws and remove the glass. Press the bulb, twist it anticlockwise and then remove it. Fit a new bulb and make sure that it is secure and making good contact. The parking light/corner light bulb is a two-wire bulb and must be fitted in the correct position. Wipe the bulb and reflector with a soft cloth

and replace the glass, making sure that the edges are properly sealed.



Bulbs, rear light, Saab 99 Sedan

1. Number plate light. 2. Reversing light. 3. Direction indicator. 4. Brake light. 5 and 6. Tail light.



Bulbs, rear light, Saab 99 Combi Coupé

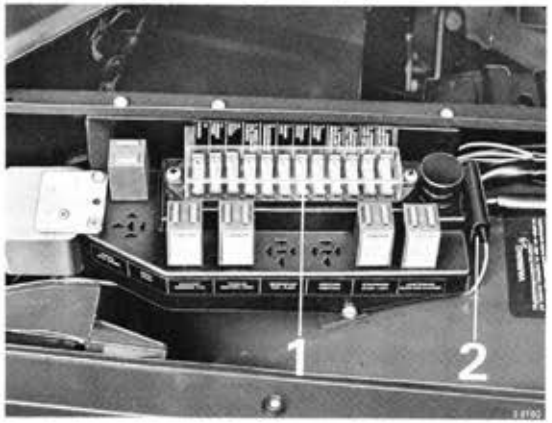
1. Direction indicator. 2. Reversing light. 3. Tail light. 4. Brake light.

Fuses

The fuses are mounted in a fuse box under the bonnet on the right-hand wheel housing. A label is provided next to the fuse box to show the parts of the electrical system protected by each fuse. A separate fuse for the headlight wipers is located in a holder next to the fuse box. See the illustration.

If a circuit goes dead but the fuse is intact, the cause may be a bad contact in the fuse holder or a faulty cable connection. Check these points to make sure they are not oxidised and that terminals are tightly secured. When fitting a new fuse, make sure it is of the correct rating. See section O.

If the same fuse blows repeatedly, take the car to a Saab dealer as soon as possible for insulation testing of wiring and equipment.

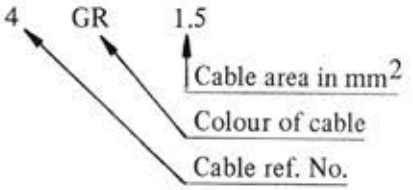


Fuses

1. Fuse box. 2. Fuse, headlight washers.

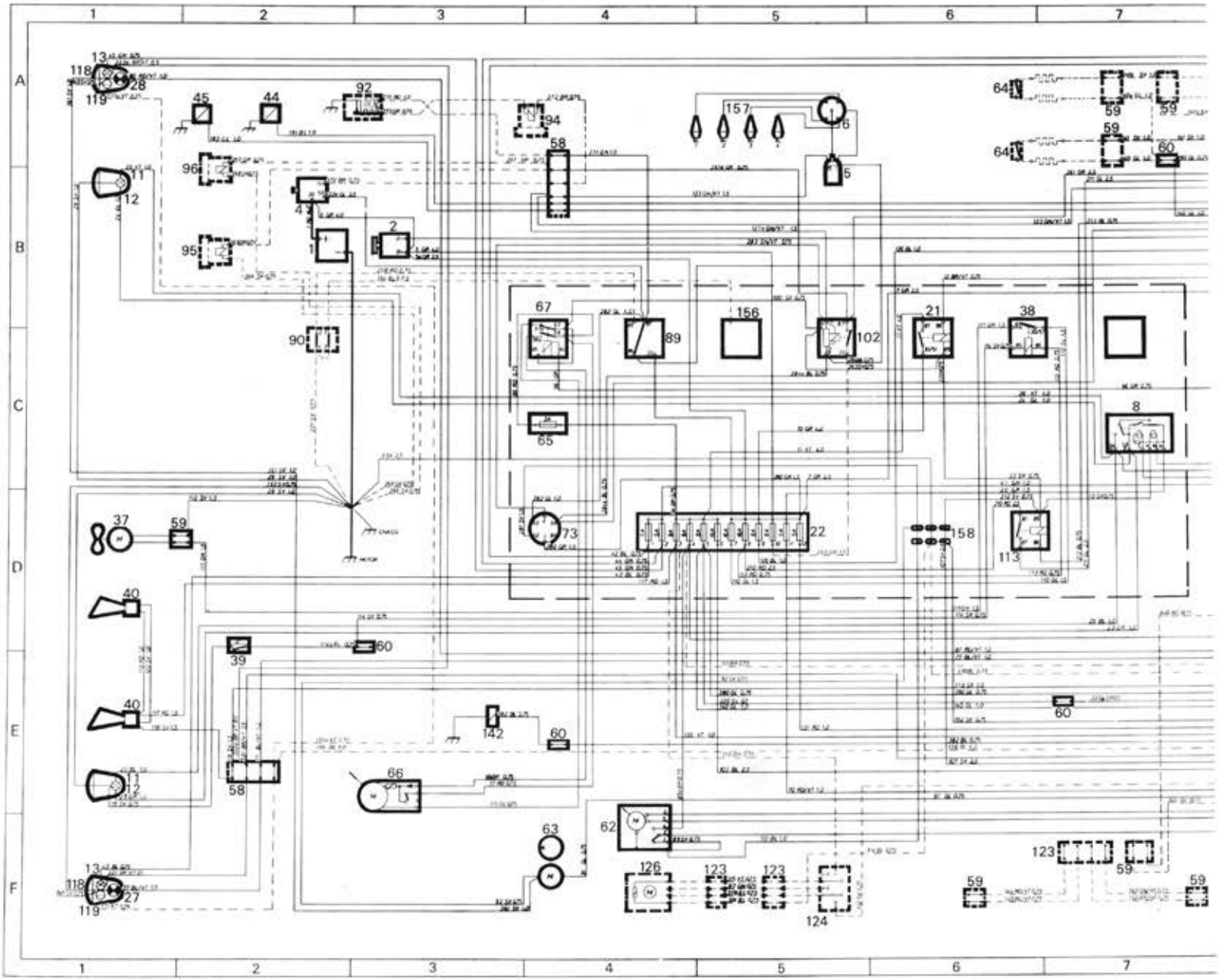
Wiring Diagrams

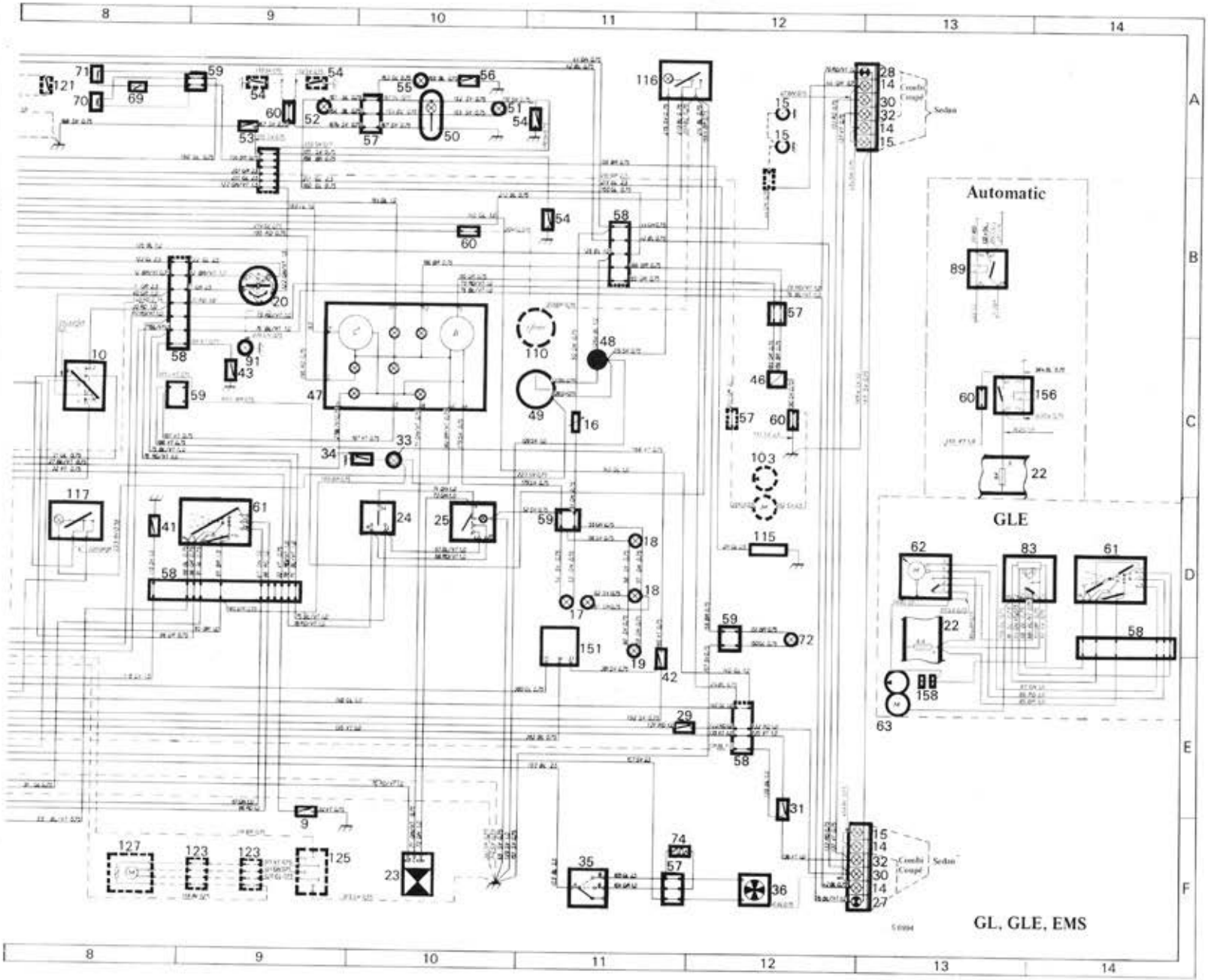
BL	Blue
BR	Brown
GL	Yellow
GN	Green
GR	Grey
RD	Red
SV	Black
VT	White
BL/VT	Blue/white
BR/VT	Brown/white
GN/VT	Green/white
RD/VT	Red/white



1. Battery (B2)
2. Alternator (B3)
4. Starter motor (B2)
5. Ignition coil (B5)
6. Ignition distributor (A5)
8. Lighting relay (C7)
9. Headlight dimmer/flasher switch (F9)
10. Light switch (C8)
11. High beam (B1, E1)
12. Low beam (B1, E1)
13. Front parking light (A1, F1)
14. Tail light (A13, F13)
15. Number plate light (A12, A13, F13)

16. Rheostat switch, instrument panel illumination (C11)
17. Switch light (D11)
18. Instrument panel light (D11)
19. Glove compartment and heater control lights (E11)
20. Ignition switch (B9)
21. Ignition switch relay (B6)
22. Fuse box (C13, D5, D13)
23. Direction indicator flasher unit (F10)
24. Direction indicator switch (D10)
25. Hazard warning flasher switch (D10)
27. Direction indicator lights, L (F1, F13)
28. Direction indicator lights, R (A1, A13)
29. Brake light switch (E11)
30. Brake lights (A13, F13)
31. Reversing light switch (E12)
32. Reversing lights (A13, F13)
33. Choke warning light (C10)
34. Choke control switch (C10)
35. Ventilator fan switch (F11)
36. Ventilator fan motor (F12)
37. Radiator fan motor (D1)
38. Radiator fan relay (B6)
39. Radiator fan thermostat switch (E2)
40. Horn (D1, E1)
41. Horn switch (D8)
42. Brake warning switch (E11)
43. Handbrake switch (C9)
44. Oil warning switch (A2)
45. Temperature transmitter (A2)
46. Fuel level transmitter (C12)
47. Combination instrument (C9): fuel gauge, fuel warning light, temperature gauge, oil warning light, charging light, brake warning light, high beam indicator light, direction indicator light
48. Cigarette lighter (C11)
49. Clock (C11)
50. Dome light, door pillar (A10)
51. Dome light, rear view mirror (A10)
52. Ignition switch light (A9)
53. Interior lighting switch (A9)
54. Door switch, interior lighting (A9, A11, B11)
55. Luggage compartment light (A10)
56. Luggage compartment light switch (A10)
57. 3-pole connector (A10, B12, F11)
58. 12-pole connector (A4, B9, B11, C8, D8, D14, E2, E12)
59. 2-pole connector (A7, A9, D2, D11, D12, F6, F7)
60. 1-pole connector (A7, A9, B10, B12, C12, D3, E4, E7)
61. Wiper system switch (D9, D14)
62. Windshield wiper motor (D13, F4)
63. Washer motor (E13, F4)
64. Seat heating element with thermostat (A6)
65. Fuse holder, headlight wiper (C4)
66. Headlight wiper motor (E3, F3)
67. Relay, headlight wiper motor (B4)
69. Seat contact (A8)
70. Seat belt contact, L (A8)
71. Seat belt contact, R (A8)
72. Lamp, seat belt warning system (D12)
73. Service outlet, ignition (D4)
74. Resistance, low speed, ventilator fan (F11)
83. Interval relay, wipers (D8, D13)
89. Start inhibitor relay (C4)
90. Start inhibitor and reversing light switch (C2)
91. Selector indicator light (C9)
92. Thermo time switch (A3)
94. Starter valve (A4)
95. Auxiliary air regulator (B2)
96. Warming-up regulator (A2)
102. Fuel pump relay (C5)
103. Fuel pump (C12)
110. Tachometer (C11)
113. Relay, electrically heated rear window (D6)
115. Electrically heated rear window (D12)
116. Switch, electrically heated rear window (A11)
117. Switch, corner lamp (C8, D8)
118. Corner lamp (A1, F1)
121. Seat contact, heating element (A8)
122. 8-pole connector (F7)
123. 4-pole connector (F5, F7, F9)
124. Switch, electrically controlled external rear-view mirror, L (F5)
125. Switch, electrically controlled external rear-view mirror, R (F9)
126. Electrically controlled external rear-view mirror, L (F4)
127. Electrically controlled external rear-view mirror, R (F8)
130. Loudspeaker, R (F8)
131. Loudspeaker, L (F6)
137. Throttle valve switch (E11)
142. Solenoid valve (E3)
144. Pressure switch (B5)
146. Electronic control unit, ignition system (A6)
147. Compensating resistor (A4)
151. Speed transmitter (E11)
157. Spark plugs (A5)
158. Joint, earth cable (D6, E13)





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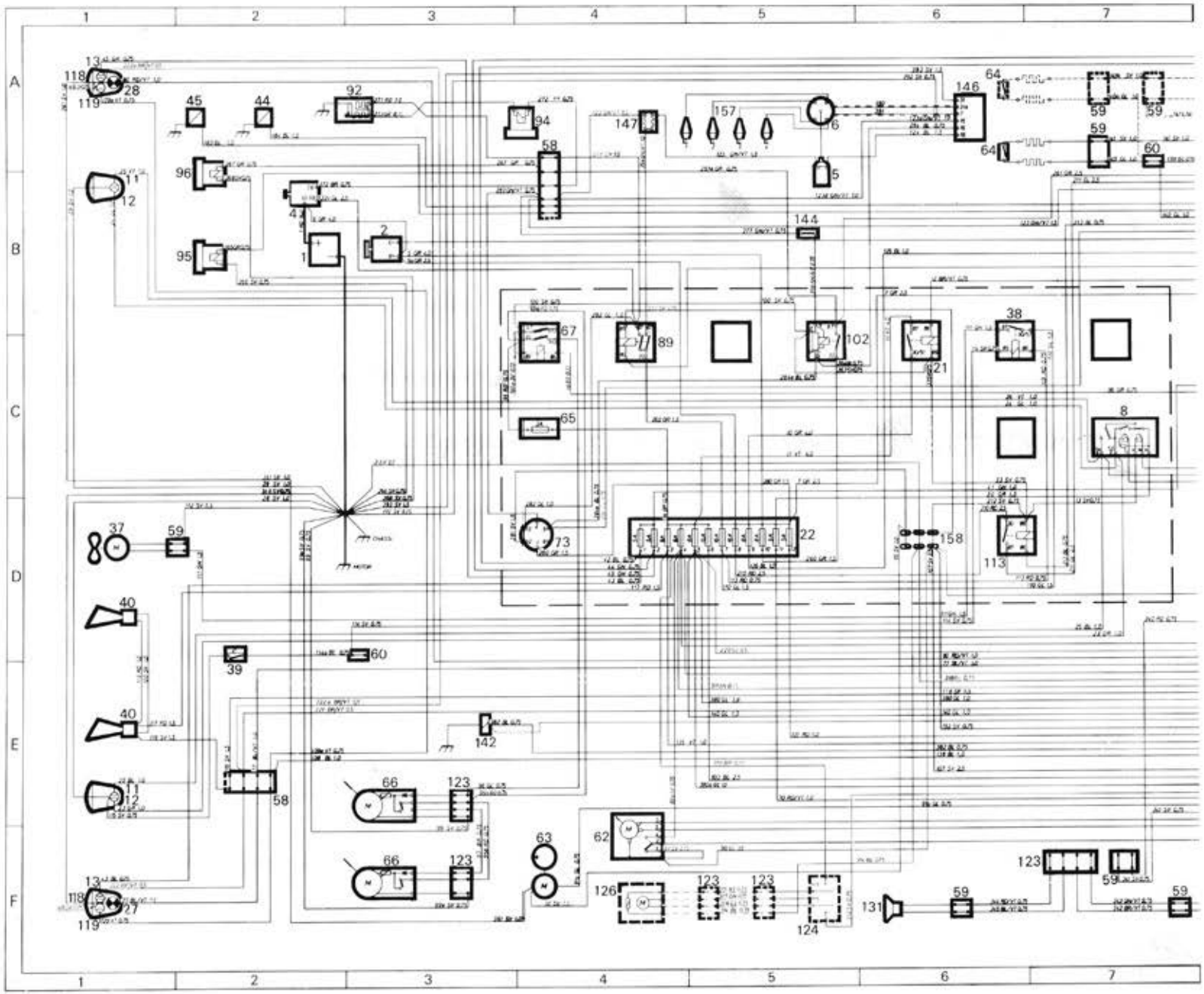
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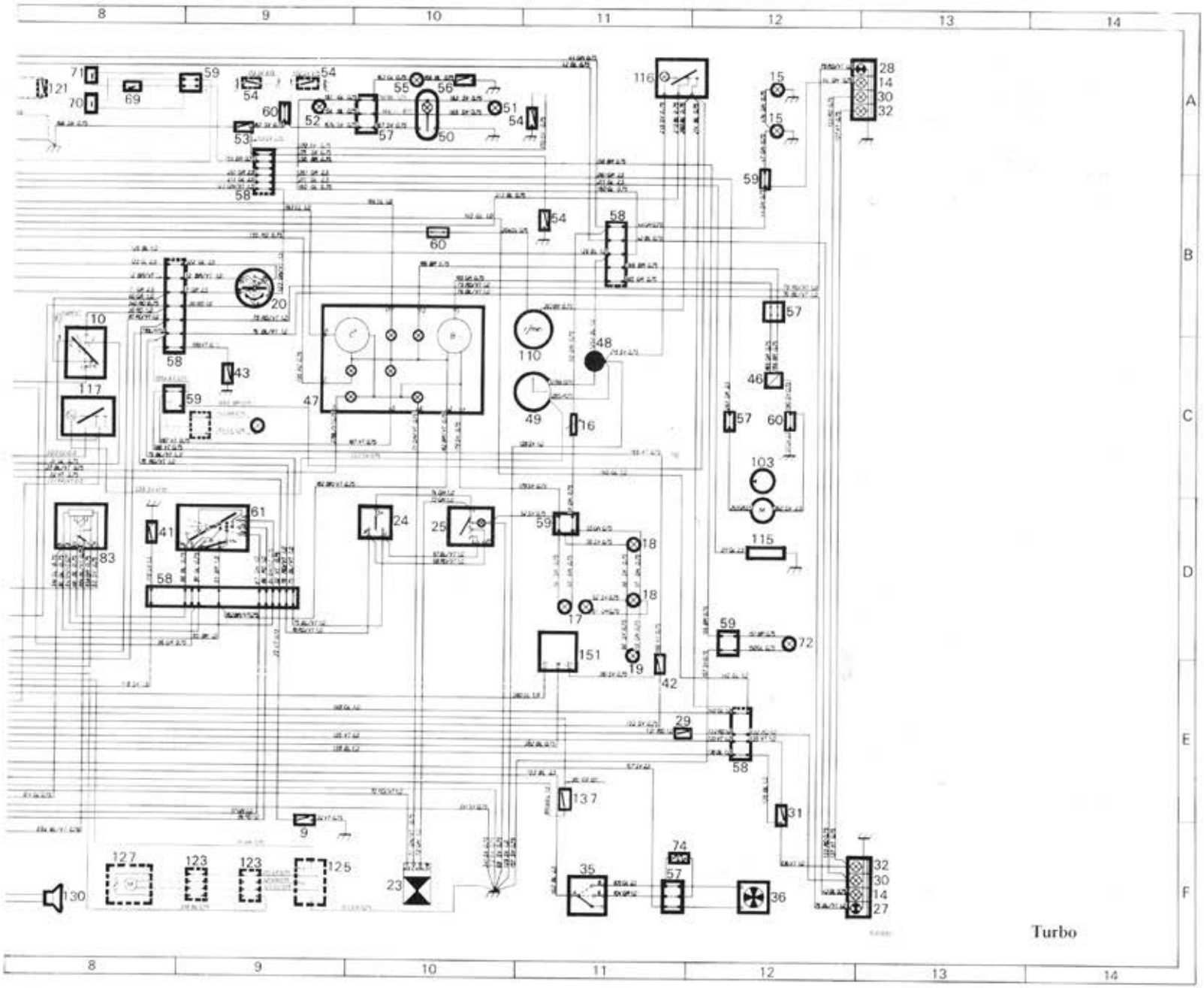
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Turbo

Wheels and Tyres.

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The car is equipped with tubeless radial tyres which provide optimum handling and roadholding under most driving conditions.

Fitting and repair of tubeless tyres should be entrusted to a specialist tyre workshop.

The tyres have "wear warners". When the tread pattern is worn down to 1/16 inch (1.6 mm), unpatterned cross bars appear. This is a signal that it is time to change the tyres.

Tyre pressures

Check the tyre pressures regularly.

Overinflated tyres give a bumpy ride and wear excessively at the centre of the tread. Underinflated tyres suffer heavy wear on the shoulders and may cause the car to sway when cornering.

A correctly inflated tyre wears evenly and grips the road over the full width of the tread and thus assists good roadholding.

Rotation of wheels and tyres

The front-wheel drive causes the front tyres to wear more than the rear tyres. If it is desired to have the tyres wear evenly, they should be changed round after a certain period of driving so that the least worn tyres are at the front. By switching the tyres in this manner, the service life of all four tyres will remain approximately equal. Make sure that the tyres are always rotated in the same direction – the left front wheel should thus change place with the left rear wheel.

Wheel Changing

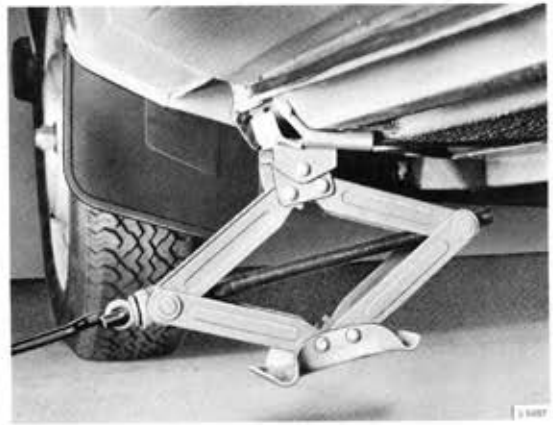
The tool kit and jack are stored in the luggage compartment. The spare wheel is stored upright in the luggage compartment.

To jack up the car, e.g. to change a wheel or to inspect the brakes, install the jack in one of the jacking points (front or rear) located underneath the sill beams (see illustration).

If a garage jack is used, the lifting heads must be located under the reinforced parts of the underbody.

Never crawl under the car when it is jacked up.

1. Apply the handbrake. Slide the jack into the attachment points and crank it down until it touches the ground.

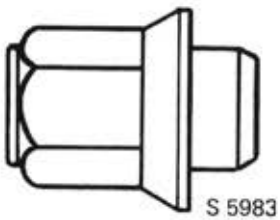


Positioning of jack

2. Remove the hub cap by inserting a screwdriver behind the hub cap and prize off.
3. Back off the wheel nuts half a turn. Check that the jack has located properly against the flange on the sill beam and that the whole of the base is firmly in contact with the ground.
4. Jack up the car until the wheel is clear of the ground, then remove the wheel nuts and the wheel.
5. Mount the wheel and tighten the wheel nuts loosely. Check that the wheel and nuts are correctly positioned.

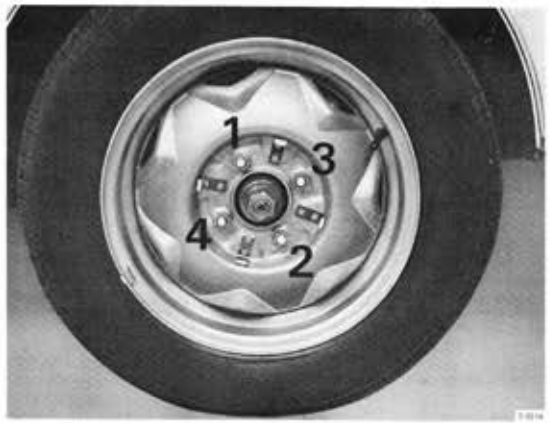
N.B. The spare wheel in cars fitted with aluminium wheels as standard is of steel. Since different wheel nuts are required for steel wheels and aluminium wheels, the appropriate nuts for the steel wheel are supplied in the tool kit. Never use the standard wheel nuts to secure the spare (steel) wheel.

Conical wheel nut for steel wheel



Flanged wheel nut for aluminium wheel

6. Lower the car. Tighten the wheel nuts in the order shown in the illustration below.



Order of tightening wheel nuts

If something goes wrong.

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Trouble Shooting

NOTE

If for some reason (such as engine trouble, flat tyre or accident) the car has to be left at the side of the road in a rural or sparsely populated area and cannot be moved at once, the warning flashers should be switched on.

Carbureted engine

Engine fails to start even though turned over by starter at normal speed.

To get the engine started quickly, it is most important to follow the starting instructions.

a. Check that there is fuel in the tank and that the charge indicator lamp lights up when the ignition is switched on.

b. Check that the fuel pump is feeding fuel by disconnecting the fuel hose at the carburetor and letting the starter turn the engine a few times (without depressing the accelerator pedal).

c. Remove a spark plug and reconnect the lead. Earth the plug and run the starter motor. If the ignition system is functioning properly, a powerful spark will be visible.

d. If only a feeble spark is obtained, or none at all, check whether the ignition cables are properly plugged into the distributor cap and ignition coil. Check the low-voltage connections to the ignition coil.

e. Remove the distributor cap and wipe off any moisture. Check that the cap is not cracked and that the breaker points open when the engine is turned over. Clean the contact surfaces.

f. If the engine has been turned over for some time without firing, fuel may have flooded the cylinders and wetted the spark plugs. Unscrew the spark plugs and blow the cylinders clean by turning the engine over on the starter. Dry the plugs and check that the electrode gap is correct, or fit new plugs if available.

Engine misfires, power is lost or engine runs roughly. Check that:

a. None of the ignition cables has come loose.

b. None of the spark plugs is defective or in need of adjustment.

c. There is no arcing in the ignition system.

d. There is good contact in the low-voltage connections to the ignition coil.

e. The carburetor has not iced up (may happen in damp weather).

f. The oil level in the carburetor damper is not too low.

g. The rubber diaphragm of the carburetor vacuum piston is intact.

Charge indicator lamp fails to light up when ignition is switched on. Possible reasons:

a. Battery is flat or a battery cable has worked loose.

b. The charge indicator light fuse has blown.

c. Poor cable contact at the ignition switch or the charge indicator light.

d. Burnt-out light bulb.

Charge indicator lamp lights up when engine is running. Possible reasons:

a. Broken or slack alternator drive belt.

b. Defect in voltage regulator.

c. Defect in alternator.

Battery flat. Possible reasons:

a. Slipping alternator drive belt.

b. Electrolyte level too low.

c. Frequent use of high-drain equipment, e.g. parking heater, combined with short journeys.

d. Defect in voltage regulator or alternator.

Injection engine

Engine fails to start even though cranked by starter at normal speed.

a. Check that there is fuel in the tank and that the charge indicator lamp lights up when the ignition is switched on.

b. Remove a spark plug and reconnect the lead. Earth the plug and run the starter motor. If the ignition system is functioning properly, a powerful spark will be visible.

c. If only a feeble spark is obtained, or none at all, check whether the ignition cables are properly plugged into the ignition coil and the distributor cap. Check the low-voltage connections to the ignition coil.

d. Remove the distributor cap and wipe off any moisture. Check that the cap is not cracked and that the breaker points open when the engine is cranked. Clean the contact surfaces.

e. If the engine has been cranked for some time without firing, fuel may have flooded the cylinders and wetted the spark plugs. Unscrew the spark plugs and blow the cylinders clean by turning the engine over on the starter. Dry the plugs and check that the electrode gap is correct, or fit new plugs if available.

If the engine still refuses to start, check the fuel system.

a. Check that the filler cap for the engine oil is tightly in place and that the dipstick is all the way down.

b. Check that the fuse for the electric fuel pump is intact (fuse No. 11). Scrape off any oxide deposits by rotating the fuse in its holder a few turns.

c. Have a passenger check that the fuel pump is working by listening in the luggage compartment when the starter motor is actuated.

d. Check the cable connection to the fuel pump (accessible through a panel in the floor of the luggage compartment).

e. Check that none of the hoses in the fuel system has come loose.

Engine misfires, power is lost or engine runs roughly. Check that:

a. None of the ignition cables has worked loose.

b. None of the spark plugs is defective or in need of adjustment.

c. There is no arcing in the ignition system.

d. There is good contact in the low-voltage connections to the ignition coil.

e. None of the injection valve cables has worked loose.

f. Check that the filler cap for the engine oil is tightly in place and that the dipstick is all the way down.

Charge indicator lamp fails to light up when ignition is switched on. Possible causes:

a. Flat battery or loose battery cable.

b. The charge indicator light fuse has blown.

c. Poor wiring contact at ignition switch or charge indicator lamp.

d. Burnt-out light bulb.

Charge indicator lamp lights up when engine is running. Possible causes:

a. Broken or slack alternator drive belt.

b. Defect in voltage regulator.

c. Defect in alternator.

Battery is flat. Possible reasons:

a. Slipping alternator drive belt.

b. Low electrolyte level in battery.

c. Frequent use of high-drain equipment, e.g. parking heater, combined with short journeys.

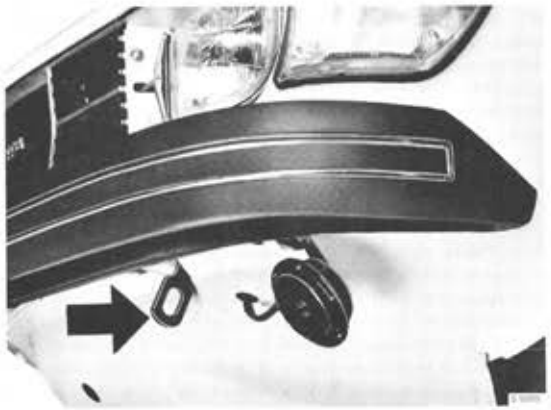
d. Defect in voltage regulator or alternator.

Towing

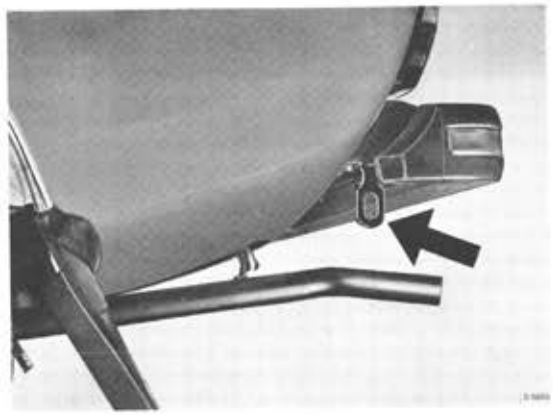
The car is equipped with towing lugs at front and rear. They are located at the bumper attachment points.

If a car with automatic transmission has to be towed, the following rules must be observed:

1. The selector must be at N.
2. The transmission case must be filled with oil to the correct level.
3. National speed limits for vehicles on tow must of course be complied with. Subject to these limits, the maximum safe towing speed for cars with automatic transmission is 25 mph (40 km/h).
4. The maximum recommended towing distance is 25–30 miles (40–50 km). If the car has to be towed any greater distance, the front wheels must be lifted off the ground.
5. An engine with automatic transmission cannot be started by towing or pushing.



Towing lug, front



Towing lug, rear

Refuelling.

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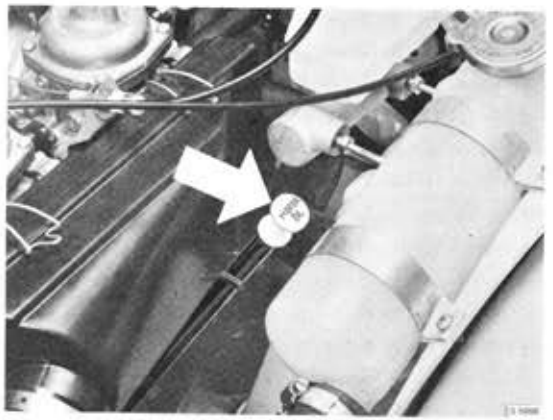
Fuel

Recommended octane number 97. Fuel tank capacity 12.8 imp gallons (58 litres) in cars with carburetor engines and 12.1 imp gallons (55 litres) in cars with injection engines. The fuel warning lamp will glow when there is less than about 2 imp gallons (10 litres) left in the tank.

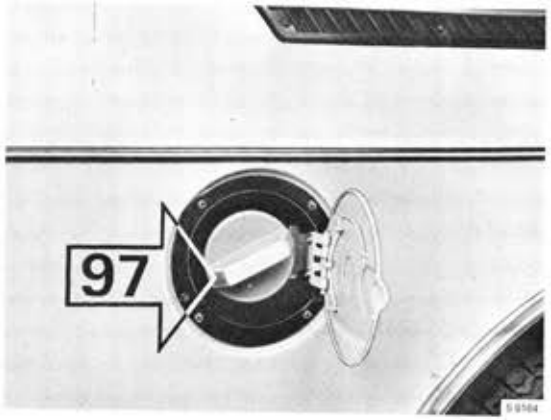
Engine oil

The oil level should be between the MAX and MIN marks on the oil dipstick. The distance between the marks corresponds to a volume of approx. 1 quart (1 litre). Top up with engine oil conforming to Service SE, API system. The most suitable grade of oil is SAE 10 W 30 or 10 W 40. If neither of these viscosities is available, SAE 15 W 40 or 15 W 50 may also be used. If outdoor temperatures regularly fall below −4°F (−20°C), oil with a viscosity of SAE 5 W 20 or 5 W 30 should be used.

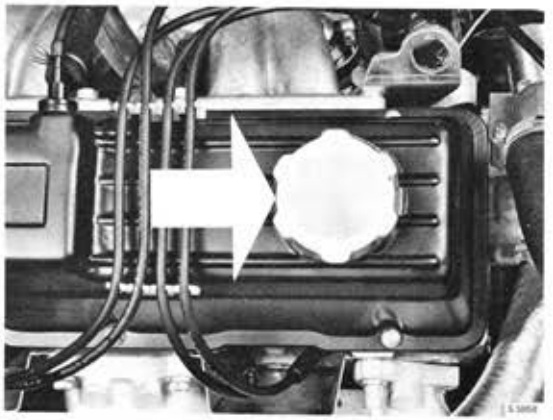


Oil dipstick

Tank cap, Saab 99 Sedan



Tank cap, Saab 99 Combi Coupé



Oil filler cap

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Coolant

Never let the level drop below the MIN mark on the expansion tank. Top up with equal parts of clean water and an antifreeze suitable for petrol engines with light alloy cylinder heads.

CAUTION

Always release the cap on the expansion tank carefully, allowing any vapour to escape before removing the cap completely.

Brake fluid and clutch fluid

Never let the level drop below the MIN mark on the container. Employ the utmost cleanliness when topping up. Use a brake fluid to specification DOT 3 or DOT 4.

Washer fluid

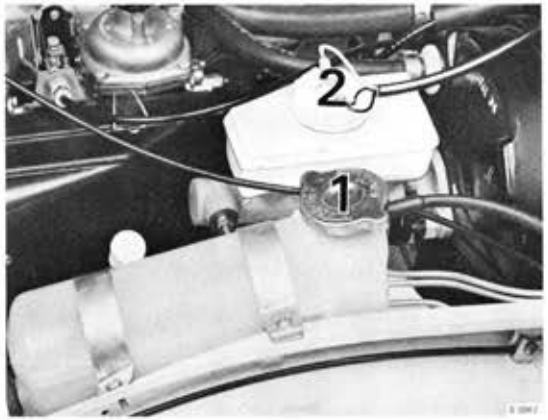
Use clean water or a mixture of clean water and Saab washer fluid.

Container capacity 1.1 imp gallon (5 litres).

Battery

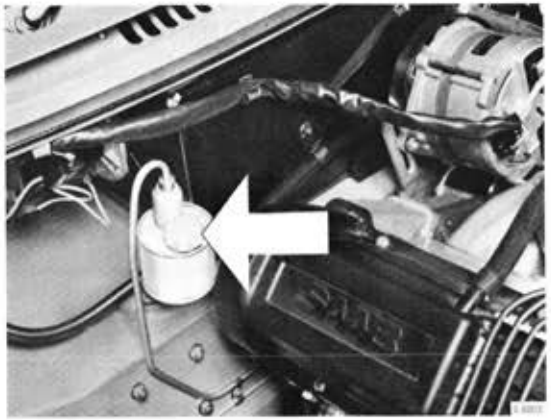
The electrolyte in the battery should be level with the lower edge of the filler pipe.

Use distilled water only for topping up.

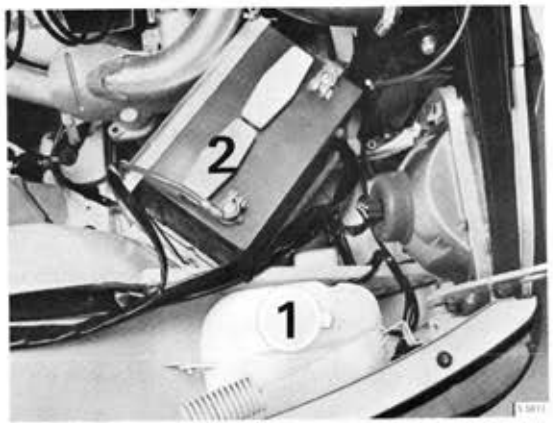


Coolant and brake/clutch fluid

1. Expansion tank, radiator. 2. Fluid container for brake system and for LHD-cars also clutch fluid container.



Clutch fluid container, RHD-cars



Washer fluid and battery

1. Washer fluid container. 2. Battery.

Tyres

The tyre pressures should be:

Lightly loaded, front and rear . . . . . 27 psi (1.9 bar)

Full load,

front . . . . . 31 psi (2.2 bar)

rear . . . . . 34 psi (2.4 bar)

The pressures apply to cold tyres.

Servicing.

Periodic Servicing

Every car needs care and attention if it is to give of its best.

This book contains suggestions and directions which will assure you of economical, trouble-free motoring. In your own interest, take your car to an authorized Saab service shop for expert servicing when it has clocked up the stipulated mileage. Do not forget the daily routine checks of lights, engine oil level, coolant level, tyre pressures, windshield washer fluid, etc.

The maintenance programme lists the most important things that need to be done to ensure enjoyable and trouble-free motoring at minimum cost. The 1,200 miles (2,000 km) coupon in your Service Card entitles you to guarantee check-ups (except for oils for which a charge is made). The guarantee is not valid if these check-ups are not made. Subsequent check-ups at 10 000 miles (16 000 km) intervals will be charged for. Take the Service Card with you when you turn your car in for servicing.

If less than 10 000 miles (16 000 km) are covered in one year, one engine oil change must be carried out and one complete service should in any case be carried out in the year.

Rust Control Service

A Rust Control Service is recommended within twelve months from the date of purchase. Provided this treatment is performed in accordance with makers instructions, further treatment will only be necessary every second or third year depending on manner of use, climate and environmental conditions.

Maintenance programme

Minor changes in the maintenance programme may be introduced in the course of production. The up-to-date programme available at authorized Saab Service shops may therefore differ slightly from the details covered in this book.

Your Saab dealer's service department will be pleased to provide any further information you may require.

5 000 Miles (8 000 Km) Service

Change engine oil in Saab 99 Turbo cars and cars driven under unusually demanding conditions, such as driving in extremely hot weather, driving at high speeds for a considerable distance, and driving over short distances in extremely cold weather.

10 000 Miles (16 000 km) Service

To be carried out by authorised Saab Dealer.

Engine

1. Change oil and oil filter cartridge (at least once a year).
2. Clean air cleaner insert.
3. Clean fuel pump filter. (Carburetor engine).
4. Check fuel lines in engine compartment for leakage.
5. Check the damper oil level. Top-up if necessary. (Carburetor engine)
6. Check engine idling speed setting and check idling emission of carbon monoxide as prescribed by the authorities (where applicable).
7. Check the exhaust system for condition and leaks.
8. Pressure test the cooling system (check the condition of the hoses).
9. Check coolant freezing point.
10. Check hoses and nipples for the crankcase ventilation.
11. Adjust deceleration valve.
12. Check the synchronizing of the carburetors (twin-carburetor engine).
13. Check the off position of the choke control.
14. Saab 99 Turbo: Check the seal on the charge pressure regulator.
15. Saab 99 Turbo: Check the charging pressure and adjust as necessary.
16. Saab 99 Turbo: Check the pressure guard and the fuel enrichment device.

Electrical System

1. Check condition of V-belts and adjust belt tension if necessary.
2. Check and if necessary adjust headlight alignment.
3. Change the spark plugs.
4. Change the breaker points. Lubricate distributor breaker cam and lubricating felt. Check and if necessary adjust dwell angle and ignition timing.
5. Check battery electrolyte level and top up if necessary. Tighten and grease cable shoes.
6. Check operation of parking, brake and rear lights, number plate light, direction indicators, horn, reversing lights, hazard warning flashers, interior lighting, warning and indicator lights, windshield washers and wipers, brake warning light, instrument lighting, luggage compartment lighting and ventilator fan.
7. Check the vacuum hoses and their connections.
8. Check the condition of the ignition cables.

Transmission

1. Check transmission oil level and top up if necessary (also final drive in automatic transmission).

Brake system

1. Check level in master cylinder, top up with brake fluid if necessary.
2. Remove wheels and check thickness of brake pads.
3. Check brake lines and hoses for condition and leaks.
4. Lubricate the front wheel brake units.

Steering, front suspension and tyres

1. Check condition of rubber bellows on steering gear and inner and outer universal joints, and of rubber seals for ball joints and tie-rod ends.
2. Check depth of tyre tread patterns.
3. Check the tyre pressure in the spare wheel.
4. Check the fluid level in the power steering fluid container.
5. Check the wear in inner and outer steering joints.

Body

1. Lubricate door stops, door hinges and bonnet lock mechanism.
2. Check condition of washer jets and rubber wiper blades.

Test Driving

1. Test drive car on road and check operation of all systems, especially brakes and clutch.

20 000 Miles (32 000 km) Service

To be carried out in connection with the 10 000 miles (16 000 km) Service.

1. Saab 99 Turbo: Check and if necessary adjust valve clearance.
2. Saab 99 Turbo: Change air cleaner insert.
3. Change oil in automatic transmission, clean filter and magnet. Adjust gear selector cable, rear brake lining and throttle cable. Only first 20 000 miles (32 000 km).

30 000 Miles (48 000 km) Service

To be carried out in connection with the 10 000 miles (16 000 km) and 20 000 miles (32 000 km) Service.

1. Check and if necessary adjust valve clearance.
2. Change air cleaner insert.
3. Change fuel filter (injection engine).
4. Change oil in manual transmission and in final drive of automatic transmission.
5. Change brake fluid (at least once every two years).
6. Check and if necessary adjust toe-in, camber and caster.
7. Saab 99 Turbo: Clean the charge pressure regulator.

General Hints.

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Upholstery

The cloth upholstery may be effectively cleaned with a cloth moistened in a soap solution. Use lukewarm water.

Grease and oil stains can be removed with white spirit.

To remove stains with a stain remover, work in towards the centre of the stain to avoid leaving a ring. Any remaining ring or dirt can usually be washed off with soap solution or clean water.

Wet stains such as those left by thin oil or lemonade must be wiped up immediately with an absorbent paper towel or the like, followed by a stain remover.

Plastic surfaces can be easily cleaned with lukewarm water and a synthetic detergent. A semistiff brush may be used.

The seats in the Saab 99 GL are upholstered in velour, which consists of closely woven fibre loops. Since fur can easily catch in these loops and tear, passengers wearing fur coats should avoid sitting in direct contact with the upholstery.

Textile carpets

Textile carpets should be vacuum cleaned regularly. The carpets may also be cleaned with a brush or with carpet shampoo applied by means of a sponge. It is advisable that vacuum cleaners used for this purpose be fitted with an earthed plug.

Seat belts

The seat belts should not be allowed to come into contact with such substances as polish, oil and chemicals. If the belts become dirty, they should be washed with soap and warm water or replaced. Never carry out any repairs to the belts yourself. Modifications to the intended funcioning of the belt must never be carried out.

Engine compartment

The engine compartment should be cleaned with an engine detergent and then rinsed off with hot water. Cover the headlights before you begin. If a high-pressure hose is used, avoid spraying direct onto the distributor, headlights, alternator or other electrical components.

Washing

The car should be washed frequently. When it is new, it should be washed by hand using only cold water and a clean, soft brush attached to a hose. Automatic car washes should be avoided during the first few months. After five to six months the paintwork will have hardened and, to make washing easier, a car shampoo or mild washing-up liquid may be added to the water, which may be warm but not hot. Use a cloth moistened with white spirit to remove any spots of asphalt or tar. Avoid using other chemicals since these may dry out the enamel. The underbody should also be washed regularly. Clean the underbody with special care at the end of the winter season. This is particularly necessary when automatic car washes are used as these do not generally include washing of the underbody.

Never wash the car in bright sunshine, and always wipe it dry with a clean chamois leather to avoid streaks on the paintwork.

Clean the windows carefully inside and out using a window cleaning solution.

Polishing

A new car should not be polished before three or four months have elapsed. Polishing is not necessary until the paintwork has oxidized and become dull. Normally this will not occur until the car is a few years old. A polish containing abrasive substances should only be used in exceptional cases on a new car.

The paintwork must be thoroughly cleaned before being polished to prevent it being scratched.

Touching up

Damaged paintwork should be treated as soon as it is discovered. The sooner the damage is remedied, the smaller will be the risk of corrosion setting in. Paintwork damage in a collision is obviously normally a job for a workshop. However, slight damage, like that caused by flying stones, you can remedy yourself. Your Saab dealer will stock all the necessary materials, such as brushes, primer and touch-up enamel. Provided that a layer of enamel remains, so that the bare metal is not exposed, touch-up enamel may be applied direct, once you have scraped away any dirt, etc. If the metal has been exposed and corrosion set in, use a knife to scrape away all visible rust, preferably back to the bare metal. Next, apply two coats of primer using a brush. Finally, apply thin layers of touch-up enamel until the damaged area is flush with the surrounding paintwork. Both primer and touch-up enamel must be well stirred before use. Allow each coat to dry thoroughly between applications.

Rustproofing

All Saab cars undergo rustproofing treatment before leaving the factory. However, to prevent corrosion the oil treatment carried out at the factory should be repeated within 12 months from delivery. This is necessary because rustproofing must be incorporated early on in the life of the car. If the above recommendations are carried out in good time, then subsequent rustproofing need only be carried out every two or three years.

Accessories

Specially designed accessories are available for Saab cars, e.g. head-restraint cushions, roof racks, ski racks, towing hooks for trailers and caravans, radios, etc. Further information about these and other accessories may be obtained from Saab dealers.

Motoring abroad

Saab has published a booklet entitled "Saab Service Europa" containing useful hints on motoring abroad and a list of Saab service facilities in Europe.

Chassis Number, etc.

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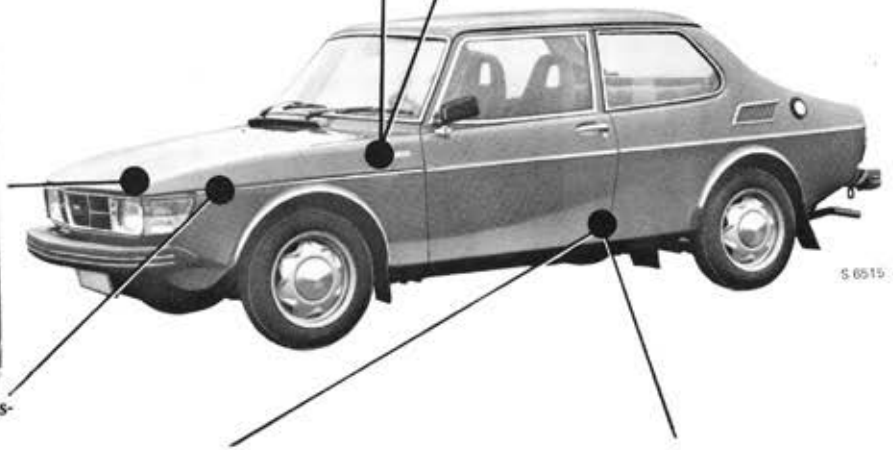
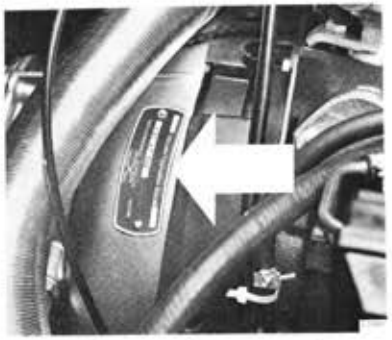
Please quote the chassis number in all correspondence concerning your car.

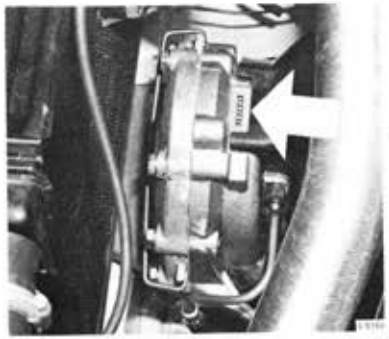
Chassis number plate

Colour code





Transmission number, automatic transmission



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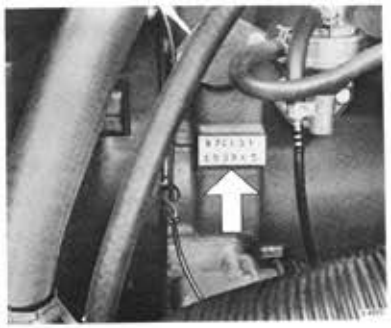
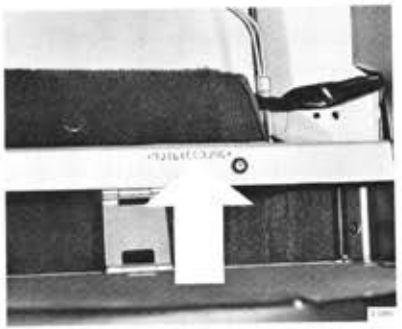


Engine number



Chassis number punched in car body, 2- and 3-door models (under back seat cushion)

Chassis number punched in car body, 4- and 5-door models (under back seat cuchion)

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Technical Data.

General, Saab 99 Sedan

Overall length incl. bumpers	14 ft 6 in (4420 mm)
Overall width	5 ft 6.5 in (1690 mm)
Overall height (kerb weight)	4 ft 8.75 in (1440 mm)
Road clearance (kerb weight)	6.75 in (175 mm)
Track, front wheels	4 ft 7.25 in (1400 mm)
Track, rear wheels	4 ft 8.25 in (1430 mm)
Wheelbase	8 ft 1.5 in (2473 mm)
Turning radius	17 ft 5 in (5.3 m)
Kerb weight (incl. fuel, coolant, tools, spare wheel)	2480–2610 lb (1130–1180 kg)
Max. total weight	3550–3620 lb (1610–1640 kg)
Weight distribution, front:	
Kerb weight	60.5–61.5 %
Max. total weight	51.0–52.5 %
No. of seats (incl. driver)	5
Luggage compartment volume (SAE)	12.6 cu ft (0.356 m^3)
Recommended load carrying capacity in luggage compartment:	
With 5 passenger à 150 lb (70 kg)	180 lb (80 kg)
For each reduction of the number of passengers in the rear seat the load can be increased with	70 lb (30 kg)
Recommended load carrying capacity with dropped back seat	480 lb (220 kg)
Max. roof rack load	220 lb (100 kg)
Max. trailer weight	3300 lb (1500 kg)

General, Saab 99 Combi Coupé

Overall length incl. bumpers	14 ft 10.4 in (4530 mm)
Overall width	5 ft 6.5 in (1690 mm)
Overall height (kerb weight)	4 ft 8.75 in (1440 mm)
Road clearance (kerb weight)	6.75 in (175 mm)
Track, front wheels	4 ft 7.25 in (1400 mm)
front wheels, Saab 99 Turbo	4 ft 7.75 in (1410 mm)
Track, rear wheels	4 ft 8.25 in (1430 mm)
rear wheels, Saab 99 Turbo	4 ft 8.75 in (1440 mm)
Wheelbase	8 ft 1.5 in (2473 mm)
Turning radius	17 ft 5 in (5.3 m)
Kerb weight (incl. fuel, coolant, tools, spare wheel)	2570–2750 lb (1170–1250 kg)
Max. total weight	3550–3730 lb (1610–1690 kg)
Weight distribution, front	
Kerb weight	58.0–60.0 %
Max. total weight	49.0–50.5 %
No. of seats (incl. driver)	5
Luggage compartment volume (SAE):	
With parcel shelf	12.4 cu ft (0.350 m^3)
Parcel shelf removed	15.4 cu ft (0.435 m^3)
Additional space under luggage compartment floor	1.1 cu ft (0.030 m^3)
Recommended load carrying capacity in luggage compartment:	
With 5 passenger à 150 lb (70 kg)	180 lb (80 kg)
For each reduction of the number of passengers in the rear seat the load can be increased with	70 lb (30 kg)
Recommended load carrying capacity with dropped back seat	220 lb (100 kg)
Max. trailer weight	3300 lb (1500 kg)

Carbureted engine (single carburetor)

Type	4-cyl., 4-stroke with overhead camshaft
Power rating, DIN at 5200 rev/min	73 kW (100 hp)
Max. torque, DIN at 3500 rev/min	162 Nm (119 ft lb)
Single carburetor	Zenith 175 CDSEVX
Compression ratio	9.2:1
Number of cylinders	4
Cylinder bore	3.543 in (90.0 mm)
Stroke	3.071 in (78.0 mm)
Cylinder volume	121 cu in (1.985 dm^3)
Valve clearance, cold engine:	
Inlet	0.006–0.012 in (0.15–0.30 mm)
Outlet	0.014–0.020 in (0.35–0.50 mm)
Order of firing (No. 1 cyl. nearest to the rear of the car)	1–3–4–2
Engine idling speed	800–900 rev/min
Oil volume incl. oil filter	3.1 imp quarts (3.5 litres)
Coolant volume	7 imp quarts (8.0 litres)
Thermostat opens at	190°F (88°C)

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Carbureted engine (twin carburetors)

Type	4-cyl., 4-stroke with overhead camshaft
Power rating, DIN at 5200 rev/min	79 kW (108 hp)
Max. torque, DIN at 3300 rev/min	164 Nm (121 ft lb)
Twin carburetors	Zenith 150 CDSEVX
Compression ratio	9.2:1
Number of cylinders	4
Cylinder bore	3.543 in (90.0 mm)
Stroke	3.071 in (78.0 mm)
Cylinder volume	121 cu in (1.985 dm^3)
Valve clearance, cold engine:	
Inlet	0.006–0.012 in (0.15–0.30 mm)
Outlet	0.014–0.020 in (0.35–0.50 mm)
Order of firing (No. 1 cyl. nearest to the rear of the car)	1–3–4–2
Engine idling speed	800–900 rev/min
Oil volume incl. oil filter	3.1 imp quarts (3.5 litres)
Coolant volume	7 imp quarts (8.0 litres)
Thermostat opens at	190°F (88°C)

Injection engine

Type	4-cyl., 4-stroke with overhead camshaft and fuel injection
Power rating, DIN at 5500 rev/min	87 kW (118 hp)
Max. torque, DIN at 3700 rev/min	167 Nm (123 ft lb)
Fuel injection	Bosch, type CI-system
Compression ratio	9.2:1
Number of cylinders	4
Cylinder bore	3.543 in (90.0 mm)
Stroke	3.071 in (78.0 mm)
Cylinder volume	121 cu in (1.985 dm^3)
Valve clearance, cold engine:	
Inlet	0.006–0.012 in (0.15–0.30 mm)
Outlet	0.014–0.020 in (0.35–0.50 mm)
Order of firing (No. 1 cyl. nearest to the rear of the car)	1–3–4–2
Engine idling speed	825–925 rev/min
Oil volume incl. oil filter	3.1 imp quarts (3.5 litres)
Coolant colume	7 imp quarts (8.0 litres)
Thermostat opens at	190°F (88°C)

Injection engine, turbo version

Type	4-cyl., 4-stroke with overhead camshaft
Power rating, DIN at 5 000 rev/min	107 kW (145 hp)
Max. torque, DIN at 3 000 rev/min	235 Nm (174 ft lb)
Fuel injection	Bosch, type CI-system
Turbo compressor, make	Garrett AiResearch
Compression ratio	7.2:1
Number of cylinders	4
Cylinder bore	3.543 in (90.0 mm)
Stroke	3.071 in (78.0 mm)
Cylinder volume	121 cu in (1.985 dm^3)
Valve clearance, cold engine:	
Inlet	0.006–0.012 in (0.15–0.30 mm)
Outlet	0.014–0.020 in (0.35–0.50 mm)
Order of firing (No. 1 cyl. nearest to the rear of the car)	1–3–4–2
Engine idling speed	825–925 rev/min
Oil volume incl. oil filter	3.1 imp quarts (3.5 litres)
Oil volume incl. oil filter and oil cooler	3.5 imp quarts (4.0 litres)
Coolant volume	7 imp quarts (8.0 litres)
Thermostat opens at	190°F (88°C)

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Manual transmission

Type ..... 4-speed, all-synchromesh with final drive and differential

Oil capacity:

Standard version ..... 2.2 imp quarts (2.5 litres)

Saab 99 Turbo ..... 2.6 imp quarts (3.0 litres)

Oil specification ..... Engine oil, Service SE, SAE 10 W 30 or 10 W 40

Hydraulic clutch ..... single dry plate with spring-loaded hub

Gear ratios, total:

	Standard version	Saab 99 Turbo
1st gear	12.94:1	11.87:1
2nd gear	7.80:1	7.16:1
3rd gear	5.23:1	4.80:1
4th gear	3.76:1	3.26:1
Reverse gear	14.23:1	13.06:1
Final drive ratio	3.89:1	3.89:1

Road speed at 1 000 rev/min engine speed:

165 SR 15:

	Standard version
1st gear	5.7 mph (9.1 km/h)
2nd gear	9.4 mph (15.1 km/h)
3rd gear	14.0 mph (22.5 km/h)
4th gear	19.4 mph (31.3 km/h)
Reverse gear	5.2 mph (8.3 km/h)

175/70 HR 15:

	Standard version
1st gear	5.5 mph (8.9 km/h)
2nd gear	9.1 mph (14.7 km/h)
3rd gear	13.7 mph (22.0 km/h)
4th gear	19.0 mph (30.6 km/h)
Reverse gear	5.0 mph (8.1 km/h)

Road speed at 1 000 rev/min engine speed:

175/70 HR 15:

	Saab 99 Turbo
1st gear	6.0 mph (9.7 km/h)
2nd gear	10.0 mph (16.1 km/h)
3rd gear	14.9 mph (23.9 km/h)
4th gear	21.9 mph (35.3 km/h)
Reverse gear	5.5 mph (8.8 km/h)

Automatic transmission

Type ..... 3-speed with torque converter, final drive and differential

Selector positions ..... P R N D 2 1

Oil volume, automatic transmission ..... 7 imp.quarts (8.0 litres)

Grade of oil .... Automatic transmission oil according to Ford specification M2C.33F or M2C.33G

Oil volume, final drive ..... 1.1 imp quarts (1.25 litres)

Grade of oil ... EP oil SAE 80 in accordance with API–GL–4 or GL–5

Primary gear ratio 0.97:1

Gear ratios: 1st gear 2.39:1

2nd gear 1.45:1

3rd gear 1:1

Reverse gear 2.09:1

Final drive ratio 3.89:1

Idling speed ..... with gear selector lever at P or N, see pertinent engine type

Gear-change speeds:

	Change-up speed	
	1st–2nd	2nd–3rd
Full throttle	about 31 mph (50 km/h)	about 50 mph (80 km/h)
Kick-down	about 40 mph (65 km/h)	about 69 mph (110 km/h)

	Change-down speed	
	3rd–2nd	2nd–1st
Full throttle	–	–
Kick-down	about 59 mph (95 km/h)	about 28 mph (45 km/h)

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Electrical system

Voltage	12 V
Battery capacity	60 Ah
Starter	0.8 kW (1.1 hp)
Alternator, standard version, max. charging current/voltage	55A/14 V
Alternator, Saab 99 Turbo, max. charging current/voltage	65A/14 V
Distributor contact gap	0.016 in (0.4 mm)
Order of firing (No. 1 cyl. nearest to the rear of the car)	1–3–4–2
Spark plugs, standard	NGK BP–6ES Bosch W 175 T30 Champion N–8Y
Spark plugs, Saab 99 Turbo, hard driving	NGK BP–7ES
Electrode gap	0.025–0.030 in. (0.6–0.7 mm)
Ignition setting:	
Setting at 800 rev/min (vacuum regulator disconnected)	17° BTDC
Fuses	
Length	1 in (25 mm)
Amperage: Nos. 1, 2, 11 and 12	5 A
Nos. 3, 4, 5, 9 and 10	8 A
Nos. 6, 7 and 8	16 A
Glass fuse (headlight wiper)	3 A

Light bulbs

	Power	Cap	Qty
Headlights (Halogen)	60/55 W	P 43 t–38	2
Front direction indicators	21 W	Ba 15 s	2
Rear direction indicators	21 W	Ba 15 s	2
Parking light/corner light	5/21 W	Bay 15 s	2
Rear lights	5 W	Ba 15 s	2
Brake lights	21 W	Ba 15 s	2
Number plate light, Saab 99 Sedan	5 W	Ba 15 s	2
Number plate light, Saab 99 Combi Coupé	5 W	Sv 8.5–8	2
Interior light:			
Dome	10 W	Sv 8.5–8	1
Rear view mirror	5 W	Sv 8.5–8	1
Luggage compartment	5 W	Sv 8.5–8	1

Lighting:			
Instrument	1.2 W	W1, 8d	2
Ignition lock	2 W	Ba 9 s	1
Gear selector	1.2 W	W1, 8d	1
Heater and vent. controls	1.2 W	W1, 8d	1
Warning light:			
Brakes	1.2 W	W1, 8d	1
Oil pressure	1.2 W	W1, 8d	1
Charging	1.2 W	W1, 8d	1
Seat belts	1.2 W	W1, 8d	1
Indicator light:			
Fuel	1.2 W	W1, 8d	1
Choke	1.2 W	W1, 8d	1
Direction indicators	1.2 W	W1, 8d	1
High beam	1.2 W	W1, 8d	1
Warning flashers	1.2 W	W1, 8d	1
Electrically heated rear window	1.2 W	W1, 8d	1

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Brake system

Make	Girling and ATE
Footbrake	hydraulic disc brakes with servo-unit, dual-circuit system serving diagonally opposed pairs of wheels
Brake fluid	in accordance with spec. DOT 3 or DOT 4
Disc diameter, front	11.02 in (280 mm)
Disc diameter, rear	10.63 in (269.5 mm)
Friction areas:	
Front wheels	222 sq in (1432 cm^2)
Rear wheels	170 sq in (1095 cm^2)
Total	392 sq in (2527 cm^2)
Handbrake	mechanical, acting on front wheels

Suspension

Suspension elements, front and rear	coil springs
Total spring compression/ elongation:	
Front	6.33 in (160 mm)
Rear	7.1 in (180 mm)

Shock absorbers

Type	hydraulic, telescopic
Max. working stroke, fitted to car:	
Front	3.6 in. (91 mm)
Rear	6.2 in. (158 mm)

Steering mechanism

Steering gear	rack-and-pinion type
Wheel turns lock-to-lock:	
Standard	4.1
Cars with power steering	3.6
Saab 99 EMS and 3-door 99 Turbo	3.4

Wheels and tyres

Wheel type	disc wheels
Rim dimension, standard version	5 J x 15" FHA
Rim dimension, Saab 99 Turbo	5.5 J x 15" H2
Tyres	tubeless radial tyre with steel cord
Factory-fitted tyres:	
Saab 99 GL, 99 GLE and 99 GL Combi Coupé	165 SR 15
Saab 99 EMS and 99 Turbo	175/70 HR 15
Tyre pressure:	
Light load, front and rear	27 psi (1.9 bar)
Full load,	
front	31 psi (2.2 bar)
rear	34 psi (2.4 bar)

The pressures apply to cold tyres.

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Front wheel alignment:	
Toe-in, manual steering, measured at rims	0.04 ± 0.04 in (1 ± 1 mm)
Toe-in, power steering, measured at rims	0 ± 0.04 in (0 ± 1 mm)
Camber	1/2 ± 1/2°
Caster	2 ± 1/2°
King pin inclination	11.5 ± 1°

Tool kit

Jack in bag with crank handle
Tool kit in bag, comprising:
- Combination pliers
- Phillips screwdriver
- Screwdriver
- Socket wrench for wheel nuts
- Socket wrench for spark plugs
- Allen key for removing and installing front passenger seat

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FUEL

Recommended octane rating: 97.

Fuel tank capacity: Cars with carburetor engines, 12.8 imp gals (58 litres); cars with injection engines, 12.1 imp gals (55 litres).

ENGINE OIL

Grade: In accordance with Service SE in the API-system.

Viscosity grade: SAE 10 W 30 or 10 W 40. If no oil meeting these specifications is available, oil with a viscosity of SAE 10 W 50 may be used. In extremely cold conditions with temperatures consistently below $-4^{o}F$ ($-20^{o}C$) oil with viscosity rating SAE 5 W 20 or 5 W 30 should be used.

Oil capacity: 3.1 imp quarts (3.5 litres). The distance between the upper and lower marks on the dipstick corresponds to a volume of 1 imp quart (1 litre).

TRANSMISSION OIL SPECIFICATIONS

Manual transmission:

Engine oil, Service SE, SAE 10 W 30 or 10 W 40.

Oil capacity: Standard version, 2.2 imp quarts (2.5 litres); Saab 99 Turbo, 2.6 imp quarts (3.0 litres).

Automatic transmission (oil change):

Automatic transmission oil according to Ford specification M2C.33F or M2C.33G.

Automatic transmission (for topping-up):

When obtainable, use automatic transmission oil complying with Ford specification M2C.33F or M2C.33G. When this oil quality is unobtainable, automatic transmission oil Type A, Suffix A or Dexron may be used.

EP oil SAE 80 should be used for the final drive (API–GL–4 or GL–5).

Oil capacities:

Automatic transmission 7 imp quarts (8.0 litres).

Final drive 1.1 imp quarts (1.25 litres).

TYRE PRESSURES

Light load, front and rear . . .	27 psi (1.9 bar)
Full load,	
front	31 psi (2.2 bar)
rear	34 psi (2.4 bar)

The pressures apply to cold tyres.

GLYCOL/ANTIFREEZE COOLANT

Antifreeze suitable for petrol engines with light alloy cylinderhead.

BRAKE FLUID/CLUTCH FLUID

In accordance with specification DOT 3 or DOT 4.

SAAB-SCANIA

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